# A Revision of *Rhodospatha* Poeppig (Araceae-Monsteroideae: Anepsiadeae)

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**ABSTRACT**

**The neotropical genus, *Rhodospatha,* is completely revised with 136 recognized species. It follows the just-published revision of the genus for Central America (Croat & Delannay 2024). A total of 91 new species are described here. Species are fully described, compared, and illustrated. A dichotomous key is included here and a separate Lucid Key has been prepared and will be published later online.**

**Keywords:** Araceae, *Rhodospatha*, Anepsiadeae, new species

*Rhodospatha*, a neotropical genus comprised of at least 136 species of mostly appressed-climbing epiphytes in the Araceae family, occurs in low- and middle-elevation, moist and wet forests from southern Mexico to Brazil and Bolivia. The last full revision of the genus was in 1908, which recognized only six species. Extensive field and herbarium work over the last 50 years has revealed many undescribed species; thus, it is appropriate to revise the genus. Here we provide a copiously illustrated, full revision of *Rhodospatha*, its history, intergeneric relationships, morphology, keys to the species, and treatments of all 136 species (91 newly named and described here), including taxonomy, typification, full description, distribution and ecology, and etymology.

## MATERIALS AND METHODS

The study is based on a nearly 50-year-long study of the genus throughout its range by the second author (Croat), observations and collections in more than 5000 separate sites throughout the

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Neotropics, and a two-year NSF funded field study devoted specifically to the study of *Rhodospatha* (1990–1993). A total of more than 3000 collections were studied and measured by both authors, principally those housed at the Missouri Botanical Garden (the world's largest assemblage of aroid specimens) or on loan from dozens of other institutions. The second author personally visited more than 90 herbaria in Europe, North America, Central America, and South America during work under an OPUS grant between 2015–2017.

The Lucid keys mentioned in this paper were the result of technology developed by the University of Melbourne but Lucid, Inc. is presently an independent company that markets this product. The tool we are using is a computer-generated key developed by the Royal Botanic Gardens Kew and the Missouri Botanical Garden that contains all important taxonomic characters of all species. It works by a process of elimination using only the most conservative and least variable characters. At present keys have been developed for *Adelonema*, *Anthurium*, *Dieffenbachia*, *Dracontium, Philodendron*, *Spathiphyllum, Stenospermation*, *Rhodospatha* and *Xanthosoma* [The latter two authored by Xavier Delannay] and work is under way to develop a Lucid Key for *Chlorospatha* and *Monstera*. These are largely unpublished, especially those with large numbers of new species but it is intended that all these keys will be placed online for public use. For examples of published keys see: http://www.lucidcentral.com.

Species treatments are presented in alphabetical order. All descriptions presented here are as complete as possible, following a pattern modified from that of Croat and Bunting (1979), with particular details ascribed to the surface features and morphology of vegetation owing to the large number of sterile species recognized.

A general state of the living color and texture of leaf blades (where known) and the resulting features on drying are both described. Furthermore, near the end of the vegetative description, a special, more detailed description of the magnified dried leaf blade surface is given under "adaxial surface and abaxial surface." While most botanists do not pay particular attention to these features or characters, we have found them to be very interesting and, while difficult to put into words, we have created a vocabulary for describing such features in a systematic manner. Often dried leaves that appear nearly identical to the naked eye are remarkable dissimilar when seen in a magnified view. A leaf surface may seem remarkably smooth in an unmagnified view. However, in a magnified view, the surface could appear:

1. minutely striate with strictly parallel lines;
2. with a series of intermittent ridges of varying length and of proximity
3. with intermittent ridges mixed with granulations;

4. strictly and uniformly granular;
5. with a mixture of closely spaced granulations intersperced with thick granules or discolored pustules;
6. with an admixture of both dark and light drying granules;
7. with granules sometiumes sparsely interspersed with pustules (these drying light or dark);
8. with sometimes the minute parallel ridges or striations e inspersed with oblique ridges that interconnect with other ridges and sometimes create what we refer to as 'areolate-ridged" condition;
9. or, with leaf blade surfaces aometimes sparsely covered with diffuse paler areas, these usually irregularly subrounded and so indistinct that the might be present only on portions of the dried leaf surface.

Other features evident on the dried, magnified surface include clearly evident cellular inclusions, perhaps raphides or druzes or some other crystalin deposit, even sometimes in the fresh leaf. We refer to this condition as being "short pale-lineate." These pale lineations are typically hyphen-shaped and mostly paler than the surface. Alternatively, a condition ius sometimes encountered where the surface may have comparable short lines darker than the surface; we refer to as "dark short-lineate." Still anothert condition is where surfaces can be densely dark-speckled or pale-speckled (either in living or dried condition). While granulations are typically narrowly mounded and uniform, sometimes the granulations can be larger, broader, and less localized, a condition referred to as "lumpy-granular." Sometimes the presence of short pale-lineations are more prevalent along the major veins and in other cases evenly distributed across the entire blade surface.

In most cases, the microfeatures discussed are uniformly present on all the leaves of a given species as long as the specimens are dried under the normal "hot drying" process, which typically needs temperatures exceeding 38 C (100 F) to create uniform drying conditions. Dryers operating at temperatures of only slightly above room temperature tend to produce dried specimens that remain green. Unfortunately, such abnormally dried specimens lose their predictable colorations, making plant identification much more difficult. We have not studied how such abnormally dried specimens affect the micro features of dried blade surfaces.

Life zone ecology mentioned is based on the Holdridge life zone maps (Holdridge 1967, Holdridge et al. 1971) where they exist and in areas where they do not exist (Mexico, Brazil and the Guianas) estimates are sometimes made based on experience and comparison to other areas visited.

All photographs of living plants are by Thomas B. Croat, unless noted otherwise.

**Justification for Describing Species without Inflorescences**

In this work, we have described significant numbers of species which are not based on fertile specimens and therefore we need to explain the reason. In studying any group of plants, one should be interested to know how it is evolving, how many species have evolved, where they have prospered, and where they have failed to evolve. It is also important to note which morphology and which ecological parameters have predominated, which habitats, ecological life zones and which growth habits have predominated.

*Rhodospatha*, like most aroid genera, has many morphological features easily observed and measured and usually the characters of the inflorescence are less reliable than are vegetative features. Even most species in the large genus *Anthurium,* with perhaps 3000 species, can be distinguished by a careful analysis of its many vegetative differences. Alternatively, inflorescences alone only rarely allow identification. It is not that fertile characters do not help; it is mostly that they are not usually absolutely needed.

In *Rhodospatha*, the inflorescence is somewhat less important than in other aroid genera. The spathe color before anthesis is commonly green and it might be variously colored at anthesis but usually the spathe falls free on the night of anthesis and is rarely found so for most collections we do not know the exact color of the spathe at anthesis. Moreover the spadices do not have a broad spectrum of coloration (this is true somewhat for all of the *Monsteroideae*) and they are nearly all stipitate, narrowly oblong and in dried condition do not provide a lot of distinguishing features. Alternatively, vegetative characters of *Rhodospatha* are strong and reliable.

In addition to size and shape of blades, a remarkable diversity in the evolution of secondary venation patterns with both the number and spacing of primary lateral veins exists in *Rhodospatha*. Also, an array of differences is typically evident, including the alternation pattern of the interprimary veins, the lesser interprimary veins, the minor veins and cross-veins, and not to mention fresh and dried coloration of the blades and the other markings. These include short pale lineations, dark speckling, pale speckling (or an admixture of the two), pustules and type of granulation on surfaces.

The dried blade surfaces of leaves of *Rhodospatha* have proven to be highly reliable in denoting differences of species and all have been carefully observed and described in this study. The petiole sheath alone provides another remarkable and reliable character, especially the degree of sheathing but more importantly the nature of the margin, which may be deciduous or variously corrupted in the growing process. Growth habit (terrestrial, epiphytic, or climbing epiphytic), stem length, internode girth and dried epidermal patterns are also variable and reliable characters.

Another principle that further justifies identifying *Rhodospatha* by vegetative means is that, like other aroids, they tend to be highly endemic and localized and rarely are many species together in any given area. As a result, most sites have fewer than six species, mostly even far fewer than that. Owing to its high rate of endemism and the fact that there are few truly widespread species, most species are not wide ranging so that separating them by sterile condition and geography alone is generally easy. The few thruly widespread species include *Rhodospatha latifolia*, *R. moritziana*, and *R. oblongata* with a few more, such as *R. amazonensis, R. brachypoda, R. monsalveae*, *R. katipas*, *R. neillii,* and *R. wendlandii*, moderately widespread in certain regions. Such regions would be those that are uniform and, thus, not so likely to create physical or ecological barriers needed for evolution, such as the flat and uniform Amazon basin with the predominance of *Tropical Moist Forest* life zones, where many of the species mentioned above are found, except for *R. monsalveae* (ranging from sea level to high elevations on the Pacific slopes of the Andes), *R. moritziana* (ranging from Panama to Ecuador on the Pacific slopes and extending east to northern Venezuela), and *R. wendlandii* (ranging from southern Mexico across all of Central America to the northern half of the Pacific coast of Colombia).

Because lifeform diversity, the size of genera, and phytogeographic patterns are good characteristics to better understand the evolution of plant groups and the success of those groups, we have chosen actually to enumerate *Rhodospatha* carefully based on good taxonomic characters rather than to ignore all the sterile species and not include them in our study. A few species have also been enumerated but not formally published as new but instead are well described and given a number because they are species that, while surely different, are presently represented by specimens that we deemed to be perhaps too immature to be considered adult plants. Still, by including all of the detail known, we will encourage the re-collection of such species and their ultimate complete study. We expect the same to be true for all the other infertile species we have described. They will be prime targets for re-collection and, thus, will become better known in the process.

We feel confident that we have taken the appropriate path to understanding the taxonomy and evolution of this group and to allow the genus to be properly compared with other aroid genera in terms of species diversity, morphological complexity, and phytogeography.

## HISTORY

The genus *Rhodospatha* was described by Poeppig in 1845 in Poeppig and Endlicher's *Nova genera et species plantarum* (Poeppig 1845) and was the only genus described in the Araceae by Poeppig and one of only a few genera not described by Linnaeus, Schott, or Engler. Poeppig's work described two species from Peru, *R. latifolia* and *R. oblongata*. Both have proven to be among the most common, widespread species in South America. In 1857 Schott described *R. moritziana* (Schott 1857), based on a specimen collected by Moritz in Venezuela.

A year later, in 1858, Schott published his *Genera Aroidearum* (Schott 1858a) in which he recognized three different genera based on material currently recognized as *Rhodospatha*. In that work, he described two additional new genera. He created a new genus *Anepsias* for *R. moritziana*, based the apparent distinction of having a greater number of locules (2–6 for *Anepsias* versus a maximum of 2 for *Rhodospatha*). This distinction has proven unwarranted (see discussion of ovules under section on Morphology) and the genus *Anepsias* was reduced once again to *Rhodospatha* (Croat 1978, p. 219).

In the same 1858 work, Schott also described a new genus *Atimeta* with two species, *A. videniana* and *A. martii*. The genus *Atimeta* was distinguished from *Rhodospatha* based on the lowermost flowers on the spadix being merely pistillate. The character has proven to be variable. The genus *Atimeta* was synonymized with *Rhodospatha* by Engler and both species were synonymized with *R. oblongata*. In the same publication under the genus *Rhodospatha* Schott described *R. poeppigii*, later synonymized by Engler (1908) with *R. latifolia*.

*Rhodospatha heliconiifolia* was described in a separate publication in 1858 (Schott 1858b) from a cultivated collection of unknown origin. Between 1860 and 1864, Schott described an additional four species in three different publications (Schott 1860, 1861, 1864). These were *R. lechleriana*, synonymized by A. Engler with *R. Latifolia*; *R. surinamensis*, synonymized by A. Engler with *R. oblongata*: *R. blanda*, described from Ilheos in Bahia and is synonymized here with *R. latifolia*: and *R. wendlandii*, described from Costa Rica. The latter is another widespread species ranging from Mexico to Colombia. Thus, by the end of Schott's career with *Rhodospatha* in 1860, there

were only four described species which are currently recognized, namely *R. latifolia*, *R. heliconiifolia*, *R. oblongata*, and *R. wendlandii*.

Adolf Engler (1881) began his work with *Rhodospatha* by describing *Rhodospatha blanda* ssp. *melinonii,* a taxon which has proven to be a *Heteropsis*. Later in their treatment in *Das Pflanzenreich*, Engler and K. Krause (1908) resurrected var. *melinonii* as a distinct species *Heteropsis melinonii* from *R. blanda* ssp. *melinonii*. Jonker and Jonker (1953), during their studies on the Flora of Suriname, recombined *R. melinonii* with *Heteropsis* as *H. melinonii*.

Another cultivated plant of unknown origin, *Rhodospatha picta*, was described by George Nicholson in the *Gardener's Dictionary* in 1887 (Nicholson 1887). This species has generally been treated as a synonym of *R. moritziana*, though its identity is uncertain as it has not yet been typified, and it appears to be based on *Spathiphyllum pictum*, which has been viewed as a synonym of *Dieffenbachia seguine*.

The turn of the century brought a flurry of activity with *Rhodospatha***.** Between 1905 and 1910 twelve names were published in *Rhodospatha*, primarily by Engler and his associate Kurt Krause and by Luis Sodiro in Ecuador. In 1905, *Rhodospatha longipes* was described from Nariño Department of Colombia. In 1908 Engler and K. Krause published a revision of *Rhodospatha* in *Das Pflanzenreich*. This revision included eleven names and the publication of three new species, *R. densinervia* from Ecuador, *R. costaricensis* that has been transferred to *Monstera* (Croat & Grayum 1987), and *R. tuerckheimii*, which has proven to be a *Stenospermation*. Also included in this revision was the doubtful (see above) *R. picta*.

Thus, Engler and K. Krause's 1908 revision contained only six species that are still recognized as legitimate in *Rhodospatha*: *R. densinervia*, *R. heliconiifolia*, *R. latifolia*, *R. longipes; R. oblongata*, and *R. wendlandii***.** Of these, only *R. wendlandii* is in Central America.

Two years after their revision of *Rhodospatha*, Engler and K. Krause described a species from Bolivia, *R. boliviensis*. It was later synonymized with *R. latifolia*.

Published in the same year as Engler's *Das Pflanzenreich* revision but apparently too late to be seen by Engler, Sodiro (1908) described *Rhodospatha dammeri*, *R. dissidens*, *R. kraenzlinii*, *R. macrophylla*, *R. robusta*, and *R. statutii*. Nearly all these taxa are based only on specimens deposited at the Sodiro Herbarium in Quito (QPLS) and are not allowed to be sent on loan so they are still poorly known. The type of *R. statutii* has never been located and its placement is uncertain. *Rhodospatha macrophylla* is believed to be synonymous with *R. densinervia*.

In 1913 another species of cultivated origin, *Rhodospatha forgeti* (purportedly from Costa Rica), was described (Brown in Stapf 1913). While the species is distinct, its exact provenance was unknown for more than 100 years. Recently the species was rediscovered and redescribed and the new details are included in this revision because for more than 100 years its exact provenance was unknown (Cedeño et al. 2023).

Little activity took place with actual species of *Rhodospatha* for the next 28 years. Only one species, *R. venosa* (Gleason 1929) was described during this period. Then J. F. MacBride (1931) transferred all Peruvian *Stenospermation* to *Rhodospatha*. These new combinations included *R. crassifolia*, *R. flavescens*, *R. mathewsii*, *R. popayanensis*, *R. Spruceana*, and *R. weberbaueri*. *Stenospermation* is a distinct genus, in no way confused with *Rhodospatha,* so all of these transfers were unnecessary and only led to confusion.

The next *Rhodospatha* species described were from Central America. The first was *R. nervosa* (Lundell 1941), now synonymized with *R. wendlandii*. E. Matuda (1954) transferred *Monstera roseospatha* Matuda to *Rhodospatha***.** This taxon is now considered *R. wendlandii*.

No activity with *Rhodospatha* took place for another 21 years when a number of species were described, principally by G. S. Bunting. These included *R. badilloi*, *R. perezii*, and *R. bolivarana* (Bunting 1975), *R. falconensis, R. guasareensis*, and *R. steyermarkii* (Bunting 1986) as well as *R. brachypoda* and *R. cardonae* (Bunting 1988). Michael Madison described *R. pachysperma* (Madison 1976), which is synonymous with *R. venosa.*

Thus, at the beginning of the investigations by Croat a total of 22 recognized species had been described. *Rhodospatha pellucida*, a species ranging from Nicaragua to Panama, was published in 1999 (Croat 1999). Croat and Mora (2004) published *R. monsalveae* in their studies on the Flora of Cabo Corrientes. Owing to the work on the Flora of Río Cenepa in Amazonas State of Peru, five new species, *R. acosta-solisi*t, R*. brentberlinii*, *R. katipas*, *R. mukuntakia*, and *R. piushaduka*, were described (Croat et al. 2005). In 2010, *R. herrerae* was published for studies with the Flora of La Planada in Nariño Department in Colombia (Croat et al. 2010). In 2012 a Brazilian species, *R. arborescens* was published (Temponi et al. 2012). More recently, *R. barbourii* (Croat et al. 2021) and *R. neillii* (Delannay and Croat 2021) were also published.

Independently from this work, in 2019, *Rhodospatha rupicola* from Colombia was also published (Alzate-Lozano et al. 2019).

Most recently, three new species, *Rhodospatha osaensis*, *R. antonensis*, and *R. ovatifolia*, were described and the rediscovery of *R. forgetii* (Brown 1913) was reported (Cedeño et al. 2023).

Finally, Croat and Delannay just published a revision of *Rhodospatha* for Mexico and Central America (Croat and Delannay 2024) in which they described eight new species: *R. antonioana*, *R. burgeri*, *R. dressleri*, *R. guanchensis*, *R. heraclioana*, *R. knappiae*, *R. morii*, and *R. vandanilssoniae*.

## CURRENT REVISION

So, at the beginning of this revision, a total of 45 *Rhodospatha* species had been published. In this revision, we are publishing 91 new species and four numbered species insufficientlyknown and characterized to be named. Those new species are:

*R. acostae* Croat & Delannay
*R. albertogomezii* Delannay & Croat
*R. alversonii* Croat
*R. amazonensis* Delannay & Croat
*R. benavidesiae* Delannay & Croat
*R. berlinii* Delannay & Croat
*R. besseae* Croat
*R. bilsaensis* Croat
*R. bogneri* Croat
*R. brandii* Croat
*R. buntingii* Delannay & Croat
*R. cardenasiae* Delannay & Croat
*R. cesarensis* Delannay & Croat
*R. chazutensis* Delannay & Croat
*R. chocoensis* Croat
*R. croatii* Delannay
*R. cuadrosii* Croat
*R. dalyi* Delannay & Croat
*R. dariosanchezii* Delannay & Croat
*R. davidsei* Delannay & Croat
*R. deliciasensis* Delannay & Croat
*R. dorothybayae* Delannay & Croat
*R. endesaensis* Croat
*R. enikolopovii* Croat & Loayza
*R. felipecardonae* Delannay & Croat
*R. fosteri* Croat

*R. fuentesii* Delannay & Croat
*R. gentryi* Delannay & Croat
*R. gorgonensis* Delannay & Croat
*R. grayumiana* Croat
*R. gregortizii* Delannay & Croat
*R. hammelii* Delannay & Croat
*R. hannoniae* Croat
*R. harlingiana* Croat
*R. hermescuadrosii* Delannay & Croat
*R. huarangoensis* Delannay & Croat
*R. idroboi* Croat
*R. inaequilatera* G.S. Bunting ex Croat
*R. indanzensis* Delannay & Croat
*R. ipariensis* Delannay & Croat
*R. iquitosensis* Croat
*R. jaramilloana* Croat
*R. jimwestii* Croat & Delannay
*R. julianii* Croat
*R. kessleri* Croat
*R. killipii* Delannay & Croat
*R. kosnipatensis* Delannay & Croat
*R. liesneri* Delannay & Croat
*R. lindaalbertiae* Delannay & Croat
*R. lorenzoensis* Croat
*R. madisonii* Delannay & Croat
*R. manuelii* Croat & Delannay
*R. marcelamorae* Delannay & Croat
*R. mistratoensis* Delannay & Croat
*R. narinoensis* Croat & Delannay
*R. nunezii* Croat
*R. ojealensis* Delannay & Croat
*R. oxapampaensis* Delannay & Croat
*R. oyacachensis* Delannay & Croat
*R. pailonensis* Croat
*R. palaciosiana* Croat

*R. palcazuensis* Croat & Delannay
*R. paraguasensis* Croat
*R. parvifolia* Croat
*R. plowmanii* Croat
*R. pranceana* Croat
*R. quinindeensis* Delannay & Croat
*R. rangelii* Delannay & Croat
*R. renteriae* Croat & Delannay
*R. rimachii* Croat
*R. rioclaroensis* Delannay & Croat
*R. rojasiae* Croat
*R. romeroi* Delannay & Croat
*R. rosaortiziae* Delannay & Croat
*R. rubropunctata* Croat
*R. rudasii* Delannay & Croat
*R. saundeensis* Delannay & Croat
*R. schultesii* Croat
*R. schunkei* Croat & Delannay
*R. silverstonei* Croat
*R. simitiensis* Delannay & Croat
*R. sparrei* Croat
*R. stenophyllon* Croat & Delannay
*R. tachirensis* Delannay & Croat
*R. tocachensis* Croat
*R. tolimensis* Delannay & Croat
*R. torresii* Delannay & Croat
*R. valenzuelae* Delannay & Croat
*R. vasquezii* Delannay & Croat
*R. yotocoensis* Croat
*R. zamorana* Croat

Forty-five previously published species are also included here, for a total of 136 species treated in this revision. The previously published species are:

*R. acosta-solisii* Croat
*R. antonensis* Croat & O. Ortiz

*R. antonioana* Croat
*R. arborescens* Temponi & Croat
*R*. *badilloi* G. S. Bunting
*R*. *barbourii* Croat
*R*. *bolivarana* G.S. Bunting
*R. brachypoda* G. S. Bunting
*R*. *brentberlinii* Croat
*R. burgeri* Croat
*R. cardonae* G. S. Bunting
*R. dammeri* Sodiro
*R. densinervia* Engl. & K. Krause
*R. dissidens* Sodiro
*R. dressleri* Croat
*R. falconensis* G. S. Bunting
*R. forgetii* N.E. Brown
*R. guanchensis* Croat
*R. guasareensis* G. S. Bunting
*R. heliconiifolia* Schott
*R. heraclioana* Croat
*R. herrerae* Croat & P. Huang
*R. katipas* Croat
*R. knappiae* Croat
*R. kraenzlinii* Sodiro
*R. latifolia* Poepp.
*R. longipes* Engl.
*R. monsalveae* Croat & D. C. Bay
*R. morii* Croat
*R. moritziana* Schott
*R. mukuntakia* Croat
*R. neillii* Croat
*R. oblongata* Poepp.
*R. osaensis* Croat, Grayum & Cedeño
*R. ovatifolia* Croat, Grayum & Cedeño
*R. rupícola* Edwin Trujillo, Zuluaga & Alzate-Lozano
*R. statutii* Sodiro

*R. steyermarkii* G. S. Bunting
*R. venosa* Gleason
*R. vandanilssoniae* Croat & M. H. Grayum
*R. wendlandii* Schott

Besides the new species descriptions, three major changes were made by the authors to the taxonomy of *Rhodospatha*.

The first change was the realization that *Rhodospatha brachypoda* was a heterogeneous species with disjointed populations widely separated geographically, one in the Guianas and the other in the western Amazon Basin from Ecuador to Bolivia. Upon careful study of the two populations, the authors determined that the two groupings represented two distinct species. The population centered in the Guianas retained the name *R. brachypoda* since the type was from that area, while a new species, *Rhodospatha amazonensis*, was created to encompass the specimens from the western Amazon Basin.

The second change came from the observation that the distribution of what had been called for a long time *Rhodospatha oblongata* represents three distinct populations. The first one represented specimens from low elevations in the Amazon Basin from Peru to Brazil, eastern Colombia, Venezuela and the Guianas; the second represented specimens from low elevations on the Pacific slopes of Colombia and northern Ecuador; and the third one represented specimens from high elevations in the Cordillera Occidental and the Cordillera Central of Colombia. Upon further study, we determined that the three populations represent three very distinct species. The population centered on the Amazon Basin, Venezuela and the Guianas retains the original *R. oblongata* name, with the type being from that area. We determined that the second population on the Pacific slopes was really *Rhodospatha longipes*, a species that had long been thought to be the same as *R. oblongata* but that is actually very different, both anatomically and geographically, so we are reinstating this species in this revision. The type for *R. longipes* is from Nariño Department in western Colombia. Finally, the third population also represents a very different and new species that we are naming *Rhodospatha croatii*.

The third change came from the observation that the distribution of what had been called for a long time *Rhodospatha pellucida* is divided into two separate clusters: one centered in Central America from Nicaragua to Panama, and the second centered in South America in western Colombia and Ecuador. Upon analysis of the specimens for both species, the authors determined that the specimens from Colombia and Ecuador were a distinct new species, published here as

*Rhodospatha madisonii*, while the specimens from Central America retained the name *Rhodospatha pellucida* because the type for that species was from that area.

## INTERGENERIC RELATIONSHIPS

*Rhodospatha* is a member of subfamily *Monsteroideae*, a group with three monophyletic, molecular based tribes, *Anepsiadeae* (incl. *Heteropsideae*), *Monstereae* (including Anadendreae) and *Spathiphylleae* (Cusimano et al. 2011, Tam et al. 2004, Cabrera et al. 2008). The Monstereae contains six genera, *Amydrium*, *Anadendrum*, *Rhaphidophora*, *Epipremnum*, *Scindapsus*, and *Monstera*. The *Anepsiadeae* contains *Alloschemone*, *Rhodospatha*, *Stenospermation*, and *Heteropsis*. The first five genera of the *Monstereae* are strictly palaeotropical and not closely related to *Rhodospatha*. Only *Monstera* could in any way be confused with *Rhodospatha* in the neotropics and it differs radically in having reticulated tertiary veins. In the *Anepsiadeae* the generic distinctiveness is even more pronounced because *Alloschemone* and *Heteropsis* are radically different than *Rhodospatha*. While anyone familiar with aroid genera would not confuse most of the species of *Rhodospatha* with either *Monstera* or *Stenospermation* all three of the genera mentioned have had members described in the incorrect genus and a few species are sufficiently close to other genera that some might be misidentified. The key which follows, modified from *Genera of Araceae* (Mayo et al. 1997), gives the technical characters to separate *Rhodospatha, Stenospermation*, and *Monstera*.

### Key to the Genera *Rhodospatha, Stenospermation,* and *Monstera*

**1a.** Seeds globose to oblong, 6–22 mm long, the raphe S- shaped; endosperm absent; ovules 2 per locule; leaf blades variously shaped, often perforated or pinnatifid or both . . . . **Monstera**

**1b.** Seeds fusiform, claviform or lenticular, less than 3 mm long; endosperm present; ovules (2)3-many per locule; leaf blades entire . . . . . **2**

**2a.** Ovary with placentation basal; seed fusiform to claviform; leaf blades thickly coriaceous . . . . . **Stenospermation**

**2b.** Ovary with placentation axile; seed lenticular and flattened, strongly curved; leaf blades mostly membranaceous . . . . . **Rhodospatha**

Despite their strong dissimilarities, *Rhodospatha* has been confused with *Stenospermation* by some authors, particularly J. F. MacBride (1936). For his treatment of the Araceae for the Flora of Peru, he considered them the same genus and transferred many species of *Stenospermation* to *Rhodospatha*. The two genera are dramatically different, especially in the nature of their leaves, with *Rhodospatha* typically having larger, somewhat banana-like leaves with conspicuous primary lateral veins, and *Stenospermation* having generally smaller leaves with the primary lateral veins obscure or difficult to discern in living condition. *Rhodospatha* typically has the primary lateral veins interrupted by a descending and ascending order of interprimary veins whereby the interprimary veins (these usually alternating with the primary lateral veins) are themselves separated from the adjacent veins by yet another even smaller vein. Thus, the order would be thick, thin, medium, thin, thick with this pattern being endlessly repeated. This odd pattern is found only in *Spathiphyllum* and *Rhodospatha* among the Neotropical genera. Typically, species of *Rhodospatha* have from one to three interprimary lateral veins on each side between each consecutive pair of primary lateral vein. Each interprimary vein is interceded by yet smaller interspaced veinlets with the intervening area comprising relatively uniform minor veins. In contrast, the veins of *Stenospermation*, even on dried specimens where the veins are more apparent, are more nearly uniform, albeit richer in micro-characters such as short pale lineations, cross-veins, closely aligned areolate cells or close ridges or striations. In a comparable fashion *Rhodospatha* micro-characters are usually restricted to speckling or larger discolored punctations. While living *Stenospermation* plants have few differences on fresh leaves, their dried leaf surfaces are remarkably different based on the nature of the venation of the adaxial blade surface. See for example Figs. 3–8 in Natalia Castaño's unpublished thesis on the *Stenospermation* of Colombia (Castaño Rubiano 2010). The same is true for the dried adaxial blade surfaces of *Rhodospatha* but the characters in *Rhodospatha* are considerably fewer in both number and quality for being distinct.

## MORPHOLOGY

### Vegetative Growth

*Rhodospatha* species are usually appressed-climbing epiphytes growing to usually no more than 3 or 4 meters but can occasionally be slightly higher in trees. Some species can flower at no more than 2 m from the ground. Another habit form are species that grow along stream banks or in rocky habitats, for example *R. moritziana* that has a stem creeping across the ground with leaves rarely more than 2 m from the soil. In rare situations, *R. moritziana* may also climb trees in the same habitat, especially in heavily shaded areas with high humidity.

Stems range in diameter from about 1 cm to 5 cm and while most have short internodes, usually broader than long or about as broad as long, younger plants typically have moderately long internodes; flagelliform shoots are often formed which allow a plant to spread and range broadly searching for other host plants. Unlike most *Monstera* the stems of many terrestrial species (e.g. *M. ovata*) with strictly terrestrial habit usually form stilt roots in the lower part of the stem to help support the erect stem. While *Monstera* usually have heteromorphic development of leaves with juvenile and adult leaves being markedly different, the juvenile leaves of *Rhodospatha* are not markedly different from the adult blades except by being smaller and usually narrower. Seeds typically germinate in the soil on the forest floor and after developing into a small seedling, branches growing scototropically creep with long internodes across the forest floor, stopping to establish yet another small plant. Eventually this creeping growth finds a tree or rock where growth becomes phototropic and upright. Further growth leads to shorter and thicker internodes resulting in an adult plant. As in *Monstera* (Madison 1977, Cedeño et al. 2023), growth in *Rhodospatha* is rarely static and plants can branch, grow to the ground and find another tree so a single plant can eventually range into several trees.

Petioles in *Rhodospatha* are typically heavily sheathed but the extent of sheathing varies from species to species. The petiole sheath provides other good characters in that the sheath margins can be deciduous or persistent and they can persist intact or as fibers or with a thin hyaline margin.

Leaf blades in *Rhodospatha* are typically large and fan-like, usually somewhat oblong-elliptic to oblong or oblong-oblanceolate with the blades merely subcoriaceous, rarely more coriaceous, and mostly semiglossy on both surfaces. Blades are typically acuminate at the apex and acute to rounded at the base, rarely weakly subcoriaceous.

The midrib is uniformly sunken and most commonly somewhat paler on the adaxial surface and typically thick and narrowly rounded on the abaxial surface with prominent primary lateral veins, these sunken adaxially and narrowly rounded abaxially with interprimary lateral veins 1 or 2, sometimes three between each pair of primary lateral veins. The ranking of these intermediate veins is not regular but instead they are alternatively thicker or thinner in a repeating ascending and descending manner. A similar venation pattern is often present with *Spathiphyllum* but *Stenospermation*, the genus most closely related to *Rhodospatha*, has a more regular pattern of primary lateral veins, albeit one of an extremely weak nature (scarcely apparent on fresh leaves and even weak on dried specimens).

**Inflorescences**

Inflorescences are born at or near the apex of the stem and solitary (although two or more inflorescences can be born in close succession and thus be present at the same time). Nevertheless, the spathes of adjacent inflorescences are never open simultaneously on the same plant.

Peduncles are erect, typically stout, usually moderately elongate. Commonly the peduncle is erect with the spathe held erect. This contrasts with the related *Stenospermation* where many species have peduncles that are cernuous with the spathe turned upside down. The peduncles are often enveloped entirely or in part with a sheath-like bract, the prophyll and this allows the sometime weak peduncle to remain erect even during the development of sometime heavy infructescence. The spathe begins to loosen on the morning and afternoon of first day of flowering. Pollination is carried out by beetles who enter the spathe even before it opens by crawling through the space created at the base of the spadix. Typically, by the following morning the spathe is open but ready to fall off with the spadix covered with a messy liquefied gel mixed with a dense slurry of pollen.

The spathe of *Rhodospatha* is typically large and conspicuous, boat-shaped and broadly ovate or oblong-ovate, abruptly cuspidate, yellowish white, cream, purplish or pink within, caducous after anthesis. It encircles the spadix several times so that when it begins to loosen it expands laterally, blousing out with a space below the leading edge that enables insects, even rather large beetles to crawl into the spiraled layers of the spathe to get inside the now much enlarged chamber. The spathe begins to loosen during the afternoon of the first night's flowering episode. So far as we know, no thermogenic heat peaks occur but pollination takes place sometime during the first night, if at all. The spathe by early morning is open but typically loosening and non-functional. For this reason, herbarium specimens with intact spathes are rare since it is rare for plant collectors to be in the field in the early morning hours.

The spadix may be sessile or stipitate and is moderately long cylindroid-tapered, commonly at least weakly tinged reddish, purplish, or orangish, sometimes also bluish green and glaucous. The flowers are arranged in tight spirals with many flowers visible per spiral. The flowers are naked with four stamens but the anthers are not exposed. Instead, the pollen is extruded and accumulates on the spadix and is particularly evident as a slushy mess on the spadix in the early morning hours after anthesis.

Pollination might be effected by dynastine scarab beetles that enter the spathe during the female-receptive period when the spathe is still partially furled. Beetles enter the spathe late in

the day when the spathe first begins to loosen and leave the following day when the spathe begins to fall off. See for example *Grayum & Schatz 5260, R. pellucida*.

In the same way that mature open spathes are only rarely studied because they are not frequently seen, the berries are mysteriously poorly known. In the nearly 60 years that the senior author has been studying in the tropics, and three years devoted to a study of *Rhodospatha*, no seemingly mature berries were observed. The pistils become thickened, even subfleshy and colorful but never to the point that they were loosened and easily removable. They never appeared mature in the same manner as with other aroid genera. Alternatively, they never appear to be eaten or partly eaten so how they are dispersed remains a mystery.

## TAXONOMIC REVISION

***Rhodospatha*** Poepp. in Poeppig & Endlicher, *Nov. Gen. Sp.* 3: 91. 1845. — Type: *Rhodospatha latifolia* Poepp. (lectotype, designated by Nicolson in *Taxon* 16: 518. 1967).

*Anepsias* Schott, Gen. Aroid. 73. 1858. — Type: *Anepsias moritzianus* (Schott) Schott [= *Rhodospatha moritziana* Schott].

*Atimeta* Schott. Gen. Aroid. 71. 1858. — Type: *Atimeta videniana* Schott [= *Rhodospatha oblongata* Poepp.].

Evergreen, usually climbing herbs, producing flagelliform shoots; trichosclereids abundant. **Leaves** many, distichously arranged; **petiole** geniculate distally, **sheath** long, persistent to marcescent; **blade** oblong-elliptic, ±oblique, always entire; primary lateral veins pinnate, numerous, running into distinct marginal vein, secondary and tertiary laterals parallel-pinnate, higher order venation transverse-reticulate. **Inflorescence** usually solitary; peduncle shorter to longer than petiole; **spathe** broadly ovate or oblong-ovate, abruptly cuspidate, yellowish white, cream, purplish or pink within, caducous after anthesis; **spadix** long-stipitate to sessile, cylindric-conic. **Flowers** on basal part of spedix sometimes sterile or female and scattered; flowers bisexual, perigone absent; **stamens** 4, free, filaments linear-oblong, flattened, connective slender, thecae ovoid to ellipsoid, dehiscing by longitudinal slit; pollen extruded in strands, fully zonate or inaperturate, hamburger-shaped or ellipsoid to oblong, medium-sized (mean 47 μm, range 34–57 μm), exine densely to sparsely foveolate and nearly psilate to obscurely fossulate or verrucate; **gynoecium** compressed, obconic to cylindric, ovary 2-locular, ovules usually numerous per locule, rarely few (*R. venosa*), anatropous to hemianatropous, funicle fairly long, placenta axile, rarely sub-basal, stylar region well-developed, broader than ovary, prismatic, truncate to

convex apically, stigma elliptic to linear, usually longitudinal; fruit a **berry**, this cylindric-prismatic, truncate, many- to few-seeded; **seeds** rounded-reniform, flattened, testa brittle, very hard, smooth or with verrucose crest, embryo rather large, strongly curved, endosperm present but sparse. 2n=28, 56.

## KEYS TO THE SPECIES OF *RHODOSPATHA*

Two separate keys are being presented here: one for Mexico and Central America and the other for South America. Because few species are common to both areas, the authors felt that the use of two separate keys was preferable to facilitate the use by aroid scientists, especially those from Central America. The keys include all species for which a sufficient set of characters were available for a precise determination, including their geographical origin. The species that were excluded are the cultivated species of unknown origin and several old species mostly described by Sodiro, which have never been found in the wild and for which insuffciently detailed descriptions or illustrations exist; these include *R. bogneri*, *R. dammeri*, *R. dissidens*, *R. heliconiifolia*, *R. robusta*, and *R. statutii*.

### KEY TO SPECIES OF *RHODOSPATHA* FOR MEXICO AND CENTRAL AMERICA

**1a.** Appressed-climbing epiphyte; petioles sheathed throughout most of their length; sheath deciduous; blades usually 2.5–3.0 times longer than wide, usually drying dark brown to gray brown adaxially, dark brown to reddish brown, not reddish-dotted abaxially; primary lateral veins 22–60 per side, departing midrib at ca 60–70°; cross-veins lacking; peduncles 12–29 cm long; spathe usually white to cream, 20–44 cm long; Mexico to Colombia . . . . . ***R. wendlandii*** Schott

**1b.** Not as above; either terrestrial, or with petioles not sheathed to apex; blades not 2.5–3 times longer than wide or not drying as above, or with cross-veins or red-brown dots abaxially; primary lateral veins usually fewer or not departing at more than 60°; peduncles less than 30 cm or spathe less than 20 long; Costa Rica and Panama . . . . . **2**

**2a.** Terrestrial plants . . . . . **3**
**2b.** Appressed-climbing epiphytes . . . . . **8**

**3b.** Petiole sheath persisting intact . . . . . **4**
**3b.** Petiole sheath deciduous . . . . . **7**

**4a.** Blades drying medium green on the adaxial surface, light yellowish green abaxially; species of Panama . . . . . ***R. guanchensis*** Croat
**4b.** Blades drying brown on the lower surface . . . . . **5**

**5a.** Blades drying dark brown to blackened adaxially; species of Costa Rica and Panama . . . . . ***R. ovatifolia*** Croat, Grayum & M. Cedeño
**5b.** Blades not drying dark brown to blackened adaxially; species of Panama . . . . . **6**

**6a.** Blades drying grayish adaxially, densely dark-granular-speckled abaxially . . . . . ***R. dressleri*** Croat
**6b.** Blades drying brown, not grayish, lower surface not densely dark-granular-speckled . . . . . ***R. antonensis*** Croat & O. Ortiz

**7a.** Large plants with ovate-elliptic blades drying light to medium greenish brown, densely covered with minute reddish brown dots abaxially; primary lateral veins widely spaced; species ranging widely from Costa Rica to western Ecuador along the Pacific side and to Venezuela . . . . . ***R. moritziana*** Schott
**7b.** Smaller plants with elongated blades drying dark brown, not densely covered with minute reddish brown dots; primary lateral veins more narrowly spaced; species from Panama . . . . . ***R. antonioana*** Croat

**8a.** Blades drying light grayish green or light greenish brown adaxially, light yellowish green abaxially; species from Costa Rica . . . . . **9**
**8b.** Blades drying medium to dark brown or green adaxially . . . . . **10**

**9a.** Blades 4.8 times longer than wide, drying light greenish brown adaxially . . . . . ***R. osaensis*** Croat, Grayum & M. Cedeño
**9b.** Blades 3–3.4 times longer than wide, drying light grayish green adaxially . . . . . ***R. forgetii*** N.E. Brown

**10a**. Blades elongated, 5.8–10 times longer than wide; species from Panama . . . . ***R. morii*** Croat
**10b.** Blades less 5 times longer than wide . . . . . **11**

**11a.** Petioles with the sheath persisting intact . . . . . **12**
**11b.** Petioles with the sheath deciduous . . . . . **15**

**12a.** Small plants with elongated internodes, oblong-lanceolate blades 9.5–26.5cm long, 3.2–5.1 times longer than wide and small inflorescences (less than 18 cm long); species from Costa Rica and Panama . . . . . ***R. burgeri*** Croat

**12b.** Larger plants with blades to 56 cm long and less than 3.5 times longer than wide . . . . . **13**

**13a.** Relatively small plants with stems less than 2 cm diam. and blades less than 11 cm wide, drying yellowish brown to yellowish green and with the primary lateral veins as well as many interprimary and minor veins bordered with continuous or intermittent dark black lines; species growing from Costa Rica and Panama to the Pacific slopes of Colombia and northern Ecuador . . . . . ***R. pellucida*** Croat & Grayum

**13b.** Larger plants with blades drying medium to dark brown adaxially, without the black lines along the veins . . . . . **14**

**14a.** Plants growing in high elevation cloud forests at 1500–1700 m; blades drying dark brown on both surfaces; species from Costa Rica and Panama . . . . . ***R. vandanielssoniae*** Croat

**14b.** Plants growing at lower elevations at 700–1200 m; blades drying medium brown adaxially and yellowish brown abaxially; species from Panama . . . . . ***R. antonensis*** Croat & O. Ortiz

**15a.** Blades drying dark green adaxially, dark reddish-brown abaxially, primary lateral veins closely spaced (mostly 5–10 mm apart), especially near the base; species ranging from Panama to Colombia and Ecuador on the Pacific slopes from sea level to 1800 m . . . . . ***R. monsalveae*** Croat & D.C. Bay

**15b.** Blades drying dark brown adaxially . . . . . **16**

**16a.** Blades generally more than 3 times longer than wide . . . . . ***R. knappiae*** Croat

**16b.** Blades less than 3 times longer than wide . . . . . **17**

**17a.** Large plants with blades to 72 cm long, drying medium reddish brown abaxially; species ranging from Mexico to Panama and Northern Colombia . . . . . ***R. wendlandii*** Schott

**17b.** Smaller plants with blades less than 30 cm long, drying dark brown on both surfaces; species from Panama . . . . . ***R. heraclioana*** Croat

## KEY TO SPECIES OF *RHODOSPATHA* FOR SOUTH AMERICA

**1a.** Plants growing on the Pacific slopes of the Andes . . . . . **2**
**1b.** Plants growing east of the Cordillera Occidental . . . . . **43**

**2a.** Plants growing in Colombia . . . . . **3**
**2b.** Plants growing in Ecuador . . . . . **27**

**3a.** Plants growing above 1350 m . . . . . **4**
**3b.** Plants growing at 0–1350 m . . . . . **11**

**4a.** Blades drying dark brown to blackish on both surfaces . . . . . **5**
**4b.** Blades drying medium or dark brown, not blackish . . . . . **7**

**5a.** Blades 80–93 cm long, drying blackish adaxially, very dark reddish-brown (almost black) abaxially; species found only in Antioquia Department . . . . . ***R. gentryi*** Delannay & Croat
**5b.** Blades 20–62 cm long, not drying dark reddish-brown abaxially . . . . . **6**

**6a.** Blades coriaceous, minor veins and cross-veins prominent; species ranging from Antioquia in Colombia to Carchi in Ecuador . . . . . ***R. croatii*** Delannay
**6b.** Blades thin, not coriaceous, minor veins and cross-veins obscure; species found only in Nariño Department . . . . . ***R. herrerae*** Croat & P. Huang

**7a.** Blades with narrowly spaced primary lateral veins (3–8 mm), at least near the bottom of the blade . . . . . **8**
**7b.** Blades with more widely spaced primary lateral veins (more than 1 cm) . . . . . **9**

**8a.** Blades with narrowly spaced primary lateral veins over the whole length of the blade, often drying very dark brown adaxially, lighter brown abaxially; species ranging from Colombia to Ecuador at 1500–2300 m . . . . . ***R. densinervia*** Engler & K. Krause
**8b.** Blades with narrowly spaced primary lateral veins near the base, widening further up the blade, drying dark grayish green adaxially, reddish brown abaxially; species growing from 0–2200 m from Panama to Ecuador . . . . . ***R. monsalveae*** Croat & D. C. Bay

**9a.** Petioles with sheath persisting intact; species found only in Chocó Department . . . . . ***R. silverstonei*** Croat

**9b.** Petioles with sheath deciduous . . . . . **10**

**10a.** Terrestrial; blades thin, drying medium greenish brown abaxially, petiole drying light brown; species found only in Choco and Valle del Cauca Departments . . . . . ***R. parvifolia*** Croat

**10b.** Epiphytic; blades coriaceous, drying dark brown abaxially, petiole drying dark brown; in Valle del Cauca Department . . . . . ***R. yotocoensis*** Croat

**11a.** Blades densely covered with minute reddish brown dots abaxially; primary lateral veins widely spaced (1.0–2.5 cm) . . . . . **12**

**11b.** Blades not densely covered with minute reddish brown dots . . . . . **13**

**12a.** Appressed-climbing epiphytes; blades drying light brownish gray adaxially, light brownish gray abaxially; primary lateral veins densely puberulous-granular abaxially, cross-veins prominent; species found only in Nariño Department . . . . . ***R. saundeensis*** Delannay & Croat

**12b.** Terrestrial plants; blades drying grayish green adaxially, medium brown or medium green abaxially; primary lateral veins not densely puberulous-granular abaxially, cross-veins not prominent; species ranging widely from Costa Rica to western Ecuador along the Pacific side and to northern Venezuela . . . . . ***R. moritziana*** Schott

**13a.** Blades with narrowly spaced primary lateral veins near the base, widening further up the blade, drying dark grayish green adaxially, reddish brown abaxially; species growing from 0–2200 m from Panama to Ecuador . . . . . ***R. monsalveae*** Croat & D. C. Bay

**13b.** Blades with primary lateral veins more evenly spaced through their whole length . . . . . **4**

**14a.** Plants growing on Gorgona Island off the Pacific coast of Colombia; blades 2.5 times longer than wide, drying light greenish brown adaxially and medium reddish-brown abaxially; primary lateral veins widely spaced; species endemic to Gorgona Island . . . . . ***R. gorgonensis*** Delannay & Croat

**14b.** Plants growing on mainland Colombia . . . . . **15**

**15a.** Small plants with blades 18–41 cm long, 7–15 cm wide . . . . . **16**

**15b.** Larger plants with blades usually longer than 41 cm and wider than 15 cm . . . . . **19**

**16a.** Blades drying medium orangish brown; primary lateral veins closely spaced (5–10 mm); species found only in Valle del Cauca Department . . . . . ***R. dorothybayae*** Delannay & Croat
**16b**. Blades not drying medium orangish brown; primary lateral veins more widely spaced . . . **17**

**17a.** Blades drying medium grayish green adaxially, light grayish green abaxially; species found only in Chocó Department . . . . . ***R. jaramilloana*** Croat
**17b.** Blades drying medium to dark brown . . . . . **18**

**18a.** Blades drying medium green to greenish brown with the lower surface densely covered with large irregular dark blotches on magnification; species ranging from Colombia to northern Ecuador . . . . . ***R. madisonii*** Delannay & Croat
**18b.** Blades drying dark brown or blackish; veins without this combination of characters; species found only in Chocó Department . . . . . ***R. hermescuadrosii*** Delannay & Croat

**19a.** Petioles and blades drying mostly dark grayish brown on both sides; interprimary veins weak, with 3 or 4 minor veins running on each side and with a complete lack of cross-veins; species ranging at low elevations on the Pacific slopes of Colombia and Ecuador. . . . . ***R. longipes*** Engl.
**19b.** Blades without this combination of characters . . . . . **20**

**20a**. Plants found in Chocó Department . . . . . **21**
**20b.** Plants found in Nariño Department . . . . . **26**

**21a.** Blades drying medium brownish green adaxially, light yellowish green or yellowish brown abaxially . . . . . **22**
**21b.** Blades drying medium to dark brown or dark brownish green on both surfaces . . . . . **23**

**22a.** Plants from low elevations (20–60 m); internodes and petiole bases drying blackish; lower blade surface densely covered with red punctuations; species found only near the Nuquí Municipality . . . . . ***R. marcelamorae*** Delannay & Croat
**22b.** Plants from higher elevations (300 m); internodes and petioles drying yellow brown; lower blade surface coarsely granular . . . . . ***R. grayumiana*** Croat

**23a**. Blades with widely spaced primary lateral veins (1.5–3 cm) . . . . . **24**
**23b.** Blades with more narrowly spaced primary lateral veins (1–1.5 cm) . . . . . **25**

**24a.** Blades drying dark reddish brown and glossy on both surfaces; primary lateral veins spaced 1.5–3 cm; species found only in Chocó Department . . . . . ***R. chocoensis*** Croat

**24b.** Blades drying medium green and matte or semiglossy; primary lateral veins spaced 1.5–2 cm; species ranging from Mexico to Panama and Chocó Department in Colombia . . . . . ***R. wendlandii*** Schott

**25a.** Blades elongated (3.5–4.1 times longer than wide), drying greenish gray adaxially, grayish yellow brown abaxially; cross-veins not prominent . . . . . ***R. renteriae*** Croat & Delannay

**25b.** Blades less elongated (2.5–3 times longer than wide), drying grayish brown adaxially, yellow-brown abaxially; cross-veins prominent . . . . . ***R. jimwestii*** Croat & Delannay

**26a.** Large plants with blades markedly inequilateral, drying dark grayish brown on both surfaces; bottom primary lateral veins departing at a narrow angle from the base of the midrib before spreading out . . . . . ***R. benavidesiae*** Delannay & Croat

**26b.** Smaller plants with blades drying dark reddish brown adaxially, yellow-brown abaxially; primary lateral veins departing at a wide angle . . . . . ***R. narinoensis*** Croat & Delannay

**27a.** Plants growing above 1350 m . . . . . **28**

**27b.** Plants growing between 0 and 1350 m . . . . . **31**

**28a.** Blades less than 30 cm long ; primary lateral veins more than 2 cm apart throughout . . . . . **R. kraenzlinii** Sodiro

**28b**. Blades more than 30 cm long; primary lateral veins less than 2 cm apart at least near the base . . . . . **29**

**29a.** Blades drying dark brown to blackish on both surfaces; primary lateral veins spaced ca. 2 cm; minor veins and cross-veins prominent; species growing at 1350–2250 m . . . . . ***R. croatii*** Delannay

**29b.** Blades drying medium or dark brown, not blackish; primary lateral veins narrowly spaced (3–8 mm), at least near the bottom of the blade . . . . . **30**

**30a.** Blades with narrowly spaced primary lateral veins over the whole length of the blade, often drying very dark brown adaxially, lighter brown abaxially; species growing from Colombia to Ecuador at 1500–2300 m . . . . . ***R. densinervia*** Engler & K. Krause

**30b.** Blades with narrowly spaced primary lateral veins near the base, widening further up the blade, drying dark grayish green adaxially, reddish brown abaxially; species growing from 0–2200 m from Panama to Ecuador . . . . . ***R. monsalveae*** Croat & D.C. Bay

**31a.** Terrestrial plants; blades densely covered with minute reddish brown dots abaxially; species ranging widely from Costa Rica to western Ecuador along the Pacific side and to northern Venezuela . . . . . ***R. moritziana*** Schott

**31b.** Appressed-climbing epiphytes . . . . . **32**

**32a.** Petiole sheath deciduous . . . . . **33**

**32b.** Petiole sheath persisting intact . . . . . **34**

**33a.** Small plants with blades 16–21.5 cm long, drying medium-dark brown on both surfaces; plants known only from Carchi Province at 800–1300 m . . . . . ***R. pailonensis*** Croat

**33b.** Larger plants with blades 45–96 cm long; primary lateral veins narrowly spaced near the base, widening further up the blade, drying dark grayish green adaxially, reddish brown abaxially; species growing from 0–2200 m from Panama to Ecuador . . . . . ***R. monsalveae*** Croat & D. C. Bay

**34a.** Plants with rounded blades less than twice as long as wide, drying dark grayish brown or medium gray green adaxially, light brown or light green to yellow-brown abaxially . . . . . ***R. zamorana*** Croat

**34b.** Plants with more elongated blades, 2.2–4.0 times longer than wide . . . . . **35**

**35a.** Small plants with blades 14–44 cm long, drying medium green to greenish brown adaxially . . . . . **36**

**35b.** Larger plants with blades usually longer than 44 cm . . . . . **39**

**36a.** Blades with 18-19 primary lateral veins, drying medium green to greenish brown with the lower surface densely covered with large irregular dark blotches on magnification; species ranging from Colombia to northern Ecuador . . . . . ***R. madisonii*** Delannay & Croat

**36b.** Blades with fewer than 16 primary lateral veins, with lower surface not densely covered with dark blotches; species found only in Esmeraldas Province . . . . . **37**

**37a.** Blades with primary lateral veins spaced 2.2-3.0 cm apart . . . . . **R. kraenzlinii** Sodiro
**37b**. Blades with primary lateral veins less than 2 cm apart . . . . . **38**

**38a**. Blades drying dark reddish brown adaxially; primary lateral veins 15–16 per side; species found only in the area of San Jose de Bilsa . . . . . ***R. bilsaensis*** Croat
**38b.** Blades drying a lighter reddish brown adaxially, primary lateral veins ca. 10 per side; species found only in the San Lorenzo area . . . . . ***R. lorenzoensis*** Croat

**39a.** Petioles and blades drying mostly dark grayish brown on both sides; interprimary veins weak, with 3 or 4 minor veins running on each . . . . . **40**
**39b.** Petioles and blades not drying mostly dark grayish brown on both sides . . . . . **41**

**40a.** Blades with primary lateral veins spaced 1 cm, without cross-veins visible between the minor veins; species ranging at low elevations on the Pacific slopes of Colombia and Ecuador . . . . . ***R. longipes*** Engl.
**40b.** Blades with primary lateral veins spaced 2–2.5 cm, with cross-veins more prominent between the minor veins; species found only in Esmeraldas Province at 550 m . . . . . ***R. quinindeensis*** Delannay & Croat

**41a.** Blades 74–97 cm long, drying medium greenish-gray adaxially, greenish to greenish-brown abaxially; species known only from Pichincha Province at 200–850 m . . . . . ***R. endesaensis*** Croat
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## SPECIES TREATMENTS

***Rhodospatha acostae*** Croat & Delannay, **sp. nov.** — Type: ECUADOR. Province of Santiago-Zamora [likely modern day Province of Morona-Santiago but a fixed position is uncertain]: Entre La Esperanza y Santa Ana Huamboy, Cordillera Oriental, 1500–2000 m; 15 February 1944, *M. Acosta-Solis 7413* (F-1533365). (**Fig. 1).**

**Diagnosis:** *Rhodospatha acostae* is characterized by its epiphytic climbing habit; slender yellowish brown, closely acute-ribbed and densely warty stems; petioles about as long as the blades and weakly sheathed to slightly below geniculum; narrowly ovate-lanceolate, dark brown-drying, narrowly acuminate, weakly bicolorous blades acute to narrowly rounded at base; and short-pedunculate, cylindroid-tapered, reddish spadix with weakly subrounded or weakly prismatic rhomboid styles.

**Habit:** climbing, somewhat scandent epiphyte.

**Stem: internodes** 3.0–5.7 cm long, 6–7 mm diam., drying medium yellowish brown, closely acute-ribbed and densely warty.

**Leaves: petioles** 15–20 cm long, sheathed to near the geniculum, slender, the shaft weakly ribbed; **sheath** with its margin to ca. 5 mm wide and separated from the rest of the sheath by a thick pale rib, drying dark brown, brittle, often breaking up; **blades** narrowly ovate-lanceolate,

**1.** *Rhodospatha acostae* (*Acosta-Solis 7413*, F-1533365). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

13.0–23.3 cm long, 4.4–8.2 cm wide, 2.7–3.4 times longer than wide, 1.1–1.2 times longer than petioles, narrowly acuminate at apex, acute to narrowly rounded at base, weakly bicolorous, dark brown and matte adaxially, slightly reddish brown and weakly glossy abaxially; **midrib** deeply and narrowly sunken, concolorous adaxially, round-raised and darker abaxially; **primary lateral veins** 18–20 per side, mostly 1 cm or less apart, with a single subequal **interprimary vein** and a pair of weak minor veins between each primary vein; cross-veins branching with oblique cross-veins moderately conspicuous; **adaxial surface** moderately smooth with lack of obvious minor veins; **abaxial surface** moderately smooth, weakly and finely areolate-granular.

**Inflorescences:** erect, stipitate; **peduncle** 10 cm long, drying 4 mm diam.; drying dark brown, finely ribbed, thick granular; stipe 1.3 cm long; **spadix** 12 cm long, 1.5 cm diam. near the base, cylindroid-tapered, reddish.

**Flowers: styles** weakly subrounded or weakly prismatic-rhomboid, 2–3 mm long; **stigmas** oval, 1–1.2 mm long, nearly 1 mm wide, slightly raised, drying blackened with a moderately conspicuous medial pit.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha acostae* is endemic to Ecuador, known only from the type locality on the eastern slopes of the Cordillera Oriental at 1500–2000 m elevation in what is likely a *Montane Wet Forest* life zone.

**Etymology:** The species is named in honor of Misael Acosta-Solis, one of the earliest and most active Ecuadorian biologists. He was from Ambato but collected widely throughout the country from 1936 to 1953. As the first Ecuadorian to receive a doctorate in the natural sciences he became the cornerstone of studies with botany, ecology and geology. He taught botany at the Universidad Central, was one of the first directors of the Servicio Forestal, and was active in the Institute of Natural Sciences.

**Comments:** The species has been confused with the widespread *Rhodospatha latifolia*, which likely occurs in that region but differs in the usually larger leaves on adult plants, lacking the densely warty stems, typically having sparse pale granulations on the adaxial surface, and with less conspicuously raised tertiary veins.

***Rhodospatha acosta-solisii*** Croat, Rodriguésia 56(88): 110–112, f. 11c. 2005. — Type: PERU. Amazonas: Bagua, Imaza Communidad Nativa Yamayakat, along creeks flowing into Río Kusú, 310 m, 18 November 1990, *C. Diaz, J. Amaro & S. Yujna Katip 4232* (holotype, MO-3896596; isotype, USM). (**Fig. 2**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 1.5–4.0 cm long, 5–6 mm diam., light brown to tan.

**Leaves: petioles** sulcate to the base of the geniculum, 8–12 cm long, usually shorter than blade, sulcate above sheath; **sheath** 0.80–0.95 times as long as petiole, erect, margins thin and scarious, persisting intact, sometimes weakly free-ending at apex, in part deciduous; **geniculum** narrowly and sharply sulcate; **blades** ovate-elliptic to oblong-elliptic, 10–20 cm long, 4.5–7.5 cm wide, 2.2–2.6 times longer than wide, acuminate at apex, somewhat inequilateral and rounded to obtuse and sometimes briefly decurrent at base, one side 4–9 mm wider, sometimes weakly falcate, matte to weakly glossy, drying dark brown adaxially, moderately paler and semiglossy abaxially; **midrib** narrowly sunken and slightly paler adaxially, round-raised and slightly paler abaxially; **primary lateral veins** 12 per side, quilted-sunken adaxially, pleated-raised abaxially, mostly drying darker than adaxial surface; **interprimary veins** few, when present 1 per pair of primary veins, these interspersed with usually a pair of minor veins, clearly visible; minor veins obscure below.

**Inflorescences:** short-pedunculate; **peduncle** 4.5 cm long, drying 2 mm diam.; dark brown; **spathe** missing, leaving a prominent ring-like scar; **spadix** stipitate 5 mm, 6 cm long, orange with black spots.

**Flowers: pistils** 1.2–1.5 mm diam.; irregularly hexagonal, drying dark brown; **stigmas** 0.8 mm long, drying black, surrounded by a pale peripheral ridge.

**Infructescences:** not seen:

**Distribution and ecology:** *Rhodospatha acosta-solisii* is endemic to northern Peru (Amazonas) at 310 m elevation in a *Lower Montane Wet Forest* life zone.

**Comments:** *Rhodospatha acosta-solisii* is characterized by its small dark-brown drying blades, fully sheathed petioles with a sheath persisting intact, and short-pedunculate inflorescence with an orange spadix.

**2.** *Rhodospatha acosta-solisii* (*Diaz et al. 4232*, MO-3896596). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

One of the original paratypes *of Rhodospatha acosta-solisii* (*Croat 50760*) later proved to be another new species and is described here as *R. stenophyllon*.

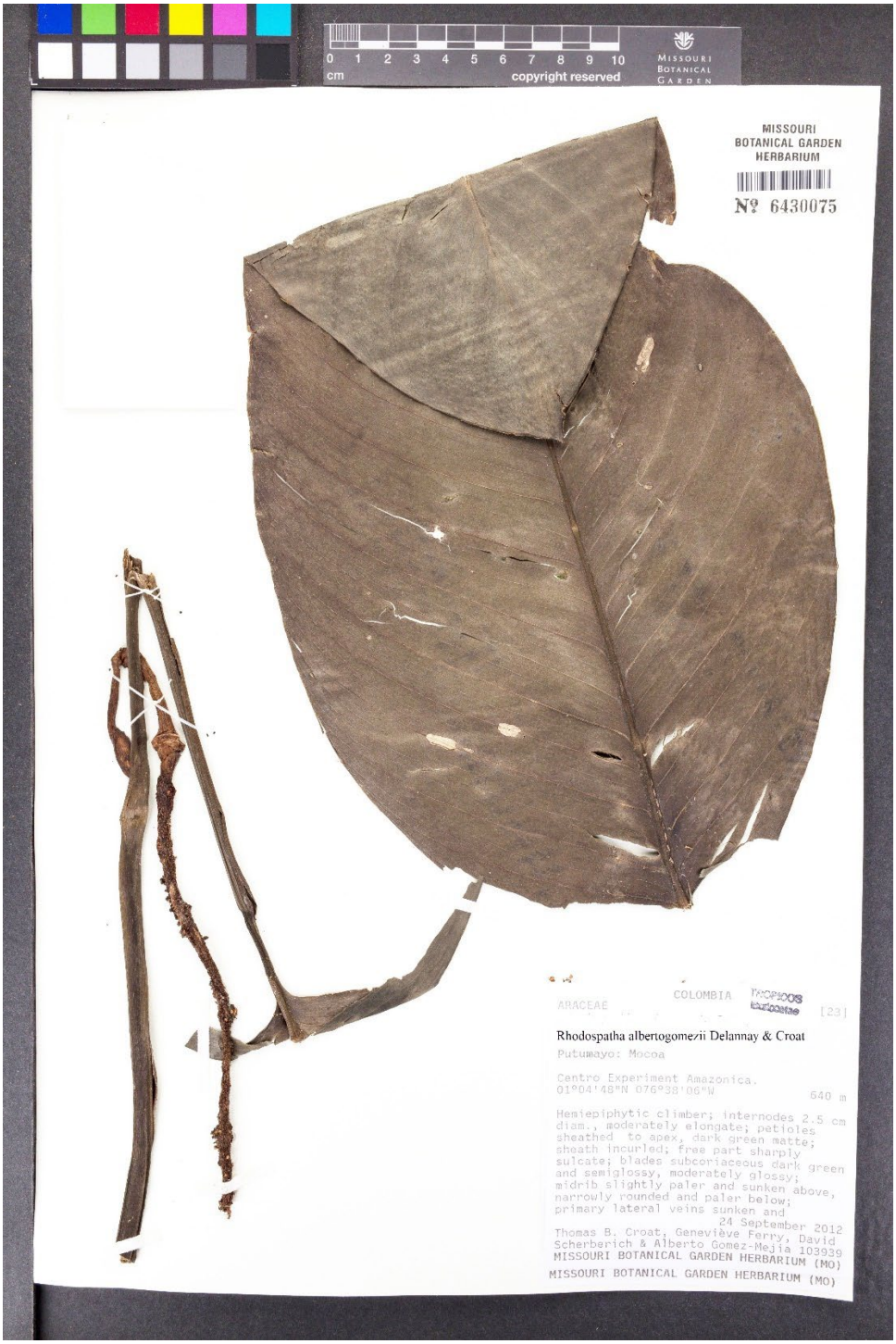
***Rhodospatha albertogomezii*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Putumayo: Mocoa, Centro Experimental Amazonica, 01°04'48"N 76°38'06"W, 640 m, 24 September 2012, *T. B. Croat, G. Ferry, D. Scherberich & A. Gomez-Mejia 103939* (holotype, MO-6430075). (**Fig. 3**).

**Diagnosis:** *Rhodospatha albertogomezii* is characterized by its appressed-climbing, epiphytic habit; overall drying dark grayish brown; petioles with the sheath tightly incurled and persisting intact; and ovate-elliptic weakly inequilateral weakly short-acuminate blades 1.9 times longer than wide with three minor veins running in parallel between the interprimary veins and the primary lateral veins and intersected by numerous, prominent, highly ramified cross-veins.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 2.5 cm diam., moderately elongate.

**Leaves: petioles** 40 cm long, dark green, matte, sheathed to the geniculum, drying grayish brown, weakly and bluntly ribbed, more conspicuously so on the sheath (the magnified surface finely striate, sparsely granular); **sheath** incurled, persisting intact and weakly free-ending at apex but essentially continuous with the margins of sheath; **geniculum** drying sharply sulcate, darker, 3 cm long; **blades** subcoriaceous, ovate-elliptic, 38 cm long, 20 cm wide, 1.9 times longer than wide, obtuse and weakly short-acuminate at apex, nearly equilateral, rounded and slightly decurrent at base, widest well below the middle, dark green and semiglossy, drying dark grayish green adaxially, dark greenish brown abaxially; **midrib** slightly paler and sunken adaxially, narrowly rounded and paler abaxially, drying concolorous, weakly 3–5-ribbed, densely granular adaxially, irregularly convex, slightly darker, finely acute-ribbed abaxially; **primary lateral veins** ca. 13 per side, widely spaced (1.5–2.5 cm), rising at a 55–65° angle, sunken and concolorous adaxially, round-raised, irregularly ridged and concolorous abaxially, drying narrowly rounded, concolorous, smooth adaxially, prominent, irregularly ridged, slightly yellowish below; **interprimary veins** slightly weaker than primary lateral veins; minor veins moderately obscure abaxially, 3 running in parallel between the interprimary veins and the primary lateral veins, intersected by numerous prominent, highly ramified cross-veins.




**3.** *Rhodospatha albertogomezii* (*Croat, et al. 103939*, MO-6430075). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and old infructescence.

**Inflorescences:** old, brown, and withered; **peduncle** ca. 25 cm long, enclosed for most its length in the sheath of the subtending petiole; **spathe** not seen; **spadix** in fruit, ca. 16 cm long, 1.5–2 cm diam; drying blackish brown; stipe 2 cm long.

**Infructescences: seeds** tan, flattened, 0.5 mm long, 1.3 mm wide with a prominent notch on one sided.

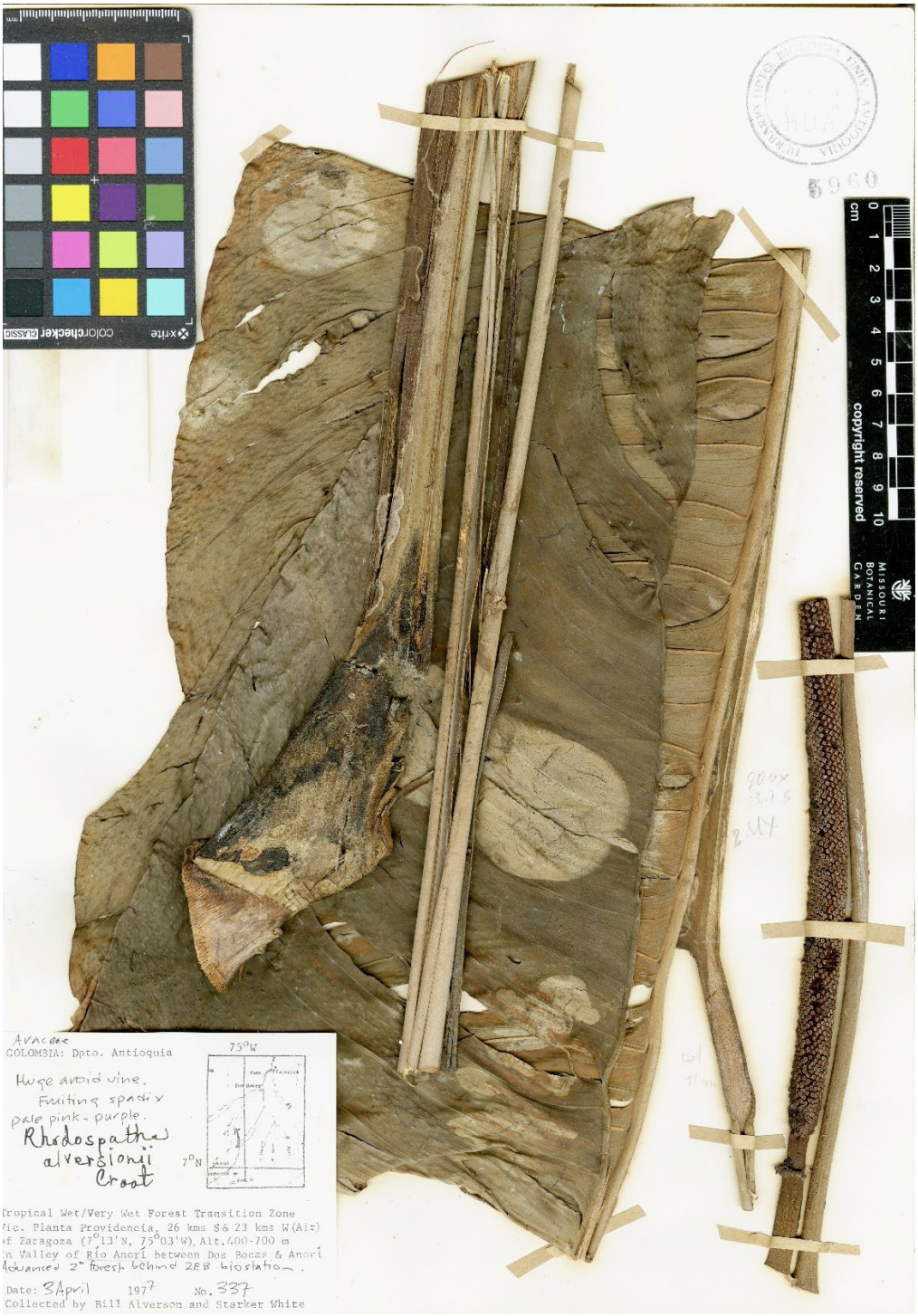
**Distribution and ecology:** *Rhodospatha albertogomezii* is endemic to Colombia, found only in Mocoa area of Putomayo Department at 640 m elevation in a *Premontane Wet Forest* life zone.

**Etymology:** The species is named in honor of Alberto Gomez Mejia, Director of the Jardín Botanico and former President of the Association of Colombian Botanical Gardens. Under his leadership the garden has been greatly modernized and amplified. A new butterfly house also provides an interesting fauna. He has personally acquired many new introductions, including this important species that bears his name.

**Comments:** The species could be mistaken for *Rhodospatha croatii*, which has leaves drying in a similar color and has a similar venation pattern; however, the latter species has more elongated blades (2.2–3.2 times longer than wide vs. 1.9 times for *R. albertogomezii*) and also occurs at much higher elevations (1550–2250 m) on the Cordillera Occidental and the western slopes of the Cordillera Central, rather than at low elevations in the Amazon Basin, which is the case for *R. albertogomezii*.

***Rhodospatha alversonii*** Croat, **sp. nov.** — Type: COLOMBIA. Antioquia: Vic. Planta Providencia, 28 km SW of Zaragoza, valley of Río Anorí, approx. 3 km upriver from Planta Providencia, 400–700 m, 3 April 1977, *W. S. Alverson, S. White & J. D.Shepherd 337* (holotype, MO-2667166; isotypes, HUA, WIS). (**Fig. 4**).

**Diagnosis:** *Rhodospatha alversonii* is characterized by its huge size; appressed-climbing, epiphytic habit; smooth, light brown internodes; large grayish-green-drying, oblong-oblanceolate blades 2.1–2.4 times longer than broad, subacute at apex, rounded to weakly subcordate at base, primary lateral veins broadly spaced and poorly visible and with a matte surface adaxially, densely and finely short pale-lineate adaxially, abaxial surface densely darkish granular-ridged; inflorescence with a long peduncle enrolled in a thick prophyll for most of its length; and stipitate, pale pink-purple spadix with sub-quadrangular, glaucescent pistils with the stigma covering more than half of the style surface.




**4.** *Rhodospatha alversonii* (*Alverson et al. 337*, MO-2667166). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**Habit:** large, appressed-climbing epiphyte.

**Stem: internodes** about as long as broad, 3.5 cm diam., smooth, drying dark reddish brown and matte.

**Leaves: petioles** 41–96 cm long, sheathed most of their length, drying yellow-brown; **sheath** wide and clasping the petiole, deciduous, breaking into longitudinal strips, drying straw-colored; **blades** oblong-elliptic, 89–93 cm long, 37.0–39.5 cm wide, 2.2–2.4. times longer than broad, 0.8–1.0 times as long as petioles, widest above the middle, gradually and weakly acuminate at apex, rounded to subcordate at base, drying grayish green-brown and matte adaxially, slightly paler and semiglossy abaxially; **midrib** thick, drying slightly sunken and concolorous adaxially, markedly round-raised and weakly paler abaxially; **primary lateral veins** 30–35 per side , broadly spreading, departing midrib at 60–70°, spaced 2.0–2.5(3.0) cm apart, poorly visible adaxially, prominent, narrowly rounded to rounded-raised, minutely pale-granular abaxially; **interprimary veins** 1–2(3) per segment, weak, with 1 slightly weaker minor vein running on each side.

**Inflorescences:** erect; **peduncle** 27–28 cm long, prophylls straw-colored, 46 cm long; **spathe** not seen; **spadix** 25 cm long, 8.9–11.0 mm diam., pale pink-purple, stipitate 1.0–1.3 cm, stipe 6 mm diam.

**Flowers:** 10–12 per spiral; **styles** 1.4–1.7 m wide, sub-quadrangular to sometimes prismatic, irregularly 6-sided, the surface seemingly glaucescent; **stigmas** oblong to oblong-elliptic, slit-like, drying blackened, usually 8–9 m long, 1.5–2.5 mm wide.

**Infructescence:** not seen.

**Distribution and ecology:** *Rhodospatha alversonii* is endemic to northern Colombia, found only in Antioquia Department at 730–850 m elevation in a *Premontane Rain Forest* life zone.

**Etymology:** The species is named for American botanist William S. Alverson of the Field Museum of Natural History who collected the first specimen in 1977. Bill specializes in the phylogeny and systematics of neotropical Bombacaceae, especially *Matisia*, *Patinoa*, *Phragmotheca*, and *Quararibea*. A conservation ecologist, he is part of the Field Museum's Environmental and Conservation Programs Department and has contributed to several Rapid Biological Inventories in South America. He studied botany at the University of Wisconsin, graduating in 1978 and going on to receive his Ph.D. in 1986.

**Comments:** This species could be confused with *Rhodospatha jimwestii*, which has similar venation and rounded leaf bases but differs in having proportionately narrower blades with the primary lateral veins farther apart. It could also be confused with *R. renteriae* but that species has narrower blades (3.8–4.1 times longer than broad) and more closely spaced primary lateral veins. The species differs from *Rhodospatha wendlandii* and *Rhodospatha monsalveae* in its smooth yellow-brown-drying petiole.

**Paratypes: COLOMBIA. Antioquia:** vic. Planta Providencia, 28 km SW of Zaragoza, valley of Río Anorí, approx. 3 km upriver from Planta Providencia, edge of secondary forest along roadway following river, 0–5 km south of Quebrada La Tirana, Tropical Wet/Very Wet Forest Transition Zone, rainfall approx. 4400 mm/year, 400–700 m, 3 April 1977, *W. S. Alverson et al. 300* (COL); vic. Planta Providencia, 28 km SW of Zaragoza, Valley of Río Anorí in areas surrounding the confluence of Quebrada La Tirana and Río Anorí, approx. 3 km upriver from Planta Providencia, 7°13'00"N 75°03'02"W 400−700 m, 30 March 1977, *W. S. Alverson et al. 318* (COL, WIS).

***Rhodospatha amazonensis*** Delannay & Croat **sp. nov.** — Type: ECUADOR. Pastaza: between Shell and Mera, 5.3 km NW of Shell, along gravel road 1.1 km N of Shell-Mera hwy, 01°27'S 78°04'W, 1180 m, 4 April 1992, *Croat 73500* (Holotype, MO: 4076282; isotype, QCNE). (**Figs. 5–9**).

**Diagnosis:** *Rhodospatha amazone*nsis is characterized by its appressed-climbing, epiphytic habit; leaves with blades narrowly obovate-elliptic drying brown or medium green adaxially, yellowish brown abaxially; brown-drying petioles with narrow sheaths persisting intact; primary lateral veins spaced 12–20 mm apart with the interprimary veins much weaker, minor veins clearly visible; and inflorescences with a green spathe and a cream spadix becoming dark green to bluish green with elevated, broadly elliptic stigmas.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** to 3 cm long, 2 cm diam., dark green, matte, warty at the base.

**Leaves: petioles** 26–33 cm long, sheathed to the geniculum, dark green; **sheath** dark green, erect to incurled, persisting intact; **geniculum** sharply and broadly sulcate, 2–3 cm long, often with the margins of the blade and the sheath merging along its margins, extending onto the blade; **blades** subcoriaceous, narrowly obovate-elliptic, 38–73 cm long, 12–17 cm wide, 2.5–3.7 times longer than wide, 1.4–2.1 times longer than the petioles (averaging 1.4 times longer), obtuse to rounded and

**5.** *Rhodospatha amazonensis (Croat 105547*). Live plant in flower.

somewhat inequilateral and abruptly acuminate, rarely merely acuminate at apex, inequilateral and obtuse to narrowly rounded, rarely acute at base, dark green and glossy adaxially, much paler, yellow-green and semiglossy abaxially, drying medium yellow-brown, grayish or medium green adaxiaally, yellowish brown or grayish green, matte to weakly glossy abaxially; **midrib** narrowly sunken and weakly discolored marginally adaxially, convex and darker abaxially; **primary lateral veins** 22–28 per side, departing midrib gradually at an acute angle then spreading in a weak arc averaging 40–60° to the margin, 12–20 mm apart, moderately sunken adaxially, weakly pleated-raised abaxially, drying flat (not raised) adaxially, weakly raised and darker than surface abaxially; **interprimary veins** 1 or 2 between each pair of primary lateral veins; minor veins moderately weak, ca. 1 mm apart; **adaxial surface** drying finely and minutely striate, often with pale speckles to coarsely anastomose-ridged or areolate-ridged; **abaxial surface** prominently and uniformly low ridged-striate, these interspersed with yellow-brown speckles, the ridges discontinuous or sometimes branching (these perhaps raphide cells); margin prominently revolute, drying somewhat scarious with a narrow blackened band very near the margin.

**6.** *Rhodospatha amazonensis* (*Croat 105547*). Live plant showing stem, adventitious roots, petioles, leaf blades (adaxial and abaxial surfaces) and freshly opened inflorescence with still-attached spathe.

**7.** *Rhodospatha amazonensis* (*Croat 105547*). Close-up of freshly opened inflorescence with attached spathe.

**8.** *Rhodospatha amazonensis* (*Croat 105661*). Live plant showing leaf blades (abaxial surface), and post-anthesis spadix.

**9.** *Rhodospatha amazonensis* (*Croat 73500* MO-4076282). Holotype showing petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**Inflorescences:** erect to pendent-spreading; **peduncle** 18–23 cm long, drying medium brown; **spathe** green abaxially, white adaxially when immature, becoming yellowish white, 12.5–17.5 cm long, only slightly longer than the spadix, narrowly tapered at apex; **spadix** 10–12 cm long, yellowish white, becoming dark green to bluish green, matte.

**Flowers: styles** subrounded-prismatic, 1.7–2.1 mm wide, usually 6-sided, gray, matte, glaucescent; **stigmas** round or broadly elliptic, 0.4–0.5 mm long.

**Infructescences:** not seen

**Distribution and ecology:** *Rhodospatha amazonensis* ranges in the western Amazon Basin from Ecuador to Bolivia at 100–1750 m elevation in *Tropical Wet Forest*, *Premontane Rain Forest*, and *Montane Rain Forest* life zones.

**Etymology:** The species in named for the Amazon region where it occurs.

**Comments:** *Rhodospatha amazonensis* has been confused with *R. brachypoda* and the two were formerly considered to be one widespread species under the name *R. brachypoda*. However, this larger group proved to be heterogenous, with *R. brachypoda* occurring only in the Guyanas at low elevation and differing by having petioles with broader sheaths drying straw-colored and blades drying a much lighter yellowish green with more widely-spaced primary lateral veins that are barely visible on the adaxial surface but more prominent abaxially. Also, the interprimary veins are nearly as well developed as the primary lateral veins and the minor veins are not readily visible. The population centered in the Guyanas retained the name *R. brachypoda* because the type was from that area, while a new species, *Rhodospatha amazonensis*, was created to encompass the specimens from the western Amazon Basin.

**Paratypes: BOLIVIA**. **Cochabamba:** Carrasco. Parque Nacional Carrasco, al S del Campamento Ichoa. Bosque siempre verde, virgen; 17°23'S 064°30'W, 500 m, 12 Sep 1997, *Amparo Acebey 504* (MO); 440 m, 5 Sep 2002, *Erika Fernández EF 1451* (BOLV, MO); Localidad Nueva Capernaum; 16°38'57"S 064°46'17"W, 280 m, 12 Julio 2002, *Erika Fernández 1213* (BOLV, MO); 143 Km antigua carretera CO-Villa Tunari, 17°07'S 065°34'W, 1300 m, 23 Aug 1996, *M. Kessler et al. 7654* (LPB, MO); 147 km antigua carretera Cochabamba-Villa Tunari; 17°07'S 065°34'W, 1100 m, 28 Aug 1996, *M. Kessler et al. 7891* (LPB, MO); Localidad Nueva Capernaum; 16°38'57"S 064°46'17"W, 280 m, 13 Julio 2002, *Saúl Altamirano 303* (MO); Chapare. El Palmar. Serrania con exposicion sud este con pendientes de hasta 35° de inclinacion. Bosque alto montano humedo, 17°05'35"S 065°29'35"W, 900 m, 2 Sep 2003, *Eneida Zurita 114* (BOLV); Ca. 4 km de Villa Tunario hacia Cochabamba: 40 arroyos; 17°09'S 065°29'W, 300 m, 07 April 2000, *Renate Seidel et al. 3322*

(MO); Localidad Villa Fatima; 16°33'36"S 065°57'36"W, 360 m, 17 mayo 2002, *Saúl Altamirano et al. 198* (BOLV, MO); **La Paz:** Parque Madidi, orilla izquierda del Río Quendeque, al frente de la embocadura del Río Pascual, terraza aluvial, plana. Bosque ribereño en terraza aluvial. Parcela Temporal de Muestreo (0.1 ha) 11; 14°58'12"S 067°49'37"W, 350 m, 4 febrero 2002, *D. De la Quintana et al. 367* (LPB, MO); Abel Iturralde. Parque Nacional-ANMI Madidi. Arroyo Rudidi, sobre el río Tuichi. Bosque pluvial subandino, Parcela Temporal de Muestreo (0.1 ha) 63; 14°21'58"S 067°57'35"W, 361 m, 10 October 2002, *M. H. Calzadilla et al. 144* (BOLV, LPB, MO, USZ); Bautista Saavedra. Pauji-Yuyo, entre Apolo y Charazani. Bosque siempreverde, disturbado de 20 m de altura, 15°02'S 068°29'W, 1450 m, 8 Jun 1997, *M. Kessler et al. 9915* (MO); Franz Tamayo. Parque Nacional Madidi, río Quendeque, arroyo Retama; 14°58'11"S 067°47'41"W, 350 m, 31 enero 2002, *Alfredo F. Fuentes et al. 3727* (LPB, MO); Nor Yungas. Vicinity of Sapecho, along road between Caranavi and Yucumo; alongside road NW off main road into Serrania de Marimones to Colonia Tupiza B; 15°31'25"S 067°18'31"W, 600 - 850 m, 07 August 2000, *Thomas B. Croat et al. 84339* (LPB, MO); **ECUADOR**. **Morona-Santiago:** Cantón Macas. Entre el rio Sardinayacu y Furumbumbo. Limite y Area de Amortiguamiento del Parque Nacional Sangay, sendero que bordea el rei Upano; 02°06'09"S 078°08'53"W - 02°07'41"S 078°06'48"W, 1210 - 1300 m, 30 May 2003, *Carlos E. Cerón & Carmita I. Reyes 48924* (MO); Gualaquiza-Indanza, ca. km 20 between Túmbez and Tucumbatza, remnants of primary forest; 1600 m, 20 Apr 1985, *Gunnar Wilhelm Harling & Lennart Andersson 24350* (GB); Along road between Pto. Morona at Río Morona and Santiago, 9.5 Km W of Río Morona; 02°56'17"S 077°47'29"W, 350 m, 10 September 2002, *Thomas B. Croat 87404* (ECUAMZ. MO); Gualaquiza. Cordillera del Cóndor. Valle del Río Quimi. Bosque alterado y potreros. Orillas del Río Quimi; 03°30'24"S 078°25'35"W, 1090 m, 13 diciembre 2000, *M. Cuascota & Grupo Post-Grado MO-QCNE 294* (MO, QCNE); Morona. Cordillera del Cutucú. Asociación Shuar Sevilla. Bosque Primario. Cerro Iñiak Naint. Suelo rocoso, 02°18'19"S 078°07'16"W, 1043 m, 7 May 2002, *Linder Suin et al. 1745* (MO, QCNE); Shuar indigenous territory, on lower slopes of Cordillera de Cutucú, vicinity of San Pedro, S of Sevilla Don Bosco, ca. 13 km from Sevilla, SE of Shimpis, 7 km from junction to Sacrado Corazon, 11.1 km from Río Yuquipa, 4 km E of Palmeras; 02°23'41"S 077°05'10"W, 927 m, 01 December 2008, *Thomas B. Croat et al. 100884* (MO, QCNE); Along the road from the main Puyo-Macas Road to Palora, departing main Puyo-Macas Road 38 Km SSE of Puyo, 9.8 Km from main road; remnant forest in pasture, 01°44'40"S 077°54'49"W, 1336 m, 20 August 2002, T.B.Croat 86673 (MO, QCNE, US). **Napo:** Reserva Biologia Jatun Sacha, ca. 8 km ESE of Puerto Misahuallí. 1º04'N, 77º37'W. Elev. ca. 450 m. Primary forest along the Misahualli- Coca Road; 01°04'S 077°37'W, 450 m, 21 July 1986, *James S. Miller et al. 2549* (MO); Along road between Archidona and San Vincente Para, along Río Ollín, vic. of San Vincente Para, 18.3 Km E of Archidona; 00°57'07"S 077°43'49"W, 825

m, 23 April 2003, *Thomas B. Croat et al. 87990* (MO, QAP, QCNE); Along road from Muyuna (near Tena) to municipal water plant, 2.3 km W of bridge over Río Tena near new university, 00°56'21"S 077°51'58"W, 611 m, 15 January 2015, *Croat 105661* (ECUAMZ, MO, QCNE); La Joya de los Sachas. Comunidad de Pompeya. Lado sur del Río Napo. Carretera de Maxus, Km 2. Bosque húmedo Tropical. Bosque primario. Suelo aluvial negro; 00°28'S 076°40'W, 230 m, 26 agosto 1993 - 27 agosto 1993, *Milton Aulestia 355* (MO, QCNE); Tena. Capirona village, 01°06'S 077°39'W, 400 m, 15 Aug 1993, *Grady L. Webster 29903* (DAV); Capirona village, trail to ceibo gigante, 01°07'00"S 077°40'00"W, 400 m, 13 Aug 1993, *Grady L. Webster 29786* (DAV); Estacion Biologica Jatun Sacha; along S bank of Río Napo, 8 km E of Puerto Misahualii; 01°04'S 077°36'W, 450 m, 1 April 1992, *Thomas B. Croat 73354* (LAMUA, MO, QCNE, S); Estación Biológica Jatun Sacha, 8 km east of Puerto Misahualli; tropical wet forest; collections are part of an epiphyte survey taken from a mature Phragmotheca tree in primary forest at 1-2 m above ground level; 01°04'09"S 077°36'56"W, 400 - 440 m, 13 January 1999, *Tom Delinks & G. A. Suárez 177* (MO). **Orellana:** Tiputini Biodiversity Station; 00°38'S 076°09'W, 200 m, 21 Feb 2002, *Nils Köster et al. 1007* (MO); Estacion cientifica Yasuni: Río Tiputini, al noroeste de la confluencia con el Río Tivacuno; este de la carretera Repsol-YPF, Km 7 desvío hacia el pozo Tivacuno. Sur de la Parcela de 50 ha. Pantano; 00°38'S 076°30'W, 200 - 300 m, 28 Jan 2004, *V. Sandoya & asistente huaoran 43* (MO, QCA); Loreto. Comunidad Shuar Jua, 165 km al sur del Coca por la vía Auca, 5 km al oeste de la carretera. Río Quememparo. Bosque muy húmedo tropical. Bosque intervenido. Suelo arcilloso amarillento. Proyecto Etnobotanico del Herbario Nacional, financiado por Missouri Botanical Garden (MO); 00°56'S 076°58'W, 280 m, 25-29 Marzo 2004, *W. Guerrero & Angela Herrera 103* (MO, QCNE). **Pastaza:** Río Villano; 310 m, July 1996, *Blanc, Albert A. et al. BLLM-96-573* (QCA); Río Villano. Ceiba, 01°25'S 077°02'W, 260 m, 24 March 1980, *Jaime L. Jaramillo & Flavio Coello 22690* (AAU, MO, QCA); Curaray. SE of the airstrip. Rain forest and Mauritia várzea. Understory dominated of Melastomataceae, Rubiaceae and palms; 01°22'S 076°57'W, 250 m, 20 Mar 1980, *L. B. Holm-Nielsen et al. 22119* (AAU); Río Villano. Ceiba-Ficus rain forest; 01°25'S 077°02'W, 260 m, 24 Mar 1980, *L.B. Holm-Nielsen et al. 22690* (AAU, MO); Vicinity of Shell, ca. 1 Km north of town along Río Claro; 00°29'39"S 078°03'52"W, 1085 m, 27 August 2002, *Thomas B. Croat & Lynn P. Hannon 87075* (MO, QCNE); Vicinity Shell, ca. 1 Km north of town, swampy area with most large trees missing; 01°29'39"S 078°03'52"W, 1096 m, 30 August 2002, *Thomas B. Croat & Lynn P. Hannon 87140* (MO, QCNE); Mera, Along road from Mera to Río Anzu and beyond, 01°22'33"S 078°03'09"W, 1217 m 11 January 2015, *Croat 105547* (ECUAMZ, MO, QCNE); Along road from Mera to Río Anzu, 7.0 Km N of Río Alpayacu; 01°25'56"S 078°04'53"W, 1267 m, 8 May 2003, *Thomas B. Croat et al. 88792* (MO, QCNE); Napurak. Vega del río, 100 m de la orilla, I plano. Aqua RAP Conservation International PE02 P99-E-BOT05; 02°18'S 077°10'W, 15 July 1999, *Walter A.*

*Palacios et al. 14555* (MO, QCNE); Mera. 1000 m, 17 Jan 1982, *G.W. Harling et al. 19646* (GB); Mera, Río Chico, rastrojal, 1160 m, 29 November 1958, *G. Harling 3437, 3711, 3803* (S); Villano-Km 6. Propuesto oleoducto de Arco (Villano-El Triunfo). Bosque húmedo Tropical. Bosque primario sobre colinas disectadas; 01°30'S 077°29'W, 600 m, 23 Feb 1994, *Walter A. Palacios 12080* (MO, QCNE). **Tungurahua:** Along road from Río Negro to La Estancia and Parque Nacional Sangay, 1.8 Km S of bridge over Río Pastaza; 01°25'24"S 078°13'01"W, 1335 m, 4 May 2003, *Thomas B. Croat et al. 88507* (MO, Q, QAP, QCNE). **Zamora-Chinchipe:** Along road from Zamora to Romerillos, 13.3 km E of bridge over Río Bombuscaro at Zamora, 0.4 km N of Pituca along river; 04°08'02"S 078°56'31"W, 975 m, 30 May 2003, *Thomas B. Croat & Mark Menke 89776* (MO, CHEP, QCNE); Along road between El Pangui and Monterrey, 5.8 Km E of Monterrey, 11.9 Km W of main Gualaquiza-Zamora Road; 03°32'26"S 078°37'16"W, 950 m, 25 May 2003, *Thomas B. Croat & Mark Menke 89385* (LAMUA, MO, QCNE, S); Along road from Zamora to Romerillos, 6.6 Km E of bridge over Río Bombuscaro, vic. of La Pituca; 04°04'59"S 078°56'12"W, 731 m, 30 May 2003, *Thomas B. Croat & Mark Menke 89711* (MO, CHEP, QCNE). **PERU**. **Amazonas:** Bagua. Imaza. Comunidad de Yamayakat. Bosque primario; 05°03'24"S 078°20'17"W, 350 m, 25 Marzo 2000, *Rodolfo Vásquez 26501* (MO); Distrito Imaza: Región del Marañon. Comunidad de Yamayakat, Quebrada Kusu - Chapi, Río Marañon; 04°55'S 078°19'W, 550 m, febrero 1995, *Rodolfo Vásquez et al. 20069* (MO); Disitrito Imaza. Río Cenepa region. Region nor oriental del Marañon. Communidad Yamayakat. Riverbank; 04°55'S 078°19'W, 300 m, January 1995, *Vandi Hodges & Jeff Gorham 198* (MO); Condorcanqui. Río Cenepa region. Above Quebrada Shimpunts; 800 - 1100 f, 21 February 1973, *Brent Berlin 897* (MO); Río Cenepa, vicinity of Huampami, ca. 5 km E of Chávez Valdivia. La loma arriba de la Quebrada Sasa, en camino a Chigkan entsa; 04°30'S 078°30'W, 200 - 250 m, 11 Jul 1978, *Ernesto Ancuash Atsut 1000* (MO); Río Cenepa. Quebrada Sasa. Monte al lado de Sasa; 04°28'00"S 078°10'00"W, 910 f, 30 Mayo 1973, *Ernesto Ancuash Atsut 484* (MO); Distrito El Cenepa, Comunidad de Mamayaque, Cerro Sakee-gaig. Bosque primario; 04°34'58"S 078°14'01"W, 1010 m, 14 Febrero 1997, *Rodolfo Vásquez et al. 22552* (B, HUT, MO, WU); Río Cenepa region. Quebrada de Apigkagentsa, Río Cenepa; 720 f, 09 April 1973, *Rubio Kayap 592* (MO, US); Río Santiago. Por atrás de la comunidad de Caterpiza, 2 km en trocha de Mitayar. Monte virgen; 03°50'S 077°40'W, 200 m, 05 Marzo 1980, *Santiago Tunqui 996* (MO); **Huánuco:** Cordillera Azul. Ca. 38.2 km E of Tingo María on the road to Pucallpa. Montane rainforest. Dense primary forest on steep NW slope; 09°11'37"S 075°47'40"W, 1730 m, 19 Nov 1979, *Christopher Davidson & Josephine Jones 9307* (LAM); Huánuco. Tingo María, entre Huánuco y Pucallpa. Selva tropical; 650 - 700 m, 24 Sept 1954, *Ramón Ferreyra 10279* (NY); **Loreto:** Dtto. Tigre, Río Tigre, caserio Nuevo Canaan (Lomas tipishca) a 3.30 horas de Marsella, rio abajo, bosque primario; 13 Dec 1979, *Franklin Ayala et al. 2478* (MO); Pampa Hermosa and vicinity, Río

Corrientes, 1 km S of jct. with Río Macusari. Low rainforest, mostly firma with scattered white sand. Mayna Jívaro, 03°15'S 075°50'W, 160 m, 4-9 June 1986, *Walter H. Lewis et al. 10778* (MO), *10829* (MO, USM); Maynas. Explorer's Inn near Indiana, Río Amazonas below Iquitos; 03°30'S 073°03'W, 130 m, 15 February 1989, *Alwyn H. Gentry et al. 65801* (MO); Distrito Pevas; Caserio Colonia (Quebrada Sumón) afluente del Río "Yahuasyacu". Trocha al Putumayo, entrando por la quebrada Sumón, bosque primario, suelo areilloso, (Caserio Colomia); 03°20'S 071°05'W, 120 - 130 m, 31 Marzo 1991, *Cesár A. Grández et al. 2397* (MO, US); Explor Napo Camp at Río Sucusari. Primary forest. Along boundary trail; 03°20'S 072°55'W, 120 m, 19 March 1996, *H. van der Werff & Rodolfo Vásquez 13924* (MO, US); Ucayali, Distrito Pampa Hermosa; parque nacional Cordillera Azul, PV 106, Quebrada Yanayaquillo, 07°07’02”S, 075°44’16”W, 13 May 2018, *Valenzuela G. et al. 94717* (HOXA, HUT, MO, USM); Región de Amazonas, Dtto. Las Amazonas. Explornapo Camp. Inventario MacArthur; cerca de Sucusari, a lo largo del río Napo. Bosque en terra firme. PARCELA Y, 03°20'S 072°55'W, 100 - 140 m, 6 marzo 1991, *John James Pipoly, III et al. 14675* (MO); Dtto. Iquitos. Trail from Astoria (Río Nanay) to Río Mazán, upland forest; 1 Apr 1976, *Manuel Rimachi Y. 2152* (IBE, MO); Dtto. Iquitos, Km 44 carretera Iquitos-Nauta, terrenos del Comité de Reforestación Iquitos (CRI). Bosque primario; 04°10'S 073°20'W, 150 m, 6 Abr 1989, *Rodolfo Vásquez 11993* (B, MO); Indiana (trocha a Mazan), NE de Dtto. Iquitos. Bosque primario; 03°30'S 072°58'W, 115 m, 31 enero 1981, *Rodolfo Vásquez 1332* (MO); Las Amazonas, Quebrada Sucusari; Explor Napo Camp. Bosque primario, suelo arcilloso, con buen drenaje; 03°20'S 072°55'W, 140 m, 17 Apr. 1991, *Rodolfo Vásquez & Nestor Jaramillo 16118* (MO); **Madre de Dios:** Manu. Shintuya. Bosque; 400 m, 6 Oct 1966, *C. Vargas C. 17845* (US); **Pasco:** Oxapampa. Distrito Palcazú. Zona de amortiguamiento del Bosque de Protección de San Matías San Carlos. Sector quebrada Cuacuaso; 10°09'29"S 075°08'11"W, 489 m, 19 February 2016, *Rodolfo Vásquez et al. 40463* (HOXA, MO). **San Martín:** Tarapoto, Alta Puca Yacu, 12 May 1987 - 25 May 1987, *Montes 15* (F); Tarapoto, Alta Puci Yacu, 12 May 1987 - 25 May 1987, *Montes 44* (F); Mariscal Cáceres. Desembocadura del río Mishollo. Márgen izquierda del río Huallaga. Dtto. Tocache Nuevo. En bosque alto, crece muy adherido al fuste de los árboles; 350 - 380 m, 24 Jul 1973, *José Schunke V. 6394A* (MO); Fundo la Campina, a 2 km abajo de Tocache Nuevo, margen derecha del río Huallaga. Dtto. Tocache; 400 m, 2 Sept. 1969, *José Schunke V. 3389* (F, GH, IBE, US); Distrito Tocache. Río de la Plata. Gran Fundo La Bella Durmiente Manuel Gatia ca. 5 km NE of bridge over Río Huallaga; 08°08'S 076°23'W, 1050 m, 7 April 1984, *Thomas B. Croat 57974* (MO, USM); Dtto. Tocache Nuevo. Palo Blanco, above Río Tocache; 500 - 550 m, 29 June 1978, *Timothy C. Plowman & José Schunke V. 7467* (F); San Martín. Caserío El Progreso, km of Tarapoto- Yurimaguas road. Tropical wet forest/premontane rainforest; 06°25'05"S 076°19'W, 700 m, 25 Sept. 1986, *Sandy Knapp & Jim Mallet 8421* (MO, USM). **Ucayali:** Padre Abad. Distrito Padre Abad. Carretera a Alto

Miraflores, cerca al Río Negro. Bosque primario, terreno arenoso, con mucha sombra; 09°02'S 075°33'W, 300 m, 29 June 2004, *José Schunke V. & J.G. Graham 15745* (MO).

***Rhodospatha antonensis*** Croat & O. Ortiz, Aroideana 46(3): 90–95. 2023**.** — Type: PANAMA. Coclé: La Mesa, above El Valle de Antón, 900–1173 m, 13 April 1971, *T. B. Croat 14382* (holotype, MO-2057839; isotypes, NY, PMA). (**Figs. 10–11**).

**Habit:** terrestrial, erect or decumbent, or epiphyte to 3 m high.

**Stem: internodes** short, less than 0.5 cm long, 2–3 cm diam. (drying 2 cm diam.), drying yellow-brown with prominent longitudinal ridges and smaller transverse cracks.

**Leaves:** erect-spreading; **petioles** 26–37 cm long, sheathed to within 3–5 cm of the blade, thicker than broad distally of sheath, drying dark reddish brown and weakly sulcate adaxially at apex, weakly striate toward the base abaxially; **sheath** margins drying reddish brown, paler than the remainder of petiole, mostly deciduous with some fragments remaining, only weakly fibrous; **blades** oblong-elliptic, somewhat inequilateral, 25–56 cm long, 12.0–22.5 cm wide, 2.0–2.4 times longer than wide, abruptly acuminate at apex, obtuse to rounded at base, dark green and matte adaxially, moderately paler and semiglossy abaxially, drying grayish brown to brown adaxially, yellow-brown abaxially; midrib narrowly sunken adaxially, narrowly raised (much thicker than broad) abaxially, drying minutely granular; **primary lateral veins** 38–40 per side, departing midrib at 70–80º, not markedly downturned at the midrib, weakly curved to the margins, 4–9 mm apart near the center of blade (2–5 mm near the base), somewhat round-raised, drying weakly granular, only slightly darker than the surface; **interprimary veins** usually only one between each pair of primaries, with 1 or 2 pairs of minor veins between the interprimary and the primary veins; cross-veins present but inconspicuous on drying, the abaxial surface obscurely reddish dotted on magnification.

**Inflorescences: peduncle** to 20 cm long, drying 7 mm diam.; yellowish brown, minutely warty in transverse rows; **spathe** white, to 16 cm long, acuminate at apex, promptly deciduous; **spadix** to 13 cm long, 1.8 cm diam., weakly stipitate.

**Flowers:** ca. 17 visible per spiral, a few flowers in the lowermost spiral sterile, to 1.8 mm long, drying more or less bowl-shaped; **pistils** 1.2–1.8 mm diam.; more or less rhomboid, with a frost-like gray covering on drying; **stigmas** oblong, 0.8–1.0 mm long, 0.3 mm wide, prominently raised on drying; **stamens** 0.8–1.0 mm long, 0.3–0.4 mm wide.

**10.** *Rhodospatha antonensis*. Live plant showing stem, petioles, leaf blades (adaxial surface), and post-anthesis spadix. (Photo: Orlando Ortiz).

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**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha antonensis* is endemic to central Panama, known only from the region of El Valle de Anton at La Mesa and on Cerro Pilón at 700 to 1200 m in a *Tropical Wet Forest* life zone.

**Comments:** The species is characterized by its coarsely fissured yellow-brown dried stems and oblong-elliptic blades with the abaxial surface drying yellowish brown. It could be confused with *Rhodospatha knappiae* but differs from that species in having blades 2.0–2.4 times longer than wide (versus 2.7–4.9 times longer than wide for *R. knappiae*).

**11.** *Rhodospatha antonensis* (*Croat 14382*, MO-2057838). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

In the publication of *Rhodospatha antonensis* (Cedeño et al. 2023), the authors greatly broadened its species concept, extending the range to central Costa Rica. The following collections taken from that work are, in the opinion of the second author of this paper, another species. Compared to the Panamanian *R. antonensis*, all have leaves which dry darker brown and have proportionately narrower blades, ranging from 2.9–5.6 times longer than broad and primary lateral veins more widely spaced and departing the midrib at a more acute angle. Though Croat was a co-author of the above cited paper, his role was in providing the original concept of *R. antonensis*, not in extending its range to central Costa Rica, where few, if any, other aroid species from El Valle de Antón or Cerro Campana are known to occur.

Because the Costa Rican material, which was included in *Rhodospatha antonensis*, was segregated from other similar Costa Rican species, especially *R. knappiae,* we have chosen to assume that the Costa Rican material might be another as yet unrecognized species, not *R. antonensis* or *R. knappiae*; thus, these seemingly aberrant collections are merely listed here and are not otherwise a part of this present revision of *Rhodospatha* in Mexico and Central America.

**Cartago**: Turrialba, 1200–1300 m, 30 June 1976, *T. B. Croat 36643* (MO); **Heredia**: 500–600 m, 18 February 1984, *T. D. Pennington et al. 11536* (K); 450–550 m, 14 February 1986, *M. H. Grayum & P. J. Sleeper 6530* (MO); 700–800 m, 03 April 1986, *M. H. Grayum 6707* (CR); 760 m, 28 May 1976, *T. B. Croat 35789* (MO); 500–600 m, 18 February 1984, *T. D. Pennington et al. 11526* (K); 500–600 m, 18 February 1984, *T.D. Pennington et al. 11528* (K); 500–600 m, 18 February 1984, *T.D. Pennington et al. 11534* (K); 750 m, 22 January 1983, *G. E. Schatz 693* (DUKE); **Limón:** 850 m, 11 April 1989, *R. Robles & A. Chacón 2753* (CR, MO); San Jose prov.: Vazquez de Coronado, 400–1500 m, 28 July 1985, *B. E. Hammel & J. Trainer 14252* (MO).

The Panamanian specimens included by Cedeño et al. (2023) are treated in the present revision as three distinct species: *R.hodospatha antonensis*, *R. antonioanum* , and *R. dressleri*. Compared to the material included from Costa Rica in the publication *of R. antonensis*, these three Panamanian species have more broadly ovate leaf blades 1.8–2.4 times longer than broad and dry mostly yellowish brown or grayish. The characters separating them are in the key.

**Other Specimens Seen (of *R. antonensis sensu strictiore*): PANAMA. Coclé:** North slope and summit of Cerro Pilón, 08º38'N, 80º06'W, 900–1173 m, 16 March 1973, *T. B. Croat 22931* (MO); La Mesa above El Valle, along road which ends in pasture, 08º38'N, 80º07'W, 810 m, 21 July 1974, *T. B. Croat 25322* (RSA, MO); El Valle de Antón, carretera que va desde Mata Ahogado hacia Altos del María, 1024 m, 22 February 2021, *O. Ortiz et al. 4205* (B, FT, MO, PMA); El Valle de Antón.

Camino hacia Cerro Llorón, 08°39'25"N, 80°06'26"W, 731 m, 13 June 2021, *O. Ortiz et al. 4319* (MO, PMA).

***Rhodospatha antonioana*** Croat, Aroideana 47(1): 43–190. 2024 — Type: PANAMA. Panamá: Cerro Campana, ca. 1 mi. from Interamerican Highway ca. 08°41'23"N, 79°55'02"W, 600–800 m, 15 June 1976, *T. B. Croat 35965* (holotype, MO-2381572). (**Fig. 12**).

**Habit:** appressed climbing epiphyte or terrestrial.

**Stem: internodes** short near the apex, up to 3 cm long lower down, 1.0–1.5 cm diam., drying light brown, longitudinally fissured and sometimes transversely cracked as well.

**Leaves: petioles** sheathed to about 3/4 their length, weakly sulcate above sheath, 19–33 cm long; **sheath** thin, brownish, promptly deciduous; **geniculum** ca. 2 cm long; **blades** oblong-elliptic, slightly inequilateral, 26–40 cm long, 10–15 cm wide, 2.6 times longer than wide, acuminate at apex, acute and briefly attenuate at base, dark green and matte adaxially, moderately paler and semiglossy abaxially, drying dark brown adaxially, dark yellowish brown abaxially; **midrib** sunken adaxiallye, prominently raised, thicker than broad abaxially, drying granular; **primary lateral veins** 25–28 per side, departing midrib at 25–35°, weakly arching to the margin; **interprimary veins** usually 1 between each pair of primaries; minor veins usually interconnected with faint tertiary veins.

**Inflorescences:** very short, erect; **peduncle** 4.5–7.0 cm long, drying 1.5–3.0 mm diam.; **spathe** to 4.5 cm long, 2 cm diam. when unopened, oblong-ellipsoid, white, drying dark brown, rounded at apex and weakly apiculate, promptly deciduous; **spadix** 4.0–4.5 cm long, drying 6–7 mm diam., cylindroid to clavate, white, rounded at apex.

**Flowers:** ca. 9 visible per spiral; **anthers** shortly exserted above the pistils, drying light brown, 0.6 mm long, 0.3–0.4 mm wide**; pistils** irregular, subrounded to bluntly 4–6 sided, the apex drying matte, covered with a gray frost-like layer; **stigmas** oblong-elliptic, 0.7–1.0 mm long, 0.3–0.5 mm wide, drying black and sometimes with a pale margin.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha antonioana* is endemic to Panama, known only from collections on Cerro Campana in Panama Province at 50–915 m in a *Premontane Wet Forest* life zone.

**12.** *Rhodospatha antonioana* (*Croat 17192*, MO-2099274). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**Comments:** *Rhodospatha antonioana* is probably most closely related to *R. knappiae*, which has blades of similar shape and coloration; however, the latter species differs in its spadix typically several times larger. It might also be confused with *R. burgeri*, which differs in having blades less than 30 cm long and less than 6 cm wide and a persistent petiole sheath. In contrast, *R. antonioana* has blades more than 35 cm long and more than 10 cm wide with a deciduous petiole sheath or with some dried fragments persisting.

A single fruiting collection from the type locality (*Croat 17192*) was epiphytic and had somewhat darker brown-drying leaves. It is probably also this species (included here as such) but when in fruit has a peduncle to 14.5 cm long with the infructescence greenish and to 14 cm long and 1.1 cm diam.

**Other Specimens Seen: PANAMA. Panamá:** Cerro Campana along trail to summit, 08°41'01"N, 79°55'02"W, 730 m, 2 June 1972, *T. B. Croat 17192* (F, MO); Vicinity of Cerro Campana along trail near tower, 08°41'14"N, 79°55'19"W, 3000 ft, 22 June 1980, *T. M. Antonio 4924* (MO); Cerro Campana: along trail to top, 08°40'N, 79°50'W, 3000 ft, 26 March 1988, *S. A. Thompson 4596* (CM).

***Rhodospatha arborescens*** Temponi & Croat, Brittonia 64: 57–60. 2012. — Type: BRAZIL. Minas Gerais: Município Marliéria, Povoado Santa Rita, Fazenda do Jesus Oliveira, 19°44'14"S, 42°40'29"W, 378 m, 25 November 2006 (fl) *L. G. Temponi & W. Queroga 435* (holotype: RB; isotypes: HUEFS, K, MBM, MO, SPF). (**Fig. 13**).

**Habit:** terrestrial, arborescent, halophyte; feeder **roots** 2–3 mm diam.

**Stem:** sympodial, 1.3–3.5 cm diam., grayish green, internally pinkish; **internodes** 0.4–0.8 cm long.

**Leaves: petioles** 27–65 cm long, green to yellowish green, canaliculate, apically geniculate; **sheath** 15.3–58.5 cm long, fibrous, persistent, not reaching the geniculum; **geniculum** 2–5 × 0.3–1.0 cm, concolorous; **blades** 22–45 cm long, 8–26 cm wide, oblong to narrowly oblong, rarely elliptic, slightly inequilateral, light green on the slightly discolored adaxial surface, membranaceous to chartaceous, apex mucronulate to rarely acute, base acute, slightly asymmetric to rarely cuneate; **primary lateral veins** 26–42 per side, departing midrib at 20–50° at the base and at 60–75° near the apex, scarcely prominent adaxially and discolored; **interprimary veins** 1 or 2 per pair of primary laterals, conspicuous.

**13.** *Rhodospatha arborescens* (*Temponi 435*, MO-6596590). Isotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**Inflorescences:** 1 per leaf axil; **peduncle** 12–38 × 0.3–2.5 cm, erect, greenish; **spathe** 11.0–15.8 × 3.8–7.1 cm, snow-white; **spadix** 5.5–15.9 cm long, pinkish to dark pink, short-stipitate; stipe 0.3–1.5 cm long.

**Flowers:** 2–5 × 1–2 mm; **stamens** 4, 2–3 × 0.5–1.0 mm, filament flattened, anthers 1 mm long; **gynoecium** 1.7–3.0 × 1–2 mm, prismatic, 2-locular, ovules multiple per locule; placentation axial; **stylar** region 1.2–3.0 mm wide, 0.2–1.0 mm wider than the gynoecium; **stigmas** 1.0–1.5 mm long, elongate, cleft at the center; pistillate flowers at the base of the spadix lacking.

**Infructescence:** (immature): 15–20 × 1.5–2.2 cm.

**Fruit:** (immature) green, subprismatic; **seed** reniform.

**Distribution and ecology:** This species is endemic to the Minas Gerais state of Brazil, where it is found at low elevations in swampy or marshy environments and on the margins of creeks.

**Comments:** *Rhodospatha arborescens* is characterized by its arborescent habit, which is unusual in Araceae and unique in *Rhodospatha*, and by its halophytic life form.

**Other Specimens Seen: BRAZIL. Minas Gerais:** Caratinga, Estação Biológica de Caratinga, Fazenda Montes Claros, 19°43'53"S, 41°49'02"W, 12 December 1974, *Lopes & Andrade 7418* (BHCB, MO); Estacao Biologica da Caratinga, fazenda Montes Claros, Caratinga-MG, mata do Rafael, 19°43'53"S 041°49'02"W, 5 September 1998, *J. A. Lombardi et al. 2346* (BHCB, MO); 25 March 2000, *J. A. Lombardi 3668* (BHCB); Governador Valadares, Distrito de APA Ibituruna, 21 February 2004, *Castro & Teixeira 885* (HUEFS); Marliéria, Parque Estadual do Río Doce, Trilha da Lagoa Preta, 25 March 2000, *Temponi et al. 105* (CEPEC, VIC); Marliéria, entorno do Parque Estadual do Río Doce, Fazenda Bené Dias, 13 December 2000*, Temponi et al. 210* (HBR, VIC), *211* (UPCB, VIC), *212* (NY, VIC), *214* (INPA, VIC), *220* (SP, VIC); Estacion Biol. Caratinga, 1984, *Andrade & M. A. Lopes 156* (BHCB).

***Rhodospatha badilloi*** G. S. Bunting, Acta Bot. Venez. 10: 318. 1975 — Type: VENEZUELA. Aragua: Parque Nacional Henri Pittier, Cerro de la Mesa, 1500–1900 m, 8–11 March 1972, *Bunting 4715* (holotype, MY; isotype, VEN). (**Fig. 14**).

**Habit:** appressed-climbing epiphyte to 10 m long.

**14.** *Rhodospatha badilloi* (*Croat 74681*, MO-4359583). Specimen showing stem, petiole, leaf blade (adaxial and abaxial surfaces), post-anthesis spadix, and old spathe.

**Stem: internodes** 1.0–3.1 cm diam., 2.6–6.0 cm long, green and silvery, glossy, the younger portions of the stem drying smooth, dark brown, the older portions with the epidermis drying yellow–brown.

**Leaves:** distichous, clustered at the end of the stems; **petioles** thick, about as long as the blades, 28–52 cm long, sheathed to near the base of the geniculum; **sheath** entire, erect, with the borders nearly touching, the margin thin, involute, more or less concolorous, the apex ending gradually and almost imperceptibly; **geniculum** 3.5–4.5 cm long, weakly sulcate adaxially; **blades** moderately coriaceous and brittle, ovate to ovate-elliptic, 25–52 cm long, 11–28 cm long, 1.6–1.9 times longer than broad, flat and smooth, dark green, glossy and weakly glaucescent adaxially, matte and lime–green abaxially, drying gray–brown adaxially, dark brown abaxially; **midrib** angular-depressed adaxially, 0.8–0.9 mm wide, thicker than broad or parabolic abaxially; **primary lateral veins** 12–16 (20) per side, sunken adaxially, raised and medium green abaxially, departing midrib at 60–70 degrees (45–60 in pre-adult individuals), weakly arcuate to the margin; **interprimary veins** mostly 1, sometimes 2 between each pair of primary lateral veins, these alternating with usually 2 pairs of minor veins; minor veins, interprimary veins and primary lateral veins appearing identical near the margins, closely interconnected with moderately conspicuous transverse cross–veins.

**Inflorescences: peduncle** erect, 30 cm long, 1.5 cm diam.; **spathe** not seen; **spadix** stipitate, stipe green, 1.7–2.0 cm long, to 1.3 cm diam., spadix green, 25–31 cm long, 2.1–2.7 cm diam.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha badilloi* is endemic to northern Venezuela, known from Aragua in the Cordillera Coastal in the Parque Nacional Henri Pittier, in the state of Lara in the Parque Nacional Yacambú, and in Trujillo in the Parque Nacional Guaramacal at 110–1900 m, all in what is probably a *Lower Montane Wet Forest* life zone.

**Comments:** This species is characterized by its appressed-climbing habit; glossy, light brown dried stem epidermis; coriaceous, stiff leaves with ovate to ovate-elliptic, blackish-drying blades, with rather widely spaced primary lateral veins; petioles with entire sheaths extending to the base of the geniculum; and a stipitate spadix.

*Rhodospatha badilloi* is probably most closely related to *R. falconensis* from nearby Sierra de San Luis, from which it might be only subspecifically distinct. With the latter species it shares a similar stem epidermis, intact petiole sheath, blade coloration and venation, and a stipitate spadix.

*Rhodospatha falconensis* differs in having longer internodes, shorter geniculum (to ca 2.5 cm long), and thinner and usually narrower blades.

*Rhodospatha badilloi* might also be confused with *R. perezii.* See that species for differences. Several specimens from low elevations (110–750 m), including *Bunting 2502* and *Croat 74621 and 54473*, still appear to be *R. badilloi*.

**Other Specimens Seen: VENEZUELA. Aragua:** Along road between Colonia Tovar and Carayacu, 2.3 km below the junction with the Colonia Tovar-Caracas Road, disturbed primary forest, 10°28'N 67°12'W, 750 m, 2 August 1982, *T. B. Croat 54473* (MO, VEN); Cordillera Interior, Selva virgen, entre El Paují - El Socorro, hacia Cerro La Ojedeña, al sur de El Consejo, 10°11'N 67°15'W, 1500 m, 4 May 1980, *J.A . Steyermark & W. Perkins 122064* (VEN). **Lara:** Parque Nac. Yacambú, above the capilla, 18 km from Paso de Angostura, 15 km SSE of Sanare, 1680 m, 19 December 1973, *J. A. Steyermark 108841* (MO, NY, VEN); Parque Nac. Yacambu, vic. El Blanquito, 11–19 km SSE of Sanare, 1500–1900 m, 19 April 1973, *G. S. Bunting 4987* (VEN); Parque Nacional Yacambú, 14.7 SSE of Sanare, 1525 m, 8 March 1993, *T. B.Croat 74552* (HUA, LAMUA, MO, NY, PMA, S). **Táchira:** Vicinity of La Fria, along main highway to junction of road to La Grita; 1.4 km N of La Fria, 08°10'N 71°59'W, 110 m, *T. B. Croat 74621* (B, F, K, MEXU, SEL, AAU, CAS, MO, NY, US, WU); Along highway between San Cristóbal and Paez, via Rubio and Delicias, 13.8 km SW of plaza in Brammon; 07°39'N 072°22'W, 1600 m, 12 March 1993, T. B. *Croat 7468*1 (CUVC, COL, MO, PMA, NY, US); La Fría - La Grita at Las Pavas, along Cano Agua Caliente above the junction with the San Cristobal - La Fria Road, 200250 m, 24 September 2009, *G. S. Bunting 2502* (MY, VEN). **Trujillo:** Mun. Boconó. Parque Nacional Guaramacal, sector El Santuario; "La Punta". Bosque muy húmedo montano, 09°13'N 70°14'W, 1860 m, 9–16 July 1998, *B. Stergios 17455* (PORT, US).

***Rhodospatha barbourii*** Croat, J. Bot. Res. Inst. Texas 15(2): 403-404. 2021 — Type: PERU. Amazonas: Prov. Bagua. Cordillera Colán SE of La Peca, humid cloud forest, third camp, 1798–1866 m, 17 October 1978, *P. Barbour 4143* (holotype, MO-280734, isotypes, US, USM). (**Fig. 15**).

**Habit:** epiphytic, somewhat scandent.

**Stem: internodes** short or up to 2 cm long, to 2 cm diam.

**15.** *Rhodospatha barbourii* (*Barbour 4143*, MO-2800733). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), a young inflorescence with spadix and the still attached spathe, and post-anthesis spadix.

**Leaves:** ca. 50.6 cm long; **petioles** 24.7−31.5 cm long, 0.3−0.4 cm diam.; drying medium brown, sulcate adaxially, broadly rounded abaxially, usually sheathed to the geniculum; **sheath** becoming pale-fibrous with some fragments of epidermis; **geniculum** slightly thicker than petiole, drying darker brown, becoming fissured; **blades** ovate-elliptic, 17.0−27.7 cm long, 8.4−16.0 cm wide, 1.6–2.0 times longer than broad, 0.84 times as long as petiole, abruptly acuminate at apex, obtuse to subcordate at base, dark green adaxially, lighter green abaxially, drying subcoriaceous, semiglossy, dark brown adaxially, medium brown and minutely granular abaxially; **midrib** concolorous, broadly sulcate adaxially, light brown, rounded-raised abaxially; **primary lateral veins** 14−22 per side, departing midrib at 70°−80°, drying flattened, concolorous adaxially, acutely raised and light brown abaxially; collective veins absent, primary lateral veins extended along margin occasionally overlapping.

**Inflorescences:** ca. 23.8 cm long with **peduncle** 8–11 cm long, 0.5–0.6 cm diam.; drying sulcate, light brown; prophylls persisting as fibers; **spathe** white, drying dark brown subcoriaceous, 13.5–18.5 cm long, 5–6 cm wide, hooding spadix; **spadix** white, 12–17 cm long, 1.5–2.0 cm diam.

**Flowers:** 6–10 visible per spiral; **style** irregularly 4- or 5-sided, 4.5 mm long, 5.5 mm wide, light tan.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha barbourii* is endemic to Peru, known only from the Department of Amazonas in the Cordillera Colán, southeast of La Peca at 1798–1866 m in a *Lower Montane Wet Forest* life zone.

**Comments:** The species is characterized by its short internodes, leaves with the sheath becoming pale-fibrous with some fragments of epidermis, ovate-elliptic blades 1.6–2.0 times longer than broad, and inflorescence with a large white spathe and spadix.

*Rhodospatha barbourii* is most similar to *R. latifolia*, which is found at lower elevations (200–800 m), but that species has larger blades (25–50 cm long and 11–17 cm wide) proportionately narrower (length to width ratio of 2.5–2.8 vs. 1.6–2.0 for *R. barbourii*), 30 or more primary lateral veins per side (vs. 14–22 pairs for *R. barbourii*), petiole sheath persisting intact, and 15–17 flowers visible per spiral on the spadix.

**Other Specimens Seen: PERU. Amazonas:** Prov. Bagua. Cordillera Colán SE of La Peca, humid cloud forest, third camp, 1798–1866 m, 17 October 1978, *P. Barbour 4173* (MO).

***Rhodospatha benavidesiae*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Nariño: Mpio. de Tumaco, corregimiento de la Guyacana, [along Hwy 10 between Altaquer and Tumaco] about 10 km [E.] of Guayacana, 320 m, ca. 01°25'78"N, 78°23'04"W, 8 October 1988, *O. de Benavides 10474* (holotype, PSO-021551). (**Fig. 16**).

**Diagnosis:** *Rhodospatha benavidesiae* is characterized by its epiphytic habit; large dark grayish brown-drying, markedly inequilateral, short-acuminate, ovate-elliptic blades 2.1 times longer than wide; and especially unusual venation with the bottom primary lateral veins departing midrib at a narrow angle from the base of the midrib before spreading out and 4–6 minor veins on each side of the interprimary veins with numerous cross veins interconnecting them.

**Habit:** epiphytic climber.

**Stem:** not seen.

**Leaves: petioles** not seen; **blades** ovate-elliptic, ca. 57 cm long, 27 cm wide, 2.1 times longer than wide, obtuse and abruptly short-acuminate at apex, inequilateral at base, on one side obtuse, widest at middle, moderately coriaceous, weakly concolorous, drying dark grayish brown, weakly glossy adaxially, semiglossy abaxially; **midrib** drying concolorous to slightly paler, round-raised, prominently ridged adaxially, thicker and bluntly acute with a thick medial rib, otherwise finely acute-ribbed abaxially; **primary lateral veins** ca. 25 per side, spaced 1.5–2.3 cm apart, the proximal ones departing from the base of the midrib at a narrow acute angle then curving out at 50–60° before curving again distally near the edge of the blade, the next ones rising more directly at 50–60° and curving towards the apex of the blade, drying concolorous adaxially, slightly darker abaxially; **interprimary veins** prominent, easy to confuse with the primary lateral veins, flanked on each side by 4–6 minor veins arising at successive levels from the adjacent primary lateral vein, with many cross-veins interconnecting them.

**Inflorescences:** erect; **peduncle ca.** 38 cm long, enclosed in a prophyll for 3/4 its length, drying dark grayish brown; **spathe** not seen; **spadix** cylindrical, curving, ca. 23 cm long, 1.5 cm diam. near the middle, tapering slightly towards the top, drying dark brown, stipitate 4 cm, stipe drying whitish.

**Flowers: styles** quadrangular to round-prismatic, 1.3–1.7 mm long in the broadest dimension, sometimes broader than long, drying dark gray-brown, matte, densely and conspicuously pale-granular; **stigmas** 6–10 mm long, 0.6 mm wide, the margin thick and tan, medially deeply sunken.

**Infructescences:** not seen.

**16.** *Rhodospatha benavidesiae* (*O. de Benavides 10474*, PSO-021551). Holotype showing tip of petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**Distribution and ecology:** *Rhodospatha benavidesiae* is endemic to Colombia, found only in Nariño Department near the Ecuadorian border at 320 m in a *Tropical Wet Forest* life zone.

**Etymology:** The species is named in honor of Olga de Benavides, who collected the only known specimen in 1988. Benavides, long the Curator at the PSO herbarium in Pasto, was one of the foremost botanical forces in southwestern Colombia. She was a key figure in the founding of the La Planada Biological Reserve, which was originally a property belonging to her family.

**Comments:** The species is quite unique due to its large size, leaves drying dark grayish brown, and especially by unusual venation with a cluster of primary lateral veins arising from the bottom of the midrib and 4–6 minor veins on each side of the interprimary veins. This type of venation has not been seen in other *Rhodospatha* species.

***Rhodospatha berlinii*** Delannay & Croat, **sp. nov.** — Type: PERU. Amazonas: Condorcanqui, Río Cenepa, vicinity of Huampami, ca. 5 km. east of Chávez Valdívia. 3 km. arriba de la boca de la Huampami, en bosque secundario, 04°30'S 78°30'W, 200–250 m, 25 July 1978, *E. Ancuash Atsut 1108* (holotype, MO-2672321). (**Fig. 17**).

**Diagnosis:** *Rhodospatha berlinii* is characterized by its appressed-climbing, epiphytic habit; petioles drying light-grayish brown with the sheath persisting intact; ovate-elliptic blades 2.1–3.5 times longer than wide, drying grayish green adaxially and light yellowish brown abaxially; and inflorescences with a light grayish brown-drying prophyll, a light purple spathe, and a white spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, ca. 1 cm diam., drying light brown to pale yellow-brown, bluntly and narrowly ribbed, densely and finely striate-granular, sparsely pale-pustular.

**Leaves: petioles** 26–39 cm long, sheathed to the geniculum, drying pale yellow-brown, matte, irregular but densely somewhat pale-granular to densely short-ridged, becoming narrowly and closely ribbed toward the margin; **sheath** thin along its margin, this drying darker brown, persisting intact or nearly so; **geniculum** 2–3 cm long, drying sharply sulcate with its margins continuous with the petiole sheath; **blades** ovate-elliptic, 25–42 cm long, 11–17 cm wide, 2.1–3.5 times longer than wide, obtuse and gradually short-acuminate at apex, usually inequilaterally rounded, sometimes acute, often weakly attenuated at base, widest proximal of the middle,

**17.** *Rhodospatha berlinii* (*E. Ancuash Atsut 1108*, MO-2672321). Isotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

or sometimes at or near middle, drying medium grayish green to gray-brown, matte adaxially, light yellowish brown to faintly reddish, matte to weakly glossy abaxially; **midrib** drying lighter and sunken medially adaxially, densely granular-ridged adaxially, concolorous, narrowly round-raised, densely granular and sparsely short-dark-lineate abaxially; **primary lateral veins** 19–25 per side, arising at 60–70°, drying weakly visible, often wrinkled-puckered adaxially, slightly darker, narrowly rounded nearly smooth abaxially; **interprimary veins** sometimes nearly as strong as primary lateral veins, usually weaker and not puckered, usually equaling the minor veins; minor veins diffuse, 2 or 3 running on each side of the interprimary veins; cross-veins few, not prominent.

**Inflorescences:** erect; **peduncle** 9–17 cm long, enclosed for most of its length by a prophyll drying light-grayish brown; **spathe** (13)16-17(19) cm long, light purple, drying grayish brown, matte, densely and minutely granular abaxially, slightly darker, densely granular matte adaxially; **spadix** 14–18 cm long, drying 10–14 mm diam., white, drying grayish brown, matte.

**Infructescences:** red.

**Fruits:** reddish; **seeds** flattened and stacked in piles, each shaped like a hamburger bun, discoid, much flattened, 0.5–0.6 mm diam., 0.2–0.3 mm thick, with a small V-shaped notch on one side, drying pale tan, moderately smooth, the circumferential grove dark brown inside.

**Distribution and ecology:** This species is endemic to Peru, found in Amazonas and Loreto Departments at 130–250 m in a *Premontane Wet Forest* life zone.

**Etymology:** The species is named in honor of Dr. Brent Berlin, formerly at the University of Georgia in Athens, who collected the first known specimen in 1972 during his studies of comparative systems of classification of plants and animals among indigenous groups centered in Amazonas Department of Peru. During these studies he made numerous herbarium vouchers documenting his work. Many of these collections, like this one, proved to be new to science. Certainly, no other anthropologist has done more to advance the study of plants.

**Comments:** *Rhodospatha berlinii* could be confused with *R. latifolia*, which grows in the same area, but *the latter species* differs in its petioles drying dark brown and blades drying dark reddish brown on both sides, instead of medium grayish green adaxially and light yellowish brown abaxially for *R. berlinii*.

**Paratypes: PERU. Amazonas:** Condorcanqui, Río Cenepa, vicinity of Huampami. ca. 5 km east of Chávez Valdivia, en bosque primero, 04°30'S 78°30'W, 200–250 m, 1978, *A. Kujikat 17* (MO); Valle

del Río Santiago, Quebrada Caterpiza, 2–3 km atrás de la comunidad de Caterpiza. Monte virgen, 03°50'S 77°40'W, 250 m, 15 December 1979*, S. Tunqui 384* (MO); Monte virgin, 1 km. atrás de la comunidad de Caterpiza, trocha de metayar, banda este de la Quebrada Caterpiza, Río Santiago, 03°55'00"S 77°43'06"W, 180 m, 7 November 1979, *V. Huashikat 1184* (MO); Río Cenepa, vicinity of Huampami. ca. 5 km east of Chávez Valdivia. Camino de Chigkan entsa, en bosque primero, 04°30'S 78°30'W, 200–250 m, 1 August 1978, *A. Kujikat 77A* (MO); Río Cenepa, vicinity of Huampami, ca. 5 km. east of Chávez Valdívia, al lado de su casa de Angel, Quebrada Najamtaí entsa. en bosque primario, 04°30'S 78°38'W, 200–250 m, 8 February 1979, *E. Ancuash Atsut 1257* (MO); Río Santiago, 1 km otra banda de La Poza. Monte virgen, 04°02'S 77°44'W, 180 m, 14 November 1979, *S. Tunqui 57A* (MO); Río Cenepa región, above Quebrada tuhusik, 5 minutes down river from Chavez Valdivia, primary forest, 04°27'29"S 78°09'23"W, 250 m, 16 December 1979, *B. Berlin 568* (MO); Río Cenepa región, Quebrada Huampami, 04°28'S 78°10'W, 190 m, 5 July 1974, *R. Kayap 1045* (MO, US); Río Cenepa. Quebrada Kayamas, lugar Cenepa. Monte al lado de Kayamas, 720 feet (219 m), 6 April 1973, *E. Ancuash Atsut 181* (MO); On a hunting trail, east bank of Río Santiago, ca. 2–3 km from La Poza, primary or secondary growth, 200 m, 12 October 1979, *B. Berlin 3587* (MO); Río Cenepa, vic. of Huampami ca 5 km East of Chavez Valdivia, camino arriba de Wampushik entsa, sur del Río Cenepa, 04°30'S 78°30'W, 200–250 m, 12 July 1978, *E. Ancuash Atsut 1044* (MO). **Loreto:** Mariscal Ramon Castilla, San Felipe, Río Mirim, bosque primario, 04°20'S 71°55'W, 130 m, 2 March 1986, *R. Vásquez & N. Jaramillo 7261* (MO).

***Rhodospatha besseae*** Croat, **sp. nov.** — Type: ECUADOR. Napo: Auca Oil Field, 60 km S of Coca, 300 m, January 1979, *L. Besse, Kiat Tan & J. Halton 1044* (holotype, SEL-026677). (**Fig. 18**).

**Diagnosis:** *Rhodospatha besseae* is characterized by its epiphytic habit; very short internodes; ovate blades drying medium greenish-brown and broadest below the middle; weak primary lateral veins mostly without interprimary veins; and short-pedunculate inflorescences with the spathe closed and leathery and with a thick, pink spadix.

**Habit:** epiphytic.

**Stem: internodes** very short, 1.5–2.0 cm diam., drying dark brown, conspicuously granular with narrow ridges and pustules.

**Leaves:** erect-spreading, somewhat distichous; **petioles** ca. 34 cm long, terete, sheathed (sheath characteristics unknown), drying medium brown; **geniculum** ca. 2.5 cm long, sharply sulcate, with

**18.** *Rhodospatha besseae* (*Besse et al. 1044*, SEL-026677). Holotype showing stem, petiole, leaf blade (abaxial surface), and inflorescences (one freshly opened with still attached spathe and another with spadix still enclosed in the spathe).

undulate margins; **blades** ovate, ca. 38 cm long, 24 cm wide, 1.5–1.6 times longer than wide, acuminate at apex, rounded to weakly subcordate at base, broadest below middle, drying medium greenish-brown; **midrib** narrowly sunken, finely ridged along its margin in the groove adaxially, thickly round-raised, densely granular, moderately short pale-lineate abaxially; **primary lateral veins** ca. 25 per side, 6–12 mm apart, departing midrib at 70–80°, weakly sunken, not conspicuous, slightly paler adaxially, narrowly rounded, slightly darker, short purplish to reddish short-lineate abaxially (especially near midrib); **interprimary veins** mostly absent; **adaxial surface** finely striate-areolate and pale-speckled; **abaxial surface** drying smooth, sometimes dark-speckled.

**Inflorescences:** erect; **peduncle** 5–10 cm long; **spathe**, leathery, 9–10 cm long, cream, drying medium brown; **spadix ca.** 11 cm long, 1.5 cm diam., pink; stipe 5 mm long.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha besseae* is endemic to Ecuador (Napo) at 300 m elevation in a *Tropical Wet Forest* life zone. While the collection was made in the days before GPS usage and no towns or landmarks were cited by the Besse expedition, the road goes regularly straight south so 60 km would probably put the collection site somewhere in the vicinity of Comunidad Andina and Communidad San Francisco or coordinates approximately 00°59'S, 70°56'W. This vast sparsely populated area has mostly indigenous groups and businesses associated with oil extraction, the reason the road was built. Besse's group was perhaps the first to get into the region.

**Etymology:** *Rhodospatha besseae* is named in honor of Libby Besse from Sarasota, Florida who collected the only known specimen. Besse was an unexpected force in botany from the earliest days at the founding of the Selby Botanical Garden where she played an early roll as an advisor and in fund raising. She also had an important role with the scientific development but especially by funding expeditions to Ecuador where she made a number of important trips. She was involved with the expedition that was carried out with Mike Madison and Tim Plowman, which might have been the first important venture into this vast stretch of land along the Colombian border and was just one of several important expeditions into the most remote parts of Ecuador. She made these arduous treks and did as well as some much younger lads who accompanied her.

**Comments:** The species may be confused with *Rhodospatha nielli*, which occurs in the same area; but, that species differs in its much larger blades (31) 40–62 (80) cm long and (18) 20–32 (44) cm wide. *Rhodospatha besseae* also differs by its blades drying much lighter brown and with weak

primary lateral veins without visible interprimary veins, and by its inflorescences with a much shorter peduncle. The spathe has been seen in a condition where it is was loosely closed, the tip opened at the apex, and the spadix protruding with pollen present. It is unknown if this observation was at the end of anthesis or simply a stage of the flowering process.

***Rhodospatha bilsaensis*** Croat, **sp. nov.** — Type: ECUADOR. Esmeraldas: Fila de Bilsa, 7 km E of San Jose de Bilsa, wet forest, ca. 80 km due SW of Esmeraldas, 12 km SE of El Salto on Atacames-Muisne Road, 00°37'N 79°51'W, 280 m, 29 January 1991, *A. H. Gentry, R.B. Foster & C. Josse 72890* (holotype, MO-3904887, 3905819; isotype, QCNE). (**Figs. 19–20**).

**Diagnosis:** *Rhodospatha bilsaensis* is characterized by its small size; somewhat elongated yellow-brown internodes; petioles sheathed to the geniculum with the sheath persistent and drying dark brown; markedly inequilateral, narrowly oblong-elliptic to ovate-elliptic, acuminate, blades drying brownish, 2.5–3.5 times longer than wide with faint, widely spaced primary lateral veins and faint interprimary veins; and inflorescences with a short peduncle enclosed by a long prophyll and a long white spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** elongated, 1.5–2.5 cm long, 8–16 mm diam., dark green, glossy, contracted somewhat midway; **petioles** 13.5–23.0 cm long, medium green, semiglossy, sheathed to the geniculum; **sheath** broad, incurled, persistent, drying dark brown; **blades** subcoriaceous, oblong-elliptic to ovate-elliptic, 26.5–44.0 cm long, 8.5–15.0 cm wide, 2.5–3.5 times longer than wide, semiglossy, bicolorous, drying reddish brown or greenish brown adaxially, slightly lighter abaxially; **midrib** narrowly sunken and marginally discolorous adaxially, paler and thicker than broad abaxially; **primary lateral veins** faint, 15 or 16 per side, widely spaced (ca. 2 cm), weakly sunken above, convex below; **interprimary veins** not visible.

**Inflorescences: peduncle** 13.0–14.5 cm long, closely enveloped for their entire length by a longer prophyll to 25 cm long, this drying dark brown or black; **spathe** 13.5 cm long, white; **spadix** 13.5–30.0 cm long, 1.2–2.4 cm diam., white.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha bilsaensis* is endemic to Ecuador, found only in Esmeraldas Province at 100–280 m in a *Premontane Moist Forest* life zone.

**19.** *Rhodospatha bilsaensis* (*Gentry et al. 72890*, MO-3904887). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**20.** *Rhodospatha bilsaensis* (*Gentry et al. 72890*, MO-3905819). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), inflorescence with spathe still attached to the spadix, and post-anthesis spadix.

**Etymology:** The species is named for San Jose de Bilsa in Esmeraldas Province of Ecuador near which it was first found.

**Comments:** *Rhodospatha bilsaenssis* resembles *R. lorenzoensis*, which also grows in that general area; however, the latter species has light brown stems with proportionately shorter internodes (vs. stems with proportionately longer internodes, drying dark reddish brown for *R. bilsarensis*) and light brown petioles. Also, for *R. lorenzoensis*, blades are only moderately inequilateral and rounded at the base with the apex gradually acuminate (vs. with blades drying darker brown, markedly inequilateral and attenuated on one side, and obtuse to acute on the other side for *R. bilsaensis*); primary lateral veins are ca. 10 per side (vs. 15–16 per side for *R. bilsaensis*); pistils are 2.6–3.0 mm long, irregularly prismatic to subrounded and densely and evenly pruinose (vs. pistils 1.8– 2.0 mm long and evenly rhombic with separated waxy clusters for *R. bilsaensis*).

**Paratype: ECUADOR. Esmeraldas:** Along road between Atacames and Muisne, 50.1 km SW of Atacames (via El Salto), 00°42'00"N 80°00'00"W, 100 m, 18 March 1992, *T. B. Croat 73138* (B, CUVC, HUA, LAMUA, K, MO, NY, PMA, QCA, S, US, QCNE).

***Rhodospatha bogneri*** Croat, **sp. nov.** Type: Origin unknown, cultivated at Munich Botanical Garden by Josef Bogner**.** *Bogner 1281* (M). (**Figs. 21–22**).

**Diagnosis:** *Rhodospatha bogneri* is characterized by its internodes drying conspicuously ridge-grooved; oblong-elliptic, arched-spreading blades inequilaterally acute at the base; and inflorescence with a bright violet spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: juvenile internodes** elongated, 3 cm or more long, 5 mm diam., drying blackened; **adult internodes** dark green, semiglossy, slightly longer than wide, 1.0–1.5 cm diam.; drying conspicuously folded, moderately glossy, light yellow-brown, weakly granular on magnification.

**Leaves: petioles** (8)18–21 cm long, erect-spreading, sheathed throughout or nearly so, medium dark green and semiglossy; **sheath** erect, eventually turning brown, persisting intact; free portion of petioles 5–27 mm long, sulcate; **geniculum** slightly paler, sharply sulcate; **blades** oblong-elliptic, rarely ovate-elliptic, 13–26 cm long, 4.5–11.6 cm wide, 2.4–3.0 times longer than wide, inequilateral, one side 1.0–1.7 cm wider than the other, arched-spreading, subcoriaceous,

**21.** *Rhodospatha bogneri.* Live plant cultivated by Josef Bogner at Munich.

semiglossy, abruptly to weakly acuminate to acute to rounded and apiculate at apex, inequilaterally acute at base, drying medium green adaxially, medium brown abaxially; **midrib** sunken and slightly paler adaxially, narrowly raised and paler abaxially; **primary lateral veins** 15–22 per side, departing midrib at 45-50°; **interprimary veins** present between most of the primary lateral veins; tertiary veins moderately conspicuous, obliquely interconnecting the minor parallel veins; **surfaces** minutely dark-speckled.

**Inflorescences:** solitary, longer than the petioles; **peduncle** 12–19 cm long, 2–3 mm diam., yellowish; **spathe** 8–9 cm long, caviform, blackened, flattening to 7.5 cm wide, soon deciduous**; spadix** bright violet.

**Flowers: stamens** 2.2–2.4 mm long; **filaments** flattened, 1.5 mm long; thecae 0.7 mm long, acute at apex; **pistils** 2.2–2.4 mm long, 2.2–2.8 mm diam. at apex; **style** 0.9–1.2 mm thick, pale brown-orange, speckled internally with purple, 4- or 5-sided, the sides concave to convex; **stigma** oblong-elliptic, slit-like, apparently as deep as the thickness of the style; **ovary** 1.2 mm long;

**22.** *Rhodospatha bogneri* (*Croat 71914A*, MO-4359533). Specimen showing petiole, leaf blade (abaxial surface), and inflorescences with separate spathes.

ovules numerous, curved into a tight semi-circle, imbedded in a transparent, gelatinous mixture; placentation axile.

**Infructescences:** not seen.

**Distribution and ecology** — *Rhodospatha bogneri* is known for certain only from living material in several European botanical Garden, namely the botanical garden in Munich and in Prague at Charles University. It is of unknown origin.

**Etymology:** This species is named in honor of the late Dr. Josef Bogner, formerly of the Munich Botanical Garden whose knowledge of the technical details of Araceae will probably never be surpassed. Josef was one of the finest growers in the world and developed the richest accumulation of living aroid genera that has ever existed. He was doggedly persistent in searching out and collecting different genera all over the world. He was co-author of the "bible" of aroids, Genera of Araceae (Mayo et al. 1997).

**Paratypes:** Origin unknown, cultivated at Munich Botanical Garden, 10 December 1991, *T. B. Croat 71914A (MO)*; Origin unknown, cultivated at Munich Botanical Garden by Josef Bogner**.** *Bogner 1621* (M).

***Rhodospatha bolivarana*** G. S. Bunting, Acta Bot. Venez. 10: 319. 1975. Type: VENEZUELA. Bolivar: gallery forest and savanna along the Río Kanarakuni, N and NE of Misión de Campamiento Sanidad del Río Kanarakuni, 400 m, about 04°50'N 64°50'W, 17-29 March 1967, *Steyermark 97798* (holotype, VEN; isotype, US). See note below: the isotype at US is *R. oblongata.* (**Fig. 23**).

**Habit:** appressed- climbing epiphyte.

**Stem: internodes** 1.0–2.2 cm long, drying 1.2 cm diam., light brown, closely and densely folded, fissured transversely, moderately glossy.

**Leaves: petioles** 41 cm long, 4/5 as long as the blade, concolorous, grayish yellow-brown, sheathed to the base of the geniculum, drying reddish brown, finely striate adaxially; **sheath** lighter reddish brown, persisting intact, the margin of the sheath lighter brown, tightly inrolled geniculum light brown; **geniculum** 2.5 cm long, drying darker red-brown, shrunken and narrower and darker than the remainder of the petiole, narrowly sulcate adaxially; **blades** oblong-elliptic,

**23.** *Rhodospatha bolivarana* (*Steyermark 97798*, VEN). Holotype showing adaxial and abaxial leaf surfaces.

47–49 cm long, 18.5–19.0 cm wide, 2.9 times longer than wide, drying thinly coriaceous to papyraceous, somewhat inequilateral, one side 1.5 cm wider, obtuse, unequal and abruptly acuminate at apex, unequal and acute to obtuse and somewhat decurrent onto the geniculum, forming weak undulate wings across the geniculum, dark green and weakly glossy adaxially, pale green and semiglossy abaxially, drying dark greenish brown adaxially, reddish brown abaxially; **midrib** sunken adaxially, drying with the margins raised, thicker than broad abaxially; **primary lateral veins** ca. 20 per side, (1.4)1.7–2.2 cm apart, arising abruptly from the midrib and spreading in a weak arc at 55–70°, interprimary veins present or not, when present only 1 between primary lateral veins; minor veins up to 3 between each pair of primary lateral veins, usually only 2 present when an interprimary vein is present; all the lateral veins drying undulate; cross-veins weak, oblique, and mostly toward the margins; minor veins only 1–3 between each intervening pair of veins; **adaxial surface** sparsely granular, abaxial surface densely and minutely granular-dotted.

**Inflorescences:** unknown.

**Infructescences:** unknown.

**Distribution and ecology:** *Rhodospatha bolivarana* is known only from the type locality in Venezuela in the state of Bolivar along the Río Kanarakuni near the Brazilian border at 400 m in a *Tropical Moist Forest* life zone.

**Comments:** The species is characterized by its elongate slender internodes, which dry light brown and fissured; long-sheathed petioles; and oblong-elliptic blades with rather widely spaced primary lateral veins and weakly developed interprimary veins and cross-veins.

The type specimen, *Steyermark 97798*, represents a mixed collection. While the VEN sheet of *Steyermark 97798* is the holotype of *Rhodospatha bolivarana*, a duplicate of this collection at US is *R. oblongata. Rhodospatha oblongata* differs by having the stem drying smoother, darker brown and matte; petioles distinctly bicolorous with the shaft darker brown and matte; and sheath margin paler and undula. The geniculum while also drying darker is not shrunken. The blades are thicker, more densely granular on the adaxial surfaces and grayish yellow-brown and more or less matte abaxially; the primary lateral veins are spaced closer than on *R. oblongata* with as many as 20 minor veins between the alternating larger veins.

***Rhodospatha brachypoda*** G. S. Bunting, Phytologia 64: 479. 1988. — Type: VENEZUELA. Amazonas: Río Negro. White water river 0 to 1 km south of Río Mawarinuma, 3 km by air east of Cerro de La Neblina Base Camp, 140 m, 00°50'N 66°09'W, *R. L. Liesner 15978* (holotype, VEN; isotype, MO). (**Figs. 24-27**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** to 3 cm long, 2 cm diam., dark green, matte, warty at the base; **petioles** 26–33 cm long, sheathed to the geniculum, dark green; **sheath** dark green, erect to incurled, persisting intact; **geniculum** sulcate, often with the margins of the blade and the sheath merging along its margins; geniculum 2–3 cm long, sharply and broadly sulcate, extending onto the blade; **blades** subcoriaceous, narrowly obovate-elliptic, 38–73 cm long, 12–17 cm wide, 2.5–3.7 times longer than wide, 1.4–2.1 times longer than the petioles , obtuse to rounded and somewhat inequilateral and abruptly acuminate, rarely merely acuminate at apex, inequilateral and obtuse to narrowly rounded, rarely acute at base, dark green and glossy adaxially, much paler, yellow-green and semiglossy abaxially, drying medium yellow-brown, grayish or medium green adaxially, yellowish brown or grayish green, matte to weakly glossy abaxially; **midrib** narrowly sunken and weakly discolored marginally adaxially, convex and darker abaxially; **primary lateral veins** 22–28 per side, departing midrib gradually at an acute angle then spreading in a weak arc averaging 40–60° to the margin, 12–20 mm apart, moderately sunken adaxially, weakly pleated-raised abaxially, drying flat (not raised) daxially, weakly raised and darker than surface abaxially; **interprimary veins** 1 or 2 between each pair of primary lateral veins; minor veins moderately weak, ca 1 mm apart; **adaxial surface** drying finely and minutely striate, often with pale speckles to coarsely anastomose-ridged or areolate-ridged; **abaxial surface** prominently and uniformly low ridged-striate, these interspersed with yellow-brown speckles, the ridges discontinuous or sometimes branching (these perhaps raphide cells); margin prominently revolute, drying somewhat scarious with a narrow blackened band very near the margin.

**Inflorescences:** erect to pendent-spreading; **peduncle** 18–23 cm long, drying medium brown; **spathe** green abaxially, white adaxially when immature, becoming yellowish white, 12.5–17.5 cm long, only slightly longer than the spadix, narrowly tapered at apex; **spadix** 10–12 cm long, yellowish white, becoming dark green to bluish green, matte.

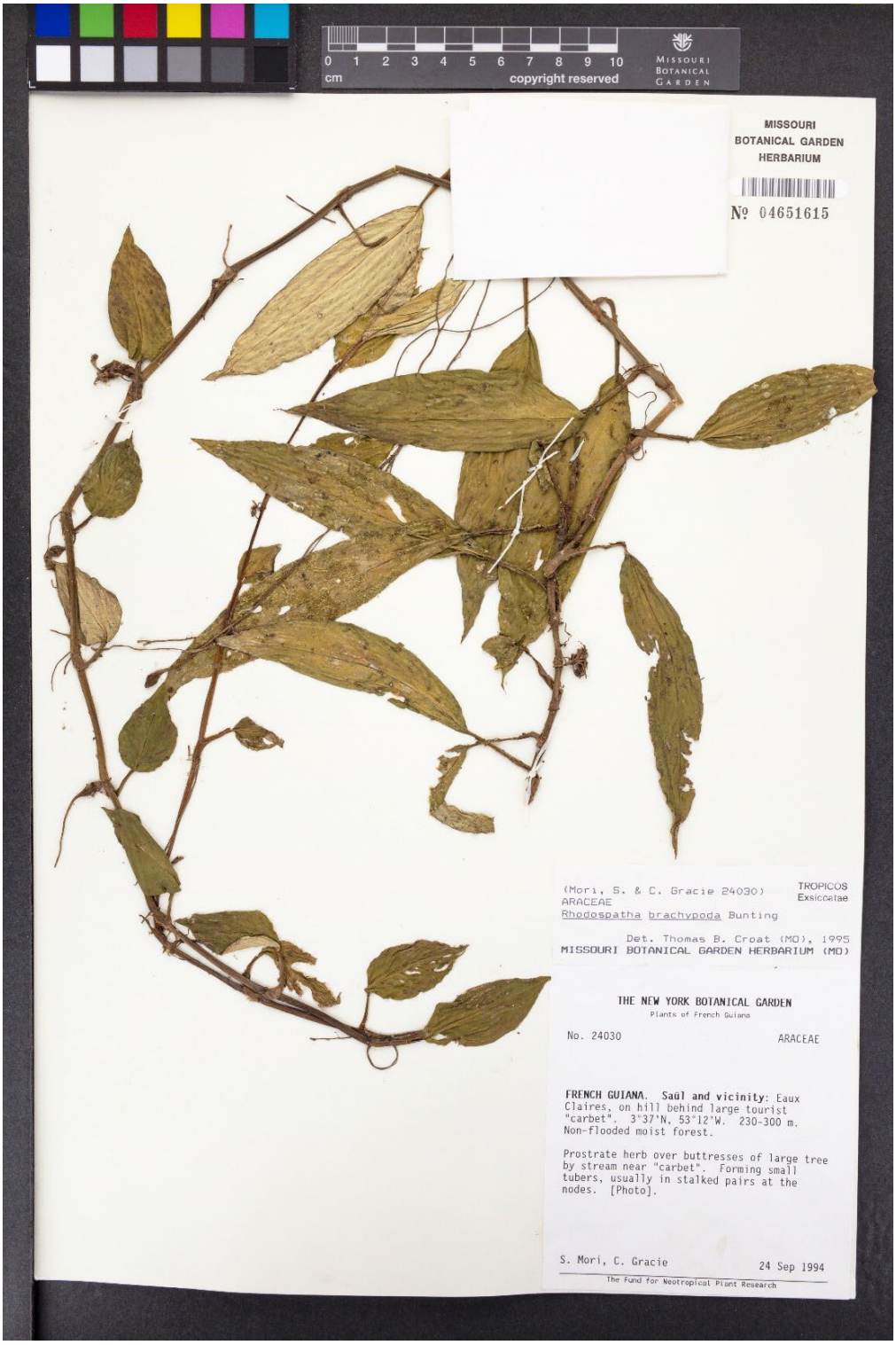
**Flowers: styles** subrounded-prismatic, 1.7–2.1 mm wide, usually 6-sided, gray, matte, glaucescent; **stigmas** round or broadly elliptic, 0.4–0.5 mm long.

**Infructescnces:** not seen.

**24.** *Rhodospatha brachypoda*. (*Croat 59586*). Live plant showing abaxial leaf surface.

**25.** *Rhodospatha brachypoda.* (*Croat* 59586). Live plant showing adaxial leaf surface.

**26.** *Rhodospatha brachypoda* (*Croat 74218,* MO). Specimen with single leaf showing adaxial and abaxial surfaces and a stem.




**27.** *Rhodospatha brachypoda* (*Mori & Gracie 24030,* MO). Juvenile plant.

**Distribution and ecology:** *Rhodospatha brachypoda* occurs in southern Venezuela, the Guianas, and in Grenada in the West Indies at 40–500 m in *Tropical Wet Forest*, *Tropical Moist Forest,* and *Premontane Wet Forest* life zones.

**Comments:** This species is characterized by its appressed-climbing, epiphytic habit; leaves with the blades narrowly obovate-elliptic drying brown or medium green adaxially, yellowish brown abaxially; petiolesdrying brown and with narrow sheaths persisting intact; primary lateral veins spaced 12–20 mm apart with the interprimary veins much weaker; minor veins clearly visible; and inflorescences with a green spathe and a cream spadix becoming dark green to bluish green with elevated, broadly elliptic stigmas.

This species was formerly considered to be more widespread but careful observations showed it to be a heterogeneous species with disjointed populations widely separated geographically, one in the Guianas and the other in the western Amazon Basin from Ecuador to Bolivia. Upon careful study of the two populations, the authors determined that the two groupings represented two distinct species. The population centered in the Guianas retained the name *R. brachypoda* because the type was from that are while a new species, *Rhodospatha amazonensis*, was created to encompass the specimens from the western Amazon Basin.

**Other Specimens Seen: CARIBBEAN**. **Windward Islands:** Grenada. Goyave, Riviere Moreaux, 300 m, June 1936, *Henri Stehlé 978* (NY). **FRENCH GUIANA**. Saül and vicinity: Eaux Claires, on hill behind large tourist "carbet". Non-flooded moist forest; 03°37'N 053°12'W, 230 - 300 m, 24 Sep 1994, *Scott A. Mori & Carol A. Gracie 24030* (MO, NY); Vicinity of Saül, W along road, just N of Elaux Claires; 03°37'N 053°12'W, 220 m, 13 Feb 1993, *Thomas B. Croat 74218* (K, M, MO). Mont Galbao, Région de Saül, 3°36'N 53°17 W, 600 m, 20 January 1986, *J. de Granville et al. 8839* (CAY). Trois Sauts, Chemin entre Zidok ville et Capitaine Roger, 6 Mar. 1975, *Lescure 535* (CAY); **Cayenne:** Crique Kapiri-R.N. 2- Bassin de l'Approuague, 04°07'N 052°05'W, 40 m, *Georges Cremers 11593* (CAY); S.E. corner near Brazilian border: Saut Tamanu waiapa a 1 km en mont. foret inondee, 24 March 1974, *P. Grenand 88* (CAY). **Saint-Laurent-du-Maroni:** entre Citron et Boeuf Mort, 100 m, 10 Feb. 1983, *Georges Cremers 7940* (CAY). **GUYANA.** Region: Cuyuni-Mazaruni. Paruima to Ilubia Creek Trail; near Kamarang River. Dense forest, on brown sand with *Pentaclethra*, Inga & Carapa; 05°47'N 061°03'W, 500 m, 13 February 1996, *H. David Clarke 1141* (MO, US); Barima-Waini Region, Barima River Head, 3 mi W of Eclipse Falls below wanamaparu CR. & Ayambaru Falls, 07°38' 60°07W, 1 m, 2 August 1986, *J. Pipoly & H. Lall 8184 (*US). **North West:** Mabaruma, 27 Apr 1945, *D. B. Fanshawe 2473* (K, NY, U); Kariako Village, Barama River, Eschweilera/Licania forest, 6 mi. inland from Kariako, 07°22'N 059°42'W, 145 m, 1997, *Tinde van*

*Andel et al.1362* (U). **SURINAME**. Princes Irene-vallen bij de Brownsberg; Feb 1959, *J. Lanjouw s.n.* (MO); Prinses Irene - vallen bij de Brownsberg, *J. Lanjouw 1983* (MO); **Brokopondo:** Nat. Res. Brownsberg. Rock bank of Irene fall, in spatter zone, slope 70º W; 12 Dec 1975, *R. J. M. Tjon-Lim-Sang 8* (MO); Brownsberg Nature Reserve, *R. J. M. Tjon-Lim-Sang & I. H. M. v. d. Wiel 59* (B, CAY, MO). **VENEZUELA. Amazonas:** Cerro Neblina base camp, along trail straight across Río Mawarinuma from base camp; elev. 140 m; 0º50'N, 66º10'W; 00°50'N 066°10'W, 140 m, 3 Dec. 1984, *Thomas B. Croat 59586* (MO, VEN).

***Rhodospatha brandii*** Croat, **sp. nov.** — Type: COLOMBIA. Antioquia: Carretera Tapón del Darién, Sector Río Leon-Lomas Aisladas. Km 37. Bosque 1º perturbado, 7°36'03"N 76°50'55"W, 28 March 1984, *J. Brand 1042* (holotype, MO-3445642; isotype, JAUM). (**Fig. 28**).

**Diagnosis:** *Rhodospatha brandii* is characterized by its epiphytic growth habit; yellowish brown overall drying color; oblong-elliptic blades 2.7–2.8 times longer than wide; and inflorescences with a light yellow spathe and spadix.

**Habit:** epiphytic vine.

**Stem: internodes** 1.5 cm diam., drying orangish brown.

**Leaves: petioles** 37–40 cm long, sheathed through 60% their length, drying light brown; **sheath** persisting intact; **geniculum** ca. 1.2 cm long; **blades** oblong-elliptic, 50–56 cm long, 18–20 cm wide, 2.7–2.8 times longer than wide, 1.4 times as long as petiole, rounded and short blunt-acuminate at apex, inequilateral at base, one side attenuate, the other broadly acute, subcoriaceous, drying light yellowish brown, matte adaxially, slightly lighter, weakly glossy abaxially; **primary lateral veins** ca. 27 per side, departing midrib at 50–60°, weakly raised adaxially, narrowly rounded, slightly darker abaxially; **interprimary veins** absent; minor veins moderately obscure.

**Inflorescences:** two, erect; **peduncle** 8 cm long, 6 mm diam.; drying yellowish-brown; prophyll ca. 29 cm long; **spathe** ca. 13 cm long, light yellow; **spadix** ca. 11 cm long, ca. 1.2 cm diam.; light yellow, drying faintly purplish.

**Infructescences:** not seen.

**28.** *Rhodospatha brachypoda* (*Mori & Gracie 24030,* MO). Juvenile plant.

**Distribution and ecology:** *Rhodospatha brandii* is known only from Colombia, in Antioquia province at 10–700 m elevation in a *Tropical Wet/Very Wet Forest* transition life zone.

**Etymology:** The species is named in honor of Jorge Brand who collected the only known specimen in 1984.

**Comments:** *Rhodospatha brandii* resembles *R. felipecardonae*, which also grows in Antioquia Department, but the latter differs by its petioles with the sheath deciduous (rather than persisting intact for *R. brandii*), and blades with a dense network of prominent minor veins and cross-veins (rather than being obscure for *R. brandii*).

***Rhodospatha brentberlinii*** Croat, Rodriguésia 56(88): 112–113, f. 11d. 2005 — Type: PERU. Amazonas: ridge above Cikan Ece Creek, primary forest; 750 feet (228 m), 16 June 1974, *B. Berlin 1613* (holotype, MO–2249195; isotype, NY, USM). (**Figs. 29–30**).

**Habit:** vine.

**Stem: internodes** slender, short 7–10 cm long, 4–5 mm diam., drying yellowish brown, semiglossy, closely fissured-ridged with acute, irregular ridges, sometimes smooth.

**Leaves: petioles** 4.0–4.5 cm long, fully sheathed to the geniculum, the margin thin, dark brown, ca 2 mm high, soon breaking up then deciduous; **geniculum** sharply sulcate, scarcely distinguishable from the rest of the petioles; **blades** small, narrowly ovate-elliptic, 14–18 cm long, 6.0–7.5 cm wide, slightly inequilateral, one side ca 6 mm wider than the other side, drying dark gray-green adaxially, slightly paler and gray-green abaxially, gradually acuminate at apex, slightly inequilateral and mostly acute at base, sometimes with one side acute the other subrounded at base but always weakly decurrent onto petiole; **midrib** drying more or less flattened to weakly sunken, concolorous adaxially, convex and more or less concolorous abaxially; **primary lateral veins** 7 or 8 per side, departing midrib at 50–60°, not very visible adaxially, weakly raised and somewhat undulate abaxially, not markedly more prominent than the interprimary veins, the latter also weakly undulate.

**Inflorescences:** small; **peduncle** short, ca. 12 mm long, 2.3 mm diam.; drying yellowish brown, finely ridged; **spathe** fallen, leaving only a jagged scar hidden by the bracts; **spadix** prominently stipitate to 16 mm long, 3.4–5.0 cm long × 7 mm wide, golden-yellow, drying orange-brown, matte.

**29.** *Rhodospatha brentberlinii* (*Berlin 1613*, MO-2249195). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and inflorescence with still enclosed spadix in the cut-open spathe.

**30.** *Rhodospatha brentberlinii* (*Berlin 1665*, MO-2388228). Specimen showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**Flowers: pistils** irregularly 5- or 6- sided, 1.4–1.6 mm diam.; **stigmas** round to broadly elliptic, drying blackened with a pale rim, 6–8 mm wide.

**Infructescences:** unknown.

**Distribution and ecology:** *Rhodospatha brentberlinii* is endemic to the type locality in Amazonas Department of Peru at 228 m elevation in a *Premontane Wet Forest* life zone.

**Comments:** *Rhodospatha brentberlinii* might be confused with *R. stenophyllon*, which has similarly shaped leaves and long internodes; however, the former species differs in having more gradually acuminate, light grayish to light brownish drying, more gradually acuminate leaf blades; shorter, less widely winged petioles with a narrower more fragmented sheath; and a more long-stipitate, proportionately stubbier spadix

**Other Specimens Seen: PERU. Amazonas:** Río Cenepa region. South of Huampami trail to house of Theodora. South of Río Cenepa; 04°29'S 78°10'W, 800 - 850 ft, 17 July 1974, *Brent Berlin 1665* (F, MO, US).

***Rhodospatha buntingii*** Delannay & Croat, **sp. nov.** — Type: VENEZUELA. Mérida: Carretera El Vigía - Maracaibo, 38 km NE of Caño Zancudo and SE of Playa Grande, between La Mina and Agua Caliente, 50 m, 15 December 1967, *G. S. Bunting 2807* (holotype, VEN). (**Fig. 31**).

**Diagnosis:** *Rhodospatha buntingii* is characterized by its appressed-climbing epiphytic habit; petioles sheathed to near the apex; large, ovate-elliptic blades 2.1–2.2 times longer than wide, drying grayish olive-green, rounded and decurrent at the base and rounded and abruptly narrowly acuminate at apex; interprimary veins similar to the minor veins with a total of 7 veins running in parallel between the primary lateral veins and with a network of prominent cross-veins interconnecting them; and large inflorescences with a cream spathe and a yellowish flesh colored spadix with darker stigmas.

**Habit:** appressed-climbing epiphyte to 3 m.

**Stem: internodes** not seen.

**Leaves: petioles** 41–60 cm long, sheathed to the geniculum; **sheath** narrow, deciduous, drying dark brown; **geniculum** ca. 3 cm long; **blades** ovate-elliptic, 42.5–65.0 cm long, 19.5–30.5 cm

**31.** *Rhodospatha buntingii* (*Bunting 2807*, VEN). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and separate spathe and spadix.

wide, 2.1–2.2 times longer than wide, widest near the base, rounded and long-acuminate at apex, rounded and decurrent at the base, drying grayish olive-green and semiglossy adaxially, medium greenish brown and semiglossy abaxially; **midrib** drying narrowly and sharply sunken, slightly darker with narrow medial grove with the margins broadly rounded, finely granular-ridged adaxially, concolorous, narrowly flattened with narrowly raised margins abaxially; **primary lateral veins** 22–30 per side, widely spaced (1.5–2.5 cm), departing midrib at 60–80°, drying slightly darker; **interprimary veins** similar to minor veins, with 5–7 veins on either side of the interprimary vein, running in parallel between the primary lateral veins, with a network of often branched prominent cross-veins interconnecting them; **adaxial surface** moderately smooth, minutely and finely striate on magnification; **abaxial surface** densely and minutely pale-granular.

**Inflorescences:** erect; **peduncle** 45 cm long, 1.4 cm diam.; green, enclosed for most its length by a petiole sheath ending in a small appendix ca.5 x 1.4 cm; **spathe** ovate-elliptic, ± convolute, ca. 27 cm long, 4 cm diam, 9.7 cm wide when flattened, cream, drying blackish brown, the cusp at the apex of spathe green, this matte outside, glossy inside; stipe green, ca. 2.5 cm long, 1.1 cm diam.; **spadix** stipitate 23 cm long, 1.5 cm diam., yellowish flesh colored with the styles darker, mostly rounded-prismatic, 1.8–2.1 mm wide in greatest dimension, drying somewhat brownish and dominated by the seemingly oversized stigmas.

**Flowers: stigmas** drying blackish brown, ca. 1.5 mm diam. (drying 1–1.6 mm long, 0.8–1.0 mm wide, medial depression distinct.

**Infructescences:** not seen.

**Distribution and ecology** — *Rhodospatha buntingii* is endemic to Venezuela, found only in Mérida State at 50 m in a *Tropical Wet Forest* life zone.

**Etymology:** The species is named in honor of the late George S. Bunting whose more than 35 years of work in Venezuela has left that country among the best known for Araceae in all of South America. George was a native of Pocomoke City, Maryland and returned there after he retired in Venezuela. He obtained his Ph.D. at Cornell University and worked at the Missouri Botanical Garden before beginning his career in Venezuela. Early in his career, Bunting made a significant review of Mexican Araceae, later a revision of *Spathiphyllum*, and, while in Venezuela, specialized in *Philodendron*.

**Paratypes: VENEZUELA. Mérida:** Carretera Caño Zancudo-La Azulita, 6 km arriba de Caño Zancudo, cerca del puente a través del Caño Ron (puente segundo), 16 December 1967, *G. S. Bunting 2799* (MY, NY).

***Rhodospatha burgeri*** Croat, Aroideana 47(1): 43–190. 2024 — Type: PANAMA. Bocas del Toro: Along road between Fortuna Dam and Chiriquí Grande, ca. 10 mi. N of the Continental Divide and ca. 2 mi. E of main hwy; 08°45'N, 82°15' W, 300 m, 15 April 1987, *G. McPherson 10833* (holotype, MO-3474594). (**Fig. 32**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** slender, longer than broad, the proximal leafy nodes 1–4 cm long, <1 cm diam., drying 4–6 mm diam., yellowish brown, closely and acutely ribbed, the epidermis sometimes cracking free.

**Leaves:** scattered in the distal half of the stem; **petioles** slender, 7.0–19.5 cm long, 3–4 mm diam. midway, gradually tapered to 3 mm diam. near apex, sheathed to the geniculum, drying blackened, finely striate; **sheath** entire, erect to incurled; **geniculum** 1.0–1.5 cm long, ca. 2 mm diam., narrowly weakly sulcate, the margins acute and continuous with the blade margin; **blades** oblong-lanceolate, usually markedly inequilateral, 9.5–26.5 cm long, 1.7–5.5 cm wide, 3.2–5.1 times longer than wide, ca. 1.5 times longer than the blades, gradually acuminate and sometimes weakly falcate at apex, obtuse to rounded at base, often inequilateral at base, one side rounded, one side obtuse, dark green and moderately concolorous, matte on both surfaces, drying matte, dark brown to grayish brown and weakly granular on magnification adaxially, drying somewhat yellowish brown and minutely pale-speckled on magnification abaxially; **midrib** narrowly concolorous adaxially, narrowly sunken, slightly thicker than broad abaxially; **primary lateral veins** 16–19 per side, 9–15 mm apart, prominently down turned along the midrib and weakly to prominently curved to the margin, drying frequently undulate, weakly raised and concolorous adaxially, more prominently raised abaxially and paler than the surface; interprimary veins 1 or 2 between each pair of primary lateral veins with 1–3 intervening minor veins between the interprimaries and the primaries; cross-veins numerous, but inconspicuous.

**Inflorescences:** arising from one of the uppermost axils; **peduncles** 7.0–9.3 cm long, drying ca. 2 mm diam; **spathe** greenish white, to 8.5 cm long, <3.5 cm wide when fully unrolled, acuminate and tightly inrolled at apex; **spadix** 6.0–6.5 cm long, 6–9 mm diam., sessile or stipitate 4 mm, pale greenish white, cylindroid, bluntly rounded at apex.

**Flowers** ca. 10 visible per spiral; **pistils** 1.4–1.8 mm diam.; irregularly 4–6 sided, rhombic to quadrangular and truncate at apex, drying gray and with a dense, gray, frost-like covering, the sides straight to concave or rarely convex; **stigmas** oblong to broadly elliptic, 0.5–0.6 mm long,

**32.** *Rhodospatha burgeri* (*McPherson 10833*, MO-3474594). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

0.3–0.4 mm wide, becoming concave medially at anthesis; **anthers** tan, ca. 1 mm long, 0.6 mm wide, the thecae moderately divaricate.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha burgeri* is endemic to southeastern Costa Rica and adjacent northeastern Panama from 50–300 m in a *Premontane Wet Forest* life zone.

**Comments:** In Central America the species is most similar in superficial ways to *Rhodospatha morii* but that species has proportionately longer, reddish brown leaves with the base acute and the abaxial surface matte and minutely granular and with raised tertiary veins. In contrast, *R. burgeri* has proportionately shorter blades with the leaf bases rounded and the abaxial surface smooth and glossy with the tertiary veins not markedly raised.

**Other Specimens Seen: COSTA RICA. Limón:** Evergreen forest (tropical-premontane wet forest transition) and secondary growth near the Río Catarata (Río Sand Box) in the hills between Bribri on the Río Sixaola and the Caribbean coastal plain, 09°37'48"N 82°48'36"W, 50–100 m, 7-9 September 1978, *W. C. Burger & T. M. Antonio 10924* (F).

***Rhodospatha cardenasiae*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Antioquia: San Luis, Quebrada La Cristalina. Bh-T/Bmh-T. Sector SE, 06°00'N 74°45'W, 570-770 m, 24 September 1987, *J. G. Ramírez & D. Cárdenas L. 1619* (holotype, MO-3824816; isotypes: HUA, JAUM). (**Fig. 33**).

**Diagnosis:** *Rhodospatha cardenasiae* is characterized by its appressed-climbing epiphytic habit; petioles with a broad deciduous sheath; dark-brown-drying, oblong-elliptic blades 2.0–3.6 times longer than wide with widely-spaced primary lateral veins and a network of minor veins and cross-veins between them; and a pendent inflorescence with a short and thin peduncle twisting and curving downwards while being subtended by a much longer prophyll.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 1.0–1.5 cm diam.

**Leaves: petioles** 28–43 cm long, drying brown to medium reddish brown, closely ribbed and densely short-pale-lineate, sheathed 80–85% their length; **sheath** broad, deciduous, breaking into fibers along the petiole, drying dark brown; **geniculum** 3–4 cm long; **blades** oblong-elliptic,

**33.** *Rhodospatha cardenasiae* (*Ramírez & Cárdenas 1619*, MO-3824816). Holotype showing stem, prophylls, petiole, leaf blade (adaxial and abaxial surfaces), and infructescence.

38–55 cm long, 10.5–22.0 cm wide, 2.0–3.6 times longer than wide, obtuse and short-acuminate at apex, rounded, sometimes subacute and weakly attenuate at base, widest above the middle or near the middle, drying dark greenish brown adaxially, dark reddish brown abaxially; **midrib** drying concolorous, broadly rounded, densely granular adaxially, narrowly rounded, slightly darker, minutely granular, sparsely pustular, densely short-pale-lineate baxially; **primary lateral veins** 20–23 per side, spaced 1–2 cm apart, departing midrib at 60–90°, drying concolorous, sometimes undulate abaxially; **interprimary veins** mostly one per segment, not prominent; minor veins 3 rows between the primary lateral veins and the interprimary veins, connected by a network of prominent cross-veins; **adaxial surface** moderately smooth except for sparse somewhat colorless pustules; **abaxial surface** sparsely thick-granular, sparsely pustular.

**Inflorescences:** pendent; **peduncle** slender, 13–17 cm long, 3–4 mm diam., twisting and curving downwards with the spadix hanging at the end, enveloped at the base by an erect prophyll extending to 35 cm long with the twisted peduncle protruding at the base, prophyll breaking into fibers, drying medium to dark brown; **spathe** not seen; **spadix** stipitate 1.0–1.3 cm, pendent at the end of the peduncle, curving, 16–18 cm long, 10–13 mm diam.; to 2 cm diam. in fruit.

**Flowers: styles** quadrangular to oblong to rounded-prismatic,1.4-2.0 cm wide, drying blackened, matte; **stigmas** oblong to oval, 0.8–1.0 mm long, 0.3-0.4 mm wide, moderately blackened, the medial slit weak or not apparent.

**Infructescences:** not seen.

**Distribution and ecology:** The species is endemic to Colombia, found only in Antioquia Department at 550–950 m in a *Tropical Moist Forest/Tropical Wet Forest* transition zone.

**Etymology:** The species is named in honor of the late Dayron Cárdenas López who collected the only known specimens along with Juan Guillermo Ramírez in 1987. Cárdenas spent a long career working with SINCHI in Bogota and concentrated his collecting effort in the Amazon basin as well as in the drainage of the Río Orinoco.

**Comments:** *Rhodospatha cardenasiae* is unique due to its short, twisted peduncle and pendent spadix and its long erect prophyll with the peduncle protruding at the base. No known *Rhodospatha* species have a similar feature.

**Paratypes**: COLOMBIA. Antioquia: San Luis, Quebrada "La Cristalina". Bh-T/Bmh-T. Sector SE, 06°00'N 74°45'W, 550-770 m, 24 June 1987, *J. G. Ramírez & D. Cárdenas L. 176* (JAUM); San Luis, Quebrada "La Cristalina". Bh-T/Bmh-T. Sector SE, 06°00'N 74°45'W, 550-770 m, 27 July 1987, *J.*

*G. Ramírez & D. Cárdenas L. 1296* (JAUM); Municipio Amalfi, zona Central Hidroeléctrica Porce II, Fragmento Tenche, 06°47'N 75°08'W, 950 m, 23 May 2000, *F. J. Roldán 3376* (HUA); San Carlos, Embalse Punchiná. Margin of streams leading into reservoir near site of dam, 06°12'N 74°52'W, 780 m, 18 May 1988*, J. L. Zarucchi et al. 6635* (MO).

***Rhodospatha cardonae*** G. S. Bunting, Phytologia 4(6): 479–480. 1988 — Type: VENEZUELA. Amazonas: Río Negro. Cerro de La Neblina Camp V. Valley north base of Pico Cardona, 00°49'N 66°10'W, 1250 m, 21–24 March 1984, *R. L. Liesner & B. L. Stannard 16911* (holotype, MO-3249468). (**Fig. 34**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 1.5 cm long, 1.3 cm diam., drying dark brown.

**Leaves: petioles** to 40 cm long, sheathed almost to the geniculum, sheath persistent, drying medium brown; **geniculum** to 2.3 cm long; **blades** semi-coriaceous**,** oblong-elliptic, to 35.5 cm long, 12.7 cm wide, 2.8 times longer than wide, rounded at the base, broadest at the middle, markedly inequilateral, drying dark brown; **primary lateral veins** ca. 30 per side, 8–17 mm apart, departing midrib at 70–80°.

**Inflorescences:** drying dark brown; **peduncle** 25 cm long; **spathe** not seen; **spadix** ca. 12.5 cm long, 9 mm diam.; brownish purple, stipe ca. 5 mm long.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha cardonae* is endemic to Venezuela (Amazonas) at 1250 m elevation in a *Tropical Wet Forest* life zone.

**Comments:** The species is characterized by its relatively small, markedly inequilateral blades 2.8 times longer than wide drying dark brown and by inflorescences with a long peduncle and a brownish-purple spadix, both also drying dark brown.

***Rhodospatha cesarensis*** Delannay & Croat, **sp. nov.** —Type: COLOMBIA. César: Municipio La Jagua de Ibirico, Corregimiento La Victoria de San Isidro, Vereda Alto de Las Flores, Escuela Nueva de Flores, bosque antes de la casa de Pedro Nel, 1580 m, 11 March 1996,

**34.** *Rhodospatha cardonae* (*Liesner & Stannard 16911*, MO-3249468). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

*J. L. Fernández-Alonso, J. Orlando Rangel, O. Rivera & Estudiantes Floristica II 13403* (holotype, COL-427859). (**Fig. 35**).

**Diagnosis:** *Rhodospatha cesarensis* is characterized by its blades overall drying pale grayish green, ovate-elliptic, 1.7 times longer than wide and rounded at the base; primary lateral veins with three veins running in parallel between them and with a network of prominent cross-veins interconnecting them; and mostly rounded-prismatic styles with prominent open-slit stigmas.

**Habit:** unknown.

**Stem: internodes** unseen.

**Leaves: petioles** ca. 42 cm long, sheathed to the geniculum, sheath persisting intact, drying medium grayish brown, matte, finely ribbed, densely granular, dark-spotted to short dark-lineate; **blades** ovate-elliptic, 44 cm long, 26 cm wide, 1.7 times longer than wide, rounded at base, widest below the middle, drying pale grayish green, weakly glossy to matte adaxially, medium greenish brown, weakly glossy abaxially; **midrib** drying slightly paler and sunken medially, narrowly rounded marginally, closely and conspicuously short-ridged granular adaxially, broadly flattened, longitudinally folded with narrow ridges, densely granular and concolorous abaxially; **primary lateral veins** numerous, ca. 25–30, spaced 1.0–1.5 cm, departing midrib at 60–80°, drying narrowly rounded, finely ribbed adaxially, round-raised, irregularly ridged, granular, darker abaxially; **interprimary veins** narrowly rounded, 2 or 3 per segment, similar to minor veins, usually with a total of three veins running in parallel between the primary lateral veins and with a network of prominent cross-veins interconnecting them; **adaxial surface** minutely areolate-ridged and sparsely faint-granular; **abaxial surface** densely dark-punctate.

**Inflorescences:** erect; **peduncle** ca. 53 cm long, drying medium graying brown; **spathe** unseen; **spadix** ca. 22 cm long, 3 cm diam. near the base, 1.5 cm diam. farther up, drying black, stipe 1.0–1.6 cm long, 9 mm diam; drying medium gray-brown, densely granular.

**Flowers: styles** mostly rounded-prismatic, sometimes quadrangular, 2–3 mm wide at broadest point, drying blackened, matte, mostly truncate; **stigmas** dominating, 1.0–1.6 mm long, 0.4–0.5 mm wide, usually deeply pitted.

**Distribution and ecology:** *Rhodospatha cesarensis* is endemic to Colombia, found only in César Department at 1580 m in a *Tropical Moist Forest* life zone.

**35.** *Rhodospatha cesarensis* (*Fernández et al. 13403*, COL-427859). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and infructescence.

**Etymology:** The species is named for César Department in Colombia, the only place where it has been found.

**Comments:**This species is the only *Rhodospatha* ever found in César Department, and it does not look like any other *Rhodospatha* species found in neighboring Departments.

***Rhodospatha chazutensis*** Delannay & Croat, **sp. nov.** — Type: PERU. San Martín: Distrito Chazuta, Parque Nacional Cordillera Azul, bosque primario de transición, 06°43'40"S 76°00'04"W, 877 m, 28 May 2019, *L. Valenzuela G., J. Flores & R. Zhender 35994* (holotype, MO-7011645; isotypes, F, HOXA, USM). (**Fig. 36**).

**Diagnosis:** *Rhodospatha chazutensis* is characterized by its terrestrial habit; overall drying reddish brown; petioles with a deciduous sheath; ovate-elliptic blades 1.8 times longer than wide with an unusual venation pattern with 9–11 veins running in parallel between the primary lateral veins; and large inflorescences with a creamy yellow spathe and a yellowish spadix.

**Habit:** terrestrial, to 1 m tall.

**Stem: internodes** not seen but certainly short, likely broader than long as in most terrestrial species.

**Leaves: petioles** ca. 41 cm long, sheathed to the geniculum, drying medium reddish brown with sheath margins darker brown, deciduous; **geniculum** ca. 3 cm long; **blades** ovate-elliptic, ca. 60 cm long, 33 cm wide, 1.8 times longer than wide, obtuse and short-acuminate at apex, rounded and slightly decurrent at base, widest near the middle, drying dark reddish brown to greenish gray adaxially, medium reddish brown abaxially; **midrib** drying concolorous abaxially; **primary lateral veins** ca. 40 per side, spaced 1–2 cm, departing midrib at 80°, drying slightly darker abaxially; **interprimary veins** not distinct from minor veins, with a total of 9–11 veins running in parallel between the primary lateral veins, alternating between stronger and weaker ones and interconnected by a loose network of weak cross-veins; **adaxially surface** minutely and finely rowed-areolate to rowed-granular, sparsely and faintly pale-speckled, moderately glandular only on the major veins; **abaxial surface** densely short-ridged between the minor veins, weakly and sparsely granular.

**Inflorescences:** erect; **peduncle** drying reddish brown, densely and finely ridged-granular, full length not known; **spathe** ca. 22 cm long, creamy yellow, drying dark reddish brown with a

**36.** *Rhodospatha chazutensis* (*Valenzuela et al. 35994*, MO-7011645). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and separate spathe and spadix.

reticulate irregular venation, densely granular, irregularly and sparsely thick short pale-lineate adaxially, more densely granular, less heavily veined abaxially; **spadix** ca. 21 cm long, 10–12 mm diam.; yellowish, drying dark reddish brown; stipe ca. 1 cm long; styles drying 1.3–1.4 mm long, mostly rhombic, dark gray-brown, matte; stigma 0.9–1.1 mm long, 0.4 mm long and wide, the medial slit conspicuous.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Peru, known only from the type locality in San Martín Department at 877 m in a *Tropical Moist Forest* life zone.

**Etymology: This** species is named for the Chazuta District of San Martín Department, the only place where it has been found.

**Comments:** *Rhodospatha chazutensis* is unique due to its terrestrial growth habit and unusual venation pattern, and cannot easily be confused with other *Rhodospatha* species growing in that area.

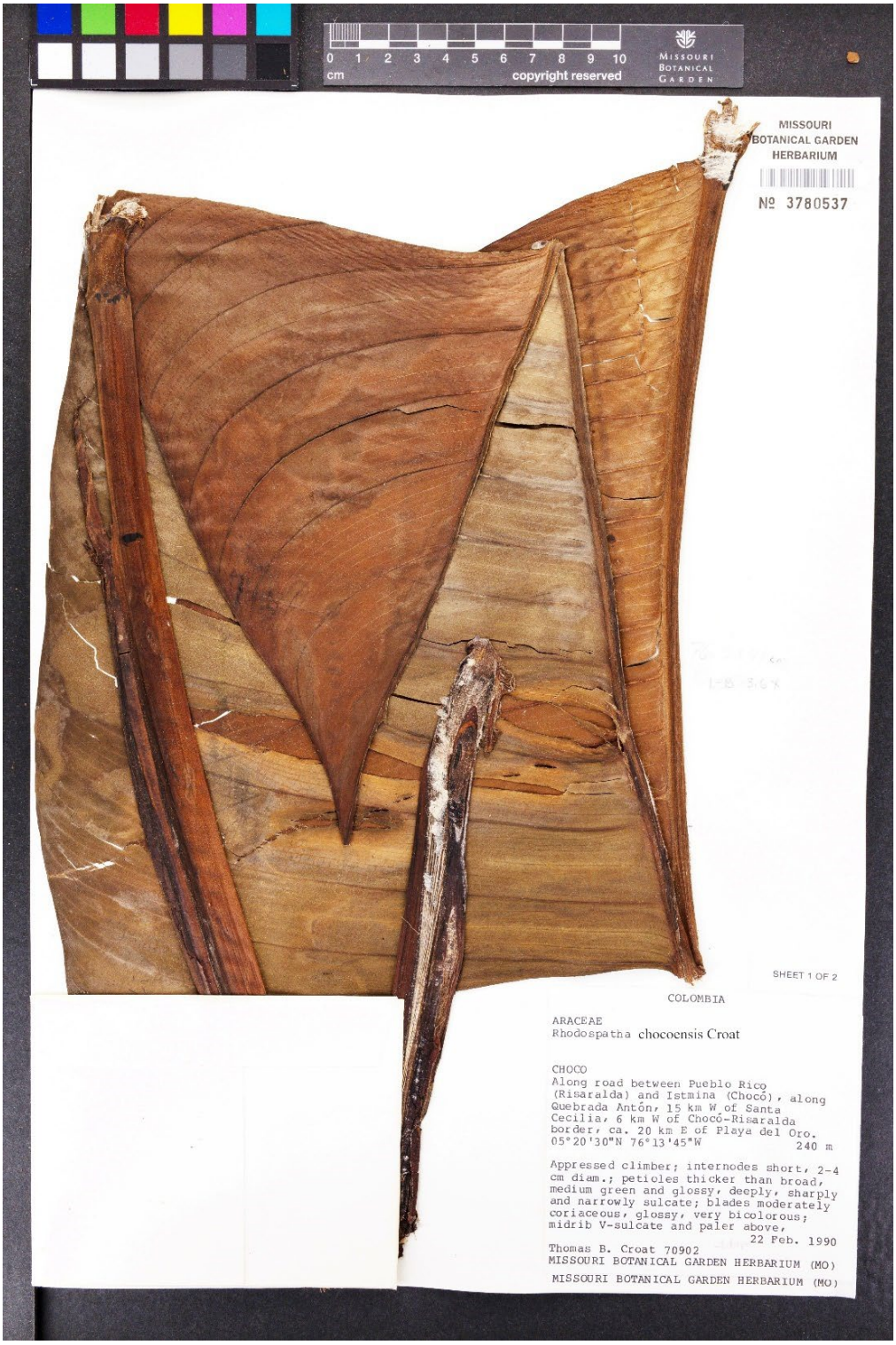
***Rhodospatha chocoensis*** Croat, **sp. nov. —** Type: COLOMBIA. Choco: Along road between Pueblo Rico (Risaralda) and Istmina (Chocó), along Quebrada Antón, 15 km W of Santa Cecilia, 6 km W of Chocó-Risaralda border, ca. 20 km E of Playa del Oro, 05°20'30"N 76°13'45"W, 240 m, 22 February 1990, *T. B. Croat 70902* (holotype, MO-3700537-38). (**Figs. 37–38**).

**Diagnosis:** *Rhodospatha chocoensis* is characterized by its appressed-climbing, epiphytic habit; petioles drying dark reddish brown with the sheath deciduous; and large blades drying dark greenish brown adaxially and medium reddish brown abaxially with widely spaced primary lateral veins (1.5–3.0 cm).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 1.5−3.0 cm long, 2−4 cm diam.

**Leaves: petioles** oval, thicker than broad, 34−62 cm long, 1.5−2.0 cm diam., drying dark reddish brown, sharply and narrowly sulcate, usually sheathed to the geniculum, sheath becoming deciduous with fibrous remnants along the peduncle; **geniculum** 2.5−3.0 cm long; **blades** oblong-elliptic, 45−77 cm long, 32−42 cm wide, 1.8–2.1 times longer than broad, 1.2–1.4 times longer




**37.** *Rhodospatha chocoensis* (*Croat 70902*, MO-3700537). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

**38.** *Rhodospatha chocoensis* (*Croat 70902*, MO-3700538). Holotype showing stem, petiole, and leaf blade (adaxial and abaxial surfaces).

than petiole, abruptly acuminate at apex, obtuse at base, dark green adaxially, lighter green abaxially, drying dark greenish brown adaxially, medium reddish brown abaxially; **adaxial surface** smooth; **abaxial surface** densely dark-speckled, especially near midrib; **midrib** V-sulcate and paler adaxially, thicker than broad abaxially; **primary lateral veins** 27−33 per side, departing midrib at 60°−70°, widely spaced (1.5–3.0 cm), quilted-sunken and concolorous adaxially, convex and pleated-raised abaxially; **interprimary veins** mostly absent; minor veins inconspicuous.

**Inflorescences:** not seen.

**Distribution and ecology:** *Rhodospatha chocoensis* is endemic to Colombia, known only from the Department of Chocó at 240 m in a *Tropical Rain Forest* life zone.

**Comments:** *Rhodospatha chocoensis* is most similar to *Rhodospatha monsalveae* but it differs from that species by the smooth stem, thin blade, widely spaced primary lateral veins, and the lack of slightly prominent cross veins.

***Rhodospatha croatii*** Delannay, **sp. nov**. — Type: COLOMBIA. Quindío: Cordillera Central, Nucleo Quindio, subnucleo Andés, Reserva Natural Patasoia, 6.8 km beyond Finca Andes, property of Cartón de Colombia, 04°41'7"N, 75°33'22"W, 2266 m, 9 September 2013, *T. B. Croat 105247* (holotype, MO-6647121, 6666237-39). (**Figs. 39–45**).

**Diagnosis:** *Rhodospatha croatii* is characterized by its appressed-climbing habit; overall dark greenish brown to blackish color when dry; ovate-elliptic blades 2.2–3.2 times longer than wide, with an unusual venation with the primary lateral veins being separated by 9–12 veins running in parallel and intersected by a network of prominent cross-veins sharply raised on the lower surface; and erect inflorescences with a pale orange spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: juvenile internodes** 7–9 cm long, 5–6 mm diam.; **adult internodes** 2–4 cm long, 2.0–2.5 cm diam., dark green and glossy, drying blackish brown.

**Leaves: petioles** 33–62 cm long, dark green and semiglossy, sheathed to the geniculum; **sheath** erect, persisting intact, drying dark brown to blackish; **geniculum** ca. 3 cm long; **juvenile blades** 7–17 cm long, 2.5–5.5 cm wide; **adult blades** subcoriaceous, ovate-elliptic, 31–62 cm long, 9.5–28.0 cm wide, 2.2–3.2 times longer than wide, widest below the middle, rounded or obtuse at base, obtuse and short-acuminate at apex, dark green and semiglossy adaxially, moderately paler

**39.** *Rhodospatha croatii* (*Croat 105247*). Live plant showing appressed-climbing, epiphytic growth habit with stem, adventitious roots, petioles, leaf blades (adaxial and abaxial surfaces), and infructescence.

**40.** *Rhodospatha croatii* (*Croat 105247*). Plant with close-up of live infructescence.

**41.** *Rhodospatha croatii* (*Croat 105247*). Close-up of fresh leaf blade (adaxial surface).

**42.** *Rhodospatha croatii* (Croat 105247). Live juvenile plant.

**43.** *Rhodospatha croatii* (*Croat 105247*, MO-6647121). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and infructescence.

**44.** *Rhodospatha croatii* (*Croat 105247*, MO-6666239). Holotype showing stem, petiole, and leaf blade (adaxial and abaxial surfaces).

**45.** *Rhodospatha croatii* (*Croat 105247*, MO-6666238). Holotype showing juvenile plant with stem, petioles, and leaf blades (adaxial and abaxial surfaces).

and semiglossy abaxially, drying dark greenish brown to blackish adaxially, slightly lighter abaxially; **midrib** narrowly sunken and slightly paler adaxially, narrowly raised abaxially; primary lateral veins narrowly sunken adaxially, convex abaxially, drying concolorous; **primary lateral veins** 13 or 14 per side, spaced ca. 2 cm, quilted-sunken and concolorous adaxially, narrowly rounded and concolorous abaxially; **interprimary veins** often not markedly distinct from minor veins (usually with 3 or 4 on either side of the interprimary veins), for a total of 9–12 veins running in parallel between the primary lateral veins, intersected by a network of prominent cross-veins sharply raised on the lower surface; **adaxial surface** minutely areolate or minutely granular and sparsely thick-granular with scattered thick dark pustules; **abaxial surface** somewhat wrinkled to parallel-ridged, areolate-ridged or granular with more thick dark pustules.

**Inflorescences:** erect; **peduncle** 19–55 cm long, medium green, semiglossy, drying blackish brown; **spathe** not seen; **spadix** 12–30 cm long, 1.5– 2.0 cm diam.; pale orange, drying blackish brown.

**Flowers: styles** mostly rounded-prismatic, sometimes irregularly quadrangular, sometimes with the corners twisted, 2.2–3.6 mm wide in the broadest view, truncate to sunken, light gray, matte; **stigmas** ellipsoid, 1.1 mm long, 0.8–0.9 mm wide, black or brown with a deep medial depression.

**Infructescences: spadix** 18–20 cm long, 2.3–2.8 cm diam.; **seeds** numerous in each berry, tan, somewhat discoid, ear-shaped or reniform, subrounded in outline with a concave, somewhat pie-slice-shaped window on one margin, the narrow dimension narrowed into a peripheral rib covering the outer margin (except for the notched area).

**Distribution and ecology:** *Rhodospatha croatii* ranges from Antioquia in Colombia to Carchi in Ecuador on the Cordillera Occidental and the Cordillera Central at 1345–2250 m in a *Premontane Moist Forest* life zone.

**Etymology:** The species is named in honor of Dr. Thomas B. Croat of the Missouri Botanical Garden who collected the type and several other specimens. Dr. Croat is a coauthor in this revision and is renowned for his numerous contributions to the study of Araceae from Central and South America. He has published nearly four thousand new species, mostly in the family Araceae, over his career of more than 50 years. He first identified most of the new species published in this revision.

**Comments:** Specimens of this species were thought to belong to *Rhodospatha oblongata*. However, as stated in the discussion for *R. oblongata* in this revision, that species was erroneously thought to encompass populations from the Amazon Basin and from the Pacific

slopes of Colombia. We have determined that the low elevation western specimens of *R. oblongata* really belong to *R. longipes*, which had been thought to be indistinct from *R. oblongata* but that we are reinstating as a valid distinct species. Thus, the true comparison for *R. croatii* is with *R. longipes*. The two species differ in their widely separate habitats, with *R. croatii* being found high in the mountains at 1820–2250 m while *R. longipes* is found at elevations below 300 m. *Rhodospatha longipes* also has more coriaceous blades drying brownish gray or medium to dark grayish brown rather than blackish in the case of *R. croatii* and it has a very different venation, with fewer minor veins between the primary lateral veins and without the prominent cross-veins characteristic of *R. croatii*.

**Paratypes: COLOMBIA.** *Ricardo Callejas et al. 6369* (HUA); **Antioquia:** Along road between Pueblorico and Jerico; primary vegetation along stream, ca. 2 km above bridge over Río San Juan, near Peñalisa; 05°57'N 75°52'W, 2060 m, 25 January 1990, *T. B. Croat 69967* (MO), *69961A* (MO); Andes, Verada La Mesenia, Quebrada El Jordan. Reserva Natural La Mesenia-Paramillo, 05°30'29"N 075°53'24"W, 2000 m, 03 July 2021, *Croat et al. 108054* (MO); Río Claro, along hwy. between Pto. Triumfo and Medellin, along rocky cliffs and banks near the river S of the hwy; ca. 1 Km; 05°54'N 74°51'W, 8 May 1983, *T. B. Croat 56566* (MO); Municipio de Caldas, Vereda, Santa Clara, along Río Medellin, 1–2 km E of main Medellín-Cali Hwy; 06°02'21"N 75°37'05"W, 1820–1830 m, 27 September 2012, *T. B. Croat et al. 103967* (K, MO, US); Caldas. Alto de San Miguel, Margen izquierda del Río Medellín, 06°05'N 75°35'W, 2200 m, 16 October 1998, *F. Cardona 613* (HUA); Jardín. carretera a Riosucio, 2000–2200 m, 6 September 1997, *F. Cardona et al. 269* (HUA); 2 km N of Jardín Municipio, 2220 m, *R. Callejas et al. 3981* (HUA, MO). **Caldas:** Manizales. Monteleón. Cordillera Central; 01°44'15"N 77°15'35"W, 2250 m, 24 Mar 1984, *M. de Fraume 95* (MO); Monteleón. Cordillera Central, 01°44'15"N 77°15'35"W, 2250 m, 28 April 1984, *M. de Fraume 174* (MO); Manizales, Monteleón. Cordillera Central; 2250 m, 16 February 1985, *M. de Fraume 339* (MO); **Valle del Cauca:** Vicinity of Dapa, northwest of Calí, along continental divide, 03°33'N 76°35'W, 2000 m, 12 July 1986, *T. B. Croat 61432* (MO); Vicinity of Dapa on eastern slopes of Cordillera Occidentale. Parcelación Hacienda Los Morales, 2.91 km from Parroquia San Francisco de Asis (Iglesia de Dapa); 03°34'43"N 76°34'21"W, 2120–2150 m, 24 February 2015, *T.B. Croat & P. Hoell 106180* (MO); La Cumbre. Corregimiento Bitaco, Cordillera Occidentale, vertiente occidentale, Reserva Natural Forestal Protectora de Bitaco, bosque nublado; 03°34'10"N 76°34'44"W, 2036 m, 27 February 2015, *T.B. Croat & M. Llanos 106187* (MO); Corregimiento Bitaco, Cordillera Occidentale, vertiente occidentale, Reserva Natural Forestal Protectora de Bitaco, bosque nublado; 03°34'10"N 76°34'44"W, 2036 m, 27 February 2015, *T. B. Croat & M. Llanos 106197* (MO); Palmira. Margen derecha de la quebrada las Mirlas, corregimiento de Tenjo, 2000 m, 14 May 1997, *C. Restrepo 1069* (MO). ECUADOR. **Carchi:** Cantón

Gualchán, along trail between Las Juntas and Golandrinas Park, then 1 km E; 00°48'18"N 78°09'23"W, 1345–1360 m, 15 August 2013, *T. B. Croat et al. 104784* (MO, QCNE).

***Rhodospatha cuadrosii*** Croat, **sp. nov.**— Type: COLOMBIA. Córdoba: Junction of Río Tigre and Río Manso, Paramillo National Park, 07°30'N 76°05'W, 200 m, 28 July 1988, *A. H. Gentry & H. Cuadros V. 63875* (holotype, MO-3591825). (**Fig. 46**).

**Diagnosis:** *Rhodospatha cuadrosii* is characterized by its small size and lanceolate blades drying greenish-brown and 3.6–3.8 times longer than broad with faint primary lateral veins with the interprimary veins mostly absent.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 1.0−1.5 cm long, 1.0−2.5 cm diam.

**Leaves: petioles** thin, 27−29 cm long, drying medium brown, sheathed to 85% their length, sheath becoming caducous; **geniculum** 1.5−2.0 cm long; **blades** lanceolate, 36−39 cm long, 9.5−10.5 cm wide, 3.6–3.8 times longer than broad, 1.3–1.5 times longer than petiole, cuneate at base, tapering and acuminate at apex, widest at the middle, dark green adaxially, lighter green abaxially, drying dark greenish-brown adaxially, medium reddish brown abaxially; **midrib** drying concolorous and sunken adaxially, round-raised and concolorous abaxially, **primary lateral veins** ca. 25 per side, departing midrib at 70°−90° and arcing distally, spaced 8–15 mm, drying concolorous and barely visible adaxially, slightly darker abaxially; **interprimary veins** mostly absent; minor veins inconspicuous.

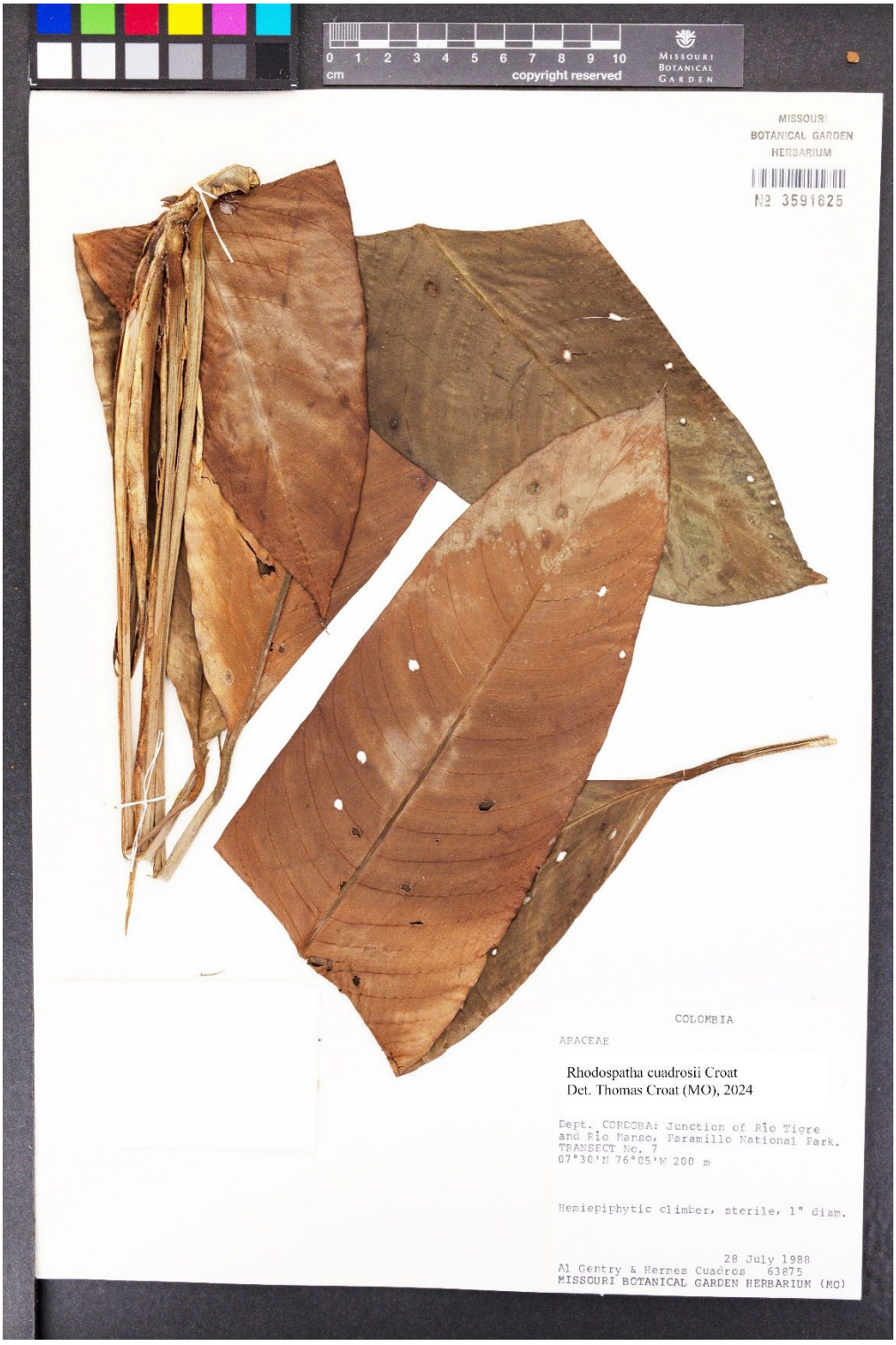
**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha cuadrosii* is endemic to Colombia, known only from the Department of Córdoba at 200 m in a *Premontane Rain Forest* life zone.

**Etymology:** This species is named in honor of Colombian botanist Hermes Cuadros, Curator of the Herbarium at the Universidad de Atlantica in Baranquilla.

**Comments:** *Rhodospatha cuadrosii* is the only species in the genus found in Córdoba Department of Colombia and it doesn't resemble any other species found in neighboring departments.




**46.** *Rhodospatha cuadrosii* (*Gentry & Cuadros 63875*, MO-3591825). Holotype showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

***Rhodospatha dalyi*** Delannay & Croat, **sp. nov.** — Type: PERU. Loreto: Río Corrientes at the Ecuador border, between Teniente Lopez and Puesto Avanzado, 02°31'S 76°10'W - 02°24'S – 76°20'W, 280-350 m, 4 April 1977, *A. H. Gentry, J. Revilla & D. C. Daly 19054* (holotype, MO-2413891-92; isotype, F). (**Figs. 47–48**).

**Diagnosis:** *Rhodospatha dalyi* is characterized by its appressed-climbing epiphytic habit; petioles drying grayish-brown and sheathed to the geniculum with the sheath incurled and persisting intact; ovate-elliptic blades drying medium-grayish-green with 3 or 4 minor veins running in parallel between the interprimary veins and the primary lateral veins with no cross-veins visible; and large inflorescences with a white spathe and a white long-stipitate spadix turning green in fruit.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 2–3 cm diam.

**Leaves: petioles** 44 cm long, drying grayish brown, sheathed to the geniculum; **sheath** incurled, persisting intact; **geniculum** 3.5 cm long; **blades** ovate-elliptic, 62 cm long, 22.5 cm wide, 2.7 times longer than wide, slightly inequilateral, rounded and short-acuminate at apex, rounded and slightly decurrent at base, widest below the middle, drying medium grayish-green adaxially, more brownish abaxially; **midrib** drying concolorous; **primary lateral veins** ca. 34 per side, spaced 1.0–1.5 cm, departing midib first at an acute angle then spreading out at 60–80°, drying concolorous; **interprimary veins** faint, with 3–4 minor veins running parallel between them and the primary lateral veins; cross-veins not visible.

**Inflorescences: peduncle** 20–22 cm long, drying medium brown, enclosed by a prophyll drying medium brown for most of its length; **spathe** ca. 18 cm long, 12 cm wide when flattened, white, drying orangish-brown; **spadix** curving, 15.5–18.0 cm long, 10–14 mm diam., white in flower, green in fruit, drying medium grayish brown; **stipe** 6 cm long.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Peru, found only in Loreto Department at 280–350 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of Dr. Doug Daly, a Curator at the New York Botanical Garden and a specialist of the family Burseraceae and the floristics of the Acre State in Brazil, who helped collect the only known specimen in 1977.

**47.** *Rhodospatha dalyi* (*Gentry at al. 19054*, MO-2413892). Holotype showing stem, petiole, and leaf blade (adaxial and abaxial surfaces).

**48.** *Rhodospatha dalyi* (*Gentry, at al. 19054*, MO-2413891). Holotype showing stem, prophylls with one prophyll enclosing an immature inflorescence, an inflorescence at anthesis with the spathe still attached to the spadix, and post-anthesis spadix.

**Comments:** *Rhodospatha dalyi* resembles *R. piushaduka* of Amazonas Department of Peru, but the latter differs in its blades drying reddish brown below instead of brownish green in the case of *R. dalyi* and more widely spaced primary lateral veins (to 3.3 cm apart vs. 1.5 cm for *R. dalyi*).

***Rhodospatha dammeri*** Sodiro, Sert. Fl. Ecuad. Ser; Ser. 2 78. 1908 — Type: ECUADOR. Crescit in reg. subtropic. prop. Gualea, (holotype, *Sodiro s.n.* (QPLS). (photographs, CM, MO, US). (**Fig. 49**).

**Habit:** not seen.

**Stem: Internodes** short, 10–12 mm diam., rooting at the nodes.

**Leaves: petioles** 25–40 cm long, drying brown, faintly striate adaxially, sheathed to within 7 cm of the apex; **sheath** thick, light yellow brown, mostly entire, sometimes recurled, sometimes loose and fibrous on the margin; **geniculum** 10–15 mm long, sulcate adaxially; **blades** subelliptic, asymmetrical, 45–55 cm long, 20–25 cm wide midway, one side 4.5 cm wider, acuminate at apex; inequilateral at base, one side rounded, the other acute, densely cartilaginous, dark green adaxially, greenish red abaxially, drying grayish adaxially, brown abaxially; **midrib** sunken adaxially, obtuse abaxially, along with the primary lateral veins weakly pulverulent-puberulent; **primary lateral veins** ca. 8 per side, 8–12 mm apart, departing midrib at nearly right angle, arcuate-ascending, collecting into an antemarginal vein.

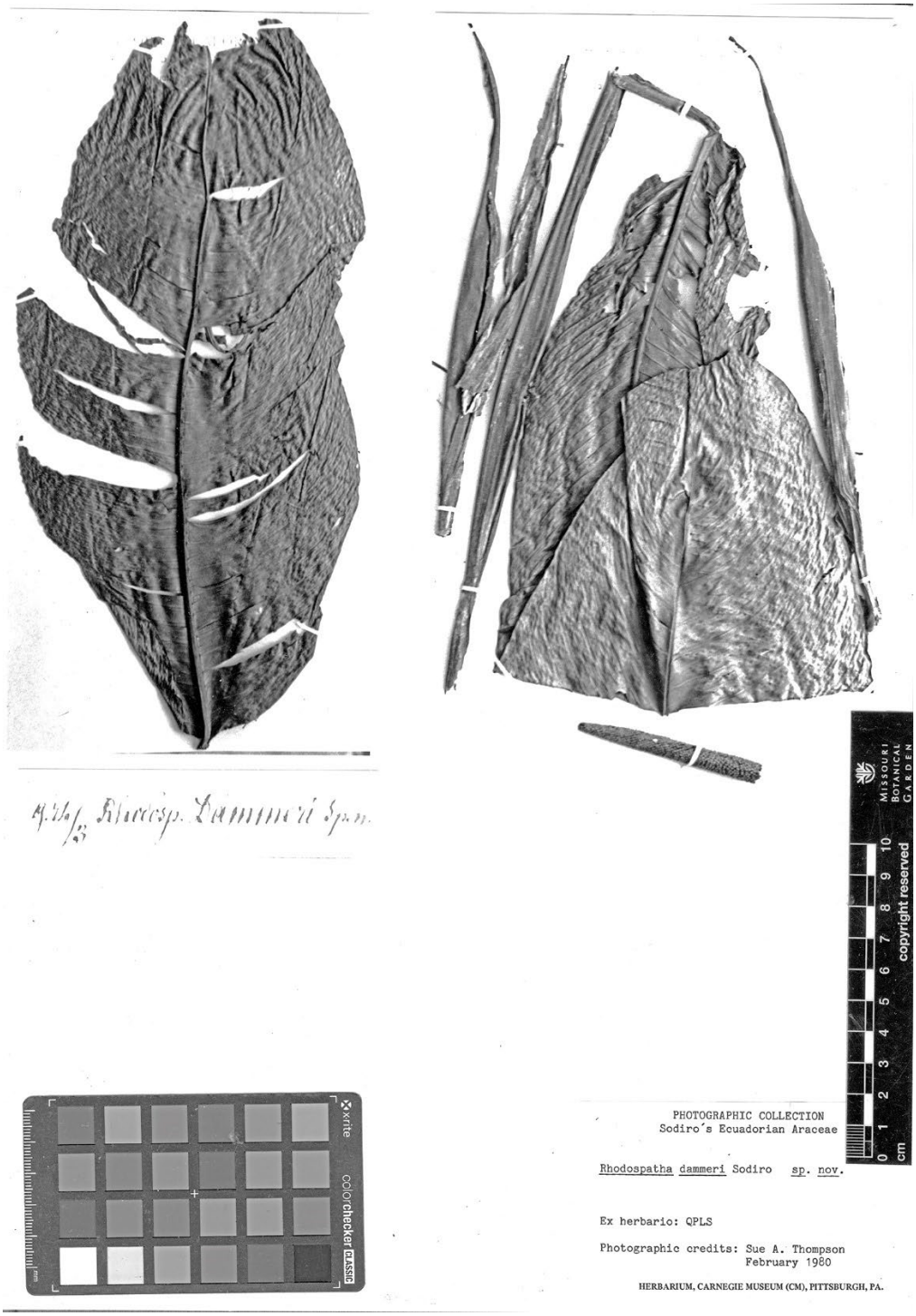
**Inflorescences: peduncle** to 16 cm long, slender; **spathe** white, 12–15 cm long (specimen in Sodiro herbarium has spathe to 27 cm long and long-tapered at apex); **spadix** sessile, cylindroid, 12–15 cm long, 1 cm diam. at anthesis.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha dammeri is* endemic to Ecuador, known only from the type locality near Gualea in Pichincha Province.

**Comments:** This species is characterized by its short internodes rooting at the nodes, petioles sheathed to within 7 cm of the apex, and its subelliptic, asymmetrical blades with ca. 8 primary lateral veins per side.

One sheet with a small leaf in the Sodiro herbarium has a sheath with a fibrous margin, suggesting that the collection is possibly mixed.




**49.** *Rhodospatha dammeri* (*Sodiro s.n.*), Specimen showing petiole, leaf blades (adaxial and abaxial surfaces), a prophyll enclosing an immature inflorescence, and portion of post-anthesis spadix.

***Rhodospatha dariosanchezii*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Antioquia: Frontino, corregimiento Nutibara, 06°52'03"N, 75°44'46"W, 1750 m, 14 April 1987, *D. Sánchez et al. 1183* (holotype, MEDEL-23977-78). (**Figs. 50–51**).

**Diagnosis:** *Rhodospatha dariosanchezii* is characterized by its robust terrestrial habit; thick glaucous petioles and peduncles; large, ovate-elliptic blades drying dark brown with a complex network of prominent cross-veins interconnecting the main veins below and the conspicuously reticulate-granular to densely and finely striate, inconspicuously short pale lineate adaxial surface, conspicuous reticulated tertiary veins and short pale lineations on the adaxial surface; and large inflorescences with a white spathe and a green spadix with conspicuous crustiose styles.

**Habit:** terrestrial, to 3.5 m tall.

**Stem: internodes** short, to 3.0 cm diam., densely and closely granular-lineate.

**Leaves: petioles** ca. 28 cm long, 3 cm thick near the base, 1.5–2.0 cm diam. nearer apex, glaucous, sheathed to the geniculum, densely and conspicuously granular-lineate (appearing varnished on magnification); **sheath** persisting intact, drying reddish brown, several low-ribbed abaxially, the ribs minutely striate and sparsely thick-granular, the broad margin more grayish brown, evenly ribbed ca. 1 mm apart, the intervening area finely striate-granular, the edge thin but intact; **blades** ovate-elliptic, ca. 53 cm long, 26.5 cm wide, twice as long as wide, rounded and short-acuminate at apex, rounded and weakly inequilateral at base, widest below the middle, drying blackish brown and glossy adaxially, medium reddish brown and glossy abaxially; **midrib** drying flattened and irregularly ridge-granular to granular, sometimes with a slender medial grove, concolorous adaxially, broadly flattened, concolorous with several narrow longitudinal grooves, otherwise finely striate and sparsely granular, paler abaxially; **primary lateral veins** difficult to count, seemingly 30–40 per side, departing midrib first at a sharp angle then spreading out at 50–80°; **interprimary veins** similar to primary lateral veins, with one minor vein running on each side and with a complex network of prominent cross-veins interconnecting them; **adaxial surface** conspicuously reticulate-granular to densely and finely striate, inconspicuously short pale lineate.

**Inflorescences:** erect; **peduncle** ca. 29 cm long, 1.5 cm diam; glaucous; **spathe** white, deciduous; **spadix** ca. 22 cm long, 2 cm diam.; green with brown pubescence; stipe ca. 1.5 cm long; styles mostly rounded prismatic, 2–3 mm wide in the broadest dimension, truncate, mostly all covered with a thick, markedly conspicuous, yellow-brown crustiose-granular surface.

**50.** *Rhodospatha dariosanchezii* (*Dario Sánchez et al. 1183*, MEDEL-23977). Holotype showing leaf blade (adaxial and abaxial surfaces).

**51.** *Rhodospatha dariosanchezii* (*Dario Sánchez et al. 1183*, MEDEL-23977). Holotype showing petiole, peduncle, and post-anthesis spadix.

**Flowers: stigmas** oval, 0.6–0.8 mm long, 0.6 mm wide, the medial groove not apparent.

**Infructescences:** not see.

**Distribution and ecology:** *Rhodospatha dariosanchezii* is endemic to Colombia, found only in Antioquia Department at 1750 m in a *Premontane Wet Forest* life zone.

**Etymology:** The species is named in honor of Colombian botanist Dario Sánchez who collected the only known specimen in 1987. Sánchez studied at the National University of Colombia, Bogotá, and was a student of Enrique Forero. He gained his master's degree in systematic biology in 1987 with a revision of the Colombian species of the genus *Guatteria* (Annonaceae). He worked principally at the Universidad Nacional (MEDEL) in Medellín.

**Comments:** Because of its large size and terrestrial habit, blades surfaces drying conspicuously reticulate-granular, glaucous petioles and peduncles, and crustiose styles, *Rhodospatha dariosanchezii* does not resemble any other species of the genus growing in its area.

***Rhodospatha davidsei*** Delannay & Croat, **sp. nov.** — Type: VENEZUELA. Amazonas: Río Negro, Upper Río Baria, 100 m, 20 July 1984, *G. Davidse 27543* (holotype, MO-3583917-18). (**Figs. 52–53**).

**Diagnosis:** *Rhodospatha davidsei* is characterized by its appressed-climbing epiphytic habit; nearly fully sheathed, dark-punctate petioles with the sheath persisting intact; large ovate-elliptic blades drying reddish-brown and twice as long as wide with a total of 7 veins running in parallel between the primary lateral veins and with diffuse cross-veins; and large inflorescences with a creamy white spathe and a dark pink spadix with a dominating oval stigma.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, ca. 1.5 cm diam.

**Leaves: petioles** ca. 57 cm long, sheathed to the geniculum, sheath narrow, ending abruptly and weakly free-ending at apex, persisting intact, drying reddish brown; **geniculum** ca. 4 cm long, sharply sulcate with margins in contact with the margin of petiole; **blades** coriaceous, ovate-elliptic, ca. 63 cm long, 31 cm wide, about twice as long as wide, widest near the middle, rounded and long-acuminate at apex, inequilateral, rounded and slightly subcordate at base, drying dark reddish brown and matte adaxially, slightly lighter reddish brown and glossy abaxially; **midrib**

**52.** *Rhodospatha davidsei* (*Davidse 27543*, MO-3583917. Holotype showing petiole, leaf blades (adaxial and abaxial surfaces), prophyll, and post-anthesis spadix.

**53.** *Rhodospatha davidsei* (*Davidse 27543*, MO-3583918. Holotype showing petiole, leaf blades (abaxial surface), and prophyll enclosing immature inflorescence.

drying deeply sunken and slightly paler, with finely ridged margins adaxially, narrowly rounded, paler, finely many-ribbed, matte abaxially; **primary lateral veins** ca. 32 per side, widely spaced (1.5–2.5 cm), departing midrib at 70–80°, drying concolorous to weakly paler adaxially, slightly lighter tinged weakly reddish, irregularly ribbed abaxially; **interprimary veins** weak, barely stronger that the minor veins, with a total of 6 or 7 veins running in parallel between the primary lateral veins, cross-veins present but not prominent; **adaxial surface** drying moderately smooth, minutely pale-granular on magnification; **abaxial surface** short-ridged to weakly granular, sometimes minutely areolate on magnification.

**Inflorescences:** erect; **peduncle** ca. 21 cm long, white drying reddish brown; **spathe** creamy white at anthesis; **spadix** stipitate ca. 7 mm, 19 cm long, 1.2 cm diam., moderately tapered, dark pink, drying dark grayish brown; **stipe** ca. 2 cm long; **styles** mostly rhombic with a dominating style, 1.0–1.6 mm long in direction of axis, truncate, matte; **stigmas** oval, black, ca. 1 mm long, 0.5 mm wide, the medial groove prominent.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha davidsei* is endemic to Venezuela, found only in Amazonas State in Río Negro Department at 100 m in a *Tropical Wet Forest* life zone.

**Etymology:** This species is named in honor of Gerrit Davidse of the Missouri Botanical Garden who collected the type specimen. Gerritt is a grass specialist, trained by the late Richard Pohl at the University of Iowa. He spent his career at Missouri where he did field work all over Latin America. He was in charge of the Flora Mesoamerica project until his recent retirement.

**Comments:** *Rhodospatha davidsei* resembles *R. cardonae*, which also occurs in Amazonas State of Venezuela and that dries with similar colors; but, the latter has smaller, more elongated blades (35 cm long) and grows at high elevations (1250 m). In contrast, *R. davidsei* has larger and more rounded blades (ca. 63 cm long and twice as long as wide) and grows at low elevations (100 m).

***Rhodospatha deliciasensis*** Delannay & Croat, **sp. nov.** — Type: VENEZUELA. Táchira, 14 km SE of Delicias, 7°31'N 72°24'W, 2150–2300 m, *J. A. Steyermark & R. L. Liesner 118746* (holotype, MO-2738413). (**Fig. 54**).

**Diagnosis:** *Rhodospatha deliciasensis* is characterized by its appressed-climbing, epiphytic habit; fully sheathed petioles drying medium brown overall with a broad sheath persisting intact; large,

**54.** *Rhodospatha deliciasensis* (*Steyermark & Liesner 118746*, MO-2738413). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

ovate-elliptic weakly bicolorous blades drying brownish, 1.7 times longer than wide; and widely spaced primary lateral veins with weak interprimary veins, a total of 7 veins running in parallel between the primary lateral veins, and interconnected by prominent cross-veins.

**Habit:** appressed-climbing epiphyte.

**Stem: juvenile stems** to 3 m long; **juvenile internodes** 4–5 cm long; **adult internodes** ca. 1.5 cm diam.

**Leaves:** distichous; **juvenile petioles** 12–14 cm long; **adult petioles** ca. 42 cm long, sheathed to the geniculum; **sheath** broad, persisting intact, drying blackish brown; **geniculum** terete, ca. 2 cm long, drying concolorous, weak and narrowly flattened with the margins of the blade weakly present and with narrow wings in the distal half; **juvenile blades** 26–26 cm long, 6.5–8.5 cm wide; **adult blades** ovate-elliptic, ca. 52 cm long, 30 cm wide, 1.7 times longer than wide, rounded and abruptly short-acuminate at apex, rounded and slightly inequilateral at base, drying medium reddish brown and almost matte adaxially, semiglossy abaxially; **midrib** drying broadly rounded, many-ribbed, nearly concolorous adaxially, narrowly rounded, many-ribbed, slightly darker abaxially; **primary lateral veins** ca. 20 per side, widely spaced (1.5–2 cm), departing at an acute angle then spreading out at 55–70°, drying weakly raised, concolorous adaxially, narrowly rounded to round-raised, slightly darker abaxially; **interprimary veins** weak, barely stronger than the minor veins, a total of 7 veins running in parallel between the primary lateral veins, interconnected by prominent cross-veins; **adaxial surface** irregularly ridged and moderately granular; **abaxial surface** more heavily and closely ridged, more conspicuously granular.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha deliciasensis* is endemic to Venezuela, found only in Táchira State at 1750–2300 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for the locality of Delicias near where it has been found.

**Comments:** *Rhodospatha deliciasensis* is probably most easily confused with another species from the same part of Venezuzela, which is undescribed (*Rhodospatha* species #4) and from southern Táchira State at about 1500 m 25 km SW of Rubio. While both species have leaf blades of similar size and shape with fully winged petioles and a persistent sheath, *Rhodospatha* species #4 differs in having the blades dry smoother and more greenish and densely dark-speckled

adaxially and yellowish red-brown abaxially. It also occurs in an area believed to be about 1000 m lower in elevation.

**Paratypes: VENEZUELA. Táchira:** Carretera Bramón – Delicias, cerca de Matamulas, en barranca de una corriente, 1750 m, 14–25 Mar 1989, *G. S. Bunting & C. Fleming 13569* (US, VEN).

***Rhodospatha densinervia*** Engl. & K.Krause, Das Pflanzenreich 4, 23B: 93. 1908. — Type: ECUADOR. Pichincha: Nanegal-Gualea, *Sodiro sn***.** (holotype, B). (**Figs. 55–59**).

*Rhodospatha macrophylla* Sodiro, Sert. Fl. Ecuad. Ser. 2: 79. 1908. Type: Ecuador. Esmeraldas and Pichincha: vic. Nanegal, QPLS (type lost).

**Habit:** appressed-climbing epiphyte or sometimes terrestrial.

**Stem:** stems mostly 1.5–2.0 m long; **internodes** short near the apex, longer than broad proximally, usually 4–10 cm long, 2.0–2.3 (3.0) cm diam., dark brown, semiglossy on young stems, soon becoming scurfy, minutely transverse-fissured, drying reddish brown and deeply sulcate.

**Leaves: petioles** 21–41 cm long, sheathed to the geniculum; **sheath** deciduous or with the margins fibrous to semi–intact with fragments of epidermis persisting, the margins sometimes incurled; **geniculum** 2–3 cm long, sharply sulcate with the margins thin and undulate; **blades** elliptic, 30–50 cm long, 15–25 cm wide, broadest at the middle or below the middle, 1.8–2.4 times longer than broad, (1.0)1.2–1.5 times longer than the petioles, nearly equilateral to moderately inequilateral, one side 1–3 cm wider, subcoriaceous, abruptly acuminate at apex, acute to obtuse or rounded but weakly attenuate at the base, dark green and semiglossy adaxially, much paler and matte abaxially, drying dark brown adaxially, medium brown abaxially; **midrib** much paler and sunken and marginally discolorous adaxially, thicker than broad and slightly paler abaxially; **primary lateral veins** very numerous, mostly 50–80 per side, 3–8 mm apart, departing midrib often at an acute angle then spreading at 70–95° then weakly curved toward the margin, narrowly sunken and weakly quilted adaxially, convex, and slightly paler abaxially; **interprimary veins** sometimes almost as prominent as the primary lateral veins, darker than surface, usually 1 or 2 (sometimes 3, rarely none); minor veins usually 1, sometimes 2 between adjacent primaries and the interprimaries; surface minutely reddish brown dotted, sometimes appearing pale-speckled.

**55.** *Rhodospatha densinervia*. Live plant showing appressed-climbing, epiphytic growth habit with stem, petioles, and leaf blades (abaxial surface). (Photo: F. Cardona).

**56.** *Rhodospatha densinervia*. Live plant showing leaf blade (adaxial surface). (Photo: J. Harrison).

**57.** *Rhodospatha densinervia* (*Croat 104480*). Live immature plants.

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**Inflorescences:** solitary, erect; **peduncle** 15–20 cm long, drying ca 6 mm diam.; **spathe** to 13 cm long, acute at apex, crème, drying dark brown; **spadix** green, becoming pinkish, drying gray to greenish gray, matte, sessile, 10–14 cm long, drying 14–19 mm diam.

**Flowers:** 16–20 per spiral, 1.3–1.5 mm x 1.0–1.3 mm diam., irregularly trapezoidal to irregularly 6–sided, often with the sides perpendicular to the spirals, gradually sigmoid with two opposite corners of the spiral acute and the alternate corners broadly rounded, the surface matte, with a thin, fine, frost–like epidermis; **stigmas** ellipsoid, 0.8–1.0 mm long, 0.3–0.4 mm wide, prominently raised and darker than the surface of the pistil; **stamens** with anthers 0.8–1.0 mm long, 0.5–0.9 mm wide, thecae not at all divaricate.

**Infructescences:** ca. 2 cm diam., 20 cm long; seeds, round, only slightly flattened, dark brown, 1 mm diam.

**58.** *Rhodospatha densinervia* (*Croat 93101*, MO-5890597). Specimen showing petiole, leaf blade (adaxial and abaxial surfaces), and inflorescence with separate spathe and spadix.

**59.** *Rhodospatha densinervia* (*Benavides 9282*, MO-3780246). Specimen showing petiole, leaf blade (abaxial surface), and post-anthesis spadix.

**Distribution and ecology:** *Rhodospatha densinervia* ranges along the Pacific slope of the Andes from Colombia (Antioquia, Chocó, Nariño) to Ecuador (Esmeraldas, Carchi, Pichincha, El Oro) from 1500 to 2300 m in *Premontane Wet Forest* life zones.

**Comments:** This species is characterized by its appressed-climbing and epiphyte habit; elliptic blades with numerous, closely spaced primary lateral veins and the abaxial surface smooth at high magnification and are either minutely speckled with reddish brown or are reddish brown with white speckles; and sessile spadix (although Engler reported the species to have a shortly stipitate (to 8 mm) spadix).

Due to its closely spaced primary lateral veins, *Rhodospatha densinervia* can most easily be confused with *Rhodospatha monsalveae*, which also occurs at high elevations on the Pacific slopes of the Andes in Colombia and Ecuador, but the latter differs by its larger size and its primary lateral veins becoming more widely spaced distally on the blades, instead of being uniformly narrow in *R. densinervia.* It also has prominent cross-veins rather than those being obscure in *R. densinervia*.

Peter Jorgenson in the Catalouge of the Vascular Plants of Ecuador (Jorgensen and León Yánas 1999) synonymized *Rhodospatha macrophyllum* under *R. densinervia* but without further comment. Perhaps Jorgensen actually saw the type in the Sodiro herbarium, but at the present time the type is unknown and is no longer in the QPLS herbarium. Sodiro's original treatment of *R. macrophylla* (Sodiro 1908) did make it clear that the primary lateral veins were only a few millimeters apart, a character shared with only one other species, namely *R. densinervia*. It is also clear that a species with such characteristics does inhabit the area around Nanegal. However, any similar material from Esmeraldas is apparently also lost as is material of most of the species in other genera from the Lita-San Lorenzo region where Sodiro did the majority of his botanical studies.

**Other Specimens Seen: COLOMBIA. Antioquia:** Alto de Cuevas, 10 km W of Blanquita, 12 km W of Nutibara, cloud forest. Transect 4, 06°45'00"N 76°18'00"W, 1750 m, 3 March 1992, *A. H. Gentry et al. 7679* (MO); Alto de Ventanas, *J. L. Luteyn & O. Marulanda 11897* (NY); Frontino. Corregimiento Carauta, Parque Nacional Natural Las Orquideas, camino entre El Guayabo y Tres Bocas, 06°38'08"N 76°13'33"W - 06°40'48"N 76°13'48"W, 1717–1840 m, 2 September 2012, *J. C. Betancur B. et al. 16557* (NY); Jardín. Verada La Mesenia, along trail to Alto Chami, Reserva Natural La Mesenia- Paramillo, Quebrada Jesús María near beginning of trail to Alto Chami; 05°29'23"N 75°53'25"W, 2250 m, 02 July 2021, *T. B. Croat & L. Mazariegos 108051* (MO); Urrao. Parque de Las Orquideas; 2780 m, *E. Rentería A. et al. 3906* (HUA); Yarumal. Valdivia, vereda el

Cedro, Sitio Alto de Ventanas; 1710–1980 m, 11 July 1992, *A. Gómez et al. 689* (HUA, MO); **Nariño:** Reserva Natural La Planada Afluende innominado de Quebrada El Balsal, 01°10'18"N 78°00'09"W, 2148 m, 19 March 1997, *G. Herrera Ch. & Jens Bittner 9506* (FMB, MO); 01°09'37"N 77°59'13"W, *G. Herrera Ch. 9163* (PSO); Reserva Natural La Planada, 01°10'N 77°58'W, 16 January 1990, *O. Salazar de Benavides 11148* (MO); Trayecto San Isidro-La Planada; 01°10'N 77°58'W, 1500–1800 m, 13 February 1988, *O. Salazar de Benavides 9282* (MO); Reserva Natural La Planada. A 7 km de Chucunés; 01°10'N 77°58'W, 1800 m, 13 December 1987, *O. Salazar de Benavides 974* (MO); La Planada, 7 km above Chucunés on road between Tuquerres and Ricaurte. Regrowth secondary forest with primary forest elements and trail above "La Posada" building; 01°05'N 78°01'W, 1780 m, 26 July 1988, *T. B. Croat 69560* (CM, CUVC, HUA, MO, US). **ECUADOR**. In silv. subtrop. valle Nanegal; July 1903, *L. Sodiro 23* (MO, US); In silv. subtrop. Nanegal - Gualea; October 1900, *L. Sodiro 23* (MO); In silv. trop.; Formerly *R. macrophylla*, October 1902, *L. Sodiro 226* (QPLS). **Carchi:** Along unfinished road from El Chical to El Carmen, departing main El Chical-Peñas Blancas Road, 0.6 km W of bridge over Río Chical, 4.9 km S of jct. with main road; 00°59'01"N 78°11'37"W, 1350 m, 9 August 2004, *T. B. Croat & G. Ferry 93101* (MO, QCNE); Along road from El Chical to El Limonal (Imbabura), 16 km S of junction with main El Chical - Peñas Blancas road, 2 km S of Río Gualpi Bridge, vicinity of Km 15.5-15.8 markers; 00°52'N 78°13'W, 2043 m, 13 October 2012, *T. B. Croat et al. 104229* (MO, QCNE); Mira. Parroquia Gualchan; along road between El Chical and Gualchan, 14 km S of Río Gualpi Bridge, S slope of the divide between El Chical and Gualchan, 14 km N of bridge over Río Gualpi; 00°49'46"N 78°12'38"W, 1671 m, 16 October 2012, *T.B. Croat et al. 104375* (MO, QCNE); Norte del Carmen. Camino a Chical. Bosque primario alterado; 00°17'N 78°13'W, 2000 - 2200 m, 10 February 1992, *W. A. Palacios et al. 9827* (MO, QCNE); Reserva Etnica Awá. Parroquia El Chical. Centro Gualpi Medio. Río Canumbí. Bosque muy húmedo Premontano. Bosque primario, topografía muy irregular; suelo negro franco-arcilloso; 01°02'N 78°15'W, 1150 m, 19–28 February 1993, *A. Grijalva et al. 584* (MO, QCNE); Parroquia El Chical; Reserva Cerro Oscuro; James Levy property on Río Blanco, ca. 3 km S of El Chical; 00°54'49"N 78°11'39"W - 00°54'35"N 78°11'40"W, 1200–1390 m, 18 October 2012, *T. B. Croat et al. 104480* (MO, QCNE); **Esmeraldas:** In silv. trop; 00°58'59"N 79°42'00"W, September 1904, *L. Sodiro 22* (MO, US). **Pichincha:** Maquipucuna, 5 km E of Nanegal, mature cloud forest. TRANSECT # 6, 00°7'N 78°37'W, 1550 m, 10 February 1991, *A. H. Gentry & R. Valencia 73185* (MO, QCNE); Along road between Tandayapa and Mindo, 19.5 km from Tandayapa, ca. 5.5 km from Mindo; 00°01'00"S 78°46'00"W, 1930 m, 16 December 1979, *T. B. Croat 49396* (K, MO, QCNE); Along road from Nanegalito to Mindo, 16.5 km SSW of Nanegalito; 00°01'14"N 78°44'23"W, 1500 m, 21 July 1998, *T. B. Croat & J. Whitehill 82748* (AAU, GB, MO, QCNE, S); Along road and trail from Maquipucuna Lodge to Ecolodge Santa Lucia, 2 km N of Maquipucuna Entrance; 00°7'19"N

78°37'06"W, 1400 m, 15 Mar 2006, *T. B. Croat et al. 95969* (MO); Along road between Pacto and Cielo Verde on Río Guayabamba (Province Imbabura), 19.1 km NW of Armenia junction of Main Nanegalito-Pto. Quito Hwy, 6.5 km W of La Delicia, 10.2 km W of Pacto; 00°09'21"N 78°50'09"W, 1457 m, 25 Mar 2006, *T. B. Croat et al. 96434* (MO, QCNE); Maquipucuna, Paroquia Nanegal, 00°00'7"N 78°38'W, 1700–1800 m, 14 July 1990, *Webster 28198* (MO).

***Rhodospatha dissidens*** Sodiro, Anales Univ. Centr. Ecuador 22 161) 277. 1908. — Type: ECUADOR. Esmeraldas: September 1904, *Sodiro s.n.* (holotype, QPLS). (**Figs. 60–61).**

**Habit:** unknown.

**Stem: internodes** 1.0–1.5 cm long, 7–9 mm diam., yellow-brown, moderately striate; **petioles** sheathed to the geniculum, 20–25 cm long; **sheath** erect, entire, faintly striate adaxially, drying brown; **geniculum** 18–25 mm long; **blades** elliptic to ovate-elliptic or narrowly ovate, about as long as the petioles, 13–18 cm wide, asymmetrical, obtuse and abruptly acuminate at apex, inequilaterally rounded at the base, drying gray–brown adaxially, brown abaxially; **midrib** flat adaxially, prominently obtuse abaxially; **primary lateral veins** 30–40 per side, 4–13 mm apart, prominently downturned before joining midrib, spreading at ca 80°; **interprimary veins** prominent.

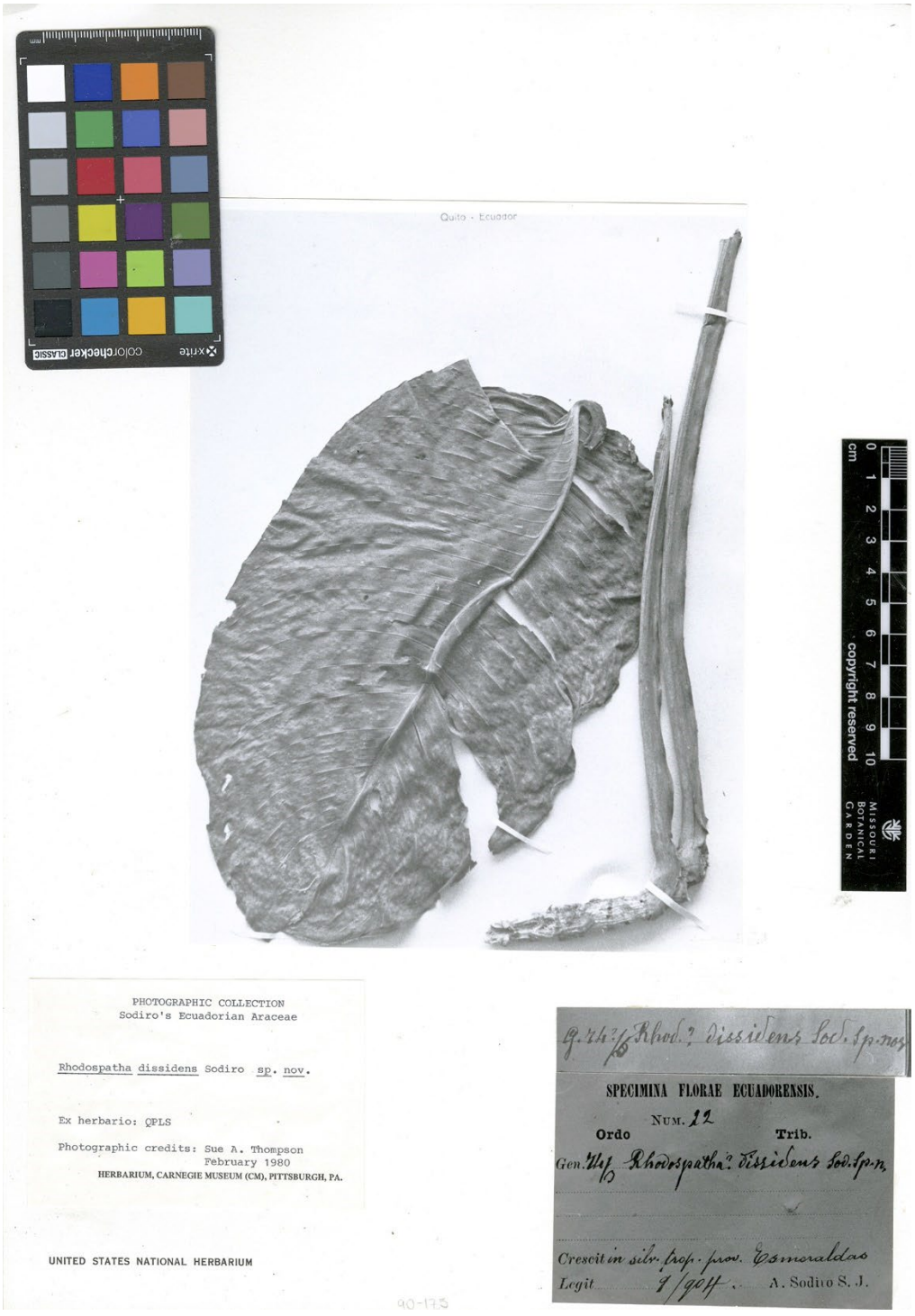
**Inflorescences: peduncle** 5–8 cm long, subterete; **spathe** coriaceous, subelliptic, briefly acuminate at apex, deciduous; **spadix** shortly stipitate (4–5 mm), cylindroid, 12–15 cm long, to 12 mm diam.

**Flowers: filaments** narrowly linear; **pistils** prismatic–hexandrous; **styles** to 2 mm long, ca. 3 mm thick, moderately convex at apex; stigmatic medially.

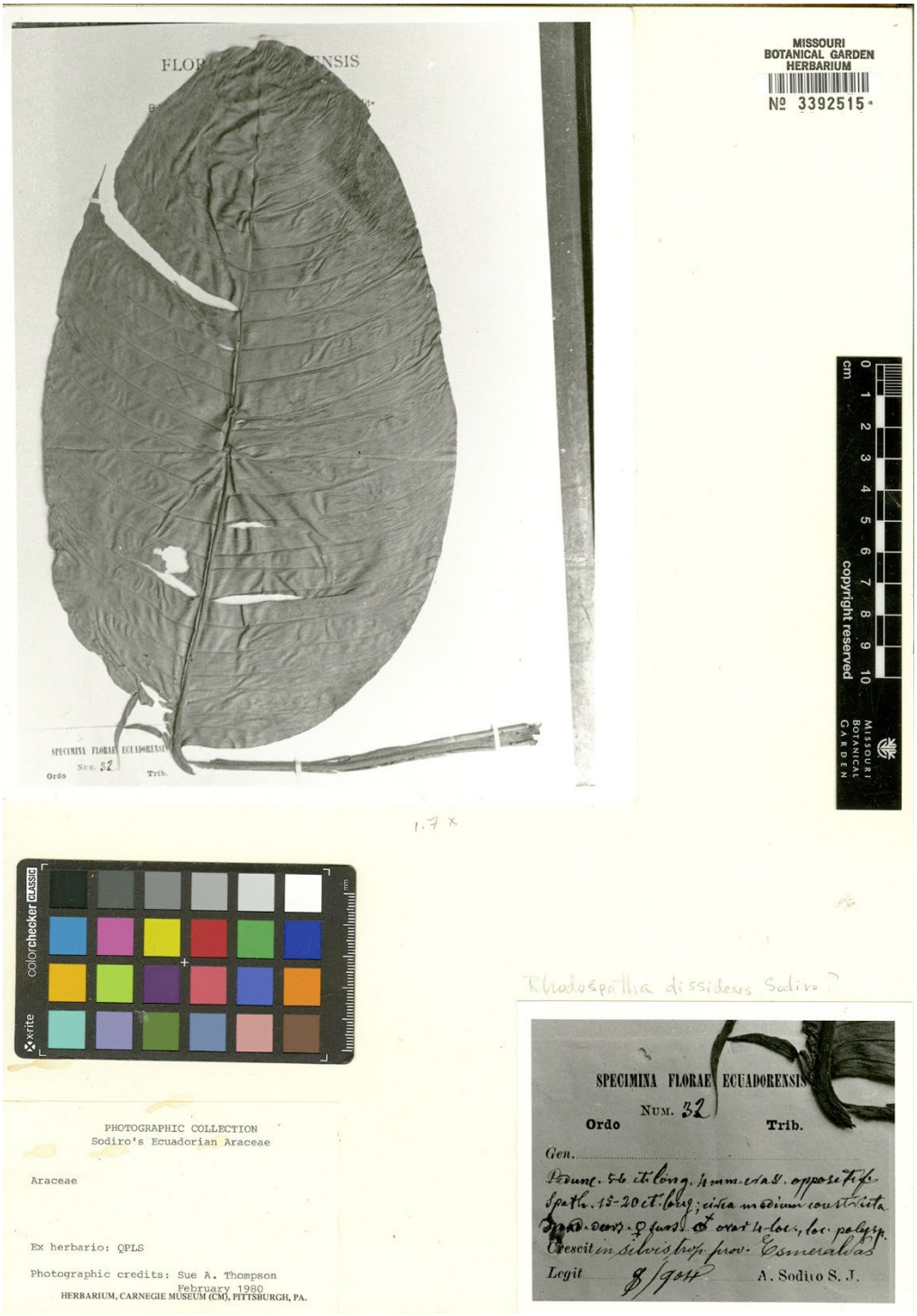
**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha dissidens* is endemic to Ecuador, known only from the type locality in Esmeraldas province.

**Comments:** The species is characterized by its thin internodes and elliptic to ovate-elliptic blades about as long as the petioles with primary lateral veins prominently downturned before joining midrib.




**60.** *Rhodospatha dissidens* (*Sodiro s.n.*). Specimen showing petiole and leaf blade (abaxial surface).




**61.** *Rhodospatha dissidens* (*Sodiro s.n.*). Specimen showing petiole and leaf blade (adaxial surface).

***Rhodospatha dorothybayae*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Valle del Cauca: Along road from Buenaventura to Málaga, Km 52.4 (from beginning of road at Gallinero), 04°03'N 77°05'W, 140 m, 24 July 1993, *T. B. Croat & D. Bay 75718* (holotype, MO-4575780-81; isotypes, HUA, K). (**Figs. 62–64**).

**Diagnosis:** *Rhodospatha dorothybayae* is characterized by its appressed-climbing, epiphytic habit; overall drying orangish brown; petioles with the sheath persisting intact; ovate-elliptic to obovate-elliptic blades 2.3 times longer than wide and rounded at the apex, and especially by its numerous, closely spaced, dark-bordered primary lateral veins and weak minor veins and cross-veins.

**Habit:** scrambling, epiphytic climber, rooted in soil but loosely climbing on trees and spreading to adjacent vegetation.

**Stem: internodes** 1.5–4.0 cm long, 2.3 cm diam., medium green and semiglossy, becoming gray, drying yellow-brown, matte, closely and densely acute-ridged, eventually more coarsely ridged with a glossy somewhat brittle epidermis; sap becoming mucilaginous, clear, not particularly sticky, drying orangish brown.

**Leaves: petioles** 20–23 cm long, sheathed to the geniculum, pale green at base, medium green otherwise, drying orangish brown, weakly several-ribbed adaxially, smooth and unribbed on the sides, more heavily ribbed closer to the margins of the sheath; **sheath** inrolled, semiglossy, persisting intact, drying orangish brown with a darker brown margin, ending abruptly at apex; free portion sharply sulcate; **geniculum** drying sharply and narrowly sulcate, 2.0–2.5 cm long, drying darker; **blades** subcoriaceous, oblong-elliptic, 25–30 cm long, 11.5–13.0 cm wide, 2.3 times longer than wide, rounded at apex, obtuse and slightly inequilateral at base, widest near the middle, semiglossy and dark green adaxially, moderately paler and glossy abaxially, drying medium orangish brown, essentially matte adaxially, slightly paler, semiglossy abaxially; **midrib** narrowly sunken and marginally weakly discolored adaxially, narrow-raised and paler abaxially, drying concolorous to slightly darker, weakly sunken medially, finely areolate-ridged, densely granular adaxially, finely and closely ribbed abaxially, the ridges finely striate-ridged, mostly glabrous; **primary lateral veins** 32–35 per side, closely spaced (5–10 mm), departing midrib at 60–70°, etched adaxially, convex abaxially, drying concolorous adaxially, darker abaxially; **interprimary veins** weak, with one weaker minor vein running on each side; cross-veins sparse and very weak; **adaxially surface** finely granular, seemingly sparsely dark pitted under side lighting; **abaxial surface** faintly pale low-granular to dark-speckled, finely ridged under side-lighting but lacking obvious granules.

**62.** *Rhodospatha dorothybayae* (*Croat & Bay 75718*). Live plant showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

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**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha dorothybayae* is endemic to Colombia, found only in Valle del Cauca Department at 40 m in a *Premontane Rain Forest* life zone.

**Etymology:** This species is named in honor of Dr. Dorothy Bay, who collected the only known specimen along with the second author in 1993. Dorothy was a student of the second author and did her Ph.D. study on the Araceae of the Bajo Calima area where the type was collected. After graduating from St. Louis University, Dorothy taught at Missouri Southern University and continued her interest in tropical vegetation while conducting classes with her students in the tropics.

**63.** *Rhodospatha dorothybayae* (*Croat & Bay 75718*, MO-4575781). Holotype showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**64.** *Rhodospatha dorothybayae* (*Croat & Bay 75718*, MO-4575780). Holotype showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**Comments:** This species resembles *Rhodospatha pellucida* of Central America, which also has closely spaced primary lateral veins and a similar minor venation pattern, but differs from the latter by its terrestrial habit (vs. appressed-climbing epiphytic); drying orangish-brown (vs. green or greenish brown); and less elongated blades (2.3 times longer than wide vs. 2.5–4.5 times) and rounded at the apex (vs. obtuse and short-acuminate at the apex). Also, *R. dorothybayae* is found in Valle del Cauca Department of Colombia, much farther south than *R. pellucida*.

***Rhodospatha dressleri*** Croat, Aroideana 47(1): 43–190. 2024 — Type: PANAMA. Panamá: Cerro Campana, ca; 600–800 m, ca. 08°41' N, 79°55' W, 30 September 1976, *R. Dressler 3046* (holotype, PMA-6160). (**Fig. 65**).

**Habitat:** unknown, probably terrestrial.

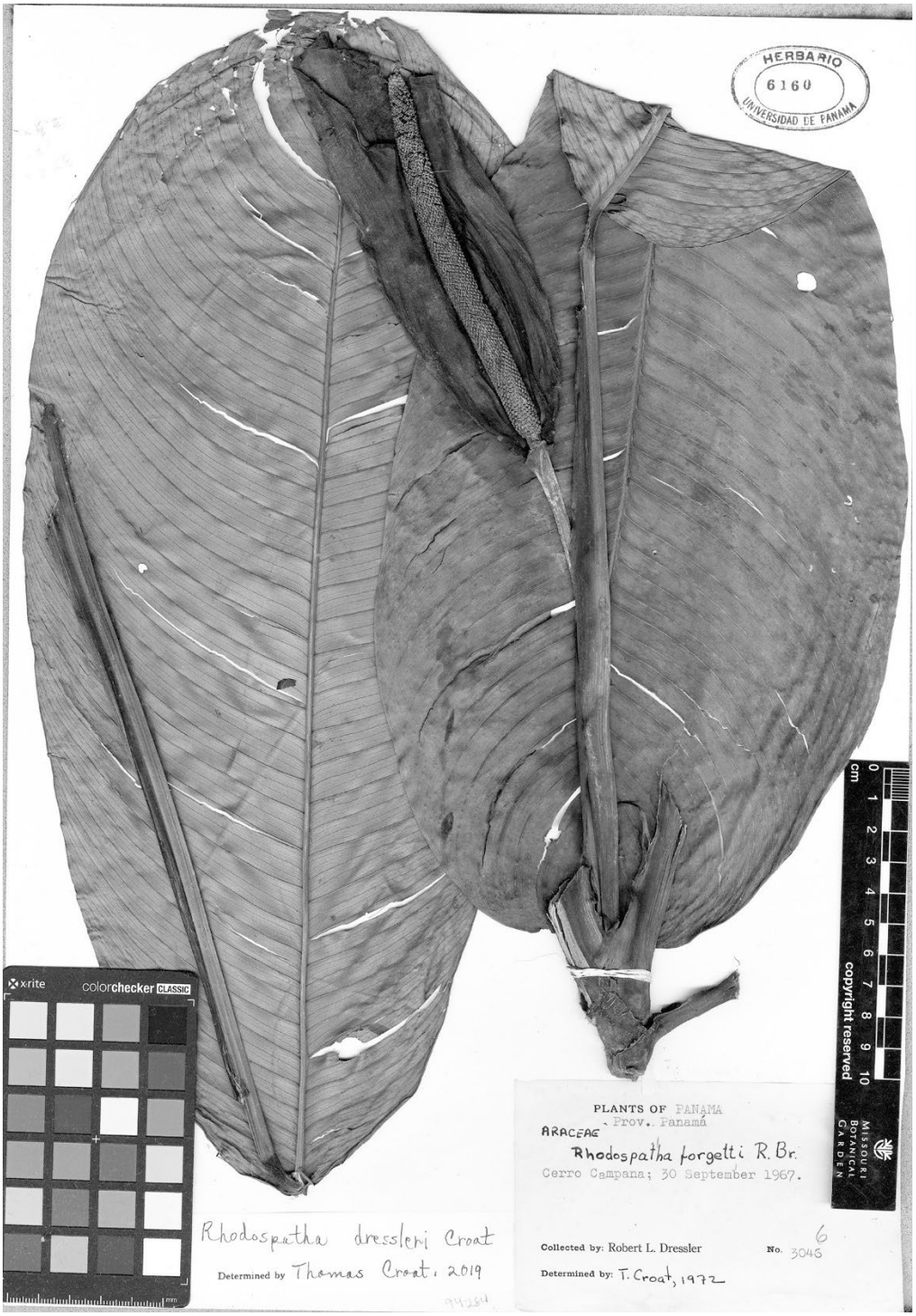
**Stem: internodes** short, 1.0–1.5 cm diam., epidermis drying yellow-brown, prominently ridged and somewhat flaking.

**Leaves: petioles** 23.5–27.0 cm long, sheathed most of their length, free part ca. 3 cm long, sharply sulcate on drying, dark brown; **blades** narrowly obovate-elliptic, 31.5–37.5 cm long, 16.9–17.1 cm wide, 1.3–2.3 times longer than broad, 1.1–1.3 times longer than petioles, rounded and abruptly short-acuminate at apex, inequilaterally rounded at base, subcoriaceous, dark green and matte adaxially, slightly paler and weakly glossy abaxially, drying gray, matte and smooth adaxially, semiglossy and grayish yellow-brown, densely dark-granular-speckled abaxially; **midrib** drying sunken and slightly paler adaxially, narrowly raised and more or less concolorous abaxially; **primary lateral veins** 25–32, departing midrib at 65–70°, sunken adaxially, drying concolorous adaxially, narrowly rounded-raised and slightly darker abaxially; **interprimary veins** often lacking but with usually 2 minor veins present between each pair of primary lateral veins; cross-veins lacking.

**Inflorescences:** erect, short-stipitate; **peduncle** ca. 15 cm long, drying 4 mm diam., brownish; **spathe** drying dark brown, ca. 15.5 cm long, 10 cm wide when flattened, surfaces matte, densely pale-granular; **spadix** ca. 12.8 cm long, 10 mm diam., weakly glossy, weakly stipitate; **stipe** ca. 3 mm long.

**Flowers: pistils** subquadrangular, 1.6–2.1 mm long and wide.

**Infructescences:** not seen.




**65.** *Rhodospatha dressleri* (*Dressler 3046*, PMA-6160). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and inflorescence at anthesis with spathe and spadix.

**Distribution and ecology:** *Rhodospatha dressleri* is endemic to Panama, known only from the type locality on Cerro Campana at 600–800 m in a *Tropical Moist Forest* life zone.

**Comments:** This species is apparently closely related to *Rhodospatha antonensis*, known only from nearby El Valle de Antón at La Mesa and on Cerro Pilón. This latter species differs by having the adaxial blade surfaces dark brown not grayish and lacking dark blackish speckles on the adaxial surface and lacking conspicuous dark speckles on the abaxial surface. Also, the latter species has a longer peduncle, to 25 cm long.

***Rhodospatha endesaensis*** Croat, **sp. nov.** — Type: ECUADOR. Pichincha: San Miquel de los Bancos Cantón, Reserva Endesa, along San Miquel de los Bancos-Puerto Quito Road, NW of Quito, km 113, 28.6 km E of Puerto Quito, 3.1 km E of Puerto Maldanado, 0.8 km from main road, 00°03' N; 79°7' W., 710 m, 19 March 1992, *Croat 73164* (holotype, MO 4064741-42; isotype, QCA, QCNE). (**Figs. 66–67**).

**Diagnosis:** *Rhodospatha endesaensis* is characterized by its large size and appressed-climbing, epiphytic habit; long, thick internodes; large, oblong to oblong-elliptic blades drying dark brown to greenish adaxially with conspicuous minor veins alternating with the primary and interprimary veins; and large inflorescences with a long peduncle, a large spathe pale green abaxially with pinkish margins, and a creamy white spadix.

**Habit:** appressed-climbing epiphyte to 3 m high.

**Stem: internodes** 6–10 cm long, becoming much shorter toward the apex, 3.0–4.5 cm diam., dark green, becoming scurfy brown, closely transverse-fissured, weakly ridged longitudinally.

**Leaves: petioles** erect-spreading, sheathed to within 1–2 cm proximal of geniculum or completely to the geniculum, 38–55 cm long, matte to weakly glossy, medium green with dense dark green speckling, brownish-roughened at base, sheath incurled, yellowing or browning but persisting intact, not at all fibrous; **geniculum** conspicuously swollen, broadly and bluntly sulcate, 3–4 cm long; **blades** spreading to somewhat pendent, oblong to oblong-elliptic, 74–97 cm long, (20)25–29(30) cm wide, broadest usually slightly above the middle, 2.8–3.8 times longer than wide, 1.6 times longer than the petiole, inequilateral, one side 2.0–3.5 cm wider, moderately coriaceous to coriaceous, obtuse to rounded and cuspidate at apex, acute to rounded and inequilateral at base, dark green and sub-velvety adaxially, moderately paler and matte to weakly glossy abaxially, drying dark brown to greenish adaxially, olive-green to dark brown or brownish

**66.** *Rhodospatha endesaensis* (*Croat 73164*, MO-4064741). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

**67.** *Rhodospatha endesaensis* (*Croat 73164*, MO-4064742). Holotype showing stem, and inflorescence at anthesis with spathe and spadix.

green abaxially; margins sometimes markedly undulate; **midrib** narrowly V-sunken and weakly discolored marginally adaxially, narrowly raised to thickly convex and matte abaxially, drying minutely granular; **primary lateral veins** ca 40 per side, 10–22 mm apart, closer very near the base, to 5 mm apart, departing midrib at an obtuse to acute angle then spreading at 55-80°, weakly curved to the margins, weakly and narrowly quilted–sunken adaxially, convex and paler abxilly; **interprimary veins** clearly visible and darker than surface and scarcely more prominent than the minor veins; minor veins 1–3 alternating with the primary and interprimary veins; cross veins moderately weak, moderately dense, irregular, mostly oblique, sometimes branching, more numerous and more closely spaced nearer the margins, the surface densely pale–spotted on magnification.

**Inflorescences:** erect; **peduncle** subterete, 27–35 cm long, drying 6–8 mm diam.; prophylls 31–41 cm long; **spathe** green when immature, slightly pinkish within, at anthesis pale green abaxially with pinkish margins, pinkish inside with white veins, ca. 24.5 cm long, 12.2 cm wide (when flattened), promptly deciduous; **spadix** creamy white becoming pale greenish white to dark gray-green post-anthesis, 16.5–22.0 cm long, 1.0–1.4 cm diam. midway, usually sessile or sometimes stipitate ca. 5 mm.

**Flowers: pistil** 4–6 cm sided, 1.5–2.2 mm diam.; the sides straight to convex, sometimes concave; **stigma** drying black, 0.8–1.0 mm long, 0.4 mm wide, ca. 0.2 mm high with a pale brown margin, the surface gray-granular; **stamens** weakly protruded above the apex; **anthers** ca. 1 mm long, 0.8 mm wide.

**Infructesceences:** to 26 cm long, to 2.7 cm diam.

**Distribution and ecology:** *Rhodospatha endesaensis* is endemic to Ecuador, occurring from 200–800 m elevation in *Premontane Rain Forest* life zones in Pichincha and Carchi Provinces.

**Etymology:** This species is named for the Reserva Endesa in Pichincha Province where it was first been found.

**Comments:** *Rhodospatha endesaensis* is similar to *R. monsalveae* but this latter species differs in having leaves with a deciduous, often fibrous petiole sheath and much shorter blades (ca 2.3 times longer than wide) with the abaxial blade surfaces often dark-punctate but not densely pale-speckled. Also, the abaxial midrib of *R. endesaensis* is merely finely granular on magnification rather than conspicuously roughened with the protuberances irregular and somewhat flattened as is the case of *R. monsalveae.*

Though placed here, *Madison 3843* from the Río Palenque Science Center differs in having a blade proportionately longer (to 3.8 times longer than broad vs. ca. 3 times longer) and in drying somewhat more reddish brown abaxially.

**Paratypes: ECUADOR. Pichincha:** Along road from Pacto to Cielo Verde on Río Guayabamba (Imbabura), 23.8 km W of Pacto, 00°11'47"N, 78°52'7"W, 844 m, 27 March 2006, *T. B. Croat et al. 96536* (MO, QCNE, S); Reserva Endesa, about 8 km North of Km. 113 on Quito-Pto. Quito Highway, vicinity of Río Cabayales, 00°05'N 79°02'W - 00°05'N - 79°02'W, 700 m, 16 July 1986, *T. B. Croat & J. Rodríguez 61525* (MO, QCA, QCNE); *T.B . Croat 73180* (MO, QCNE, SEL); Reserva Forestal ENDESA, Río Silanche: "Corporación Forestal J.M. Durini", km 113 de la carretera Quito-Pto. Quito, faldas occidentales, a 10 km N de la carretera principal, 00°05'N 79°02'W, 650-800 m, May 1984, *J. Rodríguez 239B* (QCA). **Carchi:** El Pailón, ca 45 km below Maldonando along a foot path to Tobar Donoso, wet montane forest, 800 m, 29 November 1979, *M. T. Madison 7174* (SEL). **Los Ríos:** Río Palenque Science Center, km 56 Quevedo-Sto. Domingo, 200 m, 10 April 1977, *M.T. Madison 3843* (SEL).

***Rhodospatha enikolopovii*** Croat & A. Loayza, **sp. nov.** — Type: PERU. Huánuco: Leoncio Prado Province, vicinity of Tingo María, NE of Tingo María, along road departing from main Huánuco-Tochache highway, E. on Avenida Hipolito Tuesta for 9.4 km, 09°17’11.36”S 75°55'14.63”W, 708 m, 19 July, 2024, *A. Enikolopov & A. Loayaza 300* (holotype, MO-5479017–18; isotypes, K, USM). (**Figs. 68–76**).

**Diagnosis:** *Rhodospatha enikolopovii* is characterized by its appressed climbing habit; petioles sheathed to the geniculum with the sheath thick, incurled with an intact margin; elliptic markedly bicolorous blades 2.1–2.7 times longer than broad, rounded at the apex, medium yellow-green abaxially, primary lateral veins 25–31 and paler, interprimary veins usually 1 between primary lateral veins and with 2–3 minor veins on each; and coriaceous, white spathe and white spadix that turns bluish green.

**Habit:** appressed-climbing epiphyte to 10 m high.

**Stem: internodes** short, slightly longer than broad, 3–5 cm diam., dark green, semiglossy at apex, gray-green at older nodes.

**Leaves:** many, borne in a dense cluster near end of stem, spirally arranged, but mostly appearing distichous; **petioles** 21.5–29.0 cm long, sheathed to the geniculum, spreading, medium green,

**68.** *Rhodospatha enikoloopovii* (*Enikolopov & Loayza 300*, MO-5479017-18). Habit of flowering plant. (Photo: A. Enikolopov).

**69.** *Rhodospatha enikolopovii* (*Enikolopov & Loayza 300*, MO-5479017-18). Two flowering plants ex situ showing different stages of development. (Photo: A. Enikolopov).

semiglossy, dark brown, drying moderately coriaceous, incurled, medium dark yellow-brown, matte, closely ribbed on the sides, the sheath margin narrow, thick and intact; **geniculum** 1.5–1.8 cm long, not discolored, rounded and smooth abaxially, sharply sulcate adaxially with the margins in-turned; **blades** elliptic, 44–53 cm long, 18–25 cm wide, 2.1–2.7 times longer than wide, 0.68–1.2 times longer than the petioles, acute at base, rounded with a weak acute tip at apex, dark green and semiglossy adaxially, moderately paler and weakly glossy abaxially, drying medium gray-brown adaxially, much paler and light yellowish brown to yellowish green and weakly glossy abaxially; **midrib** drying weakly sunken and weakly paler with the margins raised

**70.** *Rhodospatha enikolopovii* (*Enikolopov & Loayza 300*, MO-5479017-18). Close up of blades showing adaxial and abaxial surfaces. (Photo: A. Enikolopov).

**71.** *Rhodospatha enikolopovii* (*Enikolopov & Loayza 300*). Close up of petiole showing incurled sheath and geniculum. (Photo: A. Enikolopov).

**72.** *Rhodospatha enikolopovii* Croat & Loayza (*Enikolopov & Loayza 300*). Forced open spathe showing inner (adaxial) surface and immature spadix. (Photo: A. Enikolopov).

adaxially, narrowly rounded, medium brown, matte and finely ridged on sides abaxially; **primary lateral veins** moderately close, 25–31 per side, moderately close-spaced, 0.8–1.5 cm apart, weakly quilted, departing midrib at acute angle then spreading at 45–50°, drying scarcely raised, concolorous adaxially, narrowly rounded, irregularly ridged-granular and darker abaxially;

**73.** *Rhodospatha enikolopovii* (*Enikolopov & Loayza 300*). Close up of post-anthesis spadix with pollen residue. (Photo: A. Enikolopov).

**74.** *Rhodospatha enikolopovii* (*Enikolopov & Loayza 300*). Close up of spadix showing glaucous styles. (Photo: A. Enikolopov).

**75.** *Rhodospatha enikolopovii* (*Enikolopov & Loayza 300,* MO-54790117). Holotype consisting of folded leaf and inflorescence.

**76.** *Rhodospatha enikolopovii* (*Enikolopov & Loayza 300*, MO-54790118). Holotype consisting of stem and post-anthesis inflorescence.

**interprimary veins** not prominent, with 2–3 fainter minor veins running between them and the primary lateral veins, with cross-veins lacking; **adaxial surface** weakly and irregularly areolate-ridged; **abaxial surface** minutely and finely striate with weak cross-veins visible at higher magnification.

**Inflorescences:** erect; **peduncle** ca. 21.7 cm long, medium green, semiglossy, usually enclosed in a thick prophyll for most of its length, drying dark brown and longitudinally irregular-ridged; **spathe** pale green outside except at point of connection with peduncle, white inside, drying coriaceous and dark brown with pale veins, **spadix** sessile to weakly stipitate, 11–12.5 cm long, 1.4–1.5 cm diam. in the middle (in life), only weakly tapering toward both ends, creamy white, soon becoming pale green to bluish green and perhaps glaucous, sometimes yellow-green and covered in yellow-brown residue of pollen, drying medium to dark brown.

**Flowers: pistils** arranged in rows on a spiral, each row separated by a corrugated membrane that emerges above the level of the styles; **styles** mostly rhombic in life, drying to sub-quadrangular to oval, sometimes rhombic, drying 1.0–2.0 mm long, 1.6–1.8 mm wide; **stigmas** weakly raised, 0.8 mm long, 0.2 mm wide, drying concolorous and lacking a deep medial sulcus.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha enikolopovii* is found in the region of Tingo María in Huánuco Department of Peru at 628 m in a *Premontane Wet Forest* life zone. The collector Enikolopov reported seeing the same species in two sites on the opposite side of the Huallaga River near Tingo María.

**Etymology:** This species is named after Armen Enikolopov who collected the type specimen with the assistance of Peruvian aroid specialist Afredo Loayza. Enikolopov is a New York-based American biologist and explorer whose major areas of research are sensory neuroscience and neuroimmunology.

**Comments:** This species is similar to the widespread *Rhodospatha latifolia*, which differs in having petioles about twice as long, leaf blades 0.7–1.2 times as long as petioles and typically reddish brown abaxially, and blade apices more clearly acuminate at apex. In contrast, *R. enikolopovii* has petioles typically less than 30 long, blades 0.68–0.76 times as long as petioles, rounded and scarcely pointed at apex, and blades drying distinctly yellow-green abaxially. This species is seemingly also close to *R. piushaduka* but that species differs in being a modest terrestrial plant to 1 m tall that has yellow-drying, prominently ribbed petioles longer than the blades; blades drying reddish brown abaxially, acuminate at apex with the primary lateral veins

moderate wide-spaced (1.7–3.3 cm apart) and seemingly disconnected from midrib; and a spathe that dries reddish brown.

***Rhodospatha falconensis*** G. S. Bunting, Phytologia 60:(5): 336. fig 48. 1986. Type: VENEZUELA. Falcón: Sierra de San Luis, above Uria, 1360 m; 11 April 1980, *R.C. Wingfield 8221* (holotype, IUTC). (**Fig. 77–79**).

**Habit:** appressed–climbing epiphyte to 6 m high.

**Stem: internodes** reportedly to 4 cm diam. but we have seen to ca. 1.3 cm diam., 3 cm long, closer in the distal portion, drying light brown, closely fissured, semiglossy.

**Leaves: petioles** 27–36 cm long, about as long as blades, drying brown, the sheath erect, persisting intact, ending at the base of the geniculum; **geniculum** ca. 2.5 cm long, weakly sulcate; **blades** narrowly ovate-lanceolate, 40–61 cm long, 15–24 cm wide, 2.5–2.7 times longer than wide, equilateral to slightly inequilateral, acuminate at apex, rounded at base, dark green and glossy adaxially, pale yellowish green abaxially, drying dark greenish-brown adaxially, medium brown abaxially; **midrib** sunken adaxially, thicker than broad abaxially; **primary lateral veins** 18–20 per side, (1)1.5–2.5 cm apart, departing midrib at an acute angle, then spreading at ca 60°; **interprimary veins** usually one between each pair of primary lateral veins, usually with up to 3 or 4 minor veins on either side of the interprimary vein; minor veins interconnected with a close series of irregularly branching or oblique cross-veins; primaries, interprimaries and minor veins sometimes undulate.

**Inflorescences: peduncle** ca. 18.5 cm long, arcuate-spreading; prophylls slender, to 22 cm long. **spathe** dried and fallen, drying dark brown, ca. 21 cm long, narrowly caudate at apex; **spadix** stipitate ca. 1.2 cm, orangish pink, ca. 15 cm long, 0.8 cm diam. at base, 1.0 cm diam. midway, weakly tapered in the distal 1/3.

**Flowers: stigmas** blackened, glutinous.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha falconensis* is endemic to Venezuela and currently known only from the state of Falcón in the Sierra de San Luis, above Uria at 1250–1360 m in a *Premontane Wet Forest* life zone.

**77 (left).** *Rhodospatha falconensis* (*Croat 74496*). Live plant showing leaf blades (adaxial surface), and unopened inflorescence. **78 (right).** *Rhodospatha falconensis* (*Croat 74496*, MO-4356931). Specimen of immature plants.

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**Comments:** This species is characterized by its appressed-climbing, epiphytic habit; light brown, glossy, closely fissured dried stem; intact petiolar sheaths; weakly sulcate geniculum; narrowly ovate to ovate-lanceolate blades drying brown and rounded at the base; and the stipitate spadix.

It is apparently closely related to *Rhodospatha badilloi* and perhaps only subspecifically distinct from that species but differs in having thinner leaf blades. See *R. badilloi* for additional discussion.

**Other Specimens Seen: VENEZUELA. Falcón:** Serrania de San Luiz, Fila Norte, Hoya de Curimagua and La Chapa, 12.5 km N of Curimagua, virgin cloud forest overlaying large jagged rocks, 11°10'N 69°37'W, 1300 m, 6 March 1993, *T. B. Croat 74496* (MO, VEN); Sierra de San Luis, 1 1/2 SSW of El Trapichito, 1250 m, *R. C. Wingfield 9968* (CORO).

**79.** *Rhodospatha falconensis* (*Croat 74496*, MO-4356932). Specimen showing stems, petioles, leaf blades (adaxial and abaxial surfaces), and inflorescence at anthesis with spathe and spadix.

***Rhodospatha felipecardonae*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Antioquia: San Luis, Valley of Río Claro, 27 km E of Entrada for San Luis, 53 km E of Río Calderas, 05°53'30"N 74°51'20"W, 500 m, 21 April 2007, *T. B. Croat & F. Cardona 97882* (holotype, MO-6275263-64). (**Figs. 80–81**).

**Diagnosis:** *Rhodospatha felipecardonae* is characterized by its appressed-climbing, epiphytic habit; internodes drying medium brown with vertical whitish fissures interspersed with white dots; petioles with deciduous sheaths; and markedly bicolorous, ovate-elliptic blades drying green, densely granular abaxially and marked with olive-green dots and open rings with widely spaced primary lateral veins, and a dense network of minor veins with and cross-veins between them.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 3–5 cm long, 1.1 cm diam., dark green, matte, turning gray, weakly glossy, drying medium brown with vertical whitish fissures interspersed with white dots.

**Leaves: petioles** 31–34 cm long, 4 mm diam.,sheathed 24-25 cm; **sheath** deciduous, only a few fibers persisting; **blades** ovate-elliptic, thinly coriaceous, 32–36 cm long, 15.5–17.5 cm wide, thinly coriaceous, 2.1 times longer than wide, obtuse and short-acuminate at apex, rounded at base, widest below the middle, weakly glossy adaxially, nearly matte abaxially, drying medium to dark green adaxially, pale grayish green or yellowish brown abaxially; **midrib** medium green, moderately sunken medially, marginally discolored adaxially, narrowly raised and olive-green abaxially, drying narrowly sunken, concolorous, densely granular adaxially, narrowly rounded, darker, densely granular abaxially; **primary lateral veins** 15–18 per side, widely spaced (1.5–2 cm), departing midrib at 50–70°, deeply sunken and concolorous adaxially, narrowly raised and nearly concolorous abaxially, drying concolorous adaxially, darker with diffuse margins abaxially; **interprimary veins** faint; minor veins 4–5 running in parallel between the interprimary veins and the primary lateral veins, intersected by numerous cross-veins; **adaxially surface** smooth, faintly and minutely areolate and sometimes weakly ridged or sparsely granular at high magnifications; **abaxially surface** densely granular, sparsely spotted, sometimes open-ringed olive-green-spotted.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**80.** *Rhodospatha felipecardonae* (*Croat & Cardona 97882*, MO-6275263). Holotype showing stem with adventitious roots, petioles, and leaf blades (adaxial and abaxial surfaces).

**81.** *Rhodospatha felipecardonae* (*Croat & Cardona 97882*, MO-6275264). Holotype showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**Distribution and ecology:** *Rhodospatha felipecardonae* is endemic to Colombia (Antioquia) at 500 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of Colombian botanist Dr. Felipe Cardona, Director of the Herbarium of Universidad de Antioquia and specialist of the aroid genus *Spathiphyllum*, who collected the only known specimen along with the second author in 2007.

**Comments:** This species somewhat resembles *Rhodospatha alversonii*, which grows in the same general area, dries a similar color, and also has widely spaced primary lateral veins, but that species is much larger and has much more coriaceous and more elongated blades.

***Rhodospatha forgetii*** N.E. Br. ('*Forgeti*') in Stapf, Bull. Misc. Inform. Kew 1913(9): 358. 1913. — Type: Cultivated Hort. Sander, St. Albans, Herts; England, ex Costa Rica (orig. coll. *L. Forget*, precise locality unknown), 2 August 1913, *N. E. Brown s.n.* (holotype, K). (**Figs. 82–86**).

**Habit: juvenile** terrestrial, appressed; **adult** robust, root climbing, appressed-climbing epiphyte.

**Stem: juvenile** green, glossy, smooth, cylindrical; **internodes** 3–5 cm long, 3.0–6.0 mm diam.; **adult** dark-green, glossy, cylindrical or slightly flattened, smooth; **internodes** 6–8 cm long, 1.9–2.7 cm diam.; anchor roots light brown; feeder roots dark.

**Leaves: juvenile petioles** dark green, smooth, 7–30 cm long; blades lanceolate to elliptic, inequilateral, acute to narrowly rounded at the base, acuminate at apex, 12–25 × 4.5–8.0 cm; **adult petioles** light-green, smooth, 24–71 cm long, sheathed to base of the geniculum; **sheath** deciduous with fibrous remains; **geniculum** smooth, sunken adaxially, convex abaxially, 2–6 cm long; **blades** lanceolate to elliptic, inequilateral, 33–82 × 11.9–29.9 cm, 2.7–3.0 times longer than wide, subcoriaceous, with new leaves reddish, cuneate to attenuate at base, acuminate at apex, decurrent on the geniculum; midrib sunken adaxially, convex abaxially; **primary lateral veins** 23–27 per side, departing midrib at 45°, sunken adaxially, prominent abaxially; collective veins not visible; secondary veins prominent and parallel towards the margin; margins undulate.

**Inflorescences:** in ascending stems, 1 or 2 simultaneous at flowering time, arranged in leaf axils; **peduncle** smooth, 13.5–26.0 cm long; **spathe** acuminate to long-acuminate, membranous, completely open, with margins overlapping at base, brownish orange externally during development, pale pink externally and internally at anthesis, 18.1–36.0 × 6.5–9.0 cm, up to 6 cm longer than the spadix, with longitudinal pinkish veins internally at anthesis, not deciduous;

82. *Rhodospatha forgetii*. Live flowering plant showing habit. (Photo: O. Cubero).

**83.** *Rhodospatha forgetii*. Live flowering plant showing leaf blades, petioles, and inflorescence. (Photo: O. Cubero).

**84.** *Rhodospatha forgetii* (*Forget s.n.*). Specimen showing petiole, leaf blade (abaxial surfaces), spathe, and spadix.

**85.** *Rhodospatha forgetii* (*Forget s.n.*). Specimen showing petiole and leaf blade (adaxial and abaxial surfaces).

**86.** *Rhodospatha forgetii* (*Forget s.n.*). Specimen showing inflorescence at anthesis with spathe still attached to spadix.

**spadix** cylindroid and weakly tapered to the blunt apex, 11.2–22.0 cm long, 1.1–1.6 cm diam; with 9–11 flowers visible in principal spiral and 17–19 in the alternate spiral, lilac during development and pinkish at anthesis, sessile or stipitate up to 6 mm.

**Flowers:** 5–6 mm long; **stamens** 1.5–5.0 mm long; **anthers** 0.5–1.0 mm long; **ovary** quadrangular in longitudinal section, 2–3 × 1.3–2.0 mm; **styles** quadrangular or hexagonal, 1.3–2.0 × 1.8–2.7 mm; stigmatophore columnar; **stigmas** linear with a transparent stigmatic secretion; flowering has been recorded in April.

**Infructescences:** not seen.

**Distribution:** This species is endemic to Costa Rica, occurring in the region of Péres Zeledón at about 1800 m on the Pacific slope in the Cordillera de Talamanca in primary forest in *Tropical Wet Forest* and *Premontane Rain Forest* life zones.

**Comments:** The above description is taken entirely from Cedeño et al. (2023). *Rhodospatha forgetii* could be confused with *R. wendlandi* but differs in having oblong or lanceolate to elliptic blades (vs. oblong-oblanceolate blades), cuneate to attenuate at base (vs. rounded to truncate or subcordate), and pinkish, naviculiform spathes (with broad margins overlapping at base) (vs. white to creamy, lanceolate spathes). *Rhodospatha forgetii* is the only species of the genus with non-deciduous, pinkish spathes at staminate anthesis. The spathe remained open for two days, releasing a very candy-like scent only during the night (Cedeño et al. 2023).

**Other Specimens Seen: COSTA RICA. San José:** Perez Zeledón, Reserva Cloudbridge, 1800 m, 25 April 2023, *O. Cubero 01, 02, 03* (USJ. **Cultivated material: Costa Rica**: Cultivated at the Hort. Edinburg, *Hort. Edinb. s.n.* (K).

***Rhodospatha fosteri*** Croat, **sp. nov. —** Type: PERU. Pasco: Oxapampa, Palcazú Valley, Río Pichinaz, Río Cacazu-Río Pichinaz, 10°22'S 75°08'W, 600–800 m, 26 October 1982, *R. Foster 9438* (Holotype, MO-3004111). (**Figs. 87–88**).

**Diagnosis:** *Rhodospatha fosteri* is recognized by its terrestrial habit; short stem; blades drying yellowish green and with few or no cross veins visible; salmon-colored spadix and the broad, yellowish white spathe.

**Habit:** terrestrial herb, 1.0–1.5 m tall.

**Stem:** 0.3–1 m long; **internodes** short, to 3 cm diam.

**87.** *Rhodospatha fosteri* (*Foster 9438*, MO-3004111). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**88.** *Rhodospatha fosteri* (*Núñez 19116*, MO-5564050). Specimen showing petiole, leaf blade (adaxial and abaxial surfaces), and unopened inflorescence.

**Leaves: petioles** 30.5–44.0 cm long, drying light yellow-brown, sheathed to the geniculum; **sheath** deciduous, in part persisting as thin, pale fibers; **geniculum** 2.5 cm long, drying sharply sulcate; **blades** ovate to ovate-elliptic, 39–45 cm long, ca. 31 cm wide, 1.1–1.6 times longer than wide, broadest at the middle, barely inequilateral, one side merely 1 cm wider than the other, subcoriaceous, rounded or broadly obtuse and narrowly and abruptly acuminate at apex, unequal at base, acute to rounded or weakly subcordate at base, sometimes weakly attenuate at base and ending up to 4 cm above the geniculum, moderately bicolorous, dark green and drying semiglossy and medium yellowish green adaxially, moderately paler, weakly glossy, and drying yellowish green abaxially; margins undulate; **midrib** drying flat and yellowish brown, paler than adaxial surface, convex and brownish abaxially; **primary lateral veins** about 35 per side, 7–10 mm apart (slightly closer at the base), departing in a gradual curve from the midrib, then spreading at 70–75° in a nearly straight line to the margin (at up to 90° very near the base), drying flat and paler than the adaxial surface, convex and yellowish abaxially; **interprimary veins** weakly granular, moderately strong and yellowish or sometimes much weaker and colored like the minor veins; minor veins usually 1 or 2 pair between alternating primary and interprimary veins, moderately weak, sometimes weakly undulate on drying; cross veins sometimes absent, sometimes present but then few, mostly oblique; **abaxial surface** densely reddish-dotted.

**Inflorescences:** erect, **peduncle** 10–20 cm long, drying 3–5 mm diam.; **spathe** yellowish white, 14 cm long, 15 cm wide; **spadix** salmon-colored, ca. 11 cm long, 1.3 cm diam. at anthesis, to 20 cm long and 2.2 cm diam. post-anthesis, stipitate 1.5–1.7 cm (2.0–2.5 cm on front side).

**Flowers: pistils** irregularly 4–6–sided, subrounded and drying 0.8–1.0 mm long, 0.6–0.8 mm wide at anthesis, to 1.6–2.0 mm long and 1.0–1.2 mm wide post-anthesis, the sides mostly straight to convex, sometimes concave, the angles mostly blunt, sometimes acute; **styles** surface yellow-brown, matte; **stigmas** oblong-elliptic, drying black and semiglossy, moderately raised, 0.8–1.2 mm long, 0.15–0.20 mm wide, moderately depressed medially.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha fosteri* is endemic to Peru, ranging from Pasco to Cusco Departments of Peru at 400–800 m elevation in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of American botanist Robin Foster who assisted in making the first collection of the species in January, 1991. Robin Foster was trained at Dartmouth College and at Duke University where he received his Ph.D. in ecology in 1979. He soon also became a skilled plant taxonomist with his many hours spent determining plants on Barro

Colorado Island where he spent years studying the natural history of the forest. Along with Stephen Hubbell, he developed the first tropical forest dynamics plot there, which led to a global network of 18 such study areas. During his long career he has been associated with the University of Chicago, the Smithsonian Tropical Research Institute, and the Field Museum.

**Comments:** *Rhodospatha fosteri* is apparently closely related to *R. tocachensis*, also endemic to Peru. That latter species is also terrestrial and has similar, blades drying yellowish brown as well as a fibrous petiole sheath. It also differs in having blades with closer primary lateral veins and drying reddish brown and lacking obvious interprimary veins but having conspicuous cross veins. Alaso, the abaxial surface is not reddish-punctate but instead is minutely granular and weakly pale-speckled. Probably the most important difference is that *R. tocachensis* has the petiole sheathed only to about the middle rather than all the way to the geniculum.

**Paratypes: PERU. Cusco:** La Convención, Distr. Echarati: San Martin-3 Well Site, upland forest with Guadua sarcocarpa dominant, 11°46'53"S, 72°42'06"W, 400 m, 15 February 1997, *P. Núñez V. 19116* (MO).

***Rhodospatha fuentesii*** Delannay & Croat, **sp. nov.** — Type: BOLIVIA. La Paz: Franz Tamayo, Santo Domingo, arroyo Tintaya, campamento, bosque de yungas subandino superior pluvial con *Dictyocaryum lamarckianum* en plano mal drenado, 14°47'11"S 68°34'59"W, 1400 m, 30 October 2006, *A .F. Fuentes 11263* (holotype, MO-5947941; isotype, LPB). (**Fig. 89**).

**Diagnosis:** *Rhodospatha fuentesii* is characterized by its appressed-climbing, epiphytic habit; fully winged, weakly free-ending sheath apex with the sheath margins undulate and continuous across the geniculum and continuous with the decurrent margins of the blade; ovate-elliptic blades 1.7 times longer than wide, drying pale grayish green adaxially and medium reddish brown abaxially; prominent network of cross-veins intersecting the interprimary veins and the minor veins; and its pink, short-stipitate, spadix drying blackish.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, ca. 1.3 cm diam.

**Leaves: petioles** ca. 44 cm long, sheathed to the geniculum, drying medium brown; **sheath** weakly free-ending at apex, persisting intact, the margins drying dark brown and continuous and

**89.** *Rhodospatha fuentesii* (*Fuentes 11263*, MO-5947941). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), prophyll, and inflorescence at anthesis with spathe partially enclosing spadix.

undulate across the geniculum; **geniculum** ca. 2.5 cm long, sharply sulcate adaxially; **blades** ovate-elliptic, ca. 40 cm long, 24.7 cm wide, 1.7 times longer than wide, slightly inequilateral (one side 2.8 cm wider), obtuse and bluntly short-acuminate at apex, rounded, weakly inequilateral at base, widest near the middle, drying pale grayish green adaxially, medium reddish brown abaxially; **midrib** drying concolorous, sunken and weakly several ribbed adaxially, concolorous, narrowly raised, weakly ribbed abaxially; **primary lateral veins** 20–25 per side, spaced 1.0–1.5 cm, departing midrib at 60–70°, drying concolorous, weakly raised adaxially, prominent, narrowly raised, granular-ridged abaxially; **interprimary veins** slightly weaker than primary lateral veins, with 3 minor veins running in parallel between them and the primary lateral veins, intersected by a dense network of prominent cross-veins.

**Inflorescences:** erect; **peduncle** ca. 23 cm long, drying dark brown, enclosed by a dark-brown-drying prophyll to 31 cm long; **spathe** ca. 21 cm long, pinkish, drying blackish; **spadix** cylindrical, moderately tapered near apex, ca. 14.5 cm long, 9 mm diam., drying dark brown; **stipe** ca. 5 mm long.

**Infructescences:** not seen.

**Distribution and ecology**—The species is endemic to Bolivia, found only in La Paz Department at 1400 m in a *Subandine Rain Forest* life zone.

**Etymology:** This species is named in honor of Dr. Alfredo F. Fuentes who collected the only known specimen in 2006. Alfedo is an employee of the Missouri Botanical Garden and is the Scientific Coordinator of the Madidi project as well as an associate staff member of the Herbario Nacional de Bolivia. His principle interests are the Inventory for the Flora of Bolivia as well as the systematics, biogeography, evolution, and ecology of the Cunoniaceae.

**Comments:** *Rhodospatha fuentesii* is unique with its contrasting drying colors (pale grayish green adaxially and medium reddish brown abaxially) and prominent network of cross-veins intersecting the interprimary veins and the minor veins. It cannot be confused with any other *Rhodospatha* species growing in Bolivia.

***Rhodospatha gentryi*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Antioquia: Antadó, Valley of Río San Jorge, Paramillo National Park, cloud forest, Transect 4, 7°15'N 75°55'W, 1550 m, 2 March 1993, *A. H. Gentry, H. Cuadros V. & Á. Cogollo P. 78934* (holotype, MO-5049059-60). (**Figs. 90–91**).

**90.** *Rhodospatha gentryi* (*Gentry et al. 78934*, MO-05049059). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

**91.** *Rhodospatha gentryi* (*Gentry et al. 78934*, MO-05049060). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

**Diagnosis:** *Rhodospatha gentryi* is characterized by its appressed-climbing, epiphytic habit; petioles with the sheath persisting intact; large, elongated blades drying blackish, 3.3 times longer than wide, primary lateral veins spaced 1.5–2.5 cm apart and with prominent interprimary veins flanked on each side by 3–4 minor veins connected by prominent cross-veins, and seemingly unique, irregular, subrounded pale extrusions embedded in the adaxial blade surface.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** to 2.5 cm diam.

**Leaves: petioles** 62–63 cm long, sheathed to the geniculum, sometimes drying narrowly sulcate both, sheath moderately narrow, persisting intact, drying medium brown with a thick, usually not brittle darker edge; **geniculum** 3–4 cm long, drying blackened and shrunken; **blades** oblong-elliptic, 80.5–93.5 cm long, 24–28 cm wide, 3.3 times longer than wide, inequilateral, obtuse and abruptly ending with a long-acuminate apex, cuneate to rounded and slightly decurrent at base, widest near the middle or in the proximal 1/3, drying blackish, matte adaxially, very dark reddish-brown (almost black) and weakly glossy abaxially; **midrib** drying concolorous, medially sunken with broadly raised margins, sparsely granular adaxially, narrowly rounded, weakly paler, more densely and uniformly granular abaxially; **primary lateral veins** numerous, 35–40 per side, spaced 1.5–2.5 cm, departing midrib at 70–80°, drying concolorous, even difficult to discern adaxially, slightly darker, uniformly rounded, glabrous abaxially; **interprimary veins** prominent, often sub-equaling primaries; minor veins 3–4 between the primary lateral veins and the interprimary veins, connected by a network of prominent cross-veins; **adaxial surface** densely granular and often with a scattering of embedded, irregular, subrounded pale extrusions (not easily scapeable); **abaxial surface** uniformly and densely granular and sparsely thick-pustular.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology** — The species is endemic to Colombia, found only in Antioquia Department on the Pacific side of the Cordillera Occidental at 1550 m in a *Premontane Rain Forest* life zone.

**Etymology:** The species is named in honor of Dr. Alwyn Gentry of the Missouri Botanical Garden who collected the only known specimen. Gentry is renowned for his many transect studies where he sampled and compared different forest types around the world, especially in Latin America. While these studies generated a lot of sterile specimens (such as this one), they also frequently

produced the only specimens of new species. It is likely that without these types of studies, much of the known species diversity in families like Araceae would not be appreciated because genera like *Rhodospatha* are not frequently encountered in fertile condition.

**Comments:** *Rhodospatha gentryi* is unique due to its large size and elongated blades drying blackish. It somewhat resembles *R. cardenasiae*, which also has elongated blades that dry dark reddish brown on the abaxial surface, but that species grows at lower elevations (550–950 m) on the Magdalena River Valley east of the Cordillera Occidental and it dries a lighter shade of brown and not blackish like *R. gentry*. Its petioles also have a deciduous sheath instead of persisting intact in the case of *R. gentryi*.

***Rhodospatha gorgonensis*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Cauca: Parte noreste de la Isla de Gorgona a un kilometro del Campamento, 15 March 1975, *I. Cabrera 3251* (holotype, COL-11756). (**Fig. 92**).

**Diagnosis:** *Rhodospatha gorgonensis* is characterized by its epiphytic habit; distichous petioles closely imbricated along the stem at the base; oblong-elliptic blades 2.5 times longer than wide and drying light greenish-brown adaxially and medium reddish-brown abaxially and widely spaced primary lateral veins with faint interprimary veins and no minor veins visible between them; and narrowly pedunculated, slender, stipitate spadix.

**Habit:** epiphyte.

**Stem: internodes** short near apex, 1.0–1.5 cm diam.; to 2 cm long lower proximally, light yellow-brown, moderately glossy, prominently longitudinally folded with with acute edges and sometimes loosened epidermis.

**Leaves: petioles** distichous, closely imbricate at the base, 36–37 cm long, drying light grayish brown, sheathed for 3/4 their length; **sheath** margin thin, darker brown, persistent intact ; **geniculum** 2.5–3.0 cm long; **blades** oblong-elliptic, 24–36 cm long, 10.5–14.0 cm wide, 2.2–2.5 times longer than wide, obtuse and narrowly short-acuminate at apex, obtuse at base, widest at middle, drying light greenish-brown adaxially, medium reddish-brown abaxially; **midrib** concolorous, deeply sunken adaxially, narrowly round-raised, slightly paler, densely and uniformly granular abaxially; **primary lateral veins** 24–26 per side, spaced 1–2 cm, departing midrib at 60–70°, drying weakly raised, slightly paler, densely granular adaxially, narrowly rounded, sometimes short reddish-streaked, concolorous abaxially; **interprimary veins** faint, 1

**92.** *Rhodospatha gorgonensis* (*Cabrera 3251* COL-11756). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), young just opening inflorescence with spadix inside the spathe, and at anthesis with spathe partially enclosing spadix and a post-anthesis spadix.

per unit with 1 or 2 somewhat branched minor veins on either side; **adaxial surface** densely and uniformly granular; **abaxial surface** densely and somewhat more coarsely granular.

**Inflorescences:** erect, moderately long-pedunculate; **peduncle** ca. 16 cm long, closely enveloped for its whole length by a prophyll to 19 cm long, extending beyond the peduncle, prophyll drying medium brown; **spathe** ca. 13 cm long; **spadix** short-stipitate (stipe ca. 4 mm long, drying ellipsoid in cross-section), cylindrical, ca. 13 cm long, 8 mm diam.

**Flowers: styles** rounded-prismatic to rectangular-prismatic, gray, matte; **stigmas** oblong, blackish, ca. 1 mm long, 0.4 mm wide, the medial slit moderately conspicuous.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to the island of Gorgona off the Pacific coast of Colombia, growing at 5–150 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for the island of Gorgona in Colombia where it occurs.

**Comments:** *Rhodospatha gorgonensis* is unique in drying medium brown overall; widely spaced primary lateral veins lacking minor veins between them; and small styles with the stigmas nearly as wide as the styles.

**Paratypes: COLOMBIA. Valle del Cauca:** Isla de Gorgona, playas y zonas cercanas a las instalaciones del Inderena, trocha en dirección a la playa de Pablo VI; 0–150 m, 10–14 September 1987, *J. L. Fernández-Alonso et al. 7490* (COL).

***Rhodospatha grayumiana*** Croat, sp. nov. — Type: COLOMBIA. Chocó: Ca. 63 km from Quibdó along road to Ciudad Bolívar (17 km before El Doce), 05°45'N 76°23'W, 300 m, 10 July 1986, *M. H. Grayum, B. E. Hammel, W. J. Kress & G. K. Brown 7660* (holotype, MO-3672720; isotype, HUA). (**Fig. 93**).

**Diagnosis:** *Rhodospatha grayumiana* is characterized by its appressed-climbing, terrestrial habit with all parts drying yellowish-brown; petioles sheathed 4/5 their length with the sheath thin and persistent; narrowly obovate blades twice as long as wide, rounded at both apex and base with granular surfaces; ca. 20 primary lateral veins per side with weak interprimary veins; and inflorescences with an olive-green spadix and a prominently raised funnel-shaped style.

**93.** *Rhodospatha grayumiana* (*Grayum et al. 7660*, MO-3672720). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**Habit:** appressed-climbing, understory terrestrial.

**Stem: internodes** short, ca. 1.5 cm long, 1.2–2.5 cm diam., drying medium yellowish-brown, semiglossy.

**Leaves: petioles** 29–30 cm long, subterete, with obscure keel adaxially, sheathed for 4/5 their length, drying light yellowish brown; **sheath** thin, persistent, free-ending at apex**; geniculum** ca. 2 cm long; **blades** obovate to oblanceolate, 36–37 cm long, 17–19 cm wide, 1.9–2.1 times longer than wide, 1.2–1.3 times longer than petioles, rounded at the base, rounded and weakly short-acuminate at apex, widest above the middle, subcoriaceous, weakly bicolored, semiglossy adaxially, very weakly glossy abaxially, drying medium greenish-brown adaxially, lighter yellowish-brown abaxially; **midrib** sunken above, narrowly raised below; primary lateral veins ca. 20 per side, departing midrib at 45–70°, sunken above, narrowly raised below; **interprimary veins** weak, with an additional weaker minor vein between the primary and interprimary veins; adaxially densely and uniformly minutely areolate; abaxially coarsely granular, sparsely short-pale-steaked (the distribution of both granules and pale streaks not correlated with pellucid punctations); **adaxial surface** granular with puckered veins; **abaxial surface** with minute, pellucid dots and streaks, these abundant and uniformly scattered (not in lines along veins), appearing as minute bumps with reflected light.

**Inflorescences:** arising ca. 3 m above ground; **peduncle** terete, ca. 23 cm long, closely enveloped by a prophyll extending beyond its length; prophyll with a thin appendix ca. 2 cm long; **spathe** not seen; **spadix** erect, 19–20 cm long, 1.5–2.0 cm diam., olive-green.

**Flowers: pistils** drying sub-quadrangular, 2.8–3.2 mm, orange-brown; **styles** about as broad as pistils and shaped the same, 0.2–0.3 mm thick, drying dark brown, densely granular, broadly depressed medially with a prominently elevated stigma affixed medially; **stigmas** oval, funnel-shaped, pale brown and glossy on the somewhat flaring rim, blackened inside, ca. 1 mm long, 0.6 mm wide.

**Infructescences:** drying ca. 1.7 cm diam.

**Fruits:** drying orange-brown, each ovule with many seeds stacked in tall piles in each locule; **seeds** sub-discoid, rounded-reniform, pale orange-brown, glossy, 1.0–1.2 mm wide. 0.4 mm thick.

**Distribution and ecology:** *Rhodospatha grayumiana* is endemic to Chocó Department in Colombia, found at 300 m in a *Premontane Rain Forest* life zone.

**Etymology:** This species is named after Dr. Michael Grayum of the Missouri Botanical Garden who collected the only known specimen in 1986. Grayum was one of the first modern-day aroid specialists who envisioned a restructuring of the Englerian system of classification, suggested the exclusion of Acoraceae from Araceae, performed the finest study of aroid pollen, and specialized in the flora of Costa Rica, where he was stationed for many years and co-edited the *Manual de Plantas de Costa Rica*. He has authored or co-authored several important publications concerning the Araceae (Grayum 1984, 1985,1986a, 1986b, 1990, 2003).

**Comments:** This species is unique by drying yellowish-brown and with obovate to oblanceolate blades rounded at the base and at the apex; it cannot easily be confused with other *Rhodospatha* species.

***Rhodospatha gregortizii*** Delannay & Croat, **sp. nov.** — Type: PERU. Pasco: Oxapampa, Dist, Palcazú, Comunidad Nativa Alto Lagarto, bosque primario, 10°06'15"S 75°33'01"W, 800 m, 2 July 2007, *R. Rojas & G. Ortiz 4230* (holotype, MO-6130889; isotypes, HUT, USM). (**Fig. 94**).

**Diagnosis:** *Rhodospatha gregortizii* is characterized by its terrestrial habit; petioles drying brown with the sheath persisting intact; inequilateral, ovate-elliptic blades drying brown, 1.5 times longer than wide and rounded at the apex, rounded to subcordate at the base, narrowly spaced primary lateral veins with the interprimary veins 1 per segment and the minor veins faint or not present as well; and greenish spathe and moderately long-pedunculate, stipitate, long-oblong, post-anthesis green spathe.

**Habit:** terrestrial.

**Stem: internodes** not seen.

**Leaves: petioles** ca. 27 cm long, drying medium reddish brown, densely dark-speckled, sheathed to the geniculum, **sheath** broad, persisting intact, margins drying dark brown; **blades** ovate-elliptic, ca. 28.5 cm long, 19.5 cm wide, 1.5 times longer than wide, rounded and short-acuminate at the apex, inequilaterally rounded to subcordate and slightly decurrent at the base, widest below the middle, inequilateral with the wider side subcordate and the other rounded, drying

**94.** *Rhodospatha gregortizii* (*Rojas & Ortiz 4230*, MO-6130889). Holotype showing stem, petiole, leaf blade (abaxial surface), and post-anthesis spadix.

medium brown abaxially; **midrib** drying slightly lighter abaxially; **primary lateral veins** ca. 33 per side, departing midrib at 80–90° near the base, 60–70° distally, narrowly spaced (3.5–4.5 mm) near the base, more widely spaced (7–12 mm) distally, slightly darker abaxially; **interprimary veins** faint, slightly darker, bordered by a pair of faint minor veins; cross-veins few and very faint; **adaxial surface** minutely roughened with sparse, pale, cellular inclusions.

**Inflorescences:** erect; **peduncle** ca. 37 cm long, drying light brown; **spathe** greenish; **spadix** cylindrical, tapering at the apex, ca. 16 cm long, 11 mm diam., greenish, drying dark brown.

**Flowers: styles** 2–2.5 mm wide, sharply rounded-prismatic, drying flattened, dark brown, matte; **stigmas** oval to subrounded, drying somewhat lavender-pruinose, ca. 1/3 as long as the width of the styles.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha gregortizii* is endemic to Peru, known only from the Palcazú district of Pasco Department at 800 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of Gregorio Ortiz who assisted Rocio Rojas in collecting the type specimen. Gregorio works in the agricultural industry in the Palcazú region.

**Comments:** *Rhodospatha gregortizii* resembles *R. densinervia*, which also has narrowly spaced primary lateral veins; however, this latter species occurs at high elevations on the Pacific slopes of the Andes from Colombia to Ecuador rather than growing at lower elevations in the center of Peru as does *R. gregortizii*. It is also similar to *R. valenzuelae*, which also occurs in the Palcazú area and dries a similar color, but this species has deciduous petiole sheaths and more widely spaced primary lateral veins than does *R. gregortizii.*

***Rhodospatha guanchensis*** Croat, Aroideana 47(1): 43–190. 2024 — Type: PANAMA. Colón: Río Guanche, along highway between Colón and Portobello, 3 km W of highway, 28 February 1986, *Hammel & McPherson 14571* (holotype, MO 3491515-16). (**Figs. 95–101**).

**Habit:** terrestrial.

**Stem:** not seen.

**Leaves: petioles** 68–82 cm long, weakly ribbed adaxially, drying gray-green adaxially and on sheath, usually yellowish green toward apex and on the unsheathed portion, tan-brown at base

**95.** *Rhodospatha guanchensis* (*Croat & Zhu 76252*). Live plant showing leaf blade (adaxial surface).

**96.** *Rhodospatha guanchensis* (*Croat & Zhu 76252*). Live plant showing leaf blade (abaxial surface) and young inflorescences.

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on that portion covered by the next higher petiole, sheathed 2/5 to 1/2 their length; **sheath** entire; **geniculum** 2.5–3.0 cm long, positioned 2.5 cm below the blade, drying darker green and narrower than the rest of the petiole, 3-4 mm diam.; **blades** ovate-elliptic, 47.0–53.7 cm long, 21.8–26.0 cm wide, 2.0–2.3 times longer than wide, gradually long-acuminate at apex, rounded and weakly cordulate at base, drying gray-green adaxially, much paler and yellow-green abaxially; **midrib** weakly sunken and concolorous adaxially, thicker than broad and slightly darker abaxially, drying matte with numerous minute white raphide cells; **primary lateral veins** 23–30 per side, departing midrib at 70–90°, markedly curved distally to the margin (especially in outer 1/3), drying round-raised; **interprimary veins** 1 between each pair of primaries and with 1 or 2 additional minor veins intervening between the primary and interprimary veins; cross veins

**97.** *Rhodospatha guanchensis* (*Croat & Zhu 76252*). Live plant showing petioles and young inflorescence.

**98.** *Rhodospatha guanchensis* (*Hammel & McPherson 14571*, MO-3491516). Holotype showing petioles, leaf blades (adaxial and abaxial surfaces), and spadix post-anthesis.

**99.** *Rhodospatha guanchensis* (*Hammel & McPherson 14571*, MO-3491515). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**100.** *Rhodospatha guanchensis* (*Croat & Zhu 76252*, MO-6619569). Specimen showing stem, petiole, and leaf blade (adaxial and abaxial surfaces).

**101.** *Rhodospatha guanchensis* (*Croat & Zhu 76252*, MO-6619568). Specimen showing petiole and inflorescence at anthesis with spathe and spadix.

numerous and conspicuous on drying on abaxial surface; tertiary veins moderately visible on abaxial surface.

**Inflorescences:** 42–56 cm long; **peduncle** 30–40 cm long, drying tan, 5-6 mm diam.; **spathe** not seen; **spadix** yellow-green at anthesis becoming gray-green, 9–14 cm long, drying 9–12 mm diam.; stipitate 7–8 mm, **stipe** 3–4 mm diam.

**Flowers:** 14–17 visible per spiral; **pistils** mostly bluntly 4-sided, sometimes bluntly 5-sided, to almost rounded, 1.2–1.4 mm diam., with a dense grayish frost-like covering the apex; **stigmas** oblong-elliptic, black, 0.6–0.8 mm diam., 0.4–0.5 mm wide, moderately elevated on drying, concave medially.

**Infructescences:** ca. 1. 5 cm diam.; **seeds** rounded, 0.8 mm diam.; 1.5 mm thick, white with red-brown outer border.

**Distribution and ecology:** *Rhodospatha guanchensis* is endemic to Panama, known only from the type locality in Colón Province of Panama at 10–100 m elevation in *Tropical Wet Forest*.

**Comments:** *Rhodospatha guanchensis* occurs with the much more abundant *R. moritziana* and both occur on slopes along riverbanks. It is similar to *R. zamorana* from Ecuador but that species has petioles sheathed nearly throughout and blades with dark margined primary lateral veins and inconspicuous cross veins. Another similar species is *R. sparrei*, which also has fully sheathed petioles and blades lacking cross veins on the abaxial surface with both surfaces minutely granular rather than smooth as in *R. guanchensis.* Also, *R. sparrei* differs from *R. guanchensis* in having the dried blades decidedly less bicolorous and grayish in contrast to markedly bicolorous in *R. guanchensis*, which has leaves typically green adaxially and yellow-green abaxially.

**Other Specimens Seen: PANAMA. Colón:** Río Guanche, between Puerto Pilón and Portobello, ca. 1.5 miles S of road, 09°30'N 79°39'W, 100 m, 19 June 1994, *T. B. Croat & Guang Hua Zhu 76252* (COL, CUCV, HUA, MO); Along Río Guanche, 3–5 km above bridge on Colón-Portobello Road, 09°30'N 79°39'W, 30-100 m, 22 September 1996, *T. B. Croat 75358* (MO); ca. 2–3 miles up the Río Guanche, lowland rainforest, 09°30'30"N 79°39'30"W, 10–20 m, 19 January 1973, *H. Kennedy & R. B. Foster 2206* (MO).

***Rhodospatha guasareensis*** G. S. Bunting. Phytologia 60(5): 337. 1986 — Type: VENEZUELA. Zulia, alrededores del Puesto "El Bosque" de la Guardia Nacional, 10°47'35"N 72°40'W,

1450–1600 m, 10–15 November 1982, G. S. Bunting, R. L. Liesner, A. J. Rosario T. & R. León 12256 (holotype, MO-3251798, MO-3251795, MO-3284623). (**Figs. 102–103**).

**Habit:** appressed-climbing epiphyte.

**Stem:** to 4 m long; internodes 2–4 cm long, 1.0–1.5 cm diam., drying dark brown.

**Leaves: petioles** 32–39 cm long, sheathed to the geniculum, drying dark brown; **sheath** thin, deciduous; **geniculum** 1.8–3.8 cm long; **blades** ovate-lanceolate, (21)40–48 cm long, (7.5)11.5–22.0 cm wide, 2.3–2.8(3.4) times longer than wide, 1.0–1.2 times longer than petioles, cuneate at the base, tapering into a short acumen at apex, widest at the middle, drying dark greenish-brown adaxially, reddish-brown abaxially; **midrib** sunken adaxially, round-raised abaxially; **primary lateral veins** 25–27 per side, departing midrib at 50–65°, poorly visible adaxially, narrowly raised abaxially; **interprimary veins** weak, with 2 or 3 minor veins running between the primary and interprimary veins; cross-veins diffuse.

**Inflorescences: peduncle** erect, 18–27 cm long; **spathe** 19–25 cm long, 8 cm diam. (18 cm wide when flattened), 6.5 cm longer than the spadix; **spadix erect**, 15–19 cm long, 1.4–1.5 cm diam.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha guasareensis* is found in northwestern Venezuela (Zulia) at 1450–1600 m in a *Moist Coud Forest* life zone.

**Comments:** This species is characterized by its long climbing stems; ovate-lanceolate blades drying dark brown, cuneate at the base; weak interprimary veins; and inflorescences with a large spathe much longer than the spadix.

*Rhodospatha guasareensis* resembles *R. falconensis* but it differs from this latter species in its blades cuneate rather than rounded.

***Rhodospatha hammelii*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Putumayo: Mocoa, east of town towards Río Afan and on west slope of Alto de Afan; ca 3 km east of town, 01°10'N 76°42'W, 700 m, 11 December 1986, *B. E. Hammel, B. R. Ramírez Padilla & J. Trainer 15939* (holotype, MO-3435247). (**Fig. 104**).

**102.** *Rhodospatha guasareensis* (*Bunting et al. 12256*, MO-3251798). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

**103.** *Rhodospatha guasareensis* (*Bunting et al. 12256*, MO-3251795). Holotype showing juvenile plants.

**104.** *Rhodospatha hammelii* (*Hammel et al. 15939*, MO-3435247). Holotype showing petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**Diagnosis:** *Rhodospatha hammelii* is characterized by its small size; drying yellowish overall; petioles sheathed for 3/5 their length with the sheath persistent; oblong-lanceolate blades 3.1–4.1 times longer than wide and often markedly inequilateral at the petiole insertion; and interprimary veins and minor veins connected by a network of cross-veins.

**Habit:** terrestrial.

**Stem: internodes** short, ca. 8 mm diam., yellow-brown and conspicuously folded-fissured.

**Leaves: petioles** 10.5–28.0 cm long, drying light yellowish brown, sheathed 3/5 their length; **sheath** thin, persistent; **geniculum** ca. 3 cm long; **blades** oblong-lanceolate, 12–34 cm long, 3.8–9.5 cm wide, 3.1–4.1 times longer than wide, obtuse and tapering into an acumen at apex, tapering into the petiole and connecting to it at different levels on each side (ca. 1.5 cm difference), widest above the middle, drying yellowish-brown adaxially, pale yellow or yellowish green abaxially, matte on both surfaces; **midrib** drying slightly darker and slightly raised on both surfaces, drying sunken and slightly paler adaxially, narrowly raised and paler abaxially, drying convex, concolorous and bluntly ca. 7-ribbed adaxially, round-raised, slightly darker, acutely many-ridged abaxially; **primary lateral veins** 8–14 per side, spaced 6–12 mm, departing midrib at 20–40°, drying slightly darker and slightly raised on both surfaces; **interprimary veins** usually one between most of the primary lateral veins; minor veins 1–3 on either side of interprimary vein moderately inconspicuous, obliquely interconnecting the minor parallel veins; **adaxial surface** moderately smooth; **abaxial surface** weakly and irregularly ridged.

**Inflorescences:** erect; **peduncle** ca. 19 cm long, enveloped by a thin prophyll for 3/4 their length, drying light brown; **spathe** not seen; **spadix** 3.5–7.0 cm long, 5–10 mm diam; drying blackish.

**Infructescences:** not seen.

**Distribution and ecology** — The species is endemic to Colombia, found only in Putumayo Department at 570–700 m, on rocks along small streams in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of American botanist Barry Hammel from the Missouri Botanical Gardens who collected the first known specimen in 1986. Hammel, who lives in Costa Rica, is principal editor of the *Manual de Plantas de Costa Rica*. He is a renowned collector and specializes in Cyclanthaceae and Guttiferae among other groups.

**Comments:** *Rhodospatha hammelii* is unique due to it drying yellowish brown and its long, oblong-lanceolate blades. It cannot be confused with other species growing in its area.

**Paratypes: COLOMBIA. Putumayo:** Municipio de Villagarzón, corregimiento La Castellana, vereda La Pradera, Finca El Cairo, 00°52'24"N 76°45'27"W, 600 m, 10 December 1999, *C. Martín & D. Cárdenas 2008* (COL); Vereda San Carlos, km 8 via Mocoa–Villagarzón, Centro Experimental Amazónico, 01°05'16"N 76°37'53"W, 570 m, July 2008, D. M. *Rincón 137* (HUA).

***Rhodospatha hannoniae*** Croat, **sp. nov.** — Type: ECUADOR. Napo: Archidona-Baeza, vic. Jondachi, 20.1 km N of Baeza, 5 Km S of turn off to Loreto, 00°45'56"S, 77°47'33"W, 1033 m, 19 April 2003, *T. B. Croat, L. P. Hannon & N. Altamirano 87796* (holotype, MO; isotypes, B, COL, CUVC, F, HUA, LAMUA, K, PMA, QCNE, US). (**Figs. 105–109).**

**Diagnosis:** *Rhodospatha hannoniae* is characterized by usually growing terrestrially on rocks along streams; its slender stems; petioles sheathed only to about the middle with the sheath persistent; and elliptic, nearly equilateral, green-drying blades with 25–35 primary lateral veins per side.

**Habit:** terrestrial or on rocks, sometimes epiphytic.

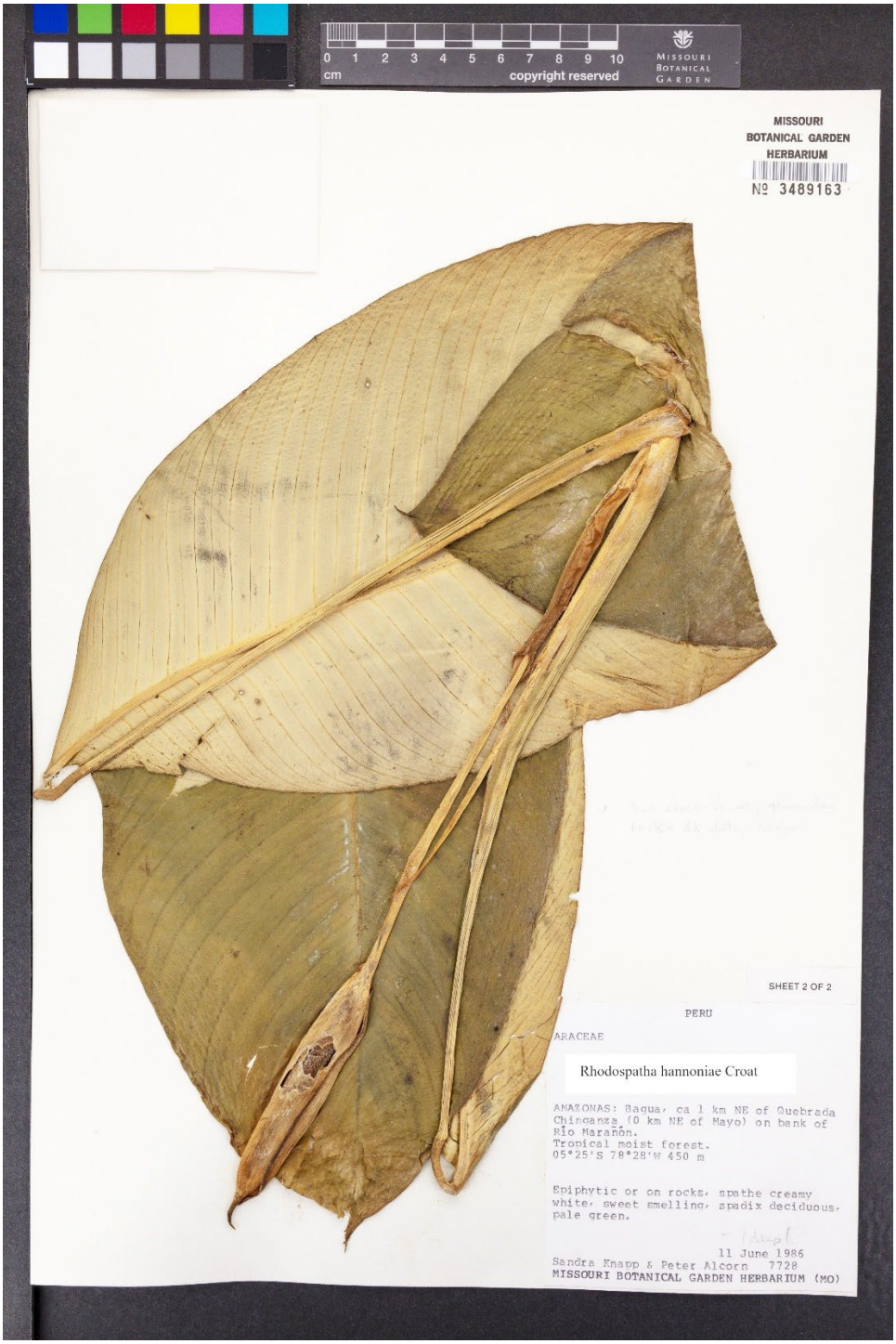
**Stem:** to ca. 1 m long; **internodes** 1–4 cm long, 8–18 mm diam., dark green, semiglossy and paler on one side.

**Leaves:** erect to spreading, not at all distichous; **petioles** 25–38 cm long, terete, 1.0–1.5 times longer than the peduncle, medium green, weakly glossy to matte, drying yellowish green to yellowish brown; **sheath** 0.3–0.8 times as long as petiole, medium green, incurled, persisting intact; **geniculum** 1.5–2.0 cm long, drying weakly sulcate; **blades** elliptic, 31–41 cm long, 12–22 cm wide, 1.8–2.6 times longer than wide, broadest at the middle, only slightly inequilateral, one side 5–20 mm wider, subcoriaceous, dark green and weakly glossy adaxially, much paler to white, matte abaxially, drying green to gray-green adaxially, medium green to yellowish green abaxially, acute to obtuse and abruptly acuminate at apex, slightly inequilateral and attenuate at base; **midrib** narrowly sunken and marginally weakly discolored adaxially, thicker than broad and slightly paler abaxially; **primary lateral veins** 25–35 per side, 5–14 mm apart (a few at the base no more than 3 mm apart), impressed adaxially in fresh material, departing midrib at an acute angle then spreading at 55–80°, one side at a higher angle, moderately arcuate to the margin; **interprimary veins** one between each pair of primary lateral veins, moderately less conspicuous than the primaries, often drying undulate; minor veins 1 or 2 alternating with the interprimary

**105.** *Rhodospatha hannoniae* (*Croat 87796*). Live plant showing terrestrial habit, stem, petioles, leaf blades (adaxial and abaxial surfaces), and inflorescences (immature, at anthesis, and post-anthesis).

**106.** *Rhodospatha hannoniae* (*Croat 87796*). Close-up of live inflorescences (at anthesis and post-anthesis).

**107.** *Rhodospatha hannoniae* (*Croat 87466*, MO-5746786). Specimen showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).




**108.** *Rhodospatha hannoniae* (*Knapp & Alcorn 7728*, MO-3489163). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and immature inflorescence with spathe enclosing the spadix.

**109.** *Rhodospatha hannoniae* (*Palacios 10174*, MO-4328338). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and inflorescence at anthesis with separate spathe and spadix.

and primary veins, along with the interprimary veins sparsely granular; cross veins weak to barely apparent, sparse and oblique, more frequent toward the margins when visible; **surface** densely granular and with moderately dense pale raphide cells.

**Inflorescences:** erect, sweet–smelling at anthesis; **peduncle** 16.5–29.0 cm long; **spathe** creamy white to white, drying light brown, 7.7–15.0 cm long, to 1.7 cm diam. and prominently acuminate when furled, hemispherical when unfurled, to 11.5 cm wide when flattened; **spadix** 6–9 cm long, 0.5–1.2 cm diam., pale green to white.

**Flowers: pistils** rhombic or irregularly 5- or 6- sided, 1.0–1.8 mm diam., the sides more or less straight; **styles** smooth to finely granular, drying brown; **stigmas** raised, broadly elliptic to almost round, 0.5–0.6 mm long, 0.3–0.4 mm wide, drying dark brown.

**Infructescences:** not seen.

**Distribution and ecology** — *Rhodospatha hannoniae* ranges from Ecuador (Morona-Santiago, Napo, Orellana, Pastaza, Zamora-Chinchipe) to northern Peru (Amazonas) at 180–1033 m elevation in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for the late Lynn Peters Hannon who assisted in collecting the type specimen. Lynn was field assistant to the second author and a devoted aroider for many years. In her large greenhouses near Odessa, Florida, she was able to grow and study hundreds of plants where she observed flowering and did follow up studies on many of the species we found. She took on the role of documenting her collection and prepared herbarium specimens of nearly all her living collections over the course of many years until shortly before her death on July 10, 2006. These valuable vouchers, mostly representing new species, are now at the Missouri Botanical Garden and will feature prominently in research on Araceae for decades to come. With Croat's encouragement and assistance, she took on a revision of *Chlorospatha* (Croat and Hannon 2005). This fine revision and her many important specimens are a strong legacy for an artist who started her interest in plants late in her career. Her role in the study of Ecuadorian plants was a large and important one.

**Comments:** This species is closest to *Rhodospatha brachypoda*, which differs in being exclusively appressed-climbing and in having the petioles sheathed all the way to the geniculum. It might also be confused with *R. vasquezii*, also a terrestrial species with leaves drying a similar color; however, this latter species differs in having much narrower blades and petioles sheathed to the geniculum.

**Paratypes: ECUADOR. Morona-Santiago:** Along road between Santiago and Río Morona, 30.3 km E of Santiago, 02°58'24"S 77°49'36"W, 322 m, 10 July 2004, *T. B. Croat et al. 9753* (MO, QCNE); At Río Shinga, 6 km S of Río Tuna Chiguaza (Tunachuaza on sign at river) at its mouth at Río Pastaza, 01°48'S 77°45'W, 860 m, 5 August 2015, *T. B. Croat 72820* (QCNE, MO); Along road from Patuca to Santiago, Cordillera de Cutucú, 11.4 km E from Patuca turnoff on Macas-Limón road, 5.1 km E of Patuca, 02°46'30"S 78°7'00"W, 944 m, 9 July 2004, *T. B. Croat et al. 90631* (MO, QCNE); Along road from Santiago to San José de Morona, 24.0 Km east of Santiago; 02°58'20"S 77°50'52"W, 320 m, 11 September 2002, *T. B. Croat 87466* (MO, QCNE); Along road from Patuca and Santiago through Cordillera del Cutucú, 33.5 km from main Macas - Limón Rd; 27.5 km E of Patuca, 5.2 km E of Piankus Shuar Village, 02°55'51"S 78°14'37"W, 760 m, 26 August 2015, *T. B. Croat 106434* (MO, QCNE). **Napo:** between Tena and Archidona, 00°59'00"S 77°49'00"W, 6 January 1940, *E. Asplund 10281* (S); Yasuní National Park, Laguna Jatun Cocha, near mouth of Río Yasuní, blackwater "igapó" lagoon and adjacent seasonally inundated forest, 01°00'S 75°25'W, 180 m, 8 November 1991, *D. A. Neill & W. Rojas 9929* (QCNE, MO). **Orellana:** Vicinity of San José Payamino, Estación Cientifica Timburi Cocha, along banks of Río Payamino, 00°28'29"S 077°17'05"W, 320–370, 10 February 2015, *T. B. Croat et al. 106100* (ECAMZ, MO, QCNE). **Pastaza:** Río Lliquino, Pambayucua, bosque primario, 420 m, 7–10 May 1992, *W. A. Palacios 10174* (QCNE, MO); Nor-Oriente, Campanacocha, márgen izquierdo del Río Napo, colecciones en camino de Campanacocha-Dayono, área plana pantanosa con bosque secundario y primario, 360–400 m, 22 August 1980, *J. L. Jaramillo & F. Coello 3751* (QCA); **Zamora-Chinchipe:** Along Río Nangaritza, between Las Orchideas and Miasi, 04°18'00"S 78°39'10"W, 864 m, 17 September 2007, *T. B. Croat & G. Ferry 98832* (MO, QCNE). PERU. **Amazonas:** ca 1 km NE of Quebrada Chinganza (0 km NE of Mayo) on bank of Río Marañón, 05°25'S 78°28'W, 450 m, 11 June 1986, *S. Knapp & P. W. Alcorn 7728* (MO).

***Rhodospatha harlingiana*** Croat, **sp. nov.** — Type: ECUADOR. Pastaza: Mera, virgin forest, 1500 m, 29 December 1958, *G. W. Harling 3760* (holotype, S). (**Fig. 110**).

**Diagnosis:** *Rhodospatha harlingiana* is characterized by its appressed-climbing habit to 10 m above ground; thin, elongated stems; petioles drying brown and sheathed for 1/2–2/3 their length; ovate-lanceolate blade 2.4–3.6 times longer than wide and drying reddish brown; 7–9 faint primary lateral veins per side; and inflorescences drying brown with a bluish green spadix.

**Habit:** appressed-climbing epiphyte, ca. 10 m above the ground.

**110.** *Rhodospatha harlingiana* (*Harling 3760*, S). Holotype showing stem, petioles, prophylls, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**Stem: internodes** 1.0–1.5 cm long, 1 cm diam., yellowish brown, closely and conspicuously ridged, sometimes with the epidermis loosely folded and cracking loose.

**Leaves: petioles** 19.5–21.8 cm long, drying medium grayish-brown, sheathed for 1/2–2/3 their length; **sheath** margin thin, persistent, mostly incurled and intact, the surface faintly low-ribbed with the intervening area closely striate; **geniculum** 1.0–2.5 cm long, drying sulcate adaxially; **blades** ovate-lanceolate, 14.5–19.0 cm long, 5.5–7.5 cm wide, 2.4–3.6 times longer than wide, obtuse to acute at apex, rounded or obtuse or acute at base, widest below the middle, inequilateral (one side 4–9 mm narrower), spreading at a wide angle from the petiole; drying medium reddish gray-brown, matte adaxially, more reddish brown and semiglossy abaxially; **midrib** concolorous, drying convex with pale narrow lines, minutely granular adaxially, darker, convex, sparsely short-pale-lineate abaxially; **primary lateral veins** 7–9 per side, spaced 9–15 mm, departing midrib at 40–60°, drying concolorous and poorly visible adaxially, more prominent abaxially; **interprimary veins** faint, with one faint minor vein running on each side between them and the primary lateral veins; **adaxial surface** moderately smooth, minutely granular on magnification; **abaxial surface** minutely reddish brown-speckled.

**Inflorescences:** moderately small, erect; **peduncle** ca. 10.5 cm long, drying 3 mm diam.; enveloped in the lower half by a prophyll to 18.5 cm long, peduncle and prophyll drying medium brown; **spathe** not seen; **spadix** cylindrical but tapering at the apex, ca. 10.5 cm long, 9 mm diam.; bluish green; stipe ca. 12 mm long.

**Flowers: styles** mostly sub-quadrangular with sweeping sigmoid margins, gray, matte, seemingly glaucous, sometimes with closely parallel ridges paralleling the lateral margins; **stigma**s oval, 0.6–0.7 mm long, 0.4 mm wide, grayish to slightly blackened usually with a medial depression; **stamens** emerging slightly above the edge of tepals.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Ecuador and found only in Mera, Pastaza Province at 1500 m in what is mapped on the Holdridge lifezone map of Ecuador as a *Subalpine Rainforest* life zone.

**Etymology:** This species is named in honor of the late Swedish botanist Gunnar Wilhelm Harling who collected the only known specimen in 1958. Harling, along with his colleague Benkt Sparre, started the Flora of Ecuador Project. Harling was a specialist on Cylanthaceae and spent most of his long career working with the Flora of Ecuador.

**Comments:** *Rhodospatha harlingiana* is unique and cannot be easily confused with other *Rhodospatha* species growing in Mera. Note that, while the area around Mera is rated on the Holdridge lifezone maps as subalpine rain forest, it is unlike any other subalpine regions we have seen. Certainly, the area is very wet and swampy with moderately low vegetation. Harling reported the elevation to be 1500 m yet no areas exist higher than 1200 m in the area of Mera.

***Rhodospatha heliconiifolia*** Schott, Prodr. Aroid. 350. 1860. — Neotype: Schott Icones 2982 (Fig. 111) & 2983 (Fig. 112), (Designated here); Epitype: Photograph of a specimen from a living plant at Schönbrunn Palace greenhouse in Vienna dated January, 1879, the only known fertile collection of the species (Fig. 114). (**Figs. 111–115**).

**Habit:** appressed-climbing epiphyte.

**Stem:** juveniles with **internodes** ca. 5 cm long, 4 mm diam., drying ribbed with the intervening area short-ribbed-granular; adults with **internodes** long, drying grayish brown;.

**Leaves: juvenile petioles** 6–10 cm long, sheathed to the geniculum; **juvenile blades** lanceolate-elliptic, 15–21 cm long, 5.0–6.5 cm wide, moderately bicolorous, drying dark gray-brown, matte adaxially, yellowish brown, semiglossy, densely dark-speckled abaxially; **adult petioles** to 31 cm long, sheathed to the geniculum, drying olive-green, sheath deciduous in a long intact segment; **adult blades** ovate-elliptic, 30–42 cm long, 9–19 cm wide, 2.2–3.4 times longer than wide, moderately inequilateral, one side 3 cm wider, obtuse and short-acuminate at apex, cuneate or rounded to obtuse or acute and briefly attenuate at base, widest near the middle or slightly below middle, drying dark grayish green adaxially, light brown abaxially; **midrib** drying concolorous adaxially, darker and raised abaxially; **primary lateral veins** ca. 18 per side, departing midrib at 55–60°; **interprimary veins** weaker than primary lateral veins, with 1–3 minor veins running in parallel between them and the primary lateral veins; cross-veins few, not prominent.

**Inflorescences:** erect; **peduncle** 12.0–12.5 cm long; **spathe** 12.0–13.5 cm long, to 5.5 cm wide when flattened, 2.6 times longer than broad; **spadix** 9–10 cm long, cylindroid-tapered; stipe 1.3 cm long.

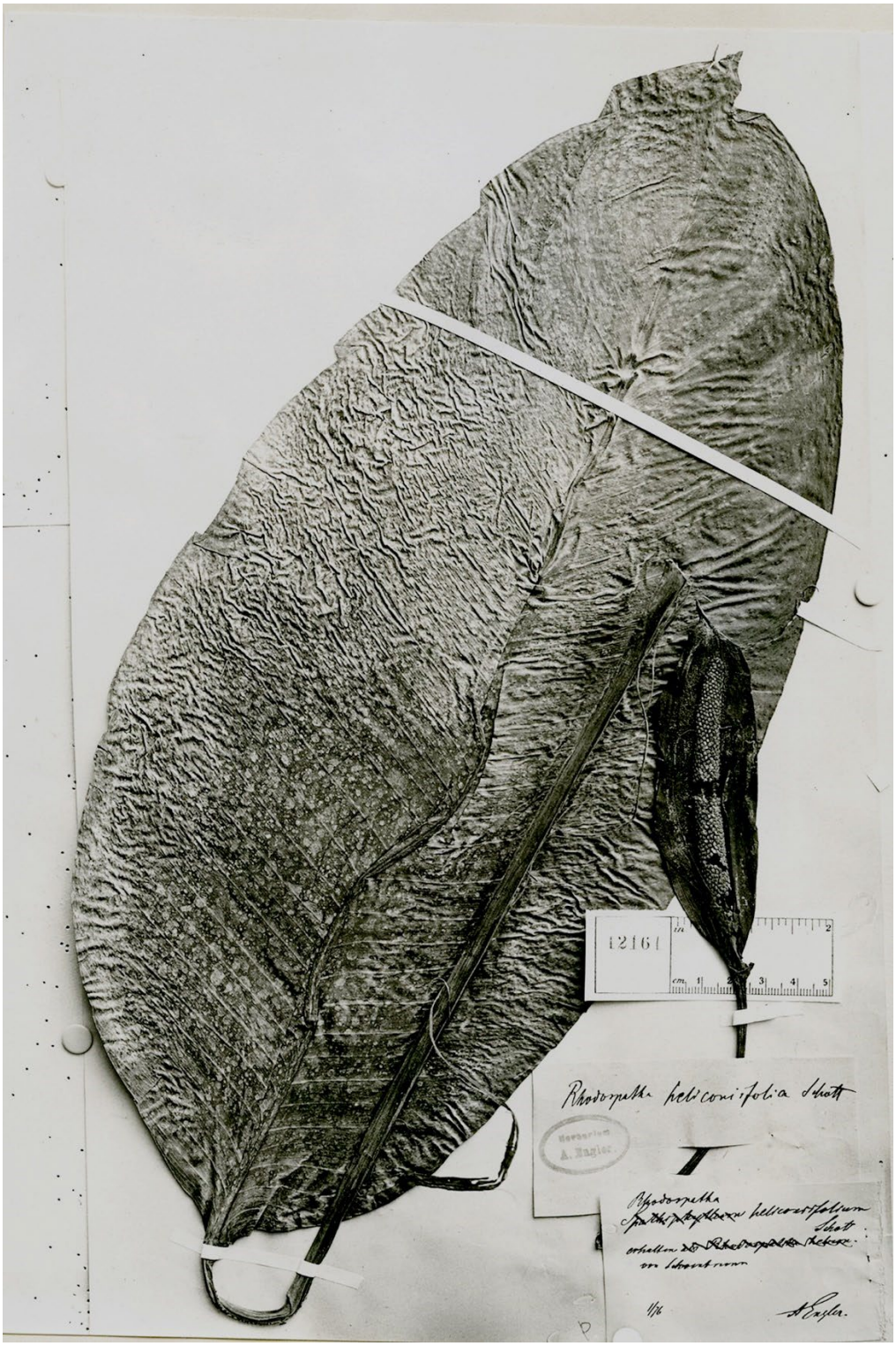
**Flowers: styles** rhombic, slightly broader than long, truncate; **stigmas** oval-oblong, nearly half as long as style, the medial slit clearly apparent.

**Infructescences:** not seen.

**111.** *Rhodospatha heliconiifolia* Schott drawing #2982 (neotype), habit of plant. Reproduced with permission from and copyright © 2024 Naturhistorisches Museum (W), Wien, Austria.

**112.** *Rhodospatha heliconiifolia* Schott drawing #2983 (neotype), flowering plant. Reproduced with permission from and copyright © 2024 Naturhistorisches Museum (W), Wien, Austria.

**113.** *Rhodospatha heliconiifolia* Schott drawing #2981, inflorescence. Reproduced with permission from and copyright © 2024 Naturhistorisches Museum (W), Wien, Austria.




**114.** *Rhodospatha heliconiifolia* (epitype) Photograph of herbarium specimen made at Schoenbrun and deposited at Berlin but lost. (Photo: J. F. Macbride).

**115.** *Rhodospatha heliconiifolia* (*Engler ARAC 266*). Specimen showing immature plants and drawing of inflorescence.

**Distribution and ecology:** Schott in 1860 first decribed *Rhodospatha heliconiifolia* from a cultivated plant of unknown origin, probably from Brazil. It has not yet been found in the wild.

Many collections were made of juvenile material of the species and were distributed as a part of Adolf Engler's cultivated Araceae #266 from the University of Breslau. Although Schott made illustrations of adult plants of the species at the Schönbrunn Palace greenhouse, only a single flowering adult herbarium specimen has ever existed, which is a specimen made from Schott's collection in Vienna, perhaps by Engler and once housed in the Berlin Herbarium. It is here designated above as an Epitype (see **Fig. 114**).

**Other Specimens Seen:** *Schott s.n.* 1861; *Delessert Herbarium 25376* (G)

***Rhodospatha heraclioana*** Croat, Aroideana 47(1): 43–190. 2024 — Type: PANAMA. Kunayala: Río Playon Chico, bajando hacia la desembocadura; 09°15'N 78°15'W, 50–100 m, 1 March 1992, *H. Herrera, J. Mojica & J. Morris 1165* (holotype, MO-4257187; isotype, PMA). (**Fig. 116**).

**Habit:** understory, appressed-climbing epiphyte.

**Stem: internodes** ca. 1 cm diam., drying 9-11 mm diam.; pale yellow-brown, sharply longitudinally ridged.

**Leaves: petioles** 12.0-16.5 cm long, sheath extending to within 5–11 mm of blade; **geniculum** 1.0-1.5 cm long, sharply and narrowly sulcate, the margins often minutely wavy; **sheath** 3-5 mm high, drying dark brown, matte, margins entire; **blades** narrowly elliptic to narrowly ovate-elliptic, 14.2-29.1 cm long, 5.6-7.5 cm, 2.5-3.6 times longer than wide, 1.0-1.6 times longer than petioles, inequilateral, one side 5-7 cm wider, acute to narrowly acuminate with a short apiculum, dark green and matte adaxially, moderately paler and semiglossy abaxially, drying dark brown and matte, minutely areolate-granular adaxially, reddish brown, weakly glossy and minutely granular abaxially; **midrib** sunken and concolorous adaxially, narrowly round-raised, minutely granular and concolorous abaxially; **primary lateral veins** 9-14 per side, departing midrib at 40-55°, 5-11 mm apart, prominently undulate on drying; **interprimary veins** 1 between each pair of primaries and with no additional minor veins obvious between the primary and interprimary veins; cross-veins not visible.

**116.** *Rhodospatha heraclioana* (*Herrera et al. 1165*, MO-4257187). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**Inflorescences:** shorter than leaves; **peduncle** 5-11 cm long, 3.5 mm diam.; **spathe** not seen; **spadix** pink when immature, pale pink at anthesis becoming dark brown, 9.9-11.0 cm long, drying 12 mm diam.; stipitate ca. 10 mm, the stipe 4 mm diam.

**Flowers:** 12-13 visible per spiral; **pistils** mostly bluntly 4-sided to bluntly 5-sided, 4-5 mm long, 5-6 mm wide, with a dense grayish frost-like covering at apex; **stigmas** oblong-elliptic, black, 0.6-0.7 mm diam.; 0.2-0.4 mm wide, moderately elevated on drying, concave medially.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha heraclioana* is endemic to Panama, known only from the type locality in Comarca Kunayala at 50-100 m in a *Premontane Wet Forest* life zone.

**Comments:** *Rhodospatha heraclioana* could be confused with *R. burgeri*, which has a similar size and dries a similar color, but the latter has more elongated blades (3.2–5.1 times longer than wide vs. 2.5–3.6 times for *R. heraclioana*) and has the blades drying yellowish brown abaxially vs. reddish brown for *R. heraclioana*.

***Rhodospatha hermescuadrosii*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Chocó: municipio Acandí, vereda Capurganá, 100 m, 17 July 1985, *H. Cuadros V. 2233* (holotype, COL-295453). (**Fig. 117**).

**Diagnosis:** *Rhodospatha hermescuadrosii* is characterized by its small size; appressed-climbing, epiphytic habit; drying dark brown overall; conspicuously warty, pale-granular internodes; small blades to 27 cm long and 1.8–2.7 times longer than wide; and short inflorescences drying black.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, ca. 1.2 cm diam., drying dark brown, conspicuously warty pale-granular.

**Leaves: petioles** ca. 18.5 cm long, sheathed to the geniculum, sheath inrolled, drying medium brown, persistent but with some fragments breaking loose, drying dark brown; petiole scars with bundles of glistening trichoschleids; **blades** small, ovate-elliptic, 18–27 cm long, 9.7– 10.1 cm wide, 1.8–2.7 times longer than wide, acute at apex with a short thickened apiculum, rounded and weakly decurrent at base, widest slightly below the middle, drying dark brown and essentially matte adaxially, slightly more reddish brown and semiglossy abaxially; **midrib** concolorous, broadly sunken, somewhat pustular adaxially, darker, round-raised, matte abaxially; **primary**

**117.** *Rhodospatha hermescuadrosii* (*Cuadros 2233*, COL-295453). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and immature inflorescence with spadix enclosed in the spathe.

**lateral veins** ca. 16 per side, departing midrib at 50–70°, weakly raised, undulated adaxially, narrowly raised, darker, sparsely granular abaxially; **interprimary veins** faint; minor veins 1 running in parallel between the interprimary veins and the primary lateral veins; cross veins numerous, indistinct.

**Inflorescences:** erect; **peduncle** ca. 14 cm long; **spathe** ca. 13 cm long, drying black; **spadix** ca. 10.5 cm long; staminate portion ca. 5 cm long; sterile staminate portion partly missing, the most proximal staminodia subrounded, the next higher spiral to at least 5 mm long, 1 mm wide; pistillate portion ca. 5.5 cm long, 1.8 cm diam.

**Flowers: styles** rhombic to irregularly square, drying blackened, 0.9–1.3 mm wide in the broadest dimension, truncate and smooth at apex; **stigmas** broadly elliptic and proportionately oversized compared to style, covering the majority of the style, mostly 1 mm long, 0.6 mm wide, with margin narrow and raised with broad concavity medially.

**Infructescences:** not seen.

**Distribution and ecology:**This species is endemic to Colombia, found only in Chocó Department at 100 m in a *Tropical Wet Forest* life zone.

**Etymology:** This species is named in honor of Hermes Cuadros, Curator of the "DUGAND" Herbarium in the Universidad Atlántico in Baranquilla who collected the only known specimen in 1985.

**Comments:** *Rhodospatha hermescuadrosii* resembles *R. herrerae*, which has a similar size and also dries a dark color; however, *R. herrerae* dries mostly black (instead of dark brown for *R. hermescuadrosii*) and occurs at high elevations in Nariño Department rather than at low elevations in Chocó Department.

***Rhodospatha herrerae*** Croat & P. Huang, Aroideana 33: 121–122, 45. 2010. — Type: COLOMBIA. Nariño: Reserva Natural La Planada, afluente innominado de Quebrada El Balsal, Bajo Convenio v. Humboldt/FES-La Planada LP, 01°10'18"N 78°00'09"W, 2148 m, 21 March 1997, *G. Herrera Ch. & J. Bittner 9513* (holotype, MO-6042246, isotypes: FMB-45747, PSO). (**Figs. 118–119**).

**Habit:** appressed-climbing and scandent epiphyte.

**118.** *Rhodospatha herrerae* (*Herrera & Bittner 9513*, MO-6042246). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and inflorescence with separate spathe and spadix.

**119.** *Rhodospatha herrerae* (*Herrera & Bittner 9513*, FMB-45747). Isotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and immature inflorescence.

**Stem:** elongated and slender; **internodes** elongated, 1.5–3.0 cm long, ca. 8 mm diam., grayish-brown, drying medium brown, deeply furrowed-ridged with epidermis smooth and glossy, often cracking free.

**Leaves: petioles** 14.5–16.0 cm long, pinkish-brown and glossy when young, drying black, sheathed for their whole length; **sheath** margin broad, persistent, drying black, often tightly inrolled, intact; **geniculum** ca. 1 cm long, sharply sulcate just below the blade; **blades** ovate-elliptic, 20.0–22.5 cm long, 7.5 cm wide, 2.7–3.0 times longer than wide, 1.3 times longer than petioles, obtuse and weakly short-acuminate at apex, rounded and inequilateral at base, widest below the middle, green and glossy with margins pinkish-brown adaxially, pinkish-brown and glossy abaxially, drying blackish brown and matte adaxially, slightly darker brown and weakly glossy abaxially; **midrib** concolorous, drying shallowly sunken adaxially, thickly convex to narrowly rounded and finely, sharply close-ridged abaxially; lateral veins except for the primaries not visible adaxially; **primary lateral veins** poorly visible, scarcely raised, undulated adaxially, convex to narrowly rounded, sometimes acute, concolorous, undulated abaxially; **interprimary veins** weakly visible, usually one between alternating primary veins, undulated; minor veins branching-reticulated; **adaxial surface** moderately smooth, sparsely pustular, minutely granular at higher magnifications; **abaxial surface** glistening and finely granular at higher magnifications, sparsely pustular.

**Inflorescences:** in axils of leaves; **peduncle** ca. 9.5 cm long, green, drying black; **spathe** not seen; **spadix** short and cylindrical, ca. 6 cm long, 9 mm diam.; lilac-colored, drying black; stipe ca. 1 cm long.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Colombia, found only in Nariño Department at 2150 m in a *Premontane Rain Forest* life zone.

**Comments:** This species is characterized by its epiphytic habit; vegetative parts drying blackish brown; long, slender stems with conspicuously ridged internodes longer than broad; nearly fully sheathed petioles; ovate-elliptic, weakly acuminate, inequilateral blades drying matte, 2.7–3.0 times longer than wide, subrounded at base; faintly visible primary lateral veins; and moderately long-pedunculate inflorescences with a green, rounded spathe and a short, lilac-colored, sub-cylindroid spadix.

*Rhodospatha herrerae* is unique and cannot be easily confused with other *Rhodospatha* species growing in its area and is one of the few *Rhodospatha* species that dries mostly black.

***Rhodospatha huarangoensis*** Delannay & Croat, **sp. nov.** — Type: PERU. Cajamarca: San Ignacio, Huarango, Nuevo Mundo-Caserio Gosen. bosque primario, 05°18'30"S 78°44'00"W, 1590 m, 18 July 1997, *J. Campos de la Cruz et al. 4167* (holotype, MO-4971983; isotypes: B, US, WU). (**Fig. 120**).

**Diagnosis:** *Rhodospatha huarangoensis* is characterized by its appressed-climbing, epiphytic habit; petioles with the sheath deciduous and decomposing into a dense mass of fibers with semi-intact dark brown epidermis; moderately small, ovate-elliptic blades 1.7–2.7 times longer than wide and drying dark reddish or greenish brown adaxially and medium reddish brown abaxially; and green spathe and reddish spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 1–2 cm diam.

**Leaves: petioles** 38–43 cm long, sheathed to the geniculum, drying medium brown, coarsely ribbed abaxially, more finely high-ribbed and weakly granular toward the margin; **sheath** deciduous, decomposing into a dense mass of fibers with large fragments of intact dark brown epidermis along the petiole; **geniculum** ca. 4 cm long, sulcate adaxially with the margin spreading and somewhat crisped-recurled, densely coarse thick-granular throughout; **blades** broadly oblong-elliptic, 32–40 cm long, 12–19 cm wide, 1.7–2.7 times longer than wide, obtuse and abruptly short-acuminate at apex, rounded to obtuse or even weakly subcordate, slightly inequilateral at base, widest at or slightly below the middle, drying dark reddish or greenish brown and matte to weakly glossy adaxially, medium reddish brown and semiglossy abaxially; **midrib** drying concolorous, medially sunken with broadly rounded thickly raised margins, densely granular adaxially, narrowly round-raised, concolorous, densely and minutely granular, matte abaxially; **primary lateral veins** numerous, (25)35–45 per side, closely spaced (5–10 mm), departing midrib at 60–80°, drying concolorous; **interprimary veins** almost as strong as primary lateral veins, with one minor vein running in parallel on each side; cross-veins few, not prominent.

**Inflorescences:** erect; **peduncle** 15–31 cm long, enclosed for most of its length in the sheath of the adjacent blade then curving down, reddish, drying dark brown; **spathe** 14.0–15.5 cm long, 3.5–6.0 cm wide, green or greenish brown, drying brownish black; **spadix** hanging and curving at the end of the peduncle, 10–20 cm long, 1.0–2.5 cm diam., pink at anthesis, drying blackish; stipe ca. 1 cm long.

**120.** *Rhodospatha huarangoensis* (*Campos de la Cruz et al. 4167*, MO-4971983). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), inflorescence at anthesis with spathe attached to the spadix, and old fallen spathe.

**Flowers: styles** rhombic to rounded prismatic, drying dark gray and matte, 1.8–2.0 mm long, sometimes broader than long, to 1.5 mm wide in direction of axis; **stigmas** moderately elevated, elliptic, 0.4–0.5 mm long, 0.3–0.4 mm wide; medial slit usually moderately distinct.

**Infructescences:** not seen.

**Fruits:** to 7 mm long; **seeds** drying dark brown, somewhat flattened with the outer perimeter moderately acute, ca. 0.6 mm x 0.4 mm wide, less than 0.5 mm thick.

**Distribution and ecology:** The species is endemic to Peru, known only from Cajamarca Department at 1300–2400 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for the Huarango District of Cajamarca Department in Peru near which it has only been found.

**Comments:** Due to its closely spaced primary lateral veins, *Rhodospatha huarangoensis* is distinct from other species of the genus growing in its area. It resembles *Rhodospatha densinervia*, which also has closely spaced primary lateral veins but occurs on the Pacific slopes of the Andes from Colombia to northern Ecuador.

**Paratypes: PERU. Cajamarca:** San Ignacio, Dist. Huarango. Caserio Selva Andina, borde de pastizal (terreno del Sr. Jerónimo), 05°03'05"S 78°45'47"W, 1300 m, 11 August 2006, *J. Perea et al. 2579* (AMAZ, HUT, MO, MOL, USM); Distrito Huarango. Poblado Selva Andina, camino al tanque de agua de Selva Andina, bosque primario tropical lluvioso, borde de camino, suelo arcilloso, 05°03'50"S 78°43'19"W, 2378 m, 27 August 2007, *J. Perea et al. 3908* (HUT, MO, USM).

***Rhodospatha idroboi*** Croat, **sp. nov.** — Type: COLOMBIA. Tolima: Santa Isabel, Finca La Cima, 1820 m, 6 August 1980, *J. M. Idrobo 10668* (holotype, COL-217476). (**Fig. 121**).

**Diagnosis:** *Rhodospatha idroboi* is characterized by its small size; long, conspicuously transverse-fissured, internodes drying light grayish brown; short petioles with a dark brown, deciduous sheath; small, lanceolate, slightly inequilateral blades drying medium reddish-brown; and inflorescences drying brown with a proportionately long-pedunculate, short, small,and stubby stipitate spadix.

**Habit:** appressed-climbing epiphyte.

**121.** *Rhodospatha idroboi* (*Idrobo et al. 10668*, COL-217476). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and infructescence.

**Stem: internodes** 1–3 cm long, drying 6–10 mm diam., light grayish-brown, conspicuously and closely transverse-fissured and longitudinally closely ribbed between the fissures.

**Leaves: petioles** 12.0–12.5 cm long, drying medium brown, sheathed to the geniculum, bluntly several-ribbed, especially adaxially, closely striate and narrowly acute-ridged in part, densely granular; **sheath** drying dark brown, breaking into loose fragments with a few fibers, ultimately deciduous; **geniculum** ca. 13 mm long, terete; **blades** lanceolate-elliptic, inequilateral, (one side more broadly rounded, 5–7 mm wider), 12–22 cm long, 5.5–6.0 cm wide, 3.4–3.7 times longer than wide, acute and tapering into an acumen, sometimes weakly falcate, (ending with a darkened, thick, short apiculum) at apex, tapering and slightly decurrent at base, widest below the middle, drying medium reddish-brown on both surfaces, matte adaxially, weakly rounded abaxially; **midrib** drying narrowly sunken, concolorous adaxially, convex to round-raised, paler and conspicuously granular abaxially; **primary lateral veins** ca. 12 per side, spaced 6–12 mm, departing midrib at 30°, drying concolorous and poorly visible; **interprimary veins** faint, 2 or 3 with one minor vein running in parallel between them and the primary lateral veins; **adaxial surface** densely and uniformly concolorous-granular; **abaxial surface** less densely and more thickly and more irregularly pale-granular.

**Inflorescences:** erect; **peduncle** ca. 15 cm long, medium brown; **spathe** not seen; **spadix** stipitate ca. 1.4 cm (stipe matte ca. 5 mm diam..), ca. 8 cm long, 17 mm diam., drying dark brown.

**Flowers: styles** square to rhombic, 1.4–1.6 mm diam., drying gray-brown, matte, truncate; **stigmas** oval or sometimes rounded. 0.8–1.0 mm long, 0.5–0.6 mm wide, blackened, deeply excavated medially.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha idroboi* is endemic to Colombia, found only in Tolima Department at 1860 m in a *Premontane Wet Forest* life zone.

**Etymology:** The species is named in honor of the late Colombian botanist Jesús Idrobo who collected the only specimen of the species. Idrobo was a specialist in Marantaceae and one of the foremost specialists on the Colombian flora. He spent most of his career at the Universidad Nacional in Bogota. He was a close friend and mentor of the second author who first met him in 1965 while he was an instructor in the second OTS course concentrating on monocotyledons in Costa Rica.

**Comments:** Its small size, long lanceolate blades, and proportionately long-pedunculate inflorescence make this species distinct from the other *Rhodospatha* species growing in its area.

***Rhodospatha inaequilatera*** G. S. Bunting ex Croat **sp. nov.**— Type: VENEZUELA. Lara: Distrito Jiménez, Parque Nacional Yacambú, SE slopes toward Quebrada Negra, in the vicinity of El Blanquito, 19 km SSE of Sanare, 1450 m, 6 August 1970, *Steyermark et al. 103449* (holotype, VEN; isotype, MO-2672585). (**Fig. 122**).

**Diagnosis:** *Rhodospatha inaequilatera* is characterized by its long internodes; markedly inequilateral, blades drying gray-brown with one side much narrower than the other; and 13–15 primary lateral veins per side extending at 50–60° on the broader side and at 90–100° on the narrow side.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** to 5.5 cm long, shorter at the apex, ca. 1.5 cm diam., drying light yellow–brown, closely and finely fissured, moderately glossy.

**Leaves: petioles** 28–35 cm long, sheathed to near the geniculum, weakly striate, drying brown; the sheath margins entire; **geniculum** ca. 2.5 cm long, weakly sulcate; **blades** subcoriaceous, markedly inequilateral, oblong-elliptic, 32–37 cm long, 13–14 cm wide, one side ca 8.5 cm wide, the other side ca 5 cm wide, 2.4–2.6 times longer than wide, abruptly acuminate at apex, markedly inequilateral at base, the broad side narrowly acute, the narrow side rounded to weakly cordulate, drying gray–brown adaxially, reddish brown abaxially; **midrib** drying weakly raised with a narrow medial sulcus, thicker than broad below; **primary lateral veins** 13–15 per side, those on the broader side departing midrib at 50–60° and barely curved to the margin, those on the narrow side departing midrib in a sweeping arc then spreading at 90–100°, then arching ditally toward the margin, all of the lateral veins weakly undulate; **interprimary veins** 1 or 2 between pairs of primary lateral veins; minor veins 3 or 4, inconspicuous, alternating with the primary lateral veins and the interprimary veins.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**122.** *Rhodospatha inaequilatera* (*Steyermark et al. 103449*, isotype, MO-2672585). Isotype showing stem, petiole, and inequilateral leaf blade (adaxial and abaxial surfaces).

**Distribution and ecology:** *Rhodospatha inaequilatera* is endemic to Venezuela, known only from the type locality in the state of Lara in Parque Nacional Yacambú at 1450 m a in *Premontane Wet Forest* life zone.

**Comments:** George Bunting named and designated a type specimen for this species but never published it.

This species is very similar to *Rhodospatha julianii* in the texture of the blade and the stem; indeed, the species appears sufficiently similar to be synonymous were it not for the remarkable differences in the blade shape and nature of the primary lateral veins. The latter species differs in having equilateral blades with the primary lateral veins departing midrib on both sides at about 45°.

*Steyermark 103477* from Venezuela in the state of Lara at Parque Nacional Yacumbí might represent a mixed collection. Two sheets both marked holotype at VEN and an isotype at MO have very inequilateral blades and no doubt reflect the species that Bunting described. Still, one additional specimen of the same number and also from VEN, has a leaf blade that is not at all inequilateral. This specimen, along with another specimen from the same area (*Steyermark et al 103477*), has equilateral blades and is considered here as a distinct species, *R. julianii.* Nonetheless, all the sheets have the same texture and coloration and might represent the same species.

***Rhodospatha indanzensis*** Delannay & Croat, **sp. nov.** — Type: ECUADOR. Morona-Santiago: Along road from Limón to San Juan Bosco, 4.4 km of Plan de Milagro, 10.1 km N of Indanza, 02°59'30"S 78°28'26"W, 1415 m, 25 August 2015, *T. B. Croat 106393* (holotype, MO-6887345; isotype, QCNE). (**Fig. 123**).

**Diagnosis:** *Rhodospatha indanzensis* is characterized by its appressed-climbing, epiphytic habit; overall bdrying lackish or dark reddish brown; petioles sheathed to geniculum and margins continuous onto geniculum, the margin deciduous on drying; ovate-elliptic blades 1.7 times longer than wide and with closely spaced primary lateral veins; and dark maroon spadix.

**Habit:** appressed-climbing epiphyte to 4 m tall.

**Stem:** more than 2 m long; **internodes** elongated, 4–5 cm long, 3 cm diam., dark green, glossy, drying dark yellow-brown, closely longitudinally fissured with sharp cracking edges.

**123.** *Rhodospatha indanzensis* (*Croat 106393*, MO-6887345). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis inflorescence with separate spathe and spadix.

**Leaves: petioles** ca. 38 cm long, dark green and glossy at base, otherwise medium green, semiglossy, drying blackish, sheathed to the geniculum and contiguous with margins of geniculum, densely granular and transverse-wrinkled; **sheath** persisting intact with margins in-turned, drying blackish, with the margin deciduous in part in long segments; **blades** ovate-elliptic, ca. 39 cm long, 23 cm wide, 1.7 times longer than wide, widest near the middle, rounded and short-acuminate at apex, rounded and slightly decurrent at base, subcoriaceous, dark green, weakly glossy adaxially, moderately paler and semiglossy abaxially,drying blackish adaxially, dark reddish brown abaxially; **midrib** narrowly sunken and marginally pale green adaxially, narrowly rounded and moderately paler abaxially, drying concolorous; **primary lateral veins** numerous, closely spaced (5–13 mm), departing midrib at 60–70°, weakly quilted-sunken and concolorous adaxially, narrowly rounded and concolorous abaxially; **interprimary veins** similar to **minor veins** with a total of three main veins running in parallel between the primary lateral veins, with a network of prominent cross-veins interconnecting them; **adaxial surface** smooth, minutely glandular at high magnifications; **abaxial surface** more coarsely and more irregularly granular at high magnifications.

**Inflorescences:** only immature seen; **spathe** ca. 21 cm long, green; **spadix** dark maroon at immature stage, drying dark brown.

**Flowers: styles** mostly rhombic, ca. 1 mm long in direction of axis; **stigmas** oblong-elliptic, 0.3 mm long.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha indanzensis* is endemic to Ecuador, found only in Morona-Santiago Province at 1415 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for the town of Indanza in Morona-Santiago Province of Ecuador, the only place where it has been found.

**Comments:** This species is similar to *Rhodospatha katipas*, which also grows in the area, but it differs from the latter by drying overall blackish or dark reddish green (vs. medium greenish brown for *R. katipas*); petioles with the sheath persisting intact; and blades with the primary lateral veins much more closely spaced.

***Rhodospatha ipariensis*** Delannay & Croat, **sp. nov.** — Type: PERU. Ucayali: Province Coronel Portillo; Distrito Iparia, Bosque Nacional, a lo largo e Río Ucayali, 1 km abajo del pueblo

Iparia (unos 80 km arriba de confluencia con Río Pachitea, sobre 250 m, [00°19'69"S, 74°26'22"W and175 m fide Google Earth], 4 September 1968, *J. Schunke V. 2764* (holotype, F-1748032). (**Fig. 124**).

**Diagnosis:** *Rhodospatha ipariensis* is characterized by its terrestrial habit; short internodes; petioles heavily sheathed about 2/3 their length, sheath moderately intact with fibrous margins; elliptic, moderately bicolorous, blades drying grayish green-yellow-brown rounded-short acuminate at apex, inequilateral rounded-acute attenuate at base, closely spaced lateral, subrounded venation; and yellow-white spathe and stipitate salmon-colored spadix with small flowers (14–15 visible per spiral).

**Habit:** terrestrial herb, 1.0–1.5 m tall.

**Stem: internodes** moderately short, about as long at broad or longer than broad, drying medium to dark brown, matte, closely and bluntly thick-ridged just proximal of the nodes.

**Leaves: petioles** 42.0–45.5 cm long, sheathed ca. 2/3 their length, drying light yellow brown, smooth except closely several-ribbed adaxially; **sheath** ca. 28.5 cm, drying darker brown than shaft and more closely ribbed, the margin thin and somewhat breaking up into fibers; **blades** elliptic, ca. 48.5 cm long, 22.7 cm wide, 2.1 times longer than wide, barely longer than petioles, rounded and weakly abrupt acuminate at apex, inequilateral, acute-attenuate one side, rounded on the other, subcoriaceous, dark green adaxially, moderately paler and whitish green abaxially, drying grayish green, matte adaxially, yellow-brown, weakly glossy abaxially; **midrib** weakly raised, nearly concolorous, unribbed, densely short-pale-lineate adaxially, finely ribbed, densely granular, slightly darker abaxially; **primary lateral veins** scarcely visible adaxially, weakly raised and slightly darker abaxially with 5 weak but close veins in proximal 7 cm, then spaced 2–4 cm for the remainder of the blade, 8 to 9 in total with up to 20 total lateral veins; **interprimary veins** scarcely apparent even on abaxial surface; **adaxial surface** finely and closely granular-weak ridged; **abaxial surface** more bluntly granular, weakly short-ridged.

**Inflorescences:** erect; **peduncle** ca. 29 cm long, 4 mm wide, drying yellow-brown; **spathe** yellow-white, ca. 14 cm long, 15 cm wide in life, deciduous; **spadix** cylindroid-tapered, salmon-colored, ca. 11 cm long, 1.3 cm diam.; stipitate ca, 1.2 cm, drying dark brown ca. 10.4 x 0.8 cm.

**Flowers: styles** 14–15 visible per spiral, rounded-prismatic to rhombic. 0.8–1.0 mm long, weakly glaucous-granular, dark gray-brown, matte; **stigmas** raised, oblong, ca. 0.6 mm long, 0.1 mm wide.

**124.** *Rhodospatha iparíensis* (*Schunke 2764*, F-1748032). Holotype showing stem, petioles, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha ipariensis* is endemic to Peru, known only from the type locality in present-day Ucayali Department along the Río Ucayali at 175 m in a *Tropical Dry Forest* life zone.

**Etymology:** This species is named for the type locality at Iparia along the Río Ucayali in Ucayali Department, Peru.

**Comments:** This species resembles *Rhodospatha fosteri* but differs in its longer blades (2.1 times longer than wide vs. 1.1–1.6 times for *R. fosteri*) drying grayish green (instead of yellowish green for *R. fosteri*) with the abaxial surface not densely reddish-dotted as is the case for *R. fosteri*. This species also grows very far apart and in a different life zone (Ucayali Department and dry forest for *R. ipariensis* rather than Pasco and Cusco Departments and wet forest for *R. fosteri*).

***Rhodospatha iquitosensis*** Croat, **sp. nov.** — Type: PERU. Loreto: Quebrada de Tahuayo above Tamishiyaco, 04°03'43"S 73°08'20"W, 17 August 1972, *T. B. Croat 19779* (holotype, MO-2276109-10). (**Figs. 125–126**).

**Diagnosis:** *Rhodospatha iquitosensis* is characterized by its large size; slender, conspicuously ridged stem with close transverse fissures when dried; moderately large leaves with deeply furrowed petioles, moderately discolored, coriaceous blades drying dark olive green with numerous primary lateral veins having 2 or 3 minor veins running between them and the interprimary veins; and large inflorescences with short peduncles closely enveloped for most of their length by a much longer prophyll and with a large tapering spadix turning pale reddish.

**Habit:** epiphyte in swampy forest.

**Stem: internodes** elongated, to 12 cm long, 1.2–2.2 cm diam., drying ribbed longitudinally, pale brown, with close transverse fissures.

**Leaves: petioles** 36–63 cm long, drying reddish brown, matte, densely short-pale-lineate, sheathed their whole length; **sheath** moderately thick, drying dark brown, deciduous in long segments, the remaining edge pale brown with a slender continuous sulcus; **geniculum** 2.5–4.0 cm long; **blades** coriaceous, ovate-elliptic, 41–64 cm long, 19.5–29.0 cm wide, 2.1–2.3 times longer than wide, rounded and abruptly short-acuminate at apex, rounded to weakly subcordate at base, widest below the middle, drying dark olive-gray-green adaxially, slightly darker brown

**125.** *Rhodospatha iquitosensis* (*Croat 19779*, MO-2276109). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**126.** *Rhodospatha iquitosensis* (*Croat 19779*, MO-2276110). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

abaxially; **midrib** drying slightly raised and concolorous adaxially, strongly raised, slightly paler, densely granular, matte abaxially; **primary lateral veins** 26–28 per side, departing midrib at 60–80°, drying concolorous and faintly visible adaxially, moderately prominent, narrowly rounded, darker, faintly short-purplish red-short-lineate abaxially; **interprimary veins** visible below, mostly 1 per section with 2 or 3 minor veins running between them and the primary lateral veins, the minor veins in turn interconnected with weak transverse veins; **adaxial surface** moderately smooth even at high magnication (25 X); **abaxial surface** densely and minutely spotted with an admixture of dark and pale speckles, this pattern covering even the smaller minor veins.

**Inflorescences: peduncle** short, 9–14 cm long, 12 mm diam., closely enveloped for most of its length by a much longer prophyll to 37 cm long, drying reddish brown, prophyll drying dark olive-brown; **spathe** 8.0–21.5 cm long, tapering into a long acumen at the apex; **spadix** cylindrical at the base, tapering towards the apex, 16–20 cm long, 12–14 mm diam. near the base, cream-colored turning pale reddish.

**Flowers: pistils** with styles 1.6–1.8 mm wide, mostly quadrangular to trapezoidal, drying grayish, matte, seemingly glaucous; **stigmas** ca. 1 mm long, 4 mm wide, oblong, drying medium dark brown with a closed linear groove.

**Infructescences:** not seen.

**Distribution and ecology:** The species is endemic to Peru and is known only from the type locality in Loreto Department at 91 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for the city of Iquitos in the Loreto Department of Peru near where it has been found.

**Comments:** *Rhodospatha iquitosensis* resembles *R. neillii* from Ecuador but it differs from the latter species by its blades drying dark olive-green instead of dark brown and by its persistent sheath on the petiole rather than being deciduous in the case of *R. neillii.*

**Paratypes: PERU. Loreto:** 7 km SW of Iquitos; swampy forest, 03°48'46"S 73°20'7"W, 31 July 1972, *T. B. Croat 18631* (MO); Allpahuayo reserve of IIAP, ca. 30 km outside Iquitos along road Iquitos-Nauta, 04°07'29"S 73°27'51"W, 13 December 1995, *H. van der Werff & R. Vásquez 13870* (MO).

**Rhodospatha jaramilloana** Croat, **sp. nov.** — Type: COLOMBIA. Chocó: Hoya del Río S. Juan. Alrededores de Noanamá, 20 m, 4 April 1979, *E. Forero, R. Jaramillo M, J. Espina Z. & P. A. Palacios 4584* (holotype, COL-200740; isotype, COL-200737). (**Fig. 127**).

**Diagnosis:** *Rhodospatha jaramilloana* is characterized by its small size; petioles drying light yellowish brown with a thin deciduous sheath; small blades drying medium grayish green with an inequilateral subcordate base, 2.0–2.5 times longer than wide, and with closely spaced, broadly spreading primary lateral veins; and erect inflorescences with a greenish-white spathe (nearly as broad as long at anthesis) and a yellow spadix slightly longer than the spathe.

**Habit:** not seen.

**Stem: internodes** ca. 1.5 cm diam.

**Leaves: petioles** 18–24 cm long, drying light yellowish-brown, sheathed their whole length; **sheath** margin thin, somewhat hyaline, sometimes undulated or even broken, not deciduous; **geniculum** ca. 1.5 cm long; **blades** ovate-elliptic, 26–30 cm long, 10–15 cm wide, 2.0–2.5 times longer than wide, obtuse and short-acuminate at apex, rounded at base, widest at middle, inequilateral, drying medium grayish-green adaxially, light grayish-green abaxially; **midrib** concolorous, raised abaxially; **primary lateral veins** 33 per side, spaced 5–12 mm, departing midrib at 50–80°, drying concolorous and poorly visible adaxially, slightly darker abaxially; **interprimary veins** faint abaxially, with one minor vein running on each side between them and the primary lateral veins; **adaxial surface** densely and finely granular with occasional patches with dark blunt short steaks (these perhaps the pellucid punctations from the abaxial surface exposed on adaxial surface), not short-pale-lineate; **abaxial surface** more coarsely but more sparsely granular, densely short-pale-lineate, densely pellucid-punctate (a mixture of sub-rounded to oblong dark spots).

**Inflorescences:** erect; **peduncle** 21–23 cm long, 4–5 mm diam., closely enveloped for ca. 3/5–4/5 their length by a prophyll 14–19 cm long, drying light yellowish-brown, prophyll drying light grayish green; **spathe** greenish white, ca. 13 cm long, nearly as broad as long at anthesis with the spadix protruding beyond the end of the spathe, 7 cm wide when flattened, drying orange-brown and matte adaxially, greenish gray to yellowish abaxially; **spadix** cylindrical, 12.5–14.0 cm long, 9–10 mm diam., yellow with a green tip, drying slightly longer than spathe.

**Infructescences:** not seen.

**127.** *Rhodospatha jaramilloana* (*Forero et al. 4584*, COL-200737). Isotype showing petiole, leaf blade (abaxial surface), and post-anthesis spadix.

**Distribution and ecology:** This species is endemic to Colombia, found only in Chocó Department at 20 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of the late Colombian botanist Roberto Jaramillo who helped to collect the type specimen. Jaramillo was born in Manizales and received no formal academic training but was hired to work at the herbarium at the Universidad Nacional de Bogota beginning in 1948. He spent his entire career there and learned Colombian plants so well that he came be known as the foremost specialist on the country's flora. His principal focus when doing fieldwork was the flora of Paramo.

**Comments:** *Rhodospatha jaramilloana* resembles *Rhodospatha grayumiana*, which grows in the same general area of Chocó Department but the former species differs by its blades drying medium grayish green instead of drying medium greenish-brown in the case of *R. grayumiana*. The former species also has a yellow spadix rather than an olive-green one for *R. grayumiana.*

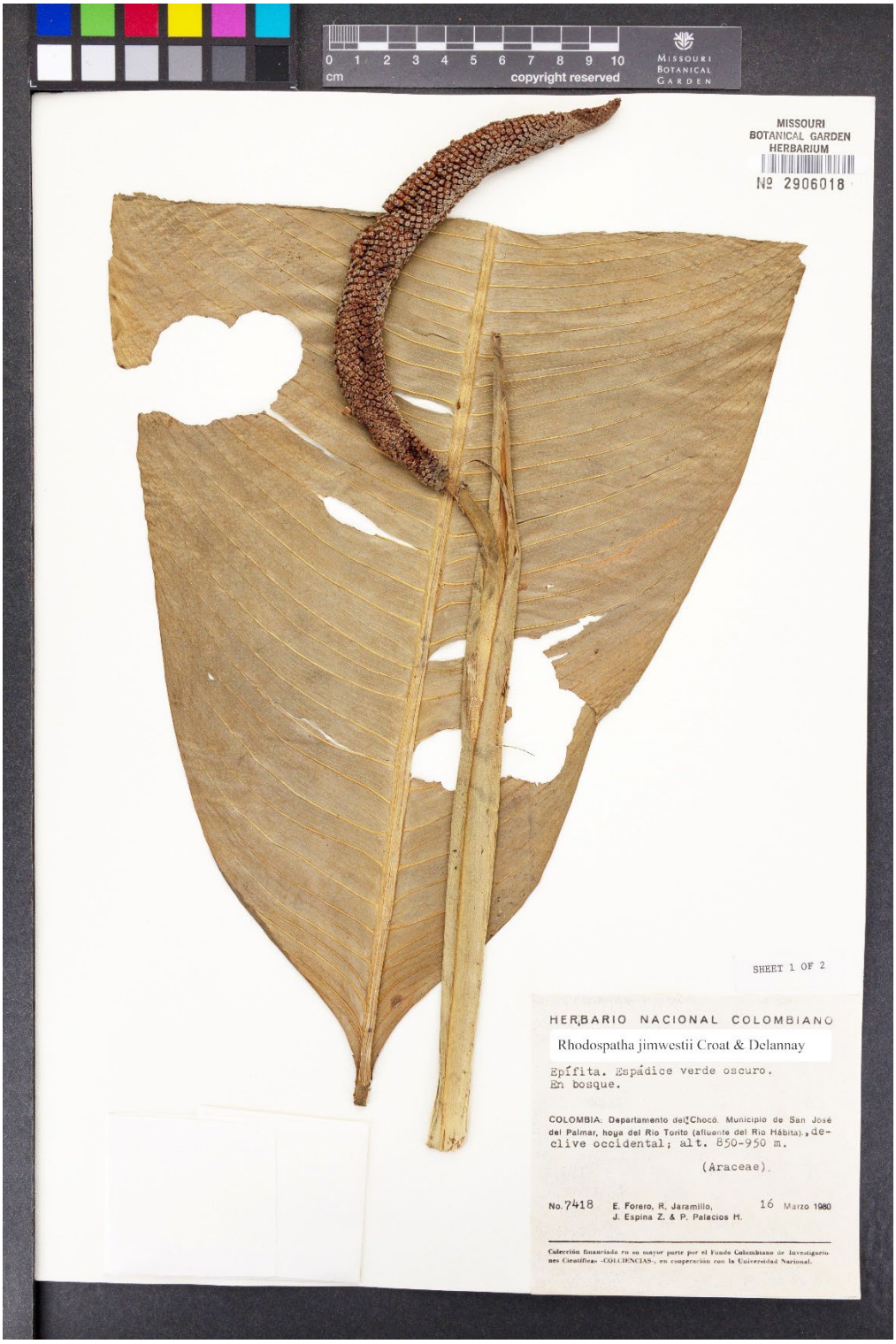
***Rhodospatha jimwestii*** Croat & Delannay, **sp. nov.** — Type: COLOMBIA. Chocó: Municipio San José del Palmar, hoya del Río Torito (affuente del Río Habita), declive occidental, Finca "Los Guaduales", 04°58'27"N 76°13'42"W, 850–950 m, 16 March 1980, *E. Forero, R. Jaramillo, J. Espina & P. Palacios H. 7418* (holotype, MO-2906018–19; isotype, COL). (**Figs. 128–130**).

**Diagnosis:** *Rhodospatha jimwestii* is characterized by its epiphytic habit; moderately short, short-pale-lineate petioles drying yellowish brown with a winged geniculum; obovate-elliptic leaf blades drying yellowish brown and rounded at apex; distinct, closely spaced primary lateral veins with faint interprimary veins; and moderately pointed spadix with small sub-quadrangular to subrounded pistils.

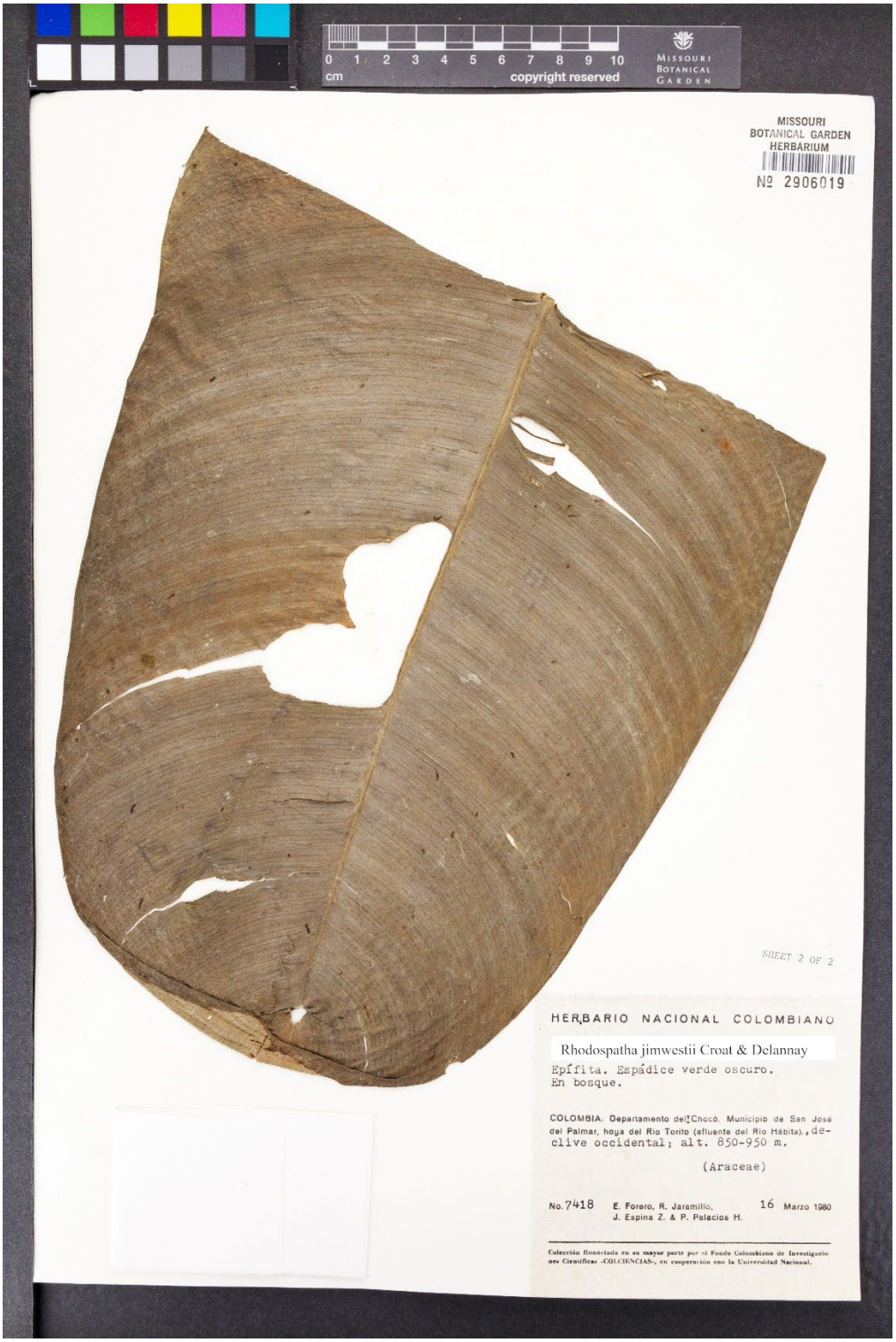
**Habit:** epiphyte.

**Stem:** not seen.

**Leaves: petioles** truncated, fully sheathed, drying light yellow-brown, faintly short-pale-lineate; **blades** narrowly oblong-elliptic to obovate-elliptic, 59.5–77.0 cm long, 23.3–25.0 cm wide, 2.5–3.0 times longer than wide, narrowly oblong-elliptic, rounded and abruptly and weakly short-acuminate at apex, attenuated to rounded at base, drying subcoriaceous, grayish brown and matte adaxially, yellow-brown and semiglossy abaxially; **midrib** obtusely sunken, slightly paler




**128.** *Rhodospatha jimwestii* (*Forero et al. 7418*, MO-2906018). Holotype showing petiole, leaf blade (abaxial surface), and post-anthesis spadix.




**129.** *Rhodospatha jimwestii* (*Forero et al. 7418*, MO-2906019). Holotype showing leaf blade (adaxial surface).

**130.** *Rhodospatha jimwestii* (*Forero et al. 6882*, MO-2906035). Specimen showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

adaxially, round-raised, moderately paler and densely granular abaxially; **primary lateral veins** 65–70 per side, departing midrib at 70–75°, 12–15 mm apart, scarcely raised, indistinct, densely granular adaxially, narrowly rounded, sparsely and coarsely granular, moderately paler abaxially, not undulated on drying; **interprimary veins** usually 1 per sector, often scarcely less distinct than primary lateral veins, usually not undulated on drying; minor veins few, undulated on drying; **adaxial surface** usually densely, finely and uniformly granular (even on the minor veins); **abaxial surface** densely and coarsely granular, sometimes weakly ridged with the tertiary veins moderately prominent, spreading and ramifying.

**Inflorescences:** erect, not cernuous but curved; **peduncle** 25–41 cm long; **spathe** missing; **spadix** sessile or stipitate 5–12 mm in rear, 21–23 cm long, 1.2 cm diam. post-anthesis, to 2 cm diam. in early fruit.

**Flowers:** 12–15 visible per spiral; **styles** moderately small, 1.4–1.6 mm wide, mostly quadrangular to subrounded and 6-sided, often 4- or 5-sided, surface matte, minutely granular, seemingly glaucescent; **stigmas** blackened, elliptic, 0.6–1.0 mm x 0.3–0.4 mm.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha jimwestii* is endemic to Colombia, known only from the type locality at 730–850 m on steep, forested slopes in a *Tropical Wet Forest* life zone.

**Etymolog:** This species is named for the American pioneer Jim West who created the environment for botanical studies on his finca “Las Guaduales” founded in the 1970s and composed of nearly virgin forest near San José Palmar where the type specimen was collected. Jim invited well known Colombian botanist Enrique Forero to conduct botanical work his remote property in 1980. The field trip with three students proved to be perhaps the most productive short trip of its time considering the number of new species collected in a period of only few days. Jim was later forced to abandon his property in Colombia owing to political violence in the area and flee to Ecuador where he once again pioneered in a new virgin forest, now the Reserva Guaycayacu, where he operates a mixed fruit farm and ecotourism business with his wife Merideth Foyle.

**Comments:** This species is most closely related to *Rhodospatha renteriae* from lowland Chocó at about 50 m elevation in a *Tropical Rain Forest* life zone, which shares fully sheathed petioles and similar closely spaced primary lateral veins, but the former species differs by having the leaf blade proportionately narrower (2.5–3.0 times longer than broad), tertiary veins less prominent; and apex rounded to weakly short-acuminate.

*Rhodospatha jimwestii* might be confused with *R. alversonii* from the Cauca River valley drainage in Antioquia; however, this latter species differs in having broader leaf blades (2.2–2.4 times longer than broad) that dry darker brown, having more widely spaced primary lateral veins, and more interprimary veins.

**Paratypes: COLOMBIA. Chocó:** San José del Palmar, Hoya del Río Torito (afluente del Río Hábita), declive occidental, Finca "Los Guaduales", 04°54'00"N 76°19'00"W, 630-730 m, 8 March 1980, *E. Forero et al. 6882* (CHOCO, MO); San José del Palmar, Hoya del Río Torito (afluente del Río Hábita), declive occidental, Finca "Los Guaduales", 04°54'00"N 076°19'00"W, 630-730 m, 6 March 1980, *Forero et al. 6790* (COL).

***Rhodospatha julianii*** Croat **sp. nov.** — Type: VENEZUELA. Falcon: Sierra de San Luis, La Chapa-Uria, 1400 m, 19 July 1967, *Steyermark 75973* (holotype, MO-2652560; isotypes, NY, US, VEN). (**Fig. 131**).

**Diagnosis:** *Rhodospatha julianii* is characterized by its appressed-climbing habit; yellowish-brown fissured older dried stems; entire petiole sheath; and more or less equilateral and more or less elliptic blades, which dry reddish brown on the abaxial surface.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** to 3.5 cm long, 0.6–1.5 cm diam., shorter near the apex, drying brown and smooth, finally yellow-brown, closely fissured and glossy.

**Leaves: petioles** 24–44 cm long, sheathed to near the geniculum, drying brown, smooth; **sheath** ending gradually at the apex, its margins entire; **blades** elliptic to narrowly ovate-elliptic, 25–44 cm long, 9.5–15.0 cm wide, weakly inequilateral with one side ca 1 cm wider on the larger blades, gradually to more or less abruptly acuminate and somewhat inequilateral at apex, acute and weakly inequilateral at base, weakly decurrent onto the petiole, drying grayish brown to olive-green adaxially, reddish brown abaxially; **midrib** sulcate above with weakly raised margins, slightly thicker than broad below; **primary lateral veins** 10–18 per side, departing midrib at ca 50° and weakly arcuate toward the apex, sometimes extending down along the midrib at an acute angle before spreading; **interprimary veins** one between each pair of primaries; minor veins mostly about 3 alternating between the primaries and interprimary veins, both the primary and interprimary veins weakly wrinkled, the minor veins usually smooth; cross veins obscure or lacking altogether.

**131.** *Rhodospatha julianii* (*Steyermark 103477* MO-2672650). Specimen showing stem, petiole, leaf blades (adaxial and abaxial surfaces), and juvenile inflorescence.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha julianii* is endemic to Venezuela, known only at 1400-1600 m from the state of Falcon in the Sierra de San Luis and in Lara in Parque Nacional Yacambú in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of Julian Steyermark who began and ended his career at the Missouri Botanical Garden. Born in St. Louis in 1908, he was educated at Washington University, then later worked at the Garden under Robert Woodson before moving to the Field Museum in Chicago. He wrote the Flora of Missouri while he worked at the Field Museum and spent the years during World War II in search of *Cinchona* for quinine substitutes in South America, then moved to Venezuela where he spent the majority of his career. He was renowned as a plant explorer and accumulated 138,000 numbers during his lifetime.

**Comments:** *Rhodospatha julianii* can be confused with *R. inequilatera*, which dries a similar color and texture but differs in having blades markedly inequilateral and with a markedly inequilateral base. Another species with which it shares many characteristics is *R. latifolia*. The latter species has blades of similar shape and also has a petiole sheath that dries intact without losing the margin. However, this latter species in Venezuela differs in having conspicuous cross veins visible on the abaxial surface between the minor veins.

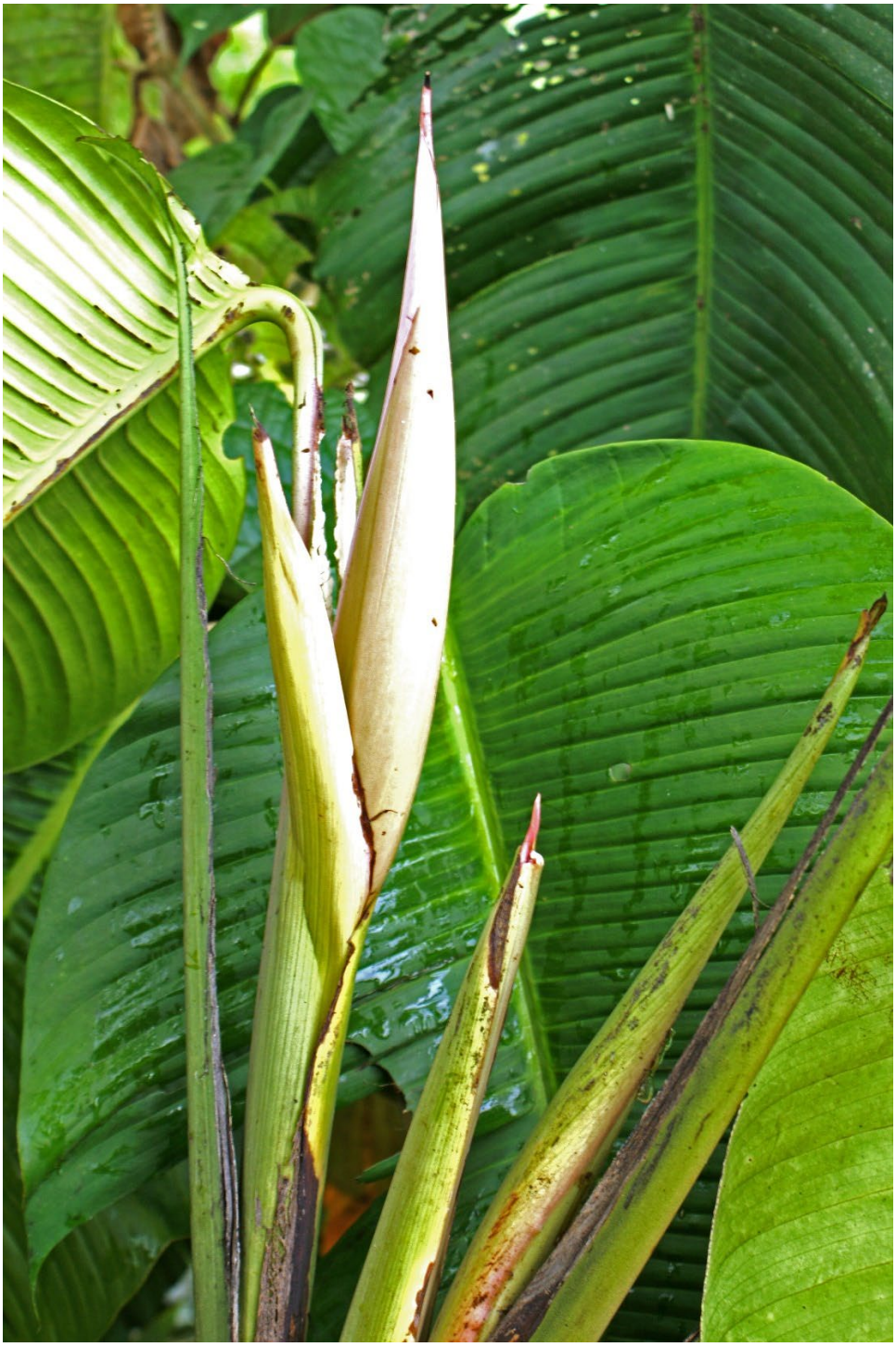
***Rhodospatha katipas*** Croat, Rodriguésia 56(88): 113–114. 2005. — Type: PERU. Amazonas: Río Cenepa, vic. of Huampami, ca. 5 km E of Chávez Valdívia, ca. 4°30'S, 78°30'W, 200–250 m, 7 August 1978, *E. Ancuash 1308* (holotype, MO-2674215-17, MO-2708164-65; isotypes: K, US, USM). (**Figs. 132–137**).

**Habit:** appressed-climbing epiphyte, to 2–4 m.

**Stem:** internodes 1–3 cm long, 1–2 cm diam., drying yellow-brown, smooth to longitudinally folded, sometimes transversely fissured, those in the distal part of the stem hidden by overlapping leaf bases.

**Leaves: petioles** 22–56 cm long, drying greenish brown, matte, mostly smooth, sometimes weakly folded, but never prominently ridged, sheathed to the geniculum (rarely ending 2.0–2.5 cm proximal of the geniculum); **sheath** deciduous and very fibrous; **geniculum** bluntly sulcate,

**132.** *Rhodospatha katipas* (*Croat et al. 105801*). Live plant showing appressed-climbing, epiphytic habit, stem, petioles, leaf blades (adaxial and abaxial surfaces), and immature inflorescence.



**133.** *Rhodospatha katipas* (*Croat et al. 105801*). Close-up of immature inflorescence.

**134.** *Rhodospatha katipas* (*Ancuash 1308*, MO-2674217). holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and immature inflorescence.

2.5–3.5 cm long; **blades** narrowly ovate to elliptic, 26–65 cm long, 16.5–34.0 cm wide, broadest at middle or slightly below the middle, 1.5–2.8 times longer than wide, 0.9–1.9 times longer than petioles, inequilateral, one side 1.0–2.6 times wider than the other, mostly rounded and abruptly acuminate, sometimes acute and acuminate at apex, moderately inequilateral at base, one or both sides often weakly subcordate, one side often merely rounded, drying medium greenish brown to grayish brown adaxially, gray-brown to reddish brown abaxially; **midrib** deeply sunken adaxially, thicker than broad, sparsely granular and with pale raphide cells abaxially; **primary lateral veins** 22–40 per side, 4–22 mm apart, mostly to 1 cm or more, closest near the base (to 4–5 mm apart), frequently departing midrib at an acute angle then spreading at 66°–90°, straight to weakly curved to the margin, usually smooth, sometimes granular, sometimes pale with dark short lines in Peruvian populations; **interprimary veins** one, usually much smaller than the primary veins, along with the minor veins sometimes drying undulate; minor veins 2–4 alternating between the primary and interprimary veins, sometimes sparsely granular; cross veins mostly oblique and obscure, mostly near the outer margins, sometimes throughout the surface; **abaxial surface** densely reddish granular-punctate.

**Inflorescences:** erect; peduncle 6.5–24.0 cm long, 0.6–1.7 times longer than the spadix (averaging about as long as the spadix); prophylls deciduous or more commonly persisting as a network of fibers and patches of epidermis; **spadix** 11.0–21.2 cm long , 10–15 mm diam., to 20 cm in early fruit, broadest at about the middle, tapered somewhat to the base, substantially tapered to the apex, narrowly rounded at apex.

**Flowers: pistils** sometimes regularly 4-sided, sometimes irregularly 5- or 6-sided, 1.4– 2.0 mm diam., the sides mostly straight, sometimes convex or concave, the surface usually with a finely granular waxy layer, sometimes with fine pale globules of wax or the wax irregularly furrowed, usually faintly purplish brown, sometimes brown; **stigmas** mostly oblong-elliptic, black and glossy, 0.6–0.8 × 0.3–0.5 mm, sunken medially; **stamens** included, **anthers** 1 mm long, 0.5 mm diam.

**Infructescences:** to 3 cm diam.; pale red.

**Fruits: seeds** brown, sub-discoid, 1.0–1.2 × 0.4–0.5 mm, slightly broader in one dimension with a prominent notch on one end, with a sharp granular ridge around the outer margins.

**Distribution and ecology:** *Rhodospatha katipas* ranges from eastern Colombia (Caquetá, Meta, Putumayo) to Ecuador (Morona-Santiago, Napo, Orellana, Sucumbíos, Zamora-Chinchipe), Brazil (Acre), and northern Peru (Amazonas, Pasco, San Martín) at 200–1800 m in *Tropical Moist Forest* and *Premontane Wet Forest* life zones.

**135.** *Rhodospatha katipas* (*Ancuash 1308*, MO-2674215). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and immature inflorescence.

**136.** *Rhodospatha katipas* (*Ancuash 1308*, MO-2708164). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and immature inflorescence.

**137.** *Rhodospatha katipas* (*Ancuash 1308*, MO-2708165). Holotype showing petiole, leaf blade (abaxial surfaces), and infructescence.

**Comments**: This species is characterized by its appressed-climbing habit; moderately elongate internodes; petioles with deciduous and fibrous sheaths; bluntly sulcate geniculum; more or less elliptic, slightly inequilateral blades with the base rounded to weakly cordate, the midrib drying granular and with pale raphide cells visible on magnification, and moderately inconspicuous, oblique cross veins positioned relatively near the margins.

*Rhodospatha katipas* is most easily confused with *R. mukuntakia* from Bolivia. This latter species differs in being terrestrial with short internodes hidden by the overlapping leaf bases; petiole sheaths not extending to the geniculum; sharply sulcate geniculum; and blades with prominent cross veins extending throughout the surface of the leaves. Also, the abaxial midrib of *R. mukuntakia* is densely and softly crustiose-puberulent on drying, rather than sparsely granular, as in *R. katipas*.

*Rhodospatha katipas* differs from *R. Latifolia*, which can also occur in the Cordillera del Cóndor area, by its petioles with the sheath persisting as a network of fibers (rather than being entire in the case of *R. latifolia*). It also dries a lighter grayish brown color rather than the dark reddish-brown color of *R. latifolia*.

**Oher Specimens Seen*:* BRAZIL**. **Acre:** Municipio Cruzeiro do Sul; Río Juruá Mirim; disturbed terra firme ca. 2 km N of village of Vista Alegre, coordinates at river; 08°08'03"S 72°49'47"W, 230–240 m, 17 November 2001, *T. B. Croat 85318* (MO); Municipio Porto Walter; Aldeota, along Río Juruá Mirim; terra firme, disturbed virgin forest; 08°13'01"S 73°01'21"W, 279 m, 14 November 2001, *T. B. Croat 85174* (MO). **COLOMBIA**. **Caquetá:** 10 km SW of San José del Fragua (SW of Florencia); tall rain forest in hill above river; 01°11'00"N 76°10'00"W, 320 - 340 m, 10 January 1974, *G. Davidse, A. H. Gentry & F. Llanos 5704* (COL, MO); 14.05 km SW of Florencia, Centro Investigacion Macagual [Universidad Amazonia], 01°21'00"N 075°39'23"W, 258 m, 28 August 2007, Croat 98235 (MO); **Meta:** Cordillera La Macarena (extremo nordeste), macizo Renjifo, cumbre y alrededores; 02°30'48"N 73°53'23"W, 1300–1900 m, 6–20 January 1951, *J. M. Idrobo & R. E. Schultes 964* (B, COL, GH, U, US); La Macarena. Cano "20", 02°00'25"N 74°04'24"W, 850 m, 3 March 1962, *J. M. Idrobo 4885* (COL). **Putumayo:** Mocoa. *R. E. Schultes & I. Cabrera 19045* (US); Villa Garzón. Río Gineo: 8 km W of Villa Garzon. Moist, shady forest; 300 m, 22 November 1968, *T. C. Plowman 2057* (F, GH). **ECUADOR**. **Morona-Santiago:** Taisha. Secondary forest and disturbed primary forest 3-4 km E-SE of the military camp; 02°23'S 77°30'W, 450 m, 15 June 1980, *J. S. Brandbyge & E. Asanza C. 31879* (AAU, MO); Taisha. Río Guambime. A small river situated 2-3 km E of the military camp. Riverside forest; 02°23'S 77°30'W, 400 m, 17 June 1980, *J. S. Brandbyge & E. Asanza C. 32003* (AAU); Pumpuentza, SSW of village, 02°25'S 77°20'W, 250 m, 29 June 1980, *J. S. Brandbyge & E. Asanza C. 32431* (AAU); Pumpuentza, W-NW of village, 02°25'S

77°20'W, 250 m, 27 June 1980, *J. S. Brandbyge & E. Asanza C. 32333* (AAU); 03°7'S 78°14'W, 700 m, *Rodriguez 315A* (MO); Los Tayos. Partial opening in submontane rain forest; 03°7'S 78°14'W, 700 m, 24 July 1976, *Rodriguez et al. 315* (IBE, K); Along road from Patuca to Santiago along Cordillera del Cucucú (southern edge), entering from main Limón-Macas road 44.6 Km N of Limón, (3.9 Km N of Bella Union and junction to Méndez), 23.1 Km E of jct; 17.1 Km E of Patuca; 02°50'52"S 08°14'18"W, 300 m, 9 September 2002, *T. B. Croat 87326* (MO); Along road between Santiago and Río Morona, 33.7 km east of Santiago. Steep slope with virgin forest; 02°58'55"S 77°48'43"W, 523 m, 10 July 2004, *T. B. Croat et al. 9735* (MO); Gualaquiza. Misión Bomboiza Salesiana, 700–800 m, *B. Sparre 19139* (S). **Napo:** Colección hecha al margen izquierda del Río Aguarico, cerca de la confluencia con Río Pavayacu, September 1981, *Bravo & P. Gómez A. 236* (QCA); Reserva Florística "El Chuncho" Payamino. Bosque primario. Bosque húmedo tropical. 5 km al NW de Coca. Estación experimental INIAP-Napo; 00°30'S 77°01'W, 250 m, 7 October 1987, *C. E. Cerón 247* (MO, QCNE); Limon Cocha, 240 m, 26 May 1993, *S. Ingram 1877* (SEL); Tena, 00°59'00"S 77°49'00"W, 29 September 1939, *E. Asplund 8897* (S); Río Cuyabeno, Puerto Bolívar-Comunidad Siona, propiedad de Victoriano Criollo, colecciones al sur de la población, bosque tropical húmedo, área colinada; 00°06'00"S 76°00'00"W, 6 July 1980, *J. L. Jaramillo & F. Coello 2854* (AAU, QCA); Along road between Francisco de Orellana (Coca) and El Auca, 34.8 km SE of Coco. Tropical moist forest; 00°37'S 76°39'W, 450 m, 5 October 1980, *T. B. Croat 50399* (MO); Orellana. Along road between Coca and Río Tiguino, ca. 1 km S of bridge over Río Napo; disturbed primary forest; 00°26'S 76°53'W, 360 m, 1 Mar 1992, *T. B. Croat 72604* (GB, MO, QCNE); Tena. Capirona village, 01°06'S 77°39'W, 400 m, 15 August 1993, *G. L. Webster 29893* (DAV). **Orellana:** Tiputini Biodiversity Station; 00°38'S 76°09'W, 200 m, 2 January 2002, *N. Köster et al. 521* (BONNMO). **Pastaza:** Along road to Llushin from Palora departing road from Palora to Río Amudalo at 5.5 km W of Palora, 2.6 km S of Río Llushin, 01°41'37"S 78°01'24"W, 870 m, 22 January 2015*, T. B. Croat et al. 105801* (ECUAMZ, MO, QCNE). **Sucumbíos:** Along road from Lumbaqui to Lago Agrio, 0.8 km E of middle of Río Aguarico bridge, forest south of road along trail to banks of Río Aguarico, disturbed primary forest; 00°03'06"N 77°17'56"W, 458 m, 4 September 2015, *T. B. Croat 106544* (ECUAMZ, MO, QCNE); Along road from Lago Agrio to Tarapoa, 43 km from jct. to Dureño E of Lago Agrio, 1.7 km E of Río Chiritza, 21 km W of Tarapoa; 00°05'04"N 76°30'35"W, 277 m, 6 September 2015, *T. B. Croat 106591* (MO, QCNE); Along road from Lago Agrio to 3.1 km W of Dureno, disturbed virgin forest on sleep slopes; 00°03'32"N 76°41'55"W, 286 m, 6 October 207, *T. B. Croat et al. 99367* (MO, QCNE, S); Gonzalo Pizarro. Parroquia Pto. Libre (San Pedro de los Cofanes) Comunidad Cofán De Sinangue, 00°08'N 77°27'W, 700–800 m, 13 April 1993, *Carlos E. Cerón et al. 2278* (QAP). **Zamora-Chinchipe:** Along road between Zamora and Gualaquiza, 29 km N of Yangzatza. Lower montane wet forest; 04°10'S

78°50'W, 890 m, 19 October 1980, *T. B. Croat 5769* (IBE, MO, QCNE); Río Nangaritza, centro Shuar Shaim. Bosque primario intervenido, 04°18'54"S 78°40'06"W, 900 m, 31 January 1997, *V. Van den Eyden et al. 917* (MO); Nangaritza, Parroquia Guayzimi, Campamento militar Miazi, al sur del Río Nangaritza, 04°16'S 78°42'W, 1060–1100 m, 21 October 1991, *C. E. Cerón et al. 17870* (QAP); Along Río Nangaritza, between Las Orchideas and Miasi, 04°17'53"S 78°39'00"W, 872 m, 17 September 207, *T. B. Croat & G. Ferry 98801* (MO, QCNE, UB); Shaime. En la unión de los Ríos Nangaritza y Numpatakaime. Bosque muy húmedo Premontano. Bosque primario; 04°20'S 78°40'W, 1000 m, 7 December 1990, *W. A. Palacios 6611* (MO, QCNE); Nangaritza, Región de la Cordillera del Condor. Parroquia Surmi. Sector Hito el "Empalme". Comunidad Yawi; 04°28'16"S 078°39'09"W, 1200 m, 8 June 2005, *Quizhpe et al. 1224* (Loja, MO)' Shaime. Frente a destacamento Militar. Márgen derecha del Río Nangaritza. Bosque primario. Suelos con 20 % de pendiente, 20 cm de profundidad; 04°18'S 78°43'W, 930 m, 27 October 1991, *W. A. Palacios et al. 8711* (MO, QCNE). **PERU**. **Amazonas:** near Huampama, near Chavez Valdivia, *A. Kujikat 312* (MO); Río Cenepa; "La Banda", Huampami; trailside; secondary forest; 960 f, 7 October 1972, *B. Berlin 185* (MO); Banda oeste del Río Santiago, 1 km bajo de La Poza, monte virgen; 04°01'30"S 77°46'33"W, 180 m, 21 August 1979, *F. Domínguez Peña 128* (MO); Bagua. Kampaensa Bosque Primario; 04°55'S 78°19'W, 320 m, 20 October 1995, *R. Vásquez 20344* (MO); Dist. Imaza, Kampaensa. Bosque Primario; 04°55'S 78°19'W, 320 m, 22 October 1995, *R. Vásquez 20395* (MO, NY); Condorcanqui. Río Cenepa region. Trail north of Cenepa, toward headwaters of Kayamas Creek, between mouth of Huampami; 04°28'S 78°10'W, 600–800 ft, 18 July 1974, *B. Berlin 1744* (MO); Río Cenepa. Vicinity of Huampami, ca. 5 km. east of Chávez Valdívia; 04°30'S 78°38'W, 200–250 m, 25–31 July 1978, *E. Ancuash Atsut 1169* (MO); Río Cenepa. Vicinity of Huampami, ca. 5 km. east of Chávez Valdívia. Al lado de su casa de Vicente, Quebrada Apigkan entsa. En bosque primario; 04°30'S 78°38'W, 200–250 m, 8 March 1978, *E. Ancuash Atsut 1288* (MO); Río Cenepa. Quebrada Wampusik entsa. Monte, secondario chacra; 04°30'S 78°30'W, 800–900 ft, 5 August 1974, *E. Ancuash Atsut 725* (GH, MO); Río Cenepa. Quebrada Shimpunts. Chacra al lado de Shimpunts; 05°13'51"S 78°7'43"W, 800–1100 f, 21 February 1973, *E. Ancuash Atsut 13* (MO); Alrededor de la comunidad Kusu, Río Numpatkin. Río Cenepa drainage system. Monte orilla de Chapis; 04°55'00"S 78°19'00"W, 1100–1300 f, 10 March 1973, *E. Ancuash Atsut 74* (MO); Huampami, Río Cenepa; 04°28'S 78°10'W, 198–213 m, 22 August 1976, *J. S. Boster 50* (MO); Distrito El Cenepa, Comunidad de Mamayaque, Río Cenepa, Quebrada Sáasa. Bosque primario; 04°37'08"S 78°13'46"W, 400 m, 6 February 1997, *R. Vásquez et al. 22384* (MO); Distrito El Cenepa, Comunidad de Tutino, Pumpu-entsa. Bosque primario, suelo arcillo-arenoso; 04°34'05"S 78°11'53"W, 340 m, 26 June 1997, *R. Vásquez et al. 24241* (MO); Distrito El Cenepa, Comunidad de San Antonio. Bosque de ribera, Río Cenepa; 04°29'30"S 78°10'30"W, 300 m, 22 June 1997, *R.*

*Vásquez et al. 24125* (MO); Río Cenepa region. Monte al lado de Huampami; 04°28'S 78°10'W, 800 - 850 ft, 29 July 1974, *R. Kayap 1359* (MO); Río Cenepa region. Alrededor de la communidad Kusu, Río Numpatkin. Monte y chacra al lado de Kusu, 04°55'S 78°19'W, 1100–1300 ft, 10 March 1973, *R. Kayap 515* (MO, US); Río Cenepa region. Quebrada de Bashuchunuk. Monte y chacra al lado de Quebrada Huampami; 04°27'57"S 78°09'12"W, 17 January 1973, *R. Kayap 139* (MO); Valle del Río Santiago. Quebrada Caterpiza, 2-3 km atrás de la comunidad de Caterpiza. Monte virgen; 03°50'S 77°40'W, 180 m, 16 February 1980, *S. Tunqui 904* (MO); Monte virgin, 2 km. atrás de la comunidad de Caterpiza, trocha de metayar, banda este de la Quebrada Caterpiza, Río Santiago; 03°55'00"S 77°42'00"W, 200 m, 11 October 1979, *V. Huashikat 886* (MO); Monte virgin, 2 km. atrás de la comunidad de Caterpiza, banda este de la Quebrada Caterpiza, Río Santiago. Aprox. 65 km. al norte de Pinglo; 03°55'00"S 77°42'00"W, 200 m, 12 February 1980, *V. Huashikat 2060* (MO); Monte virgin, 1 km. atrás de la comunidad de Caterpiza, trocha de mitayar, banda este de la Quebrada Caterpiza, Río Santiago; 03°55'00"S 77°42'00"W, 200 m, 20 September 1979, *V. Huashikat 731* (MO); Monte Virgin, 2 km. atrás de la comunidad de Caterpiza, banda este de la Quebrada Caterpiza, Río Santiago. Aprox. 65 km al N de Pinglo; 03°55'S 77°42'W, 200 m, 14 March 1980, *V. Huashikat 2256* (MO); Monte virgin, 2 km. atrás de la comunidad de Caterpiza, banda este de la Quebrada Caterpiza, Río Santiago. Aprox. 65 km. al norte de Pinglo; 03°50'00"S 77°40'00"W, 200 m, 19 March 1980, *V. Huashikat 2305* (MO); Monte virgin, 2 km. atrás de la comunidad de Caterpiza, banda este de la Quebrada Caterpiza, Río Santiago. Aprox. 65 km. al norte de Pinglo; 03°50'00"S 77°40'00"W, 200 m, 15 March 1980, *V. Huashikat 2287* (MO); Monte virgin, 2 km. atrás de la comunidad de Caterpiza, banda este de Quebrada Caterpiza, Río Santiago. Aprox. 65 km. al norte de Pinglo; 03°55'S 77°40'W, 20 m, 24 March 1980, *V. Huashikat 2342* (MO); Monte virgin, 800 m. cerca de la comunidad de Caterpiza, banda este de la Quebrada Caterpiza, Río Santiago; 03°55'11"S 77°44'29"W, 200 m, 04 September 1979, *V. Huashikat 393* (MO); Valle del Río Santiago, aprox. 65 km N de Pinglo. Quebrada Caterpiza, 2–3 km atrás de la comunidad de Caterpiza, 200 m, 29 January 1980, *V. Huashikat 1867* (MO). **San Martín:** Lamas. Along road between Tarapoto and Moyobamba, ca. 10 km NW of Tabalasos, 06°15'S 76°43'W, 500 m, 7 November 1980, *T. B. Croat 51168* (MO); San Martín. Proyecto TAKIWASI. Bosque secundario, sobre recas; 700 m, 29 March 1991, *J. Celedonia Ruiz M. & J. Campos de la Cruz 1681* (MO); Km 46 of Tarapoto-Yurimaguas road. Tropical wet forest 06°24'S 76°18'W, 350 m, 30 August 1986, *S. Knapp & J. Mallet 8191* (MO, USM, US).

***Rhodospatha kessleri*** Croat**, sp. nov.** — Type: BOLIVIA. La Paz: Prov. Sud Yungas: Alto Beni, near Colonia Cascada, 830 m; 19 January 1999, *Seidel et al. 8301* (holotype, MO-5576466, MO-6596675; isotype, LPB). (**Figs. 138–139**).

**Diagnosis:** *Rhodospatha kessleri* is characterized by its elongated internodes; petioles sheathed to the geniculum with the sheath persistent and drying medium yellowish brown with a dark brown margin; markedly inequilateral blades drying gray-green adaxially and yellow-green abaxially and with 18–22 pairs of primary lateral veins; and large inflorescence with the spadix to 21 cm long.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 2–3.3 cm long, drying dark brown, minutely and finely granular, 8–12 mm diam.

**Leaves: petioles** 18–29 cm long, sheathed to or almost to the geniculum, drying medium yellowish brown with a dark brown, intact margin; **blades** oblong-elliptic, 24–36.5 cm long, 12–18.5 cm wide, 1.9–2 times longer than wide, 1.2 times longer than petioles, markedly inequilateral, one side 1–2.5 cm wider, caudate-acuminate at apex, markedly inequilateral at base, one side acute to obtuse, the other rounded or slightly cordulate, drying medium gray-brown and matte adaxially, moderately paler, yellow-brown and semiglossy abaxially; **midrib** drying sulcate and concolorous adaxially, much thicker than broad and slightly paler abaxially, drying finely striate, yellowish brown, slightly darker than surface abaxially; **primary lateral veins** 18–22 per side, 6–12 mm apart, faint, departing midrib at a moderately steep angle then spreading at 70–90°, usually drying brownish, usually somewhat lighter than surface**,** drying markedly undulate; **interprimary veins** barely visible; **abaxial surface** drying with fine, dense, interrupted ridges but lacking pale short lines.

**Inflorescences: peduncle** 22–27 cm long, closely enveloped for most of their length by a prophyll to 19–25 cm long, drying dark brown; **spathe** not seen; **spadix** 11–21 cm long, 1.2–2.4 cm diam.; drying dark brown.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha kessleri* is endemic to Bolivia, known only from lower slopes of the Bolivian Andes in the Departments of La Paz and Beni at 450–830 meters.

**Etymology:** The species is named in honor of Michael Kessler who collected the first collected this specie in 1997.

**138.** *Rhodospatha kessleri* (*Seidel et al. 8301*, MO-5576466). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**139.** *Rhodospatha kessleri* (*Seidel et al. 8301*, MO 6596675). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**Comments:** This species is easily confused with *Rhodospatha amazonensis*, which also occurs in Bolivia, but this latter species differs in having the primary lateral veins drying darker than the abaxial surface abaxially while *R. kessleri* has veins typically paler than the abaxial surface. The lower dried abaxial surface of *R. amazonensis* has minute, close, intermittent ridges; in contrast, the abaxial surface of *R. kessleri* is smooth.

**Paratypes**: **BOLIVIA. Beni:** Gral. Ballivian, 12 km por el camino madrero, al SW del km 12 Yucumo-Rurrenabaque. Bosque siempre verde, virgen de 25 m de altura, 15°04'S 67°7'W, 450 m, 21 July 1997, *M. Kessler, J. Gonzales, K. Bach, I. Jiménez & A. Portugal 10710* (LPB, MO). **La Paz:** Sud Yungas, Alto Beni, Colonia Tupiza, camino a la Parcela III. Bosque siempre verde, virgen de 30 m de altura, 15°31'S 67°17'W, 600 m, 7 July 1999, *T. Krömer & A. Acebey 558* (LPB, MO); *T. Krömer & A. Acebey 559* (LPB, MO); Alto Beni, Colonia Tarapaca, parcela II, subparcela F. bosque siempre verde, poco disturbado de 25 m de altura, 15°32'S 67°21'W, 625 m, 14 May 1999, *T. Krömer & A. Acebey 404* (MO); 15°32'S 67°20'W; Alto Beni, Sapecho, Concesión de la Cooperativa Sapecho. Bosque siempre verde, virgen de 18 m de altura. Pacela I, 610 m, 27 October 1997, *Krömer et al. 34* (MO); *T.* Franz Tamayo, Parque Nacional Madidi, Refugio Chalalán, Campamento Eslabon y alrededores, al otro lado del río cerca del Campamento. bosque siempreverde, virgen pie de monte, 14°27'S 67°50'W, 350 m, 27 April 2000, *T. Krömer 1125* (LPB, MO).

***Rhodospatha killipii*** Delannay & Croat, **sp. nov.** — Type: PERU. Junín: Cahuapanas, on Río Pichis; dense forest, 340 m, 20–21 July 1929, *E. P. Killip & A. C. Smith 26764* (holotype, NY; isotype, US). (**Fig. 140**).

**Diagnosis:** *Rhodospatha killipii* is characterized by its small size; elongated internodes; fully sheathed petioles; thick ribbed-granular sheaths; ovate-elliptic to sub-elliptic blades drying reddish brown and densely pale-speckled on the abaxial surface and widest proximal of the middle; and small inflorescences drying brown with rounded-prismatic styles drying grayish and large, oval stigmas.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 3.0–3.5 cm long, ca.1 cm diam.

**Leaves: petioles** 22–27 cm long, drying reddish brown, sheathed to the geniculum; **sheath** drying thick ribbed-granular, persisting intact; **geniculum** ca. 1 cm long; **blades** ovate-elliptic to sub-elliptic, 21.5–24.0 cm long, 12.0–12.5 cm wide, 1.7–1.9 times longer than wide, inequilateral,

**140.** *Rhodospatha killipii* (*Killip & Smith 26764*, NY). Holotype showing petiole, leaf blade (abaxial surface), and post-anthesis spadix.

obtuse and short-acuminate at apex, inequilateral, obtuse and slightly decurrent at base, broadest proximal of middle, drying greenish gray and matte adaxially, medium reddish brown abaxially; **midrib** drying sunken with a pale medial strip, the side obtusely raised, entirely minute-granular adaxially, broadly raised, densely granular, darker abaxially; **primary lateral veins** weakly raised and paler and densely granular adaxially, narrowly rounded, darker and essentially smooth abaxially, 13 per side on prophyll blade and spaced 8–12 mm, departing midrib at 45–50°, 22 per side on cauline leaf, spaced 8–10 mm apart, departing midrib at 65–75°, **interprimary veins** faint, with one minor vein running in parallel between them and the primary lateral veins; cross-veins present but moderately obscure.

**Inflorescences: peduncle** ca. 13 cm long, drying reddish brown, enclosed by a reddish brown-drying prophyll for most its length; **spathe** not seen; **spadix** short-stipitate, straight, ca. 11 cm long, 6–9 mm diam., drying dark brown; stipe ca. 6 mm long, bluntly ribbed, densely granular.

**Flowers: styles** rounded-prismatic, 1.2–1.4 mm wide at broadest, grayish-drying, matte, truncated; **stigmas** oval, 0.3–0.4 mm wide, drying black, mostly glossy, the medial slit usually easily visible.

**Infructescences:** not seen.

**Distribution and ecology:** The species is endemic to Peru, found only in Junín Department at 340–375 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named in honor of Ellsworth P. Killip who collected the only known specimens of the species with A. C. Smith in 1929.

**Comments:** Because of its small size and drying reddish-brown, *Rhodospatha killipii* is unique. *Killip 26577*, a sterile specimen collected at about the same time at a nearby location, differs by its more elliptic blades widest near the middle and different venation pattern. The differences in these two leaves are the result of their origin, with one leaf appearing on the prophyll while the second leaf was no doubt a cauline leaf, collected from more proximally on the stem.

**Paratypes: PERU.** Puerto Bermudez, 375 m; 14–17 July, 1929, *Killip & Smith 26577* (US)

***Rhodospatha knappiae*** Croat, Aroideana 47(1): 43–190. 2024 — Type: PANAMA. Chiriquí: Trail west from Fortuna Dam Camp to La Fortuna, broadleaf cloud forest; 08°44'N

82°16'W, 1300 m, 28 February 1985, *R. J. Hampshire & C. Whitefoord 170* (holotype, MO-5447297; isotype, BM). (**Figs. 141–144**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** typically short near apex but to about 1.0–1.5 cm long more proximally, often drying light brown with close transverse fissures.

**Leaves:** distichously arranged, long-petiolate; **petioles** 13.5–39.0 cm long, sheathed to the geniculum; **geniculum** drying much darker, 1.5–3.0 cm long; **sheath** mostly deciduous, sometimes with elongate fragments, sometimes with fibers especially near the base; **blades** oblanceolate to elliptic-oblanceolate, 25.5–57.3 cm long, 7.2–14(18.7) cm wide,(1.6) 2.7–4.9(5.4) times longer than wide, (0.7)1.0–2.7 times longer than petioles, inequilateral (one side 1.0–1.5 cm wider), abruptly acuminate at apex, inequilaterally rounded at base, dark green and matte adaxially, paler and semiglossy abaxially, drying dark brown to dark gray-brown and weakly glossy adaxially, somewhat paler and yellowish brown to grayish yellow-brown and semiglossy abaxially; **midrib** sunken and concolorous adaxially, narrowly raised and slightly paler, densely granular, matte and somewhat rufescent abaxially; **primary lateral veins** 28–32 per side, departing midrib at 45–65°, usually with a distinct **interprimary vein** and 1 or 2 minor veins between the primaries.

**Inflorescences:** short pedunculate; **peduncle** 8–21 cm long, ca. 5 mm diam.; **spathe** white, 12–19(23) cm, 5–6 cm wide, long-acuminate at apex; **spadix** white to yellowish, 10.2–15.5(18.5) long.

**Infructescences:** not seen.

**Fruits:** yellow, to 5 mm long.

**Distribution and ecology:** *Rhodospatha knappiae* ranges from Costa Rica on the Caribbean slope of the Cordillera de Tilarán, Cordillera Central and Cordillera de Talmanca, to Panama (Bocas del Toro, Chiriquí, Veraguas, and Coclé Provinces), at 200-1500 m elevation in a *Premontane Rain Forest* life zone.

**Comments:** *Rhodospatha knappiae* is seemingly most closely related to *R. wendlandii* but that species differs by having stems longitudinally ridged; blades more nearly elliptic, 0.9–3.1 times longer than wide, and larger, typically 36–75 cm long and 15–35 cm wide, and with 28–52(70) primary lateral veins per side; longer petioles, typically 30-80 cm long; and longer spadix (13–26 cm long). Also, the dried blades of *R. wendlandii* dry typically dark brown on the abaxial surface.

**141 (left).** *Rhodospatha knappiae* (*Croat 74802*). Live plant showing stem, petioles, and leaf blades (adaxial surface). **142 (right).** *Rhodospatha knappiae* (*Croat 74768*). Live plant showing stem, petioles, leaf blades (adaxial surface), and inflorescence at anthesis with spathe still attached to spadix.

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Three sterile collections, *Ortiz 1462* and *Espinosa 6137* from lowland Coclé Province and *O. Ortiz 1529* from lowland Colón Province, are from very low elevations (172-200 m and 270 m, respectively) and might prove to be another species; however, they show no clear distinction from *R. knappiae*.

A collection from Costa Rica, *S. Martén 969* from Heredia Province at Horquetas de Sarapiquí in the Reserva Rara Avis at 700 m, is unusual for the species in having the petiole sheaths drying intact. It otherwise falls within the range of variation of *R. knappiae*.

**143.** *Rhodospatha knappiae* (*Churchill et al. 4808*, MO-3670514). Specimen showing petioles, leaf blades (adaxial and abaxial surfaces), post-anthesis spadix, immature inflorescence, and fallen spathe.

**144.** *Rhodospatha knappiae* (*Taylor & Skotak 4804*, DUKE-309042). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and young inflorescence with spadix enclosed in the spathe.

*Croat 60404* from the Fortuna Dam area on the Caribbean slope north of the Continental Divide at 820 m is unusual in have broader than normal leaf blades, which dry dark brown, but it otherwise fits well in *R. knappiae* in its transversely fissured stem.

**Other Specimens Seen: COSTA RICA. Alajuela:** Canyon of Río Cariblanco and W slope and summit of ridge between Río Cariblanco and Quebrada Quicuyal, SW of Cariblanco, 10°15'36"N 084°12'00"W, 840 - 950 m, 22 January 1986, *M. H. Grayum et al. 6182* (MO); 800–1000 m, 10 March 1985, *C. M. Taylor & C. Skotak 4804* (DUKE); **Heredia:** Horquetas de Sarapiqui. Reserva Rara Avis. Sendero Guácimo; 10°17'03"N 084°02'47"W, 700 m, 23 July 1995, *Silvana Martén 969* (CR). **PANAMA. Bocas del Toro:** On route from Gualaca to Chiriquí Grande along the oil pipeline just north of the continental divide; in forest W of pipeline rd at end of drivable road; 8º'46'N, 82º17'W], 08°49'N 082°13'W, 850 - 950 m, 08 March 1986, *B. E. Hammel et al. 14702* (MO); 3 km W from dirt road 50 m before Bocas del Toro/Chiriquí border from Fortuna/Chiriquí Grande road, then off foot path to W; 08°46'48"N 082°14'00"W, 1000 m, 25 April 1993, *D. R. Hodel et al. 1244* (MO); Gualaca-Chiriquí Grande, 1.6 mi N of Continental Divide; 08°48'N 082°13'W, 850 m, 29 March 1993, *T. B. Croat 74932* (MO); Along road between Fortuna Dam and Chiriquí Grande, along gravel road which departs main hwy. near Continental Divide (4.5 mi N of bridge over Fortuna Lake), just S of border with Bocas del Toro Province. [Coordinates on original label: 08º44'N, 82º17'W], 08°47'06"N 082°13'18"W, 1170 m, 22 June 1987, *T. B. Croat 66654* (MO); Cerro Colorado, 6.5 mi W of Chamé. Steep forested slopes N of road, 08°35'N 081°50'W, 1630 m, 07 July 1988, *T. B. Croat 69144* (MO); Along Continental Divide from road branching N off main Fortuna-Chiriquí Grande Highway near Continental Divide, 1.1 miles from main highway; 08°44'N 082°17'W, 1200 m, 11 March 1985, *T. B. Croat & M. H. Grayum 60324* (CR, HUA, MO, PMA), *60352* (MO, PMA); Along highway, between Fortuna and Chiriquí Grande, 2.2 mi N of Continental Divide, 6.3 mi N of bridge over Fortuna Lake. 08°46'06"N 082°12'30"W, 820 m, 12 March 1985, *T. B. Croat & M. H. Grayum 60404* (MO, PMA, US); **Chiriquí:** La Fortuna dam area, north of dam; along Quebrada Arena downstream from road crossing; in swampy forest along stream near continental divide; 08°46'N 082°14'W, 1000 m, 10 February 1986, *B. E. Hammel 14436* (MO); Vicinity of Fortuna Dam. Above lake; 08°45'N 082°15'W, 1100 m, 06 August 1986, *G. McPherson 9839* (MO); Fortuna Dam area, N of reservoir. Quebrada Bonito to E of road; 08°45'N 082°13'W, 1100 m, 23 May 1984, *H. W. S. Churchill 5252* (MO); Fortuna Dam area. Along Quebrada Bonito to E of road; 08°45'N 082°13'W, 1100 m, 08 February 1984, *E. H. S. Churchill et al. 4808* (MO); SE of Fortuna Lake. Forest near mouth of Río Hornito; 08°45'N 082°13'W, 1150 m, 4 March 1985, *Rachel J. Hampshire & Caroline Whitefoord 304* (MO); near La Sierpe, ca. 0.5 km N of Río Chiriquí. IRHE Fortuna Hydroelectric Project; 08°46'N 082°12'W, 1000 - 1100 m, 11 May 1982, *Sandy Knapp 5056* (MO, US); Near site of dam, lower slopes of Cerro Fortuna. IRHE Fortuna

Hydroelectric Project; 08°44'59"N 082°14'40"W, 1150 m, 18 June 1982, *S. Knapp & M. R. Vodicka 5575* (MO); Gualaca-Chiriquí Grande, 7.2 miles beyond Los Planes de Hornito; 08°44'N 082°14'W, 1165 - 1200 m, 19 September 1987, *T. B. Croat 67842* (MO); Gualaca-Chiriquí Grande 8.0 miles beyond Los Planes de Hornito; 6.9 miles beyond road turnoff to Caldera, 1.4 miles to W of Centro de Operaciones; along trail to Río Hornito and metereological station; 08°44'00"N 082°14'30"W, 1010 - 1130 m, 21 September 1987, *T. B. Croat 67916* (MO); Vicinity of Fortuna Dam in valley of Río Chiriquí; along aqueduct trail for water supply for IRHE facilities; 08°45'N 082°18'W, 1100-1200 m, 21 June 1987, *T. B. Croat 66591* (MO), *66594* (MO); Fortuna Lake Area, along road which departs from just S of the Continental Divide, 1 mi W to near where road ends, then along trail that follows the Continental Divide; 08°44'N 082°17'W, 1200 m, 29 March 1993, *T. B. Croat 74966* (MO); Along highway between Gualaca and Chiriquí Grande, along boundary trail between Bocas del Toro Province and Chiriquí Province, beginning from gravel road which leads W off main pavement just S of Continental Divide, 08°45'N 082°18'W, 1170 - 1250 m, 26 June 1987, *T. B. Croat 66842* (B, F, MO, NY); Along road between Fortuna Lake and Chiriquí Grande; 4.5-5 km N of dam over Fortuna Lake, 08°45'N 082°13'W, 1100 - 1135 m, 08 March 1985, *T. B. Croat 60071* (MO); Palo Santo, 3 miles N of Volcán; 08°48'48"N 082°40'12"W, 1350 m, 19 February 1971, *T. B. Croat 13582* (MO); Along the road to the Fortuna Dam site, N of Gualaca, 22.7 mi beyond the bridge over the Río Está, 11.8 mi N of Los Planes de Hornito, 10.7 mi N of jct. to tunnel; 08°42'20"N 082°13'50"W, 1400 m, 26 November 1979, *T. B. Croat 48667* (MO); Gualaca-Chiriquí Grande, vicinity Lago Fortuna, along trail to meteorological station on Río Hornito departing from highway N side, ca. 0.5 km S of Centro de Cientificos. 08°45'N 082°18'W, 1000 m, 24 July 1994, *T. B. Croat & G. H. Zhu 76389* (MO, PMA); Fortuna Dam Area, Fortuna-Chiriquí Grande, 1.8 mi NW of center of dam; 08°45'N 082°18'W, 1080 m, 27 June 1994, *T. B. Croat & G. H. Zhu 76498* (MO, PMA); Fortuna Dam Area, Fortuna-Chiriquí Grande, 5.3 miles N of center of Fortuna Dam, then 1.4 miles W along gravel road to Continental Divide Trail. 08°44'N 082°17'W, 23 June 1994, *T. B. Croat & G. H. Zhu 76342* (MO, PMA); Gualaca. Reserva Forestal Fortuna. Division Continental; 08°48'09"N 082°11'55"W, 961 m, 06 marzo 2014, *O. O. Ortiz et al. 2118* (MO); **Coclé:** El Copé. Forest on continental divide above town. 8º38'N, 80º38'W], 08°40'30"N 080°37'45"W, 700 - 900 m, 27 April 1985 - 29 April 1985, *B. E. Hammel 13657* (MO); Parque Nacional Omar Torrijos. La Rica. Bosque cercano al Río Juan Julio. 08°42'43"N 080°35'30"W, 200 m, 22 J. 2013, *O. Ortiz 1452* (MO, PMA); 5.5 mi N of El Copé: trail along Continental Divide. [Coordinates on original label: 08º38'N, 080º35'W], 08°40'24"N 080°35'48"W, 850 m, 07 April 1988, *Sue A. Thompson 4721* (CM, MO); La Mesa, above El Valle de Antón, ca. 2 km W of Cerro Pilón on slopes of steep hill; 08°37'30"N 080°07'30"W, 860 - 900 m, 21 July 1976, *T. B. Croat 37321* (MO); Near continental divide along lumber road 5.2 mi N of El Cope, 1.5 mi N of lumber camp. Cloud forest on steep slopes,

08°40'20"N 080°35'44"W, 900 m, 19 January 1978, *T. B. Croat 44571* (MO), *44590* (MO); Vicinity of La Mesa, N of El Valle de Antón, along steep slopes above water reservoirs, ca. 1 km W of road between Finca Mandarinas and Finca Furlong. 08°38'N 080°09'W, 800 - 900 m, 12 July 1987, *T. B. Croat 67198* (MO, US); El Valle de Antón Region, at La Mesa, 3.2 mi above El Valle. Small patch of cloud forest on flat area, 0.1 km E of Finca Macarenita. 08°36'N 080°07'W, 775 m, 25 March 1993, *T. B. Croat 74802* (B, BM, BRIT, COL, CR, EMP, F, K, M, MEXU, MO, NY, PMA, S, TEFH, TEX); Alto Calvario along summit of Continental Divide, 5.5 mi N of El Copé; 3.5 mi N of Escuela Barrigón. 08°40'11"N 080°35'37"W, 850 m, 13 September 1987, *T. B. Croat 67579* (MO, PMA); Vicinity El Valle de Antón, La Mesa, base of Cerro Gatital, 5 mi N of turn-off to La Mesa in El Valle. 08°37'N 080°08'W, 860 m, 07 July 1994, *T. B. Croat & G. H. Zhu 76700* (MO, PMA); La Pintada. Parque Nacional G. D. Omar Torrijos H. Area de Calle Larguita (Palmarazo), camino a la zona de la quebrada la Sinforosa, 08°43'10"N 080°40'39"W, 172 m, 18 J. 2013, *Álex Espinosa 6137* (MO, PMA); Parque Nacional General de División Omar Torrijos Herrera. La Rica. Bosque cercano al río Juan Julio, 08°42'43"N 080°35'30"W, 200 m, 22 J. 2013, *O.Ortiz 1462* (MO, PMA); Alto Calvario above El Copé, ca. 6 km N of El Copé; Atlantic slope, along trail which leads W off old lumber trail which leads down to Las Ricas, Limón and San Juan, 08°40'41"N 080°35'47"W - 08°41'04"N 080°35'50"W, 710 - 800 m, 22 June 1988, *T. B. Croat 68726* (MO); Vicinity of El Copé, 4.1 mi N of village in vicinity along road which leads down into lowlands, straight ahead of the end of the saw mill grounds. 08°39'54"N 080°35'21"W - 08°39'21"N 080°35'21"W, 680 - 770 m, 25 March 1993, *T. B. Croat 74829* (B, K, MO, NY, US). **Colón:** Portobelo. Parque Nacional Portobelo. Cascajal. Bajo Bonito. Bosque cercano al Camino Real. 09°30'27"N 079°32'15"W, 270 m, 15 agosto 2013, *O. Ortiz 1529* (MO, PMA); **Panamá:** Cerro Campana, 6.1 miles above Pan-American Hwy. 3.2 miles beyond park entrance and Guarda Bosque Station, 08°41'N 079°56'W, 800 m, 23 March 1993, *T. B. Croat 74768* (MO); **Veraguas:** Distrito de Santa Fe. Area propuesta para conservación. Río Belón. 08°43'06"N 080°45'22"W, 207 m, 17 December 2013, *Alvin Zapata et al. 3462* (MO); Distrito de Santa Fe. Limite Norte del Parque Nacional Sante Fe. Qda El Centro, affuente de Río Dos Brazos, próximo a Río Veraguas. 08°42'19"N 080°53'17"W, 244 m, 08 febrero 2014, *Alvin Zapata et al. 3509* (MO); Santa Fe. Above Santa Fe beyond Escuela Agrícola Interamericana, 1.8 miles beyond fork in road on Pacific slope; above rocky ravine on side of Cerro Tute. 08°30'49"N 081°02'11"W, 700 - 1000 m, 05 April 1976, *T. B. Croat 34152A* (MO); Slopes of Cerro Tute, near Escuela Agricola Alto Piedra, NW of Santa Fé; virgin forest along trail to summit, 08°30'20"N 081°07'14"W, 1000 - 1050 m, 30 November 1979, *T. B. Croat 48942* (MO); Cerro Tute region, above Sante Fé, 08°31'N 081°07'W, 800 - 1400 m, 20 March 1982, *W.J . Kress & S. Knapp 82-1420* (DUKE).

***Rhodospatha kosnipatensis*** Delannay & Croat, **sp. nov.** — Type: PERU. Cusco: Province de Paucartambo, Distrito Kosñipata, Quebrada Piñi, bosque secundario en una trocha de extracción de madera, 12°52'35"S, 71°24'32"W, 682 m, 29 October 2007, *R. Vásquez, C. Davidson, S. R. Christoph, J. Farfán, E. Suclli & A. Peña Cruz 32994* (holotype, MO-6123480; isotypes, CUZ). (**Fig. 145**).

**Diagnosis:** *Rhodospatha kosnitatensis* is characterized by its appressed-climbing, epiphytic habit; drying yellowish overall; petioles with deciduous sheaths; oblong-elliptic blades 2.7 times longer than wide, with a single pair of interprimary veins alternating with the primary lateral veins and usually with a single pair of minor veins on either side of interprimary veins, and apparently complete lack of cross-veins; and inflorescences with a white spathe and a cream spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, ca. 1.5 cm diam.

**Leaves: petioles** ca. 42 cm long, sheathed to the geniculum, drying light yellowish brown, bluntly ribbed, minutely granular, sometimes narrowly dark-streaked; **sheath** deciduous; **geniculum** ca. 3.3 cm long, drying darker brown, the margins acute, flaring, the deciduous sheath scar continued onto most of geniculum; **blades** oblong-elliptic, ca. 55 cm long, 20 cm wide, 2.7 times longer than wide, rounded at base, rounded at apex, widest above the middle, drying pale yellowish brown or greenish and weakly glossy adaxially, yellow and semiglossy abaxially; **midrib** drying yellow-brown, weakly ribbed, densely granular adaxially, darker, finely and sharply many-ribbed, conspicuously granular abaxially; **primary lateral veins** ca. 35 per side, spaced 7–13 mm, departing midrib at an acute angle, then spreading at 60°, drying weakly raised, granular, concolorous to weakly paler adaxially, moderately flattened, weakly ribbed, weakly granular, slightly darker abaxially; **interprimary veins** weak, with one minor vein running in parallel between them and the primary lateral veins and usually one weaker, often meandering vein; cross-veins barely visible when present.

**Inflorescences:** immature, drying light yellowish brown; **spathe** white, ca. 11 cm long, immature; **spadix** cream, drying black.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha kosnipatensis* is endemic to Peru, found only in Cusco Department at 682 m in a *Premontane Wet Forest* life zone.

**145.** *Rhodospatha kosnipatensis* (*Vásquez et al. 32994*, MO-6123480). Holotype showing stem, leaf blades (adaxial and abaxial surfaces), and inflorescence with cut-away spathe.

**Etymology:** The species is named for the Kosñipata District of Cusco Department of Peru, the only place where it has been found.

**Comments:**This species is unique due to it drying yellowish overall and cannot easily be confused with other species growing in the area. The only other *Rhodospatha* species found in Cusco Department is *R. latifolia*, which is very different and dries dark reddish-brown.

***Rhodospatha kraenzlinii*** Sodiro, Sert. Fl. Ecuad. Ser; Ser. 2 2:77. 1908. — Type: ECUADOR. Pichincha: Pululahua, November 1900, *Sodiro s.n.* (holotype, QPLS). (**Not illustrated**).

**Habit:** assurgent (vine-like).

**Stem: internodes** 10–12 mm long, drying 5–6 mm diam., finely ridged, somewhat golden yellow in age.

**Leaves: petioles** sheathed to within 1–2 cm of the base of the blade, equaling blade or only 1/3 as long, broadly amplexicaule at the base; **sheath** erect, entire, dark brown, finely striate adaxially; **blades** oblong-elliptic, 25–30 cm long, 8–12 cm wide, 2.5–3.1 times longer than wide, asymmetrical, briefly acuminate at apex, (the acumen 3–5 mm long), acute to obtuse at base; **primary lateral veins** 12–15 per side, widely spaced, 2.2–3.0 cm apart, alternating with 5–8 **interprimary veins**, arcuate–ascending to the margin.

**Inflorescences: peduncle** half as long as the petiole; mature spathe unknown; **juvenile spathe** ca. 10 cm long, cuspidate; **spadix** 10–12 cm long, 10–14 mm diam. midway, stipitate 10–15 mm, later to 10–15 mm long, obtuse at apex.

**Infructescenes:** not seen.

**Fruits:** prismatic–hexagonal, truncate at apex. .

**Distribution and ecology:** *Rhodospatha kraenzlinii* is endemic to Ecuador, occurring on the western slopes of the Andes in Pululahua and in the region of Angamarca. It has also been collected in Cotopaxi and Esmeraldas.

**Comments:** This species is recognized by its small size; scandent habit; petioles sheathed to within 1–2 cm of the base of the blade with the sheath erect, entire, dark brown and finely striate adaxially; and small oblong-elliptic blades with 12–15 pairs of widely spaced primary lateral veins.

**Other Specimens Seen: ECUADOR.** *Sodiro* 21 (CM, MO, US). **Cotopaxi:** November 1900, *Sodiro s.n.* **Esmeraldas:** August 1901, *Sodiro s.n.* (CM, MO, US)

***Rhodospatha latifolia*** Poepp, Nov. Gen. Sp. Pl. 3: 91. 1845. — Type: PERU. Huánuco: Monson, *Poeppig* (W, destroyed). Lectotype: Poeppig's painting in Nov. Gen. Sp. Pl., designated here. (**Figs. 146–151**).

*Rhodospatha boliviensis* Engl. & K. Krause, Bot. Jahrb. Syst. 44(Beibl. 101): 13. 1910.

*Rhodospatha blanda* Schott, J. Bot. 2:53. 1864

**Habit:** appressed-climbing epiphyte.

**Stem:** internodes 1–7 cm long, 1.0–2.7 cm diam.; dark green and semiglossy, soon gray, smooth but eventually closely and weakly transversed-fissured proximally.

**Leaves: petioles** 30–67 cm long, weakly glossy, dark green, sheathed almost to apex with sheath more or less intact and inrolled; **geniculum** and free portions broadly and acutely sulcate; **blades** ovate-elliptic, 25–51 cm long, 10–26 cm wide, 1.6–5.1 times longer than wide, 0.7–1.2 times as long as petiole, rounded at the base, obtuse at apex, subcoriaceous, weakly glossy, dark green adaxially, semiglossy and moderately paler abaxially, drying blackish brown adaxiallt, dark reddish brown abaxially; midrib deeply sunken and weakly paler adaxially, narrowly raised and moderately paler abaxially; **primary lateral veins** weakly quilted-sunken and concolorous adaxially, narrowly convex and concolorous abaxially; **interprimary veins** with 2 or 3 minor veins running in parallel on each side, with prominent cross-veins connecting them.

**Inflorescences: peduncle** 11–15 cm long, 7 mm diam.; medium green, semiglossy; **spathe** 14–15 cm long, pale green and semiglossy outside, whitish and glossy inside, flattening to 11.5 cm wide, deciduous; **spadix** 9.7–19.0 cm long, 1.0 cm diam. at base, 1.2–1.4 cm diam. midway, ca. 1.0 cm diam. tapering towards the tip, pink or pale pinkish orange, matte, stipitate 5–8 mm.

**Flowers: stigmas** dark purple.

**Infructescences:** not seen.

**Distribution and ecology**: *Rhodospatha latifolia* ranges from southern Colombia (Caquetá, Putumayo) to eastern Ecuador, Peru, Venezuela, French Guiana, Brazil (Acre), and Bolivia at 200–1900 m in *Tropical Moist, Premontane Wet, Tropical Wet and Premontane wet Forest* life zones.

**146.** *Rhodospatha latifolia* (*Croat 96800*). Flowering plant showing habit, stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**147.** *Rhodospatha latifolia* (*Croat 96800*). Flowering plant showing habit, stem, petioles, leaf blades (adaxial surface), and post-anthesis spadix.

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**Comments:** This species is characterized by its petiole sheathed nearly to apex with sheath more or less intact and inrolled; ovate-elliptic blades drying dark reddish brown and rounded at the base; and short-pedunculate inflorescences with a deciduous spathe and a pinkish spadix.

*Rhodospatha latifolia* differs from *Rhodospatha katipas* by its petioles with an entire sheath (rather than persisting as a network of fibers in the case of *R. katipas*). It also dries a darker reddish-brown color rather than being a lighter grayish brown in the case of *R. katipas*.

**Other Specimens Seen: BOLIVIA**. S. Carlos. Mapiri, 750 m, August 197, *O. Buchtien 1297* (LPB, US); **Beni:** Gral. Ballivian. Road Yucumo-Quiquibey; ca 20 km, Hill evergreen forest, 1000 m, 29 May 1990, *E. Hennipman 8280* (LPB); Along road between Rurrenabaque and Sapecho; Communidad Canaan, entering 92.4 Km SSE of Rurrenabaque, 32.6 Km SE of Piedras Blancas, 5.6 Km W off of main Rurrenabaque-Sapecho Road; 15°15'34"S 67°04'46"W, 400 m, 19 August 2000, *T. B. Croat et al. 84686* (LPB, MO); **Cochabamba:** Near Via Tunari, 16°59'38"S 65°26'03"W, 1 August 1967, *B. L. Wrigley 318* (SEL); Carrasco. Parque Nacional Carrasco, al S del Campamento

**148.** *Rhodospatha latifolia* (*Croat 96800*). Flowering plant showing habit, stem, petioles, leaf blades (abaxial surface), and post-anthesis spadix.

**149.** *Rhodospatha latifolia* (*Croat 96800*). Close-up of post-anthesis spadix.

**150.** *Rhodospatha latifolia* (*Croat 58933*, MO-3183128). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**151.** *Rhodospatha latifolia* (*Croat 106500*, MO-6885483). Specimen showing stem, petiole, leaf blade (mostly abaxial surface), and inflorescence at anthesis with spathe still attached to spadix.

Ichoa. Bosque siempre verde, virgen; 17°23'S 64°30'W, 525 m, 13 September 1997, *A. Acebey 527* (MO); 143 km antigua carretera Cochabamba-Villa Tunari, 17°7'S 65°34'W, 1300 m, 22 August 1996, *M. Kessler 7568* (LPB, MO); 141 km antigua carretera Cochabamba-Villa Tunari, 17°7'S 65°33'W, 1400 m, 24 August 1996, *M. Kessler et al. 7717* (LPB, MO), *M. Kessler 7718* (LPB, MO), *7729* (LPB, MO), *7732* (LPB, MO); Valle de Sajta, 17°08'S 64°50'W, 220 m, 01 October 1996, *M. Kessler 8712* (LPB, MO), *8724* (LPB, MO); 148 Km antigua carretera CO-Villa Tunari, 17°7'S 65°34'W, 1050 m, 1 September 1996, *M. Kessler 8050* (LPB, MO); Parque Nacional Carrasco, ladera este de la cuenca Yana Mayu; 17°23'53"S 65°14'50"W, 1100 m, 4 September 2018, *M. Zárate & F. Bayá 6370* (BOLV); Chapare. El Palmar Serrania con exposicion sud este con pendientes de hasta 35° de inclinacion. Bosque alto montano humedo, 17°05'35"S 65°29'35"W, 900 m, 2 September 2003, *E. Zurita 24* (BOLV); Localidad Santa Anita 2. 10º de pendiente, K 202011 - 8157188 UTM; 440 m, 5 September 2002, *E. Fernández 1434* (BOLV, MO); El Palmar (km 118) cerca del rió Kachimayu (Agua salada). Ladera en exposición este con 20 degrees de pendiente, con suelos poco profundos con abundante roca y materia orgánica en descomposición. La zona corresponde al subandino, con *Triplaris efistulifera* - Ladenbergia riveroana y abundantes helechos arbóreos; 17°05'10"S 65°29'15"W, 800 m, 22 December 207, *J. Teránet al. 2005*; Bajo locotal. Bosque a unos 10 km de la estacion San José. 17°08'42"S 65°46'34"W, 1300 m, 30 May 2008, *J. Terán et al. 2704* (BOLV, MO); 160 Km carretera antigua Cochabamba-Villa Tunari; 17°05'S 65°30'W, 750 m, 5 Sep1996, *M. Kessler et al. 8156* (LPB, MO); Los Guacharos. Ladera de exposicion oeste con pendiente entre 13-24 % de inclinación, 17°03'41"S 65°28'16"W, 510 m, 12 September 2003, *S. Altamirano 1398*, *1577* (BOLV); Villa Tunari, 52 km toward el Beni Isinuata, Río Isiboro. Bosque en zona de colina; 450 m, 24 November 1981, *S. G. Beck 7331* (LPB, MO); El Palmar Ladera de exposicion este con pendientes de hasta 40 ° de inclinacion, 17°05'39"S 65°29'55"W, 800 m, 4 September 2003, *T. Camacho 9* (BOLV). **La Paz:** Prov. Sud Yungas, Alto Beni, Concesion de la Cooperativa Sapecho. Bosque semideciduo, de 20 de altura, 12–15 años; 15°32'S 67°21'W, 500 m, 2 August 1999, *T. Krömer & A. Acebey 685* (LPB, MO); Abel Iturralde. Río San Antonio, 46 km de Ixiamas a Alto Madidi; 13°38'S 68°26'W, 300 m, 15 August 1997, *M. Kessler et al. 11160* (LPB, MO); Along road between Tumupasa and San José de Uchupiamonas; NW of Tumupasa along slope leading up to Parque Nacional Madidi, 5.5-5.8 Km above jct. to San José near Tumupasa; 15°45'S 67°50'W, 830–850 m, 9 August 2000, *T. B. Croat et al. 84388* (B, GOET, K, MO, UB, US); Along road between Tumupasa and Rurrenabaque, disturbed primary forest on Hacienda Chiquitos, 15.5 Km NW of Río Bene at San Buenaventura, 13.6 Km NW of San Isidro; 14°19'51"S 67°42'06"W, 290 m, 11 August 2000, *T. B. Croat et al. 84492* (CAS, F, GOET, LPB, MO, NY); Bautista Saavedra. Area Natural de Manejo Integrado Apolobamba, Wayrapata, aprox. 1 Km NE del caserio. Ladera W, pendiente 40%. Parcela evaluacion epifitas 5;

15°05'05"S 68°29'22"W, 1294 m, 21 May 2004, *F. Miranda et al. 627* (LPB, MO); Área Natural de Manejo Integrado Apolobamba, Pauje Yuyo, 1.8 km NE de la comunidad; 15°02'19"S 68°26'54"W, 1020 m, 8 September 2004, *L. Cayola et al. 1218* (LPB, USZ); Pauji-Yuyo, entre Apolo y Charazani. Bosque siempre verde, poco disturbado de 20 m de altura en quebrada; 15°02'S 68°29'W, 1200 m, 12 June 1997, *M. Kessler et al. 10061* (LPB, MO); 3 km Pauji-Yuyo, entre Apolo y Charazani. Bosque siempre verde, virgen de 20 m de altura con Dictyocaryum, Iriartea, 15°02'S 68°29'W, 1450 m, 5 June 1997, *M. Kessler et al. 9718, 9719* (MO); Pauji-Yuyo, entre Apolo y Charazani. Bosque siempreverde, disturbado de 20 m de altura, 15°02'S 68°29'W, 1450 m, 8 June 1997, *M. Kessler et al. 9916* (MO); Area Natural de Manejo Integrado Apolobamba, Calabatea, entre el camino Charazani y Apolo; 14°59'46"S 68°26'36"W, 1519 m, 29 October 2011, *T. E. Boza E. et al. 2381* (LPB); Caranavi. Serranía Bella Vista. 38 km de Caranavi hacia Sapecho. Quebrada, en bosque siempreverde; 15°40'S 67°29'W, 1500 m, 25 August 1997, *M. Kessler et al. 11428* (LPB, MO); Franz Tamayo. Parque Nacional y Área Natural de Manejo Integrado Madidi. San Jose-Bala, Chalalan, senderos Anta, Tucan y Wabucuro, 14°25'23"S 67°55'26"W, 350 m, 30 November 2004, *A. Araujo M et al. 1254* (LBP, MO, USZ); Calabatea, 44 km SW of Apolo ca 10 km S of Correo, drainage of Río Yuyo. Transect 2; 14°55'S 68°20'W, 1500–1550 m, 5 June 1990, *A. H. Gentry 70941* (LPB, MO); Campamento Alto Limón, entre Limón y Mara, en la senda entre San José y Apolo,14°18'S 68°05'W, 900 m, 15 November 1994, *N. Helme 544A* (MO); 42 km al W y 1 km al N de Rurrenabaque. Bosque pluvial, Campamento Chalalan, con elementos de bosque amazonico y bosque húmedo de llanura; 14°25'S 67°55'W, 330 m, 4 November 1994, *N. Helme 481A* (LPB, MO); Parque Nacional Madidi, refugio Chalalán, campamento Eslabón y alrededores. Al otro lado del río cerca del Campamento, 14°27'S 67°56'W, 350 m, 27 April 2000, *T. Krömer 1126* (LPB, MO); Larecaja. Copacabana (about 10 km S of Mapiri); 15°25'00"S 68°12'00"W, 850 - 950 m, 8 October 1939 - 15 November 1939, *B.A. Krukoff 11177* (F, GH, MO, NY); Nor Yungas. Along road between Caranavi and Yucumo, 37.6 Km NE of Caranavi; 15°40'37"S 67°29'34"W, 1508 m, 5 August 2000, *T. B. Croat et al. 84277* (MO); Vicinity of Sapecho, along road between Caranavi and Yucumo; alongside road NW off main road into Serrania de Marimones to Colonia Tupiza B; 15°31'25"S 67°18'31"W, 600–850 m, 7 August 2000, *T. B. Croat et al. 84339A* (MO, UB); Along road between Caranavi and Yucumo, vic. of Sapecho, along road to Colonia Tarapacá, Permanent Parcel #2, Projecto de Investigación Agro Forestal (RAF), 3.9 Km; 15°31'54"S 67°21'24"W, 625 m, 6 August 2000, *T. B. Croat et al. 84298* (COCH, LPB, MO, MOL); Sud Yungas. Alto Beni, Sapecho, Colonia Tarapaca. Bosque siempreverde, exp. SE, empinado; 15°32'S 067°21'W, 650 m, 29 January 1997, *A. Acebey 133* (LPB, MO); Limite de los Dptos. La Paz/Beni, Río Quiquibey. Bosque con muchas palmeras y helechos sobre tierra firme del Río Quiquibey-Río San Luis, 320 m, 28 February 1982, *S.G. Beck 8050* (MO); Along road between Rurrenabaque and Caranavi, 24.8 Km SW of middle of

bridge over Río Beni at Sapecho, Serrania de Bella Vista, 17.8 Km E of Piquendo and Río Piquendo; 15°39'59"S 67°28'19"W, 1330 m, 20 August 2000, *T. B. Croat et al. 84723* (LPB, MO); Colonia La Casada; along trail into disturbed virgin forest less than 1 Km from main Caranavi–Yucumo Road, 47.4 Km NE of Yucumo, 5.1 Km from frontier of Beni Dept; 15°24'S 67°08'W, 900 m, 8 August 2000, *T. B. Croat et al. 84349* (B, GOET, K, LPB, MO, UB, US); Alto Beni, Cocesión de la Cooperativa Sapecho. Bosque semideciduo, de 20 m de altura, 12-15 años; 15°32'S 67°21'W, 500 m, 2 August 1999, *T. Krömer & A. Acebey 682* (MO); Alto Beni Sapecho, Colonia Tupiza, parcela III. Bosque siempre verde, virgen de 20-25 m de altura; 15°31'S 67°21'W, 750 m, 1 October 1999, *T. Krömer & A. Acebey 897* (LPB, MO); Alto Beni, Sapecho, Colonia Tarapaca. Bosque siempre verde, virgen de 18 m de altura. Parcela II; 15°32'S 67°21'W, 610 m, 28 October 1997, *T. Krömer et al. 65* (LPB, MO). **Pando:** Ca. 40 km S of Río Manuripi, road between Cobija and Chive. Pueblo Luz America, 2 hours on foot, Reserva Manuripi Heath; 12°06'S 67°36'W, 200 m, 1992, *A. Perry et al. 490* (MO); Nicolas Suarez. Cobija 47 km hacia el Oeste, sobre camino antiguo via Bolpebra. Hacienda San Carlos, al norte del camino, bosque alto con algo de siringa y castaña; 11°12'00"S 69°12'00"W, 260 m, 4 October 1989, *S. G. Beck et al. 19083* (LPB, MO). **Santa Cruz:** Ichilo. Parque Nacional Amboró. Ca. 15 km (SE) up the Río Pitasama from the Río Surutú. Sandstone; 17°44'S 63°40'W, 700 m, 28 August 1985, *J.C. Solomon & S. Urcullo 14114* (LPB, MO). **BRAZIL**. PE-Ipojuca; 7 December 1972, *Andrade-Lima 72-7844* (F); 197, *Auguste F. M. Glaziou s.n.* **Acre:** Mun. Manoel Urbano: Río Purus, left bank, Seringal Santa Cruz, Colocacão Santa Cruz [Sr. Goncalves da Silva]. Terra firme forest on relatively flat terrain, 5 years after die-back of bamboo forest; 09°04'47"S 69°36'05"W, 26 November 1996, *D. C. Daly et al. 9186* (INPA, NY); Río Jurua Miry, September 1901, *Ernst Ule 5787* (K); Mun. Sena Madureira. 4 km E of Sena Madureira. Forest on terra firme; 27 September 1968, *G. T. Prance 7601* (INPA, NY); Cruziero do Sul; Río Jurua and Río Moa. Aldeota between Porangaba & Papagaio. Forest on terra firme; 18 May 1971, *P. J. M. Maas et al.13102* (INPA); Along road from Cruzeiro do Sul to Río Branco; Vicinity of INCRA (Instituto Nacional de Colinzação e Reforma Agraria) headquarters & forest reserve, about 4 km South of main Cruzeiro do Sul - Río Branco Road, departing at Km. 40; 7°38'S 72°35'W, 150 m, 19 August 1986, *T. B. Croat 62347* (INPA, MO); Municipio Porto Walter; Porongaba, along Río Juruá Mirim; disturbed primary forest on left side of river; 08°11'26"S 72°54'48"W, 230 m, 16 November 2001, *T. B. Croat 85277* (MO); Municipio of Cruziero do Sul; Along road between Cruziero do Sul and Río Branco, vicinity of INCRA (Inst. Nacional Collinizão Reforma Agnavia) headquarters and forest reserve, about 4 km South of main Cruziero do Sul - Río Branco Road, departing at km 40; 7°38'S 72°35'W, 160 m, 24 August 1986, *T. B. Croat 62619* (INPA, MO); "Municipio Canamari Amazona"; Vicinity of Floresta; downstream from Cruziero do Sul; Varsea Forest, 7°37'S 72°36'W, 150 m, 23 August 1986, *T. B. Croat 62583* (MO); Tarauacá. Complexo de florestas estaduais Mogno. Gregório e

Liberdade. Margem da BR-364; 7°53'36"S 71°39'44"W, 21 June 2006, *M. Silveira et al. 3891* (NY); **Bahia:** Mpio. de Almadina-Bahia, Rod. Almadina/Ibitupá, entrada a 7 km, Serra dos Sete-Paus, ca. 12 km da entrada. Fazenda Cruzeiro do Sul. Mata higrófila; 17 August 1997, *J. Lima da Paixão et al. 14* (NY); 13.8 km SW de Coaraci, estrada para Almadina Fazenda Sao Jose, 14°42'21"S 39°36'12"W, 650–900 m, 22 November 2005, *Lopes 362* (NY); Mpio. de Wenceslau Guimarães, Fazenda Condominio Uniao (prop. F. A. Carvalho et al.), situada na rodovia Teolândia/Jaguaquara, entre Cocão e Nova Esperanca; substrato latossolos; floresta úmida primária em estado bom, mas que sofreu extracão de madeiras de lei durante longo tempo; 13°37'S 39°40'W, 220 m, 31 May 1991, *Mayo 864* (K, MO); Mpio. Una. Km 6-7 na rodovia São José da Vitória/Una, cujo entroncamento na BR-101 se situa 34 km ao sul de Itabuna. Região de serras florestadas com mata úmida primária mais ou menos perturbada na parte superior e cacauais e pasto nos vales e nos declives inferiores; mata úmida perturbada ao longo da estrada, sem pedras ou afloramentos; 100 m, 14 May 1991, *Mayo 839* (CEPEC, MO); Mpio. Wenceslau Guimaraes. Fazenda Condominio Uniao (prop. F. A. Carvalho, F. A. Carvalho, P. C. Varvalho), situada na rodovia Teolandia/Jaguaquara, entre Cocão e Nova Esperanca; substrato latossolos; floresta úmida primária em estado bom, mas que sofreu extracão de madeiras de lei durante longo tempo; 13°37'S 39°04'W, 220 m, 1 June 1991, *Mayo 873* (CEPEC, MO); Castelo Novo, Faz. Ponta Grossa, margem da lagoa Encantada, 16 February 1968, *S.G. da Vinha 115* (CEPEC, K); Parque Nacional de Monte Pascoal; 21 Mar 1968, *S.G. da Vinha et al. 87* (CEPEC); Mata de Esperanca, 0 –50 m, 10 January 1995, *S. J. Mayo et al. 1133* (NY); Mpio. Ilheus, km 21 na rodovia Ilhéus/Itabuna, area de CEPEC (CEPLAC), Parque Zoobotanico, Quadra D, região de mata higrófila; 9 April 1991, *S. J. Mayo & T.S. dos Santos 738* (MO); Mpio. Ilhéus, km 21 na rodovia Ilhéus/Itabuna, area de CEPEC (CEPLAC), Parque Zoobotanico, Quadra D, região de mata higrófila; 9 April 1991, *S. J. Mayo & T. S. dos Santos 725* (K, MO); Km 15 na rodovia Taboquinhas/Urucuca, cujo entroncamento com a rodovia Itacaré/BR101 se acha a 1 km ao oeste de Taboquinhas, 26 April 1991, *S. J. Mayo et al. 795* (MO); Parque Nacional do Monte Pascoal/Porto Seguro Nata, 16 January 1973, *T. S. dos Santos 277* (K, US); 3 km N of Rodoviaria, Mata de Esperacai, 14°46'55"S 39°04'09"W, 50 m, 25 September 1994, *W. Wayt Thomas et al. 10621* (NY); Parque Nacional Monte Pascoal, 3 km S of entrance along road on N side of park, 16°51'S 39°24'W, 50 m, 6 February 1999, *W. Wayt Thomas et al. 12056* (NY); Almadina. Serra di Circivado. 9,8 km ao SW de Coaraci na estrada para ALmadina, dai N até a Fazenda São José. Proprietário Senhor Francisco; 14°42'21"S 39°36'12"W, 800 m, 19 April 207, *M. M. M. Lopes et al. 1240* (NY); Arataca. Rod. Arataca/Una entrada à direta no assentamento Santo Antônio 9,5 km, vicinal para a Faazenda Palmeira 8,9 km da entrada. Serra do Peito de Moça. RPPN Palmeira/IESB. Coletas efetuadas próximo ao córrego ca. 2 km da seda; 15°10'27"S 39°20'22"W, 450 m, 17 December

2005, *J. G. Jardim et al. 4842* (NY); Camacan. RPPN Serra Bonita. 9,7 km de Camacan na estrada para Jacareci. Dai 6 km SW na estrada para a RPPN e torre da Embratel; 15°23'30"S 039°33'55"W, 900 - 1000 m, 9 December 2006, *R.A.X. Borges, A. M. Amorim & R. Perdiz 300* (NY); **Espírito Santo:** Serra dos Aymones, acima de Nova Venecia. Norte do esp. Santo planta de sotobosque; 14 November 1953, *A. P. Duarte et al. 3612* (K); **Minas Gerais:** Mata. Fazenda das Antilhas. Atlantic Zone Area. Mpio. Temes; 20°53'20"S 42°01'30"W, 9 January 1936, *H. L. Mello Barreto 4018* (F); **Pernambuco:** *Andrade-Lima 30349* (F); **Río de Janeiro:** Serra da Estrella, 16 January 1886, *Auguste F. M. Glaziou 16502* (F, K, P); Sertão do Taquari, Km 164 da Rodovia Río Santos, Mata de Baixada/Mata de Encosta; 80 m, *C. Farney 2316* (RB); 1972, *D. Sucre 8577* (RB); Tocantins: Palmas, Serra do Lajeado. Fazenda tres irmaos; 2 April 1998, *Oliveira 317* (MO). **COLOMBIA**. **Caquetá:** San Jose de la Fragua, serrania de los hurumbelos, Vda. Las Palmas, perte alta del rio Yuruyaco; 01°20'55"N 76°06'11"W, 1450 m, 20 September 2000, *H. Mendoza et al. 9253* (FMB); Araracuara, en bosque alto, sobre suelo arcilloso rojizo de tierra firme; 00°37'S 72°24'W, 8 December 1991, *J. Duivenvoorden et al. 2498* (MO); Sierra de Chiribiquete, cerca del campamento base, bosque cerca del abrigo rocoso de diaclasas; 00°56'15"N 72°42'06"W, 600 m, 20 November 1992, *P. A. Palacios 2730* (MO); "Cueva de las Pinturas", 0 m, 30 November 1992, *P.A. Palacios et al. 2965* (MO); Florencia. December 1930, *E. Pérez Arbeláez 77* (US); 14.05 km SW of Florencia, Centro Investigacion Macagual [Universidad Amazonia], 01°21'00"N 75°39'23"W, 258 m, 28 August 207, *T. B. Croat 98195* (MO); Vereda Villaraz, Quebrada El Caraño, Km 20 on road to Neiva, Finca La Estrella; 01°43'34"N 75°40'06"W, 900 m, 26 August 207, *T. B. Croat & E. Trujillo 98142* (MO); **Nariño:** Nariño-Putumayo, cuenca alta de los rios Rumiyaco-Rancheria, 01°30'7"N 77°13'49"W, 750 m, 7 September 1998, *H. Mendoza 6127* (FMB); **Putumayo:** Dpto Nariño-Putumayo. Cuenca alta de los Rios Rumiyaco-Rancheria; 00°30'7"N 77°13'49"W, 750 m, 7 September 1998, *H. Mendoza 6355, 6357* (FMB); Mocoa. Correg. San Antonio, vereda Alto Campucana, Finca La Mariposa. Vertiente amazónica de Colombia; 01°12'N 76°38'W, 1350 - 1420 m, 20 April 1994 - 1 May 1994, *Fernández 11196* (COL, MO); Corregimiento de San Antonio, vereda Alto Campucana, finca La Mariposa, bosque primario dominado por Lauráceas y Meliáceas. Vertiente amazónica de Colombia; 01°12'N 76°38'W, 1400 m, 20 April 1994 - 1 May 1994, *J. C. Betancur B et al. 5351* (COL, MO); corregimiento de San Antonio, vereda Alto Campucana, finca La Marriposa, 01°12'N 76°38'W, 1350 M, 20 April -1 May 1994, *P. Franco et al. 5449* (MO); Villa Garzón. Carretera a Puerto Asis. Vertiente amazónica de Colombia; 01°10'N 76°34'W, 1350 m, 3 May 1994 - 4 May 1994, *Fernández 11348* (HUA, MO). **ECUADOR**. Selva, Shandia; 01°06'00"S 77°54'00"W, 3100 m, 14 August 1957, *H. G. Barclay 4872* (COL, MO); **Prov. Santiago-Zamora**: along R. Valladolid, around Tambo Valladolid, 2000 m, 14 October 1943, *J. A. Steyermark 54651* (NY); Along road from Puerto Carmen del Putumayo to Tarapoa, 14.3 km SW

of El Carmen, 11.6 km NE of Palma Roja, 32.8 km NE of Tipisea junction; 00°05'21"N 75°58'33"W, 233 m, 7 September 2015, *T. B. Croat 106599* (MO, QCNE); Ridge just south and west of río Itzintza. Prov. Santiago-Zamora ("Oriente"): Cordillera Cutucú; 02°40'S 78°00'W, 4500 - 5500 m, 17 November 1944 - 5 December 1944, *W. H. Camp E-1306* (MO, NY, SEL). **Azuay:** Along road from Paute to Mendez (Santiago de Mendez), 84.3 km E of Paute, 5.5 km NE of Ama Luza, vic. of junction of Río Mangan and Río Negro with Río Paute; 02°32'36"S 78°33'46"W, 1524 m, 20 May 2003, *T. B. Croat & M. Menke 89093* (CHOCO, JAUM, MO, QAP, QCNE, USM). **Guayas:** Naranjal. Reserva Ecológica Manglares - Churute. Sendero al Cerro Pancho Diablo de frente al Cerro Mate. Topografía colinada, suelo rocoso, escasa vegetación herbacea, abundante sotobosque. Transición de bosque seco a húmedo. Transectos de 50 x 2 m x 5 (0.05 HA); 02°27'S 79°35'W, 450 - 500 m, 2 January 1992, *C. E. Cerón 17936* (MO). **Morona-Santiago:** Campamento La Playa, road consruction camp, 23 km SE of San Juan Bosco; 03°16'00"S 78°26'00"W, 1050 m, 28 January 1981, *A. H. Gentry, C. Bonifaz B. & J. Loor C. 30959* (F, MO); Cantón Macas. Mirador hacia el rio Furumbumbo, limite de la propiedad de la Sra. Lusmila Vele y el Parque Nacional Sangay; 02°05'25"S 78°09'20"W, 1450 m, 29 May 2003, *C. E. Cerón 48903* (MO); 6 km E of Limón on road (under construction) to La Unión, forest remnants; 1300 m, 23 April 1985, *G. W. Harling & L. Andersson 24473* (GB, MO); Cordillera de Cutucú, western slopes, along a trail Logroño to Yaupi, in the general region; 02°46'S 78°06'W, 1200 m, November 1976, *M. T. Madison et al. 3236* (SEL); Vicinity of Huamboya, 10.5 Km west of Puyo-Macas Rd. (Hwy. 45), 6.6 Km north of Río Chiguaza; disturbed area near town; 01°36'56"S 77°59'23"W, 1015 m, 24 August 2002, *T. B. Croat 86927* (AAU, GB, MO, QCNE); Along road from Santiago to Río Morona and San José de Morona, 5 Km east of Río Morona ferry crossing; 55.3 Km east of Santiago; flood plain of Río Morona; 02°53'30"S 77°42'59"W, 300 m, 10 September 2002, *T. B. Croat 87440* (COL, MO, PMA, QCNE); Along road between Macas and Riobamba, Parque Nacional Sangay, 21.8 km W of Macas airport, 0.6 km east of 9 de Octubre, 02°13'25"S 78°14'45"W, 1662 m, 26 September 207, *T. B. Croat & G. Ferry 99227* (HUA, MO, QCNE); Along road between Gualaquiza and Indanza, 12 Km S of Indanza along river; 03°11'47"S 078°33'06"W, 1250 m, 8 September 2002, *Thomas B. Croat 87305* (CUVC, MO); Along road between Patuca and Santiago along south edge of Cordillera del Cutució, entering from main Limón-Macas road at 44.6 Km N of Limón, 3.9 Km from Bella Union and jct. to Méndez, 23.9 Km from jct; 02°51'58"S 078°14'51"W, 250 m, 9 September 2002, *T. B. Croat 87336* (MO, QCA, QCNE); Along road between Macas and Sucua, 8.1 Km south of Río Umbaino; disturbed area along pasture; 02°23'09"S 78°10'01"W, 948 m, 21 August 2002, *T. B. Croat & L. P. Hannon 86731* (MO, QCNE, UB); Along road between Palora and Yushin, departing main Palora-San Vincente de Tarqui Road, 8.7 Km NW of Palora, 3.4 Km S of Río Amundalo, 2.1 Km E on road to Yushin; 01°41'46"S 78°01'21"W, 922 m, 25 August 2002, *T. B. Croat & L. P. Hannon 86960* (MO, QCNE);

Along road between Macas and Riobamba (Guamote), 10.5 Km west of Proaño; 02°16'09"S 78°11'35"W, 956 m, 23 August 2002, *T. B. Croat & L. P. Hannon 86840* (COCH, HUA, LPB, MO, PMA, QCNE, US, WU); Along route E-40 from Santiago to Puerto Morona and San José de Morona. Just E of Río Morona near Km marker 139.5, 48.0 km E of Santiago flat area of forest near Río Morona; 02°55'22"S 77°43'31"W, 201 m, 18 January 2015, *T. B. Croat et al. 105729* (ECUAMZ, MO, QCNE); Along road between Macas and Riobamba, between Proaño and Parque Nacional Sangay, 28.6 Km west of Proaño; 02°14'31"S 78°16'40"W, 1659 m, 13 August 2002, *T. B. Croat et al. 86548* (CUVC, ECUAMZ, LAMU, MO, QCNE, S); Along road between Santiago and Río Morona, 33.7 km east of Santiago. Steep slope with virgin forest; 02°58'55"S 77°48'43"W, 523 m, 10 July 2004, *T. B. Croat et al. 9709* (MO, QCNE); Along road into Cordillera del Condor departing from Chuchumbleza, then 6.8 km S of Chuchumbleza to Quime ferry on Río Zamora, then SW via Numbaime into Cordillera del Condor, 24 km SW of Río Zamora; 03°38'11"S 78°25'49"W, 1562 m, 14 July 2004, *T. B. Croat et al. 91026* (MO, QCNE); Gualaquiza. Along Río Bomboiza at bridge on road from Gualaquiza to Nueva Targuí; 03°26'S 78°36'W, 1300 m, 6 March 1992, *T. B. Croat 72747* (CUVC, MO, PMA, QCNE); Limón Indanza. Cordillera del Cóndor. Densely forested ridge on sandstone substrate, south of Río Warints, east of main ridge of Cordillera del Cóndor; 03°13'54"S 78°15'10"W, 1190 m, 13 December 2002, *D.A. Neill et al. 14128* (QCNE); Cordillera de Huaracayo, east of Cordillera del Cóndor and Río Coangos. Forest on sandstone ridge, east of Shuar village of Tinkimints; 03°15'44"S 78°12'01"W, 1380 m, 25 March 2001, *D. A. Neill & J. M. Manzanares 13200* (QCNE, MO); Logroño. Cordillera de Cutucú. Parroquia Yaupi. Centro Shuar Tumpaim, en la Cordillera Kaja Naint, al sur de la comunidad. Bosque maduro en crestas de colinas; 02°44'14"S 77°55'21"W, 1100 m, 10 January 207, *A. Wisum 876* (ECUAMZ, LOJA, MO); Región de la Cordillera de Cutucú. Centro Shuar Tumpaim. Cordillera de Kayanaim, en la base del cerro. Bosque húmedo tropical. Transecto de inventario de vegetación. y premontano; 02°42'S 77°55'W, 600 m, 15 December 2003, *G. Toasa 9478* (QCNE); Morona. Cordillera de Cutucú. Centro Shuar Angel Roubi. Bosque maduro, dosel 35 m. especies dominantes: Dacryodes, Wettinia maynensis, 02°20'S 78°04'W, 1150 m, 3 February 2002, *G. Toasa & F. Nicolalde-Morejón 8830* (MO, QCNE); Cordillera del Cutucú, along road to Macuma, departing main Puyo-Macas Hwy 22.9 km N of turnoff to Sevilla, ca. 1 km E of Río Macuma, steep forested slopes above road; 02°06'57"S 77°49'04"W, 889 m, 28 November 2008, *T. B. Croat 10725* (MO, QCNE); Shuar indigenous territory, on lower slopes of Cordillera de Cutucú, vicinity of San Pedro, S of Sevilla Don Bosco, ca. 13 km from Sevilla, SE of Shimpis, 7 km from junction to Sacrado Corazon, 11.1 km from Río Yuquipa, 4 km E of Palmeras; 02°23'41"S 77°05'10"W, 927 m, 01 December 2008, *T. B. Croat, L. Mayacu & M. Ujukam 100850* (LAMUA, MO, QCNE). **Napo:** Reserva de Producción Faunística Cuyabeno. N of Laguna Grande. Hectare plot no. 1. Tropical rainforest on terra firme, 00°00'S 76°12'W, 265 m, 11 April 1988 - 10

June 1988, *A. D. Poulsen 76140, 78541, 78678, 78680, 78903, 79049, 79070, 79299, 80062, 80125, 80185, 80700* (AAU, QCA); Reserva Biológica Jatun Sacha. Río Napo, 8 km abajo de Misahuallí; 01°04'S 77°36'W, 450 m, 17 January 1987 - 06 February 1987, *C. E. Cerón 687* (MO, QCNE); Cantón Archidona. Carretera Hollín-Loreto. Río Huataraco. Dos horas a pié por bosque primario desde la aldea de Guagua Sumaco. Transectos Hd1 y Hd2 para censo de mamíferos. Bosque muy húmedo Pre-Montano; 00°43'S 77°32'W, 800 - 1000 m, 23 August 1989 - 30 August 1989, *C. E. Cerón & M. Factos 7611* (MO, QCNE); Parque Nacional Yasuní. Pozo Amo 2. Bosque húmedo tropical. Bosque primario. Trochas de Amosur; 00°52'S 76°05'W, 230 m, 09 January 1988 - 13 January 1988, *C. E. Cerón & F. Coello 3256, 3265* (MO, QCNE); Canon de los Monos, 15 km, al North of Coca a lado del Río Coca. Hacienda de Hector Noboa. Bosque humedo tropical. Suelo fertil aluvial; 00°20'S 77°01'W, 250 m, 5 April 1985, *D. A. Neill 6302* (AAU, MO, NY); Km 3, San Miguel-Lago Agrio. Vicinity of Lago Agrio, tropical wet forest; 350 m, July 1982, *E. L. Besse et al. 1628* (F, MO, QCA, SEL); Prov. Napo-Pastaza: between Tena and Napo; 00°40'S 77°50'W - 00°59'S 77°49'W, 5 January 1940, *E. Asplund 10268* (S); Cantón Archidona. Area al sureste del Volcán Sumaco. Carretera Hollín Loreto, km 65. Huaticocha. Bosque primario. Bosque muy húmedo Tropical; 00°45'S 77°28'W, 620 m, 23 June 1989 - 28 June 1989, *F. Hurtado 2377* (MO); About 2 km NW of Santa Rosa de Quijos, disturbed rain forest; 00°57'00"S 77°28'00"W, 1500 m, 12 February 1980, *G.W. Harling & L. Andersson 16477* (GB); 2 km al oeste de Shushufindi. Bosque humedo tropical, 00°15'S 76°40'W, 300 m, 4/10/1982, *H. Balslev 2294* (AAU, NY); Reserva de Producción Faunística Cuyabeno. North of Laguna Grande. Hectare plot no. 1. Tropical rainforest on terra firme; 00°00'S 76°12'W, 265 m, 11 April 1988 - 10 July 1988, *I. H. Nielsen 76391* (AAU); Anangu, NW corner of the "Parque Nacional Yasuni". Undisturbed rain forest in the area of the terra firma SEF-line; 00°32'S 76°22'W, 300 m, 1 December 1983 - 12 December 1983, *J. Korning & K. Thomsen 47394* (AAU); Nuevo desvío de carretera que empalma Río Aguarico con vieja carretera Coca, pasando por Comunidad Sarayacu, colecciones en borde del carretero y bosque, zona tropical húmeda. Aprox. 5 km recorrido; 29 June 1980, *J. L. Jaramillo & F. Coello 2654* (AAU); Reserva Biologia Jatun Sacha, ca. 8 km ESE of Puerto Mishualli. 1º04'S, 77º37'W. Elev. 450 m; 01°04'S 77°37'W, 450 m, 7 July 1986, *J. S. Miller 2427* (MO); Reserva Biologia Jatun Sacha, ca. 8 km ESE of Puerto Misahualli. Primary forest along the Misahualli-Coca Road; 01°04'S 77°37'W, 450 m, 21 July 1986, *J. S. Miller 2556, 2558* (MO); Pompeya Sur-Iro-Parque Nacional Yasuní, km 38.7, in front of Est.de Monitoreo de Faune, ONKONE GARE, ECUAMBIETES S.A; 00°40'S 76°27'W, 250 m, 30 January 1994, *Jaramillo 1627* (QCA); Lagunas de Cuyabeno. Primary forest on elevated ground with some lower swampy parts dominated by palms; 00°01'S 76°11'W, 300 m, 25 August 1981, *J. S. Brandbyge et al. 36032, 36082* (AAU, MO); Southern border of Río Napo, 2 km W of Yuralpa. Rain forest; 00°55'S 77°21'W, 440 m, 24 June 1968, *L. B. Holm-Nielsen & S. Jeppesen 975*

(AAU); Union of Río Borja and Río Quijos, W bank; 00°25'S 77°49'W, 1750 m, 19 September 1980, *L. B. Holm-Nielsen et al. 26091* (AAU); Cerro Antisana, 5 miles NE of Borja, 00°30'S 78°00'W, 1615 m, *P. J. Grubb 1091* (K); Yasuní National Park. Primary lowland rain forest close to Estacíon Científica Yasuní, 00°40'S 76°23'W, 200 - 250 m, 8/14/1998, *R. Leimbeck 46* Yasuní National Park. Primary lowland rain forest on terra firme, SE of Estacíon Científica Yasuní. On ridge near 'Sendero Ceiba' (transect 3), 00°40'S 76°23'W, 240-250 m, 4/4/1999, *R. Leimbeck 138* Yasuní National Park. Primary lowland rain forest on terra firme, SE of Estacíon Científica Yasuní. On ridge near 'Sendero Ceiba' (transect 3), 00°40'S 76°23'W, 240-250 m, 4/8/1999, *R. Leimbeck 148* (AAU); Cordillera del Cutucú, along road to Macuma, departing main Puyo-Macas Hwy 22.9 km N of turnoff to Sevilla, ca. 1 km E of Río Macuma, steep forested slopes above road; 02°06'57"S 077°49'04"W, 889 m, 28 November 2008, *T. B. Croat 100725* (MO, QCA, QCNE); Yasuní National Park. Primary lowland rain forest on terra firme, E of Estacíon Científica Yasuní. Near 'Sendero Peru' (transect 1), 00°40'S 76°23'W, 220-240 m, 4/20/1999, *R. Leimbeck 191* Yasuní National Park. Primary lowland rain forest on terra firme. SE of Estación Científica Yasuní. On ridge at 'Sendero Ceiba' (transect 3); 00°40'S 76°23'W, 240 - 250 m, 12 April 1999, *R. Leimbeck 166, 167, 168* (AAU, MO); N of Estación Científica Yasuni, across Río Tiputini, 00°40'S 76°23'W, 210 m, 31 May 1999, *R. Leimbeck 252* (AAU); Parque Nacional Sumaco-Galeras, Cordillera Galeras, lower montane rain forest; 00°50'S 77°32'W, 1500 m, 27 October 2006, *S. Trogisch 225* (MO, QCNE); "Hakuna Matata" private lodge, ca. 5 km NE of Archidona, premontane tropical forest; 00°54'S 77°51'W, 921 m, 15 October 2006, *S. Trogisch et al. 84* (ECUAMZ, GOET, MO); Parque Nacional Sumaco-Galeras, Cordillera Galeras, premontane rain forest; 00°50'S 77°34'W, 1130 m, 25 October 2006, *S. Trogisch et al. 181* (GOET, MO, QCNE); Parque Nacional Sumaco-Galeras, Cordillera Galleras, premontane rain forest; 00°49'S 77°35'W, 1060 m, 26 October 2006, *S. Trogisch et al. 209* (MO, QCNE); Parque Nacional Sumaco-Galeras, southern slope of Sumaco volcano, wet lower montane forest; 00°35'S 77°35'W, 2015 m, 21 November 2006, *S. Trogisch et al. 314* (ECUAMZ, GOET, K, MO, QCA); Jatun Sacha reserve, lowland rain forest; 01°04'S 77°37'W, 499 m, 11 November 2006, *S. Trogisch et al. 299* (MO); Parque Nacional Sumaco-Galeras, Cordillera Galeras, lower montane rain forest; 00°50'S 77°32'W, 1560 m, 29 October 2006, *S. Trogisch, S. Moritz & J. Homeier 242* (GOET, MO, QCA, QCNE); Along gravel road to Casabel, departing main Baeza-Lumbaqui Road at 42.4 km N of jct. to Baeza from main road (near Baeza) 0.4 km to 1.1 km W of main highway; 00°12'12"N 77°43'34"W - 00°43'35"N 77°43'35"W, 1390 - 1525 m, 01 September 2015, *T. B. Croat 106500* (ECUAMZ, MO, QCNE); Along road between Lago Agrio and Baeza at Km 154.5 km W of Lago Agrio, remnant forests in pasture; 00°26'56"S 77°53'00"W, 1730 m, 19 December 1979, *T. B. Croat 49436* (F, MO, QCNE); Along road between Baeza and Lago Agrio, at Río Oyacachi; 00°20'S 77°50'W, 1620 m, 2 October 1980, *T. B. Croat 50295* (MO, QCNE); Along road between Baeza and

Lago Agrio, near Km marker 142, 142 km w of Lago Agrio; primary forest; 00°25'21"S 77°50'10"W, 1800 m, 19 December 1979, *T. B. Croat 49459* (MO, QCNE); Along road between Baeza and Lago Agrio; 72.5 km W of Lago Agrio; 00°00'30"S 77°29'00"W, 1166 m, 19 December 1979, *T. B. Croat 49530* (MO, QCNE); Along road between Baeza and Lago Agrio, 39 km NE of jct. of road to Tena, 19.7 km NE of El Chaco; 141 km SW of Lago Agrio; elev. 1750 m; 00°16'51"S 77°38'49"W, 1750 m, 26 April 1984, *T. B. Croat 58525* (MO, QCA, QCNE); Along road between Baeza and Nueva Loja (Lago Agrio), along slope above road and Río Aguarico [Río Quijos], 67 km E of Baeza, 2.7 km W of Río Azuela; 00°10'S 77°41'W, 1270 m, 28 February 1992, *T. B. Croat 72487* (MO, QCNE); Along road between Tena and Puyo, 5.5 km S of bridge over Río Napo. Primary forest on steep slopes; ca 1º05'S, 77º47'W, elev. 510 m; 01°05'S 77°47'W, 510 m, 2 May 1984, *T. B. Croat 58923* (MO, QCNE); Along road toward Parque Nacional Sumaco Napo Galleras, departing main Baeza-Lago Agrio Hwy. 25.3 km S of Baeza turn-off, Sector Gonzales Diaz de Pineda, 0.6 km before reaching village of Gonzalo Diaz de Pineda; 00°17'49"S 77°45'12"W, 1469 m, 18 August 2004, *T. B. Croat et al. 93516* (AAU, MO, QCNE), *93518* (K, M, MO, NY, QCNE, S, US, USM); Along road from Baeza to El Chaco, vic. Río Sardinas Grande, along Río Quijos, disturbed area along swampy pasture; 6 Km NNE of San Francisco Borja; 00°22'32"S 77°49'01"W, 1767 m, 17 April 2003, *T. B. Croat et al. 87660* (COL, MO, NY, QCNE, S, US); Vicinity of Archidona, along road to San Pablo, 1.8 Km E from main plaza in Archidona; 00°57'S 77°49'W, 945 m, 21 April 2003, *T. B. Croat et al. 87929, 87929A* (MO, QCNE); Along road between Archidona and San Vincente Para, 15.8 Km E of Archidona, 5.7 Km E of Santo Domingo, 10 Km E of San Pablo, 00°57'7"S 77°43'49"W, 797 m, 23 April 2003, *T. B. Croat et al. 88001* (COCH, MO, QCNE), *88004* (MO); Along road between Baeza to Lago Agrio, alongside road to Gonzalo Diaz de Pineda, turning off to east, 4.1 km N of El Chaco, 4.5 km E of main highway; 00°17'44"S 77°45'28"W, 1427 m, 5 October 207, *T. B. Croat et al. 99315* (MO, QCNE); Cantón Putumayo. Río Aguarico. town of Dureno. Wet primary forest near village; 00°02'40"N 76°41'50"W, 457 m, 01 August 1974, *T. C. Plowman et al. 4037* (GH, SEL); Cantón Archidona. Faldas al sur del Volcán Sumaco. Comunidad "El Pacto", 9 km al norte de la carretera Hollín-Loreto, sector Guagua Sumaco. Bosque primario. Bosque pluvial Premontano; 00°40'S 77°35'W, 1500 m, 7 September 1988, *V. Zak & J. L. Jaramillo 3752* (MO); Cantón El Chaco. Codo Sinclair. Bosque muy húmedo Tropical. Bosque primario en el valle del Río Quijos. Suelo con enormes rocas superficiales, 00°08'S 77°27'W, 650 m, 16 September 1990 - 20 September 1990, *W.A. Palacios 5739* (MO); Cantón El Chaco. Márgen derecha del Río Quijos. Finca "La Ave Brava" de Segundo Pacheco. Bosque pluvial Premontano. Bosque primario, sobre suelos saturados; 00°12'S 77°39'W, 1800 - 1900 m, 7-10 September 1990, *W. A. Palacios 5451* (CAS, MO, QCNE, SAR); Aguarico. Reserva Etnica Huaorani. Carretera y oleoducto de Maxus en construcción Km 79-82. Bosque húmedo Tropical. Bosque primario. Suelos rojos; 00°50'S 76°18'W, 250 m, 1 Mar

1994 - 7 Mar 1994, *A. Dik & R. Enomenga 1126* (MO, QCNE); Archidona. Comunidad de Pacto Sumaco. Sector suroccidental. Bosque maduro. Bosque pluvial Pre-Montano. Pendientes suaves < 30%; 00°38'56"S 77°35'49"W, 1560 - 1600 m, 23 Abril 1997, *A. Alvarez et al. 1904*(QCNE); Parque Nacional Sumaco Napo-Galeras. Cumbre de la Cordillera. Bosque pluvial premontano. Suelo derivado de roca arenisca; 00°49'57"S 77°31'33"W, 1720 m, 9 Mar 2003, *N. Altamirano 240, 241* (MO, QCNE); Along road between Coca (San Francisco de Orellana) and the Baeza-Tena road, via Loreto and Hollin, 82.5 km W of Río Payamino, 6 km W of Juticocha, 28.3 km W of Loreto, 58 km E of Tena-Baeza Highway; 00°48'S 77°31'W, 925 m, 2 Mar 1992, *T. B. Croat 72623* (MO, QCNE); El Chaco. Proyecto Hidroeléctrico Coca, Punto ST3. Margen derecha del Río Quijos, ca. 10 km al sur de Reventador. Bosque pluvial Premontano. Bosque primario, suelos volcánicos con pendientes 10-20%; 00°11'S 77°39'W, 1500 m, 03 October 1990 - 05 October 1990, *W. A. Palacios 5824* (ENCB, MO); Proyecto Hidroeléctrico Coca, Punto ST4. Márgen derecha del Río Quijos, ca 10 km al sur de Reventador. Bosque pluvial Premontano; 00°08'S 77°30'W, 1450 m, 06 October 1990 - 10 October 1990, *W. A. Palacios 6003* (M, MO, QCNE, W); Proyecto Hidroeléctrico Coca, Punto ST3. Margen derecha del Río Quijos, ca. 10 km al sur de Reventador. Bosque pluvial Premontano. Bosque primario, suelos volcánicos con pendientes 10-20%; 00°11'S 77°39'W, 1500 m, 03 October 1990 - 05 October 1990, *W. A. Palacios 5786* (MO, QCNE); Orellana. Parque Nacional Sumaco Napo-Galeras. Zona de amortiguamiento fuera del parque. Comunidad Mushullacta a 3.7 km al oeste del Río Punino. Bloque 18. Línea sismica 03. Helipuerto 3C. Compañía AMOCO. Bosque muy húmedo Tropical. Bosque primario. Suelo con roca sedimentaria; 00°12'S 77°18'W, 450 m, 23 October 1996, *H. Vargas 1103* (MO, QCNE). **Orellana:** Tiputini Biodiversity Station, 00°38'S 76°09'W, 200 m, 20 February 2002, *Koster et al. 982* (MO); Tiputini Biodiversity Station. Epiphyte. Evergreen lowland rainforest; 00°38'S 76°09'W, 200 m, 7 February 2002, *N. Köster, H. Kreft & M. Wimmer 169* (BONN, MO, QCA); Estacion Cientifica Yasuni, Río Tiputini, al noroeste de la confluencia con el Río Tivacuno; este de la carretera Repsol-YPF, Km 7 desvío hacia el pozo Tivacuno. Este de la Parcela de 50 ha. Bajío; 00°38'S 76°30'W, 200 - 300 m, 16 April 2004, *V. Sandoya & asistente Huaoran 45* (MO, QCA). **Pastaza:** Río Bobonaza rain forest on elevated ground below Montalvo (Límón); 02°7'S 76°55'W, 300 m, 17 July 1980, *B. Øllgaardt at al. 34570* (AAU); Oil exploration camp Chichirota, on the Río Bobonaza. Rain forest on elevated ground around the camp, partly cleared; 02°22'S 76°40'W, 300 m, 26 July 1980, *B. Øllgaard et al. 35326* (AAU); Vía Auca, 115 km al sur de Coca, 10 km al S de la frontera Napo-Pastaza, cerca del Río Tigüino. Carretera de Petro-Canada en construcción. Bosque húmedo Tropical. Bosque primario; 01°15'S 77°55'W, 320 m, 13 January 1989, *F. Hurtado 1405* (MO, QCNE); Curaray (Jesús Pitishka), virgin rainforest near the posto militar; 200 m, 19 Mar 1980, *G. W. Harling & L. Andersson 17519* (GB, MO); Río Papayacu at Río Curaray, 01°29'S 76°42'W, 253

m, 23 Mar 1980, *J. L. Jaramillo & F. Coello 22579B* (AAU, MO); Río Papayacu at Río Curaray. Rain forest, 01°29'S 76°42'W, 235 m, 23 Mar 1980, *L. B. Holm-Nielsen et al. 22571, 22572* (AAU); Río Papayacu at Río Curaray. Rain forest, 01°29'S 76°42'W, 235 m, 23 Mar 1980, *L. B. Holm-Nielsen et al. 22579B* (AAU, MO); Namoyacu at Río Curaray. Parkia along riverside; 01°27'S 76°47'W, 230 m, 21 Mar 1980, *L.B . Holm-Nielsen et al. 22355* (AAU); Along Cajabamba- Mariscal road (under construction) departing main Tena-Puyo road at Km 31 N of Puyo, ca 2 km from main highway, ca 1º19'S, 77º51'W, elev. 920 m; 01°19'S 77°51'W, 920 m, 2 May 1984, *T. B.* Croat *58933* (F, IBE, MO, QCNE); Along road between Puyo and Macas at Km 19 (SE of Puyo); primary forest. Premontane wet forest; 01°37'S 77°53'W, 1200 m, 9 October 1980, *T. B. Croat 50545* (MO, QCNE); Vicinity of Shell, ca. 1 Km north of town along Río Claro; 00°29'39"S 78°03'52"W, 1085 m, 27 August 2002, *T. B. Croat & L. P. Hannon 87055* (MO, QCNE); Along road to Río Anzu, 17.1 Km N of Mera, 3.5 Km N of Río Anzu, trail W into mountains; 01°23'26"S 78°03'19"W, 1238 - 1400 m, 6 May 2003, *T. B. Croatet al. 88735* (AAU, GB, MO, QCNE); Along road between Puyo and Baños, vic. of Shell, less than 1 Km north of village; disturbed virgin forest in marshy area with standing water; 01°29'39"S 78°03'52"W, 1096 m, 15 August 2002, *T.B. Croat et al. 86616* (ECUAMZ, MO, QCNE); Along road from Mera to Río Anzu and beyond, 3.6 km N of Río Anzu; 01°24'24"S 78°28'21"W, 2016 m, 7 July 2004, *T. B. Croat et al. 90503* (MO, QCNE); Along road from Palora to Llushin, turning off Palora to San Francisco de Tarquí Road, 6.4 km from Palora, 2.4 km from junction; 01°42'52"S 78°01'20"W, 885 m, 9 October 207, *T. B. Croat et al. 99556* (MO, QCNE); Pozo petrolero "Garza" de TENNECO. 35 km (aprox.) al noreste de Montalvo; 01°49'S 76°42'W, 260 m, 02 July 1989 - 12 July 1989, *V. Zak & S. Espinoza 4442, 4487, 4515, 4582, 4614* (MO, QCNE); Río Curaray, costado sur, alrededores de Laguna Garzayacu. Bosque húmedo tropical. Bosque primario, Suelo aluvial de mal drenaje; 01°29'S 76°39'W, 250 m, 20 August 1985 - 26 August 1985, *W. A. Palacios & D. A. Neill 664* (MO); Pastaza. Pozo petrolero "Moretecocha" de ARCO. 75 km al este de Puyo; 01°34'S 77°25'W, 580 m, 04 October 1990 - 21 October 1990, *E. Gudiñoet al. 862* (MO, QCNE); Pozo petrolero "Moretecocha" de ARCO. 75 km al este de Puyo; 01°34'S 77°25'W, 580 m, 04 October 1990 - 21 October 1990, *E. Gudiño, C. Quelal & Ñ Caiga 1025* (MO, QCNE); Between Shell and Mera, 5.3 km NW of Center of Shell, along gravel road 1.1 km N of highway; disturbed virgin forest at end of a board covered path 25 m E of road; 01°27'S 78°04'W, 1180 m, 4 April 1992, *T. B. Croat 73481* (MO, Q, QCNE); Along road between Mera and Río Anzu (which is 11.7 km N of main plaza in Mera), 11.7 km N of main plaza in Mera (located on Puyo-Baños Road); Along road from Puyo to Baños, 5.7 km W of shell; ca 1º26'S, 78º09'W, elev. 1070 m, 5 May 1984, *T. B. Croat 59072* (MO, QCA, QCNE); virgin forest; 01°20'S 78°06'W, 1350 - 1380 m, 5 April 1992, *T.B. Croat 73592* (CAS, MO, QCNE); Pozo petrolero "Ramirez". 20 km al sur de la población de Curaray; 01°32'S 76°51'W, 300 m, 21 February 1990 - 28 February 1990,

*V. Zak & S. Espinoza 5006* (MO, QCNE); Villano-Km 6. Propuesto oleoducto de Arco (Villano-El Triunfo). Bosque húmedo Tropical. Bosque primario sobre colinas disectadas; 01°30'S 77°29'W, 600 m, 23 February 1994, *W. A. Palacios 1279* (CM, MO, QCNE). **Sucumbíos:** Reserva de Producción Faunística Cuyabeno. N of Laguna Grande. Hectare plot no. 1. Tropical rainforest on terra firme; 00°00'S 76°12'W, 265 m, 11 April 1988 - 10 June 1988, *A. D. Poulsen 78112* (MO); Reserva Faunistica Cuyabeno, N of Laguna Grande. Terra firme, tropical rainforest; 00°01'N 76°11'W, 265 m, 26 Mar 1989, *H. Balslev et al. 84620* (AAU); Reserva Faunistica Cuyabeno, N of Laguna Grande. Terra firme, tropical rainforest; 00°01'N 76°11'W, 265 m, 26 Mar 1989, *H. Balslev et al. 84648* (AAU); Reserva Faunistica Cuyabeno S of Laguna Garzacocha; 00°01'S 76°11'W, 265 m, 4 January 1989, *H. Balslev et al. 84684* (AAU); Reserva de Producción Faunística Cuyabeno. N of Laguna Grande. Hectare plot no. 1. Tropical rainforest on terra firme; 00°00'S 76°12'W, 265 m, 11 April 1988 - 10 June 1988, *I. H. Nielsen 76140* (AAU, MO); Laguna Grande, Cuyabeno, Pica tras campamento; 00°00'S 76°11'W, 220 m, 28 July 1984, *J. L. Jaramillo 6841* (AAU, MO); Río Aguarico: Pueblo de Zabalo. Orilla Norte del río, abajo de la boca del Río Cuyabeno, y dos vueltas arriba de la boca del Río Zabalo. 35-40 m; este del campo de las cabañas; 00°21'24"S 75°39'56"W, 235 m, 15 November 1998, *R. Aguinda 258* (MO); Along road near Río San Miguel 21.2 km N of Lago Agrio (2 km S of river). Tropical moist forest, 00°08'N 76°50'W, 470 m, 3 October 1980, *T. B. Croat 50366* (MO, QCNE); Along Cepe Ferry road (east of Lago Agrio) 8.8 km S of Río Aguarico on road to Coca (San Francisco de Orellana); 00°05'N 76°50'W, 280 m, 26 April 1984, *T. B. Croat 58511* (MO, QCNE); Above road from Lumbaquí to La Bonita, 15.6 km NW of jct. with main Baeza-Lago Agrio Road near Lumbaquí; 00°06'52"N 77°23'26"W, 537 m, 20 August 2004, *T. B. Croat & G. Ferry 93668, 93673* (MO, QCNE); Along road from Lumbaquí to La Bonita, 68.6 km N of main Baeza-Lago Agrio Road, 1 km S of Rosa Florida, 21.4 km S of La Bonita; 00°23'44"N 77°31'40"W, 1200 m, 21 August 2004, *T. B. Croat & G. Ferry 93764* (MO, QCNE); Lago Agrio. Reserva Cuyabeno. Tarapoa-Tipishca. Cruce del Río Cuyabeno. Bosque húmedo Tropical. Bosque primario sobre suelo bien drenado; 00°01'S 76°15'W, 230 m, 14 November 1991, *W. A. Palacios et al. 8944* (MO, QCNE); Shushufindi. Limoncocha. Comunidad Kichwa Itaya. Recinto San Pedro Capucuy, a 20 km del punto de control de Oxxy, vía a Puerto Itaya, 00°22'26"S 76°33'08"W, 248 m, 22 Mar 2004 - 26 Mar 2004, *D. Reyes & L. Carrillo 360* (MO, QCNE). **Tungurahua:** Baños. Hotel El Otro Lado. Río Verde (tributary of Río Pastaza); near El Pailón del Diablo. Premontane/montane wet forest, 01°24'S 78°17'W, 1500 m, 24 May 2003, *J. L. Clark 8036* (MO, QCNE, US). Area of Estación Cientifica San Francisco, road Loja-Zamora, ca. 35 km from Loja; moist montane forest. On host T31; 03°58'S 79°04'W, 1810 m, 26 November 2003, *F. A. Werner 554* (MO); Along road between Loja and Zamora, at Río Zamora, along steep slopes above bridge, 04°05'S 079°00'W, 1610 m, 4 March 1992, *T. B. Croat 72691* (AAU, CUVC, GB, HUA, K, M MO, QCNE, S, ,US); Cordillera Las

Lagunillas, along road in construction Zumba-Jimbura, km 15-20. Semideciduous forest; 1600 - 1900 m, 13 October 1988, *G. W. Harling & E. B. Madsen 25202* (AAU); Campamento Miazi, along Río Nangaritza. Along trail towards El Hito; 04°16'S 78°39'W, 900 - 1100 m, 20 February 1994, *H. van der Werff et al. 13342* (MO, QCNE); Along road between El Pangui and Zamora, vicinity of San Roque, 2 Km S of San Roque, 10 Km S of El Pangua, 03°42'11"S 078°35'59"W, 900 m, 7 September 2002, *T. B. Croat 87203* (CUVC, MO, QCA, QCNE); Along road between El Pangui and Zamora, vicinity of San Roque, 2 Km S of San Roque, 10 Km S of El Pangui; 03°42'11"S 078°35'59"W, 900 m, 7 September 2002, *T. B. Croat 87208* (MO, QCA, QCNE); Cordillera del Cóndor. Vertiente occidental de la cordillera del Cóndor, arriba del valle del Río Quimi. Bosque montano; 03°30'26"S 78°25'15"W, 1300 m, 11 December 2000, *J. Caranqui et al. 181* (MO, QCNE); Cordillera del Cóndor. Valle del río Quimi. Bosque alterado y potrero, en suelo aluvial del valle; 03°31'33"S 78°26'52"W, 920 m, 9 December 2000, *J. Caranqui et al. 244* (MO, QCNE); 1 ha study plot ca 1 km SW of Bombuscaro Visitors Centre, 6 km S of Zamora, 04°06'S 78°57'W, 1050 m, 14 November 2000, *R. Leimbeck & B. Windeballe 393* (AAU); Podocarpus National Park. 5 km S of Zamora, along trail from parking area to Bombuscaro Visitors Centre. Wet premontane forest; 04°06'S 78°57'W, 1000 m, 11/11/2000, *R. Leimbeck et al. 361(AAU);* Cordillera del Cóndor region, vicinity of Ecua-Corriente copper mine development, Río Waiwaime drainage, along road to mine site, 7.2 km S of mine headquarters, 4.2 km S of locked gate; 03°34'41"S 78°25'38"W, 1174 m, 9 April 2006, *T. B. Croat 96800* (MO, QCNE, S, US); Cordillera del Cóndor region, vicinity of Ecua-Corriente copper mine development, valley of Río Waiwaime, along road to mine site, 2.5 km from end of road; 03°34'30"S 78°37'W, 1280 m, 9 April 2006, *T. B. Croat 96827* (HUA, MO, QCNE); Along road from Zamora to Romerillos along Río Jambué, 13.3 km E of Río Bombuscaro Bridge in Zamora, 0.3 km E of Pituca; 04°08'03"S 78°56'37"W, 1068 m, 21 July 2004, *T. B. Croat 91823* (AAU, CAS, GB, K, MO, QCNE, NY, QCNE, US); Cordillera del Cóndor region, vicinity of Río Zamora and village of Quime, along road from military post to Condor Mirador military outpost, ca. 3.5 km S of junction in road to Tandaime, San Marcos and Ecua-Corriente copper mine headquarters; 03°36'21"S 78°28'17"W, 1135 m, 12 April 2006, *T. B. Croat 96991* (MO, QCNE); Along road between Zamora and Romerillos Alto; via Jaumbué, 23.2 km E of Río Bombuscaro Bridge in Zamora, 10.4 km E of Pituca; 04°12'15"S 78°56'19"W, 1425 m, 20 July 2004, *T. B. Croat 91637* (MO, QCNE); Along road from Zamora to Romerillos along Río Jambué, 13.3 km E of Río Bombuscaro Bridge in Zamora, 0.3 km E of Pituca; 04°08'03"S 78°56'37"W, 1068 m, 21 July 2004, *T. B. Croat 91778* (MO, QCNE); Along road from Zamora to Janiero vicinity of municipal garbage dump, along Quebrada Janiero, 1.3 km NW of Bridge over Quebrada Janiero; 04°02'53"S 78°57'51"W, 1009 m, 22 July 2004, *T. B. Croat 91917* (MO, QCNE, S); Along road from Namirez to Nambija, along mining road, 10.0 km S of Namirez and Río Zamora, vicinity of Nambija, along

road to mine headquarters ca. 5 km long, just south of Nambija; 04°03'44"S 78°47'29"W, 1779 m, 23 July 2004, *T. . Croat 92050* (CUVC, MO, PMA, QCNE); Estación Científica San Francisco, 16.9 km E of Loja border on Loja to Zamora Hwy. Trip from scientific station; 03°58'21"S 79°04'36"W, 1908 m, 24 July 2004, *T.B. Croat 92101* (MO, QCNE); Valley of Río Waiwaime, near mouth at Río Quime; 03°33'40"S 78°27'47"W, 1000 m, 22 September 2007, *T. B. Croat & G. Ferry 99026* (MO, QCNE); Along road between Los Encuentros and El Sarsa, 4.7 Km E of Los Encuentros; 03°46'42"S 78°38'32"W, 822 m, 26 May 2003, *T. B. Croat & M. Menke 89571* (MO, QCNE); Along road from Namirez (22.3 Km S of Yanzaza) to Nambija, 8.1 Km S of San Carlos; 04°03'37"S 78°47'25"W, 1524 m, 28 May 2003, *T. B. Croat & M. Menke 89636* (MO, QCNE); Along road between Zamora and Parque Nacional Podocarpus, ca. 1 Km SW of Zamora; 04°04'42"S 78°57'02"W, 731 m, 29 May 2003, *T. B. Croat & M. Menke 89698* (MO, QCNE); Along road from Zamora to Romerillos, 13.3 Km E of bridge over Río Bombuscaro at Zamora, 0.4 Km N of Pituca along river; 04°08'02"S 78°56'31"W, 975 m, 30 May 2003, *T. B. Croat & M. Menke 89729* (MO, QCNE); Along road from Zamora to Loja, 81.3 Km E of summit of divide and border with Loja Province; 04°08'02"S 78°56'31"W, 1341 m, 31 May 2003, *T. B. Croat & M. Menke 89839* (MO, QCNE); Along road from Zamora to Romerillos, 6.6 Km S of bridge over Río Bombuscaro; 04°04'59"S 78°56'12"W, 731 m, 30 May 2003, *T. B. Croat & M. Menke 90006* (MO, QCNE); Along road from Quime Ferry Crossing on road leading to summit of Cordillera del Condor, 23.2 km above the crossing at Río Zamora on road leading to summit; 03°38'00"S 78°26'03"W, 1552 m, 14 July 2004, *T. B. Croat et al. 91041* (MO, QCNE); Along road to Cordillera del Condor beyond Paquisha, 27.3 km E of Zumbi, 8.6 km E of Río Nangaritza Bridge; 03°56'17"S 78°37'45"W, 1259 m, 16 July 2004, *T. B. Croat et al. 91227* (MO, QCNE); Río Nangaritza, centro Shuar shaim. Bosque primario intervenido. bmhPM, 04°18'54"S 78°40'06"W, 900 m, 31 January 1997, *V. Van den Eyden et al. 923* (MO); El Pangui. Cordillera del Cóndor region, vicinity of Río Zamora and village of Quime, along road from the military outpost to Condor Mirador military outpost, 7.1 km S of junction in road to Tandaime, San Marcos and Ecua-Corriente copper mine headquarters; 03°36'42"S 78°28'02"W, 1128 m, 12 April 2006, *T. B. Croat 96951* (MO, QCNE); Nangaritza. Río Nangaritza valley, forest near Shaime. Transect # 1; 04°18'S 78°40'W, 930 m, 31 July 1993, *A. H. Gentry 8087* (MO, QCNE); Río Nangaritza, upper valley. 3 km east of Miazi, near disputed Peru-Ecuador border. Primary forest. Premontane Wet Forest; 04°18'S 78°40'W, 1000 m, 11 December 1990, *D. A. Neill & W. A. Palacios 9680* (MO, QCNE); Parroquia: Zurmi. Comunidad Centro Shaime (along Río Nangaritza). Forest 2-4 km NW of Centro Shaime. Forest on limestone outcrop (i.e; presence of sinkholes, rocks, and caves). Evergreen wet forest; 04°18'06"S 78°41'02"W, 1000 m, 15 December 2001, *J.L. Clark 6536* (MO, QCA, QCNE, US); Shaimi. SE de Campamento Militar. Márgen derecha de Río Nangaritza. Bosque primario sobre pendientes 45%. Rocas calizas aflorando; 04°18'S 78°43'W,

930 m, 27 October 1991, *W. A. Palacios et al. 8771* (MEXU, MO, QCNE); Miazi. Márgen derecha Río Nangaritza. Bosque primario. Rocas calizas afloran. Dosel del bosque 30 m. Suelos entisoles; 04°16'S 78°42'W, 930 m, 26 October 1991, *W. A. Palacios et al. 8637* (MO, QCNE); Miazi. Márgen derecha Río Nangaritza. Bosque primario. Rocas calizas afloran. Dosel del bosque 30 m. Suelos entisoles; 04°16'S 78°42'W, 930 m, 26 October 1991, *W.A . Palacios et al. 8594* (CM, MO, QCNE); Yacuambí. Parroquia La Paz. Centro Shuar Kurints. Bosque muy húmedo premontano. Bosque intervenido, en laderas arriba del Río Yacuambí. Participantes de la comunidad Kurints: Pedro y J. Tentets; 03°46'S 78°54'W, 920 m, 7 September 2006, *C. Kajekai & A. Wisum 739, 740, 741* (MO, QCNE); Along valley of Río Yacuambí, between La Saquea and Esperanza, 3.9 km NW of 28 de Mayo 0.2 km before bridge over Río Yacuambí; 03°37'S 78°56'W, 1088 m, 20 April 2006, *T. B. Croat 97313* (MO, QCNE); Valley of Río Yacuambí, along road from 28 de Mayo to Oña (uncompleted), 12.2 km NW of 28 de Mayo, 2.1 km SE of new road to Tuti Pali, 0.6 km NW of La Esperanza; 03°34'57"S 78°56'33"W, 1416 m, 20 April 2006, *T. B. Croat 97334* (MO, QCNE). **FRENCH GUIANA**. Vicinity of Brazilian border in S.C. Trois Sauts, 28 July 1975, *Haxaire 320* (CAY); Sinnamary Basin. Near to Petit Saut Barrage on Sinnamary River. Primary rainforest, close to small track; 05°04'02"N 053°03'05"W, 100 m, 05 November 2004, *A. Haigh 26* (MO); Camp Aratai, near Crique Arataye, tributary of River Approuagues; 03°59'24"N 052°35'29"W, 50 m, 18 November 2004, *A. Haigh et al. 78* (MO); "Montagnes Plomb - 2, Bassin du Sinnamary", m, 9 December 1993, *B.G. Bordenave 728* (MO); "Camp Eugène, Bassin du Sinnamary", m, 29 November 1994, *F. Billiet 6448* (CAY); "Crique Matarony, Bassin de l'Approuague", m, 20 June 1993, *G. Cremers 13238, 13239* (CAY); Trois-Sauts, 21 October 1975, *H. Jacquemin 1745* (CAY) ; Zidock ville, 20 May 1974, *P. Grenand 245* (CAY); Zidockville, Haut Oyapock, 10 August 1980, *P. Grenand 935* (CAY); *P. Grenand 127* (CAY);Montagnes de Kaw, S of Cayenne, along Route de Montagne Trésor, alongside trail to Placer Trésor; 04°35'N 052°18'W, 150 m, 20 February 1993, *T. B. Croat 74288* (JBGP, MO), *74289* (LE, MO); Station des Nouragues - Bassin de l'Arataye, m, 4 June 1999, *V. Hequet 871* (MO); **Cayenne:** Trois Sauts, 17 Mars 1975, *P. Grenand 900* (CAY); Roura District, region of Kaw Mountains, vicinity of Trésor Reserve, along road from Roura to Kaw River; 04°36'36"N 052°16'42"W, 220 - 270 m, 22 August 2011, *T. B. Croat 103178* (MO); Along the road from the N2 Hwy to Cacao (turning west of N2 Hwy, 34 km S of D-5 Hwy to Montsinéry), Montagne Tigany, 0.8 km E of Tigany River, 8.1 km W of turnoff to Cacao; 04°35'03"N 052°16'35"W, 25 m, 09 March 2011, *T. B. Croat & G. Ferry 102881* (MO); Saut Sarare, 19-25 September 1988, *Tostain 40* (CAY); **Saint-Laurent-du-Maroni:** zone centrale, 700 - 750 m, 21 August 1985, *J. J. de Granville et al. 7701* (CAY); zone Centrale, 650 - 700 m, 26 August 1985, *J. J. de Granville et al. 7825* (CAY). **PERU**. 1957, *Heinz Ellenberg 2936* (U); San Gavon; 1854, *W. Lechler 2490* (K, MO). **Amazonas:** Bagua. Distrito Imaza. Comunidad Aguaruna de Kampaentza (PUJAIM). Bosque primario en colinas altas.

Terrenos de propiedad de Juan Mayán; 04°55'00"S 78°19'00"W, 740 m, 10 October 1994, *C. Díaz S. 7377* (MO, NY); Yamayakat. Bosque primario; 04°55'S 78°19'W, 320 m, 04 October 1995, *N. Jaramillo & S. Katip 751* (MO); Distrito Imaza: Región Nororiental del Marañon. Comunidad de Kampaenza. Ribera de la quebrada Shimutaz. Río Marañon. Bosque de transición; 04°55'S 78°19'W, 320 m, 09 September 1994, *N. Jaramillo et al. 412* (K, MO); Cordillera del Cóndor. Puesto de Vigilancia 'Alfonso Ugarte' (PV3). Cabeceras del Río Comainas. Abajo del campamento. Sobre rocas y al borde de una quebrada. Herbazal graminoso y matorral perturbado; 03°54'48"S 78°25'30"W, 1100 m, 28 J. 1994, *H. Beltrán & R. B. Foster 1357* (F, USM); Cordillera del Condor, trail to N del PV-22, 820 - 880 m, 23 October 1987, *M. S. Baldeón 533* (USM); Valle del Río Santiago. Quebrada Caterpiza, 2-3 km atrás de la comunidad de Caterpiza. Monte virgen; 03°50'S 77°40'W, 200 m, 15 December 1979, *S. Tunqui 364* (MO); Monte virgin, 2 km. atra|s de la comunidad de Caterpiza, trocha de metayar, banda este de la Quebrada Caterpiza, Río Santiago; 03°55'00"S 77°42'00"W, 180 m, 11 October 1979, *V. Huashikat 887* (MO). **Cajamarca:** El Chaupe; 1650 m, ** PONTE 579* (MO); San José de Lourdes. Selva Andina. Base del Cerro Picorana. Bosque primario; 04°59'25"S 78°54'15"W, 25 August 1999, *C. Díaz S. et al. 1730* (K, MO, UB, USM); San José de Lourdes. Base del Cerro Picorana; 04°59'25"S 78°54'05"W, 2010 m, 21 January 1999, *C. Díaz S. et al. 10428* (CAS, MO, USM); San Ignacio. Sr. José de Lourdes; 05°05'58"S 78°53'30"W, 2210 m, 28 October 1995, *C. Díaz S. & A. Torres 7799* (MO); San José de Lourdes. Base del Cerro Picorana; 04°59'25"S 78°54'05"W, 2010 m, 20 January 1999, *C. Díaz S. et al. 10369* (GH, MO); Ricardo Palma. Relictos de bosque primario; 05°06'27"S 79°04'05"W, 1650 m, 20 Mayo 1998, *J. Campos de la Cruz 4934* (MO); Picorana. Bosque primario. En Trocha abandonada; 05°01'40"S 78°54'00"W, 1900 - 2000 m, 14 August 1998, *J. Campos de la Cruz et al. 5486* (MO); Huarango. Localidad de Pisaguas Bosque primario; 05°14'52"S 78°38'03"W, 1650 m, 9 Mar 2000, *J. Campos de la Cruz et al. 6534a* (MO); San José de Lourdes. Entre 7 August y Laurel. Bosque secundario; 05°00'30"S 78°58'00"W, 1000 - 1500 m, 15 May 1997, *J. Campos de la Cruz et al. 3869* (B, K, MO, TEX, VEN, WU); Tabaconas, La Bermeja. Bosque primario; 05°21'7"S 79°17'01"W, 1600 - 1700 m, 19 November 1997, *J. Campos de la Cruz & O. Cano 4678* (CAS, M, MO, U); San Ignacio. Localidad Camaná. Bosque primario; 05°04'00"S 78°55'00"W, 1250 - 1800 m, 7 Mar 1997, *J. Campos de la Cruz & S. Corrales 3486* (JBGP, MO); La Coipa. Localidad Vista Florida (Camino a la Laguna) Bosque primario; 05°26'10"S 78°56'00"W, 1900 - 2000 m, 20 June 1997, *J. Campos de la Cruz & Z. Garcia 4059* (AAU, G, MO, OOM, QCNE, VDB); Distrito Huarango. Poblado Selva Andina, camino al tanque de agua de Selva Andina. Bosque primario tropical lluvioso, borde de camino, suelo arcilloso; 05°03'50"S 78°43'19"W, 2378 m, 27 August 207, *J. Perea 3893* (HUT, MO, USM); San José de Lourdes. Buenos Aires. Bosque primario, 05°04'38"S 78°52'58"W, 1880 m, 8 November 2000, *R. Vásquez 26538* (F, MO); San José de Lourdes. Buenos Aires. Bosque primario, 05°04'38"S

78°52'58"W, 1880 m, 8 November 2000, *R. Vásquez 26557* (MO); San José de Lourdes. Selva Andina "Bosque primario, suelos amarillentos", 05°00'S 78°04'W, 1800 m, 24 Abril 1999, *R. Vásquez & J. Campos de la Cruz 26209* (MO); San José de Lourdes. Selva Andina. Bosque primario; 04°59'22"S 78°53'03"W, 2020 m, 21 November 1999, *R. Vásquez & S. P. Flores Vásquez 26308* (MO); Distrito San José de Lourdes. Villarrica. Nororiental del Marañón RENOM. Colección en quebrada - bosque primario; 04°55'S 78°50'W, 1200 - 1420 m, 28 October 1995, *V. Quipuscoa S. 386* (MO); Distrito San José de Lourdes. Santo Tomás. Nororiental del Marañón RENOM. Colección en bosque primario; 04°55'S 78°50'W, 1950 m, 1 November 1995, *V. Quipuscoa S. 413* (MO, NY). **Cusco:** La Convención. Distrito Quellouno, Tupac Amaru. Bosque seco secundario; 12°25'46"S 72°29'10"W, 1131 m, 17 September 207, *I. Huamantupa 10382* (CUZ, F, MO); Dist. Echarate, Kiteni, Santa Ana. Bosque primario, 12°43'47"S 73°21'52"W, 1092 m, 18 August 2006, *L. Valenzuela G. 7445* (CUZ, M, MO, USM); Uispicanchis. Camanti, Maniri. Cerro Camanti, vertiente del Río Yanamayo. 13°17'S 70°45'W, 720 m, 5 September 1990, *M. E. Timaná 903* (MO) **Huánuco:** Along road between Tingo María and Huánuco 1.5 km from center of town of Tingo María, in disturbed primary forest on slopes E of control post; 09°18'00"S 75°59'00"W, 650 - 665 m, 5 April 1984, *T.B. Croat 57963* (MO, USM); Along road from bridge over Río Huallaga in Tingo María and Monzón, ca. 3.5 km W of bridge over Río Huallaga; steep slopes above cacao plantation, along rocky stream banks; 09°17'44"S 76°00'30"W, 655 m, 09 August 2017, *T. B. Croat & G. Ferry 106991* (MO); Leoncio Prado. Distrito Padre Luyando; carretera a Supte, cerca al Caserio, Incari; 09°12'00"S 76°00'00"W, 690 - 700 m, 1 September 1978 - 4 September 1978, *J. Schunke V. 10561* (MO); Distrito Hermilio Valdizan. La Divisoria, carretera a Pucallpa, en bosque alto, elev. ca 1,600 m; 1600 m, 09 June 1980, *J. Schunke V. 11823* (IBE, MISS, MO, USMS); Valley of Río Huallaga, along steep banks of Río Monzón, near bridge over Río Patay Rondos on road from Tingo María to Monzón; 09°17'S 76°05'W, 650 m, 2 June 1998, *T. B. Croat & M. Sizemore 81618* (CM, MO, NY, USM); Along road from Tingo María to Pucalpa, at "La Divisora" (Divide just south of border with Depart. Ucayali), 3.8 km N of Ucayali frontier; 09°09'59"S 75°47'32"W, 172 m, 03 June 1998, *T. B. Croat & M. Sizemore 81703* (MO, USM); Along road from Tingo María to Pucalpa at "La Divisora" divide, 24.2 km NE of divide on road N of Tingo María; windswept cloud forest on steep slopes; 09°13'18"S 75°50'14"W, 1314 m, 4 June 1998, *T. B. Croat & M. Sizemore 81778* (MEXU, MO, USM); Leoncio Prado, Along road from Tingo María to Huayna Capac, ca. 1 km east of Huayna Capac, 09°14'45"S 076°02'18"W, 1300 m, 5 June 1998, T.B. Croat 81853 (MO, USM, US); Dtto. Hermilio Valdizan. La Divisoria. Road from Pumahuasi to La Cumbre; 09°05'00"S 75°52'00"W, 1600 - 1660 m, 26 June 1978, *T. C. Plowman & J. Schunke V. 7364* (F, USM); Pachitea. Codo de Pozuzo. Alluvial fan floodplain of Río Pozuzo after it emerges from mountains. Trail to NW behind settlement. Flat, partly-logged high forest, 09°40'S 75°25'W, 450 m, 18 October 1982,

*R. B. Foster 9264* (MO). **Junín:** Satipo. Distrito Río Tambo. Comunidad Nativa Parijaro. Parque Nacional Otishi; 11°05'04"S 73°40'42"W, 1330 - 1400 m, 25 November 2013, *L. Valenzuela G. et al. 27140* (HOXA, MO). **Loreto:** Dtto. Iquitos; 120 m, Mar 1930 - April 1930, *L. Williams 8004* (F, MO); La Divisora, 20 Km NNE of Tingo María on road to Pucalpa, 1600 m, *M. O. Dillon 2627A* (F); Alto Amazonas. Andoas, Río Pastaza near Ecuador border; mature forest. mature forest; 02°48'S 76°28'W, 210 m, 15 August 1980, *A. H. Gentry et al. 29787* (F, MO); Andoas. Bosque primario; 02°55'S 76°25'W, 180 m, 3 November 1983, *R. Vásquez & N. Jaramillo 4565* (MO, USM); Andoas (margen izquierda del río Pastaza), campamento OXI. Bosque primario; 02°55'S 76°25'W, 210 m, 4 June 1981, *R. Vásquez & N. Jaramillo 1899* (MO, NY, US); Andoas. Bosque primario; 02°55'S 76°25'W, 180 m, 26 Mar 1982, *R. Vásquez et al. 3124* (MO); Bosque primario (Transicional) (Andoas (Río Pastaza); 02°55'S 76°25'W, 180 m, 24 Mar 1982, *R. Vásquez et al. 2988* (MO); Pijuayal, quebrada Tiriima, 1 km S on río Morona and 4 hours by outboard NE of jct. of ríos Pushaga & Morona. Edge of rivers, and terra firma in vicinity of village; 04°22'S 77°17'W, 150 m, 23 March 1987, *W. H. Lewis et al. 1307* (MO); Loreto. San Juan, río Tigre. Rainforest, mostly along river's edge, 02°35'S 75°40'W, 245 m, 17 March 1987, *W. H. Lewis et al. 12877* (MO); Maynas. Pto. Almendra (Iquitos). Habitat: Terrenos boscosos húmedo; 100 m, 4 September 1973, *Franklin Ayala 422* (IBE); Dist. Mazan, Explor Napo, Bosque Primario, 03°09'S 72°31'W, 160m, 1 March 2005, *I. Huamantupa 5112* (CUZ, MO); Dtto. Iquitos. Carretera de Peña Negra, trocha del fundo del Sr. Peña hasta el trapichi, en terreno arenoso; 150 m, 2 August 1982, *M. Rimachi Y. 6291* (IBE, MO); Dtto. Iquitos. Pto. Almendras. Bosque primario, suelos con drenaje, poca arena blanca; 03°48'S 73°25'W, 122 m, 3 November 1987, *R. Vásquez & N. Jaramillo 9978* (MO); Dtto. Iquitos, Allpahuayo, Estación Experimental del Instituto de Investigaciones de la Amazonía Peruana (IIAP). Bosque primario, suelo arcillo-arenoso; 03°58'16"S 73°25'08"W, 11 October 1990, *R. Vásquez & N. Jaramillo 14483* (MO); San Antonio, Río Itaya. Bosque primario; 04°10'S 73°20'W, 150 m, 13 December 1982, *R. Vásquez & N. Jaramillo 3590* (MO); District of Iquitos; along road SW of Iquitos to Puerto Alemendra; 15 km from Iquitos; 03°47'S 73°25'W, 120 m, 9 November 1980, *T. B. Croat 51191* (MO); District of Iquitos, vicinity of Santo Thomás, along Río Nanay; 03°45'S 73°22'W, 200 m, 11 November 1980, *T.B. Croat 51249* (MO); **Madre de Dios:** Secondary Floodplain Plot #4, along Sunset Point Trail, Explorer's Inn, near confluence of Río Tambopata & Río La Torre, 39 km SW of Puerto Moldonado; 12°50'S 069°20'W, 15 October 1985, *S. F. Smith 765* (US); Manu. Cocha Salvador. Habitat: Sotobosque; 350 m, 4 July 1993, *G. Ortiz 416* (MO); Río Alto Madre de Dios, upper part of Alberque Erika, 12°55'S 71°12'W, 600 - 1000 m, *M.S. Baldeón & R. B. Foster 1049* (USM); Manu National Park. Cocha Cashu Biological Station; 11°55'S 71°18'W, 400 m, 25 September 1991, *P. Núñez V; L. Quiñones, D. Yu & H. Dueñas 14287* (CUZ, MO); Tambopata Wildlife Reserve, 30 km S of Puerto Maldonado. above sea level; 12°15'S 069°17'W, 260 m, 30

November 1984, *H. J. Young & D. A. Stratton 315* (MO); Las Piedras. Cusco Amazónico, Inventario Permanente. Plantas colectadas en trocha A y Á; 12°29'S 069°03'W, 200 m, 3 September 1991, *M. E. Timaná & A. Rubio G. 2183* (MO); Cusco Amazónico. Lodge camp site 1, Plot E Trees and Lianas 10 cm dbh; 12°39'47"S 069°09'34"W, 200 m, 14 June 1989, *P. Núñez V. 10955* (MO) **Pasco:** 30 km SW of Oxapamba, Río Pacaurtambo; 1800 m, 30 December 1972, *M. T. Madison 967* (GH); Yanachaga-Chemillén National Park, San Alberto watershed, San Alberto Trail to Refugio El Cedro, 7-9 km above main highway to Pozozo; 27 July 2017, *T. B. Croat et al. 106912* (MO); Oxapampa. Distrito Palcazú. Parque Nacional Yanachaga-Chemillén, cruzando el río Iscozacín, parcela Paujil 1 Ha. Bosque primario muy húmedo tropical; 10°20'26"S 75°15'11"W, 410 m, 14 J. 207, *A. Monteagudoet al. 14286* (MO, USM); Dist. Palcazú. Límite del Parque Nacional Yanachaga-Chemillén, cerca de la Estación Biológica Paujil. Bosque primario muy húmedo tropical; 10°11'S 75°09'W, 390m, 22 June 2005, *A. Monteagudo, A. Peña Cruz, R. Francis, J. Mateo M. & A. Utani 9167* (M, MO, USM); Dist. Palcazú. Evaluación de los Recursos del Bosque 0.5ha en la Reserva Comunal Yanesha. Comunidad Nativa Lomalinda-Laguna, Sector Nueva Aldea, 10°23'38"S 75°05'58"W, 920-950 m, 9 October 2005, *A. Monteagudo et al. 10245* (MO, USM); Dist. Pozuzo. Zona de amortiguamiento del Parque Nacional Yanachaga-Chemillén, Sector Yulitunqui. Bosque primario, pre-montano húmedo, 10°10'58"S 75°34'25"W, 1050 m, 19 J. 2006, *A. Monteagudo et al. 12427* (MO, USM); Dist. Palcazú. Estación Biológica Paujil; 10°20'16"S 75°15'7"W, 360 m, September 2005, *C. Revilla M. et al. 065* (HOXA, MO, USM); Palcazú valley, Río San José in the Río Chuchurras drainage. Primary forest, limestone soils, hilly sites; 10°09'S 75°20'W, 600 m, 12 May 1983, *D. N. Smith 3983* (MO); Along road Chatarra-Pto. Bermudez. Heavily logged forest; 10°30'S 75°03'W, 700 m, 9 July 2003, *H. van der Werff et al. 18172* (MO, USM); Distrito Pozuzo. PN Yanachaga - Chemillen. Estacion Biologica Huampal. Trocha frente a la estacion, camino al pajonal. Bosque Montano Primario; 10°11'S 75°34'W, 1150m, 14 April 2003, *Jorge Lingán 426* (MO, USM); Distrito Palcazú. Estacion Biologica Paujil, Trocha a la colpa. Bosque Primario, 10°19'S 75°15'W, 380 m, 08 Mayo 2003, *J. Lingán 444* (HUT, MO, USM); Distrito Palcazú. Estacion Biologica Paujil, Trocha a la colpa. Bosque Primario, 10°19'S 75°15'W, 380 m, 10 May 2003, *J. Lingán 473* (MO, USM); Distrito Palcazú. Estacion Biologica Paujil, Trocha a la colpa. Bosque Primario, 10°19'S 75°15'W, 380 m, 14 May 2003, *J. Lingán 509* (USM); Distrito Pozuzo. Estacion Biologica Huampal. Carretera a Pozuzo. Bosque Intervenido, 10°10'S 75°34'W, 1100m, 12 J. 2003, *J. Lingán 683* (HUT, MO, USM); Distrito Palcazú. Estacion Biologica Paujil, Margen derecha del Río Palcazú, Trocha al hito. Bosque Primario, 10°19'S 75°15'W, 373 m, 20 May 2003, *J. Lingán et al. 563* (HUT, MO, USM); Dist. Palcazú. Ataz - Quebrada Ataz, 10°10'13"S 75°18'55"W, 392 m, 26 May 2009, *L. Valenzuela G. et al. 12872* (HOXA, HUT, MO, NY, US, USM); Dist. Palcazú, Nueva Aldea, 10°22'36"S 75°04'18"W, 430 m, 11 October 2005, *M. Huamán & R. Rivera 097* (HOXA, MO,

USM); Palcazú; Río Alto Iscozacin; Ozuz. Forested trail along river, 10°19'S 75°16'W, 400 - 500 m, 9 May 1985, *R. B. Foster 10000* (F, MO);Dist. Palcazú. Comunidad Nativa Alto Lagarto-Reserva Comunal Yanesha; 10°08'04"S 75°22'06"W, 500 m, 06 August 2008, *Rocío Rojas & G. Ortiz 5957* (G, HOXA, MO, USM); Dist. Palcazú. Comunidad Nativa Alto Lagarto-Reserva Comunal Yanesha; 10°08'04"S 75°22'06"W, 500 m, 6 August 2008, *R. Rojas & G. Ortiz 6004, 6080* (MO, USM); Dist. Palcazú. Comunidad nativa Alto Lagarto - Reserva Comunal Yanesha; 10°09'7"S 75°23'32"W, 584 m, 30 July 2010, *R. Rojas & G. Ortiz 7409* (MO, USM); Distrito Oxapampa. Comunidad Nativa Alto Lagarto-Convento (Reserva Comunal Yanesha); 10°08'04"S 75°22'06"W, 500 m, 30 August 2013, *R. Rojas & Gregorio Ortiz 9388* (HOXA, MO, USM); Dist. Palcazú. Comunidad Nativa Alto Lagarto - Reserva Comunal Yanesha; 10°08'04"S 75°22'06"W, 500 m, 30 August 2012, *R. Rojas, G. Ortiz & T. Carhuaricra 8600* (HOXA, MO, USM); Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Estación Biológica Paujil, al otro lado del río, 10°20'16"S 75°15'7"W, 400 m, 30 March 2006, *R. Vásquez 31330* (MO, USM); Dist. Palcazú. Parque Nacional Yanachaga-Chemillen. Sector Pescado-Laguna; 10°22'53"S 75°15'08"W, 457 m, 9 October 2011, *R. Vásquez & M. Ureta 37458* (HOXA, MO, USM); Dist. Palcazú. Rodal Semillero de Puerto Mayro, 09°55'11"S 75°16'49"W, 306 m, 24 May 2008, *R. Vásquez et al. 34291* (HOXA, MO, USM); Distrito Villa Rica. Camino sector Ubiriqui hacia Santa Rosa; 10°41'05"S 75°03'18"W, 1248 m, 23 June 2009, *R. Vásquez et al. 3676* (F, HOXA, HUT, MO, MOL, NY, USM). **Puno:** Río Candamo, fila at mouth of Río Guacamayo, ridge top forest with cloud forest aspects. Transect 4, 13°30'S 069°50'W, 810 m, 26 May 1992, *A. H. Gentry et al. 77206* (MO); San Gavon = Lanlacuni Bajo; 13°29'S 70°25'W, 500 m, *Schott s.n.* (MO); Carabaya. Hda. Qui.; 1000 m, 13 July 1966, *C. Vargas C. 17573* (US). **San Martín:** 36 km NE of Tarapoto, Río Cainarachi, wet tropical forest on steep slopes, sandy soil; 06°20'S 76°20'W, 520 - 650 m, 22 July 1982, *A. H. Gentry et al. 37927* (MO); Lamas. Dtto. Alonso de Alva; San Juán de Pacoizapa, km 72 carretera Tarapoto Mayobamba; 06°16'27"S 76°46'21"W, 1000 - 1050 m, 29 May 1977 - 3 June 1977, *J. Schunke V. 9615* (F, MO); convento trail to Tioyacu and Nuevo Lamas (then to Río Shanusi), Km 68 of Tarapoto- Yurimaguas road. Tropical wet forest on white sand; 06°16'S 76°17'W, 200 m, 19 April 1986, *S. Knapp & J. Mallet 7106* (MO, USM); Convento, trail to Tioyacu & Nuevo Lamas, Km 68 of Tarapoto-Yurimaguas road. Tropical wet forest on white sand; 06°16'S 76°17'W, 250 m, 5 April 1986, *S. Knapp & J. Mallet 6985* (MO, US, USM); Mariscal Cáceres. Prov. Mariscal Cáceres. Dtto. Tocache Nuevo; 10 February 1970, *J. Schunke V. 3793* (F, US); Dtto. Tocache Nuevo. Quebrada de Mantención, Carretera Tocache Progreso; 500 - 600 m, 26 May 1982, *J. Schunke V. 13649* (IBE, MO); Distrito Tocache Nuevo. Río de la Plata, nor este de Tocache; 08°11'03"S 76°30'45"W, 500 - 600 m, 7 Mayo 1975, *J. Schunke V. 8413* (CUVC, K, MO); Puerto Pizana, (márgen derecha del río Huallaga). Dtto. Tocache Nuevo. En bosque alto, crece muy adherido al fuste de los árboles; 350 m, 3 June 1974, *J. Schunke V. 6887* (MO, NY, US); Dtto.

Tocache Nuevo. Cerro de Palo Blanco, en bosque alto, crece muy adherido al fuste de los árboles; 700 - 750 m, 24 May 1980, *J. Schunke V. 11709* (IBE, MO); Distrito Tocache Nueovo; quebrada de Ishichini, cerca a Tocache; 08°11'03"S 76°30'45"W, 400 m, 11 March 1978 - 12 March 1978, *J. Schunke V. 10008* (CM, K, MO, NY); Dtto. Tocache Nuevo; Quebrada de Challua-Yacu; 480 - 500 m, 5 February 1979, *J. Schunke V. 10806* (CM, MO, NY); Distrito Tocache Nuevo; quebrada de Ishichini, cerca de Tocache; 08°11'03"S 76°30'45"W, 400 m, 15,17,19 March 1978, *J. Schunke V. 10037* (F, MO); Mariscal Cáceres, Distrito Tocache; vicinity of Recreo Charapita, 08°11'S 076°28'W¸450 m, 6 April 1984, *T. B. Croat 57970* (HUA, MO, PMA, QCA, US, USM); Palo Blanco, W of Puente; Mariscal Caceres; Tocache Nuevo. Epifita en bosque alto; 600 - 700 m, 30 November 1972, *J. Schunke V. 5638* (F, NY, US); Distrito Tocache; vicinity of Recreo CharapitaAl noroeste del vivero del Instituto Agropecuario; 23 April 1970, *J. Schunke V. 3966* (F, K, MO, P, US); Troca a Canutillo, cerca al Cerro Palo Blanco, en bosque alto, 800 - 850 m, 6 May 1980, *J. Schunke V. 11582* (IBE); Nr Aucayacu: right margin of Río Huallaga, 7 September 1967, *R. Ferreyra 17037* (USM); Rioja. Mina del Sal, sector La Mina, 920 m, 18 July 1995, *I.M. Sánchez V. & M.O. Dillon 8116* (MO); Dist. Yorongos. Centro poblado Nuevo Tabaloso (Sector La Encañada). Bosque de Protección. Bosque perennifolio; 06°12'S 77°09'W, 1020 m, 29 October 1996, *I. M. Sánchez V. & M. O. Dillon 8338* (CPUN, MO); Km 28 of Tarapoto-Yurimaguas road, trail to W of road. Tropical wet forest; 06°25'S 76°15'W, 700 - 750 m, 17 August 1986, *S. Knapp 8028, 8051* (MO, USM); above Boca Toma del Shilcayo along Río Shilcayo N of Tarapoto. Tropical moist forest and gallery forest; 06°30'S 76°22'W, 400 - 450 m, 23 May 1986, *S. Knapp & P.W. Alcorn 7361* (MO); Tocache. January 1830, *E. F. Poeppig s.n.* (MO); Distrito Pólvora. Sector Buenos Aires. Parque Nacional Cordillera Azul; 07°56'09"S 76°35'26"W, 1431 m, 24 August 2017, *L. Valenzuela G. et al. 32400* (HOXA, MO). **Ucayali:** Coronel Portillo. Distr: Iparia. Falda al cerro Ariapo, pertenece a las cuencas de los Rios Iparia y Ariapo, afluentes del Río Ucayali. Reserva Comunal el Sira; 09°27'51"S 74°33'57"W, 1550 - 1600 m, 8 September 2010, *J. G. Graham 5995* (MO); Cuenca del Río Iparia, afluente del Río Ucayali. Reserva Comunal el Sira; 09°28'29"S 74°35'01"W, 1500 - 1600 m, 24 October 207, *J. G. Graham 4965* (MO); Calleria. Margen izquierda del Río Utiquinia, cerca la quebrada Pumayacu. Bosque primario; 08°09'13"S 74°15'48"W, 150 - 175 m, 6 August 2003, *J. G. Graham 2274* (MO); Cuenca del Río Iparia, afluente del Río Ucayali. Reserva Comunal el Sira; 09°25'57"S 74°32'47"W, 350 - 400 m, 25 October 207, *J. G. Graham 4789* (MO); Cuenca del Río Iparia, afluente del Río Ucayali; 09°23'47"S 74°30'30"W, 240 m, 04 August 207, *J. G. Graham & J. Schunke V. 4528* (MO); Cuenca del Eio Iparia, afluente del Río Ucayali. Cerca la Comunidad nativa Ashaninka de Mirraflores; 09°21'11"S 74°28'50"W, 200 m, 16 July 207, *J. G. Graham & J. Schunke V. 427* (MO); Camino a la altura, sud este de la quebrada Pumayacu, Río Utiquinia; 08°09'08"S 74°15'29"W, 150 - 175 m, 28 Mar 2003, *J. Schunke V. & J. G. Graham 15457* (F); Cordillera Azul.

Km 51 on Tingo María- Pucallpa road. Chacra being cleared; 09°13'06"S 75°50'44"W, 1200 m, 04 June 1981, *K. Young & G. A. Sullivan 665* (MO); Padre Abad. Distrito Padre Abad. Fundo Yacu Mama, carretera Agaytia-Boqueron Padre Abad. Bosque primario, terreno pantanoso; 09°03'S 75°33'W, 300 m, 16 June 2004, *J. Schunke V. & J. G. Graham 15610* (MO); Distrito Padre Abad. Quebrada Chesman, cerca al Boqueron de Padre Abad, margen izquierda del Río Yurac; 09°03'S 75°40'W, 350 - 400 m, 2 July 2004, *J. Schunke V. & J. G. Graham 15814* (MO). **VENEZUELA**. Plants of the Alto Orinoco; 1951, *L. Croizat 855* (NY); 1951, *L. Croizat s.n.* (NY); Plants of the Alto Orinoco; 1951, *L Croizat 851* (NY). **Amazonas:** Depto. Río Negro, Caño Blanco, a white-water tributary of the Río Mawarinuma, ca 3 km upstream (SE) of the Neblina Base Camp; 150 m, 17 July 1984, *J. S. Miller 1767* (MO); Río Negro: upper and middle Río Baria, elev. ca. 80 m. 1º10'-1º01'N, 66º25'-66º22'W. Flooded forest along river margin; 20 July 1984 - 21 July 1984, *J. S. Miller 1788* (MO); Cerro Neblina base camp, along trail straight across Río Mawarinuma from base camp; elev. 140 m; 00º50'N, 66º10'W; 00°50'N 066°10'W, 140 m, 3 December 1984, *T. B. Croat 59590* (CM, MO); Vicinity of Cerro Neblina area base camp on Río Mawarinuma; 00°50'N 066°10'W, 140 m, 26 November 1984, *T. B. Croat 59338A* (M, MO). **Aragua:** Parque Nac. Henri Pittier, Cerro de la Mesa; en selva nublada en las faldas superiores que dán al sur, en elevaciones de 1500-1900 m. En selva nublada; 1500 - 1900 m, 8 Mar 1972 - 11 Mar 1972, *G. S. Bunting 4675* (VEN). **Bolívar:** Carretera El Dorado-La Gran, alrededores de km 124, en selva húmeda y siempre verde; 18 February 1968, *G. S. Bunting 297* (MY).

***Rhodospatha liesneri*** Delannay & Croat, **sp. nov.** — Type: VENEZUELA. Táchira, Primary wet forest, sandy soil, vic. of Las Minas, N of Laguna, 16 km SE of Santa Ana, 7°36'N 72°13'W, 1150–1250 m, 28 July 1979, *J. A. Steyermark & R. L. Liesner 118911* (holotype, MO-2738406; isotype, VEN-137562). (**Fig. 152**).

**Diagnosis:** *Rhodospatha liesneri* is characterized by its appressed-climbing, epiphytic habit; petioles drying black with a broad sheath becoming deciduous; small, ovate-elliptic blades 2.5 times as long as wide drying grayish brown with a prominent network of minor veins and cross-veins; and inflorescences drying black with the spathe ending in a long, narrow appendix longer than the spadix-enclosing portion.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, ca. 1 cm diam.

**152.** *Rhodospatha liesneri* (*Steyermark & Liesner 118911*, MO-2738406). Holotype showing stem with adventitious roots, petioles, and leaf blades (adaxial and abaxial surfaces).

**Leaves: petioles** ca. 34 cm long, sheathed for 4/5 their length, sheath broad, becoming deciduous, petiole and sheath drying black; **geniculum** ca. 2 cm long; **blades** ovate-elliptic, ca. 39 cm long, 15.5 cm wide, 2.5 times longer than wide, widest near the base, rounded and slightly decurrent at the base, obtuse at apex, drying grayish brown and semiglossy adaxially, grayish green or dark brown and semiglossy abaxially; **midrib** concolorous; **primary lateral veins** ca. 20 per side, departing midrib at 60–70°, drying concolorous; **interprimary veins** prominent, with 1 prominent minor vein running in parallel between them and the primary lateral veins, interconnected by a prominent network of cross-veins.

**Inflorescences:** erect, drying black; **peduncle** ca. 17.5 cm long; **spathe** pale green, 24–35 cm long, ending in a long narrow appendix longer than the spadix-enclosing portion; **spadix** flesh-pink, ca. 15 cm long, 1 cm wide; stipe ca. 7 mm long.

**Distribution and ecology:** *Rhodospatha liesneri* is endemic to Venezuela, found only in Táchira State at 1150–1250 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of Missouri Botanical Garden botanist Ronald Liesner who helped collect the type specimen. Ron is a general plant specialist who is arguably the most knowledgeable authority on Neotropical plants. Ron has worked at the Garden for 52 years after beginning his career at the Field Museum of Natural History.

**Comments:** *Rhodospatha liesneri* resembles *R. perezii*, which also occurs in Táchira State, but the latter species differs by its blades drying grayish brown rather than dark greenish brown for *R. liesneri*. *Rhodospatha liesneri* also has a conspicuous network of cross-veins and a spathe with a long apical appendage, which *R. perezii* lacks. It also occurs at much lower elevations (200–250 m vs. 1150–1250 m for *R. liesneri*).

***Rhodospatha lindaalbertiae*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Antioquia: Guatapé, vereda Santa Rita, Finca Montepinar, 06°17'00"N 75°08'00"W, 1850 m, 23 April 1987, *L. K. Albert de Escobar et al. 7548* (holotype, HUA-36636; isotype, NY). (**Fig. 153**).

**Diagnosis:** *Rhodospatha lindaalbertiae* is characterized by its appressed-climbing, epiphytic habit; drying dark reddish brown overall; elongated internodes with an exfoliating, tan, glossy epidermis; long-lanceolate-elliptic blades 3.2–4.6 times longer than wide with widely spaced primary lateral veins; and short, erect inflorescences.

**153.** *Rhodospatha lindaalbertiae* (*Linda K. Albert de Escobar et al. 7548*, NY). Isotype showing stem with adventitious roots, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**Habit:** appressed-climbing epiphyte to 10 m tall.

**Stem: internodes** 1.5–2.5 cm long, 8–10 mm diam., drying dark brown, heavily ridged in age with an exfoliating, tan, glossy epidermis, the underlying surface drying densely granular and pustular.

**Leaves: petioles** 21.5–29.0 cm long, sheathed to the geniculum, prominently ridged-granular abaxially, tightly and irregularly close-ribbed on sides; **sheath** deciduous, drying medium brown, densely granular and often black-spotted; **geniculum** ca. 2 cm long, drying warty-granular, darker, narrowly sulcate adaxially; **blades** lanceolate-elliptic, 28–36 cm long, 6.0–10.5 cm wide, 3.2–4.6 times longer than wide, slightly inequilateral, one side 0.7–1.0 cm wider, acute and long-acuminate at apex, inequilateral and rounded to subacute at base, widest near the middle, drying dark brown to gray-brown, usually matte adaxially, reddish brown, semiglossy abaxially; **midrib** concolorous, deeply sunken adaxially, round-raised, darker, densely granular, mostly unribbed (sometimes grayish and finely ribbed) abaxially; **primary lateral veins** 15–18 per side, spaced 1.5–2.0 cm, departing midrib at 70° then curving sharply upward midway, weakly raised or even sunken, darker or paler than adaxial surface, narrowly rounded, smooth and slightly darker abaxially; **interprimary veins** faint, with 2 or 3 minor veins running in parallel between the interprimary veins and the primary lateral veins; cross-veins not prominent, mostly oblique and sometimes branching; **adaxial surface** moderately smooth, weakly wrinkled on magnification; **abaxial surface** smooth, minutely pale-speckled.

**Inflorescences:** erect; **peduncle** 13–14 cm long, drying dark reddish brown; **spathe** not seen; **spadix** stipitate, 7.5–11.0 cm long, 12–15 mm diam., drying dark brown; **stipe** 1.0–1.5 cm long; styles drying mostly bluntly rounded-prismatic, sometimes rhombic to quadrangular, 1.6–2.1 mm in broadest dimension, dark gray-brown, matte, truncate, smooth to lumpy.

**Flowers: stigma** disproportionately large, black, gaping, mostly 1 mm long, 0.6 mm wide.

**Infructescences:** not seen.

**Distribution and ecology:** The species is endemic to Colombia, found only in Antioquia Department at 1850 m in a *Premontane Rain Forest* life zone.

**Etymology:** The species is named in honor of the late Linda Katherine Albert de Escobar who collected the only known specimens in 1987 and 1988. Linda tragically died at age 53 in 1993 after an illustrious career of teaching, collecting, and in administration at the Universidad de Antioquia in Medellin. She received her undergraduate degree at the University of New Hampshire (1962), a Masters at Purdue (1971), and a Ph.D. at the University of Texas (1980).

Linda and her students were among the first to concentrate studies in the region of Guatapé where this species occurs and they found there many other new species as well.

**Comments:** Due to its modestly small size, high climbing habit, long lanceolate-elliptic, weakly inequilateral, dark reddish brown-drying blades, *Rhodospatha lindaalbertiae* does not resemble any other species growing in its area.

**Paratypes:** COLOMBIA. **Antioquia:** Guatapé, vereda Santa Rita, Finca Montepinar, 06°17'00"N 75°08'00"W, 1850 m, 9 April 1987, *L. K. Albert de Escobar et al. 7519* (HUA); 3 March 1988, *L. K. Albert de Escobar et al. 8213* (HUA).

***Rhodospatha longipes*** Engl, Bot. Jahrb. Syst. 37: 114. 1905. — Type: COLOMBIA. Nariño: Barbacoas, 01°28'54"N 78°7'20"W, 20 m, 1891, *J. J. Triana 694* (holotype, BM). (**Figs. 154–158**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 2.5–3.5 cm long, ca. 1.5 cm diam., medium green, semiglossy.

**Leaves: petioles** 24–33 cm long, dark green and semiglossy, drying dark brown, sheathed to 3/4 the length of the petiole, sheath erect-incurled, the edge of margin turning tan to light brown in a thin line but mostly persisting, the free portion oval, not at all sulcate; **geniculum** 2.5–5.0 cm long, not sulcate, drying darker, somewhat shrunken; **blades** oblong-elliptic, 37–56 cm long, 11.0–20.5 cm wide, 2.3–3.3 times longer than wide, obtuse and short-acuminate at apex, acute and decurrent at base, moderately coriaceous, dark green and glossy adaxial, moderately paler and weakly glossy abaxially, drying medium gray or medium to dark grayish brown adaxially, slightly paler abaxially; **midrib** narrow-sunken and marginally pale green adaxially, much thicker than broad, concolorous abaxially, drying concolorous, sometimes drying with a pale band along its margin at surface; **primary lateral veins** 23–25 per side, ca. 1 cm apart, departing midrib at 45–55°, weakly quilted-sunken adaxially, darker and pleated-raised abaxially, drying barely visible adaxially, more prominent abaxially; **interprimary veins** moderately distinct; minor veins 3–4 running in parallel on each side of the interprimary veins; cross-veins weak; **adaxial surface** uniformly and densely granular to densely short-ridged or short-ridged-granular, sometimes also with a seemingly ceraceous thin scrapable layer over the granules; **abaxial surface** densely and uniformly granular, to short-ridged-granular, the granules usually larger than adaxially.

**154.** *Rhodospatha longipes* (*Croat 87506*). Live plant showing appressed-climbing epiphytic habit, stem, petioles, and leaf blades (adaxial and abaxial surfaces).

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**Inflorescences:** erect; **peduncle** 24–33 cm long, drying dark brown; **spathe** 23–26 cm long, white, sometimes pale green abaxially, whitish adaxially, drying dark brown; **spadix** stipitate, cylindrical, 14.5–22.0 cm long, 9–15 mm diam., pale greenish white to pinkish violet, drying dark brown; stipe 1.2–2.2 cm long.

**Flowers: styles** bluntly angular, subrounded to oblong, mostly longer in the direction of the axis, 2.0–2.4 mm long in direction of axis, dark gray, matte, sparsely pale-granular: **stigmas** conspicuous, 0.8–1.2 mm long, 0.5-0.6 mm wide, covered with short whitish papillae, the medial slit often apparent.

**Infructescences:** not seen.

**155.** *Rhodospatha longipes* (*Croat 84143*). Live plant showing close-up of post-anthesis inflorescence.

**156.** *Rhodospatha longipes* (*Croat & Bay 75618*, MO-4588386). Specimen showing stem with adventitious roots, petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**157.** *Rhodospatha longipes* (*Croat & Gaskin 79769*, MO-4936230). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post anthesis spadices.

**158.** *Rhodospatha longipes* (*Croat & Gaskin 79769*, MO-4936231). Specimen showing juvenile plants.

**Distribution and ecology:** *Rhodospatha longipes* grows on the Pacific slopes of Colombia (Chocó, Valle del Cauca, Cauca, Nariño) and Ecuador (Carchi, Esmeraldas, Pichincha), mostly at 5–300 m in a *Tropical Wet Forest* life zone.

**Comments:** This species is characterized by its appressed-climbing habit; oblong-elliptic, moderately coriaceous, weakly bicolorous, short-acuminate blades 2.3–3.3 times longer than wide drying mostly dark grayish brown on both sides, and by its weak interprimary veins with 3 or 4 minor veins running on each side and the complete lack of cross-veins.

*Rhodospatha longipes* was long thought to be the same species as *R. oblongata*. These two species are actually very different, with *R. longipes* growing at low elevations along the Pacific slopes of Colombia and northern Ecuador, rather than growing in the Amazon Basin in the case of *R. oblongata*. The blades of *R. oblongata* are more elongated (3.1–3.5 times longer than wide vs. 2.3–3.3 times for *R. longipes*) and they have many more minor veins running on each side of the interprimary veins (6–8 instead of 3–4 for *R. longipes*).

**Other Specimens Seen: COLOMBIA**. **Cauca:** Río Naya near El Pastico. Ridge forest; 03°10'N 77°22'W, 20–100 m, 23 February 1983, *A. H. Gentry & A. Juncosa 40637* (COL, MO); Costa del Pacifico, 5–10 m, *J. Cuatrecasas 14195* (COL). **Chocó:** Taparalito, Quebrada Taparal, N of Palestina. Primary wet forest; 04°15'N 77°12'W, 30 m, 30 March 1986, *A. H. Gentry et al. 53800* (CUVC, MO); Hoya del Río San Juan. Río Fujiadó, afluente del Río San Juan; 04°36'N 76°54'W, 7 April 1979, *E. Forero et al. 4836* (COL); Hoya del Río San Juan. Río Bicordó, arriba de Noanamá. Orillas del río; 04°42'N 76°55'W, 6 April 1979, *E. Forero et al. 4736* (COL); Dense forest near jct. of R. Condoto & R. San Juan, 05°05'47"N 076°41'46"W, 100-150 m, 20 April 1939, *E. Killip 35112* (BM, US); Hoya del Río San Juan. Quebrada Taparal, afluente del Río San Juan. Alrededores de la comunidad indígena Waunaná de Taparalito. 04°12'N 77°10'W, 5–10 m, 28 Mar 1979, *E. Forero et al. 4290* (COL, MO); Hoya del Río San Juan. Quebrada Máncamo, afluente del Río Tamaná. Cerrito en la margen izquierda; 04°57'N 76°38'W, 11 April 1979, *E. Forero et al. 5065* (MO); Entre ríos Condoto e Iró, frente a Condoto; 05°04'12"N 76°38'47"W, 11 January 1956, *J. M. Idrobo 1981* (COL); Along road between Quibdó and Istmina, at Km 14 S of Quibdó. Tropical rain forest, 05°32'N 76°37'W, 100 m, 17 December 1980, *T. B. Croat 5227* (COL, MO); Quibdó. Hoya del Río San Juan. Quebrada Taparal, afluente del Río San Juan. Alrededores de la comunidad indígena Waunaná de Taparalito; 04°12'N 77°10'W, 5–10 m, 28 Mar 1979, *E. Forero et al. 4302* (COL); Carretera Quibdó-Tutunendo. 15 kms de Quibdó; 05°43'36"N 76°36'39"W, 45 m, 7 September 1976, *E. Forero & R. Jaramillo M. 2635* (COL). **Nariño:** Tumaco. Salisbí; 10 June 1951, *R. R. Castañeda 2696* (COL); **Valle del Cauca:** Agua Clara, along highway from Buenaventura to Cali;

dense forest; 100 m, 6 June 1944, *E. P. Killip & J. Cuatrecasas 38885* (US); Road from Cali to Buenaventura 18-20 (bh-Pm). Relictus de Bosque primario; 1600–1800 m, 15 September 1975, *I. Cabrera 3472* (COL); Bajo Calima Region: Pulpapel Headquarters; 03°56'N 77°00'W, 100 m, 4 August 1993, *D. Bay 281* (COL, CUVC, HUA, MO, PMA); Bajo Calima Region, along road from Buenaventura to Málaga, 03°56'N 77°00'W, 50–150 m, 22 July 1993, *D. Bay 226* (LAMUA, MO, PMA); Bajo Calima Region, along road from Buenaventura to Río Calima, at km 12.5 Regrowth forest about 4 m tall; 03°56'N 77°01'W, 160 m, 4 February 1990, *T. B. Croat 70149* (CUVC, JAUM, MO); Bajo Calima, within Lumber Con- cession of Cartón de Colombia, between Buenaventura and Río Calima; Vicinity of Camp Portado Pulpapel, 11 km North of main Calí-Buenaventura Highway; 17-year-old successional forest; Elevation about 50 m, 03°56'30"N 77°01'00"W, 50 m, 4 July 1986, *T. B. Croat 62776, 62777* (MO, PMA); Along road from Buenaventura to Bajo Calima, ca. 4 km from Río Calima, near Km 14 marker (14 km from Cali-Buenaventura Hwy); disturbed primary forest, (all large trees missing). 3º56'N, 76º59'W; 03°56'N 76°59'W, 50 m, 21 March 1984, *T. B. Croat 57536* (MO), *57542* (COL, K, JUAM, MO); Bajo Calima Region, along road from Buenaventura to Málaga, vicinity of Km 11 in front of Pulpapel headquarters; 03°56'N 77°00'W, 130 m, 11 July 1993, *T. B. Croat & D. Bay 75618* (MO); Vicinity of Bajo Calima; along road from Buenaventura to Málaga, Km 49; 04°02'N 77°04'W, 150 m, 17 July 1993, *T. B. Croat & D. Bay 75835A* (CUVC, MO); Vicinity of San Cipriano, between Cordoba and Zaragoza, along Río Danabio, S of Hwy 40 (new Cali-Buenaventura Hwy.), 03°50'15"N 76°53'45"W, 74–100 m, 21 November 2021, *T. B. Croat & G. Ferry 108514* (MO); Bahia Málaga, vicinity Base Naval Málaga, along road to Buenaventura, ca. 1 km from base ca. Km 104. 03°59'N 77°20'W, 28 July 1997, *T.B. Croat & J. F. Gaskin 80482* (CUVC, MO); Along road from Buenaventura to Málaga, near Pulpapel facilities at Km 11.5, 03°51'00"N 76°59'00"W, 40 m, 13 July 1997, *T. B. Croat & J. F. Gaskin 79769* (COL, MO, TEX); Buenaventura. Cartón de Colombia timber concession near Bajo Calima, Primary forest; 03°55'N 77°00'W, 50–100 m, 11 February 1984, *A. Juncosa 2123* (CUVC, MO); Cartón de Colombia, timber concession near Bajo Calima. 3º55'N, 77º'W. Elev. ca. 50-100 m. Primary forest; 03°55'N 77°00'W, 50–100 m, 12 February 1984, *A. Juncosa 2145* (CUVC, MO); Bajo Anchicayá, Levantamiento. Parcela, 03°45'N 76°50'W, 300 m, 19 October 1989, *A. H. Gentry & J. O. Rangel 68498* (COL, MO); Bajo Calima: Within forestry concession of Cartón de Colombia, between Buenaventura & Río Calima, 6.5 km beyond Porton Tomar (at km 27), 22.3 km beyond Camp Portada Pulpapel, 33.3 km beyond main Calí-Buenaventura Highway; primary forest; 04°02'N 77°7'W, 50 m, 8 July 1986, *T. B. Croat 61384* (G, GH, MO, QCNE, USM, VEN); Bajo Calima Region, along road from Buenaventura to Málaga vicinity, Pulpapel Headquarters (located at km 11), at km. 9, unburned regrowth of primary forest; 03°56'N 77°01'W, 185 m, 3 February 1990, *T. B. Croat 70109* (CUVC, KRAM, MO); Bajo Calima Region between Buenaventura and Río Calima,

Cartón de Colombia Forestry Concession Area, 11 km NW of Cali-Buenaventura highway. 18 year old regrowth plot behind Pulpapel headquarters; 03°56'30"N 77°01'00"W, 50 - 80 m, 20 July 1988, *T. B. Croat 69444* (MO); Bajo Calima Region: Along road between Buenaventura and Malaga, at km 40; virgin forest near road (currently being felled), 04°04'N 77°09'W, 100 m, 5 February 1990, *T. B. Croat 70179A* (MO); Bajo Calima, within forestry concession of Cartón de Colombia, between Buenaventura and Río Calima, 6.5 km. beyond the Porton Tomar (at Km 27), 22.3 km beyond Camp Portada Pulpapel, 33.3 km beyond main Calí-Buenaventura Highway. Primary forest; 04°02'N 77°7'W, 50 m, 6 July 1986, *T. B. Croat 61283* (MO, UB); Vicinity of Bajo Calima: Along road past Pulpapel Headquarters (at km 17) to Bahía de Málaga; at Km 44 from the main Cali-Buenaventura highway. Elevation less than 100 m; 04°03'N 77°08'W, 05 February 1990, *T. B. Croat & J. Watt 70195* (JAUM, MO, VEN). **ECUADOR**. **Carchi:** trail along plain above Tobar-Donoso and to Río Gualpi, 01°10'N 78°18'W - 01°10'N 78°31'W, 800–1300 ft, 19 February 1984, *W. S. Hoover 1243* (MO). **Esmeraldas:** Quinindé. Bilsa Biological Station; 00°21'00"N 79°42'00"W, 450 - 650 m, November 2006, *N. Köster & A. Schnell 2253* (MO, QCA); Río Santiago, arriba de Angostura. Plan de Manejo Forestal; 00°52'N 78°45'W, 180 m, 21 March 1997, *C. E. Cerón & D.J . Corozo 34152* (QAP); Lita-San Lorenzo Road, 46.5 Km E of Río Lita, 17.9 Km W of Río Tululbí, 6.4 Km w of el Durango; 01°04'41"N 78°39'31"W, 70 m, 13 October 1999, *T. B. Croat 83252* (CUVC, LAMUA, HUA, MO, NY, PMA, QCNE, S, USM); Lita-San Lorenzo Road, 26.9 Km W of Río Lita, 13.2 Km E of El Durango; 00°58'06"N 78°33'45"W, 735 m, 15 October 1999, *T. B. Croat 83369* (MO, QCNE, USM); Along road between Lita and San Lorenzo, 0.2 Km E of main road along gravel road, 31.3 Km N of Gasolinera San Lorenzo, 17.3 Km N of Río Tulubí; 01°04'30"N 78°39'56"W, 81 m, 17 July 2000, *T. B. Croat 84111* (MO, QCNE); Along road between Lita and San Lorenzo, 36.6 Km SE of Gasolinera San Lorenzo, 12.6 Km NW of Río Tulubí, 1.7 Km SE of El Durango; 01°03'01"N 78°38'00"W, 204 m, 18 July 2000, *T. B. Croat 84143* (B, COL, DUKE, F, K, MO, PMA, QCNE, RSA, NY, US); Communidad Awá Río Bogota, 11.5 Km W of Alto Tambo, 30.5 Km W of Río Lita, 3 Km by trail to Río Bogota on S side of Lita-San Lorenzo Road; 00°58'57"N 78°35'58"W, 380 m, 15 September 2002, *T.B . Croat & D. P. Torres Ravelo 87506* (MO, QCA, QCNE); Along road to Río Tulubí from main San Lorenzo-Lita hwy; 33.0 Km E of Gasolinera San Lorenzo at edge of San Lorenzo, along Río San José, 1.1 Km N of main hwy; 01°04'44"N 78°38'59"W, 59 m, 12 July 2000, *T. B. Croat et al. 83940* (MO, QCNE); Lita-San Lorenzo Road, 1.2 km W of El Durago, 21.1 km W of Alto Tambo; 00°52'11"N 78°27'06"W, 300 m, 8 July 1998, *T.B . Croat et al. 82434* (AAU, GB, MO, QCNE), *82439* (MO, QCNE), *82449, 82492* (CUVC, MO, QCNE); Reserva Cotacachi-Cayapas, Charco Vicente. Bosque muy húmedo tropical. Primario; 00°39'N 78°55'W, 50 m, 8 May 1998, *X. Cornejo S. & C. Bonifaz B. 637* (GUAY, MO); Eloy Alfaro. Reserva Ecológica Cotacachi-Cayapas. Parroquia Luis Vargas Torres. Río Santiago, estero Pote. Bosque muy húmedo Tropical. Bosque

primario; 00°49'N 78°45'W, 250 m, 23–27 October 1993, *M. Tirado et al. 555* (MO, QCNE); San Lorenzo. Parroquia Mataje. Reserva Etnica Awá. Centro Mataje. Bosque húmedo Tropical; 01°08'N 78°33'W, 200 m, 21 September 1992, *C. Aulestia et al. 363* (MO); 32 km al oeste de Lita, en la carretera a San Lorenzo. Bosque muy húmedo Tropical. Bosque alterado; 00°55'N 78°38'W, 250 m, 14 September 1990, *D. Rubio & C. Quelal 750* (MO, QCNE). **Pichincha:** Road from La Independencia to Río Caoni; E of road between Esmeraldas and La Concordia ( Santo Domingo de los Colorados); 9.4 km E of jct. with the main road; (N of La Concordia); disturbed forest, 00°09'N 079°21'W, 210 m, 2 April 1983, *T. B. Croat 55644* (MO, QCA, QCNE); Near border with Imbabura Province; Reserva Guaycuyacu, along Río Guaycuyacu on road to Santa Rosa near village of Cielo Verde, at junction of Río Guayabamba on border with Imbabura Province, 00°13'00"N 78°55'00"W, 1 March 2005, *T. B. Croat 95385* (B, COL, CUVC, F, HUA, LAMUA, K, MO, PMA, QCA, QCNE, S, US), *95389* (COL, K, MO, QCNE US).

***Rhodospatha lorenzoensis*** Croat, **sp. nov.** — Type: ECUADOR. Esmeraldas: San Lorenzo, secondary tropical rain forest around the town, [01°16'N, 78°50'W, less than 50 m elev.] 22 August 1967, *B. Sparre 18322* (holotype, S). (**Not Illustrated**).

**Diagnosis:** *Rhodospatha lorenzoensis* is characterized by its epiphytic habit; moderately small, finely ridged stems drying yellow-brown; petioles drying medium brown with a persistent sheath extending into the geniculum with a thin but intact margin; oblanceolate-elliptic, inequilateral blades drying reddish brown, 2.5–2.7 times longer than wide; long-pedunculate inflorescences with the peduncle enveloped by a prophyll for 3/4 its length, moderately coriaceous spathe, and stipitate, cylindroid-tapered spadix.

**Habit:** appressed-climbing epiphyte.

**Stem:** rooting at nodes; **internodes** 1.0–1.5 cm long, ca. 1 cm diam.; drying yellow-brown, finely ridged.

**Leaves: petioles** 13.5–14.5 cm long, drying medium brown, sheathed for their whole length, extending into 2/3 of the geniculum; **sheath** margin thin, persistent intact; **geniculum** 1.5 cm long; **blades** lanceolate-elliptic, ca. 26 cm long, 9.8–10.5 cm wide, 2.5–2.7 times longer than wide, obtuse and gradually short-acuminate at apex, rounded and inequilateral at base, widest at the middle or slightly above middle (one side 9–11mm wider), drying medium reddish-brown and matte adaxially, slightly lighter and semiglossy abaxially; **midrib** drying flat and slightly paler in middle, otherwise concolorous adaxially, slightly darker and round-raised, bluntly 3 or more

ridged abaxially; **primary lateral veins** ca. 10 per side, spaced 8–15 mm, departing midrib at 40–60°, drying weakly raised, pustular and reddish brown abaxially; **interprimary veins** faint, with usually one minor vein running on each side between them and the primary lateral veins.

**Inflorescences:** erect, moderately long-pedunculate; **peduncle** ca. 18 cm long, drying ca. 7 mm diam., enveloped in the lower 3/4 by a prophyll ca. 13 cm long, peduncle drying medium brown, prophyll drying darker brown; **spathe** bluntly acuminate at apex (basal portion lost), drying coriaceous, dark reddish brown, densely pale-pustular and granular abaxially, gray-drying, densely covered with loose white granules adaxially; **spadix** in early fruiting stage cylindrical but tapering at the apex, ca. 13 cm long, 15 mm diam.; stipe ca. 12 mm long.

**Flowers: styles** rhombic to subrounded-prismatic, 1.8–2.6 wide in broadest dimension, flattened to broadly concave, grayish, matte, seemingly pruinose; **stigmas** oval 0.9–1.1 mm long, 0.4–0.5 mm wide, moderately raised and funnel-shaped, excavated medially.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Ecuador, found only in Esmeraldas Province at less than 50 m elevation in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for the town of San Lorenzo, an old, once isolated port city in northwestern Esmeraldas Province of Ecuador, the only place where the species has been found**.**

**Comments:** *Rhodospatha lorenzoensis* resembles *R. bilsaensis*, which also grows in the same general area, but the former species has stems with proportionately shorter internodes, drying light brown and light brown petioles (versus stems with proportionately longer internodes, drying dark reddish brown for *R. bilsarensis*). Blades of *R. lorenzoensis* dry medium reddish-brown and are only moderately inequilateral and rounded at the base with the apex gradually acuminate (versus with blades drying darker brown, markedly inequilateral, and attenuated on one side, obtuse to acute on the other side for *R. bilsaensis*); ca. 10 primary lateral veins per side on *R. lorenzoensis* vs. 15–16 per side for *R. bilsaensis*; and pistils 2.6–3.0 mm long, irregularly prismatic to subrounded and densely and evenly pruinose for *R. lorenzoensis* vs. pistils 1.8– 2.0 mm long, evenly rhombic with separated waxy clusters for *R. bilsaensis*.

***Rhodospatha madisonii*** Delannay & Croat, **sp. nov.** — Type: ECUADOR. Esmeraldas: Along road from main Lita-San Lorenzo Hwy. to Carondelet and Río Bogota, 0.4 Km E of main

Lita-San Lorenzo Hwy, 01°7'39"N 78°44'01"W, 16 July, 2000, *T. B. Croat et al. 84096* (holotype, MO-5150944; isotype QCNE, S, US). (**Figs. 159–162**).

**Diagnosis:** *Rhodospatha madisonii* is characterized by its small size and appressed-climbing, epiphytic habit; petioles with a thin sheath persisting intact; ovate-elliptic to lanceolate-elliptic blades 2.2–4.0 times longer than wide with the abaxial surface densely covered with large irregular dark blotches on magnification; and small inflorescences with a grayish green spathe and a greenish white spadix that turns bluish green in age.

**Habit:** appressed-climbing epiphyte.

**Stem: juvenile internodes** elongated, 1–4 cm long, 2–3 mm diam., rooting at the nodes; **adult internodes** 1–4 cm long, 5–10 mm diam., medium to dark green, glossy.

**Leaves: juvenile petioles** 4–6 cm long; **juvenile blades** 15–18 cm long, 3–4 cm wide, 4.5–5.0 times longer than wide, drying light to medium green adaxially, light yellow-brown abaxially; **adult petioles** 6–19 cm long, sheathed to the geniculum, drying dark brown to medium yellow-brown, coarsely few-ribbed abaxially, finely ribbed toward margins, often dark short-lineate on inner surface; **sheath** thin, persisting intact, drying darker than shaft, usually medium to dark brown, sometimes light greenish brown, with a darker margin; free part short, terete; **geniculum** 1–2 cm long, sharply sulcate; **adult blades** subcoriaceous, ovate-elliptic to lanceolate-elliptic, 14.5–33.0 cm long, 5.5–11.5 cm wide, 2.2–4.0 times longer than wide, obtuse and short-acuminate at apex, cuneate at base, widest near the middle, dark green, matte-subvelvety adaxially, moderately paler and matte abaxially, drying medium green to greenish brown adaxially, light yellow-brown to medium brown to medium brown abaxially; **midrib** conspicuously sunken and pale green, sometime marginally discolored adaxially, narrowly raised and paler abaxially, drying concolorous; **primary lateral veins** 18–19 per side, arising at a 50–65° angle, weakly quilted-sunken adaxially, drying slightly darker abaxially; **interprimary veins** nearly as strong as primary lateral veins; minor veins prominent, one running on each side of the interprimary veins, interconnected by a loose network of prominent cross-veins; **adaxial surface** densely granular to minutely striate or more coarsely ridged, sometimes with irregular dark blotching; **abaxial surface** densely low-granular, sometimes minutely rowed-granular, usually covered with large irregular dark blotches on magnification.

**Inflorescences:** erect; **peduncle** 7.5–16.0 cm long, enclosed for most of its length by a dark-brown-drying prophyll; **spathe** 8–10 cm long, grayish green (unopened) abaxially, greenish white

**159.** *Rhodospatha madisonii* (*Croat 83866*). Live plant showing appressed-climbing, epiphytic habit, stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**160.** *Rhodospatha madisonii* (*Croat 83866*). Close-up of live, post-anthesis spadix.

**161.** *Rhodospatha madisonii* (*Croat 56285*, MO-3120587). Specimen showing stem with adventitious roots, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**162.** *Rhodospatha madisonii* (*Croat et al. 84096*, MO-5150944). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), immature inflorescence, and spost-anthesis spadix.

adaxially, drying medium to dark brown; **spadix** 6–12 cm long, to 2.8 cm diam. fresh, 8–15 mm diam. dry, greenish white, becoming bluish green.

**Flowers: styles** brown, ellipsoid, drying blackened, drying irregularly rhombic, square or bluntly rounded-prismatic, 1.6–2.0 mm long in direction of axis, dark brown, truncate, matte; **stigmas** oblong, 0.9–1.0 mm long, 0.4 mm wide, the medial slit conspicuous.

**Infructescences:** not seen.

**Distribution and ecology:** This species ranges from Colombia (Chocó, Nariño) to northern Ecuador (Carchi, Esmeraldas) at 50–1300 m in *Tropical Moist Forest*, *Submontane Wet Forest*, and *Montane Wet Forest* life zones.

**Etymology:** This species is named in honor of Dr. Michael T. Madison who collected several of its first specimens in 1978 and 1979. Madison, a graduate of Harvard and one of the earliest members of the staff of Selby Garden, was among the earliest to explore aroids in Ecuador and made many remote expeditions, perhaps the first ever to fully explore the region along the Colombian border in Carchi Province. He wrote the first complete revision of *Monstera* for his Ph.D. thesis and did major studies of the *Caladieae* and *Anthurium* species with compound leaves. He was founder and first publisher for *Aroideana*, the journal of the International Aroid Society, now in its 47$^{th}$ year of publication.

**Comments:** *Rhodospatha madisonii* has long been confused with *R. pellucida* but the former is separated here as a new species. It differs from *R. pellucida* by its blades having prominent minor veins and cross-veins (instead of those being weak in *R. pellucida*) and abaxial blade surface densely covered with large irregular dark blotches on magnification, which is not seen in the case of *R. pellucia*. Also, the two species have divergent geographic distributions, with *R. madisonii* ranging from Colombia to northern Ecuador on the Pacific slopes of the Cordillera Occidental while *R. pellucida* is found only on the Atlantic slopes of Central America from Nicaragua to Panama.

Within the now-defined *Rhodospatha madisonii*, some collections dry with much paler green leaves. Examples include *Croat 56285* and *Croat 57389* from lowland Chocó Department as well as *Croat et al. 82139* and *Madison & Besse 7129* from more elevated regions of Esmeraldas Province and Carchi Province, respectively. These specimens probably warrant additional investigation.

**Paratypes: COLOMBIA**. **Chocó:** Choco-Medellín, at km 185, 14 km E of Tutunendo, 300 m, 05°44'N, 76°43'W, 22 April 1983, *Croat 56285* (CHOCO, JAUM, MO); Near Río Iró, ca 10 km S of Istmina, 50 m, 05°14'30"N, 76°41'00"W, 13 Mar 1984, *T. B. Croat 57389* (MO); Nuqui, Corregimiento de Arusí, Estación Biológica El Amargal, 50 m, 05°34'N, 77°30'W, Mar 1995-17 April 1995, *Suárez et al. 771* (COL, MO); **Narino:** Barbacoas, Corregimiento Ortiz y Zamora, vereda el Barro; Reserva Natural Río Nambi, ca 5 km W de Altaquer, faldas Ocidentales de la Cordillera Occidental, 01°18'N 78°08'W, 1250 m, 10 September 1997, *J. J. Pipoly III et al. 21651* (HUA); Tumaco, Corr. Llovente, Vereda el Carmen, Finca Campoalegre, 50 m, 11 August 1977, *Díaz, et al. 1104* (COL); Tumaco, Corregimiento de Llorente, El Pailón, 350 m, 29 August 1986, Corregimiento de Llorente, El Pailón*, O. de Benavides 6585A* (PSO); Tumaco, Resguardo Indigena El Hojal, cerca del río La Turbia, 01°18'N 78°30'W, 245 m, 19 May 1996, *B. R. Ramírez Padilla, 9849* (PSO). **ECUADOR**. **Carchi:** El Pailón, ca 45 km below Maldonado along a foot path to Tobar Donoso, wet montane forest, 800 m, 28 November 1979, *Madison & Besse 7129* (SEL); **Esmeraldas:** Along road from San Lorenzo to Mataje, departing main Lita-San Lorenzo highway, 7.5 Km N of Gasolinera San Lorenzo, 0.4 Km W of main Lita-San Lorenzo highway , 01°14'30"N 78°45'50"W , 60 m, 11 July 2000, *T.B. Croat et al. 83866* (MO, QCNE); Lita-San Lorenzo Road, 3.7 km W of Río Lita Bridge (below Lita), on steep creek banks, 00°52'51"N 78°28'30"W, 647 m, 30 June 1998, *T. B. Croat et al. 82139* (MO, QCNE), *82139A* (MO, QCNE); San Lorenzo, Reserva Etnica Awá, Centro Guadualito. Bosque húmedo Tropical, 80 m, 20 July 1992, *C. Aulestia et al. 246* (MO); Reserva Ecológica Cotacachi Cayapas. San Miguel. Propiedad de Miguel Chapiro. Bosque Húmedo Tropical. Bosque primario sobre colinas disectas. Parcela Permanente 7, 00°45'N 78°55'W, 130 m, 15 January 1993, *G.A . Tipaz 2663* (MO, QCNE); San Miguel. Río Cayapas. Propiedad del Sr. Miguel Chapiro. Parcela Permanente 7 y alrededores, 00°45'N 78°56'W, 100 m, 3 September 1993, *W. A. Palacios & M. Tirado 11153* (MO, QCNE); Along highway from Esmeraldas to San Lorenzo; 32.9 Km E of main San Lorenzo-Lita Road; 10.6 Km E of Río Santiago bridge, 01°02'47"N 78°58'13"W, 44 m, 10 July 2000, *T. B. Croat 83824* (MO, QCNE); Along gravel road 8.6 km beyond bridge over Río Esmeraldas (near San Mateo, on road to Esmeraldas airport), ca 6.6 km beyond Universidad Tecnológica Luis Vargas Torres-Estación Experimental Mutile, along Río Mutile (tributary of Río Esmeraldas), 80 m, 00°52'N, 79°33'W, 1 April 1983, *T. B. Croat 55628* (MO, QCNE); Carretera Esmeraldas-Muisne, 50 km SW of Atacames, selva tropical, 150 m, 00°38'N, 79°58'W, 16 September 1982, *Balslev & Steere 3104* (QCA, AAU); San Lorenzo-Mataje, 7.4 Km E of Mataje, 0.25 km S of main San Lorenzo-Mataje Hwy, 10.9 km W of San Lorenzo-Lita Hwy, 115 m, 01°18'18"N, 78°43'33"W, 14 July 2000, *T. B. Croat et al. 84012* (MO, QCNE); Environs of Lita, on the Ibarra-San Lorenzo RR; Wet submontane forest*,* 550–650 m, 8 June 1978, *Madison et al. 5006* (SEL); Río Cayapa, Zapallo Grande, 100 m, 0°48'N, 78°55'W, 1-2 August 1982, *Kvist & Asanza*

*4789* (AAU); Along road between Santo Domingo de los Colorados to Esmeraldas, 90 km NW of Santo Domingo, 8.8 km NW of Quinindé, 85 km SE of Esmerladas; disturbed forest along road, 00°26'N 079°03'W, 270 m, 31 March 1983, *T. B. Croat 55571* (K, MO, NY, QCA, QCNE, US).

***Rhodospatha manuelii*** Croat & Delannay, **sp. nov.** — Type: PERU. Loreto: Maynas Province; Distrito Iquitos, Carretera de Zungaro Cocha, trocha de una chacra a la quebrada de Shushuna, en terreno arcilloso, 03°50'00"S 73°16'00"W, 140 m, 31 January 1984, *M. Rimachi Y. 7337* (holotype, MO-4369724). (**Fig. 163**).

**Diagnosis:** *Rhodospatha manuelii* is characterized by its appressed-climbing, epiphytic habit; petioles drying dark brown; ovate-elliptic blades 45.7 × 23.7 cm, 1.8 - 2.0 times longer than wide, abruptly acuminate-caudate, and with the primary lateral veins departing midrib first at an acute angle close along the midrib before spreading out to the edge of the blade; and green spadix with irregularly shaped, mostly oblongish-prismatic styles, these mostly elongated in the direction of the axis with proportionately large stigmas.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 2–3 cm diam.

**Leaves: petioles** ca. 41 cm long, drying dark brown, finely ribbed, the ribs densely short-pale-lineate, sheathed to the geniculum; **sheath** with margin intact, thin, undulate; **geniculum** ca. 2.5 cm long, drying darker; **blades** ovate-elliptic, ca. 45.3 cm long, 24.1 cm wide, 1.8 times longer than wide, inequilateral, one side ca. 2.2 cm broader, rounded and short-caudate-acuminate at apex, rounded and slightly decurrent at base, abruptly short-decurrent, widest slightly below the middle, drying greenish brown and matte adaxially, light gray-brown and semiglossy abaxially; **midrib** drying slightly paler, obtusely sunken medially with raised obtuse margins, these minutely granular, long dark-streaked and sometimes densely short dark-lineate adaxially, narrowly rounded, concolorous, closely fine-ribbed, densely short-pale-lineate abaxially; **primary lateral veins** 20–22 per side, widely spaced (1.6– 2 cm apart), departing midrib first at an acute angle close along the midrib then spreading out at 60° in distal half of blade, to 80° in proximal half of blade, weakly raised, drying concolorous to weakly paler adaxially, convex, slightly paler with dark margins, weakly and irregularly ribbed abaxially; **interprimary veins** faint, 1 per segment with 2 or 3 minors veins running in parallel between them and the primary lateral veins, interconnected by faint cross-veins; **adaxially surface** smooth, not noticibly granular even at high

**163.** *Rhodospatha manuelii* (*Rimachi 7337*, MO-4369724). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

magnification, lacking pale lineations; **abaxial surface** finely dark-speckled, sometimes short-pale-lineate along primary lateral veins.

**Inflorescences:** erect; **peduncle** ca. 26 cm long, weakly glaucous, finely ribbed, coarsely granular, subtended by a coriaceous, finely ribbed, densely granular, sparsely pustular prophyll ca. 34.5 cm long; **spathe** not seen; **spadix** ca. 22.5 cm long, 1.3 cm diam., green post-anthesis.

**Flowers: styles** irregularly shaped, mostly oblongish-prismatic,1.6–2.0 mm long and mostly elongated in the direction of the axis; **stigmas** proportionately much larger than most species, 1.0–1.6 mm long and 0.6–0.7 mm wide, covering a large proportion of the total style and drying dark brown with paler shiny rims.

**Infructescencs:** not seen.

**Distribution and ecology:** This species is endemic to Peru, found in Loreto and Ucayali Departments at 120 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for Peruvian botanist Manuel Rimachi (now going by the name Manuel Villacorta) who collected the type specimen.

**Comments:** *Rhodospatha manuelii* is closest to *R. rimachii*, another new species from the same region. While both have blades of similar size and shape, *R. rimachii* differs by being a terrestrial plant; has glaucous blades drying a lighter color and are pale granular adaxially; petioles drying glaucous; rounded-prismatic styles; and stigmas drying black. In contrast, *R. manuelii* is an appressed-climbing epiphyte; has non-glaucous blades drying a darker color and are dark granular; petioles drying non-glaucous; oblong-prismatic styles; and stigmas drying dark brown.

***Rhodospatha marcelamorae*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Chocó: Corregimiento de Arusí, along trail to Río Arusicito, 05°34'15"N 77°30'01"W, 40–60 m, 24 June 2000, *T. B. Croat & M. Mora 83744* (holotype, MO-5301376; isotype, COL). (**Fig. 164**).

**Diagnosis:** *Rhodospatha marcelamorae* is characterized by long internodes drying blackish brown; distichous leaves; petioles drying blackish near the base and sheathed to the geniculum with the sheath persisting intact; oblong-elliptic, moderately bicolorous, abruptly acuminate blades 2.2–3.2 times longer than wide, drying yellow-brownish, densely covered with red punctuations on the abaxial surface, drying medium greenish or reddish brown adaxially and light

**164.** *Rhodospatha marcelamorae* (*Croat & Mora 83744*, MO-5301376). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and young infructescences.

yellowish brown abaxially, and widely spaced primary lateral veins; and inflorescences drying blackish with a thick, curving, green fruiting spadix.

**Habit:** appressed-climbing epiphyte to 3.5 m tall.

**Stem: internodes** to 4 cm long, 1.8–3.0 cm diam. with remnant petiole bases, dark green, moderately glossy, drying blackish.

**Leaves:** juveniles with **petioles** 9–11 cm long, 2 mm diam.; **blades** linear-lanceolate, 20–24 cm long, 4.0–4.5 cm wide; adults with **petioles** 31–35 cm long, medium green, weakly glossy, smooth, unmarked except for faint striations on apical portion of sheath, sheathed to the geniculum; **sheath** tightly incurled, persisting intact, the margin intact but weakly brownish, weakly free-ending at apex, drying blackish near the base, fading to dark brown farther up; **geniculum** 2.0–5.5 cm long, sharply sulcate; **blades** subcoriaceous, oblong-elliptic, 37–53 cm long, 13–18 cm wide, 2.2–3.2 times longer than wide, obtuse at the base and the apex, short-acuminate at apex, moderately bicolorous, dark green and glossy adaxially, moderately paler and glossy abaxially, widest near the middle, drying medium gray-green or reddish brown adaxially, light yellowish brown and densely covered with red punctuations abaxially; **midrib** obtusely sunken and concolorous adaxially, narrowly rounded and paler abaxially, drying somewhat sunken slightly darker adaxially, narrowly round-raised, prominently ridged, darker abaxially; **primary lateral veins** 20–24 per side, departing midrib at 50–60°, widely spaced (1.2–2.3 cm), concolorous, somewhat undulated adaxially, narrowly rounded, slightly darker, bordered with reddish dots abaxially; **interprimary veins** one per unit, nearly as strong as primary lateral veins; minor veins 3 or sometimes 4 running in parallel between the interprimary veins and the primary lateral veins; cross-veins weak, mostly oblique; **adaxial surface** moderately smooth, sparsely short-pale-lineate; **abaxial surface** moderately short-striate, sparsely brownish punctate, conspicuously reddish punctate near primary lateral veins (punctations rounded to ellipsoid).

**Inflorescences:** per axil; **peduncle** 24–31 cm long, enclosed by a prophyll for most of their length; peduncle and prophyll drying blackish; **spathe** not seen; **spadix** strongly curving, 7.2–18 cm long, (1.5)2.2–2.8 cm diam. at the middle, greenish gray, matte, drying blackish, stipitate 5–8 mm, stipe 5–7 mm diam.

**Flowers: styles** oblong to rounded-prismatic, 1.7–1.9 mm long, 0.9–1.1 mm wide, dark brown, matte; **stigma**s 1.2–1.4 mm long, 0.4–0.5 mm wide, oblong, the margins sometimes light brown, medial slit often distinct.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha marcelamorae* is endemic to Chocó Department of Colombia, found only near Corregimiento Arusi at 20–200 m in a *Tropical Wet Forest* life zone.

**Etymology:** This species is named in honor of Marcela Mora who collected most of the known specimens along with the second author in 2000. Marcela is a specialist on both Araceae (*Philodendron*) as well as with Acanthaceae. Her undergraduate thesis dealt with the Araceae of Cabo Corrientes in Colombia. She was responsible for the production of the Lucid *Philodendron* Key. Presently she is a member of the Missouri Botanical Garden's Araceae Research Group and teaches at Meramec Community College in St. Louis.

**Comments:** *Rhodospatha marcelamorae* resembles *R. grayumiana*, which also occurs in Chocó Department; however, the former species differs by its internodes and petiole bases drying blackish and abaxial blade surface densely covered with red punctuations (rather than internodes and petiole bases drying yellow-brown and abaxial blade surface lacking red punctuations in the case of *R. grayumiana*).

**Paratypes: COLOMBIA. Chocó:** Nuqui, Corregimiento Arusí, Estación Biológica El Amargal, along trail to Arusí, 05°34'15"N 77°30'00"W, 20–50 m, 19 June 2000, *T. B. Croat & M. Mora 83681*, *83690* (MO, COL); Quebrada Chaqui, 05°40'N 77°16'W, 200 m, February-March 1994, *G.A. Galeano 4788* (COL).

***Rhodospatha mistratoensis*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Risaralda: Mistrato, corregimiento de Puerto de Oro, Vereda Chirrincha, orillas del río Aguita, zona de bosque muy húmedo premontano, 05°18'00"N 76°12'00"W, 800–900 m, 13–19 September 1991, *J. L. Fernández-Alonso et al. 8969* (holotype, MO-4618318). (**Fig. 165**).

**Diagnosis:** *Rhodospatha mistratoensis* is characterized by its appressed-climbing, epiphytic habit; drying brown overall; petioles with deciduous sheath; and very long blades 4.6 times longer than wide with both surfaces covered with small round white inclusions, flat adaxially, protruding abaxially.

**Habit:** appressed-climbing epiphyte.

**Stem:** not seen.

**Leaves: petioles** ca. 29.5 cm long, sheathed to the geniculum, sheath deciduous, drying dark brown; **geniculum** 2 cm long; **blades** oblong-lanceolate, ca. 67 cm long, 14.5 cm wide, 4.6 times

**165.** *Rhodospatha mistratoensis* (*Fernández-Alonso et al. 8969*, MO-4618318). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

longer than wide, obtuse at apex, obtuse and slightly decurrent at base, widest above the middle, drying dark purplish brown adaxially, slightly lighter brown abaxially; **midrib** drying concolorous; **primary lateral veins** numerous, spaced 1.0–1.7 cm, departing midrib at 70°, not prominent; **interprimary veins** weak, with 1 or 2 diffuse minor veins running in parallel between them and the primary lateral veins; cross-veins barely visible; **adaxial** and **abaxial surfaces** densely covered with small round white inclusions, flat adaxially, abaxially.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha mistratoensis* is endemic to Colombia, found only in Risaralda Department at 800–900 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for the Mistrato municipality of Risaralda Department of Colombia, the only place where it has been found.

**Comments** — Due to its large, very elongated blades drying dark brown, this species does not resemble any other species growing in its general area.

***Rhodospatha monsalveae*** Croat & D. C. Bay, Aroideana 27: 90–129. 2004. — Type: COLOMBIA. Valle: Bajo Calima Region; along rd. from Buenaventura to Río Calima, near km marker 14, ca. 4 km s. of Río Calima, 3°56'N, 76°59'W, less than 50 m, 21 March 1984, *Croat 57526* (holotype, MO–3187779; isotypes COL, JAUM). (**Figs. 166–172**).

**Habit:** typically an appressed–climbing epiphyte, mostly to 2.5 m tall, rarely terrestrial as an adult.

**Stem:** typically less than 1 m long; **internodes** short, mostly 3–5 cm diam. on adult plants (much smaller on preadult plants; juvenile plants with internodes to 8 cm long, 4 mm diam.); epidermis (where visible on the older part of the stem) green to gray turning light brown, deeply and conspicuously longitudinally sulcate and sharply ridged, with transverse fissures; **prophylls** 16–53 cm long, drying light brown with loose, dark brown margins.

**Leaves:** held more or less erect; **petioles** sheathed to the geniculum, 22–62 cm long, pale green to medium green, minutely pale-speckled, drying typically reddish brown, sometimes yellowish brown, sometimes irregularly and deeply fissured (surface densely granular and with raphide cells on magnification); **sheath** drying dark brown, usually deciduous or with some pieces adhering along

**166.** *Rhodospatha monsalveae* (*Croat et al. 95871*). Live plant showing appressed-climbing, epiphytic habit, stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**167.** *Rhodospatha monsalveae* (*Croat et al. 95871*). Live plant showing petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadices.

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its length; **geniculum** sharply and broadly V-sulcate, 2–4 cm long, sometimes with a weak, spreading wing on the margins; **blades** subcoriaceous, oblong-elliptic to oblanceolate-elliptic, subcoriaceous, inequilateral (one side 1–3 cm wider than the other), 45–88 cm long, (11)15–29 cm wide, broadest at middle or slightly distal of the middle, (1.8)2.8–3.8 times longer than wide, 1.1–2.0 times longer than petioles, obtuse and acuminate to abruptly acuminate at apex, acute to somewhat rounded and somewhat attenuate at base (both apex and base more or less equilateral), semiglossy, slightly to conspicuously bicolorous, dark green adaxially, moderately to much paler abaxially, drying typically dark grayish green adaxially, dark reddish brown abaxially, sometimes dark brown adaxially, yellowish brown abaxially; **midrib** much paler and deeply sunken and marginally discolored in a band 3–5 mm wide along either side of midrib adaxially, prominently raised and thicker than broad abaxially, drying minutely granular on magnification; **primary lateral veins** to 50–60 (83) per side, 5–14 mm apart, mostly less than 10 mm apart, becoming farther apart towards the apex of the blade, sunken adaxially, raised abaxially, drying somewhat lighter than surface abaxially, departing midrib at 60–85° and only weakly curved to the margins, (sometimes departing midrib at an acute angle or in a narrow curve before spreading to the margin); **interprimary veins** usually 1 per pair of primary lateral veins, drying inconspicuously darker than

**168.** *Rhodospatha monsalveae* (*Croat 72400).* Live plant showing stem, petioles, leaf blades (adaxial and abaxial surfaces), inflorescences at anthesis, and post-anthesis spadix.

**169.** *Rhodospatha monsalveae* (*Croat 57526*, MO-3167779). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and young inflorescence.

**170.** *Rhodospatha monsalveae* (*Croat 72287*, MO-4074001). Specimen showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadices.

**171.** *Rhodospatha monsalveae* (*Croat 73062*, MO-4064744). Specimen showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis.

or lighter than surface; minor veins mostly 1 or 2 between each pair of interprimary and primary lateral veins, sparsely granular on magnification; cross–veins oblique, weak to prominulous, more prominent toward the margins, usually branched, sometimes forming reticulate veins; the surface moderately glossy, moderately densely dark granular on magnification.

**Inflorescences:** erect; **peduncle** 26–30 cm long, ca. 1 cm diam; **spathe** greenish white, somewhat yellower toward the margins, white adaxially, 14–28 cm long, to 4.7 cm diam. (unfurled), to 8 cm wide when flattened, long, oblong–elliptic and narrowly long-acuminate before opening; **spadix** white to cream, yellow or yellowish tan, pale orange to pale purple-violet or reddish, becoming green post-anthesis, (6.0)11.0–20.5 cm long, 9–15 mm diam., stipitate to 1–3 cm, moderately tapered to a bluntly acute at apex, becoming pale green post-anthesis.

**Flowers: pistils** mostly irregularly and smoothly to acutely 6–sided, frequently rhombic, sometimes appearing almost rounded, 1.4–1.8 mm diam., sometimes broader than long, the margins straight to convex or weakly sigmoid, sides drying brown, sparsely warty; **styles** drying brownish and truncate at apex; **stigmas** raised, drying black and shiny, oblong to oblong-elliptic to elliptic, 0.6–1.4 mm long, 0.2–0.5 mm wide, depressed medially, becoming somewhat rounded in fruit and often funnelform; **anthers** 0.6–0.8 mm long, 0.5 mm wide; sterile flowers only a few at the base of spadix (but at least one post–anthesis inflorescence with up to 3 cm of the spadix eaten away).

**Infructescences:** to 23 cm long, 2 cm diam.

**Fruits: seeds** reniform to rounded and flattened, 1.0–1.1 mm long, 0.8–1.0 mm diam., tan.

**Distribution and ecology:** *Rhodospatha monsalveae* ranges from Panama to Colombia (Antioquia, Cauca, Chocó, Nariño, Valle del Cauca) and Ecuador (Bolivar, Carchi, Cotopaxi, El Oro, Esmeraldas, Los Rios, Manabí, Pichincha), from sea level to 2200 m where it is restricted to the Pacific slope in *Tropical Wet Forest* and *Tropical Rain Forest* transition to *Premontane Rain Forest* life zones.

**Comments:** This species is characterized by its light brown, conspicuously fissured stems; petioles sheathed to the geniculum, typically drying reddish brown with the sheath usually deciduous with dark brown persistent fragments; sharply sulcate geniculum; blades more or less equilateral and decurrent at the base, typically drying grayish green adaxially, reddish brown abaxially with primary lateral veins closely spaced proximally, conspicuous, frequently branched, mostly oblique cross veins, and abaxial surface minutely dark-granular on magnification.

*Rhodospatha monsalveae* is by far the most common *Rhodospatha* species on the Pacific slopes of the Andes, ranging from Panama to Ecuador from sea level to 2200 m. No other *Rhodospatha* species occurs at such a wide range of elevations. It is very distinctive by its large size, its blades drying dark reddish brown abaxially, and its primary lateral veins closely spaced near the base and becoming more widely spaced distally. The only other species it could be confused with is *R. densinervia*, which differs by its smaller size, the primary lateral veins closely spaced along the whole length of the blade, the blade drying medium brown abaxially, and by occurring only at high elevations (1500–2300 m).

**Other Specimens Seen: COLOMBIA**. **Antioquia:** Parque Natural "Las Orchideas", Sector Calles Río Calles, above confluence of Río Polo, 1400–1430 m, *Á. Cogollo P. et al. 2759* (JAUM); Alto de Cueras, 10 km E of La Blanquita, 12 km W of Nutibara, cloud forest. Non-transect, 06°40'N 76°30'W, 1680 m, 2 March 1992, *A. H. Gentry et al. 76030* (MO); Amalfi. Area de influencia del proyecto hidroelétrico Porce II. Bosque Caimán en la vía Medellín-Amalfi, 06°48'N 75°08'W, 950 m, 21 August 1999, *A. A. Rivas et al. 81* (HUA); Area de influencia del proyecto hidroeléctrico porce II Bosque Normadia. En la via Medellin-Amalfi; 06°47'N 75°08'W, 950 m, 22 May 1999, *A. A. Rivas & J. C. Benavides 50* (MO); Urrao. Las Orquídeas: Vereda Calles; Parque Nacional Natural Las Orquídeas; Quebrada Honda. Inventario Permanente de bosque húmedo premontano; en el filo al NW de La Cabaña Calles; Parcela W, subparcelas W 2-W 3, 06°29'N 76°14'W, 1300 m, 8 December 1992, *J. J. Pipoly III et al. 16823* (MO); Corregimiento La Encarnación, vereda Calles, Parque Nacional Natural Las Orquideas, camino Calles - La Encarnación, depués de la confluencia del rio Polo y el rio Calle y antes del rio San Pedro, sitio La Quiebra; 06°30'N 76°14'W, 1600–1850 m, 31 January 2011, *C. Betancur B. et al. 14915* (MO). **Cauca:** Parque Nacional Munchique, 3 km W of summit on road between Popayan and Viente de July io, 02°32'05"N 06°58'37"W, 2275 m, 20 July 1997, *T. B. Croat & J. F. Gaskin 80127* (CAUP, CUVC, MO); Along road between Popayan and Munchique; Parque National Munchique, 7 km W of summit. GPS coordinates; 02°31'50"N 77°00'23"W, 2090 m, 19 July 1997, *T. B. Croat & J. F. Gaskin 80057, 80079* (CAUP, MO); **Chocó:** Top of Serrania del Darien, ca. due E of Unguia. Lower montane wet forest; 08°03'N 77°02'W, 1400 m, 19 July 1976, *A. H. Gentry et al. 16806* (MO); Along road between Quibdó and Las Animas, ca 1 km N of Las Animas; disturbed forest with large trees missin; 05°14'N 76°40'W, 100 m, 15 April 1983, *T. B. Croat 55956* (CHOCO, CM, CAL, JAUM, LE, MO), *T.B. Croat 56006* (COL, JAUM, MO); Quebrada Antón from Santa Cecilia (Risaralda) to Isthmina, 15.2 km W of Santa Cecilia, 17.3 km E of Tabor, 28.1 km E of Playa de Oro. 05°20'41"N 076°14'42"W, 280 - 350 m, 12 August 1997, *T. B. Croat & John F. Gaskin 80758* (MO, LAMUA); Vicinity of Quibdó, along road between Quibdó and Istmina at Km 4. Lower montane rain forest; 06°28'N 76°36'W, 100 m, 18

December 1980, *T. B. Croat 52242, 52243* (COL, JAUM, MO); Along rd between Quibdó and Medellin, at Km 136.4, 63 Km E of Tutunendo 46 km west of Bolivar, 05°47'N 76°22'W, 960 m, 22 April 1983, *T. B. Croat 56347a* (JAUM); Along road between Pueblo Rico (Risaralda) and Istmina (Chocó), along Quebrada Antón, 15 km W of Santa Cecila, 6 km W of Chocó-Risaralda border, ca. 20 km E of Playa del Oro; along steep trail up hogback ridge beginning at west end of bridge; 05°20'30"N 76°13'45"W, 240 - 350 m, 23 February 1990, *T. B. Croat 70942* (AAU, CAS, F, MEXU, SEL); Road between Medellin and Quibdó; at Km 159; 05°44'33"N 76°29'24"W, 480 m, 13 April 1983, *T. B. Croat 55931* (CHOCO, MO); Along road between Quibdó and Medellín, 25 mi E of Quibdó; 05°51'51"N 76°27'04"W, 200 m, 18 December 1980, *T. B. Croat & Á. Cogollo P. 52295* (MO); Along road between Tadó and Istmina, 3.5 km W of bridge over Río San Juan at Tadó, 5.0 km E of Las Animas. GPS coordinates; 05°16'30"N 76°35'36"W, 140 m, 13 August 1997, *T. B. Croat & J. F. Gaskin 80795* (MO); Along Highway 60 between Quibdó and Bolívar (Antioquia), 12.5 km E of Tutunendo; 05°45'N 76°30'W, 240 m, 16 August 1997, *T. B. Croat & J. F. Gaskin 80930* (MO); Nuquí. Quebrada, Chaqui, 05°40'N 77°16'W, 200 m, February 1994 - March 1994, *G. A. Galeano et al. 4538* (MO); Corregimiento de Arusí, Estación Biológica EL AMARGAL; 05°34'N 77°31'W, January 1999 - April 1999, *J. Jácome 371* (COL, MO); Corregimiento de Arusí, Estación Biológica El Amargal, 05°34'N 77°31'W, January 1999 - April 1999, *J. Jácome 248* (COL, MO); Corregimiento de Arusí, Estación Biológica El Amargal; 05°34'N 77°30'W, 50 m, July 1998 - September 1998, *M. Mora 40* (MO); Corregimiento Arusí; vic. of Arusí, Estación Biológica El Amargal; 05°34'14"N 77°30'10"W, 30 m, 17 June 2000, *T. B. Croat & M. Mora 83647 (=Mora 269)* (COL, MO); Corregimiento Arusí; Estación Biológica El Amargal, between station and Arusí along side trail to Río Arusicito; 05°34'16"N 77°30'01"W, 0 m, 22 June 2000, *T. B. Croat & M. Mora 83715 (=Mora 333)* (COL, MO); Corregimiento de Arusí: Along trail to Río Arusicito; 05°34'15"N 77°30'01"W, 40 - 60 m, 24 June 2000, *T. B. Croat & M. Mora 83745 (=Mora 362)* (COL, MO); Corregimiento Arusí; Estación Biológica El Amargal; along trail to Arusí; 05°34'15"N 77°30'00"W, 20 - 50 m, 19 June 2000, *T. B. Croat & M. Mora 83671 (=Mora 289),* (*83676 (=Mora 294), 83678 (=Mora 296), 83687 (=Mora 305), 83691 (=Mora 309)* (COL, MO), *83675 (=Mora 293)* (MO); Quibdó. corregimiento de Guayabal, Río Hugón, 14 October 1985, *L. García 76* (CHOCO); San José del Palmar, Cerro del Torrá, vertiente del Río Negro, ca a 1 hora abajo del Helipuerto; bosque primario. Vereda de Río Negro; 1800 m, 14 August 1988, *J. E. Ramos et al. 1202* (MO). **Cundinamarca:** Municipio La Vega; Hacienda La Primavera. Margen del rio Perucho; 21 February 1974, *I. de Arevalo 79* (COL). **Nariño:** Road from El Espino to Tumaco; 30 km W of Ricaurte, 10 km W of Ataquer; El Mirador, Finca Santa Lucia; in forest N of Río Nambi, 01°17'N 78°7'W, 950 m, 9 December 1988, *B. E. Hammel & A. Naraváez 17195* (MO); Along road between Junín and Barbacoas, 18.1 km NE of Junín; 01°21'N 78°06'W, 940 m, 27 February 1992, *T. B. Croat 72440* (MO), *72441* (CUVC, HUA, MO, SEL); Along

trail which leads from main Pasto-Tumaco Road to the Río Nambi, departing main road at Escuela Mixta El Mirador, 7 km W of Altaquer; 01°18'N 78°04'W, 1100 m, 26 February 1992, *T. B. Croat 72400* (IBE MO, TEX. Z); 23.6 km N of Junín on road to Barbacoas; 01°23'50"N 78°04'21"W, 588 m, 02 September 2013, *T. B. Croat 105168* (MO); Barbacoas. Corregimiento de El Diviso, camino al Caraño, 01°22'N 78°09'W, 580 - 590 m, 23 August 1995, *M. S. Gonzalez. 1032* (PSO); Ricaurte. Resguardo Indigena Nulpe Medio. Camino a la quebrada La Conga; 01°06'N 78°13'W, 750 m, 08 January 1996, *M. Socorro González E. 1597* (QCA); Reserva Natural La Planada: 7 km above Chucunés (on road between Tuquerres and Ricaurte); along trail to Pialapí, 150-200 m past entrance to La Planada Field Station; 01°10'17"N 77°59'08"W, 1925 m, 10 March 1990, *T. B. Croat 73175* (CUVC, MO, QCNE); Along road between Altaquer and Tumaco, Altaquer, Río Ñambí, 6 km W of Altaquer; 01°18'N 78°04'W, 1100 - 1130 m, 20 March 1990, *T. B. Croat 71642* (MO); Along road between Altaquer and Tumaco, between Altaquer and Junín, 7 km W of Altaquer, Río Ñambi; 01°18'N 78°04'W, 1100 m, 21 March 1990, *T. B. Croat 71675* (K, MO); Along road between Altaquer and Tumaco, Altaquer, Río Ñambí, 6 km W of Altaquer; 01°18'N 78°04'W, 1100 - 1130 m, 20 March 1990, *T. B. Croat 71631* (AAU, B, CAS, F, MEXU, MO, SEL). **Valle del Cauca:** Reserva Natural de Yotoco, Cordillera occidental, vertiente oriental, Km 18 de la carretera Buga Madroñal. Bosque humedo subtropical (Holdridge), selva subandine (Cuatrecasas); 03°45'N 76°23'W, 1200 - 1900 m, 7 June 1995, *D. Bay 317* (CUVC, HUA, MO, PMA); Dense forest along highway, 10-15 kilometers east of Buenaventura; near sea level; 12 April 1939, *E. P. Killip 34941* (US); Río Calima (región del Chocó), La Trojita; 5 - 50 m, 19 February 1944 - 10 Mar 1944, *J. Cuatrecasas 16551* (F); Bajo Calima; Concesión Pulpapel/Buenaventura. Bosque Pluvial Tropical. Suelos deficientes en nutrientes principalmente en P, Ca, K, Mg, Cu, Mn, Zn y un alto porcentaje de saturación de Al; 03°55'N 77°00'W, 100 m, 23 April 1987, *M. Monsalve B. 1453* (MO); Along old road (gravel) between Cali and Buenaventura, near village of Sabaletas; 100 m, 28 August 1976, *T. B. Croat 38566* (MO); Along road around the edge of Lago Calima (situated along highway between Buga and Loboquerero on road to Buenavuentura) on steep forested rocky slopes N of lake. 3 54'N, 76 33'W. elev. 1430 m; 03°54'N 76°33'W, 1430 m, 13 May 1983, *T. B. Croat 56743* (COL, HUA, JAUM, MO); Bajo Calima, within Lumber Con- cession of Cartón de Colombia, be- tween Buenaventura & Río Calima; Vicinity of Camp Portado Pulpapel, 11 km North of main Calí-Buenaventura Highway; 17-year-old successional forest; Elevation about 50 m;, 03°56'30"N 77°01'00"W, 50 m, 4 July 1986, *T. B. Croat 62775* (MO); Bajo Calima Region, along road from Buenaventura to Río Calima, at km 12.5 Regrowth forest about 4 m tall; 03°56'N 77°01'W, 160 m, 4 February 1990, *T. B. Croat 70150* (B, COL, CUVC, MO, NY); Along road from Jamondí to western Andes, vicinity of San Antonio. GPS coordinates; 03°12'44"N 76°39'25"W, 1450 - 1580 m, 16 July 1997, *T. B. Croat & J. F. Gaskin 79911* (CUVC, HUA, MO); Vicinity of Queremal, along Río Cava (south of Queremal-

Buenaventura Highway, near Queremal, at Km 55), ca. 2 km S of road. GPS coordinates; 03°32'21"N 76°45'25"W, 1100 m, 26 July 1997, *T. B. Croat & J.F. Gaskin 80387* (CUVC, MO); Vicinity of Queremal, Vereda La Victoria, just S of Queremal. GPS coordinates; 03°31'06"N 76°42'57"W, 1450 - 1480 m, 27 July 1997, *T. B. Croat & J. F. Gaskin 80614* (CUVC, MO); Along road to Dapa from main Cali-Buenaventura Highway. GPS coordinates; 03°32'10"N 76°36'37"W, 1945 m, 23 July 1997, *T. B. Croat & J. F. Gaskin 80197* (CAUP. COL, MO, PMA); Along road between Queremal and Anchicaya on old Cali-Buenaventura Road, departing road on trail at Km 55, 6.5 km W of Queremal via Río San Juan. GPS coordinates; 03°32'23"N 76°45'26"W, 1250 m, 26 July 1997, *T. B. Croat & J. F. Gaskin 80358* (CUVC, COL, LAMUA, MO); 1.7 km SSW of Queremal, 25 km beyond turnoff of main Cali-Buenaventura Hwy, via Borrero Ayerbe, 3.1 km. W of Queremal; 03°31'12"N 76°44'16"W, 1432 m, 03 October 2012, *T. B. Croat et al. 104004* (MO); Buenaventura. Bajo Calima Region: Municipio Buenaventura along road between Buenaventura and Málaga, at km 40; virgin forest near road (currently being felled); 04°04'N 77°09'W, 100 m, 5 February 1990, *T. B. Croat 70179* (G, GH, MO); between Buenaventura and Río Calima, Cartón de Colombia Forest Concession Area, 11 km NW of Cali-Buena- ventura Highway. 18 year old regrowth, forest plot behind Pulpapel head- quarters; 03°56'30"N 77°01'00"W, 50 - 80 m, 16 July 1988, *T. B. Croat 69299* (MO); Bajo Calima Region; along road between Buenaventura and Málaga, Km 51.7 from main Cali-Buenaventura Hwy; 04°03'N 77°05'W, 16 July 1993, *T. B. Croat & D. Bay 75783A* (MO); Bajo Calima Region; along road between Buenaventura and Málaga, Km 51.7 from main Cali-Buenaventura Hwy; 04°03'N 77°05'W, 16 July 1993, *T. B. Croat & D. Bay 75783* (HUA, MO); Bajo Calima; Within forestry concession of Bajo Calima, between Buenaventura & Río Calima; 17-year-old successional forest behind headquarters of Camp Portada Pulpapel, 11 km N of main Calí-Buenaventura Highway; 03°56'30"N 77°01'00"W, 50 m, 9 July 1986, *T. B. Croat & M. Monsalve B. 61398* (COL, HUA, MO). **ECUADOR**. Carretera Santo Domingo de los Colorados-Quinindé, km 171-188, hasta el Río Cócola; 100 m, 17 February 1950, *M. Acosta-Solis 16209* (F). **Bolívar:** Clementina Farms, Cerro Samama, 5.7 km S and W of main Pueblo-Viejo-Caluma Road, 5.2 km W from bridge over Río Pita, (turnoff is 6.3 km E from Potosí); 01°38'51"S 79°19'52"W, 371 - 600 m, 14 August 2004, *T. B. Croat et al. 93328* (GB, MO, QCNE); **Carchi:** Río Blanco drainage above Chical, tributary of Río San Juan, mostly mature forest, ca. 12 km W of Maldonado; 00°55'37"N 78°11'02"W, 1300 - 1500 m, 25 September 1979, *A. H. Gentry & E. Schupp 26524* (MO); Tulcán. Reserva Etnica Awá. Parroquia El Chical. Sector Gualpi Medio. Río Canumbí. Bosque muy húmedo Premontano. Bosque primario, topografía muy irregular; suelo negro franco-arcilloso; 01°02'N 78°15'W, 1150 m, 19–28 February 1993, *A. Grijalva et al. 499* (MO, QCNE); Perhumid forest on wet plateau above San Marcos de los Coaiqueres, on trial towards Gualpi Bajo; 01°06'N 78°17'W, 1000 m, 7 February 1985, *B. Øllgaard, J. Korning, K. Thomsen & T. Illum 57469* (AAU, MO); From Prima Vera

hike about six hours up Río Gualchan drainage to shelter built by Nilo Ortiz at 1950 m. Collected mostly along ridge to the north, and around camp. Montane Wet/Pluvial Forest; 00°49'58"N 78°10'01"W, 1930 - 2200 m, 7 June 1993 - 8 June 1993, *J. C. Bradford et al. 38* (MO, QCNE); Chical; 00°56'N 78°11'W, 1200 - 1250 m, 13 August 1983, *S. A. Thompson et al. 1064* (CM, MO); Along road from El Chical to El Carmen via unfinished road, departing main El Chical-Peñas Blancas Road, 0.6 km W of Río Chical Bridge, just W of El Chical, 3.8 km S of main road; 00°59'01"N 78°11'37"W, 1300 m, 9 August 2004, *T. B. Croat & G. Ferry 93147* (MO, QCNE, S, US); Along road from Lita to Baboso, along Río Baboso, near bridge; 00°53'00"N 78°27'00"W, 672 m, 09 October 2012, *T. B. Croat et al. 104090* (CUVC, MO, QCNE); Carchi; trail along plain above Tobar-Donoso and to Río Gualpe; 1º10'N, 78º18-31'W, elev. 800-1300 feet; 01°10'N 78°24'W, 244 - 397 m, 19 February 1984, *W. S. Hoover 1244* (MO); Gualpi Chico, vicinity of Awá encampment headed across trail up from encampø ment east; 00°58'N 78°16'W, 1300 - 1400 m, 18 Jan.1988, *W. S. Hoover et al. 2937* (MO); Tulcán. Reserva Etnica Awá. Parroquia El Chical. Centro Gualpi Medio. Río Canumbí. Bosque muy húmedo Premontano. Bosque primario, topografía muy irregular; suelo negro franco-arcilloso; 01°02'N 78°15'W, 1150 m, 19-28 February 1993, *A. Grijalva et al. 587* (MO, QCNE); Parroquia Maldonado, ecotr El Plata, Bosque Protector Golondrinas, finca el Diviso, propiedad del senõr Germán Figuerca; 00°50'21"N 78°05'47"W, 276 - 2100 m, 15 May 2011, *C. E. Cerón, Reyes, Carmita I et al. 69604* (MO, QAP); Reserva Etnica Awá. Comunidad San Marcos, 25 km al NW de El Chical, parroquia Maldonado. Bosque pluvial Premontano; 01°06'N 78°17'W, 1500 m, 16-30 November 1990, *D. Rubio, C. Quelal & J. Pai 1093* (MO, QCNE); Parroquia Chical, Sector Gualpi medio, Reserva Indígena Awá, Sendero a San Marcos al norte de la casa comunal. Bosque muy húmedo Premontano. Bosque primario; 01°02'N 78°16'W, 1020 m, 23 May 1992 - 27 May 1992, *G. A. Tipaz et al. 1132* (MO, QCNE). **Cotopaxi:** 2 km N of Pucuyacu near bridge over Río San Francisco, 15 km N of bridge over Río Guasaganda at Guasaganda; 23 km N of Palmar (village NE of La Maná on Quevedo-Latacunga road, 13 km NE of La Maná); 00°41'00"S 79°06'30"W, 690 m, 11 October 1983, *T. B. Croat 57081* (AAU, MO); Along road between Quevedo & El Corazón; 63.4 km SE of Quevedo; 6 km NW of El Corazón; primary forest on steep slopes near waterfall above Río Angamarca; 01°7'S 79°7'W, 1030 m, 4 April 1983, *T. B. Croat 55764* (CUVC, MO, QCA, QCNE). **El Oro :** Road between Santa Rosa and Balsas, 9 km NW of Balsas, 11 km SE of Saracay. Vegetation: bosque tropical by stream on steep slope; 03°42'S 79°49'W, 700 m, 2 December 1996, *G. P. Lewis & P. Lozano 2909* (MO, QCNE). **Esmeraldas:** Playa de Oro. Colecciones en Caja de Chacra; 00°52'N 78°47'W, 180 m, 18 March 1997, *C. E. Cerón & D.J. Corozo 34043* (QAP); Playa de Oro. 1 km. desde el Río Santiago y del Pueblo; 00°52'N 78°47'W, 180 m, 14 March 1997, *C. E. Cerón & D. J. Corozo 33870* (QAP); Playa de Oro. 1Km. desde el Río Santiago y del Pueblo; 00°52'N 78°47'W, 180 m, 14 March 1997, *C. E. Cerón & D. J. Corozo 33974* (QAP);

Lita-San Lorenzo Road, 17.3 Km E of Río Tululbí, 31.2 Km E of Gasolinera San Lorenzo; 01°06'49"N 78°39'38"W, 204 m, 7 October 1999, *T. B. Croat 83120* (MO, QCNE); Along road from main Lita-San Lorenzo Hwy. to Carondelet and Río Bogota, 0.4 Km E of main Lita-San Lorenzo Hwy; 01°7'39"N 78°44'01"W, 113 m, 16 July 2000, *T. B. Croat 84095* (MO, QCNE); Lita-San Lorenzo Road, 37.2 Km W of Río Lita, 2.9 Km E of El Durango, 01°01'29"N 078°36'42"W, 320 m, 15 October 1999, T. B. Croat 83338 (MO, PMA, QCNE, USM); Lita-San Lorenzo Road, 13.0 Km W of Río Lita Bridge (new road) near Lita. Forested hills on steep slopes; 00°54'06"N 78°32'27"W, 814 m, 11 October 1999, *T. B. Croat 83229* (CR, F, LAMUA, MO, NY, QCNE, S, US, USM); Lita-San Lorenzo Road, vicinity of Alto Tambo, 17.1 Km W of Río Lita Bridge near Lita (new road), 00°54'06"N 078°32'27"W, 822 m, 10 October 1999, T. B. Croat et al. 83181 (CUVC, HUA, LAMUA, MO, PMA, QCNE, S); Lita-San Lorenzo Road, 19.1 Km E of Río Tululbí, 5.2 Km W of El Durango; 0.6 Km down gravel road going N to Río Tululbí and crossing Río San José, vicinity of Río San Jose; disturbed virgin forest; 01°04'47"N 78°38'55"W, 73 m, 13 October 1999, *T. B. Croat et al. 83294* (MO, QCNE, USM); Lita-San Lorenzo Road, 37.2 Km W of Río Lita, 2.9 Km E of El Durango; 01°01'29"N 78°36'42"W, 320 m, 15 October 1999, *T. B. Croat 83336* (MO, QCNE, USM); 40.1 km W of Lita, 00°56'N 078°40'W, 350 m, 21 February 1992, (MO, QCNE, S) Lita-San Lorenzo Road, 26.9 Km W of Río Lita, 13.2 Km E of El Durango; disturbed virgin forest; 00°58'06"N 78°33'45"W, 735 m, 17 October 1999, *T. B. Croat 83388* (MO, QCNE, USM); Lita-San Lorenzo Road, 24.7 Km W of Río Lita, 5.5 Km W of Alto Tambo; 00°57'04"N 78°33'29"W, 685 m, 17 October 1999, *T. B. Croat 83432* (MO, QCNE, USM); Lita-San Lorenzo Road, 23.6 Km W of Río Lita (near Lita on new road), 4.4 Km W of Alto Tambo; 00°56'32"N 78°33'22"W, 720 m, 17 October 1999, *T.B. Croat 83453, 83454, 83455* (COL, CUVC, HUA, LAMUA, MO, PMA, QCNE, USM); Lita-San Lorenzo Road, 23.1 Km W of Río Lita, 3.7 Km W of Alto Tambo; 00°56'19"N 78°31'16"W, 750 m, 19 October 1999, *T. B. Croat 83467* (MO, QCA, QCNE, USM); Lita-San Lorenzo Road, 26.9 Km W of Río Lita, 13.2 Km E of El Durango; 00°58'06"N 78°33'45"W, 735 m, 15 October 1999, *T. B. Croat 83370* (MO, QCNE, USM); Along Río Bogota, Awá community Río Bogota, 3 Km SW of main Lita-San Lorenzo Hwy; 11.5 Km NW of Alto Tambo, 30.5 Km W of Río Lita near Lita; 00°58'57"N 78°35'58"W, 16 September 2002, *T. B. Croat 87561* (MO, PMA, QCNE); Along road between San Lorenzo and Mataje, 1.9 Km S of Mataje, 16.4 Km N of main San Lorenzo-Lita Hwy; 01°02'52"N 78°43'01"W, 45 m, 14 July 2000, *T. B. Croat 83983, 83984* (MO, QCNE); Vicinity of Alto Tambo on road bewteen Lita and San Lorenzo, 11.5 Km NW of Lita Awá Reserve, along trail to Río Bogota, 0.5 Km SW of main highway; 00°59'03"N 78°36'W, 800 m, 16 September 2002, *T. B. Croat 87535* (MO, QCNE); Communidad Awá Río Bogota, 11.5 Km W of Alto Tambo, 30.5 Km W of Río Lita, 3 Km by trail to Río Bogota on S side of Lita-San Lorenzo Road; 00°58'57"N 78°35'58"W, 380 m, 15 September 2002, *T. B. Croat & D. P. Torres Ravelo 87486* (MO, QCNE); Communidad Awá Río Bogota, 11.5 Km W of Alto

Tambo, 30.5 Km W of Río Lita, 3 Km by trail to Río Bogota on S side of Lita-San Lorenzo Road; 00°58'57"N 78°35'58"W, 380 m, 15 September 2002, *T. B. Croat & D. P. Torres Ravelo 87495, 87516, 87528* (MO, QCNE); Along road to Río Tulubí from main San Lorenzo-Lita hwy; 33.0 Km E of Gasolinera San Lorenzo at edge of San Lorenzo, along Río San José, 1.1 Km N of main hwy; 01°04'44"N 78°38'59"W, 59 m, 12 July 2000, *T. B. Croat et al. 83936* (CUVC, HUA, MO, QCNE); Along highway from Esmeraldas to San Lorenzo; 32.9 Km E of main San Lorenzo-Lita Road; 10.6 Km E of Río Santiago bridge; 01°02'47"N 78°58'13"W, 44 m, 10 July 2000, *T. B. Croat et al. 83820* (MO, PMA, QCNE); Lita-San Lorenzo Road, 55.8 Km W of Río Lita; 01°7'28"N 78°43'18"W, 150 m, 6 October 1999, *T. B. Croat et al. 83058* (AAU, GB, MO, Q, QCNE, S); Lita-San Lorenzo Road, 3.2 Km E of Río Tululbí, 16.7 E of Gasolinera San Lorenzo, in swampy area; 01°09'30"N 78°45'W, 140 m, 7 October 1999, *T. B. Croat et al. 83093* (MO, QCNE); Along road between Lita and Alto Tambo ca. 2 km W of Alto Tambo; 00°55'16"N 78°32'42"W, 754 m, 14 August 2013, *T. B. Croat et al. 104730* (MO, QCNE); Along road between Lita and San Lorenzo, vicinity of Alto Tambo, 17.8 km NW of Lita, vicinity of abandoned white house, 2.3 km E of RR track in Alto Tambo; 00°33'54"N 78°32'36"W, 841 m, 21 February 2005, *T. B. Croat 95177* (MO, QCA, QCNE); Lita-San Lorenzo Road, 23.6 Km W of Río Lita (near Lita on new road), 4.4 Km W of Alto Tambo, 00°56'32"N 078°33'22"W, 720 m, 17 October 1999, *T. B.Croat 83445* (B, K, M, MO, NCY, NY, QCNE, USM); Along road between Lita and San Lorenzo, vicinity of Alto Tambo, 6.6 km NW of Alto Tambo; 00°57'34"N 78°33'36"W, 684 m, 21 February 2005, *T. B. Croat et al. 95247, 95248* (HUA, MO, PMA, QCNE); Along road from San Lorenzo to Mataje, departing main Lita-San Lorenzo highway, 7.5 Km N of Gasolinera San Lorenzo, 0.4 Km W of main Lita-San Lorenzo highway; 01°14'30"N 78°45'50"W, 60 m, 11 July 2000, *T. B. Croat et al. 83865* (MO, QCNE); Lita-San Lorenzo Road, vicinity of Alto Tambo, 17.1 Km W of Río Lita Bridge near Lita (new road); 00°54'06"N 78°32'27"W, 822 m, 10 October 1999, *T. B. Croat et al. 83182* (AAU, GB, MO, Q, QAP, QCNE, S, US, USM), *83204* (HUA, LPB, MO, QCNE, USM); Lita-San Lorenzo Road, 37.2 Km W of Río Lita, 2.9 Km E of El Durango; 01°01'32"N 78°36'23"W, 449 m, 15 October 1999, *T. B. Croat et al. 83347* (MO, PMA, QCA, QCNE, USM); Lita-San Lorenzo Road, vicinity of Alto Tambo, 17.1 Km W of Río Lita Bridge near Lita (new road); Lita-San Lorenzo Road, 19.1 Km E of Río Tululbí, 5.2 Km W of El Durango; 0.6 Km down gravel road going N to Río Tululbí and crossing Río San José, vicinity of Río San Jose; disturbed virgin forest; 01°04'47"N 78°38'55"W, 73 m, 13 October 1999, *T.B. Croat et al. 83292* (F, HUA, MO, PMA, QCNE, USM); Lita-San Lorenzo Road, vicinity of Alto Tambo, 19.4 Km W of Río Lita; 00°54'N 78°32'W, 829 m, 5 October 1999, *T. B. Croat et al. 83000* (HUA, MO, NY, QCNE); Lita-San Lorenzo Road, 3.7 km W of Río Lita Bridge (below Lita), on steep creek banks; 00°52'51"N 78°28'30"W, 647 m, 30 June 1998, *T. B. Croat et al. 82154* (MO, QCNE); Lita-San Lorenzo Road, 14.2 km W of Río Lita Bridge (below Lita); 00°52'11"N 78°27'16"W, 425 m, 4 July 1998, *T. B. Croat*

*et al. 82342* (AAU, GB, MO, QCNE); Lita-San Lorenzo Road, 1.2 km W of El Durago, 21.1 km W of Alto Tambo; 00°52'11"N 78°27'06"W, 300 m, 8 July 1998, *T.B. Croat et al. 82437* (MO, QCNE); Lita-San Lorenzo Road, 1.2 km W of El Durago, 21.1 km W of Alto Tambo; 00°52'11"N 78°27'06"W, 300 m, 8 July 1998, *T. B. Croat et al. 82474* (MO, QCNE); Lita-San Lorenzo Road, Río Piguambi, 6.4 km W of Río Lita Bridge (below Lita); 00°52'04"N 78°29'03"W, 685 m, 30 June 1998, *T. B. Croat et al. 82176* (CUVC, QCNE, MO, PMA); Lita-San Lorenzo Road, 1.2 km W of El Durago, 21.1 km W of Alto Tambo; 00°52'11"N 78°27'06"W, 300 m, 8 July 1998, *T. B. Croat 82496* (MO, QCNE); Lita-San Lorenzo Road, 14.2 km W of Río Lita Bridge (below Lita), vicinity of Alto Tambo, near sign for Ecological Reserve, 6.6 km W of Río Chuchubí; 00°52'11"N 78°27'16"W, 425 m, 10 July 1998, *T. B. Croat et al. 82646* (CUVC, MO, QCA, QCNE); Further along trail to Río Mataje (beginning at point where collecting ended previous day. Awá encampment from Río Palaví encampment. Small clearing along trail; 01°7'N 78°37'W, 200 - 230 m, 11 February 1988, *W. S. Hoover et al. 3951* (MO); Quinindé. The Mache-Chindul Ecological Reserve. Bilsa Biological Station. Mache Mountains, 35 km W of Quinindé. Premontane wet forest; 00°21'N 79°44'W, 500 m, 01 January 1997 - 10 January 1997, *J. L. Clark, E. Austen, S. Bennett & D. A. Kapanadze 3712* (MO, QCNE); Bilsa Biological Station; 00°21'00"N 79°42'00"W, 450 - 650 m, October 2006, *N. Köster & A. Schnell 2094* (BONN, MO, QCA, QCNE); Bilsa Biological Station; 00°21'00"N 79°42'00"W, 450 - 650 m, January 207, *N. Köster & A. Schnell 2373* (MO, QCA); San Lorenzo. Reserva Etnica Awá. Parroquia Alto Tambo. Centro de la Unión. Cañón del Río Mira. Bosque Pluvial Tropical. Bosque primario; 00°52'N 78°26'W, 250 m, 22 Mar 1993, *C. Aulestia & M. Aulestia 1238, 1379* (MO, QCNE); Parroquia Ricaurte. Centro Pambilar. Bosque Pluvial Tropical. Bosque primario; 01°08'N 78°36'W, 500 m, 21 January 1993, *C. Aulestia & M. Aulestia 934* (MO, QCNE); Along unfinished road between Lita and San Lorenzo, 15.5 km W of Lita, 00°55'N 78°28'W, 705 m, 22 February 1992, *T. B. Croat 72367* (B, CUVC, HUA, LAMUA, MO, QCNE, US); Along road between Lita and San Lorenzo, 16.6 km W of Lita, 0.5 km W of Anchayaca (campamento de construcions); 00°55'N 78°28'W, 700 m, 20 February 1992, *T. B. Croat 72287* (MO, QCNE). **Imbabura:** In valley of Río Mira on border with Carchi Province, between Ibarra and Lita, 2.5 km east of Lita; steep forested slopes; 00°52'26"N 78°21'00"W, 750 - 775 m, 8 September 1976, *T. B. Croat 38982A* (MO, QCNE). **Los Ríos:** Río Palenque Biological Station. Km 56 rd. Quevedo-Sto. Domingo; 00°35'00"S 79°22'00"W, 150 - 220 m, 5 Mar 1977 - 14 Mar 1977, *C. H. Dodson 6716* (SEL); Río Palenque Biological Station. Km 56 Quevedo-Santo Domingo; 00°35'00"S 79°22'00"W, 150 - 220 m, 25 October 1974, *C. H. Dodson & A. H. Gentry 5655* (SEL, US); Centro Científico Río Palenque, along trails west of laboratory and in vicinity of laboratory clearing; 210 - 250 m, 31 August 1976, *T. B. Croat 38672* (MO, QCNE); Río Palenque Biological Station, ca. Km 48 Santa Domingo-Quevedo Highway. Tropical wet forest; 00°35'S 79°25'W, 250 m, 13 October 1980, *T. B. Croat 50656* (MO,

QCNE); Río Palenque Science Center, along road 25 from Santo Domingo de los Colorados to Quevedo; just S of Patricia Pilar on E side of Hwy, along road to hotel; 00°35'15"S 79°21'56"W, 150 m, 22 Mar 2006, *T. B. Croat et al. 96228* (MO, QCNE); Río Palenque Science Center, along road 25 from Santo Domingo de los Colorados to Quevedo; just S of Patricia Pilar on E side of Hwy, along road to hotel; 00°35'15"S 79°21'56"W, 150 m, 22 Mar 2006, *T. B. Croat et al. 96229* (MO, QCNE). **Manabí:** Pedernales. Cerro Pata de Pajaro, 10 km east of Pedernales; primary wet cloud forest disturbed by hunting trail network, above the Arroyos house off the main trail; 00°01'N 79°58'W, 400 - 700 m, September 1998, *T. Delinks & C. Robles 72* (MO, QCNE); **Pichincha:** Centinela; Montañas de Ila; 13 km E of Patricia Pilar; ca. 54 km S of Santo Domingo; in small remnant patch of forest on ridge top and steep slope just East of pass and ca. 1/2 km N of road; 00°38'S 79°16'W, 600 m, 01 December 1986, *B. E. Hammel & J. Trainer 15840* (MO); Rancho Brahman, about 10 km NW of Santo Domingo de los Colorados, tropical rain forest; 400 m, January 1967, *B. Sparre 14061* (S); Reserva Forestal ENDESA, Río Silanche: "Corporación Forestal Juan Manuel Durini", km 113 de la carretera Quito-Pto. Quito, faldas occidentales, a 10 km al Norte de la carretera principal. Bosque Primario de la reserva; 00°05'N 79°02'W, 650 - 700 m, 6 April 1984, *J. L. Jaramillo 6533* (QCA); Reserva Mashpi, along road leading into reserve, departing main Pacto-San Miguel de los Bancos Road, 13.8 km N of central plaza in Pacto, then 7-8 km into reserve, 00°09'53"N 078°52'46"W, 910-1000 m, 8 December 2008, *T. B. Croat 101073* (MO, QCNE); Mostly primary forest at E side of Río Lelia, ca. 16 km (as-the-crow-flies) SE of Santo Domingo de los Colorados; 00°18'05"S 79°02'00"W, 800 m, 12 April 1989, *M. H. Grayum & N. Zamora 9429* (MO, QCNE); Vicinity of Santo Domingo de Los Colorados; vicinity of Peripa SW of Santo Domingo; virgin forest, 00°09'34"S 078°28'43"W, 250 m, 5 June 1998, *T. B. Croat 82103* (COL, CUVC, F, MO, PMA, QCNE); Reserva Guaycuyacu near border with Imbabura Province, along Río Guaycuyacu on road from Cielo-Verde to Santa Rosa, near junction of Río Guaycuyacu and Río Guayabamba, 00°13'N 078°55'W, 500 m, 10 February 2005, *T. B. Croat 94439* (MO, PMA, QCNE, US); Near border with Imbabura Province; Reserva Guaycuyacu, along Río Guaycuyacu on road to Santa Rosa near village of Cielo Verde, at junction of Río Guayabamba on border with Imbabura Province, 00°13'00"N 078°55'00"W, 1 March 2005, *T. B. Croat 95387* (COL, CUVC, F, K, LAMUA, MO, QCNE, US); Vicinity of Santo Domingo de Los Colorados; vicinity of Peripa SW of Santo Domingo; virgin forest, 00°09'34"S 078°28'43"W, 250 m, 25 June 1998, *T. B. Croat & M. Nunez 82069* (CUVC, MO, PMA, QCNE, S); Bosque Integral Ontonga; 00°25'00"S 79°01'00"W, 2000 m, November 2005, *N. Köster & K. Friedrich 963* (MO, QCA, QCNE); Along old road from Quito to Santa Domingo de los Colorados via Chiriboga, at Km 86.7, 30 km S of Chiriboga, 8 km N of junction of new highway to Santo Domingo. Premontane wet forest; 00°22'S 78°52'W, 1310 m, 12 October 1980, *T. B. Croat 50644* (MO, QCNE); Km 113, Nanegalito-Pto-Quito Road, then

north on road to Endesa Reserve; 00°04'52"N 79°01'44"W, 602 m, 22 July 1998, *T. B. Croat 82806* (GB, MO, QCNE, S); Along road between Pacto and Cielo Verde (Prov. Imbabura) on Rió Guayabamba, 10.2 km SW of Pacto, 34.8 km SW of Armenia junction with Nanegalito-Pto. Quito Hwy, 00°09'42"N 078°41'23"W, 1619 m, 25 March 2006, *T. B. Croat 96354* (MO, QCNE, US); Reserva Endesa, along San Miguel de los Bancos-Puerto Quito Road, NW of Quito, km 113, 28.6 km E of Puerto Quito, 3.1 km E of Vincente Maldonado, 0.8 km from turnoff at entrance; 00°03'N 79°7'W, 710 m, 19 March 1992, *T. B. Croat 73149* (MO, QCNE); Along road between Pacto and Nuevo Azuay (near border of Imbabura Province); 2.3 km North of Paraiso; (Nuevo Azuay is 17.5 km North of Paraiso); 15.3 km North of Pacto; Disturbed primary forest near road; 00°11'N 78°45'W, 1320 m, 21 July 1986, *T. B. Croat 61638* (MO, QCNE); Reserva Endesa, along San Miguel de los Bancos-Puerto Quito Road, NW of Quito, km 113, 28.6 km E of Puerto Quito, 3.1 km E of Vincente Maldonado, 3.4 km from main road, in pinetum, regrowth of native plants on pine trees; 00°03'N 79°7'W, 710 m, 19 March 1992, *T. B. Croat 73184* (COL, HUA, K, MO, PMA, QCNE, US); Tinalandia (property of Hotel Tinalandai) 9.6 km E of Santo Domingo de los Colorados, S of hwy. to Aloag & Quito, above Río Toachi; 00°16'N 79°7'W, 700 m, 3 April 1983, *T. B. Croat 55694* (B, MO, QCA, QCNE); Reserva Endesa, along San Miguel de los Bancos-Puerto Quito Road, NW of Quito, km 113, 28.6 km E of Puerto Quito, 3.1 km E of Vincente Maldonado, 0.8 km from turnoff at entrance; 00°03'N 79°7'W, 710 m, 19 March 1992, *T. B. Croat 73172* (CUVC, HUA, MO, QCNE, USM); Tinalandia (property of Hotel Tinalandai) 9.6 km E of Santo Domingo de los Colorados, S of hwy. to Aloag & Quito, above Río Toachi; 00°16'N 79°7'W, 700 m, 3 April 1983, *T. B. Croat 55726* (MO, QCA, QCNE); ENDESA Forest Reserve; 6 Km N of main Nanegalito-Puerto Quito Hwy. (Departing at Km 113, 5 Km W of San Vincente Andoas); 00°7'01"N 79°01'41"W, 649 m, 8 July 2000, *T. B. Croat et al. 83800* (MO, NY, QCNE, S)*, 83801* (F, MO, QCNE); Reserva Endesa, 9 km N of Km. 113 on Quito- Pto. Quito Highway; 00°05'N 79°02'W, 750 m, 15 July 1986, *T. B. Croat & J. Rodríguez 61480* (F, MO, NY, PMA, QCNE, S, US); Reserva Endesa, about 8 km North of Km. 113 on Quito-Pto. Quito Highway, vicinity of Río Cabayales, 00°05'N 79°02'W, 700 m, 16 July 1986, *T. B. Croat & J. Rodríguez 61526* (K, MO, NCY, QCNE, S); Reserva Guaycuyacu, along Río Guaycuyacu between Cielo Verde cable crossing over Río Guaycuyacu and village of Santa Rosa near mouth of Río Guaycuyacu at Río Guayabama; 00°13'N 78°55'W, 500 m, 11 February 2005, *T. B. Croat et al. 94528* (MO, QCNE); Reserva Guaycuyacu, near border with Imbabura Province, along Río Guaycuyacu and Road from Cielo Verde to Santa Rosa at junction of Río Guaycuyacu and Río Guayabamba; 00°13'N 78°56'W, 500 m, 13 Mar 2006, *T. B. Croat et al. 95871* (MO, QCNE); Quito. Carretera Quito-Puerto Quito, km 113, 10 km al Norte de la carretera principal, bosque virgen y alrededores de la reserva; 00°05'N 79°02'W, 650 - 800 m, May 1984, *J. Rodríguez 239* (CR, MO, NY, QCA); Reserva Mashpi, along road leading into reserve, departing main Pacto-San Miguel de

los Bancos Road, 13.8 km N of central plaza in Pacto, then 7-8 km into reserve; 00°09'53"N 78°52'46"W, 910 - 1000 m, 8 December 2008, *T. B. Croat 101013* (COL, HUA, MO, QCNE, S), *101036* (LAMUA, MO, QCNE); Santo Domingo de Los Colorados. Hac. Zaracay, tropical rain forest; 00°16'00"S 79°14'00"W, 500 m, 29 Mar 1967, *B. Sparre 15157* (S); Rancho Brahman, about 10 km NW the town, on road to Esmeraldas, tropical rain forest; 400 m, 31 Mar 1967, *B. Sparre 15238* (S); Bosque humedo tropical; 00°00'09"S 79°22'53"W, 140 m, Abril 1999, *G. Benavides 465* Bosque humedo tropical; 00°09'34"S 78°28'43"W, 250 m, 18 March 1999, *G. Benavides & V. Calazacón 438* (QCNE); KM 171-188 to Río Cócolo, 100 m, *M. Acosta-Solis 162* (F); Vicinity of El Centinela, 0.2 km past Escuela Mixta El Centinela, along trail to left of road, exactly 13 km E from main Santo Domingo-Quevedo Highway in Patricia Pilar; 00°32'S 79°11'W, 1000 m, 14 March 1992, *T. B. Croat 73047, 73051* (MO, QCNE), *73049* (AAU, F, MO, QCNE, S, US); Along road between Santo Domingo and Aloag, along bypass S of Santo Domingo which passes from Santo Domingo-Quevedo Road (ca. 4 km S of Centro) to Santo Domingo-Aloag road; small stream ca. 3 km from junction with Santo Domingo-Aloag Road; 00°16'S 79°09'W, 10 April 1992, *T. B. Croat 73851* (B, F, HUA, MO, NY, PMA, QCA, QCNE, US); Centro Cientifico Río Palenque; 00°35'S 79°21'W, 220 m, 15 Mar 1992, *T. B. Croat 73062* (B, LAMUA, MO, PMA, QCNE, US, USM). **PANAMA**. **Coclé:** La Pintada. La Pintada, Palmarazo Río San Juan. Parque Nacional G. D. Omar Torrijos H. Area de Calle Larguita (Palmarazo); 08°43'04"N 80°40'47"W, 462 m, 18 July 2013, *Á. Espinosa et al. 6140* (MO). **Colón:** Donoso. Coclé del Norte, area del helipad T02A, caminando hacia la ruta Oeste; 08°53'34"N 080°40'55"W, 138 m, 19 July 2012, *Á. Espinosa 6014* (MO, PMA); Teck Cominco Petaquilla mining concession; 08°53'17"N 080°45'09"W, 160 m, 30 June 2008, *G. McPherson 2754* (MO); Area de Concessión Minera Panamá. Pipeline Road; 02 abril 2013, *O. Ortiz & R. López 2745* (MO, PMA). **Veraguas:** Santa Fé. Parque Nacional Santa Fé; 08°41'44"N 080°53'00"W, 290 m, 8 February 2014, *A. Morris et al. 2086* (MO); Santa Fe. Area del Río Piedra, trocha bordeando la ribera del rio, 08°44'06"N 80°46'19"W, 364 m, 16 December 2013, *L. Martínez et al. 1558* (MO); Santa Fe. Vicinity of Santa Fé, along dirt road between Santa Fé and Río San Luis, past Escuela Circlo Alto de Piedra, ca. 5 mi N of school, 08°33'N 081°08'W, 670 m, 28 June 1987, *T. B. Croat 66971* (F, MO).

***Rhodospatha morii*** Croat, Aroideana 47(1): 43–190. 2024 — Type: PANAMA: Colón: Vicinity of Río Indio on road from Portobelo to Nombre de Dios, 09°33'N 79°33'W, 22 March 1976, *T. B. Croat 33586* (holotype, MO-2381542-43). (**Figs. 172–173**).

**Diagnosis:** *Rhodospatha morii* is characterized by its unusually long, narrow blades drying dark brown and unusually smooth on the adaxial surface.

**Habit:** appressed-climbing epiphyte from near the ground to 10 m tall.

**Stem:** branched or unbranched; **internodes** short or to 1.5 cm long, 8–15 mm diam., drying light tan-brown with deep longitudinal fissures, the distal nodes short with the leaf bases obscuring the stem.

**Leaves: petioles** 13–38 cm long, 3–6 mm diam., solid dark green, sulcate distally of the sheath, sheathed throughout most of its length, completely to the geniculum or to within 1 cm below the geniculum; **sheath** thin, brown, sometimes persisting somewhat intact, ultimately deciduous; **geniculum** sharply sulcate; **blades** linear-lanceolate, 30–58 cm long, 2.8–11.0 cm wide, 5.8–10.0 times longer than wide, acute to somewhat acuminate at apex, acute at base, slightly bicolorous, semiglossy and dark green adaxially, slightly paler and semiglossy abaxially, drying dark brown to gray-brown and smooth adaxially, dark reddish brown and semiglossy abaxially; **midrib** sunken and concolorous adaxially, prominently raised abaxially, thicker than broad, usually drying concolorous; **primary lateral veins** 25–30 per side, 1–2 cm apart at the middle of the blade, departing midrib at 35–55°, only weakly curved to the margin, weakly sunken adaxially, drying almost flat, convex and almost concolorous abaxially; minor lateral veins and cross veins visible beneath; minor veins ca. 3 between each pair of primary lateral veins.

**Inflorescences: peduncle** 10-13 cm long, drying ca. 4 mm diam.; **spathe** to 21 cm long, caudate acuminate at apex, drying dark brown; **spadix** pinkish to salmon-colored, 15–16 cm long, 10–11 mm diam. midway, stipitate to 2 cm, gradually tapered to a bluntly rounded apex, drying dark brown; flowers mostly quadrangular, 1.6–1.8 mm diam.; sometimes irregularly and acutely to bluntly 5- or 6-sided, drying brown and matte; anthers 1.0 mm long, 0.8 mm wide, rounded at apex and protruding slightly above the pistils.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha morii* is endemic in Panama in Panama and Colón Provinces at sea level to 400 m in a *Tropical Wet Forest* life zone.

**Etymology:** This species is named in honor of the late American botanist Scott Mori who, along with Jackie Kallunki, collected the first specimen in September, 1974. Scott graduated with his Ph.D. from the University of Wisconsin in Madison and spent most of his career at the New York Botanical Garden, working mainly with the family Lecythidaceae.

**172.** *Rhodospatha morii* (*Croat 33586*, MO-2381542). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**173.** *Rhodospatha morii* (*Croat 33586*, MO-2381543). Holotype showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**Comments:** *Rhodospatha morii* is similar to *R. burgeri* but the latter species has proportionately shorter blades (3.2–5.1 times longer than broad) drying more greenish, more glossy, and smoother on the abaxial surface (vs. matte, granular, and with more prominently raised tertiary veins for *R. morii*).

*Rhodospatha morii* is most easily confused with *R. knappiae* but that latter species differs in having blades matte or even subvelvety adaxiallt (rather than semiglossy), primary lateral veins mostly less than 1 cm apart at the middle of the blades, and a moderately prominent interprimary vein between each of the primaries.

**Paratypes: PANAMA**. **Panamá:** Chepo, El Llano/Cartí road, 4 miles from main gate near El Llano, 09°15'01"N 78°55'45"W, 27 March 1974, *T. B. Croat 33726* (MO); El Llano-Cartí Road; 9.6 km from Pan American Highway, 09°16'05"N 78°55'42"W, 410 m, 12 September 1974, *S. A. Mori & J. A. Kallunki 1833* (MO).

***Rhodospatha moritziana*** Schott, Oesterr. Bot. Wochenbl. 7: 109–110. 1857. — Type: VENEZUELA. Colonia Tovar, 1855 (W, lost). Schott Icones 267 (W, lectotype, designated here). (**Figs. 174–180**).

*Anepsias moritzianus* (Schott) Schott, Gen. Aroid.: t. 73. 1858.

*Monstera moritziana* (Schott) Steyerm., Fieldiana Bot. 28: 819. 1957.

*Rhodospatha moritziana* (Schott) Croat. Fl. Barro Colorado Isl.: 219. 1978, isonym.

*Rhodospatha moriziana* (Schott) Bunting, Rev. Fac. Agron. (Maracay) 10: 256. 1980, isonym.

*?Rhodospatha picta* G.Nicholson, Ill. Dict. Gard. 3: 467. 1886. Type: not found.

**Habit:** terrestrial, 1.2–3.0 m long; sometime ascending trees to 1 m or more in wettest areas of it range.

**Stem:** creeping across the ground, 1.5–5.0 m long including the upright portion; sap muscilaginous, transparent; **internodes** short, 3–7 cm diam. near apex, semiglossy, dark green, tapered below and much narrower when entering soil, supported by prop roots at the lower part of the stem, drying yellow-brown, closely longitudinally ribbed with sometimes close transverse fissures.

**174.** *Rhodospatha moritziana* (*Croat 106138*). Live plant showing terrestrial habit, petioles, leaf blades (adaxial and abaxial surfaces, and pre-anthesis inflorescence.

**175.** *Rhodospatha moritziana* (*Croat 106138*). Close-up of opened inflorescence with spathe and spadix.

**176.** *Rhodospatha moritziana* (*Croat 106138*). Close-up of pre-anthesis inflorescence.

**177.** *Rhodospatha moritziana*. Live plant showing terrestrial habit, petioles, leaf blades (mostly adaxial surface), inflorescence at anthesis with spathe and spadix and post-anthesis spadix. (Photo: Xavier Cornejo).

**Leaves:** closely spaced, spreading-ascending in various directions or nearly distichous; **petioles** dark green, minutely speckled with light green, sharply V-sulcate to narrowly and sharply sulcate adaxially, 30–103 cm long, ca. 1 cm diam. below the geniculum, sheathed 2/3 to fully throughout their length; **sheath** erect, one side higher, to 2.3 cm wide and often overlapping at the base, early-drying and deciduous or with dark brown fragments of tissue, sometimes fibrous; **geniculum** thickened, 2.0–4.5 cm long, oval in cross section, obscurely sulcate, rarely sharply sulcate; **blades** erect on petiole or slightly reclining, moderately coriaceous, conspicuously bicolorous, oblong-elliptic, often somewhat inequilateral, tapering equally toward both ends, short-acuminate at apex, cuneate to obtuse, or rounded and usually briefly attenuated at base, rarely subcordate, 45–91 cm long, 20–49 cm wide, 0.6–1.9 times longer than the petioles, glabrous or minutely papillate, dark green and glossy adaxially, drying green to gray-green or yellowish brown, silvery green or milky green and matte to weakly glossy abaxially, densely covered with minute reddish brown dots; **midrib** light green to cream, concave to V-sulcate above, thicker than broad below; **primary lateral veins** 24–34 per side, departing midrib at 70–90°, somewhat to deeply impressed adaxially, convex below, 10–25 mm apart, often prominently turned proximally just before merging with the midrib; **interprimary veins** 1 or 2 pairs between each pair of primary lateral veins, darker than surface; minor veins 1–3 between the interprimary vein and the primary lateral veins, often drying puckered; cross veins moderately conspicuous, sometimes diagonal, especially toward the margins.

**Inflorescences:** from one or more of the distal leaf axils; **peduncle** 27–42 (59) cm long; **spathe** naviculiform, greenish abaxially, white adaxially pre-anthesis, becoming white to cream, pale yellow or pinkish, 15–35 cm long, to 3.5 cm diam. when furled, cuspidate at apex (cusp to 2.5 cm long), decurrent at base, to 12 cm diam. when open, 5–6 cm deep, the margins revolute, containing trichosclereids, promptly deciduous; **spadix** pink to pink-orange, greenish orange, light orange-yellow, brownish orange, pale orange, salmon-pink, salmon, salmon-red, or pinkish purple, rarely white, 3–7 cm shorter than the spathe, 16–21 cm long, to 1.9 cm diam.; stipitate 1.0–1.5 (2.5) cm on the back side, becoming covered with a sticky substance promptly after anthesis.

**Flowers:** 13–18 visible per spiral; **pistils** ca. 3 mm long, 1.0–2.4 mm diam., quadrangular or irregularly 5- or 6-sided, the corners rounded to angular, the sides convex to concave; **ovary** 1-locular but with a partial division into 2 locules; **stigmas** matte, drying with a frost–like covering, linear to elliptic, 0.8–1.2 mm long, 0.2–0.6 mm wide; **anthers** pointed, ca. 1 mm long, 0.8 mm wide.

**Infructescences:** brownish green, finally reddish, 19–32 cm long, to 3 cm diam. at maturity.

**178.** *Rhodospatha moritziana* (*Croat 12297*, MO-2023122). Specimen showing petiole, leaf blade (adaxial and abaxial surfaces), and inflorescence at anthesis with spathe and spadix.

**179.** *Rhodospatha moritziana* (*Nee 7123*, MO-2285680). Herbarium specimen showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix and immature inflorescence with cut-out spathe.

**180.** *Rhodospatha moritziana* (*Nee 7123*, MO-2285679). Herbarium specimen showing leaf blade (mostly abaxial surfaces).

**Fruits:** prismatic, truncate, mesocarp bright yellow at apex, white below; **seeds** elbow-shaped, subcircular in outline, 0.5–1.0 mm diam., brownish to white, the outer margins dotted with purple.

**Distribution and ecology:** *Rhodospatha moritziana* ranges from Costa Rica to Panama, Colombia and Ecuador along the Pacific Coast, and to northern Venezuela, from sea level to 1300 m in *Tropical Moist Forest* and *Tropical Wet Forest* life zones. In Costa Rica and Panama, it is restricted to the Caribbean slope but in South America it ranges along the Pacific slope to as far south as Cotopaxi in Ecuador as well as along the Central Cordillera of Colombia in Antioquia, and both slopes of the Eastern Cordillera in Colombia and Venezuela. In Venezuela, it ranges east along the Cordillera de la Costa (as far east as Aragua, and Miranda).

**Comments:** This species is characterized by its usually terrestrial habit and large size with stems creeping across the ground; dark green petioles minutely speckled with light green and with a deciduous sheath; oblong-elliptic blades drying reddish brown to yellow green or yellow brown and densely covered with minute reddish brown dots; and large inflorescences with the spadix of various shades of pink, orange, red or purple. The species is sometime ascending trees to one or more meters in the wettest areas of its range.

Populations in the Cordillera de la Costa have blades drying darker, typically dark brown or dark olive-green adaxially, whereas populations along the Cordillera de los Andes in Venezuela differ in having the blades more gray-green adaxially and typically somewhat less reddish abaxially. These collections also typically have spadices more stipitate than those of the Cordillera de la Costa.

Specimens determined provisionally as *Rhodospatha "filamentosa"* deposited in the Kew Herbarium and based on a specimen cultivated in the Botanical Garden in Penang, Malaysia are also *R. moritziana.*

**Other Specimens Seen:** Unknown origin: *T. B. Croat 71908* (MO)*, Aristeguieta 2837*(MO). **COLOMBIA**. Antioquia: Primary forest along Quebrada Negra, tributary to Punchiná reservoir, Río Guatapé (Río Magdalena valley). 06°15'N 075°05'W, 770 - 820 m, 6 July 1986, *M. H. Grayum et al. 7625* (MO); Mpio. de Tarazá, correg. El Doce. 201 km NE de Medellín. En camino a Barroblanco. Bosque húmedo tropical. 300 m, 18 August 1986, *Ricardo Callejas et al. 2440* (HUA, MO); Along road between San Luis and Puerto Triumfo, ESE of Medellín, SE of Granada, S of San Carlos, ca. 3 km SE of San Luis. Premontane moist forest. 05°57'N 074°57'W, 800 m, 13 December 1980, *T. B. Croat 52037* (JAUM, MO), *52036* (CM, JUAM, MO); El Río, 330 m, *E. Rentería A. et al. 2321* (HUA); San Luis, Río Claro, alrededores del refugio, 05°55'00"N 074°52'00"W, 500 m, 20 February 2005,

*F. Cardona et al. 1512* (HUA, MO); Río Claro, along hwy. between Pto. Triumfo and Medellin, along rocky cliffs and banks near the river S of the hwy. ca. 1 Km. 05°54'N 074°51'W, 8 May 1983, *T. B. Croat 56560* (JAUM, MO, NY); *W. John Kress et al. 7625* (MO); Tropical Wet/Very Wet Forest Transition Zone Vic. Planta Providencia, 26 kms S & 23 kms W (Air) of Zaragoza. In valley of Río Anorí between Dos Bocas & Anorí, hill behind 2EB biostation. 07°13'N 075°03'W, 400 - 700 m, 26 March 1977, *White 298* (COL, HUA, WIS); Cáceres. Cabecera municipal El Doce. Bajo Cauca, zona entre las quebradas Puri y Corrales. Quebrada "Pité". Occasional. 200 - 400 m, 10 June 1977, *Ricardo Callejas 277* (HUA); San Carlos. Corregimiento El Jordán, Vereda Juanes 780-820 mts. altura, Represa Punchina, Quebrada La Villa, 780 - 820 m, 10 March 1988, *Linda K. Albert de Escobar et al. 8260* (HUA); San Luis. Valley of Río Claro, 27 km E of Entrada for San Luis, 53 km E of Río Calderas. 05°53'30"N 074°51'20"W, 500 m, 21 April 2007, *T. B. Croat & Felipe Cardona 97907* (MO); Zaragoza. Correg. de Providencia, mountain slope above hydroelectric plant. 600 m, 10 February 1971, *Djaja D. Soejarto & J. D. Villa 2751* (COL, MO). Caldas: Mun. de Norcasia, Proyecto Hidroelétrico La Miel, zona del embalse. 400 - 600 m, 13 July 1999 - 31 July 1999, *William G. Vargas 6331* (HUA); Cauca: Along road from Popayan to Juntas through Parque National Munchique, 21 km beyond summit, Pacific slope of Western Cordillera. GPS coordinates. 02°30'48"N 077°02'33"W, 900 m, 19 July 1997, *T. B. Croat & John F. Gaskin 80080* (CAUP,MO); Chocó: Bolivar-Quibdó hwy. On rocks by river, alt. 480 m; Km 159. 05.40'N, 76.30'W. 05°40'N 076°30'W, 480 m, 13 April 1983, *Adrian Juncosa 907* (MO); Hwy. Bolivar/Quibdó. Around km 155, by Río Atrato. 05°40'N 076°22'W, 500 m, 11 March 1984, *Adrian Juncosa 2414* (JUAM,MO,NY); Municipio de Bahia Solano, Parque Natural de Utria, quebrada El Chorro, en la trocha de la ensenada a Cocalito, 13 Nov 1989, *J. Espina et al. 3302* (CHOCO); *Aguilar 2* Mun. de Carmen de Atrato, 3 km abajo de El Siete. 05°48'00"N 076°17'00"W, 1000 m, 7 July 2000, *F. Cardona 1016* (HUA); Serrania de Baudo, along road between Las Animas and Pato on Río Pato, ca. 1 km above Pato. Steep road banks. 05°32'N 077°48'W, 150 m, 18 April 1983, *T. B. Croat 56109* (CHOCO, JAUM, MO); Bahia Solano. Parque Nacional Natural Utría, quebrada Papayal, 06°21'N 076°26'W, 340 m, 8 Septiembre 1990, *F. García Cossio & Enzo Agualimpia 2073, 2178* (MO); Near Bahía Solano, along Quebrada S of airport less than 1 km up stream; disturbed primary forest. 05°13'30"N 077°22'00"W, 50 m, 14 March 1984, *T. B. Croat 57437* (CHOCO, MO); Nuquí. Corregimiento Termales, entre Jobi y Arusi. Bosque cerca a las cabañas Pijibá. Costa Pacifica colombiana, estribaciones de la serrania del Baudó, Cabo Corrientes. Bosque primario. 05°37'24"N 077°25'03"W, 5 - 50 m, 31 January1995, *Julio C. Betancur B. et al. 6036* (HUA, MO); Corregimiento de Arusí, Estación Biológica El Amargal. 05°34'N 077°30'W, 30 m, July 1998 - September1998, *Marcela Mora 1* (MO); Corregimiento de Arusí, Estación Biológica El Amargal. 05°34'N 077°30'W, 50 m, March 1995 - 17 April 1995, *SUAREZ 652* (MO); Corregimiento Arusí;

vic. of Arusí, Estación Biológica El Amargal. 05°34'14"N 077°30'10"W, 30 m, 17 June 2000, *T. B. Croat & M. Mora 83664, 83669* (COL, MO). Cordoba: Junction of Río Tigre and Río Manso, Paramillo National Park. TRANSECT No. 1, 07°30'N 076°05'W, 200 m, 25 July 1988, *A. Gentry & H. Cuadros 63739* (MO-4357838); Nariño: Tumaco. La Guayacana, Tumaco. Nariño. 27 June 1951, *R. Romero Castañeda 2936* (COL, F); Near Río Albí, 01°22'N 078°28'W, 200 - 250 m, 10 November 1995, *Ramirez 8731* (QCA); Norte de Santander: Cordillera Oriental; región del Sarare: Hoya del río Cubugón entre El Caraño y El Indio. 600 - 470 m, 12 November 1941, *José Cuatrecasas 13051* (US); Santander: Vicinity of Puerto Berrio, between Carare and Magdalena Rivers. Magdalena Valley (Camp Carare VI). 100 - 700 m, 24 July 1935, *O. Haught 1853* (US); Valle del Cauca: Cordillera Occidental, vertiente occidental, carretera Morrison, km. 45-50 de Buenaventura. Hoya del río Dagua. 11 August 1955, *Jesús M. Idrobo 1755* (COL); Along new highway between Cali and Buenaventura; Between Loboguerrero and Cisneros; Along Quebrada la Guinea at 1.2 km east of Cisneros, near the west end of tunnel #5; 26.8 km east of Bajo Calima turnoff; 30.4 km east of Puente El Piñal; in Buenaventura. 03°47'N 076°46'W, 220 - 260 m, 5 July 1986, *T. B. Croat 62830* (F,G,HUA,MO,US); Along old road between Cali and Buenaventura at Km marker 60 in Valley of Río Digua, ca 50 km east of Buenaventura. 290 m, 28 August 1976, *T. B. Croat 38577* (MO); Along road from Queremal to Buenaventura, 15.3 km W of junction to Queremal. Along Río Ningaño. GPS coordinates. 03°32'00"N 076°45'00"W, 730 m, 12 July 1997, *T. B. Croat & John F. Gaskin 79725* (CUVC, MO); Vicinity of Bahia Málaga, Base Naval Málaga; Río Bongito. 04°00'44"N 077°20'04"W, 40 m, 29 July 1997, *T.B. Croat & John F. Gaskin 80522* (CUVC, MO). **COSTA RICA.** Limón: Cordillera de Talamanca Along Río Madre de Dios. 10°03'00"N 083°25'48"W, 240 - 300 m, 2 September 1988, *M. H. Grayum, Gerardo Herrera Ch. & Rafael Robles 8664* (MO); Cordillera de Talamanca Along Quebrada Cañabral, from Río Barbilla to ca. 1.5 km upstream. 10°02'00"N 083°24'30"W, 100 - 200 m, 08 September 1988, *M. H. Grayum et al. 8869* (CR, MO); Cordillera de Talamanca, ridge separating Quebrada Cañabral from Río Barbilla, and slope leading down to the latter. 10°02'N 083°26'W, 200 - 400 m, 04 September 1988, *M. H. Grayum et al. 8747* (CR, K, M, MBM, MO, SEL,); Talamanca. Amubri. Margen derecho del Río Lari. Lomas aledañas a Cachabri. 09°29'24"N 082°59'24"W, 100 - 200 m, 28 June 1989, *Gerardo Herrera Ch. 3040* (CR, MO). **ECUADOR.** Colonia Tovar *A. P. Yanez 1557* (QCNE); Esmeraldas: Río San Miguel. River side. 28 March 1959 - 6 April 1959, *Gunnar Wilhelm Harling 4593, 4618* (S); Pueblo San Miguel. Rain forest in ravine on clay. 00°45'N 078°54'W, 200 m, 31 August 1980, *L.B. Holm-Nielsen et al.* 25383, *25420* (AAU); Environs of Lita, on the Ibarra-San Lorenzo R.R. Wet submontane forest. 00°50'00"N 078°28'00"W, 550 - 650 m, 10 June 1978, *Michael T. Madison et al. 5134* (SEL); Gravel Road D 8: 6 km beyond bridge over Río Esmeraldas (near San Mateo, road to Esmeraldas airport), ca 6.6 km beyond Univ. Techn. Luis Vargas Torres-Est. Exp. Mutile); Río Mutile; primary forest.

00°52'N 079°33'W, 80 m, 1 April 1983, *T. B. Croat 55627* (MO, QCNE); Lita-San Lorenzo Road, 55.8 Km W of Río Lita. 01°07'28"N 078°43'18"W, 150 m, 6 October 1999, *T. B. Croat 83061* (MO, QCNE); Along road from San Lorenzo to Mataje, departing main Lita-San Lorenzo highway, 7.5 Km N of Gasolinera San Lorenzo, 0.4 Km W of main Lita-San Lorenzo highway. 01°14'30"N 078°45'50"W, 60 m, 11 July 2000, *T. B. Croat 83867* (MO, QCNE); Along road between Santo Domingo de los Colorados to Esmeraldas, 90 km NW of Santo Domingo, 8.8 km NW of Quinindé, 85 km SE of Esmerladas; disturbed forest along road. 00°26'N 079°03'W, 270 m, 31 March 1983, *T. B. Croat 55545* (CM,MO,QCA, QCNE); Along road to Río Tulubí from main San Lorenzo-Lita hwy. 33.0 Km E of Gasolinera San Lorenzo at edge of San Lorenzo, along Río San José, 1.1 Km N of main hwy. 01°04'44"N 078°38'59"W, 59 m, 12 July 2000, *T. B. Croat et al. 83884* (AAU, G, MO, QCNE, S); Reserva Cotacachi-Cayapas, La Aguita. Bosque muy húmedo tropical. 00°48'N 078°44'W, 150 m, 26 June 1998, *Xavier Cornejo S. & Carmen Bonifaz B. 6386* (GUAY, MO); Atacames. SW of Esmeraldas, along road S of Atacames via la unión and Boca de Tasones and Las Vegas, vicinity of Santa Teresa, Finca Julio, along Río Mono, along western edge of Montañas de Mache. 00°52'00"N 079°51'00"W, 16 February 2015, *T. B. Croat et al. 106138* (ECUAMZ, MO); Quinindé. Bilsa Biological Station. 00°21'00"N 079°42'00"W, 450 - 650 m, October 2006, *Nils Köster & A. Schnell 1973* (MO); Los Ríos: Río Palenque Biological Station. Km 56 Quevedo-Santo Domingo. 00°35'00"S 079°22'00"W, 150 - 220 m, 26 October1974, *C. H. Dodson 5662* (SEL); Along road (mostly graveled) E of Santo Domingo-Quevedo road (beginning 10.5 km N of Patricia Pilar) at Caseria Palmar de Bimbe; 79 12'30"W, 0 35'S; elev. 550-575 m. 00°35'00"S 079°12'30"W, 550 - 575 m, 9 October1983, *T. B. Croat 57013* (B, MEXU, MO, QCNE); Pichincha: 2 km SE of Santo Domingo de Los Colorados 15 hectare patch of mature forest in Cooperativa Santa Marta # 2 along Río Verde. 530 m, 05 February 1979, *C. H. Dodson et al. 7610* (SEL); Reserva Mashpi, along road leading into reserve, departing main Pacto-San Miguel de los Bancos Road, 13.8 km N of central plaza in Pacto, then 7-8 km into reserve, 00°09'53"N 078°52'46"W, 910-1000 m, 8 December 2008, *T. B. Croat 101074* (MO, QCNE); Río Blanco (immediately below the confluence with Río Toachi). Virgin forest. 300 m, 16 March 1959 - 18 March 1959, *G. W. Harling 4521* (S); Reserva Forestal ENDESA, Río Silanche: "Corporación Forestal Juan Manuel Durini", km 113 de la carretera Quito-Pto. Quito, faldas occidentales, a 10 km al norte de la carretera principal. 00°05'N 079°02'W, 650 - 700 m, 25 March 1985, *J. L. Jaramillo 7625* (QCA); Vicinity of Santo Domingo de Los Colorados; vicinity of Peripa SW of Santo Domingo; virgin forest. 00°09'34"S 078°28'43"W, 250 m, 25 June 1998, *T. B. Croat & M. Nuñez 82088* (KRAM, MO, QCNE); Near border with Imbabura Province; Reserva Guaycuyacu, along Río Guaycuyacu on road to Santa Rosa near village of Cielo Verde, at junction of Río Guayabamba on border with Imbabura Province, 00°13'00"N 078°55'00"W, 1 March 2005, *T. B. Croat 95358* (MO, PMA, QCNE); Reserva

Guaycuyacu, along Río Guaycuyacu between Cielo Verde cable crossing over Río Guaycuyacu and village of Santa Rosa near mouth of Río Guaycuyacu at Río Guayabama. 00°13'N 078°55'W, 500 m, 11 February 2005, *T. B. Croat et al. 94462* (MO); Bosque Protectora "La Perla", km 41 de la carretera Santo Domingo- Quirnindé. 00°00'49"S 079°22'21"W - 00°02'08"S 079°22'32"W, 220 m, 25 May 1990, *V. Zak 5363* (MO, QCA, QCNE); Quito. Reserva Forestal ENDESA, Río Silanche: "Corporación Forestal J.M. Durini", km 113 de la carretera Quito-Pto. Quito, faldas occidentales, a 10 km N de la carretera principal, bosque virgen y alrededores. 00°05'N 079°02'W, 650 - 800 m, May 1984, *Rodriguez 239A* (MO, QCA); .Santo Domingo de Los Colorados. 00°00'09"S 079°22'53"W, 140 m, Abril 1999, *Gladys Benavides 479* (QCNE); Along road between Santo Domingo and Aloag, along bypass S of Santo Domingo which passes from Santo Domingo-Quevedo Road (ca. 4 km S of Centro) to Santo Domingo-Aloag road; small stream ca. 3 km from junction with Santo Domingo-Aloag Road, 10 April 1992, *T. B. Croat 73849* (CUVC, F, K, LAMUA, MO, PMA, NY, QCNE, S, US); Along road between main Santo Domingo-Esmeraldas Highway and Valle Hermoso, 25 km NW of Santo Domingo, 1.9 km N of highway, in vicinity of the bridge over the Río Blanco just S of Valle Hermosa; along steep banks of Río Blanco and in adjacent disturbed areas above river banks. 00°05'S 079°15'W, 410 m, 13 March 1992, *T. B. Croat 72968* (MO, QCNE); GERMANY. Origin unknown, *J. Bogner 462* (M). **PANAMA.** Canal Area: Between Frijoles and Monte Lirio, 09°10'21"N 079°47'53"W - 09°14'33"N 079°51'02"W, 30 m, 18 October1922, *Ellsworth P. Killip 12153* (MO); Barro Colorado Island, Gatun Lake, 09°09'N 079°51'W, 0 - 120 m, 18 November 1925 - 24 November 1925, *P. C. Standley 41103* (US); Barro Colorado Island, Gatún Lake, 09°09'N 079°51'W, 10 - 100 m, 17 January 1924, *Paul C. Standley 31415, 31468* (US), 31462 (MO); Barro Colorado Island; creek near dock, 09°09'49"N 079°50'11"W, 0 - 5 m, 13 November 1970, *T. B. Croat 12603* (MO); Barro Colorado Island. Donato Trail, 09°09'32"N 079°50'08"W, 10 - 70 m, 12 September 1968, *T. B. Croat 6017* (MO); Barro Colorado Island, 09°09'17"N 079°50'53"W, 10 - 100 m, 9 April 1968, *T. B. Croat 4570* (MO); Barro Colorado Island, laboratory clearing. Canal Zone. 09°09'45"N 079°50'30"W, 20 m, 21 September 1970, *T. B. Croat 12297* (MO); Barro Colorado Island. Shannon Trail, 09°09'25"N 079°50'30"W, 10 - 100 m, 15 July 1970, *T. B. Croat 11275* (MO); Barro Colorado Island. Forest north of Lab clearing, 09°09'45"N 079°50'30"W, 20 m, 14 May 1970, *T. B. Croat 10193* (MO); Barro Colorado Island. Pearson Peninsula, 09°10'07"N 079°51'31"W, 0 - 5 m, 7 May 1968, *T. B. Croat 5381* (MO); Barro Colorado Island, Lutz Creek near Donato Trail, 09°09'32"N 079°50'08"W, 10 - 70 m, 8 Oct 1968, *T. B. Croat 6790* (MO); Barro Colorado Island. Along banks of Lutz Stream near Donato Trail, 09°09'32"N 079°50'08"W, 10 - 70 m, 8 Jan 1969, *T. B. Croat 7011* (MO); ); Barro Colorado Island, laboratory clearing, 09°09'45"N 079°50'30"W, 50 m, 12 Sep 1970, *T. B. Croat 12193* (MO); Colón: On slope on N side of Río Guanche, 0.5-1 km upstream from Puerto Pilón-Portobelo road, 6 km S of

Portobelo, 09°30'N 079°40'W - 09°30'N - 079°41'W, 25 September 1973*, Nee 7123* (MO, NY). Portobelo. 6 miles S of Portobelo, 09°30'N 079°41'W, 17 Jul 1970, *T. B. Croat 11399* (MO); Along road between Portobelo and Nombre de Dios, 1.2 mi. beyond the junction of the road to Isla Grande. 09°34'N 079°34'W, 5 April 1980, *T. B. Croat 49807* (MO); ); **San Blas:** Puerto Obaldia. Hills southeast of Puerto Obaldía; 08°39'30"N 077°23'18"W, 18 August 1971, *T. B. Croat 16729* (MO);. **VENEZUELA.** *Anonymous s.n*. (MO-BC1205681/A:2484703); *Steyermark 86790* (VEN); Turillo, La Mesa de San Pedro, ca. 5 km above Escuque, 6 April 1971, *G. S. Bunting 4373* (MY); Along road between Barinas and Merida (Hwy. #1) 1 km S of La Soledad, 26.4 km S of Mitisús, 6.7 S of Popa, 60 km S of Valera-Merida junction; on rocky banks of stream, 08°29'N 070°31'W, 840 m, 10 March, 1993, *T. B. Croat 74590* (B, CAS, CUVC, F, K, MO, NY, US). Cerro Naiguatá, Río Grande, 9 km al E de Los Tanques de La Electricidad de Caracas, 900 m, 24 August 1976, *Bruno J. Manara s.n.* (VEN); Rancho Grande, *H. Walter 92* (B); In forest, Tovar. *H. G. A. Engler 100* (K,MO); January 1944, *J. A. Steyermark 55128* (VEN); *J. A. Steyermark 98281*(VEN); 12 February 1943, *J. A. Steyermark 55042* (VEN); Selva siempreverde a lo largo del Río Guayabito, en El Guayabito Playón, 15 kms. al norte de Marín, 150 - 250 m, 28 November 1971, *J. A. Steyermark & G. S. Bunting 105286* (MO, VEN); *T. B. Croat 71773*(MO). **Amazonas**: *J. A. Steyermark & G. S. Bunting 86750* (VEN). Reserva Forestal San Camilo, selva siempreverde a lo largo de la Quebrada Botina, 2 km SE of San Camilo (El Nula), 250 m, 28 March 1968, *J. A.Steyermark et al. 101511* (MO, MY, NY, VEN). **Aragua**: Cerca de "El Loro", a 7 km de San Casimiro, sublendo por la localidad llamada El Casupal. Serrania de Golfo Triste. Bosque húmedo primario a lo largo de la fila de la montaña, 10°00'N 066°58'W, 960 m, 10 Marzo 1999, *Ana Narváez et al. 374* (MO); Parque Nacional Henri Pittier, in quebrada just beyond driveway to Rancho Grande, 14 August 1967, *G. S. Bunting 2239* (MY,VEN); Along road between Maracay and Ocumare de la Costa: Henri Pittier National Park, 3 km N of summit. Virgin forest. 10°20'N 067°34'W, 970 m, 17 March 1985, *T. B. Croat 60579* (CM, MO, MY, RSA); Parque Nacional de Henri Pittier: paraiso trail to pico perquito: in primary cloud forest, 1200 - 1300 m, 8 February 1973, *T. B. Croat 21411* (MO,VEN); Barinas; Carretera Mérida-Sto. Domingo-Barinas, entere La Soledad-Barinitas, 2 km below La Soledad, 18 km above Barinitas, al lado dela carretera en la orilla de una quebrada, 20 Septiembre 1971, *G. S. Bunting 4573* (MO, MY); Carretera Barinas/Merida. 6 km above La Soledad; 2 April 1969 *G. S. Bunting et al. 3368* (MY, NY). **Distrito Capital**: Cultivated at home of Dr. Julian Steyermark, Caracas, 15 August 1982, *T. B. Croat 55074* (VEN), *55080* (CAS, CM, MO); Topo Tacamahaco (Tamanaco), quebrada Río Grande, 9 km E de los Tanques de la Electricidad de Caracas, sur de Camurí Grande, vertiente norte de la Cordillera de La Costa, bosque nublado, 900 - 1000 m, 16 July 1973, *G. N. Morillo 3321* (VEN). Mérida: 1200 m, *Leandro Aristeguieta 41486* (VEN); ca. 12 km below (N) of Azulita, along Highway 4, 08°45'N 071°25'W, 760 m, 8 August 1982, *T. B. Croat 54867* (MO, B).

Miranda: Distrito Páez; drainage of the Rín Guapo, Cerro Riberón between Ríno Guapo and Río Chiquito, 44.5 km directly (in a straight line) SE of Caucagua, 10°05'N 066°01'W, 200 - 400 m, 01-02 June 1977, *Gerrit Davidse & Ángel C. González 13526* (MO,VEN). **Táchira:** Diamante-Matamulas, 8 km above Diamante, 23 km above Rubio, 1900 m, 8 April 1971, *G. S. Bunting 4395* (MY, NY, US); Distr. Uribante: Empresa Las Cuevas near La Fundación. Undisturbed evergreen forest, 07°50'N 071°47'W, 900 m, 7 July 1983, *H. van der Werff & Á.C. González 5069* (B, MO, VEN); Quebrada con cascada, 16 km SW of La Fundacion, 07°43'40"N 071°58'W, 920 m, 29 September 1981, *J. A. Steyermark & B. J. Manara 125475* (MO, VEN); Primary wet forest, sandy soil, vicinity of Las Minas, N of La Laguna, 16 km SE of Santa Ana, 07°36'N 072°13'W, 1150 - 1250 m, 28 July 1979, *J. A. Steyermark & R. L. Liesner 118874* (MO,VEN); Forested, steep sandstone slopes of Cerro de Cuite, along Quebrada La Colorada, 4-6 km S of Campoamento Colorada, 07°29'30"N 072°05'30"W, 450 - 630 m, 9 November 1979, *J. A. Steyermark et al.119756* (MO, VEN); 18 km SW of La Fundación. Along stream with primary vegetation, 07°41'N 071°58'W, 950 m, 14 March 1981, *R. L. Liesner & Á. C. González 10560* (K, MO, NY, VEN); La Buenana, 6-12 km W of Quebrada Colorado, ca. 35 km SSE of San Cristóbal; primary forest, 07°28'N 072°09'W, 600 - 1000 m, 19 March 1981, *R. L. Liesner & Á. C. González 10821*(MO, VEN); 10 (airline) km ESE of La Fundación, 23 km by road, around Represa Dorada, 0-3 km below dam. Primary evergreen forest with patches of secondary vegetation, 07°47'N 071°46'W - 07°47'N 071°47'W, 450 - 650 m, 29 April 1981, *R. L. Liesner & M. Guariglia 11582* (CM, K, MO, NY, VEN); Along highway between San Cristobal and La Fundación, 19.6 km NE of highway #5 (San Cristobal- Barinas); along rocky quebrada, 07°44'N 071°59'W, 810 m, 23 March 1985, *T. B. Croat 60694* (MO). **Zulia:** Dtto. Mara: cuenca del río Guasare, alrededores del Destacamento Guasare No. 1 (La Yolanda), en las laderas del cerro ca. 5 km al SSE del Destacamento, entre el caño Indio y la fila arriba de su orilla izquierda, en bosque húmedo original, 10°52'10"N 072°29'30"W, 350 - 500 m, 16 November 1982, *G. S. Bunting et al. 12375* (MO); Sierra de Perija: bosque húmedo a lo largo de la quebrada del Río Omira-kuna (Tumuriasa), cerca de la frontera Colombo-Venezolana suroeste de Pishikakao e Iria, 1440 - 1460 m, 22-28 March 1972, *J. A. Steyermark et al. 105544* (B, G, MER, MO, US).

***Rhodospatha mukuntakia*** Croat, Novon 15(1): 95–96. 2005. — Type: BOLIVIA. La Paz: Along road between Tumupasa and San José de Uchupiamonas, NW of Tumupasa along slope leading up to Parque Nacional Madidi, 5.5–5.8 km above jct. to San José near Tumupasa, 15°45'S 67°50'W, 830–850 m, 9 August 2000; *T. B. Croat, A. Acebey & T. Krömer 84386* (holotype, MO-5187102-03; isotypes: B, F, K, LPB, NY, UB, US, USM). (**Figs. 181–185**).

**181.** *Rhodospatha mukuntakia* (*Croat et al. 84386*). Potted plant showing petioles, adaxial leaf blades, and inflorescence at anthesis.

**182.** *Rhodospatha mukuntakia* (*Croat et al. 84386*). Close-up of post-anthesis spadix.

**183.** *Rhodospatha mukuntakia* (*Croat et al. 84386*). Potted plant with inflorescence at anthesis with white spathe and pink spadix.

**Habit:** terrestrial, to 1.5 m tall.

**Stem:** to 1 m long; **internodes** 1–2 cm long, 2–4 cm diam., medium green and weakly glossy, covered by overlapping bases of petiole sheaths.

**Leaves: petioles** 45–66 cm long, medium green and weakly glossy, drying light yellowish brown, sheathed for 2/3 to 3/4 their length; **sheath** deciduous, light yellowish brown, highly dilacerated with pale, more or less parallel strands of fibers; **geniculum** 1.5–4.0 cm long, narrowly sulcate, drying sharply sulcate; **blades** subcoriaceous, more or less elliptic, 29–42 cm long, 15–28 cm wide, 1.5–2.3 times longer than wide, broadest below the middle, slightly inequilateral, obtuse to rounded and abruptly short-acuminate at apex, inequilateral, rounded or obtuse abaxially, drying grayish green or greenish brown adaxially, reddish brown or gray-green abaxially; **midrib** narrowly sulcate and slightly paler adaxially, narrowly raised and concolorous abaxially, drying sunken and concolorous adaxially, narrowly rounded to round-raised, concolorous to slightly darker brown, finely to coarsely ridged abaxially; **primary lateral veins** 25–35 per side, 1.0–1.5 cm apart, departing midrib at an acute angle then spreading at 65–85°, quilted-sunken and concolorous adaxially, pleated-raised and concolorous abaxially, drying inconspicuous adaxially, slightly more reddish brown than surface abaxially; **interprimary veins** nearly as strong as the primary lateral veins, usually one per segment; **minor veins** usually 2 or 3 alternating with the interprimary and primary veins; cross veins conspicuous and close, extending across the whole surface.

**Inflorescences:** erect; **peduncles** 36–40 cm long, drying light brown; **spathe** 17 × 9.3 cm, cream with a tinge of pink, especially outside; **spadix** weakly stipitate (stipe 3–6 mm long), 9.5–17.0 cm long, 1.0–1.5 cm diam., tapered slightly toward both ends, pink; stipe 3–8 mm long

**Flowers: styles** mostly rounded-prismatic, 1.2–1.4 mm wide in their longest dimension, irregularly square in post anthesis collections, drying dark gray-brown to red-brown, matte, finely granular; **stigmas** oblong-elliptic to oval, 1 mm long, 0.5 mm wide, blackish, medial groove usually sunken, black.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha mukuntakia* ranges from southern Peru (Cusco, Madre de Dios) to Bolivia (Beni, Cochabamba, La Paz) growing at 400–950 m in a *Subandine RainForest* life zone.

**Comments:** This species is recognized by its terrestrial habit; short internodes obscured by the petiole bases; petioles drying light yellow-brown, ribbed adaxially and with a deciduous, highly

**184.** *Rhodospatha mukuntakia* (*Croat et al. 84386*, MO-5187103). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and separate spathe and post-anthesis spadix.

**185.** *Rhodospatha mukuntakia* (*Croat et al. 84386*, MO-5187102). Holotype showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

fibrous sheath extending 2/3 to 3/4 its length; elliptic blades 1.5–2.3 times longer than wide and drying green or greenish brown adaxially, reddish brown or green abaxially; and primary lateral veins spaced 1.0–1.5 cm apart with the interprimary veins almost as strong and flanked by 2 or 3 minor veins interconnected by numerous cross-veins.

This species is most similar to *Rhodospatha katipas* and shares similar blades and a highly dilacerated, fibrous petiole sheath. This Katter species differs in being an appressed-climbing epiphyte with more elongate, usually exposed internodes; **sheaths** that extend all the way to the geniculum; geniculum bluntly sulcate and positioned directly at the base of the blade; and blades rounded to weakly cordate and less attenuated at the base, with the cross veins obscure and oblique, mostly near the margins.

When first published, *Rhodospatha mukuntakia* was considered to include specimens from eastern Colombia, eastern Ecuador and Peru, but those specimens were later determined to belong to *R. katipas*. The two species are now well separated geographically, with *R. kapitas* being found from Colombia to Peru in the Amazon Basin while *R. mukuntakia* is restricted to central Bolivia and southern Peru. Unfortunately, the name *R. mukuntakia* refers to its local indigenous name in northern Peru near the Río Cenepa, which was part of the original distribution, so it might not be relevant to indigenous populations in Bolivia.

**Other Specimens Seen: BOLIVIA**. **Beni:** Gral. Ballivian, Along road between Rurrenabaque and Sapecho, 21.7 Km NW of border with La Paz Dept; 31.3 Km NW of La Cascada, 38.8 Km NW of Las Delicias, 15°15'34"S 67°04'46"W, 940 m, 19 August 2000, *T.B. Croat et al. 84666* (LPB, MO). **Cochabamba:** Chapare, Kilómetro 18, de Guacharos hacia PalMarch Bosque pluvial subandino, 17°05'S 65°29'W, 800 m, 16 May 2004, *Noel Altamirano & Jaime Terán 526* (MO); 62 km from Villa Tunari to Puerto Villaroel. "Parque Litoral", cerca de Ivirgarzama. Bosque siempre verde sobre pequeña colina, 17°02'09"S 064°52'20"W, 400 m, 8 March 1980, *S.G. Beck 1533* (LPB, MO); Vicinity of Villa Tunari, along Río Espirito Santo on trail to Baja Copacabana, Subtropical moist forest, 20 November 1980, *T.B. Croat 51281* (MO). **La Paz:** Sud Yungas, Colonia La Casada, along trail into disturbed virgin forest less than 1 Km from main Caranavi-Yucumo Road, 47.4 Km NE of Yucumo, 5.1 Km from frontier of Beni Dept, 15°24'S 67°08'W, 900 m, 8 August 2000, *T.B. Croat et al. 84350* (LPB, MO). **PERU**. **Cusco:** La Convención. Distr. Echarati Cashiriari-3 well site, 5.0 km south of Camisea River. Upland forest mixed with "paca" Guadua sarcocarpa; 11°52'57"S 72°39'06"W, 700 m, 2 October 1998, *P. Núñez V. et al. 23980* (MO). **Madre de Dios:** Manu. Manu National Park. Cocha Cashu Biological Station; 11°53'16"S 71°24'27"W, 400 m, 14 September 1991, *P. Núñez V. & J.W. Terborgh 14238* (MO); near Shintuya on road to Salvacion, 600 m, 9

February 1975, *T.C. Plowman & E.W. Davis 576* (GH); Atalaya. Vicinity of Hacienda Amazonia, 2-3 km west of village, across Río Alto Madre. Forested steep slope and ridge; 12°55'S 71°12'W, 500 - 700 m, 8 December 1983, *R.B. Foster & T.S. Wachter 7292* (F, MO, USM).

***Rhodospatha narinoensis*** Croat & Delannay, **sp. nov.** — Type: COLOMBIA. Nariño: Road from El Espino to Tumaco, 30 km W of Ricaurte, 10 km W. of Altaquer, El Mirador, Finca Santa Lucia; in forest N. of Río Ñambí, 01°17'N 78°7'W, 950 m, 9 December 1988, *B. Hammel & A. Navaraez 17196* (holotype, MO-6729051; isotype, PSO). (**Fig. 186**).

**Diagnosis:** *Rhodospatha narinoensis* is distinguished by its epiphytic habit; petioles sheathed to near the geniculum with an intact sheath drying darker brown; sharply sulcate geniculum drying dark brown; ovate-elliptic, moderately bicolorous leaves drying brown, 1.6 times longer than broad, rounded and briefly short-acuminate at apex, nearly equilaterally rounded at base; and long-pedunculate inflorescence with a short-stipitate, weakly tapered spadix.

**Habit:** climbing epiphyte.

**Stem: internodes** to at least 2 cm diam.

**Leaves: petioles** ca. 38 cm long, sheathed to near the geniculum; **sheath** darker brown-drying, intact, both petiole shaft and sheath closely blunt-ridged; **geniculum** drying dark brown, ca. 3.3 cm long, sharply sulcate; **blades** ovate-elliptic, 38.0–44.3 cm long, 22.0–27.1 cm wide, 1.6 times longer than broad, subequaling petiole (ca. 1.1 times longer than petiole), rounded and briefly short-acuminate at apex, nearly equilaterally rounded at base, moderately coriaceous, moderately bicolorous, glossy adaxially and abaxially, drying dark reddish brown, matte adaxially, yellow-brown, weakly glossy abaxially; **midrib** broadly rounded and paler, densely short-ridged-granular adaxially, narrowly raised and concolorous, finely ridged and granular abaxially; **primary lateral veins** 22–23 per side, departing midrib at 80–85° near base, to 75° nearer apex, finally to 25–30° near apex, drying moderately paler, broadly low-raised, usually with a narrow shallow medial sulcus, finely short-ridged throughout adaxially, darker with a narrow paler outside border, finely ridge-granular abaxially; interprimary veins solitary, indistinct; minor veins 1 or 2 on each side of interprimary vein; **adaxialsurface** closely ridged and paler granular with minor veins narrowly rounded; **abaxial surface** irregularly close-ridged, densely granular.

**186.** *Rhodospatha narinoensis* (*Hammel & Navaraez 17196*, MO-6729051). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), peduncle, and post-anthesis spadix.

**Inflorescences:** long-pedunculate, erect; **peduncle** ca. 25 cm long, entirely enveloped in a moderately coriaceous, yellow-brown prophyll; **spadix** short-stipitate (stipe ca. 0.5 cm long, finely knobby-ridged), ca. 11.5 cm long, 9 mm diam; weakly tapered.

**Flowers: styles** mostly rhombic, 2.3–2.7 cm long, bluntly pointed at apex to meet the stigma, grayish-glaucescent; **stigmas** oval to sub-oblong, 1.0–1.2 mm long. 0.4–0.5 mm wide.

**Distribution and ecology:** *Rhodospatha narinoensis* is endemic to Colombia, found only in Nariño Department at 950 m in a *Premontane Wet Forest* life zone.

**Etymology:** The species is named for the type locality in the Department of Nariño.

**Comments:** This species is easily confused with *Rhodospatha monsalveae*, which occurs in the same area but that species differs in having more closely spaced primary lateral veins; decurrent leaf base; and adaxial blade surface drying dark reddish brown, matte, and abaxial blade surface drying yellow-brown with close, dense ridging. In contrast, *R. narinoensis* has a dense frost-like granulation as well as a lower surface not at all ridged but is instead densely blunt-granular and reddish brown-speckled. Two other species from Nariño, namely *R. densinervia* and *R. herrerae*, are also similar. The former differs by having more primary lateral veins more closely spaced along the midrib and the latter differs by being a much smaller plant with long internodes and small leaves.

***Rhodospatha neillii*** Croat, Aroideana 44(2): 483. 2021. — Type: ECUADOR. Zamora-Chinchipe: Cordillera del Cóndor region, Tandaime, Valle del Quime, along right bank of Río Quime, 4.2 km from bridge over Río Waiwaime near headquarters of Ecua-Corriente copper mine, 03°31'55"S, 78°27'10"W, 1200 m, 13 April 2006, *T. B. Croat 96995* (holotype, MO-5931381-83; isotypes, COL, ECUAMZ, K, QCNE, S, US). (**Figs. 187–192**).

**Habit:** appressed-climbing epiphyte.

**Stem:** internodes 1–7 cm long, 1.5–4.0 cm diam., dark green to brown, matte to weakly glossy, transversely fissured or not fissured, sometimes scurfy.

**Leaves: petioles** medium to dark green and weakly glossy, matte, sheath persisting intact, becoming dark brown-fibrous and thin, incurled; **geniculum** ca. 3 cm long, sharply and narrowly sulcate, margins undulate drying blackened and shrunken; **blades** oblong-elliptic to ovate-elliptic, 28–51 cm long, 15.5–31.5 cm wide, 1.2–2.0 times longer than wide, 0.8–1.5 times longer than

**187.** *Rhodospatha neillii* (*Croat 105840*). Live plant showing appressed-climbing, epiphytic habit, stem, petioles, and leaf blades (abaxial surface).

**188.** *Rhodospatha neillii* (*Croat 100653*). Close-up of live plant showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**189.** *Rhodospatha neillii* (*Croat 106526*). Close-up of immature inflorescence and post-anthesis spadix.

petiole, moderately coriaceous to subcoriaceous, medium to dark green and weakly glossy, matte-subvelvety adaxially, semiglossy matte and moderately paler abaxially; drying dark brown adaxially, medium brown abaxially; **midrib** slightly to deeply sunken and marginally discolored to not discolored, narrowly rounded and paler, obtusely sulcate, narrowly raised adaxially, thickly convex to narrowly raised and matte abaxially; **primary lateral veins** 24–28 per side, departing midrib at 80–90°, weakly to obtusely sunken and quilted, concolorous to pale adaxially, narrowly rounded, convex and slightly paler abaxially; **interprimary veins** visible and darker; minor veins moderately visible and darker than surface.

**Inflorescences:** solitary, faintly purplish brown and erect; **peduncle** 18–27 cm long; **spathe** 14.5–21.5 cm long, creamy to pink and semiglossy abaxially, pale yellow-green and glossy adaxially, moderately coriaceous, caducous; **spadix** 12–22 cm, 1.5–2.0 cm diam., pink to pale reddish violet or green, near anthesis becoming faintly lavender, matte; stipitate ca. 8 mm, 11 mm at base, 12 mm diameter.

**Flowers: pistils** matte.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha neillii* ranges from Colombia (Amazonas, Caquetá) to Ecuador (Morona-Santiago, Napo, Orellana, Pastaza, Sucumbíos, Zamora-Chinchipe) and Peru (Loreto, San Martín) at 120–1500 m in *Tropical Moist Forest*, *Tropical Wet Forest,* and *Lower Montane Moist Forest* life zones.

**Comments:** This species is characterized by its epiphytic habit; frequently transversely fissured stems; mostly deciduous petiole sheaths; oblong-elliptic to ovate-elliptic blades weakly glossy or matte-subvelvety adaxially; and creamy to pink spathe and pink to pale reddish violet, stipitate spadix.

*Rhodospatha neillii* could be confused with *R. katipas*, which occurs in the same area; however, the latter species differs by its adaxial blade surface densely reddish granular-punctate on magnification and its midrib drying granular and with pale raphide cells visible on magnification. It also resembles *R. latifolia* but this latter species has the petiole sheathed nearly to the apex and with the sheath persisting intact and inrolled (rather than being mostly deciduous for *R. neillii*).

**Other Specimens Seen: COLOMBIA**. **Amazonas:** Parque Nacional Natural Amacayacu, Centro Administrativo Mata-mata (Inderena), 03°47'S 70°15'W, 110 - 120 m, 15 August 1991, *Rudas*

**190.** *Rhodospatha neillii* (*Croat 96995*, MO-5931383). Holotype showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**191.** *Rhodospatha neillii* (*Croat 96995*, MO-5931382). Holotype showing stem, petioles, and post-anthesis spadix.

**192.** *Rhodospatha neillii* (*Croat 96995*, MO-5931381). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

*2896* (COL, FMB, MO, US). **Caquetá:** Florencia. Vereda Villaraz, Quebrada El Caraño, km 20 on road to Neiva, Finca La Estrella; 01°43'34"N 75°40'06"W, 900 m, 26 August 2007, *T. B. Croat & E. Trujillo 98162* (MO); Muicipio de Doricello, verada et reccreo, finca el Paraiso: propietario Victor M. Diaz, 01°43'20.6"N 75°17'31.9"W, 471 m, 27 May 2009, *Trujillo E. et al. 1410* (HUAZ). **ECUADOR**. **Morona-Santiago:** *A. Warush s.n.* (NY); Along road between Pto. Morona at Río Morona and Santiago, near summit of hills with broad view of Amazon basin, Km 18 from Río Morona; 02°58'43"S 77°47'46"W, 500 m, 10 September 2002, *T. B. Croat 87405* (ECUAMZ, HUA, MO, PMA, QCNE); Along road between Palora and Yushin, departing main Palora-San Vincente de Tarqui Road, 8.7 Km NW of Palora, 3.4 Km S of Río Amundalo, 2.1 Km E on road to Yushin; 01°41'46"S 78°01'21"W, 25 August 2002, *T. B. Croat & L.P . Hannon 86957* (B, COL, CUVC, F, HUA,LAMUA, M, MO, NY, PMA, QCNE, S); Gualaquiza. Along Río Bomboiza at bridge on road from Gualaquiza to Nueva Targuí; 03°26'S 78°36'W, 1300 m, 06 Mar 1992, *T. B. Croat 72751, 72755* (MO, QCNE); Limón Indanza. Región de la Cordillera del Cóndor. Cuenca del Río Coangos. Comunidad Shuar de Kuankus. Sendero que conduce hacia la comunidad Yunkumas. Bosque maduro. Bosque Húmedo Premontano. Suelos arcillosos rojizos. Informante: José Saant; 03°02'36"S 78°13'03"W, 850 m, 14 June 2005, *C. Morales 1209* (MO, QCNE); Cordillera de Cutucú, along road from main Puyo-Macas, to Macuma (in construction), 24 km from main Puyo-Macas Road (this departing to E, 22.9 km N of junction to Sevilla), 13.9 km E of Santa Lucia, 5.8 km E of Cuchaentza; then ca. 15 km E of Río Macuma near end of road, 02°07'30"S 77°45'00"W, 925 m, 27 November 2008, *T. B. Croat 100653* (LAMUA, MO, QCNE, US); Along road from main Puyo-Macas Rd. to N end of Cordillera del Cutucú and Mucuma ca. 7.5 km E of Río Macuma, 02°07'10"S 77°47'48"W, 787 m, 16 January 2015, *T. B. Croat et al. 105681* (ECUAMZ, MO, QCNE). **Napo:** Jatun Sacha Biological Station, 8 km E of Misahuali. Permanent Tree Plot No. 1. Non-alluvial, red clay soil. Transect 8, 01°04'S 77°36'W, 450 m, 30 December 1987, *A. H. Gentry et al. 60177* (MO, QCNE); Añangu. Rain forest on well drained hilly ground in the Parque Nacional Yasuní. Collections in the area of the SEF project. Soil temperature 24-25° C; 00°31'S 76°23'W, 260-350 m, 30 May 1982 - 21 June 1982, *B. Øllgaard et al. 39014* (AAU); Reserva Biológica Jatun Sacha. Río Napo, 8 km abajo de Misahuallí; 01°04'S 77°36'W, 450 m, 17 January 1987 – 6 February 1987, *C. E. Cerón 814* (MO); 20 Km W of Coca, al Sur del Río Napo, por Via de los Zorros. Bosque humedo tropical. Suelo rojo lateritico; 00°35'S 77°03'W, 350 m, 22 April 1985 - 23 April 1985, *D. A. Neill 6394* (K, MO, NY, US); Cantón Orellana. Sector Huashito, 20 km al norte de Coca. Propiedad de Palmoriente. Bosque húmedo Tropical. Bosque primario, terreno plano; suelo negro, fértil, Hydrandept, 00°20'S 77°05'W, 250 m, 3 November 1989 - 21 November 1989, *E. Gudiño 125* (MO); Reserva Biologia Jatun Sacha, ca. 8 km ESE of Puerto Mishualli. 1º04'S, 77º37'W. Elev. 450 m. Transect #3. Primary forest along the Mishualli- Coca road; 01°04'S 77°37'W, 450 m, 8 July

1986, *J. S. Miller et al. 2474, 2475* (MO); Limoncocha, 00°24'00"S 76°37'00"W, *M. T. Madison 5431* (SEL); Estacion experimental de INIAP, San Carlos, 6 km SE of Los Sachas; bosque humedo tropical; suelo aluvial fertil; 250 m, 19 April 1985, *M. A. Baker & N. Trushell 6077* (MO); Environs of Limoncocha. Tropical wet forest; 00°24'00"S 76°37'00"W, 240 m, 16 June 1978, *M. T. Madison et al. 5345* (SEL); ca. 30 km NNW of Coca, R. Huashito, site of Proyecto Huashito, 246 m, 29 October 1982, *T. D. Pennington 10661* (K); Along road between Tena and Puyo, 61.5 km N of Puyo; disturbed primary rain forest; 01°00'00"S 77°48'00"W, 500 m, 22 December 1979, *T. B. Croat 49655* (MO, QCNE); Cultivated Plants - Selby Gardens. Collected September 25-27, 1999. Selby 82-559. Collected by Besse, Halton and Baker in Ecuador. Napo: vic. Lago Agrio; 350 m, 15 December 1999, *T. B. Croat 83593* (MO, QCNE); Along road between Coca and Río Tiguino, 6.3 km S of Petroecuador Camp "Amazonas"; 00°52'S 76°52'W, 350 m, 01 Mar 1992, *T. B. Croat 72582* (AAU, B, CAS, F, K, MEXU, MO, NY, QCNE, SEL, US); Along Río Piatua beginning at Botanical Garden on Campus of Universidad Amazonia (CIPCA) and moving up river; 01°14'37"S 77°53'21"W, 570 m, 10 January 2015, *T. B. Croat et al. 105533* (MO, QCNE); Vicinity of Mushullacta along Río Huayusayacu, vic. of Communidad Mushullacta, south of main Narupa-Coca Road, 13.2 Km S of main road which 41 Km E of Narupa; 00°48'S 77°34'W, 1150 - 1250 m, 20 April 2003, *T. B. Croat et al. 87894* (MO, QCNE); Orellana. Yasuní National Park. Añangu, on south bank of Río Napo. Mature forest on floodplain, flat terrain. Trail from village to Laguna Añangu Cocha; 00°31'S 76°23'W, 220 m, 13 November 1991, *D. A. Neill & W. Rojas 9966* (MO, QCNE); Parque Nacional Sumaco Napo-Galeras. Zona de amortiguamiento fuera del parque. Comunidad Mushullacta a 3.7 km al oeste del Río Punino. Bloque 18. Línea sismica 03. Helipuerto 3C. Compañía AMOCO. Bosque muy húmedo Tropical. Bosque primario. Suelo con roca sedimentaria; 00°12'S 77°18'W, 450 m, 23 October 1996, *H. Vargas 1103* (MO, QCNE); Parque Nacional Sumaco Napo-Galeras. Zona de amortiguamiento fuera del parque. Reserva Comuna Coca-Sardinas a 12 km al oeste del Río Coca. Bloque 18. Línea sismica 02. Helipuerto 2 E. Compañía AMOCO. Bosque muy húmedo Tropical. Bosque primario. Suelo aluvial; 00°10'S 77°08'W, 400 m, 28 September 1996, *H. Vargas & A. A. Alvarado 1000* (MO, QCNE); Along road between Coca (Pto. Francisco de Orellana) and E to Yuca, 7.5 km E of junction with Coca-Río Tigüino Road. (departing main road 14.2 km S of bridge over Río Napo (center); 00°34'S 76°50'W, 355 m, 29 February 1992, *T. B. Croat 72536* (MO, QCNE); Along oil exploration road to Yuca and Taracoa de la Esperanza, beyond Taracoa, 22.5 km E of junction with main Coca to Río Tigüino road S of Coca (departing main N-6 road 14.2 km S of bridge over Río Napo); 00°34'S 76°42'W, 350 m, 29 February 1992, *T. B. Croat 72543, 72549* (MO, QCNE); Tena. Estación Biológica Jatun Sacha, along S bank of Río Napo, 8 km E of Puerto Misahuali; 01°04'S 77°36'W, 450 m, 2 April 1992, *T. B. Croat 73396* (CUVC, F, HUA, MO, QCNE), *73425* (B, CUVC, HUA, MO, PMA, QCNE, S);

Estacion Biologica Jatun Sacha; along S bank of Río Napo, 8 km E of Puerto Misahualii; 01°04'S 77°36'W, 450 m, 1 April 1992, *T. B. Croat 73388* (HUA, MO, PMA, QCNE). **Orellana:** Vicinity of San José Payamino, Estación Cientifica Timburi Cocha, along banks of Río Payamino; 00°28'29"S 77°17'05"W, 310 - 330 m, 11 February 2015, *T. B. Croat et al. 106118* (ECUAMZ, MO, QCNE); Vicinity of San José. Payamino Estación Cientifica, Timburi Cocha, along banks of Río Paymino; 00°28'29"S 77°17'06"W, 321 m, 09 February 2015, *T. B. Croat et al. 106085* (MO, QCNE); Estacion Cientifica Yasuni. Río Tiputini, al noroeste de la confluencia con el Río Tivacuno; este de la carretera Repsol-YPF, Km 7 desvío hacia el pozo Tivacuno. Este de la Parcela de 50 ha. Bajío; 00°38'S 76°30'W, 200 - 300 m, 11 April 2004, *V. Sandoya & asistente huaoran 48* (MO, QCA); Parque Nacional Yasuní, Centro Cientifica Yasuní, Trail 10, Botanico Trail, 00°40'34"S 076°23'52"W, 225 m, 25 January 2015, *T. B. Croat 105840* (MO); **Pastaza:** Tarqui ca. 5 km S of Puyo, remnants of primary rain forest; 850 m, 8 Mar 1980, *G. W. Harling & L. Andersson 17083* (MO); Carretera de Petro-Canada en construcción. Vía Auca, 115 km al sur de Coca, 5 km al sur del Río Tigüino. Bosque húmedo Tropical; lomas; suelo rojo Dystropept. Arboles del bosque primario, cortados; 01°15'S 76°55'W, 320 m, 01 Mar 1989 - 06 Mar 1989, *V. Zak 4136* (MO, QCNE); Cantón Puyo. Comunidad Santa Cecilia. Villano. Bosque húmedo Tropical. Bosque primario. Suelo con capa materia orgánica de hasta 40 cm de profundidad, bien drenado; 01°30'S 77°27'W, 380 m, 01 May 1992, *W. A. Palacios 10062* (MO, QCNE); Pastaza. Pozo petrolero "Ramirez". 20 km al sur de la población de Curaray; 01°32'S 76°51'W, 300 m, 21 February 1990 - 28 February 1990, *V. Zak & S. Espinoza 4887* (ECUAMZ, MO). **Sucumbíos:** Sacha Lodge, 3 km NW of the village Añangu, near the Napo river. Tropical Moist Forest; 00°39'S 76°26'W, 200 m, 11 June 1995, *J. L. Clark 1149* (MO, QCNE); Above road from Lumbaquí to Lago Agrio, 7.3 km E of jct. on road to La Bonita, near Río Aguarico in Lumbaquí, 62.3 km S of Rosa Florida, 80.7 km S of La Bonita; 00°00'44"N 77°16'14"W, 437 m, 20 August 2004, *T. B. Croat & G. Ferry 93645* (MO, QCNE); Along road from La Sofia to La Bonita, ca. 3 km N of La Sofia, 00°22'05"N 077°37'53"W, 1650 m, 3 September 2015, *T. B. Croat 106526* (ECUAZ, MO, QCNE). **Zamora-Chinchipe:** Río Nangaritza, camino de Shaime a Shamatak. Bosque secundario. Bmh PM, 800 m, 3 December 1996, *O. Cabrera & I. Lauweers 860* (MO); Along graveled road roughly paralleling the Chuchumbleza-Yantzaza Highway, E along Río Chuchumbleza, then SW to Chicaña and back to main highway (entering road from main highway 4.8 km S of Río Chuchumbleza and re-entering main highway 9.6 km N of plaza in Yantzaza) via Guisme, Miasi, Uwents, Kunki, El Oso, and Chicaña, vicinity of Uwents, 21.5 km N of Chicaña, 6.2 km N of Kunki and Río Uens del Kunki bridge; 03°36'02"S 78°41'16"W, 1500 m, 14 April 2006, *T. B. Croat 97070* (MO, QCNE); Along road between Zamora and Gualaquiza, on side road departing main road at Chuchumbleltza (on Río Chuchumbletza), 3.8 km S of village of Chuchumbetza; steep rocky area below high cliffs,

towering perhaps 100 m above collecting area; 03°33'S 78°30'W, 750 m, 4 March 1992, *T. B. Croat 72741* (MO, QCNE); Along road from El Pangui to Zamora, in vicinity of El Pincho, 12.3 Km S of El Pangui, left along road to Río Zamora, steep forested hills above Río Zamora, ca. 3.5 Km E of El Pincho; 03°34'S 78°34'W, 800 m, 7 September 2002, *T. B. Croat 87240* (COL, MO, QCA, QCNE, S); Along road between El Pangui and Monterrey departing main highway (Zamora-Gualaquiza), 8.5 Km N of El Pangui, 03°32'26"S 078°37'16"W, 730 m, 25 May 2003, *T. B. Croat* 89351 (MO, PMA, QCNE, US); Along road between Zumbi (on Río Zamora, 7.7 Km S of Yanzaza), and Cordillera del Cóndor, 6.8 Km E of Paquisha at Río Nangaritza, 03°54'18"S 078°35'00"W, 792 m, 27 May 2003, *T. B. Croat 89527* (CUVC, HUA, MO, QCNE); Nangaritza, Miazi, flood plain forest along Río Nangaritza. Transect # 9, 04°18'S 078°40'W, 850 m, 29 July 1993, *Gentry 80716* (F, MO, QCNE); 31 km N of Yangzatza. Lower montane moist forest; 03°55'S 78°46'W, 1000 m, 19 October 1981, *T. B. Croat 50780* (MO, QCNE); Along road between Zamora and Gualaquiza, 70.9 km N of bridge over river in Zamora, between Los Encuentros and El Pangui, 03°42'S 78°25'W, 935 m, 04 Mar 1992, *T. B. Croat 72711* (MO, QCNE); Area of Estación Cientifica San Francisco, road Loja-Zamora, ca. 35 km from Loja; moist montane forest. Q2; 03°58'S 79°04'W, 2000 m, 25 October 2004, *F. A. Werner 1260* (MO); Vicinity of Las Orchideas, in forest across from Cabañas Yankuam; 04°15'05"S 78°39'29"W, 870 - 890 m, 15 September 2007, *T. B. Croat & G. Ferry 98625* (MO, QCNE); Along road between El Pangui and Monterrey, 5.8 Km E of Monterrey, 11.9 Km W of main Gualaquiza-Zamora Road; 03°32'26"S 78°37'16"W, 950 m, 25 May 2003, *T. B. Croat & M. Menke 89388* (MO, QCNE); Along road between El Pangui and Monterrey departing main highway (Zamora-Gualaquiza), 8.5 Km N of El Pangui, 03°32'26"S 078°37'16"W, 730 m, 25 May 2003, *T. B.Croat 89351* (MO, QCNE); Along road to Cordillera del Condor beyond Paquisha, 27.3 km E of Zumbi, 8.6 km E of Río Nangaritza Bridge; 03°56'17"S 78°37'45"W, 1259 m, 16 July 2004, *T. B. Croat et al. 91218* (MO, NY, QCNE, S, US); Along road from near Paquisha, south to Las Orchídeas, and end of road at Río Nangaritza, via Guayzimi, beginning at 15.9 km E of Zumbi and Río Zamora, then 47.0 km S of Intersection near Paquisha, 2.6 km N of Las Orchídeas; 04°12'48"S 78°38'41"W, 875 m, 17 July 2004, *T. B. Croat et al. 91344* (AAU, GB, MO, QCNE); Along road from near Paquisha south to Las Orchídeas and end of road on Río Nangaritza via Guayzimi, beginning 15.9 km E of Zumbi and Río Zamora, then 49.6 km S at Las Orchídeas, in vicinity of Las Orchídeas; 04°13'44"S 78°39'30"W, 877 m, 16 July 2004, *T. B. Croat et al. 91251* (MO, QCNE), *91301* (HUA, MO, PMA, QCNE, US); El Pangui. Cordillera del Cóndor. Parroquia Tundayme. Valle del Río Quimi. Bosque muy húmedo premontano. Bosque maduro, intervenido por actividad ganadera y minera; 03°33'29"S 78°27'55"W, 820 m, 8 October 2006, *C. Morales & D. Reyes 1984* (MO, QCNE); Cordillera del Cóndor region, vicinity of Río Zamora and village of Quime, along road from the military outpost to Condor Mirador military outpost, 7.1 km S of junction in road to Tandaime,

San Marcos and Ecua-Corriente copper mine headquarters; 03°36'42"S 78°28'02"W, 1128 m, 12 April 2006, *T. B. Croat 96959* (MO, QCNE); Nangaritza. Miazi, flood plain forest along Río Nangaritza. Transect # 1; 04°18'S 78°40'W, 850 m, 28 July 1993, *A. H. Gentry 80519* (MO, QCNE); Parroquia Guayzimi. Campamento Militar Miazi. al sur del rio Nangaritza. Bosque muy Húmedo Premontano. Topografía ligero colinada. Suelos de colinas o Antiguas Terrazas Aluvials, medianamente profundos (Distropep). Transectos de 50 x 2 m (0.1 Ha.); 04°16'S 78°42'W, 1060 - 1100 m, 21 October 1991, *C. E. Cerón et al. 16870* (MO); Lower slopes of Cordillera del Cóndor, above Pachicutza. Río Nangaritza valley. Premontane Wet Forest. Primary forest; 04°07'S 78°38'W, 1000 - 1200 m, 6 December 1990, *D. A. Neill & W. A. Palacios 9558* (MO, QCNE); Parroquia: Zurmi. Comunidad Centro Shaime (along Río Nangaritza). Forest 2-4 km NW of Centro Shaime. Forest on limestone outcrop (i.e; presence of sinkholes, rocks, and caves). Evergreen wet forest; 04°04'S 78°54'W, 1000 m, 15 December 2001, *J. L. Clark 6530* (MO, QCA, QCNE, US); Parroquia: Zurmi. Comunidad Centro Shaime (along Río Nangaritza). Forest 2-4 km NW of Centro Shaime. Forest on limestone outcrop (i.e; presence of sinkholes, rocks, and caves). Evergreen wet forest; 04°04'S 78°54'W, 1000 m, 13 December 2001, *J. L. Clark 6442* (MO, QCA, QCNE, US); Cordillera del Cóndor region, vicinity of Las Orquideas forest near Cabañas Yancuam, ca. 3 km S of Las Orquideas, slopes W of Río Nangaritza; 04°15'01"S 78°39'33"W, 1130 - 1140 m, 16 April 2006, *T. B. Croat 97096* (MO, PMA, QCNE, SEL); Along Río Nangaritza, between Las Orchideas and Miasi; 04°17'53"S 78°39'00"W, 872 m, 17 September 2007, *T. B. Croat & G. Ferry 98802* (MO, QCNE); Yantzaza. Along road between Zamora and Gualaquiza, 29.2 km N of bridge over Río Zamora in Zamora; 03°54'S 78°48'W, 1200 m, 05 Mar 1992, *T. B. Croat 72707* (MO, QCNE); Zamora. 44 km E of Loja on road to Zamora, 1550 m, 15 December 1972, *M. T. Madison 921* (GH). **PERU. Loreto:** Alto Amazonas. Andoas, Río Pastaza near Ecuador border; mature forest. mature forest; 02°48'S 76°28'W, 210 m, 15 August 1980, *A. H. Gentry et al. 29721* (MO); Maynas. Región de Amazonas, Dtto. Las Amazonas. Explornapo Camp. Subparcelas # 18-22. Inventario MacArthur; cerca de Sucusari, a lo largo del río Napo. Bosque en terra firme. PARCELA Y, 03°20'S 72°55'W, 100 - 140 m, 5 March 1991, *J. J. Pipoly, III et al. 14521* (MO)**;** Sargento Lores, Esperanza (Río Tahuayo). Bosque primario; 04°10'S 73°15'W, 120 m, 12 Dic. 1989, *R. Vásquez & N. Jaramillo 13199* (MO); Dtto. Amazonas, Quebrada Sucusari, Explor Napo camp. Bosque primario, suelo arcilloso, con buen drenaje; 03°20'S 72°55'W, 140 m, 15 April 1991, *Rodolfo Vásquez & Nestor Jaramillo 16050* (MO); Dtto. Iquitos, Puerto Almendras (Río Nanay). Bosque primario; 03°48'S 73°25'W, 122 m, 29 March 1990, *R. Vásquez & N. Jaramillo 13667* (MO); Ucayali. Distrito Pampa Hermosa. Parque Nacional Cordillera Azul; 7°03'16"S 75°58'34"W, 384 m, 13 July 2019, *L. Valenzuela G.; R. Zhender & R. Garcia 36289* (HOXA, MO, US, USM); Ucayali, Distrito Pampa Hermosa. Parque Nacional Cordillera Azul PV-19, 07°23'46"S 076°12'54"W, 1250 m, 16 August

2021, *R. Vasqquez et al. 46233* (HOXA, MO, USM); San Martín: Bellavista. Distrito Alto Biavo. Parque Nacional Cordillera Azul. Sector Quebrada El Pescadero del Puesto de Control 53 "Shapaja"; 08°10'59"S 76°13'07"W, 1136 m, 15 November 2019, *L. Valenzuela G. et al. 37429* (HOXA, MO, USM); Mariscal Cáceres. Dtto. Tocache Nuevo. Quebrada Mantención, cerca a la Chacra del Sr. Hernan Ortiz, Epífita, en bosque alto; 700 m, 21 June 1982, *J. Schunke V. 13748* (IBE, MO.

***Rhodospatha nunezii*** Croat, **sp. nov.** — Type: PERU. Madre de Dios: Parque Nacional Manu, Río Cumerjali, tributary of Manu River, 500 m, 1 November 1993, *P. Núñez V. 15403* (holotype, MO-4993244). (**Fig. 193**).

**Diagnosis:** *Rhodospatha nunezii* is characterized by its terrestrial habit; petioles drying pale grayish brown and sheathed 2/3 their length with the deciduous sheath breaking up into persistent, long fibers; slender sharply sulcate geniculum; narrowly ovate-elliptic, abruptly short-acuminate blades drying medium yellowish brown, 1.7 times longer than wide, narrowly rounded inequilateral and attenuated at the base; and inflorescence with the peduncle enclosed in a fibrous prophyll, cream-colored spathe and a bright pink, narrowly cylindroid spadix.
**Habit:** terrestrial.

**Stem: internodes** short, 1.5–2.0 cm diam., drying reddish brown, coarsely ribbed, densely pale-granular.

**Leaves: petioles** ca. 57 cm long, drying pale grayish-brown, prominently ribbed near the base, sheathed 2/3 their length, reddish brown, densely pale-granular; **sheath** deciduous, breaking up into long fibers remaining along the petiole, the fibers moderately adherent; **geniculum** ca. 2.5 cm long, drying deeply and sharply sulcate, free part ca. 19 cm long, terete, drying closely and prominently ribbed; **blades** ovate-elliptic, ca. 39 cm long, 23 cm wide, 1.7 times longer than wide, 0.68 times as long as petioles, obtuse and abruptly short-acuminate at apex, inequilateral and rounded to broadly acute and briefly attenuate at base, widest below the middle, slightly inequilateral, drying medium yellowish-brown adaxially, dark grayish-brown abaxially (ca. 14 cm above base); **midrib** broadly sunken with a narrow whitish stripe medially, densely granular adaxially, concolorous, raised, bluntly acute with a weak medial rib abaxially; **primary lateral veins** ca. 30 per side, spaced 5–15 mm, departing midrib at 60–80°, drying concolorous and barely visible above, slightly darker below; **interprimary veins** faint, 1 per unit below, weakly undulated; minor veins faint, 2 or 3 between interprimary and primary lateral veins; **adaxial surface**

**193.** *Rhodospatha nunezii* (*Núñez 15403*, MO-4993244). ). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), peduncle, and post-anthesis spadix.

moderately smooth to sparsely granular; **abaxial surface** densely granular and sparsely pale globular-lenticellate.

**Inflorescences:** erect; **peduncle** ca. 32 cm long, 4 mm diam., closely enveloped for 70% their length by a prophyll to 30 cm long breaking up from the apex into long fibers, peduncle and prophyll drying pale grayish brown; **spathe** cream-colored, to at least 18 cm long, lost; **spadix** short stipitate (stipe ca. 1 cm long), bright pink cylindrical, tapering at the apex, ca. 15.5 cm long, 1 cm diam. near the middle.

**Flowers: styles** subrounded to subquadrangular, with corners often acute, prismatic, 1.4–1.6 mm wide in greatest dimension, the surfaces gray, matte, seemingly sericeous; **stigmas** 0.6–0.8 mm long, 0.3 mm wide, less than 1/2 of total width of style, blackened, often with obscure medial groove.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Peru, found only in the type locality in Madre de Dios Department at 500 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of Peruvian botanist Percy Núñez who collected the only known specimen in 1993. Percy is a rainforest biologist and works for the Universidad Nacional San Antonio Abad in Cuzco, Peru and has long been involved with Yale University's Americas Program or the Office of Internationa Science and Engineering.

**Comments:** *Rhodospatha nunezii* resembles *R. latifolia*, which grows in the same area, but it differs from the latter species by its blades drying medium yellowish-brown instead of dark green in the case of *R. latifolia*. *Rhodospatha latifolia* also has a persistent petiole sheath that does not break up into parallel fibers, or does it have a large prophyll breaking up into long fibers, as is the case for *R. nunezii*.

***Rhodospatha oblongata*** Poepp. Nov. Gen. Sp. Pl. 3: 91. 1845. — Type: PERU. *Poeppig s.n.*; no date, (holotype, M). (**Figs. 194–198**).

**Habit:** Appressed-climbing epiphyte or trailing across rocky stream banks.

**194.** *Rhodospatha oblongata* (*Croat 101947*). Live plants showing appressed-climbing, epiphytic habit, stems, petioles, and leaf blades (adaxial and abaxial surfaces).

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**Stem:** to 1 m long; **internodes** short, dark green and semiglossy to matte, to 2.3 cm diam. but preadult plants with flagellate branches to 7 mm diam. extending up to 1.5 m before producing another rosette of leaves.

**Leaves: petioles** 20–51 cm long, sheathed from 2/3 to nearly throughout, dark grayish green and semiglossy, the bases darker green than the stem and overlapping to hide most of the stem; the sheath incurled, its margins drying light yellow-brown, persisting intact, sometimes deciduous, the free portion thicker than broad, not at all sulcate (elsewhere sulcate); **geniculum** ca. 3 cm long; **blades** oblong-elliptic, 30–50 cm long, 8.5–15.0 cm wide, 3.1–3.5 times longer than wide, tapering to apex, long-acuminate at apex, acute at base, moderately coriaceous, dark green and moderately glossy adaxially, moderately paler and weakly glossy abaxially, often semiglossy on both surfaces, drying dark greenish gray-green to gray-brown, matte to weakly glossy adaxially, reddish brown, semiglossy abaxially; **midrib** narrowly sunken and slightly paler to concolorous, weakly discolored marginally adaxially, thicker than broad, narrowly rounded and paler abaxially;

**195.** *Rhodospatha oblongata* (*Croat 85694*). Close-up of leaf blades (adaxial surface).

**196.** *Rhodospatha oblongata* (*Croat 85238*). Close-up of post-anthesis spadix.

**197.** *Rhodospatha oblongata* (*Granville & Bordenave 16231*, MO-5851670). Specimen showing stem, petioles, leaf blade (adaxial and abaxial surfaces), peduncle, and post-anthesis spadix.

**198.** *Rhodospatha oblongata* (*Fernandez & Aymard 4816*, MO-3570381). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), peduncle, and post-anthesis spadix.

**primary lateral veins** 13–15 per side, departing midrib at 30–60°, spaced ca. 2 cm, weakly quilted-sunken and concolorous adaxially, weakly pleated-raised abaxially; **interprimary veins** weak, sometimes barely stronger than minor veins; minor veins 6 or 7 running in parallel on each side of the interprimary veins; cross-veins not visible; **adaxial surface** gray-brown, matte to weakly glossy, finely striate, conspicuously pale-speckled, moderately thick-granular; **abaxial surface** densely thick-granular (granules sometimes very pale).

**Inflorescences:** erect, much shorter than leaves; **peduncle** 24–39 cm long; **spathe** naviculiform, 18–26 cm long, usually cream to white, promptly deciduous; **spadix** 14–20 cm long, stipitate 0.5–2.8 cm, pinkish to reddish violet or brownish purple.

**Flowers: styles** mostly rectangular to rounded-prismatic, when unequal in width, the longest direction oriented in the direction of the axis, truncate, dark gray, matte, densely covered with red-brown granules, the corners blunt; **stigmas** moderately raised, oblong, 0.8–1.0 mm long, 0.4 mm wide, sometimes oval and to 0.7 mm long, the medial slit sometimes distinct.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha oblongata* grows at 0–1200 m across the Amazon Basin in Peru (Loreto, San Martín), Colombia (Caqueta, Meta, Vaupés), Venezuela (Amazonas, Bolivar), Brazil (Acre, Amazonas, Bahia, Pará), and the Guianas in a *Tropical Moist Forest* life zone.

**Comments:** This species is characterized by its appressed-climbing habit; conspicuously light brown petiole sheath margin; elongated oblong-elliptic blades (3.1–3.5 times longer than wide) acute at both ends and drying dark gray-green adaxiallt and reddish brown abaxially; and large inflorescences with a pinkish to reddish violet spadix.

*Rhodospatha oblongata* has long been confused with *R. longipes,* which was once thought to be the same species. *Rhodospatha longipes* is rather distinct and grows at low elevations along the Pacific slopes of Colombia and northern Ecuador, rather than growing in the Amazon Basin in the case of *R. oblongata*. The blades of *R. oblongata* are more elongated (3.1–3.5 times longer than wide vs. 2.3–3.3 times for *R. longipes*) and they have many more minor veins running on each side of the interprimary veins (6–8 instead of 3–4 for *R. longipes*).

**Other Specimens Seen: BRAZIL**. *Anonymous s.n.* (MO); 1817 - 1821, *H. W. Schott 15* (MO); *W. J. Burchell 9831* (K); **Acre:** Municipio Porto Walter; Aldeota, along Río Juruá Mirim; terra firme, disturbed virgin forest; 08°13'01"S 73°01'21"W, 279 m, 14 November 2001, *T. B. Croat 85145* (MO); "Municipio Canamari Amazona"; Vicinity of Floresta; downstream from Cruziero do Sul;

Varsea Forest; 7º37'S; 72º36'W; About 150m, 7°37'S 72°36'W, 150 m, 23 August 1986, *T. B. Croat 62561* (LAMUA, INPA, MO); Municipio Porto Walter; along Río Juruá Mirim; Communidade Estremo, left bank of river; disturbed primary forest; 08°12'08"S 72°56'48"W, 230 m, 15 November 2001, *T. B. Croat 85238* (MO); Municipio Cruzeiro do Sul; Río Juruá Mirim; disturbed terra firme ca. 2 km N of village of Vista Alegre, coordinates at river; 08°08'03"S 72°49'47"W, 230 - 240 m, 17 November 2001, *T. B. Croat 85348* (MO); Municipio Cruzeiro do Sul; along road BR-307 west of Cruzeiro do Sul Airport to Peruvian Border; 07°24'S 73°04'W, 270 m, 23 November 2001, *T. B. Croat 85694* (MO); Along road between Cruziero do Sul and Barão do Río Branco; Vicinity of airport, 0.6 km be- yond airport, 07°38'S 72°36'W, 150 m, 25 August 1986, *T. B. Croat & A. Rosas, Jr. 62649* (MO); **Amazona:** Río Marié, Tapuruguara Mirin, 16 October 1978, *Madison PFE 309* (INPA); Río Negro, Coatinga at mouth of Río Marié, *Madison et al. 1978* (SEL); Río Negro. Caatinga at mouth of Río Marie. Sandy soil; 16 October 1978, *M. T. Madison et al. 6309* (INPA, SEL); 45 km N of Manaus on BR174, 21 October 1983, *P. C. Hutchison et al. 8709* (MO); MANAUS: Along road from Manaus to Caracarai; 45.3 km North of junction in road to Tacoatiara along sandy riverbed. Elevation less than 100 m; 01°40'S 60°05'W, 100 m, 16 August 1986, *T. B. Croat 62241* (INPA MO); **Bahia:** Res. Biol. do Mico-leão (IBAMA), entrance at KM 46 on BA-001, Ilheus-Una Road, 15°09'S 39°05'W, 28 July 1994, *A. C. Amorim et al. 1558* (NY); Distr. de Serra Grande, Estrada Ilheus-Serra Grande, 1991, *A. C. Amorim et al. 364* (NY); Reserva Biologica do Pau Brasil (CEPLAC) 17 km W of Porto Seguro on road to Eunapolis. Rain forest; 16°24'S 39°11'W, 0 - 20 m, 20 January 1977, *R. M. Harley 18132* (K, M, SEL, MO,NY, U); Ramal ca 22.4 km na estrada que liga Arataca a Una com entrada no assentamento Santo Antonio RPPN "Caminho das Pedras" Trihla de acesso a casa de Mormaco, 15°10'25"S 39°20'30"W, 1000 m, 13 April 2006, *A. M. Amorim 5753* (NY); Mpio. Buerarema. Rodovia que liga Bue rarema à Vila Brasil, km 14, Região de Matá Higrófila Sul Baiana, 9 February 1982, *A. M. de Carvalho et al. 1* (K); Mpio. de Uruçuca, distrito de Serra Gande, 7.3 km on Serra Grande/Itacaré, Fazenda Lagoa do Conjunto Fazenda Santa Cruz; 14°25'S 39°01'W, 1 July 1991 - 12 July 1991, *A. M. de Carvalho et al. 3366* (NY); Distr. de Uniao Queimada-Pimienta Rd, 9 February 1994, *A. M. de Carvalho & Sant'Ana 4350* (NY); Ilheus; *Anonymous s.n.* (MO); Ilheus; *Anonymous s.n.* (CM); Mpio. Santa Cruz Cabrália. 16 km NW of Porto Seguro on BR-367 (Porto Seguro/Eunápolis), Estação Ecológica do Pau Brasil; mata higrófila primária; 16°23'S 39°08'W, 40 m, 9 May 1991, *G. P. Lewis 2022* (CEPEC, K, MO); Mun. Urucuca, 9.4 KM. Serra do Conduru vertente E; 14°29'06"S 39°06'17"W, 450 m, 4 April 2000, *Jardim 2990* (NY); Mpio. Una. Reserva Biologica do Mico-leao (IBAMA), entrada no km 46 da Rod. BA-001 Ilheus/Una, Reglao da Mata Higrofila Sul Baiana, 15°09'S 39°05'W, 28 July 1994, *J. G. Jardim et al. 512* (CEPEC, MO, NY, US); 20 km N along road, 15°11'S 39°02'W, 0 - 100 m, 23 January 1977, *R. M. Harley 18193* (K, US); NW side of Monte Pascoal, 16°53'S 39°25'W, 100 - 200 m, 11 January

1977, *R. M. Harley 17847* (K); 29 km from Una and 19 km from Nova Colonial, W along road to Río Branco, by the Fazenda Iguaçú, Dendhevea, 15°15'S 39°18'W, 0 - 100 m, 24 January 1977, *R. M. Harley 18234* (K, US); on NW side of Monte Pascoal between IBDF field hut and gates of the Parque Nacional, 16°53'S 39°25'W, 100 - 200 m, 13 January 1977, *R. M. Harley 17919* (CEPEC, K, US); Parque Nacional de Monte Pascoal, *S. G. da Vinha 968* (CEPEC); Monte Pascoal, 25 Mar 1968, *S. G. da Vinha & T. . dos Santos 131* (CEPEC); Mpio. Uruçuca. 28-30 km fro Uruçuca, region of Mata Higrófila Sul Baiána, 1981, *Scott A. Mori 11753* (CEPEC, K); Mata de Esperanca, 0 - 50 m, 10 January 1995, *S. J. Mayo et al. 1134* (NY); Mun. de Una. Km 6-7 na rodovia São José da Vitória/Una, cujo entroncamento na BR-101 se situa 34 km ao sul de Itabuna; região de serras florestadas com mata úmida primária mais ou menos perturbada na parte superior e cacuais e pasto nos vales e nos declives inferiores; mata úmida perturbada ao longo da estrada, sem pedras ou afloramentos; 100 m, 14 May 1991, *S. J. Mayo et al. 840* (CEPEC, MO); Mpio. Itacare. Km 15 , cujo entroncamento com a rodovia Itacare/BR-101 se acha a 1 km ao oeste de Taboquinhas. Remanescente de floresta úmida no cume de morro, mata perturbada; área ao redor cultivada de mandioca; 26 April 1991, *S. J. Mayo et al. 797* (CEPEC, MO); Mpio. Itacaré. Km 45 na rodovia que liga a BR-101 a Itacaré e 16 km a leste de Taboquinhas na direcão a Itacaré. Mata úmida atras de uma serraria capixaba recentemente fechada pelo IBAMA; mata perturbada e derrubada nas margens, mas em estado relativamente bom por dentro; 24 April 1991, *S. J. Mayo et al. 784* (CEPEC, MO); Km 20 de Itacaré na rodovia Itacaré/Taboquinhas. Plantação de cacau no fundo de um pequeno vale com riacho; chão muito úmido, flora herbácea terrestre viçosa e densa, limo espesso nos troncos das árvores; 26 April 1991, *S. J. Mayo et al. 793* (K, MO); Km 2-7 na rodovia Taboquinhas/Serra Grande, a qual tem entroncamento no km 7 na rodovia Itacaré/Taboquinhas, 25 April 1991, *S. J. Mayo et al. 780* (MO); Fazenda Condominio Uniao (prop. F.A. Carvalho et al.), entre Cocao e Nova Esperanca; 13°37'S 39°40'W, 220 m, 31 May 1991, *S. J. Mayo et al. 869* (MO); 22 km N of Itamarati on BR 101, then 6.8 km E on road to Embratel Tower, 13°53'27"S 39°27'33"W, 690 m, 19 March 2003, *Thomas 13442* (NY); Jussari: Serra do Teimoso, 7.5 km N of Jussari on road to Palmira, then 2 km W to Fazenda Teimoso, then 45 min. walk W to Reserva da Fazenda Teimoso. Semi-deciduous forest; 15°10'S 39°35'W, 450 - 800 m, 10 February 1998, *W. Wayt Thomas et al. 11812* (NY); **Maranhão:** KM 6 on Maracume-Sta. Helena Rd; 1 August 1978, *N.A . Rosa 2805* (NY); **Pará:** Río Tauá; 26 August 1985, **LINS 320* (MG); Rodovia Benevides-Mesquaire, prox. ig. Guajará; 10/8/1965, *Rozemire 31325* (MG); Ilha do Mosqueiro; 01°07'00"S 048°24'00"W, 30 Mar 1971, **SILVA 2688* (MG); Belém. Reserva Mocambo; 17 September 1985, *A. G. Silva & L. M. Nascimento 13, 14* (MG); Belém. Reserva Mocambo; 17 September 1985, *A. G. Silva & L. M. Nascimento 13* (MO); 1817 - 1820, *C. F. P. Martius s.n.* (MO); 1817 - 1820, *C. F. P. Martius s.n.* (US); Belém, 01°27'21"S 048°30'16"W, 4 February 1983, *M. G. A. Lobo et al. 248, 249*

(MG); Reserva Mocambo. Belém; 11 January 1983, *M. G. A. Lobo et al. 222* (MG); Mpio. Almeirim. Km 8 along highway to Fazendinha; 16 June 1979, *Santos 629* (MG); Vicinity of Belem; Reserva Mocambo near Belem; 01°25'S 048°25'W, 13 August 1986, *T. B. Croat 62106* (CM, MG, MO). **Río de Janeiro:** *Río Botanical Garden 94838* (RB). **COLOMBIA**. **Caquetá:** P. N. N. Chiribiquete, Estación Puerto Abeja. Margen izquierda del río Mesai; 00°05'N 72°35'W, 180 m, 18 Febrero 1999, *F. Cardona et al. 646* (HUA, MO). **Meta:** Along road to San Luis de Cubarral, .5 km W of North-South hwy. between Villavicencio and Granada; 03°45'N 73°45'W, 550 m, 24 March 1983, *T. B. Croat 55532* (MO, WIS); **Vaupés:** Vicinity of Mitu, ca. 2 km along dirt road (running from main street along Río Vaupes and past S end of run- way of airport) SE of village of Mitu. 1 14'N, 70 14'W; elev. 200 m; 01°14'N 70°14'W, 200 m, 24 May 1983, *T. B. Croat 56849* (MO). **FRENCH GUIANA**. PK 24 (24 km from NI) on road to Petit Saut Barrage. On banks of small creek with primary seasonally flooded forest, with many palms, some open areas in flood plain with small trees and shrubs; 05°04'20"N 053°01'26"W, 100 m, 4 November 2004, *A. Haigh 9* (MO); "Camp Pararé, Station de l' Arataye, Bassin de l'Approuague", m, 17 November 2004, *A. Haigh 69* (MO); Camp Caïman - Montagne de Kaw, m, 17 January 2000, *B. G. Bordenave 4951* (MO); "Commune de Stoupan, Région de Cayenne", m, 13 December 1995, *B. G. Bordenave 2782* (MO); Sinnamary River, Crique Plomb, in area to be inundated by waters of Petit Saut, moist forest along Crique; 1 September 1993, *E. A. Christenson 1834* (MO, NY); "Crique Grégoire, Bassin du Sinnamary", m, 15 May 1972, *G. Deward 186* (MO); "Carrefour Califourchon, Région de Cayenne", m, 26 May 2000, *J. J. de Granville 14063* (CAY, MO); "D.Z. de Crique Jupiter, Bassin du Sinnamary", m, 28 April 1991, *J. J. de Granville 11605*(MO); Piste minière Coralie (RN2) - ASARCO 6: zone Crique Orfion. Forêts inondables et forêts sur flat; 04°30'24"N 052°16'W, 6 m, 20 May 2004, *J. J. de Granville 16231* (CAY, MO); "Montagne des Chevaux, Carrière SCC.", m, 29 July 2007, *O. Tostain 759* (MO); "Route de Petit Saut, pk 19 - Bassin du Sinnamary", m, 25 October 2009, *O. Tostain 4016* (MO); "Crique Gros Philippe, Bassin de l'Approuague", m, 8 July 2009, *O. Tostain 3100* (MO); Montagnes de Kaw, caves of Kaw, along Route de Montagne Trésor, ca. 10 km E of Camp Caïmans, N of road ca. .5 km; 04°34'15"N 52°10'00"W, 100 m, 20 February 1993, *T. B. Croat 74274* (BR, MG, MO); Montagnes de Kaw; along route to Montagne Favard, in vicinity of jet to Fourgrassie; 04°38'N 52°17'W, 200 m, 23 February 1993, *T. B. Croat 74337* (MO, RSA); Vicinity of Saül, along headwaters of St. Eloi River, at this point a black-water stream; 03°37'N 053°12'W, 350 m, 10 February 1993, *T. B. Croat 74182* (CM, M, MO, W ). **Cayenne:** Riviére Montsinéry - Région de Cayenne, 04°51'45"N 52°31'20"W, 10 m, 20 April 2007, *J. J. de Granville 17322* (CAY, MO); Fleuve Approuague, au saut Grand Canori, au bord de l'eau en bas du saut, 10 juillet 1968, *Roelof A. A. Oldeman 2761* (CAY, MO); Along trail to Bagne des Annamites, departing Hwy D-5, near 15.8 km E of junction with N-2 Hwy; 04°50'29"N 52°31'04"W, 25 m, 19 March 2011, *T. B.*

*Croat 103023* (MO); Approuague-Kaw District, along trail from N2 Hwy between Regina and St. George departing highway between PK 122 and 123, ca. 0.7 km N of hwy on trail to Inselberg La Virginie, between highway and first rock-bottomed creek; 04°11'04"N 052°08'06"W - 04°11'16"N 52°08'22"W, 75 - 79 m, 27 August 2011, *T. B. Croat 103308* (MO); Kourou District; vicinity of Kourou; Montagnes de Singes, along loop trail leading to Carbet de Vue at summit, total trail length <1.0 km; 05°04'08"N 52°42'00"W, 26 - 141 m, 23 August 2011, *T. B. Croat 103205* (MO); Roura District. Municipio of Roura, vicinity Cacao, along road above village leading to farm communities, 2.8 km above junction in road to Carbet Molokai; 04°32'54"N 52°28'25"W, 137 m, 31 August 2011, *T. B. Croat 103435* (MO); Along Hwy D5 from N1 Hwy to Montsinery, departing the N1 Hwy near Km 19, 15.8 km E of junction of N2 Hwy, trail to Bagne des Annamites; 04°50'29"N 52°31'04"W - 04°49'34"N 052°31'00"W, 25 - 28 m, 6 March 2011, *T. B. Croat & G. Ferry 102750* (MO, US); Montagne des Chevaux, along Route N2 between Rochambeau and Regina, 3 km S of Hwy D5 to Montsinery along road through disturbed virgin forest in new housing development; 04°35'N 52°26'W, 7 - 10 m, 05 March 2011, *T. B. Croat & G. Ferry 102682* (MO). **Saint-Laurent-du-Maroni:** Along road between Saint Laurent du Maroni and Apatou, alongside road from main highway to Sparouine near Maroni River, leaving main highway 18 km N of Apatou, 1 km down road to Sparouine; 05°16'06"N 054°14'57"W, 46 m, 27 February 2011, *T. B. Croat & G. Ferry 102548* (MO). **GUYANA**. 7 September 1961, *B. Maguire et al. 46128 A* (NY, VEN); Upper Mazaruni River region. Kamarang, trail W of airstrip. Tropical moist forest; 05°50'N 60°40'W, 505 - 545 m, 27 June 1987, *B. M. Boom et al. 8298* (NY); Mazaruni Station, 30 June 1939, *D. B. Fanshawe 222* (K); Region: Potaro-Siparuni, Pakaraima Mtns; Ireng River watershed, Manaparu Creek. Creek bottom and surrounding hillsides; 05°04'N 59°57'W, 610 m, 30 October 1994, *P. Mutchnick et al. 287* (MO, US). **Demerara-Mahaica:** Region 4: Ceiba Biological Center, Madewini; swampy area along slow-moving, black water stream, on white sandy soil; 6°29'48"N 58°12'40"W - 6°29'00"N 58°12'40"W, 27 m, 8 January 2011, *T. B. Croat 101634* (CAY, MO, US); **Essequibo Islands:** Kamuni Creek, Groete Creek, Essequibo River, 18 April 1944, *B. Maguire & D. B. Fanshawe 22883* (K, NY, US). **PERU**. *Schott 2996* (MO). **Loreto:** Dtto. Iparia, Bosque Nacional de Iparia: Región de "bosque seco tropical" (sensu Tosi, 1960) a lo largo del Río Ucayali cerca del pueblo de Iparia (unos 80 km arriba de la confluencia con el Río Pachitea). Prov. Coronel Portillo. Dtto. Iparia. A 1 km abajo de Iparía, al nor oeste del Río Ucayali; 250 m, 2 September 1968, *J. Schunke V. 2740* (F, G, IBE, NY, US ); Coronel Portillo. Distrito: Calleria. Bosque Nacional Alexander von Humboldt, carretera a Pucallpa, km 86; 250 - 300 m, *J. Schunke V. 10406A* (MO); **Loreto**. Nueva Jerusalem and vicinity, Río Macusari, 220 (river) to 300 (village) m elev. Mostly low, but ridged, rain- forest, terra firma. Mayna Jívaro, 02°55'S 76°15'W, 10-11 June 1986, *W. H. Lewis et al. 11026* (MO); Maynas. Río Yubineto, tributary of Río Putumayo. Bellavista; 01°00'S 74°20'W,

150 m, 30 April 1978, *Cl. Haxaire 4587* (MO); Río Yubineto, tributary of Río Putumayo. Bellavista. PA; 01°00'S 74°20'W, 150 m, 27 February 1978, *Cl. Haxaire 1897* (MO); Río Yubineto, tributary of Río Putumayo. Bellavista. Fout; 01°00'S 74°20'W, 150 m, 03 March 1978, *Cl. Haxaire 2422* (MO); Dist. Mazan, Explor Napo, Bosque Primario, 03°09'S 72°31'W, 160m, 01 March 2005, *I. Huamantupa 5109* (CUZ, MO); Requena. Jenaro Herrera. Bosque primario; 04°50'S 73°45'W, 170 m, 2 July 1981, *R. Vásquez 2089* (MO); **San Martín:** Mariscal Cáceres. Cerro de Palo Blanco, en bosque alto, 700 - 800 m, 12 May 1980, *J. Schunke V. 11627* (IBE); Dtto. Tocache Nuevo; Quebrada de Culebra, cerca a Limón; 08°15'22"S 76°32'41"W, 500 - 530 m, 9 February 1979, *J. Schunke V. 10824* (CM, MO, US). **SURINAME.** 1849 - 1855, *H.R. Wullschlaegel 1570* 25 May 1961, *W.H.A. Hekking 831* (U); **Brokopondo:** Along road between Bergen Dal and Brownsweg, 5 km N of the railroad tracks in Brownsweg; 05°03'N 55°08'W, 150 m, 10 July 1982, *T.B. Croat 53888* (MO, PMA); **Commewijne:** Along highway between Paramaibo and Albina, between Tamanredjo and Mungo, 2 km E of Commewijne River; 05°45'23"N 54°44'32"W, 39 m, 03 February 2011, *T. B. Croat 101947* (MO); **Para:** 10 June 1975, *P. A. Teunissen 15180* (U). **VENEZUELA**. **Amazonas:** Dept. Casiquiare: alrededores de Yavita (río Temi) y cerca de la carretera Yavita. Pimichín hasta el km 5 hacia Pimichín; 125 - 140 m, 6 July 1969 - 19 July 1969, *G. S. Bunting 3777* (MY, VEN); 28 September 1978, *H. L. Clark 6809* (NY); Dept. Atabapo: Río Cunucunuma. Entre las Comunidades de Culebra y Huachamacari, entre el Cerro Duida y Huachamacari, selva alta bordeando al río; 180 - 210 m, *J. A. Steyermark 125763* (MO, VEN); Forest behind Yavita; 125 m, 21 April 1968, *J.A . Steyermark & G.S . Bunting 102972* (MO, VEN, US); San Carlos de Río Negro, ca 20 km S of confluence of Río Negro and Brazo Casiquiare; (average rainfall 3400-3600 mm/year). IVIC main study site, 4.3 km NNE of San Carlos on Solano road; 01°56'N 67°03'W, 119 m, 23 Mar 1983, *K. Clark C83-17* (MO); 2 km E of San Carlos de Río Negro. Forest with white sand soil running through it; 01°55'N 67°03'W, 120 m, 7 April 1979, *R. L. Liesner 6353* (MO, VEN); Atabapo Trail from Río Cunucunuma to Huachamacarí. Forest; 03°49'N 65°42'W, 200 - 400 m, 7 November 1988, *R. L. Liesner 25997* (MO); ATABAPO Río Cunucunuma, at mouth of Caño Negro to 3 km down river; 03°42'N 65°43'W, 260 m, 9 October 1988, *R. L. Liesner 24564* (MO); Río Negro. Upper Caño Baria. "Swampy" area between Río Mawarinuma and head- waters of Río Baria. Elev. 130 m. Ca. 0º52'N, 66º15'W; 00°52'N 66°15'W, 130 m, 26 March 1984, *R. L. Liesner 16959* (MO); Vicinity of Cerro Neblina base camp on Río Mawarinuma; 00°50'N 66°10'W, 140 m, 26 November 1984, *T. B. Croat 59338* (CM, IBE, M, MO); Vicinity of Cerro Neblina base camp along trail west of Kitchen along Río Mawarinuma. 0º50'N, 66º10'W; elev. 140 m; 00°50'N 66°10'W, 140 m, 28 November 1984, *T. B. Croat 59387* (B, CM, MO); Vicinity of San Carlos de Río Negro; along road between San Carlos and Solano, ca. 8 km NE of San Carlos; 01°57'N 67°02'W, 100 m, 6 December 1984, *T. B. Croat 59634* (IBE, M, MO); **Bolívar:** Municipio Raul Leoni. Bosque en lomerio, sobre rocas volcanicas.

50 km al SW del Macizo Guaiquinima y 72 al W de Karún; 05°18'N 63°59'W, 230 m, November 1988, *Á. Fernández & G. Aymard 4816* (MO, PORT); Roscio: 1 km N of Río Samay near the base of the "El Abismo" wall, Dry forested slopes; 04°25'N 61°37'W, 600 - 800 m, 24 October 1985, *B. K. Holst & R. L. Liesner 2496* (MO, VEN); Km 124, 1200 m, 18 February 1968, *G. S. Bunting 2909* (MY); Road from El Dorado to La Gran Sabana, alrededores de km 134, en selva húmeda y siempreverde; 1200 m, 18 February 1968, *G. S. Bunting 2970* (MO, MY); Cano Minehaguenae (Hormiga), Trib. Alto Caura, Getu. Araguana and Campamento, 300 m, 2 May 1988, *G. Aymard & L. Delgado 6862* (PORT); Río Akaruai, 2-3 km above Wonken Mission, confluence of Cano Waraira-Paru, 850 m, 11 September 1983, *G. Carnevali et al. 1292* (VEN); Gran Sabana, Km 191.4 along El Dorado - Santa Elena road. Gallery forest; 1150 m, 18 November 1978, *J. L. Luteyn et al. 6317* (MO, NY, US); Río Kanarakuni, 23 June 1953, *J. A. Steyermark 75957*, *90699* (NY, VEN); gallery forest and savanna along the Río Kanarakuni, N and NE of Misión de Campamiento Sanidad del Río Kanarakuni, 400 m, about 04°50'N 64°50'W, 17-29 March 1967, *Steyermark 97798A* (US); Dtto. Roscio: selva ribereña a lo largo de la Quebrada Saunay (Pozo Negro), afluente del Río Uairen, 6 kms west of Santa Elena de Uairen, 04°33'N 61°07'W, 800 m, 30 November 1982, *J. A. Steyermark & R. L. Liesner 127333* (MO, VEN); Selva de galería a lo largo del río, 75 kms. al norte de Santa Elena de Uairén y 232 kms al sur de El Dorado; 05°15'N 61°15'W, 1200 m, 19 December 1978, *J.A. Steyermark & V. Carreño E. 117879* (F, MO, VEN); Selva de galería a lo largo del río, 75 Kms. al norte de Santa Elena de Uairén y 232 Kms. al sur de El Dorado; 05°15'N 61°15'W, 1200 m, 19 December 1978, *J. A. Steyermark & V. Carreño E. 117878* (MO); At Km 118.5 S of El Dorado. Selva húmeda de los árboles con un promedio de 25-30 metros de altura, en las laderas del Cerro Uei, entre los brazos del Río Uei (afluente del Río Venamo y Cuyuni); 865 - 1050 m, 27 December 1970 - 28 December 1970, *J. Steyermark et al. 104556* (MO, VEN); Km 191.4 al sur de El Dorado. Gallery forest bordering small stream; 1150 m, 15 November 1978 - 18 November 1978, *J. A. Steyermark et al. 117580* (MO, VEN); Gran Sabana: vegetación achaparrada sobre afloramientos pedregosos de arenisca, 2 kms. al norte de la Misión de Santa Teresa de Kavanayen; 1270 m, 20 Febr. 1978, *J. A. Steyermark et al. 115542* (F, LL, MO, U, VEN); Cuadrícula de Investigación, campamento Dedemai, Río Tabaro; 6°21'N 64°59'W, 120 m, 29 January 1994, *L. Salas TT-90* (MO, VEN); 6°21'N 64°59'W, 120 m, 29 January 1994, *L. Salas 90* (MO); Aprode Tepuy, 1200 m, 1953, *L. Bernardi 828* (PORT, NY); afl. del Caroui-Region de Winuion (handwriting unclear), 550 m, 13 August 1953, *L. Bernardi 763* (PORT, NY); Gran Sabana; ca 10 km Sw of Karaurin Tepui at junction of Río Karaurin and Río Asadon (Río Sanpa). Along small, intermittent stream in 25 m tall forest. Small pools of water present at end of dry season; 05°19'N 61°03'W, 900 - 1000 m, 25 April 1988, *R. L. Liesner 23800, 23802* (MO, VEN); 17 km E of El Pauji by road and 64 km W of Santa Elena by road. 4 km N of highway. Río Las Ahallas. Elev. 850 m, ca. 4º30'N, 61º30'W; 04°30'N 61°30'W,

850 m, 28 October 1985, *R. L. Liesner 19049* (MO); Gran Sabana; ca 10 km SW of Karaurin Tepui at junction of Río Karaurin and Río Asadon (Río Sanpa); 05°19'N 61°03'W, 900 - 1000 m, 26 April 1988, *R. L. Liesner 23876* (MO)*, 23893* (MO, US); 5 km S of El Pauji, "El Abismo", Río Samay, affluent of Icabarú forested valley, slopes, streams and river. Elev. 520 m, 4º23'N, 61º38'W; 04°23'N 61°38'W, 520 m, 23 October 1985, *R. L. Liesner & B. K. Holst 18967, 18972* (MO, VEN); Piar, Amaruay-tepui. Slope up to base wall. South side about 1 km from SW corner of tepui. Forest 20 to 35 m tall; 05°54'N 62°15'W, 550 - 810 m, 26 April 1986, *R. L. Liesner & B. K. Holst 20361* (MO, VEN); Río Caura 5-12 km S of Las Pavas (Salto Para). Primary forest and river edge; 6°12'N 64°28'W, 240 m, 12 May 1982, *R. L. Liesner & G. N. Morillo 14061* (MO, VEN); Along road from Icarabú to Santa Elena, 70 km north of Icabarú; in forest; 04°41'N 61°29'W, 790 m, 26 July 1982, *T. B. Croat 54229* (MO); Gran Sabana; along road between El Dorado and Santa Elena 110 km S of the turn off to Santa Elena and "km 88" S of El Dorado; primary forest; 05°48'N 61°24'W, 990 m, 24 July 1982, *T. B. Croat 53997* (MO); Municipio RAUL LEONI. Bosque en lomerio, sobre rocas volcanicas. 50 km al SW del Macizo Guaiquinima y 72 al W de Karún, 05°18'N 063°59'W, 230 m, Novmeber 1988, *A. Fernandez 4816* (MO, PORT). **Mérida:** 1200 m, 19 August 1953, *Beruerdi 828* (NY). **Cultivated: GERMANY**, Munich Botanical Garden, unknown origin, *Croat 71915* (MO).

***Rhodospatha ojealensis*** Delannay & Croat, **sp. nov.** — Type: PERU. Loreto: Maynas, Dtto. Iquitos, Río Amazonas, trocha del Caserio de Santa María del Ojeal, 1 km below Petrolera, 100 m, 10 December 1975, *M. Rimachi Y. 1994* (holotype, MO-5668684; isotype, NY). (**Figure 199**).

**Diagnosis:** *Rhodospatha ojealensis* is characterized by its appressed-climbing, epiphytic habit; petioles sheathed to the geniculum with the sheath persisting intact; oblong-elliptic blades 2.2–2.4 times longer than wide and drying light yellowish brown or greenish gray on the abaxial surface; and unusual venation with the interprimary veins not distinct from the minor veins, with a total of 5–7 veins running in parallel between the primary lateral veins with a loose network of faint cross-veins connecting them.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, ca. 1.5 cm diam., the epidermis brown to greenish, moderately smooth, weakly ribbed.

**Leaves: petioles** 21–32 cm long, drying yellow-brown, obtusely ribbed, densely granular to short-ridged-granular, sheathed to the geniculum; **sheaths** tightly inrolled, drying less prominently

**199.** *Rhodospatha ojealensis* (*Rimachi 1994*, MO-5668684). Holotype showing petioles, leaf blades (abaxial surface), peduncle, and post-anthesis spadix.

ridged, the margin tightly curled outward, less prominently ridged than shaft, persisting intact, drying dark brown, the adaxial surface more coarsely short-ribbed-granular than abaxial surface; **geniculum**1.5 cm long, sulcate in distal half; **blades** oblong-elliptic, 35–38 cm long, 14.5–17.5 cm wide, 2.2–2.4 times longer than wide, obtuse and short-acuminate at apex, acute and weakly attenuated at base, widest above the middle, drying grayish green adaxially, light yellowish brown abaxially; **midrib** drying sunken, concolorous adaxially, much darker and raised abaxially; **primary lateral veins** 20– 25 per side, spaced 1.0–1.6 cm, departing midrib at 60°; **interprimary veins** weak, not distinct from minor veins**,** often undulated, with a total of 5–7 veins running in parallel between the primary lateral veins, with a loose network of faint cross-veins connecting them.

**Inflorescences:** erect; **peduncle** 21–30 cm long, enclosed for 3/4 its length by a dark-brown-drying prophyll; **spathe** unseen; **spadix** 6.5–12.5 cm long, 5–10 mm diam.; green, drying dark brown; stipe 1.3–1.5 cm long, coarsely pustular-ridged.

**Distribution and ecology:** *Rhodospatha ojealensis* is endemic to Peru, found only in Loreto Department at 100 m elevation in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for the Caserio de Santa María del Ojeal in Iquitos District of Loreto Department, the only locality where it has been found.

**Comments:** The species could be confused with *Rhodospatha oblongata*, which has a similar blade venation pattern, but that species has more elongated blades (3.1–3.5 times longer than wide vs. 2.2–2.4 times for *R. ojealensis*) and drying reddish brown on the abaxial surface (vs. light yellowish brown for *R. ojealensis*), and with more widely spaced primary lateral veins (ca. 2 cm vs. 1.0–1.6 cm for *R. ojealensis*).

***Rhodospatha osaensis*** Croat, Grayum & M. Cedeño, Aroideana 46(3): 81. 2023. — Type: COSTA RICA. Puntarenas: disturbed area between Las Cruces Botanical Garden and Río Jaba, ca. 4 km SE of San Vito de Coto Brus; 08°47'30"N 82°58'00", 1150 m, 27 May 1986, *M. H. Grayum, B. Hammel & G. de Nevers 7574* (holotype, MO-3486444-45; isotypes CR, K, US). (**Figs. 200–202**).

**Habit:** epiphytic, loosely climbing to 2.5–5.0 m.

**Stem:** fertile ones sometimes looping upward; **internodes** short or up to 3 cm long, 1.0–2.5 cm diam., matte to semiglossy, dark green to gray-green or light green, becoming light brown to

**200.** *Rhodospatha osaensis* (*Croat 67623*). Live plant showing stem, petioles, leaf blades (adaxial surface), and immature inflorescence.

**201.** *Rhodospatha osaensis* (*Grayum et al. 7574*, MO-3486444). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), immature inflorescence, inflorescence at anthesis with spathe and spadix, and post-anthesis spadix.

**202.** *Rhodospatha osaensis* (*Grayum et al. 7574*, MO-3486445). Holotype showing juvenile plants.

grayish brown or tan with fine transverse fissures, drying with longitudinal fissures and often minutely warty, sometimes acutely 2-ribbed on one side.

**Leaves:** distichous; **petioles** fully sheathed, 5.5–20.0 cm long; **sheath** erect or partly involute, with etched veins, rounded to truncate and inequilateral at apex; **blades** oblong, markedly inequilateral, 13-41 cm long, 2.7–8.5 cm wide, 4.8 times longer than wide, subcoriaceous, gradually acuminate to caudate-acuminate at apex, acute to narrowly rounded at base, glossy and dark green and drying gray-green or sometimes brown adaxially, semiglossy and yellowish green abaxially, drying yellowish green to yellow brown abaxially (juvenile leaves silvery abaxially); **midrib** sunken adaxially, convex and slightly paler abaxially; **primary lateral veins** 8–16 per side, departing midrib at 55–70°, weakly curved to the margin, sunken adaxially, slightly convex and darker or concolorous abaxially; **interprimary veins** often present and obscure abaxially; minor veins not raised, usually ca. 3 between each pair of primaries.

**Inflorescences:** erect; **peduncle** 4–19 cm long, terete, pale green; **spathe** erect, cucullate, 6.5–12.5 cm long, 6.5–8.0 cm wide, about 1/2 as deep as broad (when forcibly flattened broader than long), greenish white abaxially, pure white adaxially, drying brown to blackened, rounded and cuspidate at apex, rounded at base, the margins broadly revolute; **spadix** 5.5–15.0 cm long, 0 .7–1.2 cm diam., cream-colored at anthesis, becoming blue-green post-anthesis, stipitate ca. 5 mm.

**Flowers:** 9 or 10 visible per spiral; **pistils** pruinose at apex, drying with a frost-like covering, 6–10 mm diam., trapezoidal to irregularly and sharply 6-sided, sometimes the sides perpendicular to the spiral sigmoid; proximal most flowers slightly larger and more irregular.

**Infructescences:** to 1.7 cm diam.

**Fruits: seeds** tan, more or less rounded, with a prominent notch in one side, 1.0–1.2 mm long, 0.8–1.0 mm diam.

**Distribution and ecology:** *Rhodospatha osaensis* is endemic to southwestern Costa Rica and adjacent Panama on the Pacific slope between sea level and 1200 m, occurring in a *Tropical Wet Forest* life zone.

**Comments:** This species is characterized by its small, leaf blades drying yellowish with prominently ascending primary lateral veins and post-anthesis, bluish green spadix.

This species is separated from *Rhodospatha forgetii* by having proportionately longer leaf blades (4.8 times longer than wide) drying light greenish brown adaxially. In contrast, the blades of *R. forgetii* are only 3.0–3.4 times longer than wide and dry light grayish green adaxially. In the

*Manual de Plantas de Costa Rica*, Grayum treated this species as *Rhodospatha sp.* D (Grayum 2003).

**Other Specimens Seen: COSTA RICA.** Puntarenas: near San Vito and the Las Cruces Forest San Vito, Costa Rica, 30 January 2003, *Margaret M. Mayfield 143-240-3199* (MO); Near San Vito and the Las Cruces Forest; 08°47'02"N 082°58'29"W, 31 July 2001, *Margaret M. Mayfield 143-1930-2112* (MO); Golfito, Playa Cacao, Cuenca media de Quebrada Nazareno, 08°37'40"N, 83°11'10" W, 100 m, 25 May 1994, *G. Herrera 7043* (CR); Refugio de Vida Silvestre, 1 km al norte de la quebrada Canaza, 08°40'00", 83° 11'20"W, 100 m, 1 March 1994, *G. Herrera 6999* (CR); Refugio de Vida Silvestre, Fila entre quebrada Naranjal y Las Torres, 08°39'15"N, 83°10'10" W, 250 m, 8 March 1994, *G. Herrera 7011* (CR); Playa Cacao, Cuenca Media Wuebrada Nazareno, 08 37'30"N, 83 11'00" W, 100 m, 29 May 1994, *G. Herrera 7092* (CR); near San Vito and the Las Cruces Forest San Vito, Costa Rica, 30 January 2003, *Margaret M. Mayfield 143-240-3199* (MO); Near San Vito and the Las Cruces Forest; 08°47'02"N 082°58'29"W, 31 July 2001, *Margaret M. Mayfield 143-1930-2112* (MO); Reserva Forestal Golfo Dulce. Rancho Quemado, Río Riyitoi; 08°40'12"N 083°33'00"W, 200 m, 31 March 1991, *B. E. Hammel 18184* (CR, MO); Jardin Botanico Wilson, Las Cruces, San Vito de Coto Brus, sobre sendero Este hacia Río Java, 08°47'30"N 082°58'00"W, 1100 m, 3 September 1993, *G. Rivera 2138* (CR); Parque Nacional Corcovado Los Patos Forest, 08°27'00"N 083°33'00"W, 500 m, 2 July 1988, *Christopher Kernan & Pamela Phillips 649* (CR, MO); Along Río Jaba S of San Vito de Coto Brus. 08°47'N 082°58'W, 1150 m, 01 July 1984, *M. H. Grayum et al. 3389* (MO); Mostly secondary forest between Las Cruces Botanical Garden and Río Jaba, ca. 3 km SE of San Vito de Coto Brus. 08°46'48"N 082°57'36"W, 1050 - 1200 m, 11 July 1985, *M. H. Grayum 5601* (MO); Along trail between Las Cruces Botanical Garden and Río Jaba, ca. 3.5 km SE of San Vito de Coto Brus. 08°47'30"N 082°58'00"W, 1160 - 1200 m, 12 September 1985, *M. H. Grayum et al. 5984* (MO); Esquinas Forest. 08°43'48"N 083°16'48"W, 60 m, 27 March 1951, *Paul H. Allen 6034A* (EAP); Reserva Forestal Golfo Dulce Aguabuena. Sector oeste. 08°42'00"N 083°31'12"W, 50 - 150 m, 20 November 1991, *Reinaldo Aguilar 663* (MO); Hills above Palmar Norte, 08°57'36"N 083°26'24"W, 100 - 200 m, 20 May 1976, *T. B. Croat 35116* (MO); Along highway from Río Claro (on Panamerican Highway) to Golfito, 2.5 m SE of Golfito, 27.5 mi S of Río Claro, 08°36'N 083°04'W, 60 m, 15 September 1987, *T. B. Croat 67623* (MO, PMA); Osa Peninsula, Fila Esquinos, Mogos, 08°45'00"N 083°18'00"W, 20 April 1993, *Ricardo Soto 24* (CR); Along road from Pan-American Hwy. at Piedras Blancas to Rincón (on Osa Peninsula), 3.7 mi W of Panamerican Hwy. 08°46'N 083°18'W, 90-105 m, 16 September 1987, *T. B. Croat 67653* (MO); Along road between Palmar Norte and Panamerican Border, 3 km N of turn-off to Rincón. 08°48'39"N 083°16'18"W, 110 m, 10 September 1996, *T. B. Croat & D. P. Hannon 79194* (CR, MO,

WU); Along abandoned "high road" W of Rincón de Osa. 08°42'N 083°31'W, 250 - 540 m, 4 March 1985, *T. B. Croat & M. H. Grayum 59876* (MO); Along road between Rincón de Osa and Rancho Quemado, ca. 10 km W of main Rincón-Pto. Jimenez Road. 08°41'00"N 083°32'30"W, 150 - 260 m, 03 March 1985, *T. B. Croat & M. H. Grayum 59786* (CR,MO); Along short cut-road to Golfito from Villa Briceño on Interamerican Hwy. W side of Fila Gamba, ca. 6 km from Golfito airport. 08°41'30"N 083°12'00"W, 100 m, 06 March 1985, *T. B. Croat & M. H. Grayum 59907* (MO); San Vito de Java, Las Cruces Tropical Botanical Garden. In forest below gardens, scandent in tree. 08°48'36"N 082°58'12"W, 4000 f, 28 May 1978, *W. J. Kress 78-968* (DUKE, F); Coto Brus. Along road to stream through forest on grounds of Finca Las Cruces, 08°47'24"N 082°57'00"W, 4500 f, 29 May 1973, *James L. Luteyn 3862* (DUKE, MO); Cordillera de Talamanca, Aguas Termales, 3 km antes de Agua Caliente. 08°57'00"N 082°55'12"W, 1000 m, 15 June 1995, *María Marta Chavarría 879* (CR, MO); Golfito. Golfo Dulce. 09°18'00"N 083°52'48"W, 0 m, 17 February 1933, *A. M. Brenes 552* (F); Estacion Agujas.Finca La Leiva de Delfin Vindas. 08°32'23"N 083°25'08"W, 200 - 300 m, 18 February 1998, *Manuel Lobo 205* (CR, MO); Playa Blanca, Golfo Dulce. Coto. 08°37'48"N 083°25'48"W, 0 m, 17 February 1933, *Manuel Valerio 552* (CR); R. N. Fauna Silv. Golfito, along crest of Fila Gamba, to ca. 0.7 km N of Golfito/Villa Briceño road. 08°40'12"N 083°12'00"W, 160 - 260 m, 26 January 1992, *M. H. Grayum 10060* (CR, MO); Conte, Burica, 08°26'01"N 082°57'10"W, 2 July 1980, *Rafael Á. Ocampo S. 2682* (CR); R. N. V. S. Cópano. Península de Osa. Puerto Jiménez, Miramar. 08°27'36"N 083°19'48"W, 100 m, 6 May 1995, *Reinaldo Aguilar 4114* (CR, K, MO); Osa. Between Golfo Dulce and Río Térraba, 08°46'48"N 083°24'36"W, 30 m, December 1947, *Alexander F. Skutch 5327* (US); Between Golfo Dulce and Río Térraba, 08°46'48"N 083°24'36"W, 30 m, December 1947, *Alexander F. Skutch 5380* (US); Rincón de Osa, road between Rincón and Playa Blanca, 09°18'00"N 083°52'48"W, 0 - 10 m, 25 July 1974, *J. F. Utley & K. Burt-Utley 1244* (F); Corcovado National Park. Primary forest and edge of forest near new airfield under construction at Pavo. 08°30'00"N 083°36'36"W, 5 m, 7 July 1977, *R. L. Liesner 3025* (MO); San José: Refugio de Vida Silvestre Boracayán, Fila Costeña, San José-Puntarenas Province border, ca. 10 km E of Dominical. Just N of Fila Alivio in upper Río Barucito basin, a southern tributary of Río Barú. 09°14'N 083°46'W, 700 m, 29 May 2003, *B. K. Holst 8729* (MO); Pérez Zeledón. Along road between San Isidro del General and Dominical, 9 miles southwest of Río Pacuare, disturbed remnants of primary forest, 09°17'42"N 083°47'17"W, 680 m, 23 May 1976, *T. B. Croat 35350* (MO); Along road between San Isidro del General and coastal town of Dominical, southwest of San Isidro, 4.8 miles from the Río Pacuare, remnants of virgin forest along road, 09°18'00"N 083°46'12"W, 1000 m, 22 May 1976, *T. B. Croat 35257* (MO); About 1 mile beyond divide between San Isidro del General and coastal town of Dominical. 09°16'12"N 083°51'36"W, 900 m, 22 May 1976, *T.B Croat 35317* (CR, MO); .Puriscal. Zona Protectora La

Cangreja, along Quebrada Grande and on adjacent ridges, ca. 2 km north of Mastatal de Puriscal, 09°42'00"N 084°22'30"W, 340 m, 22 July 1988, *M. H. Grayum et al. 8617* (MO); Turrubares. Z. P. Cerro de Turrubares. Cuenca del Tárcoles. San Pablo de Turrubares. 09°50'19"N 084°30'21"W, 100 - 200 m, 08 December 2004, *Daniel Santamaría 302* (CR, MO); Reserva Biológica Carara, Valle del Tárcoles, Cuenca del Río Grande de Tárcoles, Puesto Carara, along Río Carara, between guardpost and Río del Sur. [Original Label Coordinates 9°47'00"N 84°32'00"W]. 09°46'48"N 084°31'48"W, 130 - 170 m, 2 April 1993, *M. H. Grayum 10431* (CR, MO); P. Turrubares; Cuenca del Río Grande de Tárcoles; SW spur of Cerro Turrubares, ridge between N and S forks of Río Carara. 09°47'00"N 084°29'00"W, 850 - 1100 m, 06 April 1993, *M. H. Grayum et al. 10556* (CR, MO).

***Rhodospatha ovatifolia*** Croat, Grayum & M. Cedeño, Aroideana 46(3): 96. 2023. — Type: COSTA RICA. Cartago: along Camino de Hule, SE of Platanillo (Tsipiri), 09°49'12"N 83°24'00"W, 1200–1400 m, 1 July, 1976, *T. B. Croat 36755* (holotype, MO-2390113; isotype, CR). (**Figs. 203–205**).

**Habit:** terrestrial; to 1.2 m tall.

**Stem:** 0.5–1.5 m long with prominent prop roots; internodes 1-3(7) cm long, 1.0-4.5 cm diam., gray to medium green, glossy, smooth and unmarked, drying grayish and minutely longitudinally fissured, sometimes weakly and closely transverse fissured.

**Leaves: petioles** 35–56 cm long, 1.0–1.5 times longer than blades, sheathed 2/3-3/4 of their length, drying brown and closely ridged, especially adaxially, the free portion thicker than broad between, narrowly C-shaped, bluntly to sharply sulcate; **sheath** ending imperceptibly at the apex, the margins, persistent or in part deciduous and partly persistent, sometimes with the margin fibrous; **geniculum** 1–3 cm long, sharply sulcate; **blades** ovate, less frequently elliptic, slightly inequilateral, usually markedly unequal at the base with one side meeting at a more acute angle, 29–45 cm long, 18–30 cm wide, 1.4–1.8 times longer than wide, thinly coriaceous, moderately to weakly bicolorous, semiglossy to weakly glossy and dark green adaxially, slightly paler and weakly glossy abaxially, drying dark brown to blackened adaxially, grayish brown or rarely dark brown or yellowish brown abaxially; **midrib** sunken and slightly paler adaxially, slightly paler and thicker than broad abaxially, drying bluntly acute; **primary lateral veins** 35–50 per side, departing midrib at a right angle or to about 30°, moderately curved to the margin, prominently sunken and weakly quilted above, prominently raised and sometimes acute below, 4–10 mm

**203.** *Rhodospatha ovatifolia* (*Hoover 1335*). Live plant showing terrestrial habit, petioles, and leaf blades (adaxial and abaxial surfaces). (Photo: Scott Hoover).

**204.** *Rhodospatha ovatifolia* (*Monro & Cafferty 4749*). Live plant showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix. (Photo: A Monro).

**205.** *Rhodospatha ovatifolia* (*Croat 36755*, MO-2390113). Holotype showing stem, petioles, leaf blades (abaxial and abaxial surfaces), peduncle, and post-anthesis spadix.

apart, sometimes turned down abruptly just before the midrib; **interprimary veins** occasionally present; minor veins 1-3 between each pair of primary lateral veins.

**Inflorescences:** moderately long-pedunculate; **peduncle** 10–31 cm long, ca. 5 mm diam.; **spathe** cream, 11–14 cm long, acute at apex, promptly deciduous, the scar prominent; **spadix** 8-13 cm long, 10-13 mm diam., green to gray, prominently stipitate, the stipe 2.5–3.0 cm long.

**Flowers:** 12–16 visible per spiral, trapezoidal to quadrangular, acutely to bluntly 5- or 6-sided, the sides straight to concave; **pistils** dotted with frost-like particles of grayish white wax, 1.6–2.7 mm diam.; **stigmas** raised, oblong, 1.1–1.3 mm long, 0.3–0.4 mm wide, blackened; **anthers** ca. 0.8 mm long, 0.6 mm wide, the thecae prominently divaricate.

**Infructescences:** to 15 cm long, 3 cm diam.

**Fruits: seeds** subrounded, somewhat flattened, tan, glossy, 1.0–1.1 mm diam.

**Distribution and ecology:** *Rhodospatha ovatifolia* ranges from Costa Rica on the Caribbean slope (Cartago, San José, and Limón) to western Panama (Bocas del Toro and Chiriquí) at (100)500–1200 m in *Tropical Wet Forest*, *Premontane Wet Forest*, and *Lower Montane Wet Forest* life zones and in a transition zone between *Tropical Wet Forest* and *Premontane Wet Forest*.

**Comments:** This species is characterized by its terrestrial habit; slender, stilt-rooted stems; ovate, densely veined, weakly glossy blades with conspicuously sunken primary lateral veins; and inflorescence with an acute spathe and prominently stipitate weakly glaucous spadix.

*Rhodospatha ovatifolia* is most easily confused with *R. guanchensis*, a species from low elevation (20–50 m elevation) in Panama (Colón Province). This latter species differs by having blades 1.8–2.6 times longer than wide and drying typically green to gray green (vs. blades that are 1.0–1.8 times longer than wide and drying dark brown to blackened on adaxial surface as with *R. Ovatifolia*). *Rhodospatha ovatifolia* is also similar to *R. densinervia*, a South American species that occurs at much higher elevations that has more oblong-elliptic blades.

**Paratypes: COSTA RICA**. **Cartago:** Forested slope above Río Reventazón, along trail leading to river from CATIE main building, Turrialba, 09°53'24"N 83°38'24"W, 500 m, 1 May 1985, *M. H. Grayum & G. E. Schatz 5240* (CR, MO); Along Quebrada Platanillo near confluence of Quebrada Sipiri, Platanillo de Chirripó, 09°48'36"N 83°24'00"W, 1135 m, 2 March 1990, *M. H. Grayum & D. R. Hodel 9725* (MO); 12 km south of Turrialba by air, 4 km southeast of Pejibaye along Río Gato, disturbed primary forest along river, 09°48'00"N 83°42'00"W, 700 m, 16 April 1983, *R. L. Liesner 14420* (CR, MO); Along Highway 32 from Turrialba to Limón, ca. 9 miles northeast of Turrialba,

along ravine and stream, 09°55'12"N 83°36'00"W , 800 m, 13 August 1977, *T. B. Croat 43371* (MO); M. N. Guayabo. Sendero a la derecha de la entrada principal, 09°58'18"N 83°41'17"W, 1091 m, 17 May 2006, *Luis Diego Vargas 1317* (CR); Turrialba, Tres Equis, Bosque sobre carretera a Siquirres, 800 m, 13 May 2021, *Cedeño* 2395 (US); Tayutic, Jicotea, 09°47'05"N 83°32'40"W, 1200 m, 16 June, 1995, *Gerardo Herrera Ch. & A. Cedeño 7942* (MO). **Limón:** Parque Internac. La Amistad. Quebrada Chaho, subiendo por la Fila, Croriña, 09°58'48"N 83°34'12"W, 700 m, 23 July, 1989, *A. Chacón 266* (MO); Cuenca del Estrella. Sobre la quebrada Barera junto a la estación de la R.B. Hitoy Cerere, 09°40'31"N 83°01'30"W, 100 m, 25 June 2000, *L. Acosta 1890* (MO); Hitoy Cerere Reserve and vicinity in Valle La Estrella S of Finca Concepción, in secondary woods near station, Los Jabillos, 09°42'00"N 83°01'48"W, 140 m, 2 August 1985, *B. E. Hammel & M. H. Grayum 14348* (CR, MO); Reserva Indígena Talamanca Sukut, desembocadura del Río Sukut en el Río Urén, camino al sureste, hacia Purisqui, 09°23'24"N 82°57'36"W, 650 m, 7 July 1989, *B. E. Hammel et al. 17384* (MO). **San José:** Braulio Carrillo Park, along road from near the entrance down to the Río Sucio and in the vicinity of Estación Carrillo, 10°08'24"N 83°57'00"W, 400–1500 m, 12 June 2009, *B. E. Hammel & J. Trainer 14271* (MO); Vicinity of Bajo La Hondura, along road between Paracito and the Río Claro, 10°03'36"N 83°58'48"W, 110–1400 m, 14 January 1978, *T. B. Croat 44517* (MO); Braulio Carrillo National Park, 12 km beyond the San Isidro-San Josecito entrance to turnpike, 10°05'58"N 83°58'55"W, 1180 m, 1 September 1996, *T. B. Croat 78815* (CR, MO). **PANAMA. Bocas del Toro:** Caribbean slopes of Cerro Fábrega at foot of 'Falso Fábrega' in Palo Seco Reserve, second northernmost tributary (on map) of Culubre river, Pavón Camp, 980 m, 19 March 2013, *Alex K. Monro & Steve Cafferty 4749* (BM); On route from Gualaca to Chiriquí Grande along the oil pipeline just north of the continental divide; in forest W of pipeline rd at end of drivable road, 08°49'N 82°13'W, 850 m, 8 March 1986, *B. E. Hammel et al. 14701* (MO); Along highway, between Fortuna and Chiriquí Grande, 2.2 mi N of Continental Divide, 6.3 mi N of bridge over Fortuna Lake, 08°46'06"N 82°12'30"W, 820 m, 12 March 1985, *T. B. Croat & M. H. Grayum 60396* (CR, MO, PMA); Along road between Gualaca and Chiriquí Grande, 6.6 mi N of middle of bridge over Fortuna Lake, steep slope in forest above highway, 08°47'18"N 82°11'54"W, 780 m, 24 June 1987, *T. B. Croat 66729* (MO). Chiriquí: 33.0 kms from Gualaca on road to Chiriquí Grande, 08°44'46"N 82°14'44"W, 1080 m, 17 February 1986, *W. S. Hoover 1335* (MO); Gualaca-Chiriquí Grande, 1.6 mi. N of Continental Divide, 08°48'N 82°13'W, 850 m, 29 March 1993, *T. B. Croat 74926* (K, MO).

***Rhodospatha oxapampaensis*** Delannay & Croat, **sp. nov.** — Type: PERU. Pasco, Oxapampa, Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Estación Biológica Paujil, *31 March,*

*2006- R. Vásquez et al. 31387* (holotype, MO-6044438-39; isotypes, HOXA, USM). (**Figs 206–207**).

**Diagnosis:** *Rhodospatha oxapampaensis* is characterized by its appressed-climbing, epiphytic habit; petioles drying blackish with the sheath persisting intact; elongated, ovate-elliptic blades 2.9–3.2 times longer than wide and drying medium brown or grayish green adaxially and medium brown abaxially; and inflorescences drying blackish.

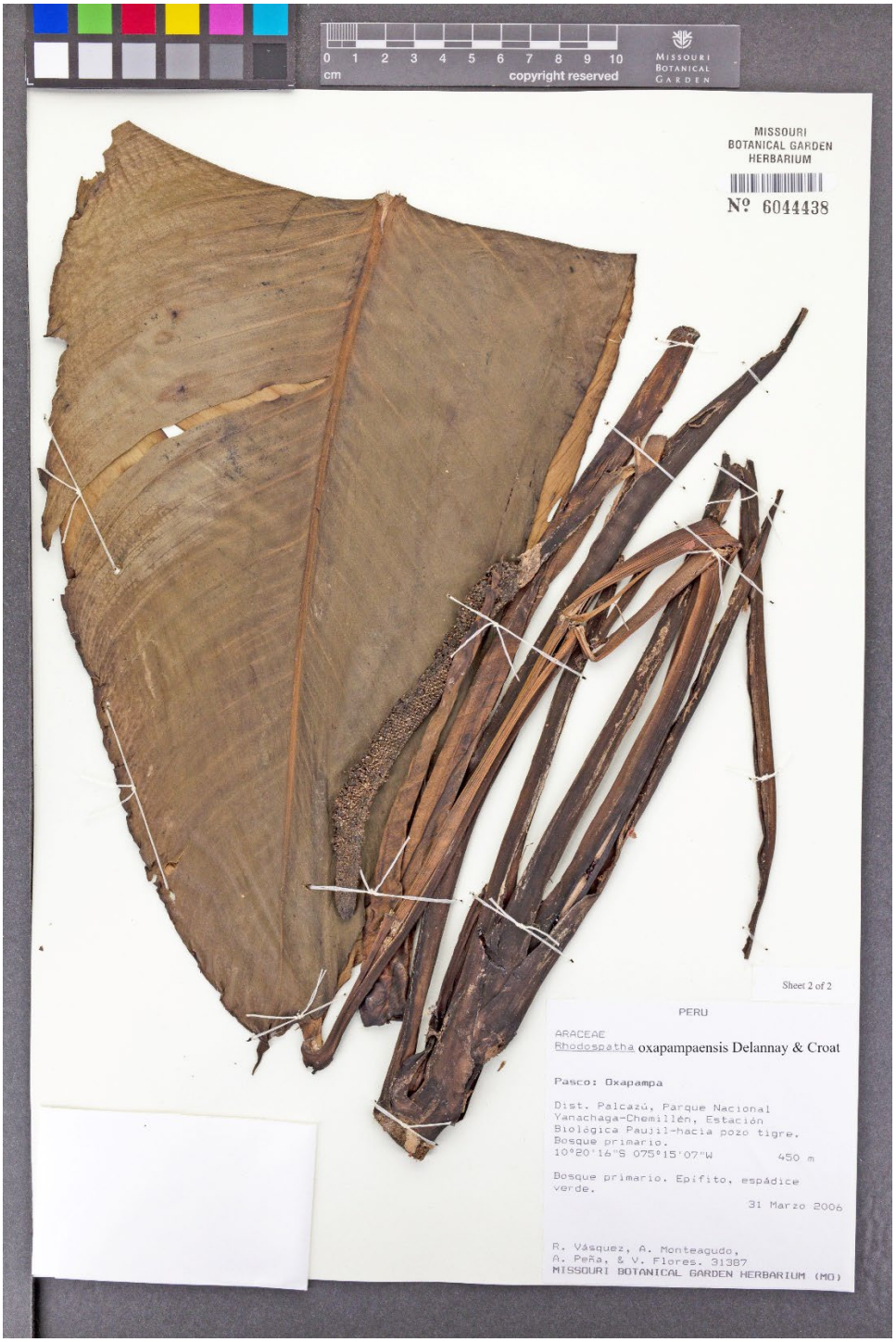
**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 2.0–2.5 cm long, 2.0–2.5 cm diam., drying dark yellow-brown, weakly and closely ribbed, conspicuously and densely short pale-lineate.

**Leaves: petioles** ca. 44 cm long, sheathed to the geniculum, drying dark yellow-brown, bluntly 5–7-ribbed, moderately smooth adaxially and on the sides, closely many-ribbed on the margins of the sheath; **sheath** tightly inrolled, persisting intact, drying blackish, slightly paler toward the apex; **geniculum** 2–3 cm long, drying broadly flattened adaxially with margins erect; **blades** ovate-elliptic, 57–61 cm long, 19.0–19.5 cm wide, 2.9–3.2 times longer than wide, obtuse and abruptly short-acuminate at apex (acumen ca. 1 cm long), inequilateral at base, obtuse on one side, weakly subcordate the other at base, widest near the middle, drying medium brown or grayish green adaxially, medium yellow-brown abaxially; **midrib** drying slightly darker and broadly raised, weakly several-ribbed, finely granular adaxially, prominently narrowly raised, smooth medially, finely acute-ridged on sides and slightly darker abaxially; **primary lateral veins** numerous, 30–35 per side, widely spaced (1–2 cm), departing midrib at 60°, drying concolorous, broadly rounded, barely visible adaxially, broadly convex, darker abaxially; **interprimary veins** slightly weaker than primary lateral veins; minor veins 1–3 running in parallel between the interprimary veins and the primary lateral veins, often with one pair of the minor veins dominating; cross-veins seemingly lacking.

**Inflorescences: peduncle** 25.5–31.5 cm long, enclosed in a prophyll for most of its length, drying blackish; **spathe** not seen; **spadix** subsessile (stipe 3–10 mm long, 4 mm diam.), erect, 14–16 cm long, 1.0–1.5 cm diam. near the base, slightly curved, tapering near the apex, drying blackish brown.

**Flowers: styles** 1.9–2.2 mm long, 2.6–3.0 mm wide, bluntly rounded-prismatic, truncate, blackened, matte; **stigmas** oval-oblong, comparatively small, 0.4-0.6 mm long, 0.3–0.4 mm wide, slightly raised, the medial slit not apparent.




**206.** *Rhodospatha oxapampaensis* (*Vásquez et al. 31387*, MO-6044438). Holotype showing stem, petiole, leaf blade (abaxial and abaxial surfaces), and post-anthesis spadix.

**207.** *Rhodospatha oxapampaensis* (*Vásquez et al. 31387*, MO-6044439). Holotype showing stem, petioles, leaf blades (abaxial and abaxial surfaces), andpost-anthesis spadix.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha oxapampaensis* is endemic to Peru, found only in Oxapampa Province, Pasco Department at 450 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for the Oxapampa Province of Pasco Department in Peru, the only locality where it has been found.

**Comments:** This species does not resemble any other *Rhodospatha* growing in its area of Peru. However, it does bear resemblance to *R. fuentesii*, which occurs quite some distance away in La Paz Department of Bolivia. Both species have petioles drying dark brown with the sheath persisting intact, blades with similar shape and drying color, and inflorescences drying blackish; however, *R. oxapampaensis* lacks the prominent cross-veins found in *R. fuentesii.*

**Paratypes: PERU. Pasco:** Oxapampa, Pichis Valley: Near Paujil, 10 km downriver from Puerto Bermúdez, E side of river across from big bend with large island. Forest on low hills and small ravines, 10°15'S 74°55'W, 300 m, 26 September 1982, *R. B. Foster et al. 8927* (MO, USM).

***Rhodospatha oyacachensis*** Delannay & Croat, **sp. nov.** — Type: Ecuador. Napo: Along road between El Chaco and Oyacachi, along Río Oyacachi at junction of Río San Juan Chico, 6.4 km W of El Chaco, 00°17'32"S 77°50'57"W, 1679 m, 6 January 2015, *T. B. Croat et al. 105499* (holotype, MO-6881564-65, 7057633-34; isotype QCNE). (**Figs 208–211**).

**Diagnosis:** *Rhodospatha oyacachensis* is characterized by its epiphytic, climbing habit; petioles drying blackish with the sheath persisting intact; and ovate-elliptic blades drying dark brown to blackish with prominent minor veins and a dense network of cross-veins, and upper surface densely covered with tiny whitish dots.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 3–5 cm long, 2–3 cm diam., drying blackish, eventually drying light grayish yellow-brown and finely and evenly closely ribbed.

**Leaves: petioles** 21–35 cm long, light green, sheathed to the geniculum; **sheath** clasping the stem at the base, 10–15 mm broad on each side near the base, then narrowing sharply to 3–5 mm broad for most of its length, persisting intact, drying dark brown to blackish; **geniculum** 1.5–2.0 cm long, sulcate; **blades** thinly coriaceous, ovate-elliptic, 20–30 cm long, 8–21 cm wide, (1.4)2.0–

**208.** *Rhodospatha oyacachensis* (*Croat et al. 105499*). Live plant (holotype) showing appressed-climbing epiphytic habit, petioles, and leaf blades (mostly adaxial surface).

**209.** *Rhodospatha oyacachensis* (*Croat et al. 105499*). Close-up of post-anthesis spadix.

2.5 times longer than wide, rounded and narrowly acuminate at apex, rounded to subcordate with an arcuate sinus, slightly decurrent at base, dark green and weakly glossy adaxially, moderately paler and semiglossy abaxially, drying dark brown to blackish and semiglossy adaxially, slightly lighter brown and glossy abaxially; **midrib** deeply and narrowly sunken, yellowish, drying concolorous; **primary lateral veins** ca. 25 per side, spaced 1.0–1.5 cm, departing midrib at an obtuse angle then spreading laterally at 60–90°, deeply sunken and drying concolorous adaxially, much lighter, yellowish brown and strongly raised abaxially; **interprimary veins** less prominent than the primary lateral veins; minor veins 3–4 between the primary veins and the interprimary veins, slightly prominent and interconnected by a dense network of similar-strength cross-veins; **adaxial surface** densely covered with tiny whitish dots; **abaxial surface** somewhat granular.

**Inflorescences:** erect; **peduncle** ca. 18 cm long, drying dark brown; **spadix** ca. 12 cm long, 1.2 cm diam., cylindroid-tapered, grayish green, drying light brown.

**210.** *Rhodospatha oyacachensis* (*Croat et al. 105499*, MO-6881564). Holotype showing stem, petioles, leaf blades (abaxial and abaxial surfaces), and portion of post-anthesis spadix.

**211.** *Rhodospatha oyacachensis* (*Croat et al. 105499*, MO-6881565). Holotype showing stem, petioles, and leaf blades (abaxial and abaxial surfaces).

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha oyacachensis* is endemic to Ecuador, known only from the type locality in Napo Province at 1679 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for the type location near Oyacachi in Napo Province.

**Comments:** Due to its blackish drying color and subcordate base with a decurrent margin descending the petiole, this species does not resemble any other *Rhodospatha*.

***Rhodospatha pailonensis*** Croat, **sp. nov.** — Type: ECUADOR. Carchi: El Pailón, ca. 45 km below Maldonado along a foot path to Tobar Donoso, wet montane forest, 01°02'49"N 78°22'05"W, 800 m, 1 December 1979, *M. T. Madison 7224* (holotype, SEL-31252). (**Fig. 212**).

**Diagnosis:** *Rhodospatha pailonensis* is characterized by its small size; elongated, slender internodes; slender petioles with a deciduous sheath; small, oblong-elliptic, inequilateral, gradually short-acuminate blades 2.1–3.2 times longer than wide and longer than petioles drying medium dark brown, closely spaced primary lateral veins; and small inflorescences with greenish white spathes and cream-colored spadices much shorter than the spathe.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** ca. as long as wide to much longer than wide, (0.5)1.5–7.0 cm long, 5–7 mm diam., light brown, matte, acutely sulcate on one side, drying closely ribbed, densely granular, sometimes yellow-brown, folded into acute ridges with peeling epidermis.

**Leaves: petioles** narrow, 11.0–14.5 cm long, ca. 2 mm diam.,drying medium brown, sheathed for their whole length; **sheath** thin, fragmenting with loose elongated pieces, eventually deciduous; **geniculum** 6–13 mm long, broadly sulcate; **blades** thin, oblong-elliptic, 16.0–21.5 cm long, 6.5–7.0 cm wide, 2.1–3.2 times longer than wide, obtuse and short-acuminate at apex, rounded at base, widest at middle, markedly inequilateral (one side 1.5–2.0 cm wider), dark green and matte-subvelvety adaxially, slightly paler and semiglossy abaxially, drying medium-dark brown and matte adaxially and not paler but semiglossy abaxially; **midrib** narrowly sunken, concolorous adaxially, narrowly rounded, darker, densely granular abaxially; **primary lateral veins** 21–24 per side, spaced 3–8 mm, departing midrib at 50–60°, drying slightly concolorous; **interprimary veins**

**212.** *Rhodospatha pailonensis* (*Croat & Ferry 93062*, MO-5890843). Specimen showing leaf blades (abaxial and abaxial surfaces).

scarcely less prominent; minor veins 1-2 on either side of interprimary; tertiary venation abundant.

**Inflorescences:** small, much shorter than leaves; **peduncle** ca. 7 cm long, 2 mm diam.; **spathe** ca. 9.3 cm long, greenish white, drying twisted and acuminate at apex, blackish brown, matte abaxially, semiglossy adaxially; **spadix** cream-colored, cylindrical, ca. 5.8 cm long, 7 mm diam.; stipe ca. 8 mm long.

**Flowers: styles** bluntly rounded-prismatic, 1.4–1.6 mm wide in broadest dimension, mostly longest perpendicular to axis, drying light gray-brown to brown, matte; **stigmas** oval, blackened, 0.6 mm long, 0.4 mm wide, medial slit not apparent.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Carchi and Pichincha Provinces of Ecuador at 800–1300 m in a *Premontane Wet Forest* life zone. Certainly, it is to be expected in adjacent Esmeraldas Province in the Lita area as well as in adjacent Colombia on the opposite side of the Río San Juan.

**Etymology:** This species is named for the locality of El Pailón in Carchi Province of Ecuador where the first specimen was collected in 1979.

**Comments:** *Rhodospatha pailonensis* is unique due to its small size, long internodes, small blades, and small inflorescences. It is much smaller than most *Rhodospatha* species.

Madison noted inflorescences of this species to be filled with small weevils, not an insect group noted for its pollination behavior in Rhodospatha, but are typical pollinators of *Monstera* (Prieto & Cascante 2017).

**Paratypes: ECUADOR**. **Carchi:** Along new unfinished road from El Chical to El Carmen, departing main El Chical to Peñas Blancas road 0.6 km W of Bridge over Río Chical, just W of El Chical, 3.3. km S of jct; 00°59'01"N 78°11'37"W, 1300 m, 7 August 2004, *T. B. Croat & G. Ferry 93062* (MO, QCNE**). Pichincha**: Reserva Mashpi, along road leading into reserve, departing main Pacto-San Miguel de los Bancos Road, 13.8 km N of central plaza in Pacto, then 7-8 km into reserve, 00°09'53"N 078°52'46"W, 910-1000 m, 8 December 2008, *T. B. Croat 101021* (MO,QCNE).

***Rhodospatha palaciosiana*** Croat, **sp. nov.** — Type: ECUADOR. Napo: 20 km W of Coca, al Sur del Río Napo, por Via de los Zorros, Bosque Humedo Tropical, suelo rojo lateritico, 00°35'S 77°03'W, 350 m, 23 April 1985, *W. A. Palacios 329* (holotype, MO-3301209; isotype, QCA). (**Fig. 213**).

**Diagnosis:** *Rhodospatha palaciosiana* is characterized by its terrestrial habit; petioles drying dark brown with a wide deciduous sheath breaking into fibers; moderately bicolorous, large, ovate-elliptic, markedly inequilateral blades obtuse and apiculate at apex and drying dark brown, subrounded and attenuated at base with the midrib drying black and the primary lateral veins interspersed by a network of minor veins and cross-veins; and moderately stubby, stipitate inflorescence with a yellowish-cream spathe and a yellowish spadix.

**Habit:** terrestrial, to 1 m tall.

**Stem: internodes** short, drying ca. 2 cm diam., smooth, dark brown, matte; **petioles** 57–63 cm long, drying dark brown, wrinkled-granular, matte, sheathed for 4/5 their length; **sheath** margin to 1 cm wide, deciduous and breaking into fibers along the petiole; **geniculum** 5–6 cm long, blackened, drying sulcate adaxially, rounded abaxially; **blades** ovate-elliptic, 53–55 cm long, 24–27 cm wide, 2.0–2.2 times longer than wide, markedly inequilateral (one side to 8 cm wider), obtuse and short-acuminate-apiculate at apex, markededly inequilateral subrounded to acute and shortly decurrent at base, widest slightly below the middle, inequilateral, drying dark reddish brown adaxially, medium yellowish-brown or reddish brown abaxially; **midrib** drying black adaxially, narrowly raised and blackish brown, matte, weakly ribbed, densely short-pale-lineate abaxially; **primary lateral veins** 27–31 per side, widely spaced (to 2.3 cm near the top of the leaf), departing midrib at 50–90°, drying darker (blackish near the midrib) adaxiallt and abaxially; **interprimary veins** replaced by a network of 3–5 minor veins running in parallel between each pair of primary lateral veins and interconnected by numerous cross-veins; **adaxial surface** drying smooth to irregularly ridged; **abaxial surface** drying minutely and uniformly dark-speckled.

**Inflorescences:** erect; **peduncle** ca. 28 cm long, closely enclosed most of its length by a deciduous prophyll breaking into fibers, drying dark brown; **spathe** yellowish cream before opening; **spadix** ca. 13 cm long, 10–15 mm diam., turning yellowish green.

**Flowers: styles** rectanagular to nearly square, 1.6–1.8 cm wide in longest dimension, drying blackened, minutely granular, matte; **stigmas** oval, 0.8–0.9 mm long, 0.5–0.6 mm wide, sometimes with an obvious medial slit.

**213.** *Rhodospatha palaciosiana* (*Palacios et al. 329*, MO-3301209). Holotype showing stem, petioles, leaf blade (abaxial and abaxial surfaces), and post-anthesis spadix.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Ecuador, found only in Napo Province at 350 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for Ecuadorian botanist Walter Palacios who collected the only known specimen in 1985. Walter did his undergraduate degree at the Universidad National in Loja and has spent 35 years teaching at the Universidad Technica del Norte in Ibarra. He has also been closely associated with QCNE-INABIO in Quito since 1992. He is currently working on the taxonomy and ecology of *Cedrela* and the ecology of *Swietenia macrophylla* (Meliaceae).

**Comments:** *Rhodospatha palaciosiana* resembles *R. neillii*, which also grows in its area, but the latter species differs by its terrestrial habit (vs. appressed-climbing epiphyte in the case of *R. neillii*); larger and more elongated blades (53–55 cm long vs. 21–50 cm long and 2.0–2.2 times longer than wide vs. 1.2–2.0 times for *R. neillii*); and midrib drying black and a network of minor veins and cross-veins replacing the interprimary veins.

*Rhodospatha palaciosiana* also resembles *R. moritziana*, which is also a large, terrestrial plant, but the latter species differs in its blades dry much lighter brown or green and prominent interprimary veins (rather than a network of minor veins and cross-veins in the case of *R. palaciosiana*). The latter species also grows on the Pacific slopes of the Andes in Ecuador while *R. palaciosiana* grows on the Amazonian side.

***Rhodospatha palcazuensis*** Croat & Delannay, sp. nov. — Type: PERU. Pasco: Province Oxapampa; Distrito Palcazú, Reserva Comunal Yanesha-Sector Azulis, bosque primario, 10°29’09”S 75°06’46”W, 670 m, 24 Feb; 2004, *R. Vasquez, A. Monteagudo, A. Peña, R. Francis & L. Mateo 29646* (holotype, MO-5908807; isotype, HOXA). (**Figs. 214–215**).

**Diagnosis:** *Rhodospatha palcazuensis* is characterized by its epiphytic, climbing habit; short internodes; short, pale-lineate petiole sheathed ca. 70–90% its length; narrowly ovate, somewhat bicolorous, short-acuminate, almost equilateral blades with the abaxial surface dark-granular to purplish-speckled; and a green spathe and spadix.

**Habit:** epiphytic climber.

**Stem: internodes** short, ca. 2 cm diam., drying dark brown to yellow-brown, densely granular.

**214.** *Rhodospatha palcazuensis* (*Vasquez et al. 29646*, MO-5908807). Holotype showing stem, petiole, leaf blade (abaxial and abaxial surfaces), and cut-open, immature inflorescences.

**215.** *Rhodospatha palcazuensis* (*Vasquez et al. 31224*, MO-6044445). Specimen showing stem, petiole, leaf blade (abaxial and abaxial surfaces), and post-anthesis spadix.

**Leaves: petioles** 36–42 cm long, drying yellow-brown, matte, coarsely ribbed, finely granular, sometimes coarsely waxy-granular, short pale-lineate, sheathed 29.0–32.5 cm, 0.69–0.9 of its length; **geniculum** to 5.5 cm long, broadly and sharply sulcate adaxially, free part ca. 4.5 cm; **blades** narrowly ovate, 40.5–43.5 cm long, 23.0–24.3 cm wide, 1.7 times longer than broad, mostly equalling petioles, moderately inequilateral (one side 1.7–4.0 cm wider), abruptly and narrowly short-acuminate at apex, moderately equilateral to inequilateral, obtuse-attenuate to weakly subcordate at base, drying dark greenish brown adaxially, light greenish brown abaxially; **midrib** broadly rounded to sunken, coarsely ribbed, the ribs finely striate, sparsely short-pale-lineate adaxially, narrowly rounded, concolorous, finely ribbed, minutely granular-puberulent to ornately pustular-granular abaxially; **primary lateral veins** broadly convex, slightly paler adaxially, narrowly rounded, irregularly granular abaxially; **interprimary veins** scarcely more prominent than the 1 or 2 pairs of flanking minor veins; cross veins sometimes conspicuous, prominent and numerous, mostly nearly perpendicular; **adaxial surface** finely granular to granular-ridged, sometime finely striate and short-pale-lineate; **abaxial surface** irregularly and minutely ribbed, densely dark-granular to purplish-speckled.

**Inflorescences:** unopened, enclosed in a narrowly pointed prophyll to 26 cm long; **peduncle** 10.0–23.5 cm long; **spathe** ca. 17 cm long, 1.5 cm diam. green; **spadix** stipitate ca. 1 cm, yellowish, ca. 11.5 cm long, 0.9 cm diam.

**Flowers: styles** 1.0–2.2 mm wide, mostly rounded-prismatic to rhombic, drying dark brown to blackish, matte, truncate; **stigmas** oblong, ca. 0.8 mm long, proportionately oversized, oblong-elliptic, black with medial slit visible.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha palcazuensis* is endemic to Peru, known only from the Distrito Palcazú in Pasco Department, Oxapampa Province at 360–670 m in a *Tropical Moist Forest* life zone.

**Etymology:** Tis species is named for the type locality in the Palcazú District of Oxapampa Province in the Department of Pasco, Peru.

**Comments:** *Rhodospatha palcazuensis* might be confused with *R. valenzulae*, another species from the same region. However, the latter species differs by occurring at a generally lower elevation; its terrestrial habit; petioles densely reddish brown speckled-short-lineate; typically narrower, less bicolorous blades that dry dark brown adaxially and reddish brown abaxially with the cross veins weak or absent; and greenish spadix.

The paratype specimen, collected at 360 m elevation differs from the holotype by having leaf blades very inequilateral at the base with one side attenuate, the other weakly subcordate; a complete lack of cross-veins; abaxial midrib decidedly less scurfy granular and abaxial surface much more prominently and densely purplish red-speckled.

**Paratypes: PERU. Pasco:** Oxapampa Province; Distrito Palcazú, Parque Nacional Yanachaga-Chemillen, Estación Biológica Paujil-hacia pozo tigre, bosque primario, 10°20’16”S, 75°15’7”W, 360 m, 23 Mar; 2006, *R. Vasquez, A. Monteagudo, A. Peña, R. Francis & V. Flores 31224* (MO, USM).

***Rhodospatha paraguasensis*** Croat, **sp. nov.** — Type: COLOMBIA. Valle del Cauca: El Cairo, Las Amarillas, Cordillera Occidental, Serranía de los Paraguas, cerca de frontera Valle-Chocó, a 1 hora en jeep de El Cairo (Vale), bosque nublado al lado de quebrada, 2040 m, 13 April 1988, *P. A. Silverstone-Sopkin 3985* (holotype, MO-3789480; isotype, CUVC). (**Figs. 216–217**).

**Diagnosis:** *Rhodospatha paraguasensis* is characterized by its terrestrial habit; petioles with a deciduous sheath breaking into fibers; ovate-elliptic blades twice as long as wide and drying dark brown adaxially and medium greenish-brown abaxially with closely spaced primary lateral veins; and inflorescences with a yellow spadix.

**Habit:** terrestrial, to 1 m tall.

**Stem:** juveniles with long stems rooting at the nodes; adults with **internodes** moderately short, mostly slightly longer than broad, drying ca. 1 cm diam.

**Leaves: juvenile petioles** 4.5–5.0 cm long, sheathed their whole length; **adult petioles** 34–36 cm long, drying medium brown, sheathed to the geniculum; **sheath** deciduous and breaking into pale fibers in part clinging together, along or on margins; **geniculum** ca. 2.5 cm long, slightly shrunken, darker, sulcate adaxially with margins irregular; **juvenile blades** ovate-elliptic, 6.0–7.5 cm long, 3.0–4.5 cm wide, drying dark green adaxially, light yellow-brown abaxially; **adult blades** ovate-elliptic, 36–40 cm long, 18–19 cm wide, 2.0–2.1 times longer than wide, rounded and abruptly short acuminate at apex, rounded and moderately equilateral at base, widest near the middle or slightly proximal of middle, inequilateral (one sided ca. 2 cm narrower), drying dark grayish brown, matte adaxially, medium greenish-brown, semiglossy abaxially; **midrib** drying concolorous, in part sunken medially adaxially, narrowly raised to round-raised, and slightly

**216.** *Rhodospatha paraguasensis* (*Silverstone-Sopkin et al. 3985*, MO-3789480). Holotype showing petiole, leaf blade (abaxial surface), and infructescence.

**217.** *Rhodospatha paraguasensis* (*Ramos et al. 1100*, MO-3789458). Specimen from juvenile plants.

darker, several-ribbed, densely granular abaxially; **primary lateral veins** ca. 30 per side, closely spaced, departing midrib at 60–70°; poorly visible adaxially, prominent abaxially; **interprimary veins** almost as prominent as primary lateral veins, sometimes making it difficult to distinguish the two; minor veins not readily visible; **adaxial surface** densely and conspicuously wavy intersecting-ridged**; abaxial surface** faintly but often densely short-pale-lineate, minutely and densely granular.

**Inflorescences:** short-pedunculate, erect; **peduncle** 10–16 cm long, enclosed most of its length by a deciduous prophyll to 20 cm long, the latter breaking into fibers; **spathe** not seen; **spadix** ca. 16.5 cm long, 1.7 cm wide, yellow.

**Flowers: styles** rectangular to sub-square, 1.2–1.4 mm wide, drying gray, seemingly pruinose; **stigmas** distinctly oblong, blackened, ca.1 mm long, 0.2–0.3 mm wide.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha paraguasensis* is endemic to Colombia, found only on the Serrania de Paraguas in Chocó and Valle del Cauca Departments along the frontier of both Departments at 1600–2040 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for the type locality in the Serrania de los Paraguas located along the summit of the Cordillera Occidental along the border of Valle and Chocó Departments.

**Comments:** *Rhodospatha paraguasensis* resembles *R. silverstonei*, which also occurs in the San José del Palmar area, but the latter species differs by being an appressed-climbing epiphyte (rather than being terrestrial for *R. paraguasensis*) and blades drying dark purplish brown abaxially and with prominent minor veins and cross-veins (rather than drying medium greenish-brown abaxially with diffuse minor veins and cross-veins for *R. paraguasensis*).

**Paratypes: COLOMBIA. Chocó:** San José del Palmar, Cerro del Torrá, vertiente Oriental del Río Negro abajo del Helipuerto. Vereda de Río Negro, 1600 m, 8 August 1986, *J. E. Ramos et al. 1100* (MO).

***Rhodospatha parvifolia*** Croat, **sp. nov.** — Type: ECUADOR. Napo: Lago Agrio-Coca (San Francisco de Orellana), 8.8 km S of Río Agrarico, 00°05'N 076°50'W, 280 m, 26 April 1984, *T. B. Croat 58509* (holotype, MO-3183154; isotypes, QCA, QCNE, K, US). (**Figs. 218–219**).

**Diagnosis:** *Rhodospatha parvifolia* is characterized by its appressed-climbing habit; petioles with the sheath persisting intact; small leaves drying greenish yellow or yellowish green abaxially and gray-green to brownish adaxially; and primary lateral veins departing midrib at a narrow angle (40–65°).

**Habit:** appressed-climbing or somewhat scandent epiphyte.

**Stem: internodes** 1–3 (15) cm long, 6–15 (2.1 mm diam., dark green to gray, matte, sometimes slightly flattened on one side, drying light brown and moderately smooth.

**Leaves: petioles** much paler than stems, 3.5–17.0 cm long, sheathed essentially throughout, terete to obtusely flattened abaxially distal of the sheath; **sheath** erect–spreading, persistent; **blades** oblong to narrowly oblong-elliptic, rarely elliptic to almost ovate (blade subtending inflorescence), (6)10–34 cm long, (3)4.5–7.5 cm wide, to 5 times as long as wide, acuminate at apex, acute to sometimes almost rounded at base, frequently inequilateral and unequal at base with one side more acute, subcoriaceous, moderately bicolorous, dark green and weakly glossy adaxially, much paler and matte abaxially, drying medium greenish brown adaxially, light yellow-brown abaxially; **midrib** sunken adaxially, somewhat raised abaxially, drying darker than the surface; **primary lateral veins** 9–16 per side, closely spaced (3–5 mm), sunken above, somewhat raised below, departing midrib at 40–65°, drying darker than the surface; **interprimary veins** darker than the surface abaxially, mostly 1 between each pair of primary lateral veins but sometimes up to 4.

**Inflorescences: peduncle** 3.5–19.0 cm long, sheathed in the lower 2/3; **spathe** cream to white, subglobose, 6–10 cm long, 8–13 cm around the circumference, rounded and caudate to cuspidate at apex, promptly deciduous, drying brown with numerous small short-lineate raphids visible on the abaxial surface; **spadix** stipitate 3–10 mm, 3.0–7.5 cm long, 4–10 mm diam., scarcely tapered to either end, greenish white to cream or bluish green becoming green post anthesis, cylindroid and barely tapered to the apex.

**Flowers:** trapezoidal to quadrangular or irregularly and bluntly 5- or 6–sided, 1.1–1.4 mm diam., all except the most proximal row fertile; **stigmas** broadly elliptic, ca. 0.6 mm long, 0.4 mm wide with a more or less globular tuft of papillae ca. 0.6 mm diam.; **anthers** barely or not at all exserted, ovate, ca. 0.5 mm long, 0.4 mm wide, bluntly rounded at apex, the thecae scarcely divaricate, pollen pale tan–brown, agglutinated and oozing from between the pistils.

**Infructescences:** to 1.5 cm diam., mature color unknown.

**218.** *Rhodospatha parvifolia* (*Croat 58509*, MO-3183154). Holotype showing stem, petioles, leaf blades (abaxial and abaxial surfaces), and spadix of young infructescence.

**219.** *Rhodospatha parvifolia* (*Croat 49536*, MO-2738948). Specimen showing stem, petioles, leaf blades (abaxial and abaxial surfaces), and post-anthesis spadices.

**Fruit:** fruiting tepals 2.4–3.0 mm diam., mostly 4–sided; **seeds** brown, glossy, subrounded, ca. 0.4 mm diam.

**Distribution and ecology** — *Rhodospatha parvifolia* is endemic to Ecuador, occurring mostly at 240-450 m in the Amazon lowlands in Pastaza and especially Napo in a *Lower Montane Moist forest* life zone, but it has also been found in Napo at 1165 m elevation.

**Etymology:** This species is named from the Latin *parvus* (meaning small) and *folia* (meaning leaf blade), relating to its characteristic small leaf blades.

**Comments:** Because of its small leaf blade size, this species has often been confused with *Stenospermation.* It is distinguished from that genus, though, by its prominent primary lateral veins, which are lacking in *Stenospermation*. .

**Paratypes: ECUADOR**. Along Río Aquanco 3-5 miles up from Sta Cecelia, 305 m, *J. A. Duke 16068* (OH). **Napo:** Along road between Baeza and Lago Agrio; 72.5 km W of Lago Agrio. 00°00'30"S 077°29'00"W, 1160 m, 19 December 1979, *T. B.Croat 49536* (MO, QCA, QCNE); Jatun Sacha Biological Station. South bank of Río Napo, 8 km east of Misahuallí. Tropical wet forest on hills, tierra firme, 01°04'S 77°36'W, 420 m, 3 January 2000, *D. A. Neill et al. 12305* (MO, QCNE); Tiputini – Lagartococha, *Folke Fagerlind & Per-Göran Wibom 2205* (S); Environs of Limoncocha. Tropical wet forest, 00°24'00"S 76°37'00"W, 240m, 16 June 1978, *M. T. Madison et al. 5341* (SEL); Environs of Limoncocha. Tropical wet forest; 00°24'00"S 76°37'00"W, 240 m, 17 June 1978, *M.T . Madison et al. 5428* (QCA, SEL, US); Cantón Gonzalo Pizarro. Río Tigre, afluente del Río Dashiño, entrando en el km. 73 de la carretera Lumbaqui- El Reventador, 10 km. al Sur. Subestrato de roca sedimentaria, 00°05'S 77°24'W, 900 m, 18 February 1987, *W. A. Palacios & D.A . Neill 1612* (CAS, MO); Cantón Orellana. Sector Huashito, 20 km al norte de Coca. Propiedad de PALMORIENTE. Bosque húmedo Tropical, 00°20'S 77°05'W, 250 m, November 1989, *D. Rubio 314* (MO); Via de los Zorros c. 20 km W of Coca on south side of Río Napo. Moist tropical forest on red lateritic soil, 00°35'S 77°03'W, 300 m, 23 April 1985, *B. A. Stein et al. 2588* (CM, MO, QCNE, US); Comuna Pompeya, on south bank of Río Napo. About 25 km downstream from Coca. Tropical Moist Forest. Primary forest, on alluvial soil, about 1 km south of river, 00°30'S 76°40'W, 220 m, 5 August 1992, *D. A. Neill 10100* (CM, MO, QCNE); 45 min. walk by trail from Santa Cecilia, 350 m, 29 March 1972, *J. D. Dwyer & B. MacBryde 9670* (MO); Chira Isla Community. North bank Río Napo downstream from Coca, 00°36'S 75°52'W, 200 m, *R. Bessman 342* (MO, QCNE); INIAP Exp. Station, San Carlos, 6 km SE of Los Sachas. Bosque humedo tropical, 250 m, 10 April 1985, *M. A. Baker 5970* (MO, QCNE); Cantón Archidona. Huiruno. Al pie del Volcán Sumaco. Carretera Hollín-Loreto, 5 km al suroeste de Loreto. Bosque muy húmedo Tropical, 00°43'S 77°20'W, 450 m, 24

November 1989, *F. Hurtado 2690* (MO, QCNE); 20 km W of Coca, al Sur del Río Napo, por Via de los Zorros. Bosque Humedo Tropical, 00°35'S 77°03'W, 350 m, 23 April 1985, *W. A. Palacios 326* (AAU, MO, QCNE); 60 km S. of Coca, 300 m, *E. L. Besse et al. 1098* (SEL); 10 km upstream from Ferry crossing, 250 m, *E. L. Besse et al. 1946* (SEL); Río Wai si agá, 00°15'S 76°21'W, 300 m, 14 August 1981, *J.S. Brandbyge et al. 33528* (AAU); Bosque Protector de la Comunidad de Mushullacta. Bosque pluvial premontano, suelo de roca calcárea, 00°49'39"S 77°33'47"W, 1200 m, 25 February 2003, *N. Altamirano 161* (MO, QCNE); **Orellana:** Yasuní National Park. Primary lowland rain forest close to Estacíon Científica Yasuní, 00°40'S 76°23'W, 250 m, 8 December 1998, *R. Leimbeck 24* (AAU). Vicinity of San José. Payamino Estación Cientifica, Timburi Cocha, along banks of Río Paymino, 00°28'29"S 077°17'06"W, 321 m, 9 February 2015, *T. B. Croat et al. 106087* (MO, QCNE); Yasuní National Park. Primary lowland rain forest on floodplain, NW of Estación Científica Yasuní. Near laguna 1 (transect 0), 00°39'S 76°24'W, 200 m, 15 April 1999, *R. Leimbeck 173* (AAU, MO); Estacion Cientifica Yasuni. Río Tiputini, al noroeste de la confluencia con el Río Tivacuno; este de la carretera Repso-YPF, Km 7 desvío hacia el pozo Tivacuno. Este de la Parcela de 50 ha. Bajío, 00°38'S 76°30'W, 200-300 m, 16 April 2004, *V. Sandoya & asistente huaoran 41* (MO, QCA); Tiputini Biodiversity Station, *V. Sandoya & asistente huaoran 42* (MO, QCA); Etnia Kichwa. Comunidad Indillama. Bosque muy húmedo tropical, con áreas pantanosas. Suelo arcilloso amarillento. Proyecto Etnobotánico del Hernario Nacional, co-financiado por PetroEcuador, 00°26'S 76°31'W, 250 m, 7 May 2004, *Lorena Carrillo & Diego Reyes 386* (MO, QCNE); Tiputini Biodiversity Station, 200 m, 12 August 2001, *N. Köster et al. 43* (MO); Alejandro Labaca. Comunidad Kichwa de Pompeya, Km 5 vía tiputini. Bosque muy húmedo Tropical. Bosque intervenido. Suelo arcilloso rojizo. Proyecto Etnobotánico del Herbario Nacional, co-financiado por PetroEcuador, 00°22'S 76°33'W, 280 m, 9 February 2004, *G. Moya & D. Reyes 289* (QCNE). **Pastaza:** Cantón Arajuno, Parroquia Villano. Línea propuesta por ARCO para el oleoducto. Campamentos 4 a 5, km 10 de Villano, 01°28'S 77°31'W, 430 m, 3 July 1998, *E. Freire & M. Innunda 3163* (MO, QCNE); Pozo petrolero "Ramirez". 20 km al sur de la población de Curaray. Bosque primario; árboles cortados por las obras petroleras, 01°32'S 76°51'W, 300 m, 21 February 1990, *V. Zak & S. Espinoza 5138, 5141* (MO, QCNE. **Sucumbíos: C**antón Lago Agrio. Parroquia Dureno. Bosque húmedo tropical. Bosque primario en la Reserva Indígena Cofán-Dureno, *C. E. Cerón & M. Cerón 3142* (MO, QCNE); Parroquia Pto. Libre (San Pedro de los Cofanes) Comunidad Cofán de Sinangüe, bosque húmedo premontano, 00°08'N 77°27'W, 800 m, 26 February 1993, *C. E. Cerón, C. Montalvo A; J. Umenda & E. Yèpez 21441* (QAP); Comunidad Cofán de Sinangüe. Bosque primario, sendero hacia el Parcela Permanente, 00°08'N 77°27'W, 800 m, 1 March 1993, *C. E. Cerón 21512* (QAP); Parroquia: Pto Libre (San Pedro de Cofanes). Comunidad: Cofán Sinangue, 00°08'N 77°27'W, 700 m, 18 June 1993, *C. E. Cerón & C. Montalvo A. 22384* (QAP);

Cantón Lago Agrio. Parroquia Dureno. Comunidad indígena Cofán-Dureno, 00°02'S 76°42'W, 350 m, 30 December 1987, *C. E. Cerón & M. Cerón 3064* (MO, QCNE); Above road from Lumbaquí to Lago Agrio, 7.3 km E of jct. on road to La Bonita, near Río Aguarico in Lumbaquí, 62.3 km S of Rosa Florida, 80.7 km S of La Bonita, 00°00'44"N 077°16'14"W, 437 m, 20 August 2004, *T. B. Croat* 93651 (MO, QCNE, QCA); Parroquia Limoncocha. Comunidad Río Jivino, Santa Elena, Itaya. Laguna y alrededores de Limoncocha. Bosque secundario húmedo tropical, suelo aluvial y pantanoso, 00°23'S 76°40'W, 300 m, 11 December 1998, *E. Freire et al. 3539* (K, MO, QCNE); Res. Faunistica Cuyabeno, 00°00'S 76°10'W, 265 m, March 1990, *H. Balslev et al. 97032* (AAU).

***Rhodospatha pellucida*** Croat & Grayum, Novon 9(4): 500–502. 1999. — Type: PANAMA. Chiriquí: Chiriquí Grande-Fortuna, 7.7 mi W of Chiriquí Grande, 1.5 mi W of Punta Peña, 80 m, 8°50'N 82°10'W, 19 March 1985, *T. B. Croat & M. H. Grayum 60106* (holotype, MO 3123550; isotypes, B, K, PMA, US). (**Figs. 220–222**).

**Habit:** appressed–climbing epiphyte.

**Stem:** to 2.0–2.5 m high, the flowering branches somewhat divergent; **internodes** shorter than broad, 1–2 cm diam. near apex (drying frequently less than 1 cm diam.), often flattened, glossy, medium to dark green, tapered proximally, drying brown, matte, densely and finely granular.

**Leaves:** clustered somewhat toward the apex, spreading or ascending and nearly distichous; **petioles** medium green, 8.5–23.0 cm long, ca. 5 mm diam. proximal of the geniculum, sheathed fully throughout their length, drying matte, yellowish brown; **sheath** erect, persisting intact with the margin sometimes drying darker brown; **geniculum** somewhat shrunken, C-shaped, V-sulcate adaxially, 1.0–1.5 cm long; **blades** reflexed on petiole for distal leaves, directed in line with the petioles on the proximal leaves, moderately coriaceous, conspicuously bicolorous, oblong-elliptic, inequilateral, tapering more or less equally toward both ends, slightly inequilateral and gradually acuminate to obtuse and abruptly acuminate at apex, acute to attenuate at base, broadest at the middle or just distal of the middle, 21–41 cm long, 7.2–14.5 cm wide, 2.5–4.5 times longer than wide, 1.6–3.4 times longer than petioles, dark green and glossy adaxially, yellow-green to silvery-green and paler abaxially drying gray-green to olive-green or yellowish brown, matte to weakly glossy adaxially, drying yellow-brown to yellow-green abaxially; **midrib** paler than surface, obtusely V-sulcate adaxially, thicker than broad and more or less concolorous with surface abaxially; **primary lateral veins** 21–33 per side, departing midrib at 30–47°, 5–17 mm apart, somewhat to deeply impressed adaxially, darker than surface and convex abaxially

**220.** *Rhodospatha pellucida* (*Croat 74946*). Live plant showing petioles, leaf blades, adaxial and abaxial surfaces, and post-anthesis spadices.

**221.** *Rhodospatha pellucida* (*Croat & Grayum 60106*, MO 3123549). Holotype showing stem, petioles, leaf blades (abaxial and abaxial surfaces), and post-anthesis spadix.

**222.** *Rhodospatha pellucida* (*Croat & Grayum 60106*, MO 3123550). Holotype showing stem, petioles, leaf blades (abaxial and abaxial surfaces), and immature inflorescence.

but drying only weakly raised to flat, moderately arcuate to the margin, sometimes prominently down-turned just before merging with the midrib; **interprimary veins** one alternating between adjacent primary lateral veins, much less conspicuous than the primary lateral veins, both the primary lateral and interprimary and sometimes the minor veins margined with thick black lines on drying, and also with a sparse arrangement of pale raphide cells aligned with the dark black lines (those of the interprimary and minor veins usually intermittent and appearing as rows of pellucid dots and streaks on living plants and appearing adaxially as weak dark green bumps); minor veins 1–3 between alternate primary and interprimary veins, usually very weak, branched toward the margin; cross veins usually inconspicuous, often branched, mostly extending throughout the surface; surface minutely dark granular, often sparsely covered with pale raphide cells.

**Inflorescences:** 1 or 2 from the distal leaf axils; **peduncles** arching, (5)12–28 cm long, 6–8 mm diam., usually longer than petioles (up to 13 cm longer) to sometimes equaling petioles, rarely somewhat shorter than petioles, drying light brown; **spathe** coriaceous, acuminate at apex and up to 1.4 cm diam. when furled, sub-globular when open, 8–15 cm long, to ca 5 cm wide, 5–13 cm diam. when opened flat, the veins impressed, white to greenish white, matte abaxially, glossy and white adaxially, dark brown on drying, often promptly deciduous, sometimes persistent; **spadix** cylindroid, weakly tapered toward both ends, white to cream at anthesis, soon becoming gray or green or grayish green after anthesis, 6.3–18.5 cm long, drying 6–15 mm diam., sometimes shorter than the spathe but usually 1–3 cm longer than the spathe, stipitate 4–9 mm on the back side, held at ca 35° to the peduncle.

**Flowers:** 4–sided, 2.0–2.8 mm in both directions, 12 or 13 flowers visible in the principal spiral, 8 or 9 visible in the alternate spiral; **pistils** mostly 4–sided, sometimes irregularly 5- or 6-sided, 1.4–2.0 mm wide, **styles** truncate, gray, matte and minutely granular, sometimes smooth, brown; **stigmas** broadly elliptic, slit–like, 0.9–1.1 mm long, 0.5–0.8 mm long, depressed medially, drying black with a pale ring–like base; **stamens** included; **filaments** densely embedded with short, pale raphide cells; **anthers** ca. 1.2 mm long, 0.7 mm wide, the thecae oblong, not divaricate; pollen white.

**Infructescences:** to 15 cm long, to 2 cm diam..

**Fruits: seeds** reniform, light brown, glossy, 0.8–1.0 mm long, the outer margin deeply and sharply sulcate.

**Distribution and ecology:** *Rhodospatha pellucida* is found on the Atlantic slopes of Nicaragua, Costa Rica and Panama at 10–1300 m in *Premontane Moist Forest* and wetter parts of *Tropical Moist Forest* life zones.

**Comments:** This species is characterized by its relatively small size with stems less than 2 cm diam. and blades less than 11 cm wide, which dry yellowish brown to yellowish green abaxially and have the primary lateral veins as well as many interprimary veins and minor veins bordered with continuous or intermittent dark black lines (appearing as irregular rows of pellucid-punctate markings on the abaxial surface and as minute bumps on the adaxial surface on fresh leaves). Also characteristic is the dark reddish or brownish granular abaxial blade surface on magnification.

*Rhodospatha pellucida* has long been confused with *R. madisonii* which is published here as new. This latter species differs from *R. pellucida* by its blades having prominent minor veins and cross-veins (instead of those being weak as in *R. pellucida*) and by its abaxial blade surface densely covered with large, irregular, dark spots on magnification, which are lacking in the case of *R. pellucida*. Also, the two species have divergent geographic distributions, with *R. madisonii* ranging from Colombia to northern Ecuador on the Pacific slopes of the Cordillera Central while the true *R. pellucida* is found only on the Atlantic slopes of Central America from Nicaragua to Panama.

**Other Specimens Seen: COSTA RICA. Alajuela:** Ciudad Quesada to Los Chiles, 9 km north of Ciudad Quesada, along Río Peje, 300 m, 10°21'36"N, 84°27'36"W, 1 June 1986, *Hammel et al. 15306* (CR, MO); San Carlos, 3 km south of Boca de Arenal along Río San Carlos on Hacienda Boca Arenal, 100 m, 10°30'00"N, 84°30'00"W, 03 June 1986, *Hammel & de Nevers 15325* (MO); 22 km NE of Quesada by air, 4 km W of Muelle San Carlos, 10°27'36"N, 84°30'00"W, 9 April 1983, *Liesner 14139, 14157* (MO); 2 km N of Santa Rosa, 15 km N of Boca Arenal on Quesada-Muelle San Carlos-Los Chiles road, 100 m, 10°37'48"N, 84°30'36"W, 28 April 1983, *Liesner et al. 15033* (CR, MO); 15 km WNW of Quesada by air, 1 km W of Jabillos, 150–200 m, 10°22'48"N, 84°33'00"W, 29 April 1983, *Liesner et al. 15149* (MO); Bijagua, Canas-Upala, 13.8 km north of Bijagua, 100–150 m, 10°49'12"N, 085°01'48"W, 26 June 1976, *T. B. Croat 36426* (MO); 3.5 km west of Fortuna, 2.5 km NW of New Volcan Arenal along its sloping base, 1500 m, 10°27'36"N, 84°42'00"W, *Taylor & Taylor 11609* (MO); **Guanacaste:** Hills along south side of Lake Arenal, from Río Chiquito to Río Caño Negro, 550–850 m, 10°27'00"N, 84°49'48"W, 09 May 1986, *Hammel et al. 15155* (MO). **Heredia:** N of road to Puerto Viejo at Chilamate, 10°27'00"N, 84°03'36"W, 22 May 1982, *B. Hammel 12416* (DUKE); La Selva Biological Station, 50 m, 10°26'00"N, 84°01'00"W, 30 August

1996, *T. B. Croat 78734* (INB, MO); Finca La Selva, at confluence of Río Sarapiquí and Río Puerto Viejo, Atlantic slope, 50–80 m, 10°25'48"N, 84°00'36"W, 22 September 1986, *Grayum 7668* (MO); Finca La Selva, the OTS field station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, 100 m, 10°25'53"N, 84°00'13"W, 17 August 1979, *M. H. Grayum 2420* (DUKE); Finca La Selva, the OTS field station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, 100 m, 10°25'12"N, 84°00'36"W, 25 May 1982, *Hammel 12502* (DUKE); Finca La Selva, the OTS field station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, 100 m, 10°19'12"N, 84°04'12"W, 6 June 1982, *B. Hammell et al. 12726* (DUKE); Finca La Selva, the OTS field station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, 100 m, 10°25'53"N, 84°00'13"W, 12 August 1980, *B. Hammel 9517* (DUKE, MO); La Selva Biological Station, 100 m, 10°25'53"N, 84°00'13"W, 5 June 1980, *B. Hammel 8948* (DUKE); Finca La Selva, 10°25'12"N, 84°01'12"W, 18 June 1984, *Kress 84-1623* (SEL); Finca La Selva, the OTS field station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, 100 m, 10°25'53"N, 84°00'13"W, 13 July 1982, *B. Hammel & J. Trainer 13148* (DUKE, MO); Finca La Selva, the OTS field station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, 100 m, 10°25'53"N, 84°00'13"W, 16 June 1980, *M. H. Grayum 2896* (DUKE, MO, F); Original forest near the Río Puerto Viejo, about 2 km upstream from the confluence with Río Sarapiquí, formerly "Finca La Selva" of L. R. Holdridge, 100 m, 10°27'00"N, 84°00'00"W, 14-17 June 1968, *W. Burger & B. Stolze 5836* (CR, F, US); Near Puerto Viejo along road near the Río Sucio, 20 m, 10°27'36"N, 83°59'24"W, 27 May 1976*, T. B*. *Croat 35713* (F, MO); Limón: Cordillera de Talamanca, along Río Barbilla, from jct. with Río Dantas to ca. 1 km downstream, 100–110 m, 10°00'36"N, 83°24'36"W, 10 September 1988, *M. H.Grayum et al. 8966* (MO); Hills between headwaters of Quebrada Mata de Limón and upper branches of Quebrada Tigre, and lowland forest of Quebrada Tigre drainage, Finca Anai, (Sixaola region), 25–30 m, 09°33'36"N, 82°39'36"W, 18 November 1984, *M. H. Grayum et al. 4450* (CR, MO); Mata de Limón-Finca Anai, Sixaola region, 15 m, 09°33'00"N, 82°37'48"W, 3 May 1985, *M. H.Grayum & G. Schatz 5260* (CR, MO); Ref. Nac. Barra del Colorado (Refugio Nacional de Vida Silvestre), fields and pastures between Río Chirripocito and Río Sardina ("Sardinal" Chirripó Atlantico quadrangle), 12 m, 10°37'48"N, 83°45'00"W, 22 April 1990, *M. H. Grayum & O. Montiel 9845* (CR, MO); Cerro Coronel, E of Laguna Danto, 20- 170 m, 10°41'N, 83°38'W, tall evergreen forest on gentle to moderately steep slopes, 20–170 m, 10°40'48"N, 83°37'48"W, 15-20 September 1986, *Stevens 24558* (MO); Hacienda Tapezco-Hacienda La Suerte, 29 air km W of Tortuguero, 40 m, 10°30'00"N, 83°46'48"W, 18 August 1979, *C. Davidson & Donahue 8499* (LAM); Hacienda Tapezco-Hacienda La Suerte, 29 air km W of Tortuguero, primary rainforest in an area being selectively logged, area of low hills and mounds, a few small streams, 40 m, 10°30'00"N, 83°46'48"W, 24 August 1979, C. *Davidson & Donahue 8759* (LAM); Hacienda

Tapezco-Hacienda La Suerte, 29 air km W of Tortuguero. Primary rainforest in an area being selectively logged, area of low hills and mounds, a few small streams, 40 m, 10°30'00"N, 83°46'48"W, 30 August 1979, *C. Davidson & Donahue 8979* (LAM, MO, RSA); Islas Buena Vista, on hills 2 air km SSE of Islas Buena Vista in the Río Colorado, 14 air km SW of Barra del Colorado, *premontane wet forest* on low hills, 10–20 m, 10°40'N, 83°40'W, 13-14 September 1986, *G. Davidse & Herrera 31091* (MO); Río Frio-Limón, vicinity of Río Blanco W of Guapiles, along banks of Quebrada Danta, 3 mi S of main highway along old rail-road bed, 360 m, 10°12'N, 83°49'W, 2 October1987, *T. B. Croat 68424* (MO); Pococi, P.N. Braulio Carrillo, Cuenca del Sarapiqui, Quebrada González, Sendero Las Palmas, 500 m, 10°09'48"N, 83°56'20"W, 6 November 1997, *Rodríguez & Vargas 2690* (MO); P. N. Braulio Carrillo, Cuenca del Sarapíqui, Estación Quebrada González, a lo largo del Sendero Las Palmas, 500 m, 10°09'50"N, 83°56'20"W, 20 January1998, *Rodriguez et al. 2858* (MO); Bosque residual, Linda Vista, carretera entre Turrialba y Siquirres, 650 m, 10°00'28"N, 83°34'35"W, 24 June 1981, *Gomez-Laurito 6819* (CR). **NICARAGUA. Río San Juan:** Reserva Indio-Maíz, Municipio de San Juan del Norte, Río Indio, Cerro Canta Gallo, 150–200 m, 11°04'N, 83°51'W, 17 September 1998, *Rueda et al. 8696* (MO); La Lupe, ca. 25 km ENE of Boca de Sabalo, primary forest lightly logged with silvicultural treatment, clay soils, hilly, 80–120 m, 11°08'N, 84°21'W, 28 June 1997 - 2 July 1997, *Salick &. Stijfhoorn 8269-b* (MO). **PANAMA. Bocas del Toro:** in forest on hill above RR station at Milla 7.5, 09°21'30"N, 82°27'00"W, 27 July 1971, *T. B. Croat & D. Porter 16402* (MO); Above Chiriquí Grande on side road 10 miles from continental divide, on trail off pipeline trace, 300 m, 8°55'N, 82°10'W, 28 May 1988, G. *McPherson 12566* (MO, PMA); Almirante, Milla 7.5, ridge SW of RR, 50 m, 17 November 1971, *H. Kennedy 1267* (DUKE, MO); Gualaca-Chiriquí Grande, 1.4 mi S of Punta Peña. 200 m, 08°53'24"N, 82°10'54"W, 29 March 1993, *T. B. Croat 74946* (K, MO); Chiriquí: Fortuna Dam area, S of reservoir, on trail to E of road leading to Quebrada Ortega, 1200 m, 8°41'N, 82°14'W, 24 May 1984, *S. Churchill 5282* (MO); **Coclé:** Above El Potroso sawmill at Continental Divide, premontane rain forest, 1200–1300 m, 08°40'36"N, 080°36'36"W, 25 October1980, *Sytsma 1877* (MO); Above El Cope, along road to Caribbean side, Atlantic slope, 720–800 m, 8°38'N, 80°35'W, 31 August 1988, *McPherson 12860* (MO); Colón: Río Piedras, Sabanitas-Portobelo, along Río Guanche, 5 km above bridge on Colón-Portobelo road, 250 m, 09°22'30"N, 79°41'30"W, 6 April 1993, **T. B.** *Croat 75156* (K, MO); **San Blas:** Carti, El Llano-Cartí road, km 26.5, 200 m, 09°22'N, 078°58'W, 17 June 1986, *de Nevers et al. 7846* (MO, CAS).

***Rhodospatha perezii*** G. S. Bunting, Acta Botanica Venez. 10:320. 1975. — Type: VENEZUELA. Táchira: La Fria-La Grita, at Las Pavas along Caño Agua Caliente, immediately above the

junction in the San Cristóbal-La Fria road, 250 m, 16 May 1968, *G. S. Bunting 3185* (Holotype, MY; isotype, VEN). (**Figs. 223–225**).

**Habit:** appressed-climbing epiphyte to 3–4 m high.

**Stem: juvenile internodes** ca. 3 cm long, 4 mm diam.; **adult internodes** gray-green, 2.5–3.5 cm diam., ca. 4 cm long proximally but very short distally, the younger stems drying black and smooth, the older stems drying light yellow-brown, moderately glossy, with prominent ridges ca. 3–4 mm apart.

**Leaves: juvenile petioles** ca. 6 cm long, sheathed to within 2–3 mm of the blade, the sheath erect with thin, light brown, intact margins; **blades** oblong, inequilateral, 12–15 cm long, 4–5 cm wide with 10–12 primary lateral veins on each side; adult plants with distichous leaves scattered along the stem; **adult petioles** 55–67 cm long, about as long as the blades, sheathed to within 1.0–6.5 cm below the geniculum, drying dark brown often with faint adaxial ribs; **sheath** yellowish with rosy margins but with the margins soon turning dark brown and sloughing off in large segment, sometimes with small, intact pieces loosely persisting; **geniculum** usually 7–8 cm long, reddish, sharply sulcate adaxially; **blades** subcoriaceous to weakly coriaceous, elliptic to elliptic-ovate, 51–62 cm long, 22–26 cm wide, 2.2–3.0 times longer than wide (preadult blades 3.4–4.1 cm times longer than broad), 0.8–1.3 times longer than the petioles, inequilateral, one side ca. 1 cm wider, obtuse to rounded and cuspidate ca. 1 cm at apex (the cusp recurved), unequal at base, obtuse to rounded or weakly subcordate at base, sometimes acute but the sides never identical, usually weakly decurrent at base, glossy, dark green adaxially, slightly paler and medium green abaxially, sometimes regularly undulate along the margins, drying grayish brown; **midrib** sulcate adaxially, thicker than broad abaxially, somewhat V-shaped, narrowly rounded along the upper edge abaxially; **primary lateral veins** ca. 22 per side (ca. 15 on preadult blades), 1.5–2.5 cm apart, departing midrib at an acute angle then spreading in a weakly curved arc or nearly straight to the margin, sunken adaxially and somewhat quilted between the primary veins, convex abaxially, both the midrib and the primary lateral veins suffused with rose abaxially; **interprimary veins** typically only one, sometimes very weak, minor veins numerous but weak, 1–2 mm apart, sometimes with one or more of the minor veins slightly stronger than the others; cross veins few and weak, mostly oblique and mostly near the outer margins.

**Inflorescences:** erect, solitary; **peduncle** creamy-rose, subtended by small prophylls; **spathe ca.** 23 cm long, 4.5 cm wide, creamy-yellow, flushed pinkish, convolute, fusiform, mucronate at apex, apparently deciduous before completely unfurling; **spadix** stipitate (stipe ca. 2 cm long, 0.9 cm diam. creamy-yellow, flushed pink), the young spadix (pre–anthesis) pink, ca. 12.3 cm long, 1.0

**223.** *Rhodospatha perezii* (*Bunting 3185*, VEN-121165). Holotype showing petioles and leaf blade (abaxial and abaxial surfaces).

**224.** *Rhodospatha perezii* (*Bunting 3185*, VEN-121159). Holotype showing stem and partial leaf base with two detached peduncles and post-anthesis spadices.

**225.** *Rhodospatha perezii* (*Bunting 3185*, VEN-121173). Holotype showing stem and leaf blade (abaxial and abaxial surfaces).

cm wide, mature spadix ca. 16.5 cm long, 1.5 cm diam., narrowed toward apex, becoming salmon post–anthesis with a glaucous layer over salmon (easily removed).

**Flowers:** 4–6–sided, ca. 4 mm long, 2 mm diam.; **ovary** pink, **styles** 0.2 cm long, more or less truncate at apex; **stigmas** linear (ca. 6 mm long).

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha perezii* is endemic to Venezuela, currently known only from the northwest slopes of the Cordillera de Merida in Merida, Tachira, and Zulia at 200-250 m elevation in *Lower Montane Wet Forest* life zone.

**Comments:** This species is characterized by its appressed-climbing habit; stems drying light yellowish brown with prominent ridges; petioles sheathed to well below the reddish geniculum with the sheath drying and falling off; and inequilateral blades unequal on both ends and nearly rounded at the apex with a short, cuspidate recurved tip.

The species is perhaps most easily confused with *Rhodospathe badilloi* because of its similar, dried blade and stem color, but this latter species has coriaceous, nerly ovate, more or less brittle leaf blades 1.6-1.9 times longer than broad and prominent and numerous cross-veins extending between the minor veins throughout the blade surface.

**Other Specimens Seen: VENEZUELA**. Cultivated at the home of Dr. J. Steyermark, Caracas, D. F.; 15 August 1982, *T. B. Croat 55081A* (MO). **Falcón:** Grown from plant at residence of J. & C. Steyermark in Urb. Santa Fé, Caracas, Estado Miranda, from plant originally collected in Sierra de San Luis, 20 June 1978, *J. A. Steyermark 117528* (VEN). **Tachirá:** Flowering at residence of J.A. Steyermark in Urb. Santa Eduvigis, Caracas, Edo. Miranda; from plant collected by George Bunting in Edo. Tachira, 200-250 m, 4 November 1972, *J. A. Steyermark 106512* (VEN); Carretera La Fría-La Grita, en Las Pavas, sitio al lado de Caño Agua Caliente inmediatamente arriba del empalme con carretera San Cristóbal-La Fría, 200-250 m, 6 October 1967, *G. S. Bunting 2502J* (MY, VEN). **Zulia:** Carretera Panamericana entre Sabana de Mendoza y El Vigia, en La Victoria, entre San Pedro del Zulia y Río Frio, en bosque en terreno inclinado al lado de la Carretera, 4 April 1971, *G.S. Bunting 4378* (VEN).

***Rhodospatha piushaduka*** Croat, Rodriguésia 56(88). 2005. — Type: PERU. Amazonas: Río Cenepa. Quebrada Chichijam entsa, 400 m, 24 May 1973, *E. Ancuash Atsut 430* (holotype, MO-2253372, MO-2249059-60; isotypes, K, USM). (**Figs. 226–230**).

**226.** *Rhodospatha piushaduka* (*Croat 90609*). Live plant showing appressed-climbing, epiphytic habit and leaf blade (adaxial surface).

**227.** *Rhodospatha piushaduka* (*Croat 90609*). Live plant showing petioles and post-anthesis spadix.

**228.** *Rhodospatha piushaduka* (*Ancuash 430*, MO-2253372). Holotype showing stem, petiole, leaf blades (mostly abaxial surface), and immature inflorescence.

**229.** *Rhodospatha piushaduka* (*Ancuash 430,* MO-2249059). Holotype showing abaxial blade surface and spadix at anthesis.

**230.** *Rhodospatha piushaduka* (*Ancuash 430*, MO-2249060). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spathe.

**Habit:** terrestrial herb to 1 m tall.

**Stem: internodes** ca. 1.5 cm long, 1.5 cm diam., drying tan, moderately smooth.

**Leaves: petioles** 58.0–68.5 cm long, 1.2 times longer than the blade, grayish green, drying finely, regularly and conspicuously ridged, densely speckled with pale, short-lineate raphide cells, finely granular on magnification, sheathed 12–19 cm from the base of the blade; **sheath** persisting intact; **geniculum** 3.2–4.5 cm long, drying sharply sulcate, darker than the remainder of the petiole; **blades** oblong-elliptic, 49–63 cm long, 22–28 cm wide, 2.0–2.5 times longer than wide, broadest at about the middle, 0.8 times as long as the petioles, inequilateral, one side 2–3 cm wider, obtuse to rounded and acuminate at apex, obtuse and weakly attenuate at base, both apex and base more or less equal, more or less matte adaxially, semiglossy abaxially, drying gray-green adaxially, reddish brown abaxially; **midrib** narrowly sunken and concolorous adaxially, drying bluntly acute and tan abaxially; **primary lateral veins** ca. 20 per side, 1.7–3.3 cm apart, departing midrib at an acute angle, then spreading at 65–80° in a broad curve to the margin, then broadly curved in the outer 1/3, minutely granular on magnification; **interprimary veins** usually not present, sometimes 1; minor veins 10–14, nearly identical, sometimes drying undulate; cross veins straight or oblique, obscure but dense, more or less evenly scattered across the blade; **adaxial surface** densely granular on magnification, **abaxial surface** densely and minutely reddish granular with the background appearing to be whitish punctate.

**Inflorescences:** erect; **peduncle** 17.0–19.5 cm long, 6–7 mm diam., drying tan; **spathe** white, 14.0–15.5 cm long, moderately coriaceous, drying light reddish brown, acuminate at apex; **spadix** 11.5–14.5 cm long at anthesis, 1.0–1.5 cm wide, to 16 cm long post-anthesis.

**Flowers: pistils** at first 4-sided and rhombic, becoming irregularly 5- or 6- sided, 1.1–1.5 mm diam.; **styles** light brown, densely and minutely granular on magnification; **stigmas** elliptic, moderately raised with a narrow brown margin, 0.8–0.9 mm long, 0.3–0.4 mm wide, drying dark brown, sulcate medially.

**Infructescences:** not seen.

**Distribution and ecology** — *Rhodospatha piushaduka* is found in Ecuador (Morona-Santiago) and Peru (Amazonas) at 250–840 m in a *Premontane Wet Forest* life zone.

**Comments:** This species is characterized by its terrestrial habit and low stature (ca. 1 m tall); prominently striate, dried petioles longer than the blades; blades drying reddish brown with

widely spaced, primary lateral veins appearing to be disconnected from the midrib; and the spathe drying reddish brown.

**Other Specimens Seen: ECUADOR**. **Morona-Santiago:** Along road from Patuca to Santiago, Cordillera de Cutucú, 11.4 km E from Patuca turnoff on Macas-Limón road, 5.1 km E of Patuca, 02°46'30"S 78°7'00"W, 944 m, 9 July 2004, *T. B. Croat, L. P. Hannon, G. A. Wahlert & T. Katan 90609* (MO). **PERU**. **Amazonas:** Bagua, Distrito Imaza: Región Nororiental del Marañon. Comunidad de Yamayakat, Río Marañon, 04°55'S 078°19'W, 320 m, 15 July 1994, *R. Vásquez 18703* (MO); Río Cenepa region. Quebrada Etseketai. Río Cenepa, monte, 04°26'00"S 078°09'00"W, 840 f, 31 May 1973, *Kayap 843* (MO, US).

***Rhodospatha plowmanii*** Croat, **sp. nov.** — Type: COLOMBIA. Magdalena: Santa Marta Region, Finca-Las Nubes**,** 17 mi. S of Santa Marta, 1300 m, 28 April 1974, *Plowman 3559* (holotype, MO-2325261; isotypes K, GH, US). (**Fig. 231**).

**Diagnosis:** *Rhodospatha plowmanii* is distinguished by its yellowish brown, closely fissured dried stem; fibrous petiolar sheath; blades drying yellowish brown abaxially with undulate primary lateral veins as; and caudate-acuminate spathe and yellowish spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** drying light yellowish brown, 1.3–1.8 cm diam., semiglossy, closely and acutely longitudinally fissured with closely set transverse fissures.

**Leaves: petioles** medium green, speckled with purple at the base, 29–53 cm long, sheathed nearly to the geniculum, drying darker than the stem; **sheath** to more than 1 cm high midway, sometimes free ending and obtuse at apex, promptly turning dark brown and becoming loose in narrow entire strands or fibrous with loose, pale fibers; **geniculum** terete, 2.5–3.5 cm long, drying darker than the petiole, sometimes weakly warty; **blades** oblong-elliptic to narrowly ovate-elliptic, inequilateral, 39.5–61.5 cm long, 15–23 cm wide, 2.3–3.1 times longer than wide, 1.1–1.3 times longer than the petioles, acuminate and sometimes falcate at apex, acute to narrowly rounded and briefly attenuated at base, sometimes inequilateral with one side acute ,the other side narrowly rounded to obtuse, matte adaxially, semiglossy abaxially, drying grayish green adaxially, reddish brown abaxially; **midrib** sunken and paler adaxially, thicker than broad and paler abaxially, minutely purplish-speckled near the base, drying paler than the surface and weakly sulcate medially; **primary lateral veins** 24–33 per side, weakly sunken and paler adaxially,

**231.** *Rhodospatha plowmanii* (*Plowman 3559*, MO-2325261). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and spathe and post-anthesis spadix.

drying flat, convex abaxially below, drying much paler than surface, departing midrib at 60–85°, often at a different angle on opposite sides, 6–18 mm apart, often markedly down-turned at the midrib, usually drying undulate adaxially and sometimes abaxially; **interprimary veins** 0–3 between each pair of primary lateral veins; minor veins 1–3 between alternate primaries and inter-primaries; **surface** minutely dotted with somewhat raised, reddish dots on magnification.

**Inflorescences:** 1 or 2 in the distal axils, one arising from the leaf sheath, the other contained within an acutely pointed bract extending the full length of the peduncle; **peduncles** 24–26 cm long, drying 4–6 mm diam.; **spathe** white, moderately coriaceous, caudate-acuminate at apex, at least 3 cm longer than the spadix, 15.0–21.5 cm long, 9 cm wide unfolded, drying dark brown; **spadix** yellowish, 12–15 cm long, moderately tapered to apex, 1.0–1.5 cm diam. midway, stipitate 1.0–1.5 cm, narrowly rounded at apex.

**Flowers:** 12–14 visible per spiral; **pistils** quadrangular to 5- or 6–sided, the sides usually straight, sometimes irregular, the corners acute to rounded, the apex with a dense, gray frost-like covering; **stigmas** oblong-elliptic, 0.8–1.1 mm long, 0.2–0.4 mm wide, black, sunken and glossy medially, with a dense fringe of papillae to 0.4 mm long; **anthers** pointed, drying light brown, ca. 0.6 mm long, 0.3 mm wide.

**Infructescences:** to 19 cm long, 2.7 diam.

**Fruits: seeds** more or less hippocrepiform, tan, ca. 0.5 mm diam.

**Distribution and ecology:** *Rhodospatha plowmanii* is endemic to Colombia, known only in the Sierra de Santa Marta in the Department of Magdalena at 1300 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named in honor of the late Timothy Plowman (1944-1989) who was responsible for the first collection of this species. Plowman was a student of Richard Evans Schultes and worked extensively in the American tropics, especially in Amazonia where his main interest was with the genus *Erythroxylum*. He spent most of his career at the Field Museum in Chicago, beginning in 1978. Tim was avidly interested in unusual ornamental plants and collected many living plants including Araceae. He was one of the most storied individuals of his era.

**Comments:** *Rhodospatha plowmanii* does not closely resemble any other *Rhodospatha* species occurring in Magdalena Department. The two other species found in that department, *R. rosaoertiziae* and *R. romeroi*, have the petiole sheath deciduous and their adaxial blade surface

drying blackish brown, rather than the petiole being deciduous and the blades drying grayish green adaxially in the case of *R. plowmanii*.

***Rhodospatha pranceana*** Croat, **sp. nov.** Type: PERU. Ucalayi: Río Javari, 2 hours above Río Javarizinho, forest on terre firme, 24 October 1976*, G. T. Prance 24076* (holotype, INPA; isotype, NY). (**Fig. 232**).

**Diagnosis:** *Rhodospatha pranceana* is characterized by its long, slender internodes with a pale, smooth, dried epidermis; short, fully sheathed petioles; and small, oblong-lanceolate blades drying dark brown.

**Habit:** epiphytic climber.

**Stem: internodes** 1.0–1.3 cm long, drying less than 1 cm diam., semiglossy, drying smooth, light tannish brown, ca. 7 mm diam., weakly and obtusely ribbed at distal nodes.

**Leaves: petioles** 4.5–5.5 cm long, drying blackened, contrasting conspicuously with pale stems, sheathed throughout their length; **sheath** spreading, rounded at apex, to 4 mm diam., drying mostly intact, not at all fibrous; **blades** oblong-lanceolate, 8.4–14.2 cm long, 2.0–3.3 cm wide, 4.2–4.3 times longer than wide, slightly inequilateral and obscurely acuminate at apex (the tip acute with an apiculum 1.5–2.0 mm long), slightly inequilateral and obtuse to almost rounded at base, dark green and lustrous adaxially, drying dark brown adaxially with the surface smooth, very minutely papillate on high magnification, drying solid dark yellowish brown abaxially margins drying with a black band, prominently revolute and rolled over to obscure most of the black band; **midrib** narrowly sulcate and concolorous adaxially, convex abaxially; **primary lateral veins** 9–12 per side, departing midrib at 25–35°, weakly curved to the margins; **interprimary veins** 1 or 2 between each pair of primary lateral veins; minor veins 1 or 2, weakly undulate, alternating between the primary and interprimary veins, sometimes with the minor veins of two orders; cross veins moderately inconspicuous, mostly diagonal.

**Inflorescences:** longer than the petioles; **peduncle** ca. 3 cm long, ca. 3 mm diam., drying dark brown; **spathe** not seen; **spadix ca.** 6.5 cm long, 1.8 cm diam. (post-anthesis), stipitate ca. 7 mm, broadest in the proximal 1/3, obtusely pointed at the apex.

**Flower:** 8 or 9 per spiral, 1.3–2.0 mm diam., irregularly subrounded, obtusely 4-6-sided, the sides mostly rounded, sometimes concave, drying matte; **stigmas** elliptic to subrounded, 0.6–0.8 mm

**232.** *Rhodospatha pranceana* (*Prance 24076* (holotype, NY). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

long, 0.3–0.4 mm diam., sunken medially; **stamens** included; **anthers** moderately divaricate, tan, 0.6–0.7 mm long, 0.3–0.4 mm wide.

**Infructescences:** not seen.

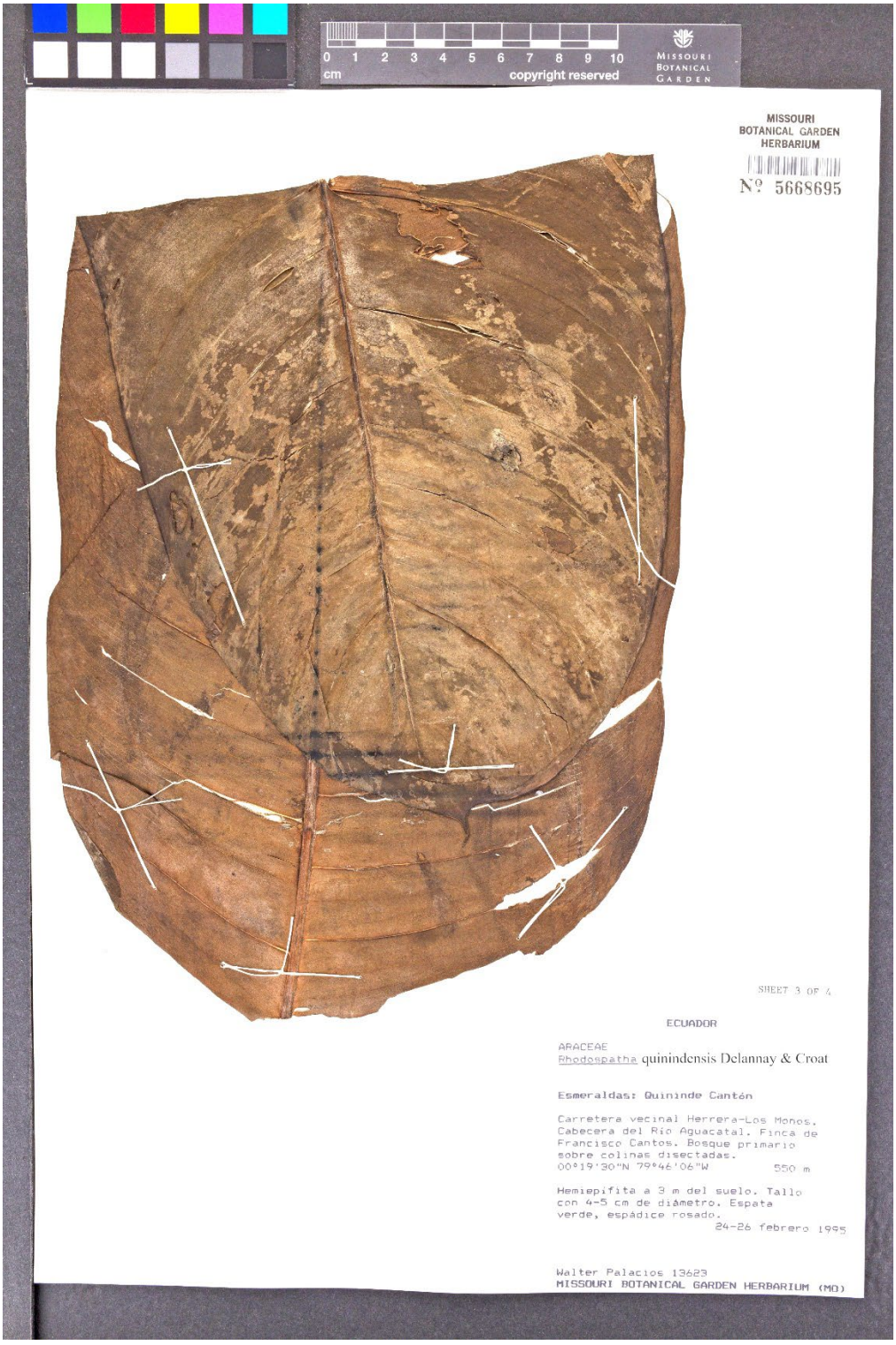
**Distribution and ecology:** *Rhodospatha pranceana* is endemic to the type locality in Amazonian Peru in the Department of Ucayali along the Río Javarizinho at an elevation of less than 100 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named in honor of British botanist Sir Ghillean Tolmie Prance who collected the only known specimen in 1976. Prance was former Director of Kew Gardens (1988–1990) and worked at the New York Botanical Garden (1963–1988) where he conducted field work through Amazonia, concentrating his scientific efforts on the taxonomy of Chrysobalanaceae and Lecythidaceae. In 1973, he coordinated the first Botany Postgraduate Degree held in the Amazon at National Institute of Amazonian Research in Manaus. At New York, he later served as Director of the Institute of Economic Botany and Senior Vice-President for Science.

**Comments:** This species is most similar to *Rhodospatha stenophyllon,* which occurs at 610 m elevation in Zamora-Chinchipe province of Ecuador. This latter species differs by occurring in a *Lower Montane Wet forest* life zone; and in having the petiole sheathed up to but not across the geniculum and blades reddish punctate on the abaxial surface and drying minutely wrinkled on the adaxial surface. In contrast, *R. pranceana* has petioles sheathed all the way to the blade and blades drying a solid color, not at all reddish punctate on the abaxialsurface, and minutely granular but not at all wrinkled on the adaxial surface.

***Rhodospatha quinindeensis*** Delannay & Croat, **sp. nov.** — Type: ECUADOR. Esmeraldas: Quinindé, Carretera vecinal Herrera-Los Monos, cabecera del Río Aguacatal, Finca de Francisco Cantos, bosque primario sobre colinas disectadas, 00°19'30"N, 79°46'06"W, 550 m, 24–26 February 1995, *W. Palacios 13623* (holotype, MO-5668695-98; isotype, QCNE). (**Figs. 233–236**).

**Diagnosis:** *Rhodospatha quinindeensis* is characterized by its appressed-climbing, epiphytic habit; petioles drying blackish with the sheath persisting intact; large, elongated blades 3.6–5.3 times longer than wide with 7–9 minor veins running in parallel between the primary lateral veins;




**233.** *Rhodospatha quinindeensis* (*Palacios 13623*, MO-5668695). Holotype showing leaf blade (adaxial and abaxial surfaces).

**234.** *Rhodospatha quinindeensis* (*Palacios 13623*, MO-5668696). Holotype showing stem, petiole, leaf blade (abaxial surface), and unopened inflorescence.

**235.** *Rhodospatha quinindeensis* (*Palacios 13623*, MO-5668697). Holotype showing leaf blades (adaxial and abaxial surfaces).

**236.** *Rhodospatha quinindeensis* (*Palacios 13623*, MO-5668698). Holotype showing stem, petioles, and post-anthesis spadix.

inflorescences with a cernuous peduncle, green spathe and pink, prominently stipitate, moderately short spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 2.0–2.5 cm diam., drying yellow-brown, unribbed, with thin, flaky somewhat loose fragments of epidermis.

**Leaves: petioles** ca. 42 cm long, sheathed to the geniculum; **sheath** persisting intact, drying blackish; **geniculum** ca. 2.5 cm long; **blades** oblong, 78–85 cm long, 16.0–21.5 cm wide, 3.6–5.3 times longer than wide, obtuse or rounded and acuminate at apex, rounded at base, widest near the middle, drying blackish green or medium brown adaxially, blackish brown or medium brown abaxially; **midrib** drying concolorous; **primary lateral veins** ca. 28 per side, widely spaced (2.0–2.5 cm), departing midrib at 70–80°, drying concolorous; **interprimary veins** similar to minor veins, with a total of 7–9 veins running in parallel between the primary lateral veins; cross-veins not prominent.

**Inflorescences: peduncle** ca. 30 cm long, enclosed for most of its length by the sheath of the subtending petiole and then curling down near the apex, drying blackish; **spathe** 16 cm long, green, drying black; **spadix** hanging, ca. 19 cm long, 1.8 cm diam.,pink, drying blackish brown; stipe ca. 4 cm long.

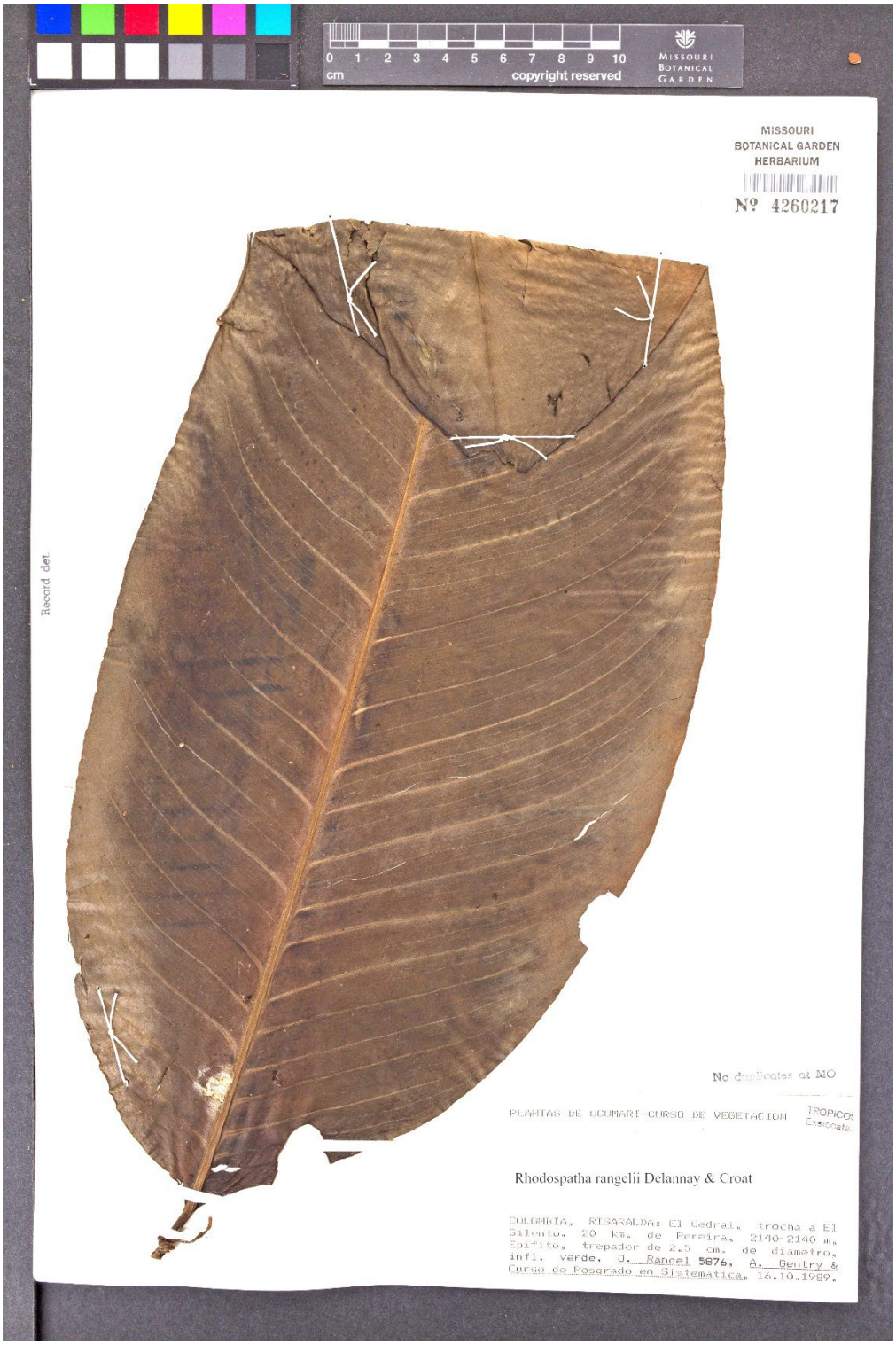
**Distribution and ecology:** *Rhodospatha quinindeensis* is endemic to Ecuador, found only in Esmeraldas Province at 550 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for the Quinindé Cantón of Esmeraldas Province in Ecuador, the only place where it has been found.

**Comments:** *Rhodospatha quinindeensis* may be confused with *R. longipes*, which has blades of similar color, size and shape. However, *R. longipes* typically has proportionately more slender, more elongated internodes with the epidermis drying blackened and densely granular; sheaths that have a pale, somewhat broken up margin near the base; and blades with conspicuous subpustular granules on both dried surfaces.

***Rhodospatha rangelii*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Risaralda: Santa Rosa de Cabal, 300 m South-East of Termales, 2120 m, 21 November 1985, *J. Wolf & Arn de Wilde 2167* (holotype, COL-286923). (**Figs. 237–238**).

**237.** *Rhodospatha rangelii* (*Wolf & de Wilde 2167*, COL-286923). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), peduncle, and post-anthesis spadix.




**238.** *Rhodospatha rangelii* (*Rangel et al. 5876*, MO-4260217). Specimen showing leaf blade (adaxial and abaxial surfaces).

**Diagnosis:** *Rhodospatha rangelii* is characterized by its appressed-climbing, epiphytic habit; blades 2.2–3.0 times longer than wide and drying medium greenish brown; venation with faint interprimary veins flanked by one minor vein on each side and with a dense network of prominent cross-veins (with the associated large dark granulations) connecting them; and stipitate, cylindroid-tapered, pointed spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** moderately elongated, to at least 5 cm long, 12 mm diam., drying medium yellow-brown, deeply and densely ridged longitudinally, the folds with acute margins sometimes cracking, the surface finely striate, glossy.

**Leaves: petioles** 20–32 cm long, sheathed to the geniculum, prominently high-ridged on sheath and shaft equally; **sheath** tightly inrolled, drying medium grayish brown, the margin narrow and mostly intact initially and persisting intact but then deciduous; **geniculum** ca. 1.5 cm long, sharply sulcate; **blades** ovate-elliptic, 35.5–45.0 cm long, 12.0–20.5 cm wide, 2.2–3.0 times longer than wide, inequilateral (one side 1.7–2.7 cm wider), obtuse and abruptly short-acuminate at apex, obtuse to rounded and briefly attenuated at base, widest proximal of the middle, drying medium grayish brown; **midrib** narrowly and deeply sunken, conspicuously granular, concolorous adaxially, paler, acutely and prominently raised, finely many-ribbed abaxially; **primary lateral veins** 14 or 15 per side, spaced 1.4–2.3 cm, departing midrib at 40–60°; **interprimary veins** faint, with 1 minor vein running in parallel between the interprimary veins and the primary lateral veins, and with a dense network of prominent cross-veins connecting them.

**Inflorescences:** erect; **peduncle** ca. 17 cm long; **spathe** not seen; **spadix** oblong, moderately tapered to apex, ca. 16 cm long, 12–14 mm diam. (flattened to ca. 2.5 cm wide), drying dark brown; stipe ca. 1.5 cm long.

**Flowers: styles** mostly rhombic, 1.8–2.2 mm wide in the widest dimension, brown and purplish-spotted, truncate; **stigmas** oblong-elliptic, 0.8–0.9 mm long, 0.5–0.6 mm wide, sunken and dark black, margin pale brown.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Colombia, found only in Risaralda Department at 2120–2140 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of J. Orlando Rangel who collected most of the known specimens in 1989. Orlando is the Curator at the HUA herbarium at the Universidad de Antioquia in Medellín.

**Comments:** Only one other *Rhodospatha* species, *R. mistratoensis*, has been found in Risaralda Department and it is distinct with its blades 4.6 times longer than wide and drying dark purplish brown adaxially and densely covered with small round white inclusions. In contrast, *R. rangelii* has shorter blades (2.2 times longer than wide) drying medium grayish brown adaxially and lacking the small, round, white inclusions.

**Paratypes: COLOMBIA**. **Risaralda:** El Cedral, below El Silento, 20 km from Pereira, 05°18'12"N 75°42'14"W, 2140 m, 16 August 1989, *J. O. Rangel & A. H. Gentry 5876, 5912* (MO).

***Rhodospatha renteriae*** Croat & Delannay, **sp. nov.** — Type: COLOMBIA. Chocó: To Llora from Yuto, pluvial forest, along creek ca. 2 km E of Yuto, 05°32'00"N 76°38'00"W, 18 January 1979, *A. H. Gentry & E. Rentería A. 24433* (holotype, MO- 2706350; isotype, HUA-016443). (**Fig. 239**).

**Diagnosis:** *Rhodospatha renteriae* is characterized by its epiphytic habit; short, thick internodes; petioles drying yellow brown with a shrunken geniculum; narrowly oblong-elliptic blades abruptly short-acuminate at apex, acute at base, drying greenish gray and matte adaxially, grayish yellow-brown and semiglossy abaxially, closely spaced, primary lateral veins drying undulate; and long-pedunculate inflorescence with a white spadix.

**Habit:** epiphyte, apparently near ground (said to be non-climbing).

**Stem: internodes** short, ca. 3 cm diam.

**Leaves:** distichous, closely overlapping and hiding internodes; **petioles ca.** 47 cm long, flattening to 1.7 cm wide midway, sheathed to the geniculum, drying light yellow-brown, moderately glossy, sulcate adaxially, rounded abaxially; **sheath** deciduous, edges drying darker than the petiole; **blades** narrowly oblong-elliptic, 58.5–71.0 cm long, 16.3–17.3 cm wide, 3.5–4.1 times longer than wide, narrowly oblong-elliptic, 1.3–1.8 times longer than petioles, abruptly short-acuminate at apex, narrowly acute at base, drying subcoriaceous, greenish gray and matte adaxially, grayish yellow-brown and semiglossy abaxially; **midrib** narrowly and obtusely sunken adaxially, narrowly raised to round-raised, moderately paler and densely granular abaxially;

**239.** *Rhodospatha renteriae* (*Gentry & Rentería 24433*, MO- 2706350). Holotype showing leaf blade (adaxial and abaxial surfaces), peduncle, and post-anthesis spadix.

**primary lateral veins** 36–48 per side, departing midrib at 50–60°, 0.7–1.7 cm apart, bluntly rounded, concolorous and moderately obscure adaxially, narrowly rounded, paler, often short-purple-lineate (especially near the midrib), usually undulate abaxially; **adaxial surface** usually densely and finely granular to granular-ridged with some areas semiglossy showing narrow interconnected ridges; **abaxial surface** densely and coarsely granular, often with minute blackish dots.

**Inflorescences:** erect, not cernuous; **peduncle** ca. 30.5 cm long; **spathe** missing; **spadix** stipitate ca. 8 mm in rear (exposed 1.7 cm in front), ca. 16 cm long, 1 cm diam.

**Flowers:** 14 or 15 visible per spiral; **styles** 6-sided, sub-rectangular to subrounded, 1.4–2.0 mm in longest dimension, surface matte, minutely granular, seemingly glaucescent; **stigmas** blackened 0.8 x 0.3 mm.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha renteriae* is endemic to Colombia, known only from the type locality at 50 m in a *Tropical Rain Forest* life zone.

**Etymology:** This species is named in honor of Colombian botanist Enrique Renteria who, along with Alywn Gentry, collected the type. Renteria, who was born and raised in the Chocó, is one of the pioneers in botanical collecting in the Chocó Department.

**Comments:** This species might be confused with *Rhodospatha alversonii* from the Cauca River valley drainage in Antioquia, which differs in having broader leaf blades (2.2-2.4 X) that dry darker brow qnd more widely spaced primary lateral veins and more interprimary veins. It might also be confused with *R. jimwestii* from higher elevations on the Pacific slope of Colombia, which differs by having leaf blade proportionately broader (2.4X) with the apex subrounded and more prominent primary lateral veins.

***Rhodospatha rimachii*** Croat, **sp. nov.** — Type: PERU. Ucayali: Vicinity of Aguaytia. Primary forest on steep slopes along Río Aguaytia, “tierra firme” flood free zone, 09°02'50"S 75°30'17"W, 3 October 1972, *T. B. Croat 20993* (holotype, MO-2272229). (**Fig. 240**).

**Diagnosis:** *Rhodospatha rimachii* is characterized by its terrestrial habit; petioles drying glaucous; abruptly acuminate-caudate, ovate-elliptic blades 1.5–1.9 times longer than wide, drying glaucous and with the primary lateral veins departing midrib first at an acute angle close along

**240.** *Rhodospatha rimachii* (*Croat 20993*, MO-2272229). Holotype showing leaf blade (adaxial and abaxial surfaces) and detached, post-anthesis spadix.

the midrib before spreading out to the edge of the blade; and salmon-pink spadix drying glaucous and with rounded-prismatic styles.

**Habit:** terrestrial, to 1.5 m tall.

**Stem: internodes** short, 1.5–2.0 cm diam.

**Leaves: petioles** ca. 47 cm long, drying glaucous, sheathed to 2 cm from geniculum; **sheath** margin wide in proximal 3/5, slender distally, deciduous and breaking into fibers along the petiole; **geniculum** ca. 3 cm long, drying darker; **blades** ovate-elliptic, 40–51 cm long, 26.5–27.5 cm wide, 1.5–1.9 times longer than wide, slightly inequilateral, rounded and short-caudate-acuminate at apex, rounded and slightly decurrent at base, widest near the middle, drying glaucous adaxially, light greenish-brown abaxially; **midrib** drying concolorous, broadly raised, bluntly several-ribbed, minutely granular adaxially, narrowly raised, paler, matte, finely many ribbed, not granular abaxially; **primary lateral veins** ca. 30 per side, widely spaced (to 2 cm in the distal part of the leaf), departing midrib first at an acute angle close along the midrib then spreading out at 65–75°, drying concolorous to weakly paler adaxially, narrowly rounded, irregularly ribbed, sometimes lumpy, slightly paler to concolorous abaxially; **interprimary veins** faint, typically 1 per segment with 1–3 minor veins running in parallel between them and the primary lateral veins, interconnected by faint cross-veins; **adaxial surface** finely granular (granules not at all contiguous), lacking pale lineations; **abaxial surface** coarsely and irregularly thick pale-granular, sparsely and faintly short pale-lineate.

**Inflorescences:** erect; **peduncle** ca. 23 cm long, glaucous, closely subtended by a glaucous prophyll breaking into fibers near the base; **spathe** not seen; **spadix** ca. 19.5 cm long, 1.5 m diam., salmon-pink, turning green in fruit.

**Flowers: styles** rounded-prismatic, 1.8–2.2 mm wide in longest dimension, drying gray, matte, densely pale-granular; **stigmas** oval, ca. 0.8 mm long, 0.5 wide, blackened, typically with a distinct medial groove.

**Distribution and ecology:** This species is endemic to Peru, found in Loreto and Ucayali Departments at 120 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named for Peruvian botanist Manuel Rimachi (now going by the name Manuel Villacorta) who was field assistant of the second author while working on an expedition by the Amazon Drug Company in 1972 to collect 3000 samples of Peruvian plants for an anti-cancer drug screening program operated by the U. S. D. A. He was long an employee of the late

Sidney McDaniel from Mississippi State University whose long-term project to write the Flora of Loreto Department was never completed. Manuel's collections were numerous, including many new species.

**Comments:** *Rhodospatha rimachii* is closest to *R. manuelii*, which is an appressed-climbing epiphyte; has non-glaucous blades drying a darker color and are dark granular; petioles drying non-glaucous; oblong-prismatic styles; and stigmas drying dark brown. In contrast, *R. rimachii* differs by being a terrestrial plant; has glaucous blades drying a lighter color and are pale granular adaxially; petioles drying glaucous; rounded-prismatic styles; and stigmas drying black.

*Rhodospatha rimachii* also resembles *R. neillii* but the former species differs in its terrestrial habit and by drying glaucous whereas *R. neillii* is an appressed-climbing epiphyte drying non-glaucous.

**Paratypes: PERU**. **Loreto:** Maynas, Dtto. Iquitos, Río Momón, trocha del caserío de Sargento Lores, en monte alto y abierto, 120 m, *M. Rimachi Y. 8526* (MO).

***Rhodospatha rioclaroensis*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Antioquia: San Luis, Valley of Río Claro, 27 km E of Entrada for San Luis, 53 km E of Río Calderas, 05°53'30"N 74°51'20"W, 500 m, 21 April 207, *T. B. Croat & F. Cardona 97910* (holotype, MO-6247467-69). (**Figs. 241–242**).

**Diagnosis:** *Rhodospatha rioclaroensis* is characterized by its appressed-climbing, epiphytic habit; internodes and petioles drying black; and blades drying dark brown with widely spaced primary lateral veins.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** 2–3 cm long 1.0–1.5 cm diam., dark green and semiglossy, soon gray, drying black, the younger stems drying medium gray-brown, weakly longitudinally and irregularly ribbed, moderately glossy.

**Leaves: petioles** fully sheathed, 17–27 cm long; **sheath** erect-incurled, the margin dark brown, with large intact fragments, eventually deciduous leaving a coarsely roughened edge, drying black; **geniculum** 2.5–3.0 cm long, sharply sulcate and flaring; **blades** subcoriaceous, ovate-elliptic, 19–34 cm long, 12.0–14.5 cm wide, 1.6–2.3 times longer than wide, dark green and semiglossy adaxially, slightly paler and weakly glossy abaxially, drying dark brown adaxially and abaxially; **midrib** v-sulcate and concolorous adaxially, narrowly rounded, slightly paler abaxially,

**241.** *Rhodospatha rioclaroensis* (*Croat & Cardona 97910*, MO-6247469). Holotype showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**242.** *Rhodospatha rioclaroensis (Croat & Cardona 97892, MO-6274208)*. Specimen showing juvenile plants.

drying prominently and coarsely ribbed, concolorous adaxially, blackish irregularly ribbed, sometimes collapsed and sunken, the ribs usually acute, densely granular abaxially; **primary lateral veins** 12–14 per side, widely spaced (1.3–2.0 cm), departing midrib at 50–70°, weakly quilted-sunken and concolorous adaxially, narrowly raised and paler abaxially, drying concolorous adaxially, drying blackish abaxially; **interprimary veins** faint; minor veins 2 or 3 running in parallel between the interprimary veins and the primary lateral veins, intersected by a few faint cross-veins; **adaxial surface** weakly wrinkled, minutely areolate at high magnification; **abaxial surface** smooth to minutely granular, sparsely pustular.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha rioclaroensis* is endemic to Colombia, found only in the San Luis area of Antioquia Department at 500 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for the Río Claro in the San Luis area of Antioquia near which it was found.

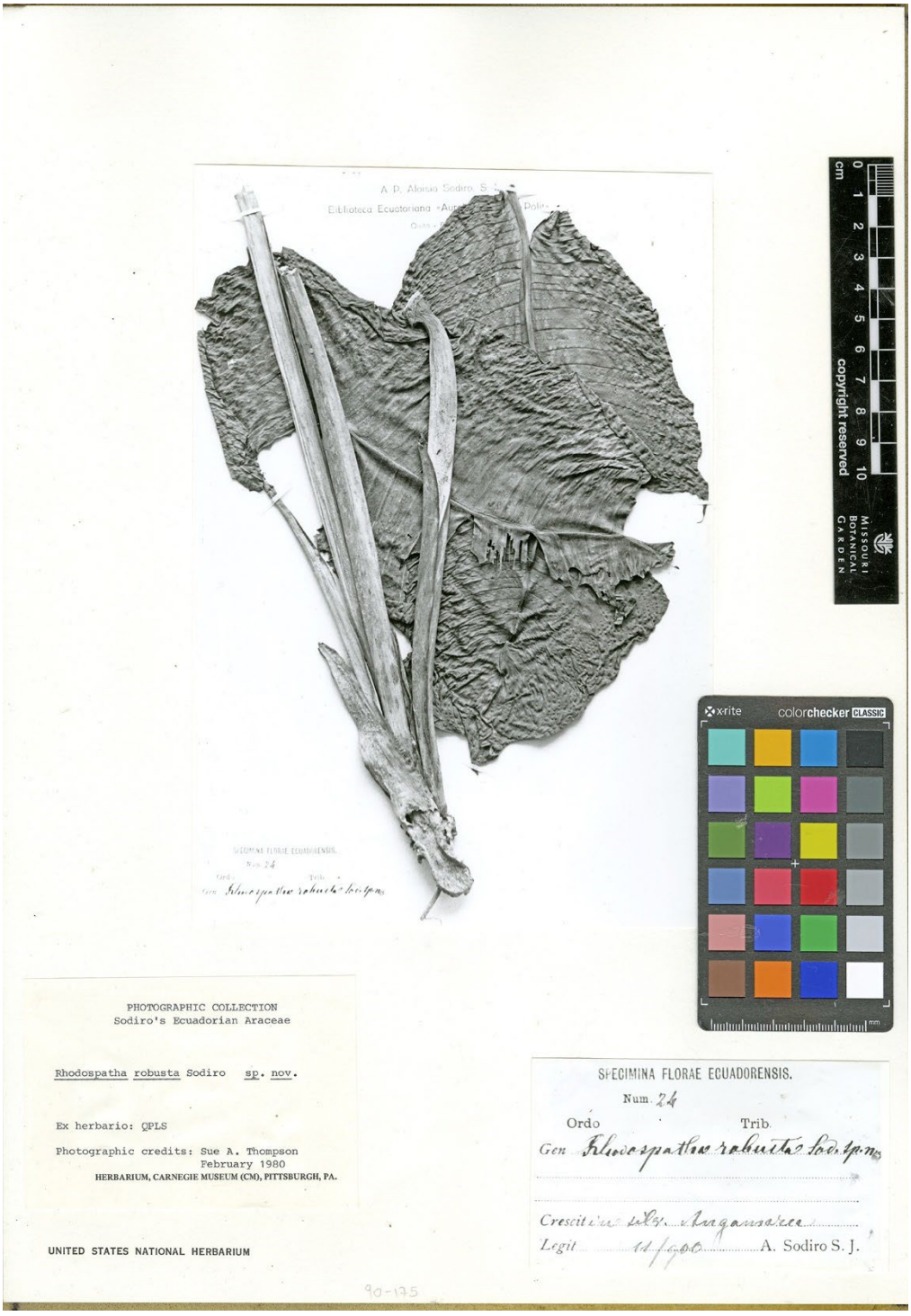
**Comments:** This species could be mistaken for *Rhodospatha croatii*, which also grows in the general area and has a similar drying color, but that species grows at much higher elevations (1820–2250 m vs. 500 m for *R. rioclaroensis*) and also has a prominent network of cross-veins sharply raised on the abaxial surface (these lacking in *R. rioclaroensis*).

**Paratypes: COLOMBIA**. **Antioquia:** San Luis, Valley of Río Claro, 27 km E of Entrada for San Luis, 53 km E of Río Calderas, 05°53'30"N 074°51'20"W, 500 m, 21 April 2007, *T. B. Croat & F. Cardona 97892* (MO).

***Rhodospatha robusta*** Sodiro, Sert. Fl. Ecuad. Ser; Ser. 22 2 :77. 1908. — Type: ECUADOR. Esmeraldas: at the Río Lita and the Río Cachaby, October 1900, *Sodiro 22* (holotype, QPLS; (photograph) CM, MO, US). (**Fig. 243**).

**Habit:** not seen.

**Stem:** ascending, reclining at the base; **internodes** 12–15 mm long, about as broad as long, 7–8 mm diam. near the apex.




**243.** *Rhodospatha robusta* (*Sodiro 22*). Holotype showing stem, petioles, and leaf blades (abaxial and adaxial surfaces). (Photo: Sue Thompson).

**Leaves: petioles** 20–30 cm long, sheathed to the geniculum, drying yellow-brown, ca. 1 cm wide at the base, narrowed distally; **blades** subelliptic, 25–35 cm long, 18–25 cm wide, asymmetrical, thickly cartilaginous, short acuminate at apex, inequilaterally rounded at the base, glaucescent-green; **midrib** flattened adaxially, prominently obtuse abaxially; **primary lateral veins** ca. 30 per side, 7–12 mm apart, in part prominently ascending from midrib, then spreading at about 90°, those in the proximal half sometimes broadly sinuate, at first weakly reflexed then ascending in a broad arc before merging with the margin; **interprimary veins** moderately prominent, usually with one much more prominent between each pair of primary lateral veins.

**Inflorescences: peduncle** robust, 25–30 cm long, enveloped from the base to the apex or the distal third with a prophyll, the latter ca. 15 mm wide, acute and involute at the apex; **spathe** white, coriaceous, ca. 15 cm long, convolute at the base, subulate at the apex; **spadix** 15–18 cm long, 1.5–2.0 cm diam., cylindroid, stipitate 7–8 mm.

**Flowers: pistils** prismatic-tetragonal, flattened at the apex; **stigmas** medial; ovary bilocular; **seeds** superimposed in two series, lenticular, campylotropous, attached by a short stem.

**Distribution and ecology:** This species is known only from Ecuador, in Esmeraldas at the Río Lita and the Río Cachaby.

***Rhodospatha rojasiae*** Croat, **sp. nov.** — Type: PERU. Pasco: Oxapampa, Dist. Palcazú, San Pedro de Pichanaz - Mirador Pichis, Remanente de bosque, 700–1200 m, 10 June 2004, *R. Rojas 2848* (holotype, MO-4824119; isotypes, AMAZ, HUT, MOL, USM). (**Fig. 244**).

**Diagnosis:** *Rhodospatha rojasiae* is characterized by its terrestrial habit; petioles drying light yellow-brown with a deciduous sheath; elliptic bicolorous blades 2.2 times longer than wide and drying medium greenish brown adaxially, light yellow-brown abaxially, with widely spaced primary lateral veins with a single interprimary vein and typically 4 minor veins between each pair of primary lateral veins abaxially, prominent cross-veins abaxially, interprimary veins on abaxially less distinct and totaling 13–17 minor veins running in parallel between them with the minor veins visible but less distinct; and moderately long-pedunculate inflorescence with a green spathe and stipitate, short, cylindroid, greenish white spadix.

**Habit:** terrestrial.

**Stem: internodes** ca. 2 cm diam., drying medium brown.

**244.** *Rhodospatha rojasiae* (*Rojas et al. 2848*, MO-4824119). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**Leaves: petioles** ca. 30 cm long, drying light yellow-brown, sheathed to the geniculum; **sheath** deciduous, thin and breaking into pale fibers along the edge, drying light yellow-brown; **blades** elliptic, ca. 60 cm long, 27 cm wide, 2.2 times longer than wide, obtuse and short-acuminate at the apex, obtuse and slightly decurrent at the base, widest near the middle, drying medium greenish brown adaxially, light yellow-brown abaxially; **midrib** drying light brown adaxially, medium brown abaxially; **primary lateral veins** ca. 22 per side, departing midrib at 60–75°, widely spaced (2–3 cm), darker than surface; **interprimary veins** not prominent, often difficult to distinguish from minor veins, with 3–4 minor veins on either side abaxially, less conspicuous adaxially with a total of 13–17 veins running in parallel between the primary lateral veins; cross-veins many, not prominent adaxially, easily visible abaxially; **adaxial surface** moderately smooth, densely pale-speckled; **abaxial surface** densely rowed-granular.

**Inflorescences:** erect; **peduncle** ca. 25 cm long, drying light yellow-brown; **spathe** green; **spadix** cylindrical, ca. 11 cm long, 1.4 cm diam., greenish white, drying dark brown; stipe ca. 1.5 cm long.

**Flowers: styles** 2.0–2.2 mm wide, sharply rounded-prismatic, drying flattened, dark brown, matte; **stigmas** oblong, about half as long as the width of the styles.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha rojasiae* is endemic to Peru, known only from the Palcazú District of Pasco Department at 700–1200 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named in honor of Rocio Rojas who collected the only known specimen. Rocio, one of the leading collectors for the HOXA herbarium in Oxapampa, has collected many new species of Araceae.

**Comments:** *Rhodospatha rojasiae* resembles *R. ipariensis*, which share the petioles and the blades drying a similar color and also has widely spaced primary lateral veins, but the latter species differs by having its venation scarcely apparent, without the large number of minor veins characteristic of *R. rojasiae*. *Rhodospatha ipariensis* also occurs in Ucayali Department, far from Pasco Department where *R. rojasiae* is found.

***Rhodospatha romeroi*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Magdalena: Flanco Occidental de la Sierra Nevada. San Andrés, 400–1300 m, 24 March 1959, *R. Romero Castañeda 7622* (holotype, COL-80670). (**Fig. 245**).

**245.** *Rhodospatha romeroi* (*Romero Castañeda 7622*, COL-80670). Holotype showing petiole, leaf blade (abaxial surface), peduncle, and inflorescence at anthesis with spathe and spadix.

**Diagnosis:** *Rhodospatha romeroi* is characterized by its appressed-climbing, epiphytic habit; densely and finely ridged-granular petioles sheathed to the geniculum with the sheath deciduous; large, ovate-elliptic blades 2.6–2.8 times longer than wide drying reddish brown with a network of prominent cross-veins connecting the main veins; and large inflorescences with a pale-yellow spathe and a cream or pale orange spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 2.5 cm diam., drying dark brown, densely granular.

**Leaves: petioles** 37–49 cm long, drying dark yellowish brown, densely and finely ridged-granular, sheathed to the geniculum; **sheath** dark reddish brown, closely and prominently ribbed, eventually deciduous; **geniculum** 2.5–3.0 cm long, drying sulcate adaxially; **blades** ovate-elliptic, 43.0–56.5 cm long, 15–21 cm wide, 2.6–2.8 times longer than wide, obtuse and acuminate at apex, rounded and slightly decurrent at base, widest below the middle, drying dark grayish brown adaxially, medium reddish brown abaxially; **midrib** drying obtusely sunken, concolorous adaxially, prominently and narrowly raised, concolorous, densely granular with a blunt medial rib abaxially; **primary lateral veins** 24-29 per side, spaced 1.0–1.5 cm, departing midrib at 50–70°; **interprimary veins** faint, often weakly undulate with 3 minor veins running in parallel between the interprimary veins and the primary lateral veins, and with a dense network of prominent cross-veins connecting them; **adaxial surface** smooth, finely striate with glistening minute spots at higher magnification; **abaxial surface** sparsely dark-speckled, minutely areolate at high magnification.

**Inflorescences:** erect; **peduncle** 17–20 cm long, enclosed for most or all its length in a prophyll 32–42 cm long and drying blackish; **spathe** 19–20 cm long, 9 cm wide, pale yellow, drying blackish adaxially, dark brown abaxially; **spadix ca.** 15 cm long, 12–14 mm diam., cream or pale orange, drying blackish; stipe ca. 1.5 cm long.

**Flowers: styles** mostly rhombic, 1.8–2.0 mm wide in longest dimension, drying black often with a thin light brown margin, smooth, mostly convex; **stigmas** moderately raised, oblong, 0.8–1.0 mm long, 0.3–0.4 mm wide, black, sometimes with a slender light brown margin, the medial slit rarely apparent.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha romeroi* is endemic to Colombia, found only in Magdalena Department at 400–1300 m in a *Tropical Moist Forest* life zone. While no locality

named San Andrés has been located on the western slopes of the Sierra Nevada de Santa Marta, the elevational coordinates on the western slope were 10°33'N 74°01'W to 10°35'N 73°54'W, which corresponds to the life zone identified here.

**Etymology:** This species is named in honor of the late Rafael Romero Castañeda, a Colombian botanist who collected the only known specimens of this species in 1959. Romero Castañeda worked for the Department of Natural Resources under the Ministry of Agriculture where he was primarily concerned with the study of plants with edible fruits and in 1991 published the *Frutas Silvestres de Colombia* as well as a two-volume work on the plants of Magdalena, the first a monograph of the Zygophyllaceae and the second a *Flora of the Isla de Salamanca*.

**Comments:** This species can be confused with *Rhodospatha rosaortiziae*, which also occurs in Magdalena Department but *R. romeroi* differs from the latter by its blades drying a lighter reddish-brown color abaxially; more widely spaced primary lateral veins; and prominent cross-veins connecting the interprimary veins and the minor veins (rather than being faint in the case of *R. rosaortiziae*).

**Paratypes: COLOMBIA**. **Magdalena:** Alrededores de San Andrés, 1300 m, 17 January 1959, *R. Romero Castañeda 6935* (COL).

***Rhodospatha rosaortiziae*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Magdalena: El Campano. Transect 4, 1680 m, 10 June 1993, *A. H. Gentry & R. Ortiz 79768* (holotype, MO-5049403-04). (**Figs. 246–247**).

**Diagnosis:** *Rhodospatha rosaortiziae* is characterized by its appressed-climbing, epiphytic habit; petioles sheathed to the geniculum with a deciduous sheath; oblong-elliptic blades 2.9 times longer than wide drying dark brown with a faint network of veins between the primary lateral veins; and ts large inflorescences with cream-colored spathe and spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, ca. 2.5 cm diam.

**Leaves: petioles** ca. 42 cm long, sheathed to the geniculum, matte, bluntly several-ribbed abaxially, the sides finely striate, contrasting sharply with the thickened and raised, persistent sheath margin; **sheath** drying paler, medium reddish brown, the edges very brittle, ultimately most of the sheath deciduous; **geniculum** ca. 3 cm long, narrowly flattened with narrow raised

**246.** *Rhodospatha rosaortiziae* (*Gentry & Ortiz 79768*, MO-05049403). Holotype showing leaf blade (adaxial and abaxial surfaces).

**247.** *Rhodospatha rosaortiziae* (*Gentry & Ortiz 79768*, MO-05049404). Holotype showing stem, petioles, peduncle, and inflorescence at anthesis with spathe and spadix.

margins; **blades** oblong-elliptic, ca. 54 cm long, 18.5 cm wide, 2.9 times longer than wide, short-acuminate at apex, obtuse at base, widest distal of the middle, drying blackish brown adaxially, reddish brown to dark reddish brown, matte or weakly glossy abaxially; **midrib** narrowly sunken and paler in groove, the margins bluntly raised, concolorous adaxially, prominently narrowly round-raised, concolorous, densely pale-granular abaxially; **primary lateral veins** 26 or 27 per side, spaced 1.0–1.5 cm, departing midrib at 60–75°, weakly raised, minutely granular, undulate abaxially; **interprimary veins** faint, with 2 or 3 faint minor veins running in parallel between the interprimary veins and the primary lateral veins, and with a network of faint cross-veins connecting them; **adaxial surface** smooth, often finely granular upon magnification; **abaxial surface** finely concolorous-granular, minutely areolate at high magnifications.

**Inflorescences:** erect, 2 present (one in bud in prophyll ca. 35 cm long); **peduncle** ca. 24 cm long, enclosed for most or all its length in the subtending petiole sheath, protruding from it and curving down at the apex; **spathe** ca. 25 cm long, 1.1 cm wide, long-acuminate-attenuate at apex, cream, drying blackish on both surfaces, longitudinally grooved adaxially, ribbed, densely granular, short pale-lineate abaxially; **spadix ca.** 16 cm long, 1 cm diam.; drying blackish; stipe ca. 1.5 cm long.

**Flowers: styles** slightly raised, rounded-prismatic to rectangular and directed in the direction of the axis, blackened, matte, truncate; **stigmas** black, oblong, 0.8–1.0 mm long, 0.3 mm wide, medial slit often distinct.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Colombia, found only in Magdalena Department at 1480 m in a *Tropical Moist Forest* life zone. Though the Gentry and Ortiz collection data seems somewhat imprecise, only one locality called El Campano was found in Magdalena Department with Google Earth and the elevation of 1680 m was just above this village near Santa Marta on the road above Minca between the Reserva Natural Caracolí and the Reserva Natural El Dorado. Rosa Ortiz confirmed the coordinates 11°06’36”N, 74°05’05”W.

**Etymology:** This species is named in honor of Dr. Rosa Ortiz Gentry who collected the only known specimens along with the late Alwyn Gentry in 1993 while making his traditional plant transect studies. Rosa is a longtime staff member at the Missouri Botanical Garden and concentrates on studies of the Menispermaceae.

**Comments:** This species can be confused with *Rhodospatha romeroi*, which also occurs in Magdalena Department, but the latter species differs by its blades drying a lighter reddish brown

below; more widely spaced primary lateral veins; and prominent cross-veins connecting the interprimary veins and the minor veins (rather than being faint in the case of *R. rosaortiziae*).

***Rhodospatha rubropunctata*** Croat, **sp. nov.** — Type: BRAZIL. Acre: Mun. Tarauacá: Basin of Río Juruá, Río Tarauacá, left bank, Reserva Indígena Praia do Carapaná, Seringal Universo, Colocação Vista Alegre, 08°26'58"S, 71°20'57"W, 21 November 1995, *D. C. Daly et al. 8669* (holotype, MO-4971578). (**Figs. 248–250**).

**Diagnosis:** *Rhodospatha rubropunctata* is characterized by its terrestrial habit and habitat, growing in shaded areas in or near streams; petioles sheathed for ca. 3/4 their length with the sheath persistent; oblong-lanceolate blades drying greenish brown with weak interprimary veins sided with 3 minors veins running in parallel between the interprimary and primary lateral veins; and erect inflorescences with the peduncle enclosed by a prophyll for ca. 4/5 its length. Especially characteristic are the sparsely hispidulous major veins and the reddish speckles on the abaxial surface.

**Habit:** terrestrial.

**Stem: internodes** short, ca. 2 cm diam.

**Leaves: petioles** 17.0–19.5 cm long, sheathed for ca. 3/4 their length, sheath thin, persistent, drying medium brown, minutely and densely granular, sparsely short-pale lineate; **blades** succulent, oblong-lanceolate, 22.5–43.0 cm long, 7.5–14.0 cm wide, 2.8–4.0 times longer than wide, obtuse and tapering into a short acumen at apex, acute and decurrent at base, widest near the middle, drying medium greenish-brown adaxially, lighter orangish-brown abaxially; **midrib** drying concolorous adaxially and abaxially, slightly raised abaxially; **primary lateral veins** 15–24 per side, departing midrib at 40–50°, drying narrowly sunken and concolorous adaxially, narrowly rounded, much darker, sparsely granular-puberulent abaxially; **interprimary veins** not apparent adaxially, weak abaxially, sided by usually 3 minors veins running in parallel between the primary lateral veins, connected by weak oblique cross-veins; **adaxial surface** speckled with tiny red dots, minutely areolate-ridged; **abaxial surface** densely reddish brown-speckled.

**Inflorescences:** erect; **peduncle** 20–28 cm long, enclosed by a prophyll for ca. 4/5 its length, both drying dark brown; **spathe** ca. 11 cm long, drying orangish brown; **spadix** stipitate 5–10 mm, rarely sessile, cylindrical, 9.5–11.0 cm long, 1.0–1.5 cm diam.; drying dark brown, granular, ridged, sometimes pustular.

**248.** *Rhodospatha rubropunctata* (*Daly et al. 8669*, MO-4971578). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**249.** *Rhodospatha rubropunctata* (*Schunke 10406*, MO-3106477). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**250.** *Rhodospatha rubropunctata* (*Schunke 10406*, MO-3106479). Specimen showing petiole, leaf blade (adaxial and abaxial surfaces), and immature inflorescence.

**Flowers: styles** 1.8–2.2 mm wide in broadest dimension, rhombic to square, often with protruding, sometimes twisted, pointed corners, drying truncate to cup-shaped, gray, densely granular; **stigmas** oblong, ca. 0.8 mm long, 0.3–0.5 mm wide, the medial slit weak.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha rubropunctata* is found across western Brazil (Acre, Amazonas) and northeastern Peru (Huánuco, Loreto, Madre de Dios, Ucayali) at 135–400 m in a *Premontane Wet Forest* life zone and forms dense populations in shaded areas in or near streams.

**Etymology:** This species is named for the tiny red punctuations seen on magnification on both surfaces of the blade.

**Comments:** Because of its terrestrial, riparian habit and its blade surfaces speckled with tiny red dots on magnification, this species is distinct does not resemble other *Rhodospatha* species growing in its area.

**Paratypes: BRAZIL**. **Acre:** Bacia do Alto Jurua, Río Tarauaca, Seringal Tamandare, Colocacao Santa María. Terraço inundável, 08°35'12"S 71°30'57"W, 18 November 1995, *M. S. Silveira et al. 1003* (INPA, NY); Mun. Tarauacá: Basin of Río Juruá, Río Taraucá, left bank, Reserva Indígena Praia do Carapaná, Seringal Universo, Colocação Samaúma. Forest on terra firme, 08°23'02"S 71°17'16"W, 14 November 1995, *D. C. Daly et al. 8165* (INPA, MO); Mun. Marechal Tahumaturgo: Basin of Río Juruá, Río Arara, left bank, inland from "Pifaião". Open forest with bamboo; terrain gently undulating occasionally dissected by streams, 08°58'25"S 72°45'10"W, 9 December 2000, *D. C. Daly 10553* (NY). **Amazonas:** Río Juruoi, October 1901, *Ernst Ule 5767* (G, L, MO). **PERU**. **Huánuco** Bosque Nacional de Iparia: Región de "bosque seco tropical" (sensu Tosi, 1960) a lo largo del Río Pachitea cerca del campamento Miel de Abeja (1 km arriba del pueblo de Tournavista o unos 20 km arriba de la confluencia con el Río Ucayali), 300–400 m, 30 October 1966, *J. Schunke V. 1200* (F). **Loreto:** Distrito de Putumayo. Inventario Rápido #22, Campamento Piedras. Bosque ribereño en la quebrada Algodoncillo, 02°48'59"S 72°55'55"W, 135–185 m, 24 October 2009, *I. Huamantupa et al. 13353* (AMAZ, F, MO); Provincia Coronel Portillo; Dtto. Calleria; Bosque Nacional Alexander Von Humboldt, carretera a Pucallpa, km 86, 08°24'19"S 74°25'09"W, 250–300 m, 28–30 July 1978, *J. Schunke V. 10406* (MO); Puerto Arturo, lower Río Huallaga below Yurimaguas; dense forest, 05°50'00"S 76°03'00"W, 135 m, 24 August 1929*, E. P. Killip & A. C. Smith 27798* (NY, US); Santa Rosa, lower Río Huallaga below Yurimaguas; dense forest, 05°48'S 76°12'W, 135 m, 1 September 1929, *E. P. Killip & A. C. Smith 28943* (NY, US). **Madre de Dios:** Manu Park, Cocha cashu uplands, 11°45'S 071°00'W, 400 m, 15 August 1986, *Percy Núñez V. 5730*

(MO); Parque Nacional Manu. Río Manu: Cocha Cashu Station. Lowland floodplain forest, 11°53'S 71°23'W, 350 m, 15 September 1986, *R. B. Foster 11393* (MO); Parque Nacional del Manu. Uplands, North Trail. Río Manu: Pakitza Station, 350 m, 20 November 1980, *R. B. Foster 5782* (F); Parque Nacional Manu; Río Manu; Pakitsa Station; behind camp. Forest edge along stream W of camp, 11°56'S 71°16'W, 350 m, 18 December 1988, *R. B. Foster & M. S. Baldeón 12625* (MO). **Ucayali:** Bosque Nacional de von Humboldt, 08°40'S 75°00'W, 270 m, 8 February 1981, *A. H. Gentry 31109* (MO, USM); Coronel Portillo, Cuenca del Río Iparia, afluente del Río Ucayali. Cerca le Comunidad nativa Ashaninka de Miraflores, 09°21'11"S 74°28'50"W, 200 m, 23 July 2007, *J. G. Graham & J. Schunke V. 4320* (MO).

***Rhodospatha rudasii*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Amazonas: Parque Nacional Natural Amacayacu, Centro Administrativo Amacayacu (Inderena), trocha hacia Mata-matá en zona de tierra alta, 03°47'S 70°17'W, 150 m, 21 March 1991, *A. Rudas L. & F. del Aguila Joaquin 1749* (holotype, MO-3887012; isotype, US). (**Figs. 251–252**).

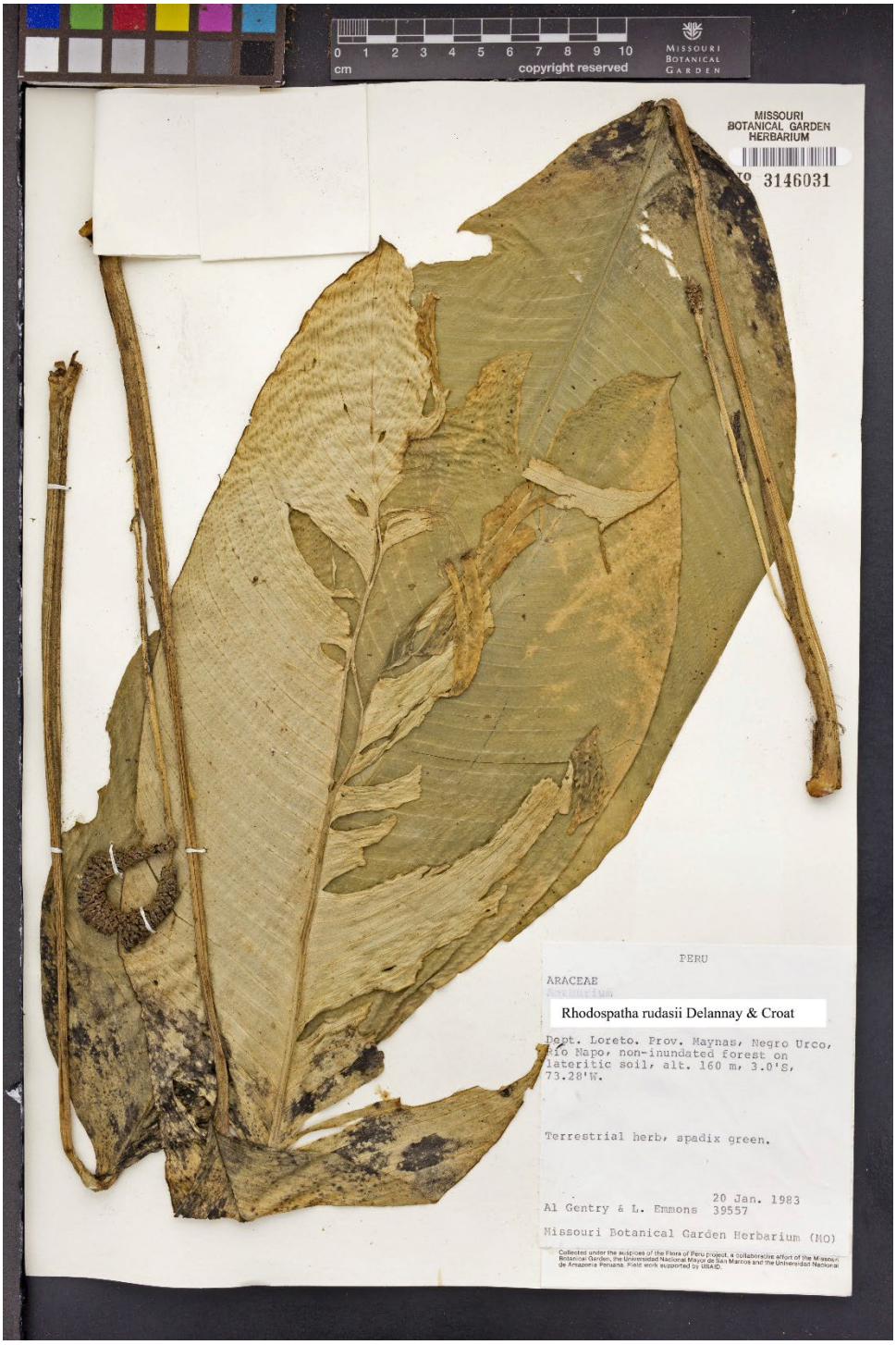
**Diagnosis:** *Rhodospatha rudasii* is characterized by drying light yellowish brown overall; petioles sheathed for 3/4 of their length with the sheath wide and persisting intact; ovate-elliptic, abruptly short-acuminate blades 2.2–2.3 times longer than wide; primary lateral veins and interprimary veins with 3 minor veins running alongside and with multiple cross-veins interconnecting them; and sessile, short, cylindroid-tapered, green spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 1.0–1.5 cm diam.

**Leaves: petioles** 21.5–29.0 cm long, sheathed for 3/4 of their length; **sheath** wide, short dark green-lineate, drying light brown, the margin dark brown, persisting intact; **geniculum** ca. 2 cm long, not discolored, sharply sulcate adaxially; **blades** ovate-elliptic, 33–45 cm long, 15–23 cm wide, 2.2–2.3 times longer than wide, rounded to obtuse at the base, obtuse and short-apiculate at apex, scarcely attenuated at base, drying light yellowish brown to yellowish green and semiglossy adaxially, brownish yellow and glossy abaxially; **midrib** drying concolorous, broadly raised and irregularly ribbed adaxially, narrowly rounded, coarsely knobby-ridged, slightly darker, pustular and granular abaxially; **primary lateral veins** 20– 24 per side, departing midrib at 35–60°, drying scarcely raised, concolorous adaxially, weakly rounded, irregular with diffuse, slightly darker margins abaxially; **interprimary veins** not prominent, with 3 fainter minor veins running between them and the primary lateral veins, with multiple cross-veins very weak when present;

**251.** *Rhodospatha rudasii* (*Rudas et al. 1749*, MO-3887012). Holotype showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.




**252.** *Rhodospatha rudasii* (*Gentry & Emmons 39557*, MO-3146031). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and infructescence.

**adaxial surface** weakly and irregularly ridged; **abaxial surface** minutely bumpy-striate, short pale-lineate.

**Inflorescences: peduncle** ca. 24 cm long, enclosed in a prophyll for half its length, drying light yellowish brown; **spadix** sessile, ca. 12 cm long, 1.2 cm diam. in the middle, markedly curving, drying dark brown.

**Flowers: styles** sub-quadrangular at anthesis, 1.4–1.6 mm long, 1.6–1.8 mm wide, irregular rhombic to subquadrangular, 1.4–1.8 mm long, 2.6–2.4 mm wide; **stigmas** weakly raised, 0.5–0.6 mm long, 0.3–0.4 mm wide, drying pale brown around margin, black medially.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha rudasii* is found in the Leticia area of Amazonas Department of Colombia and in neighboring Loreto Department of Peru at 130–160 m in a *Tropical Wet Forest* life zone.

**Etymology:** This species is named after Colombian botanist Agustin Rudas L who collected the type specimen in Colombia (Amazonas) in 1991. Rudas had the primary role in collecting for the *Flora of Amaycayacu* in the Amazonas Department, which connects Colombia to the Amazon River.

**Comments:** This species dries a similar color to *Rhodospatha vasquezii*, which also grows in the same area, but this latter species has much narrower blades 3.1–4.6 times longer than wide and acute at the base and the apex rather than being obtuse or rounded as is *R. rudasii*.

**Paratypes: PERU**. **Loreto:** Negro Urco, Río Napo, non-inundated forest on lateritic soil, 03°10'S 73°28'W, 160 m, 20 January 1983, *A. H. Gentry & L. H. Emmons 39557* (MO); Maynas: Yanomono, Explorama Tourist Camp between Indiana and mouth of Río Napo, 72°48’W, 3° 28’S, 130 m, 18 February 1981, *Gentry et al. 31443* (MO); Explorer’s Inn, Río Amazonas near Indiana, 73°03’W 03°30’S, 130 m, 21 February 1988, *Gentry et al. 61782* (MO).

***Rhodospatha rupicola*** Edwin Trujillo, Zuluaga & Alzate-Lozano, Caldasia 41(2): 322. 2019. — Type: COLOMBIA. Caquetá: Belén de los Andaquíes, camino a la finca ecoturística El Horeb, 15 metros antes del puente sobre el río Sarabando, 01°25''04"N 75°54'22"W, 343 m, 16 September 2016, *E. Trujillo-Trujillo & D. Castro 3499* (holotype, CUVC; isotypes COAH, COL). (**Figs. 253**–**256**).

**253.** *Rhodospatha rupicola*. *Ex-situ* live plant showing post anthesis inflorescence. (Photo: O. M. Lopez).

**254.** *Rhodospatha rupicola.* (*Oscar M. Lopez 9952*). Hand-held plant showing stem for rupicolous growth. (Photo: O. M. Lopez).

**Habit:** mostly rheophytic, or terrestrial or epipetric, 26–38 cm high, typically on rocks in waterfalls or on the edge of small rivers and streams, occasionally at the base of trees near rivers; **roots** 0.5–2.5 mm diam.

**Stem: internodes** 0.4–1.3 cm long, 0.3–0.9 cm diam.

**Leaves:** clustered toward the distal portion of the stem; **petioles** 5.8–14.0 cm long, drying orange-brown to black; **sheath** 4.2–11.8 cm long, covering more than 3/4 of the petiole length, drying orange-brown to black, persistent at the base and deciduous at the apex; **genículum** 1.3–3.3 cm long, 0.1–0.3 cm diam., darker green than the petiole, drying dark olive-green to black; **blades** membranous, narrowly elliptical, 17–28 cm long, 1.7–5.8 cm wide, 5–9 times longer than wide, acuminate at the apex, decurrent at the base, drying orange-brown to dark olive-green adaxially, lighter abaxially; **primary lateral veins** 7–13 per side, spaced 7–26 mm, departing midrib at 18–53° at the base, 11–37° near the apex, prominent abaxially, drying orange-brown to dark olive-green; **interprimary veins** conspicuous.

**Inflorescences:** erect, 1 per axil; **prophyll** 7.6–9.1 cm long, persistent, darker green than the peduncle, drying dark brown to black; **peduncle** whitish green, (5.6)8.3–15.8 cm long, 1–4 mm diam., drying orange-brown to dark brown; stipe 3–8 mm long, spathe widely elliptical to rounded, 7.0–8.5 cm long, 4.6–6.8 cm wide, white, drying dark brown to orange-brown, acuminate at apex; **spadix** cylíndrical, conical at the apex, whitish green to white, (1.8)3.4–5.3 cm long, 4–8 mm diam., drying dark brown.

**Flowers:** 4 or 5 in the primary spiral of the spadix, 5–7 in the secondary; **stamens** 4, 1.5–1.9 mm long, filament flattened, 1.0–1.4 mm long, 0.5–0.9 mm wide; **anthers** 0.5–0.8 (0.9) mm wide, 0.5–0.8 mm long; **gynoecium** prismatic 1.5–2.2 mm long, 1.7–2.3 mm diam., regularly pentagonal in upper view, or sometimes hexagonal with four sides larger, 1.1–1.6 mm long and two shorter, 0.3–0.6 mm long, rarely 4-sided especially in the upper flowers.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha rupicola* is known only from the east side of the Andes, in Caquetá Department at 300 –520 m in a *Premontane Wet Forest* life zone. It grows mainly as a rheophytic herb on rocks and waterfalls.

**Comments:** The species is distinguished by being a rheophyte growing on rocks on waterfalls or along small rivers and creeks. The stem forms a rhizome and has short internodes, the spathe is widely elliptic, not exceeding the spadix by more than 1.5 cm.

**255.** *Rhodospatha rupicola.* (*Oscar M. Lopez 9952*). Hand-held flowering plant. (Photo O. M. Lopez).

**256.** *Rhodospatha rupicola.* (*Oscar M. Lopez 9952*). Hand-held flowering plant with inflorescences at anthesis. (Photo: O. M. Lopez).

The round shape of the inflorescence and its white color resemble those from the genus *Monstera*, and this combination of traits is not found in other *Rhodospatha* species.

**Other Specimens Seen: COLOMBIA. Caquetá:** Belén de los Andaquíes, parque Bosque La Resaca, 01°26’13”N, 75°52’53”W, 379 m, 19 February 2013, *W. Trujillo WT2964* (COAH); Belén de los Andaquíes, parque bosque micro cuenca La Resaca, 01°26’04”N 75°52’ 53”W, 332 m, 25 October 2010, *D. Cárdenas 40669* (COAH); Belén de los Andaquíes, camino entre la quebrada La Arenosa y Filo de Hambre, 1 June 2016, *N. Marín 2765* (COAH); Belén de los Andaquíes, vereda La Resaca, 01°25’59”N, 75°52’32”W , 309 m, June 2013, *V. Vargas VA48* (COAH); Belén de los Andaquíes, camino a la posada de los Andaquíes, 01°28’24”N, 75°52’ 09”W, 520 m, January 2019, *E. Trujillo-Trujillo 4280* (CUVC).

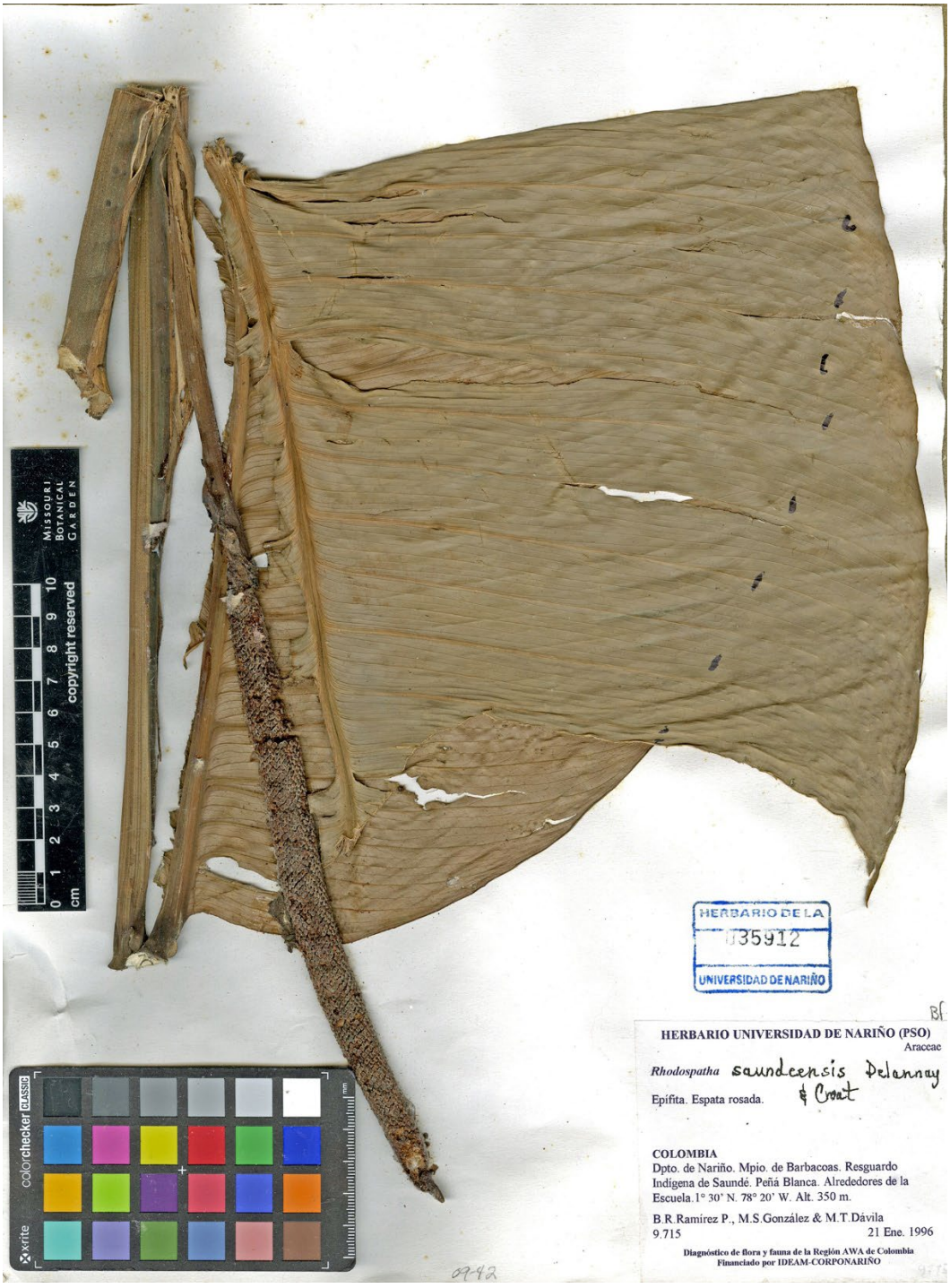
***Rhodospatha saundeensis*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Nariño: Mpio. De Barbacoas, Resguardo Indigena de Saundé, alrededores de la escuela, 01°30'N 78°20'W, 350 m, 21 January 1996, *B. R. Ramirez P. et al. 9715* (holotype, PSO-35912). (**Fig. 257**).

**Diagnosis:** *Rhodospatha saundeensis* is characterized by its appressed-climbing, epiphytic habit; large, ovate-elliptic blades drying light gray-brown and widely spaced primary lateral veins with the interprimary veins and minor veins interconnected by prominent cross-veins; and long, glaucous spadix with subrounded to oval styles.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, to at least 2.5 cm diam.

**Leaves: petioles** ca. 30 cm long, sheathed to the geniculum, drying grayish yellow-brown, thickly ribbed, densely thick short-pale-lineate; **sheath** dark gray-brown, many-ribbed, matte, tightly incurled, mostly persistent, deciduous, drying medium brown with darker edges; **geniculum** ca. 3 cm long, deeply sulcate, drying blackened, matte; **blades** ovate-elliptic, ca. 60 cm long, 40 cm wide, 1.5 times longer than wide, rounded at base, widest above the middle, drying light brownish gray, semiglossy adaxially, light brownish gray and semiglossy abaxially; **midrib** prominently raised, drying darker, brownish, and sunken, prominently ribbed longitudinally and minutely granular adaxially, slightly darker, yellowish brown, matte, densely granular-puberulent abaxially; **primary lateral veins** ca. 30 per side, spaced 1.5–2.0 cm, departing midrib at 75–90°,




**257.** *Rhodospatha saundeensis* (*Ramirez P. et al. 9715*, PSO-35912). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

obtusely raised, concolorous, slightly paler adaxially, narrowly rounded, densely puberulous-granular; **interprimary veins** weak, narrowly rounded, glabrous with usually 2 minor veins running on each side and with prominent cross-veins interconnecting them; **adaxial surface** finely and closely striate-ridged; **abaxial surface** densely reddish brown speckled, thickly pale lumpy granular.

**Inflorescences:** erect; **peduncle** ca. 24 cm long; **spathe** pink, not seen; **spadix** ca. 21 cm long, 1.2 cm diam. at the middle, then tapering toward the apex, pointed at tip.

**Flowers: styles** mostly bluntly rhombic to subrounded or oval, glaucous, 1.6–2.0 mm long in direction of axis, truncate to convex; **stigmas** moderately raised, oblong, ca. 1 mm long, 0.4 mm wide, the medial slit often conspicuous.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha saundeensis* is endemic to Colombia, found only in Nariño Department at 350 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for the Resquardo Indigena de Saundé near Barbacoas in Nariño Department, the only place where it has been found.

**Comments:** Because of its large size, drying light colored, widely spaced primary lateral veins, and densely puberulous-granular blades, this species is unique in the genus.

***Rhodospatha schultesii*** Croat, **sp. nov.** — Type: COLOMBIA. Caquetá: 13 km SE of Morelia along the road to the Río Pescado (SW of Florencia); forested area along streamlet, 01°26'50"N 75°48'54"W, 280 m, 10 January 1974, *G. Davidse, A. H. Gentry & F. Llanos 5678* (holotype, MO-2300082; isotype, COL-1777). (**Fig. 258**).

**Diagnosis:** *Rhodospatha schultesii* is characterized by its terrestrial habit; petioles sheathed for ca. 4/5 their length, with the sheath persistent; oblong-elliptic, blades 2.3–2.7 times longer than wide and drying light grayish green and obtuse at both ends; primary lateral veins rising at an acute angle along the midrib before spreading out and with faint interprimary veins flanked by 1 or 2 minor veins running in parallel between them; and inflorescences with a peduncle enclosed by a brown-drying prophyll for ca. 3/5–4/5 its length, white spathe, and pinkish spadix.

**Habit:** terrestrial.

**258.** *Rhodospatha schultesii* (*Gerrit Davidse et al. 5678*, MO-2300082). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), peduncles, and post-anthesis spadices.

**Stem: internodes** short, 1.5–2.5 cm diam.

**Leaves: petioles** 25–36 cm long, drying pale to medium brown, sheathed for ca. 3/5–4/5 their length; **sheath** margin narrow, persistent, drying yellow-brown to gray-brown, ribbed, often pustular, granular and puberulent; **geniculum** ca. 2 cm long, drying slightly darker, sulcate; **blades** oblong-elliptic to narrowly ovate-lanceolate, 37–46 cm long, 16.0–18.5 cm wide, 2.3–2.7 times longer than wide, slightly inequilateral, usually obtuse and abruptly short-acuminate, sometimes acute-attenuate at apex, usually obtuse and slightly decurrent, sometimes acute-attenuate at base, widest near the middle or slightly below middle, drying light greenish gray adaxially, light yellowish brown abaxially; **midrib** drying concolorous to slightly paler, sometimes densely dark short-streaked adaxially, broadly rounded to round-raised, slightly paler and finely ridged, sometimes weakly hispidulous abaxially; **primary lateral veins** 25– 30 per side, spaced 6–13 mm, departing midrib first at an acute angle then spreading at 50–60° along the midrib before curving up toward the edge, drying broadly convex, concolorous to slightly paler, sometimes undulate adaxially, narrowly rounded, slightly darker abaxially; **interprimary veins** faint, with 1–3 minor veins running in parallel between them and the primary lateral veins; **adaxial surface** drying smooth and plain, sometimes weakly pale-speckled; **abaxial surface** densely dark (somewhat purplish) speckled or sometimes densely thick pale-granular (*Garcia-Barriga 14916*).

**Inflorescences:** erect; **peduncle** 21–41 cm long, pinkish when young, drying light brown, enclosed by a brown-drying prophyll for ca. 3/5–4/5 its length; **spathe** 10–11 cm long, white or green, readily deciduous (*Davidse et al. 5678*); **spadix** 6.5–12.5 cm long, 6–10 mm diam; pinkish when young, turning bluish green in age, sometimes yellow (*Garcia-Barriga 14916*).

**Flowers: styles** 1.8–2.6 mm wide in broadest dimension, mostly square-twisted with the corners mostly narrowed and acute, turning outward, truncate, gray-matte, seemingly glaucous; **stigmas** drying blackish, 0.6–0.8 mm long, 0.4–0.5 mm wide, the medial slit usually weakly visible.

**Infructescences: spadix** green, 13.0–13.5 cm long, 2.0–2.5 cm diam., greenish.

**Fruits: seeds** ear-shaped, somewhat shaped like J in lateral view, ca. 1.8 mm long, 0.6 mm thick, the inner margin excavated, nearly colorless, somewhat yellowish, stacked in piles of 6–8 seeds on their side, seemingly with 4 or 5 locules.

**Distribution and ecology:** This species is endemic to Colombia, found in the Amazon Basin in Caquetá, Putumayo, and Vaupés Departments at 260–560 m in a *Tropical Moist Forest* life zone**.**

**Etymology:** This species is named in honor of the late Richard E. Schultes who collected one of the first specimens of it in 1953. Schultes of Harvard University and famous for his anthropological studies, mostly in the Amazon basin, was apparently fond of Araceae because he collected and even described a number of new species of them.

**Comments:** *Rhodospatha schultesii* resembles *R. plowmanii*, but this latter species dries a darker green and is found outside of the Amazon basin near the Caribbean in the Santa Marta region of Magdalena Department, much farther north than where *R. schultesii* is found. It also grows at a much higher elevation (1300 m).

**Other Specimens Seen: COLOMBIA**. **Putumayo:** Río Putumayo, Puerto Ospina and vicinity, 00°10'N 75°50'W, 23–26 March 1953, *R. E. Schultes & I. Cabrera 18958* (GH, MO, US). **Vaupés:** Cerro de Mitu, 01°05'08"N 70°14'59"W, 380–560 m, 22 October 1952, *H. García Barriga 14916* (COL, G).

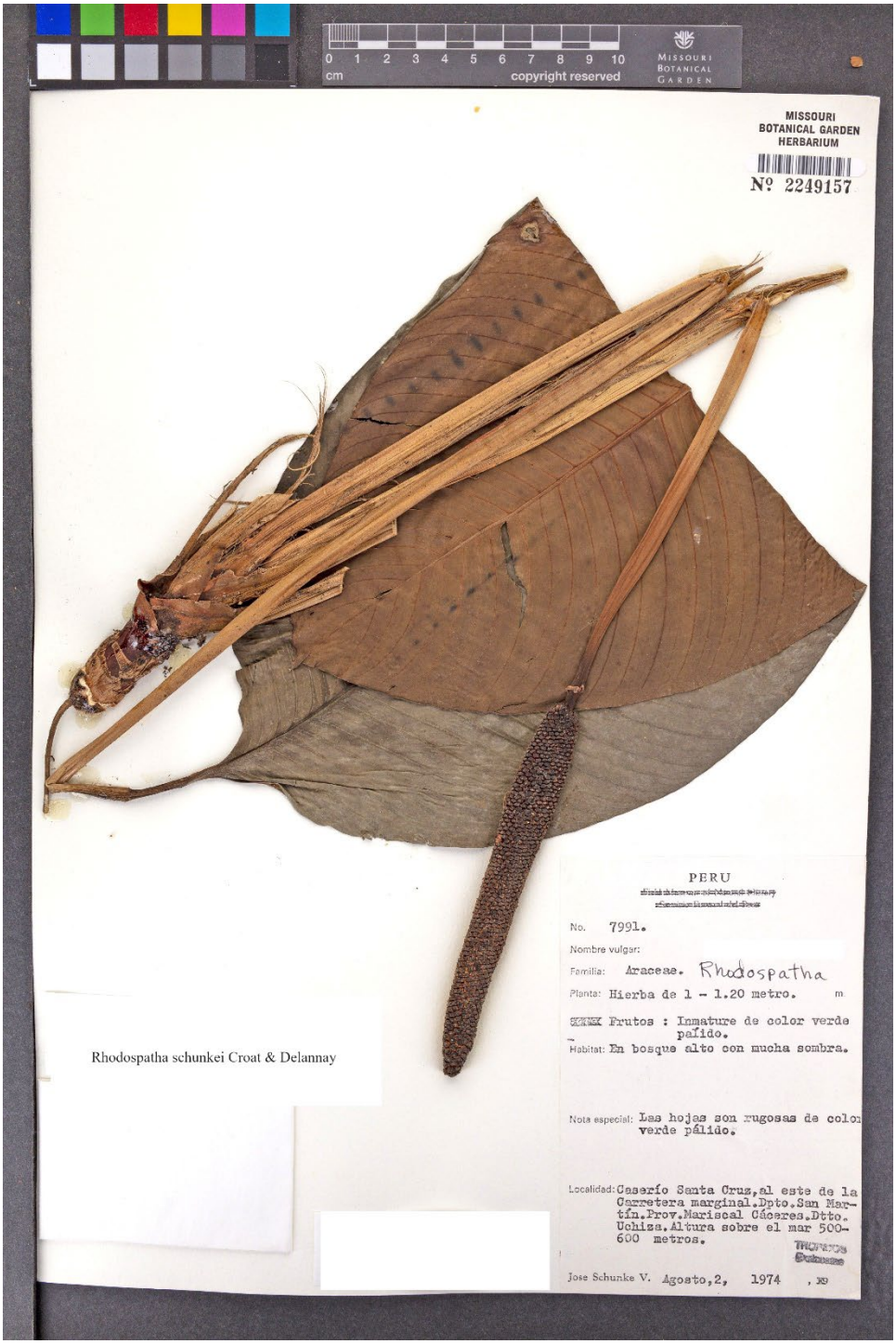
***Rhodospatha schunkei*** Croat & Delannay, **sp. nov.** — Type: PERU. San Martín: Mariscal Cáceres, Caserío Santa Cruz, al este de la Carretera marginal, 600 m, 2 August 1974, *J. Schunke V. 7991* (holotype, MO-2249157-58). (**Figs. 259–260**).

**Diagnosis:** *Rhodospatha schunkei* is characterized by its terrestrial habit; long, medium petioles drying yellow-brown and sheathed for ca. 1/3 their length with the sheath deciduous in large fragments; moderately bicolorous, weakly glossy, elliptic, weakly short-acuminate blades drying greenish gray adaxially, yellow-brown, densely granular and short pale-lineate abaxially, 1.8–2.2 times longer than wide and widest at the middle; and closely spaced primary lateral veins with a single faint interprimary vein and 2 or 3 minor veins running between the main veins.

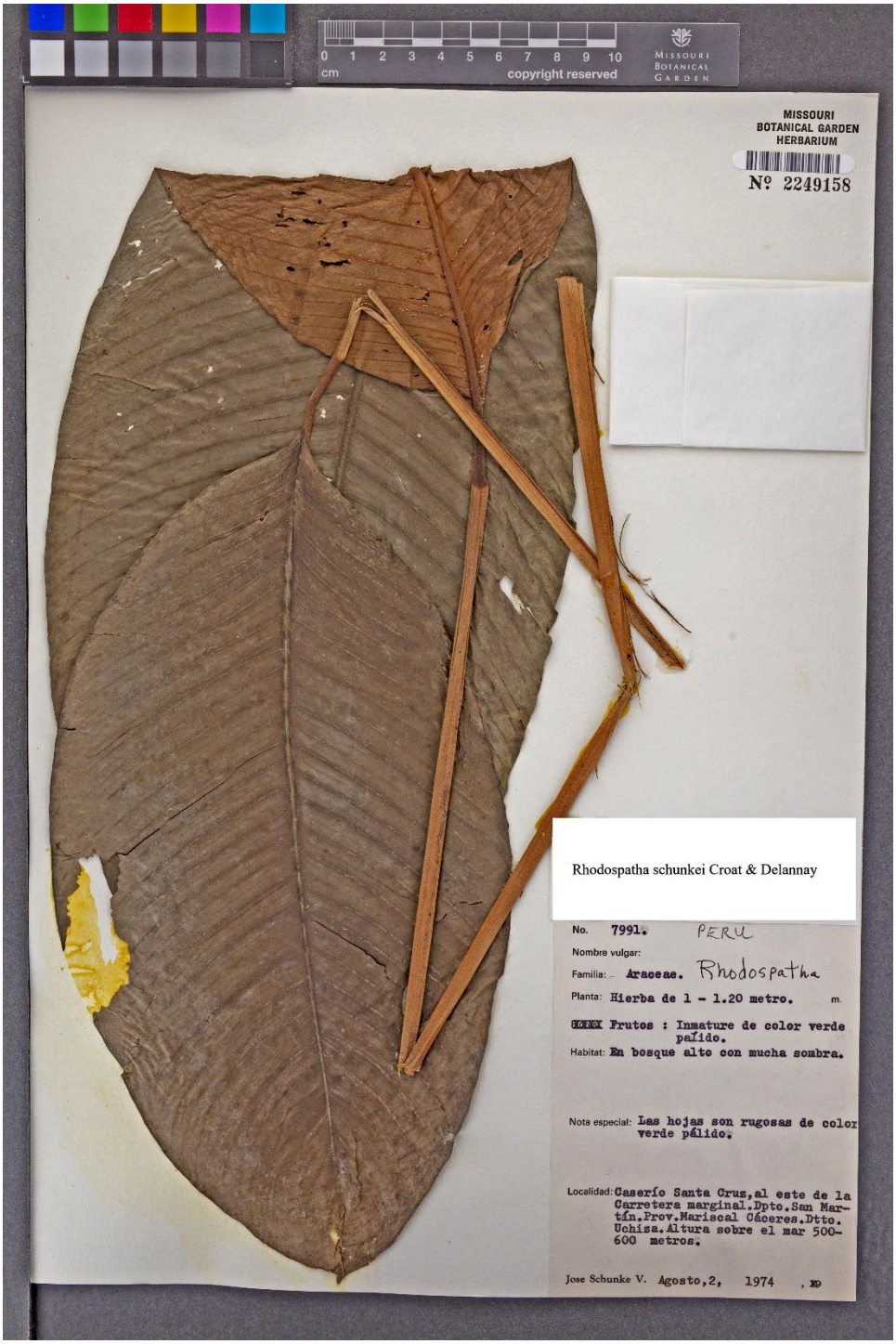
**Habit:** terrestrial to 1.3–1.4 m tall.

**Stem: internodes** short, ca. 3 cm diam.

**Leaves: petioles** 38.5–54.5 cm long, sheathed ca. 1/3 their length; **sheath** 17.0–17.5 cm long, the margin erect, more or less concolorous, soon fragmenting longitudinally into fibers and loose fragments, free part 18.5–36.0 cm long; **blades** elliptic, 39–49 cm long, 16.2–18.1 cm wide, 1.8–2.2 times longer than wide, 0.8-0.9 times as long as petiole, narrowly rounded and short-acuminate at apex, acute to obtuse at base, widest at the middle, drying semiglossy, greenish gray adaxially, reddish brown abaxially; **midrib** drying broadly rounded, concolorous except for a




**259.** *Rhodospatha schunkei* (*Schunke 7991*, MO-2249157). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), peduncle, and post-anthesis spadix.




**260.** *Rhodospatha schunkei* (*Schunke 7991*, MO-2249158). Holotype showing petioles and leaf blades (adaxial and abaxial surfaces).

paler narrow medial band, weakly ribbed adaxially, prominently raised, narrowly rounded, darker, matte and ribbed-granular abaxially; **primary lateral veins** 31–35 per side, spaced 0.7–1.3 cm, departing midrib at 60–70°; **interprimary veins** solitary, faint, with 2 or 3 minor veins running on each side.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha schunkei* is endemic to Peru, found only in San Martín Department at 6000 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of José Schunke-Vigo who collected the only known specimen in 1980.

**Comments:** *Rhodospatha tocachensis*, another terrestrial species growing in the same area, differs from *R. schunkei* by its shorter petioles with a deciduous sheath breaking into a dense array of pale fibers at the base; less elongated blades (1.2–1.8 times longer than wide vs. 2.3–2.4 times for *R. schunkei*) and drying olive-green adaxially and yellowish brown abaxially (vs. dark grayish green adaxially and medium grayish brown abaxially for *R. schunkei*); and by its much larger spadix, which is as long as the spathe.

***Rhodospatha silverstonei*** Croat, **sp. nov.** — Type: COLOMBIA. Chocó: San José del Palmar, Cerro del Torrá, vertiente oriental, trocha arriba del helipuerto, bosque nublado primary, 04°47'51"N 76°30'53"W, 1940–2160 m, 1 September 1988, *P. A. Silverstone-Sopkin, N. Paz Z;,R. T. González, J. E. Ramos, L. H. Ramos & A. Henao 4975* (holotype, MO-3790468-69). (**Figs. 261–262**).

**Diagnosis:** *Rhodospatha silverstonei* is characterized by its moderately large size and epiphytic habit; stems sometimes extending horizontally; moderately long internodes drying blackish and clasped by remnants of petiole bases; large, oblong-elliptic, distichous leaves with blades 2.2–2.5 times longer than wide and drying gray to medium greenish brown adaxially, dark purplish brown abaxially; primary lateral veins with 1–3 minor veins running in parallel between them and the interprimary veins and connected by a network of cross-veins; and large inflorescences with a pendent and curved, short-cylindroid, green spadix. Perhaps most notably, this species has a

**261.** *Rhodospatha schunkei* (*Schunke 7991*, MO-2249158). Holotype showing petioles and leaf blades (adaxial and abaxial surfaces).

**262.** *Rhodospatha silverstonei* (*Silverstone-Sopkin et al. 4975*, MO-3790469). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), peduncle, and infructescence.

strange and seemingly unique venation where all the minor veins, including the smallest reticulate veins, are markedly raised.

**Habit:** Moderately large, epiphytic herb, 2–3 m tall.

**Stem:** sometimes extending horizontally to 1.8 m long; **internodes** 2– 4 cm long, ca. 13 mm diam., clasped by remnants of petiole bases, drying blackish.

**Leaves: petioles** ca. 45 cm long, drying blackish at the base, dark brown distally, sheathed to the geniculum; **sheath** margin wide, inrolled tightly with margins overlapping and persistent; **geniculum** 3–4 cm long; **blades** oblong-elliptic, 52–60 cm long, 21.5–28.0 cm wide, 2.2–2.4 times longer than wide, slightly inequilateral, obtuse and abruptly short-acuminate at apex (acumen ca. 1 cm long), obtuse and slightly decurrent at base, widest near the middle, drying medium greenish brown to grayish brown adaxially, dark purplish brown abaxially; **midrib** drying deeply sunken, concolorous, closely ribbed longitudinally with prominent close cross-veins adaxially, markedly raised, paler and distinctly ribbed abaxially; **primary lateral veins** 20–30 per side, spaced 1.0–2.5 cm, departing midrib first at an acute angle then spreading out at 65–75°, deeply sunken and concolorous adaxially, narrowly rounded to round-raised, granular or finely and irregularly ridged, concolorous to paler abaxially; **interprimary veins** indistinct, scarcely less prominent than primary veins with 3–6 minor veins running in parallel between them and the primary lateral veins, connected by a network of cross-veins; minor veins and reticulate veins markedly raised, consisting of acute ridges, concolorous adaxially, less conspicuous, only weakly raised, narrowly rounded and irregularly knobby, concolorous abaxially; **adaxial surface** seemingly smooth but overwhelmed by the strongly raised tertiary and reticulate venation; **abaxial surface** unusually dense reticulate venation (so dense that veins scarcely apparent).

**Inflorescences:** pendent; **peduncle** 24–27 cm long, drying blackish brown, enclosed for the first 2/3 to 3/4 within a petiole sheath and then curving out to the pendent spadix; **spathe** not seen; **spadix** stipitate 5–6 mm, curving and pendent, 21–24 cm long, 2.0–2.5 cm diam., green.

**Infructscences:** not seen.

**Distribution and ecology:** The species is endemic to Colombia, found in Chocó and Valle Departments at 1700–2160 m in a *Premontane Rain Forest* life zone.

**Etymology:** This species is named in honor of the late Dr. Philip Silverstone-Sopkin who collected the first known specimen in 1982. Silverstone, trained as a herpetologist, soon became more interested in plants after moving from the U. S. to Colombia. He spent the remainder of his career

at the Universidad del Valle and was eventually put in charge of the herbarium. Owing to his persistent efforts, the herbarium eventually got a new on-campus building.. Silverstone's main interest was the study of the remnant vegetation in the Cauca River Valley. Another of his significant achievements was his extensive study of Cerro Torrá on the border of Valle and Chocó Departments.

**Comments:** Because of its unique venation, *Rhodospatha silverstonei* does not resemble any other *Rhodospatha* species, or indeed, any other aroid. The strange, prominently reticulated and prominently raised minor venation is unique. Also, this species is characterized by its large size or habit, drying blackish. and pendent inflorescence with a curving spadix.

**Paratypes: COLOMBIA. Chocó:** San José del Palmar, Cerro del Torrá, vertiente nordeste, abajo de helipuerto, bosque de neblina primario, 1850–1940 m, 13 August 1982, *P. A. Silverstone-Sopkin 1350* (CAS). **Valle**: Mun. Cali, Vereda de Aguila, Trail to La Voragine from el Club del Departmento, 1700 m, 22 September 1994, *M. Gamboa 332* (MO).

***Rhodospatha simitiensis*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Bolivar: Santa Rosa de Simiti, inspección de Los Canelos, verda La Libertad, 700 m, 25 May 1986, *H. Cuadros V. 2655* (holotype, MO-5097058-59). (**Figs. 263–264**).

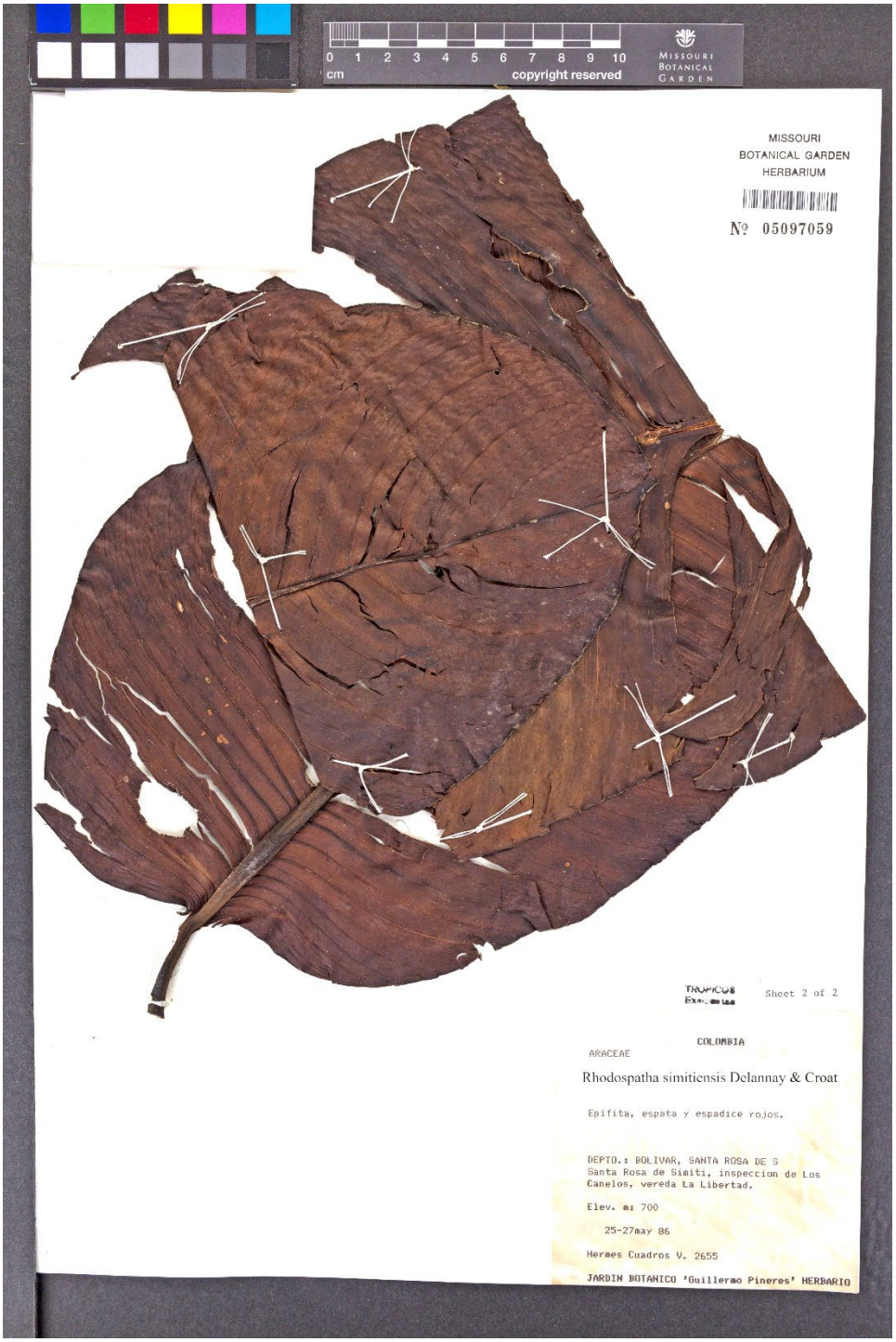
**Diagnosis:** *Rhodospatha simitiensis* is characterized by its appressed-climbing, epiphytic habit; drying dark reddish brown overall[; ovate-elliptic blades 2.1–2.2 times longer than wide and rounded at both ends with three interprimary veins and an apparent lack of parallel minor veins and prominent cross-veins; and red spathe and spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, to at least 2.5 cm diam.

**Leaves: petioles** ca. 33 cm long, sheathed to the geniculum, drying unribbed, densely low-granular; **sheath** drying paler brown, evenly low-ribbed, densely dark brown granular, these scrapable, mostly deciduous in large pieces; **geniculum** ca. 3 cm long, drying deeply and narrowly sulcate; **blades** ovate-elliptic, ca. 58 cm long, 26–28 cm wide, 2.1–2.2 times longer than wide, rounded and short-acuminate at apex, markedly inequilaterally rounded to weakly subcordate and weakly decurrent at base, widest near the middle, drying dark reddish brown on both surfaces, semiglossy adaxially, glossy abaxially; **midrib** drying concolorous, prominently raised

**263.** *Rhodospatha simitiensis* (*Cuadros 2655*, MO-5097058). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).




**264.** *Rhodospatha simitiensis* (*Cuadros 2655*, MO-5097059). Holotype showing leaf blade (adaxial and abaxial surfaces).

abaxially; **primary lateral veins** ca. 30 per side, closely spaced, departing midrib at 60–75°, broadly rounded and weakly paler, sometimes in a weak trough adaxially, narrowly rounded, dark brown with small distinct pale round granules covering most of the abaxial surface; **interprimary veins** weak, usually three with none dominating, thus appearing as minor veins running on each side, interconnected by prominent cross-veins.

**Inflorescences: spathe** and **spadix** red.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha simitiensis* is endemic to Colombia, found only in Bolivar Department at 700 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named for Santa Rosa de Simiti in Bolivar Department, the only place where it has been found.

**Comments:**This species resembles *Rhodospatha rosaortiziae* from Magdalena Department, which dries similarly reddish brown, but the latter species differs by its longer blades (2.9 times longer than wide vs. 2.1–2.2 times) obtuse at both ends, rather than being rounded in the case of *R. simitiensis*, and by its less prominent secondary venation. *Rhodospatha simitiensis* might be unique in having both a red spathe and red spadix.

***Rhodospatha sparrei*** Croat, **sp. nov.** — Type: ECUADOR. Esmeraldas: San Lorenzo, "Proyecto NO", at the end of new road (km 14), primary tropical rain forest, 19 August 1967, *B. Sparre 18188* (holotype, S). (**Fig. 265**).

**Diagnosis:** *Rhodospatha sparrei* is characterized by drying light grayish green overall; ovate-elliptic blades 2.5 times longer than wide and its widely spaced interprimary veins with multiple minor veins and cross-veins between them and the interprimary veins.

**Habit:** not seen.

**Stem: internodes** short, ca. 2 cm diam.

**Leaves: petioles** ca. 40 cm long, drying pale grayish green, sheathed for 2/3 their length; **sheath** margin narrow, persistent; **geniculum** ca. 3 cm long; **blades** ovate-elliptic, ca. 52 cm long, 21 cm wide, 2.5 times longer than wide, slightly inequilateral, obtuse and short-acuminate at apex, obtuse and slightly decurrent at base, widest below the middle, drying light grayish green

**265.** *Rhodospatha sparrei* (*Sparre 18188*, S). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), peduncle, and infructescence.

adaxially, slightly lighter abaxially; **midrib** drying concolorous adaxially, lighter abaxially; **primary lateral veins** ca. 30 per side, spaced 1.0–1.5 cm, departing midrib first at an acute angle then spreading at 70–80°, drying concolorous; **interprimary veins** faint, with 2 minor veins running in parallel between them and the primary lateral veins, connected by a network of cross-veins.

**Inflorescences:** erect; **peduncle** ca. 41 cm long, medium brown, enclosed by a grayish-green-drying prophyll for ca. 3/4 its length; **spathe** not seen; **spadix** 6.5–12.5 cm long, 6–10 mm diam., yellow or bluish green.

**Infructescences: spadix** ca. 13 cm long, 1.5 cm diam., drying dark brown.

**Distribution and ecology:** This species is endemic to Ecuador, found only in the San Lorenzo area of Esmeraldas Province in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named in honor of the late Swedish botanist Dr. Brenkt Sparre who collected the only known specimen in 1967. Sparre was co-author of the Flora of Ecuador project and along with senior author Gunner Harling conducted many field expeditions in Ecuador. He worked at the Riksherbarium in Stockholm for most of his career.

**Comments:** *Rhodospatha sparrei* stands out due to drying light grayish green and its widely spaced interprimary veins with multiple minor veins and cross-veins between them and the interprimary veins. It is unique among all other *Rhodospatha* species growing in its area.

***Rhodospatha statutii*** Sodiro, Anales Univ. Centr. Ecuador 22 (162): 276. 1908. — Type: ECUADOR. Pichincha: between Nanegal and Gualea, *Sodiro s.n.* (holotype, QPLS, not seen, apparently lost). (**Not illustrated**).

**Habit:** not seen.

**Stem:** ascending; **internodes** 2–4 cm long, 1.5 cm diam.

**Leaves: petioles** 30–35 cm long, striate dorsally, sheathed to the geniculum; **geniculum** 2.0–2.5 cm long, marginate; **blades** subelliptic, ca. 30 cm long, 12 cm wide midway, shortly acuminate at the apex, acute at the base, shortly cuneate onto the geniculum, subcoriaceous (fragile on drying), dark green adaxially, paler abaxially; **midrib** sunken adaxially, prominently obtuse abaxially; **primary lateral veins** 50–60 per side, departing at ca.45°, sunken adaxially, raised abaxially, 3–4 mm apart, alternating with the interprimary veins.

**Inflorescences: peduncle** somewhat shorter and more slender than the petioles; **spathe** (immature) 10–12 cm; **spadix** (immature) cylindroid, 10–12 cm long, 7–8 mm diam.

**Flowers: stamens** 4, **filaments** broadly linear, compressed; **anther** thecae moderately protruded above the connective; **ovary** 2–locular, obpyramidal, prismatic; locules with many ovules; **ovules** shortly lenticular, anatropous; **styles** tetragonous, coriaceous, truncate at the apex; **stigmas** oblong, medially.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha statutii* is endemic to Ecuador and known only from the type locality between Nanegal and Gualea. No herbarium material of the species exists at the Sodiro herbarium in Ecuador.

**Comments:** No specimens resembling this species have been found since its publication by Sodiro in 1908.

***Rhodospatha stenophyllon*** Croat & Delannay, **sp. nov.** — Type: ECUADOR. Zamora-Chinchipe: Loja- Zamora along Río Zamora near bridge which crosses Río Zamora, 39 km E. of Loja, 04°05'S, 79°00'W, 610 m, 18 October 1980, *T. B. Croat 50760* (holotype, MO-2824585; isotype, K, QCNE). (**Figure 266**).

**Diagnosis:** *Rhodospatha stenophyllon* is characterized by it epiphytic, scandent habit; fully sheathed petiole; sheath with mostly persistent margins; sulcate geniculum; oblong-lanceolate, scarcely bicolorous, narrowly acute-apiculate blades drying brown and 5.4–7.0 times longer than wide, coarsely short-areolate-ridged adaxially, densely dark-speckled abaxially; and weakly stipitate, cylindroid-tapered, green spadix with rounded-prismatic styles and a dominating oval stigma.

**Habit:** epiphytic, scandent vine climbing steep riverbanks.

**Stem: internodes** 1.5–4.0 cm long, 0.5 cm diam., olive-green.

**Leaves: petioles** 6.5–10.0 cm long, fully sheathed, usually contacting the geniculum, densely granular on the shaft; **sheath** somewhat conspicuous, 6.0–9.5 cm long, the margins persisting mostly intact, separated from the shaft by a weakly raised pale rib with aereolate cells, densely granular like the shaft; **geniculum** sulcate, 3–4 mm long, drying blackened; **blades** oblong-

**266.** *Rhodospatha stenophyllon* (*Croat 50760*, MO-2824585). Holotype showing petioles, leaf blades (adaxial and abaxial surfaces), peduncle, and post-anthesis spadix.

lanceolate, 12–20 cm long, 2–3 cm wide, 5.4–7.0 times longer than wide, narrowly acute-apiculate at apex, obtuse to acute at base, drying moderately coriaceous, scarcely bicolorous, dark brown and matte adaxially, dark grayish brown and matte abaxially; **midrib** bluntly and narrowly sulcate and weakly paler with narrowly rounded raised, granular-ridged margins adaxially, round-raised, slightly darker and densely pale-speckled abaxially; **primary lateral veins** 8–11 per side, departing midrib at 35–40°, scarcely visible adaxially, narrowly rounded and faintly visible abaxially; **interprimary veins** moderately weak, alternating with an even weaker pair of minor veins; **adaxial surface** drying coarsely short-areolate-ridged; **abaxial surface** drying densely dark-speckled (this often appearing as pale speckles owing to vision of the space between the dark speckles).

**Inflorescences:** stipitate ca. 7 mm (stipe ca. 2.5 mm diam.); **spadix** green, cylindroid-tapered, ca. 9.5 cm long, 7–12 mm diam.; **styles** 1.8–2.4 cm long, rounded-prismatic, sometimes rhombic, drying blackish, matte, not glaucous; **stigmas** 1.0–1.3 mm long, oval, raised with a pale brown margin, black and slightly depressed medially.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha stenophyllon* is endemic to Ecuador, known only from the type locality along the Río Zamora at 610-2000 m in a *Lower Montane Moist Forest* life zone.

**Etymology:** This species is named from the Greek *stenos* (meaning narrow) and *phyllon* (leaf) because of its very slender leaves.

**Comments:** This species has been confused with *Rhodospatha acosta-solisii*, the latter of which differs in having more ovate-elliptic to oblong-elliptic blades only 2.5–2.8 times longer than wide. *Rhodospatha stenophyllon* might also be confused with *R. brentberlinii*, which has similarly shaped leaves and long internodes, but that species differs in having more gradually acuminate acuminate leaf blades drying light grayish to light brownish; shorter, less widely winged petioles with a narrower, more fragmented sheath; and more long-stipitate, proportionately stubbier spadix.

**Paratypes: ECUADOR**: **Zamora-Chinchipe:** Area of Estación Cientifica San Francisco, road Loja-Zamora, ca. 35 km from Loja; moist montane forest. Q2; 03°58'S 79°04'W, 2000 m, 25 October 2004, *F.A. Werner 1260* (MO).

***Rhodospatha steyermarkii*** G. S. Bunting, Phytologia 60: 337. fig. 52. 1986. — Type: VENEZUELA. Sucre: Peninsula de Paria, slopes above Quebrada Nivardo, tributary of Río Caverna (a tributary of the Río Oscuro, above Mundo Nuevo E of Cerro de Humo, 700-750 m, 7 August 1966, *Steyermark & Rabe 75797* (holotype, MO-2672933; isotypes, K, NY, US, VEN). (**Fig. 267**).

**Habit:** appressed–climbing epiphyte.

**Stem: internodes** 2–15 cm long, short near the apex, 1–2 cm diam., dark green and glossy, drying ca. 1 cm diam., dark reddish brown, matte, closely fissured; adventitious roots produced at the nodes.

**Leaves:** chartaceous, clustered near the stem apex, probably distichous; **petioles** 38–59 cm long, more or less equaling the blades (usually very slightly shorter), drying reddish brown, obscurely ribbed adaxially, sheathed to within 3–6 cm of the geniculum, ending almost imperceptibly at apex; **sheath** margins weathering and persisting as a few fibers and some elongate fragments of epidermis; the unsheathed portion of the petiole and the geniculum thicker than broad, weakly sulcate adaxially; **geniculum** 2.7–6.0 cm long; **blades** more or less elliptic to oblong-elliptic, 38.3–60.0 cm long, 19.5–27.0 cm wide, broadest just below the middle, 1.8–2.4 times longer than wide, weakly inequilateral (one side ca 1.5 cm wider), somewhat rounded as well as abruptly and somewhat irregularly acuminate at apex, obtuse to acute or somewhat rounded and somewhat unequal or sometimes equal at base, usually weakly decurrent onto the geniculum, dark green and glossy and sometimes with a metallic grayish-green sheen adaxially, dull green abaxially, drying dark olive-green to gray-brown or brown adaxially, reddish brown abaxially, the surface minutely reddish-dotted or reddish-granular-dotted; **midrib** sunken adaxially, thicker than broad abaxially; **primary lateral veins** 22–27 per side, 7–17 mm apart, prominently departing midrib at a steep acute angle, then spreading at 70–90° in a weak arc to the margin, sunken adaxially, prominently raised abaxially, drying raised on both surfaces, slightly paler than or slightly darker than the surface (the latter in Trinidad only); **interprimary veins** none or 1, often very weak, usually less prominently down-turned at the midrib than the primary lateral veins; minor veins moderately few and widely spaced, usually only one alternating with the primary and interprimary veins, sometimes 2 or 3; all of the lateral veins sometimes somewhat undulate; cross-veins usually weak, irregular, mostly toward the margin.

**Inflorescences:** erect, long-pedunculate; **peduncle** 28–40 cm long, drying 4–6 mm diam. near the apex, drying brown; **spathe** lost (rose–colored according to the original notes), with a

**267.** *Rhodospatha steyermarkii* (*Steyermark & Rabe 96161*, MO-2672933). Specimen showing stem, petiole, leaf blade (adaxial and abaxial surfaces), peduncles, and post-anthesis spadices.

conspicuous annular, cup-like scar; **spadix** (post–anthesis) 17–26 cm long, 1.4–2.5 cm diam., brown, stipitate 2.0–2.8 cm, stipe ca. 4 mm diam., weakly striate.

**Flowers: pistils** yellow-pink, square or irregularly pentagonal to hexagonal at apex, 1.5–2.3 mm diam.; **styles** covered with a thin layer of finely granular wax, the sides mostly straight, sometimes weakly concave or convex, very irregular in length, 1–2 mm long; **stigmas** more or less oblong, weakly raised, 0.9–1.2 mm long, 0.4 mm wide, blackened and depressed medially, bordered with a slender pale, cartilaginous margin; **stamens** held below the surface of the pistils, **anthers** 0.5-1.0 mm long, the thecae oblong, closely parallel.

**Infructescences:** (probably somewhat immature) to 3.5 cm diam., somewhat flattened.

**Fruits:** color unknown; **seeds** tan, concolorous, reniform, 0.7–1.0 mm diam., 0.4 mm thick.

**Distribution and ecology:** *Rhodospatha steyermarkii* is known from northeast Venezuela and Trinidad. In Venezuela it is known only from Cerro de Humo on the Peninsula de Paria at 700–750 m elevation from a *Premontane Wet Forest* life zone. In Trinidad it is known only from a single locality on Piedra Blanca in the northern range between Piedra Blanca and Naranja. Simmonds (1950) reported the species to be unusual in his Group 3c epiphytes (climbers with internodes long and slender, thicker on flowering portions, usually branching and high climbing) in that it may flower in low light situations.

**Comments:** This species is characterized by its appressed-climbing habit; persistent fibrous petiole sheaths; elliptic, weakly inequilateral blades drying somewhat reddish brown with moderately widely spaced primary lateral veins and obscure and irregular cross-veins; and stipitate spadix.

*Rhodospatha steyermarkii* is probably closest to and perhaps even inseparable from *R. bolivarana* from the state of Bolivar in southern Venezuela along the Río Kanarakuni. That species has virtually identical leaf blades but differs in having an entire rather than a fibrous leaf sheath and a closely fissured, reddish brown stem.

The holotype specimen at VEN was annotated *R. pariensis* by Bunting, an unpublished name.

**Other Specimens Seen:** TRINIDAD. Piedra Blanca, *Simmonds 357* (K, TRIN); between Piedra Blanca and Naranja, ca. 580 m, *Simmonds 67* (TRIN).

***Rhodospatha tachirensis*** Delannay & Croat, **sp. nov.** — Type: VENEZUELA. Táchira, along road between Pregonero and La Fundación, 19 Km S of Pregonero; primary forest on rocky slopes, 7°57'N 71°45'W, 1200 m, 9 August 1982, *T. B. Croat 54950* (holotype, MO-3004232-33; isotype, B). (**Figs. 268–269**).

**Diagnosis:** *Rhodospatha tachirensis* is characterized by its terrestrial habit; petioles drying dark brown with the sheath persisting intact; ovate-elliptic blades 2.0–2.5 times as long as wide and drying medium brownish green adaxially and medium reddish brown abaxially; and the midrib drying blackish adaxially. The distinct purplish speckles of the abaxial blade surfaces on juvenile plants and on adult plants the magnified, abaxial dried blade surfaces exhibit an admixture of both dark and light-colored speckles, making the species unique in the genus.

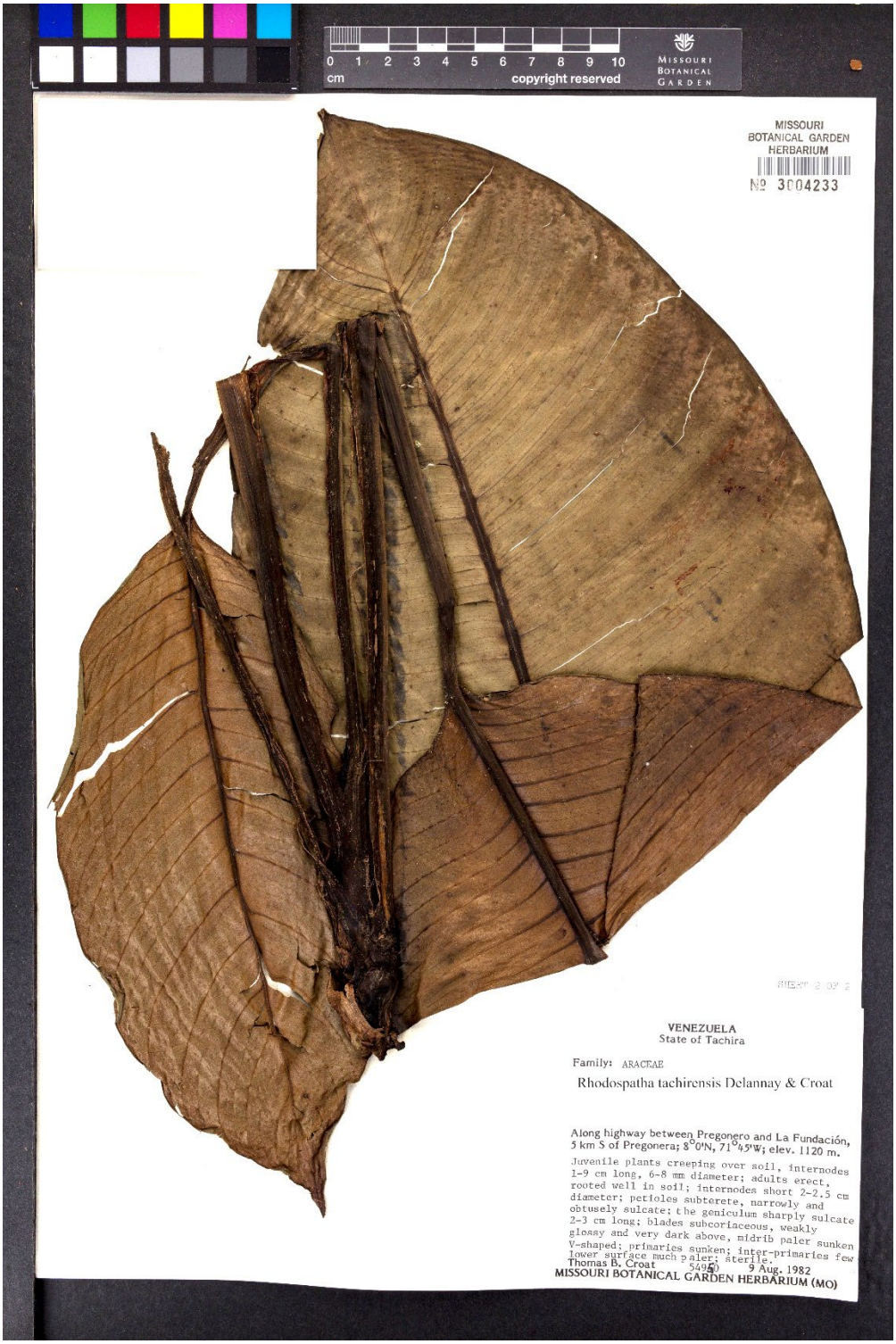
**Habit:** terrestrial; **juvenile plants** creeping over soil.

**Stem: juvenile internodes** 1–9 cm long, 6–8 mm diam.; **adult internodes** 1.5—6.0 cm long, 11.5–12.0 cm diam., drying dark brown.

**Leaves: juvenile petioles** 5–15 cm long; typically sheathed to well short of geniculum, sometimes to within 3.5 cm on preadult plants; **blades** 10–17 cm long, 5–7 cm wide; **adult petioles** 26–40 cm long, drying dark brown to black, sheathed to the geniculum; **sheath** broad, persisting intact, usually ending bruptly, rounded and sometimes free-ending; **geniculum** 2.5–3.5 cm long, sharply sulcate, drying slightly darker; **blades** ovate-elliptic, 31–45 cm long, 13–21 cm wide, 2.0–2.5 times as long as wide, widest near the middle, acute and abruptly to gradually acuminate at apex, equilateral or nearly so, rounded and slightly decurrent at the base, drying medium brownish green and matte adaxially, medium reddish brown and semiglossy abaxially; **midrib** drying concolorous or blackish, bluntly several-ribbed adaxially, darker, acutely 7-ribbed, densely granular abaxially; **primary lateral veins** 14–19 per side, departing midrib at 50–70°, drying concolorous adaxially, slightly darker abaxially; **interprimary veins** weak, with 3 minor veins running in parallel between them and the primary lateral veins, interconnected by weak cross-veins; **adaxial surface** appearing smooth, regularly to irregularly wavy-ridged, sometimes finely and minutely striate-granular; **abaxial surface** densely dark-speckled to pale low-granular, sometime these intermixed, giving a salt-and-pepper appearance.

**Inflorescences:** not seen.

**Infructescences:** not seen.




**268.** *Rhodospatha tachirensis Croat 54950,* MO-3004233). Holotype showing stem, petioles and leaf blades (adaxial and abaxial surfaces).

**269.** *Rhodospatha tachirensis Croat 54950*, MO-3004232). Holotype showing juvenile plants.

**Distribution and ecology:** *Rhodospatha tachirensis* is endemic to Venezuela, found only in Táchira State at 1200–1300 m in a *Tropical Moist Forest* life zone.

**Etymology:** This species is named after the state of Táchira, the only place where it has been found.

**Comments:** Along with *Rhodospatha moritziana*, *R. techirensis* is the only terrestrial species in the genus present in Venezuela. It differs from *R. moritziana* by its smaller leaf blades (to 45 cm long vs. 91 cm for *R. moritziana*) and by the absence of minute reddish-brown dots on the abaxial blade surface.

**Paratypes: VENEZUELA. Táchira:** Along highway between San Cristobal and Delicias, 45 Km S.W. of Bus Terminal in San Cristobal; 21 Km S. of Delicias turn-off in Rubio; 19 Km N of Delicias; disturbed primary forest on steep slopes along small intermittent stream, 7°42'N 72°25'W, 1300 m, 10 August 1982, *T.B. Croat 55027* (COL, MO, PMA, VEN).

***Rhodospatha tocachensis*** Delannay & Croat. **sp. nov.** — Type: PERU. San Martin: Province of Mariscal Caceres, Distrito Tocache Nuevo, Río de la Plata, 8. 10' S 786 25' W, 550-650 m, 2 November 1980, *T. B. Croat 51030 (*holotype, MO 2812610; isotype, K). (**Figs. 270–272**).

**Diagnosis:** *Rhodospatha tocachensis* is characterized by its terrestrial habit; ovate, weakly subcordate blade drying greenish brown and close primary lateral veins with close, branched cross veins; and especially fibrous sheaths extending only to about the middle of the petiole.

**Habit:** terrestrial to ca. 1.8 m tall.

**Stem: internodes** short, to ca. 4 cm long, 3 cm diam., closely cross-fissured, drying yellow-brown, glossy.

**Leaves: petioles** ca. 86 cm long, mix-ribbed, densely speckled, sheathed to about 1/2–2/3 of their length, drying pale yellow-green with longitudinal folds; **sheath** turning light brown, minutely granular on magnification, deciduous, the free portion terete, thicker than broad; **geniculum** to ca. 3 cm long, acute sulcate; **blades** ovate, markedly inequilateral, one side ca. 5 cm wider, 43.0–59.7 cm long, 24.0–30.8 cm wide, broadest proximal of the middle, 1.8–1.9 times longer than wide, rounded at apex with a small apiculum, inequilateral and rounded to cordulate at base, semiglossy, moderately bicolorous, drying more or less olive-green adaxially, yellowish brown

**270.** *Rhodospatha tocachensis* (*Croat 51030*, MO 2812610). Holotype showing petiole, leaf blade (adaxial and abaxial surfaces), and immature inflorescence.

**271.** *Rhodospatha tocachensis* (*Schunke 12045*, MO 6224455). Specimen showing leaf blade (adaxial and abaxial surfaces).

**272.** *Rhodospatha tocachensis* (*Schunke 12045*, MO 6224455). Specimen showing petiole with sheath reduced to fibers, peduncle, and post-anthesis spadix.

abaxially; **midrib** sunken and slightly paler, drying brown and bluntly acute, minutely and densely granular on magnification; **primary lateral veins** ca. 50 per side, closely spaced, departing midrib in a broad curve or at an acute angle (sometimes arising directly from the midrib), then spreading in a weak curve at 75–90°, turned sharply upward at the margin and merging into a pale antimarginal collective vein, the veins on the narrower side of the blade at a higher angle, 4–8 mm apart, much closer and sometimes contiguous at the base, drying reddish brown; **interprimary veins** weak or not at all apparent, (1)2–3(4) total minor veins (including the weak interprimary vein when present) between each pair of primary lateral veins; cross veins moderately conspicuous, moderately close throughout, mostly oblique and branched; **adaxial surface** sparsely glandular; **abaxial surface** pale speckled, short pale-lineate.

**Inflorescences:** erect (immature); **prophyll** finely fibrous; **peduncle ca.** 34 cm long, the prophyll drying pale brown with a highly dilacerated, fibrous margin with long, pale fibers; **spathe ca.** 12 cm long, deep pink, drying brown, minutely granular with short, pale raphide cells; **spadix** purplish pink, ca. 16.2 cm long, 1 cm diam.

**Flowers: pistils** 4–6 sided, 0.6–0.7 mm diam., grayish brown, whitish punctate; **styles** rhombic, gray, matte.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha tocachensis* is known only from the type locality in Peru in San Martín Department at Río de la Plata at 550-650 m elevation in a *Premontane Moist Forest* life zone.

**Etymology:** This species is named for the Tocache Nuevo district in San Martín Department of Peru, the only place where it has been found.

**Comments:** This species is most easily confused with *Rhodospatha* fosteri, which is also terrestrial and has similar blades but the latter species differs in having the petioles sheathed to the geniculum, a conspicuously sulcate geniculum, and blades with few cross veins and reddish punctate abaxially.

**Paratypes: PERU. San Martín:** Mariscal Cáceres, Dtto. Tocache Nuevo. Fundo las Flores, propiedad del Sr. Artidoro Garcia, cerca a Huayranga, al borde de la quebrada, en bosque alto, 500–600 m, 1 August 1980, *J. Schunke V. 12045* (IBE, MISS, MO).

***Rhodospatha tolimensis*** Delannay & Croat, **sp. nov.** — Type: COLOMBIA. Valle del Cauca: Along road from La Florida to border with Tolima Department, 03°21'00"N 76°08'00"W, 2055 m, 15 July 1997, *T. B. Croat & J. F. Gaskin 79833* (holotype, 4936237-38, isotype, CUVC). (**Figs. 273–276**).

**Diagnosis:** *Rhodospatha tolimensis* is characterized by its appressed-climbing, epiphytic habit; yellow-brown, glossy, deeply longitudinally folded internodes; petioles sheathed to the geniculum with the sheath persisting intact; and oblong-elliptic, moderately bicolorous, acuminate blades 3.3 times longer than wide and drying dark grayish brown adaxially and medium reddish gray-brown abaxially with, and its primary lateral veins with a total of five weak veins running in parallel between them and a network of cross-veins interconnecting them.

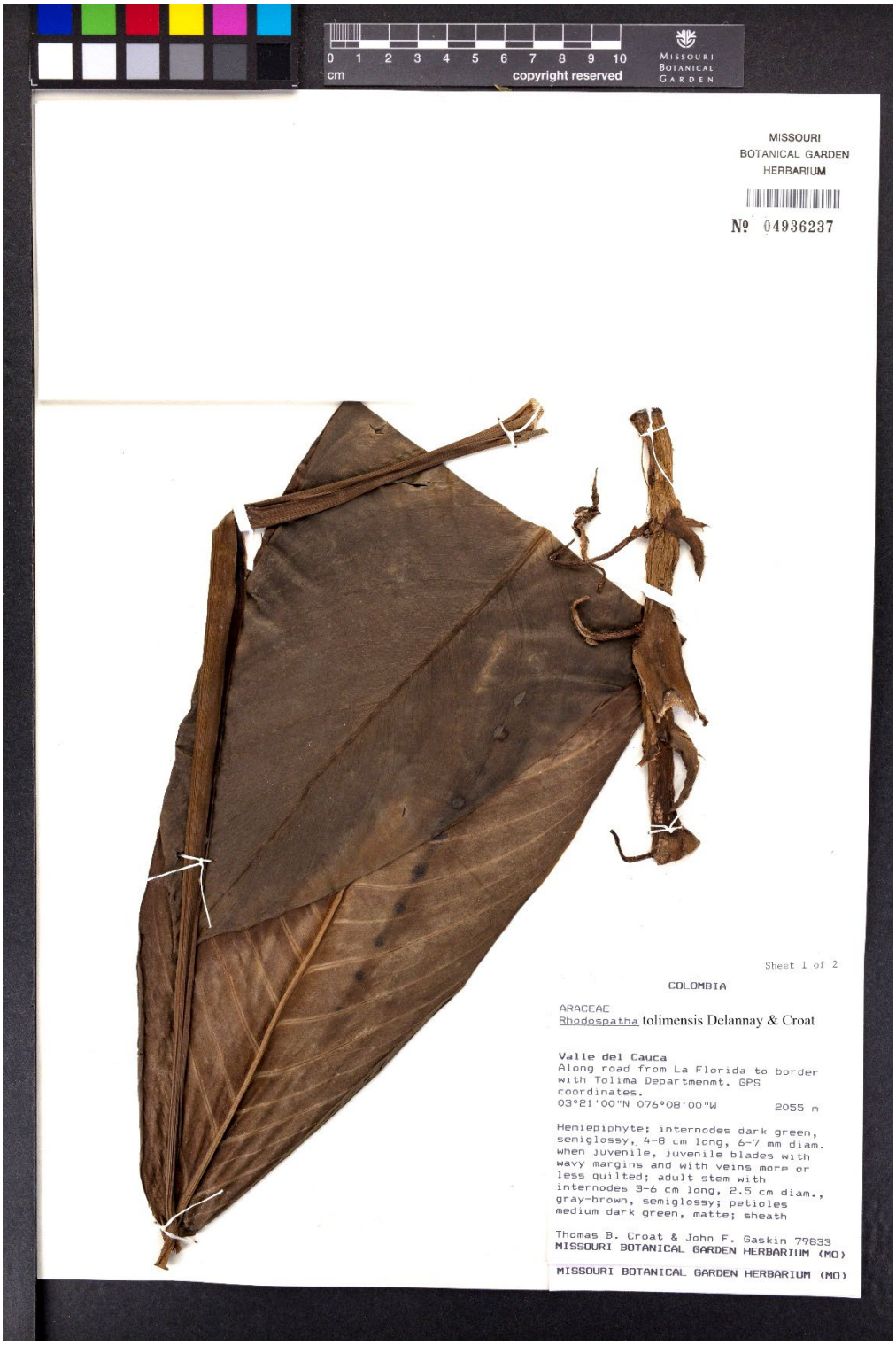
**Habit:** appressed-climbing epiphyte.

**Stem: juvenile internodes** dark green, semiglossy, 4–9 cm long, drying 2–4 mm diam.; **adult internodes** 3–6 cm long, 2.5 cm diam., gray-brown, semiglossy, drying ca. 1 cm diam., yellow-brown, glossy, deeply longitudinally folded with the epidermis cracking.

**Leaves: juvenile petioles** 5.5–9.0 cm long; **blades** 9.0–20.5 cm long, 3–6 cm wide, with quilted primary lateral veins, margins wavy; **adult petioles** ca. 38 cm long, sheathed to the geniculum, medium dark green, matte, drying yellow-brown, matte, coarsely ribbed and granular, more finely and closely ribbed on sides approaching the thin dark brown margin; sheath incurled, weakly glossy, persisting intact throughout, drying dark brown and finely ribbed along its persistent margin; **geniculum** sharply sulcate, ca. 3 cm long, concolorous; **blades** oblong-elliptic, 48 cm long, 14.5 cm wide, 3.3 times longer than wide, obtuse and short-acuminate at apex, tapering at base, widest above the middle, subcoriaceous, drying medium reddish gray-brown; **midrib** sunken and paler adaxially, narrowly raised and pale on upper edge in proximal half of blade, drying deeply sunken medially with bluntly rounded, raised margins, concolorous, coarsely ribbed longitudinally throughout adaxially, prominently thicker than broad, paler, yellow-brown, matte, finely and closely ridged abaxially; **primary lateral veins** ca. 18 per side, sunken adaxially, convex abaxially, departing midrib at 55–70°, drying narrowly rounded, irregularly ribbed, moderately obscure, concolorous adaxially, narrowly rounded, irregularly ridged, faintly paler abaxially; **interprimary veins** weak, scarcely obvious, similar to minor veins, irregularly directed, heavily branched with a total of 4 or 5 veins running in parallel between the primary lateral veins, interconnected by numerous reticulated veins; **adaxial surface** lumpy, granular-ridged to sparsely granular; **abaxial surface** much smoother, reticulate-ridged on magnification.

**273.** *Rhodospatha tolimensis* (*Croat & Hoell 106174*). Live plant showing appressed-climbing, epiphytic habit, stem, petioles, and leaf blades (adaxial surface).

**274.** *Rhodospatha tolimensis* (*Croat & Hoell 106174*). Live plant showing stem, petioles and leaf blades (adaxial surface).




**275.** *Rhodospatha tolimensis* (*Croat & Gaskin 79833*, MO-4936237). Holotype showing petiole and leaf blades (adaxial and abaxial surfaces).

**276.** *Rhodospatha tolimensis* (*Croat & Gaskin 79833*, MO-4936238). Holotype showing juvenile plants.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha tolimensis* is endemic to Colombia and found only in Valle del Cauca Department at 2055 m in a *Montane Rain Forest* life zone.

**Etymology:** This species is named for the Tolima Department where it occurs along its border.

**Comments:** This species is most similar to *Rhodospatha silverstonei*, which is also found at high elevations on the Cordillera Occidental. However, this latter species occurs on the Pacific side of the Cordillera (vs. the eastern side for *R. tolimensis*) and differs by its less elongated blades (2.2–2.4 times longer than wide) and primary lateral veins departing the midrib at a wider angle with less prominent minor veins and reticulated veins.

**Paratypes: COLOMBIA. Valle del Cauca:** Vicinity of Dapa on eastern slopes of Cordillera Occidental. Parcelación Hacienda Los Morales, 2.91 km from Parroquia San Francisco de Asis (Iglesia de Dapa), 03°34'43"N 76°34'21"W, 2120–2150 m, 24 February 2015, *T. B. Croat & P. Hoell 106174* (MO).

***Rhodospatha torresii*** Delannay & Croat, **sp. nov.** — Type: ECUADOR. Esmeraldas: Communidad Awá Río Bogota, 11.5 Km W of Alto Tambo, 30.5 Km W of Río Lita, 3 Km by trail to Río Bogota on S side of Lita-San Lorenzo Road, 00°58'57"N, 78°35'58"W, 380 m, 15 September 2002, *T. B. Croat & D. P. Torres Ravelo 87509* (holotype, MO-5746790; isotype, COL, QCNE, S). (**Fig. 277**).

**Diagnosis:** *Rhodospatha torresii* is characterized by its appressed-climbing, epiphytic habit; petioles with the sheath persisting intact and with a prominent darker intact edge; and oblong-oblanceolate-elliptic, inequilateral, narrowly short acuminate blades 3.7 times longer than wide and tapering and slightly decurrent at the base and lacking interprimary veins but with clearly visible cross-veins between the minor veins.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, conspicuously cross-checked, ca. 2 cm diam., drying yellow-brown, semiglossy with prominent longitudinal ribs.

**277.** *Rhodospatha torresii* (*Croat & Torres 87509*, MO-5746790). Holotype showing stem, petiole, and leaf blade (adaxial and abaxial surfaces).

**Leaves: petioles** 43–45 cm long, sheathed to the geniculum, densely pale-speckled, drying pale yellow-brown, faintly ribbed, densely concolorous-granular (sometimes also prominently dark brown-dotted), the transition to the sheath often abrupt and undercut; **sheath** persisting intact with prominent edges, drying medium reddish brown, closely and prominently ridged-granular, the minute edges very thin and some deciduous; **geniculum** 2.5 cm long, not obviously sulcate, drying dark brown; **blades** oblong-oblanceolate-elliptic, ca. 59 cm long, 16 cm wide, 3.7 times longer than wide, obtuse and long-acuminate at apex, tapering and slightly decurrent at base, widest distal of the middle, subcoriaceous, dark green and matte-subvelvety adaxially, much paler and matte abaxially, drying medium grayish green, matte adaxially, light greenish brown, semiglossy abaxially; **midrib** deeply sunken and dark green, marginally discolored paler adaxially, narrowly raised and slightly paler abaxially, drying moderately flattened, concolorous and obscure adaxially, darker, light brown, matte, densely and conspicuously glandular abaxially; **primary lateral veins** ca. 28 per side, departing midrib at 50–60°, quilted-sunken and concolorous adaxially, narrowly raised abaxially, drying weakly raised and obscure adaxially, narrowly round-raised, paler and moderately smooth abaxially; **interprimary veins** sometimes weak and not markedly dissimilar to minor veins, with a total of 3 veins running in parallel between the primary lateral veins; cross-veins present but not readily visible; **adaxial surface** densely and closely rowed-areolate with sparse lumpy aggregations; **abaxial surface** densely short pale-lineate (covered with elongated whitish cellular inclusions) and densely whitish punctate.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha torresii* is endemic to Ecuador, found only in Esmeraldas Province at 380 m in a *Lower Montane Dry Forest* life zone.

**Etymology:** This species is named in honor of Darwin Patricio Torres Revelo who collected the only known specimen along with the second author in 2002. Darwin is a member of the indigenous Awá community at Río Botota and assisted in collecting this specimen.

**Comments:** Because of its petiole sheath with a prominent, ridged-granular, darker, intact edge and its oblong-oblanceolate-elliptic, bicolorous blades drying gray and yellow-brown, this species does not resemble any other *Rhodospatha* species growing in that region of Ecuador.

***Rhodospatha valenzuelae*** Delannay & Croat, **sp. nov.** — Type: PERU. Pasco: Province Oxapampa; Distrito Palcazú, Ataz-Quebrada Ataz, bosque primario, sobre suelo arciloso, 10°10'13"S 75°18'55"W, 392 m, 26 May, 2009, *L. Valenzuela, A. Peña & J. L. Mateo 12880* (holotype, MO-6334363; isotypes, HOXA, MO-6334364). (**Figs. 278–280**).

**Diagnosis:** *Rhodospatha valenzuelae* is characterized by short internodes; petioles densely reddish brown speckled-short-lineate and sheathed ca. 1/2 to 3/4 their length; sheath partly deciduous with fine, closely spaced parallel fibers persisting; sharply sulcate geniculum; ovate to ovate-elliptic, weakly bicolorous, abruptly acuminate blades with (25)30–40 primary lateral veins per side and weakly developed interprimary and cross veins; and pinkish spadix.

**Habit:** terrestrial or epiphytic.

**Stem: internodes** short, ca. 2 cm diam.

**Leaves: petioles** 38–52 cm long, drying tan to pale yellow-brown, finely ribbed, densely reddish brown speckled-short-lineate, minutely granular, sheathed ca. 1/2 to 3/4 their length; **sheath** 25.5–30.3 cm long, decomposing and partly deciduous with fine closely spaced parallel fibers persisting; **geniculum** 4.5–5.0 cm long, drying darker brown, sharply sulcate adaxially; **blades** ovate to ovate-elliptic, 22–36 cm long, (14.7)20–28 cm wide, 1.2–1.4(1.8) times longer than wide, ca. 1/2 to 3/4 as long as petioles, broadest usually proximal of the middle, moderately inequilateral (one side up to 1.5 cm wider), rounded to obtuse and abruptly short-acuminate at apex (acumen 4–7 mm long), typically rounded and ultimately decurrent at base (sometimes broadly acute and weakly decurrent), subcoriaceous, weakly bicolorous, drying dark brown, nearly matte adaxially, slightly paler, reddish brown, weakly glossy abaxially; **midrib** broadly rounded with a narrow pale medial line, densely granular to short-linear-lineate adaxially, closely (ca. 7-ribbed) ribbed and densely granular, paler light brown, sparsely short-pale-lineate along margins abaxially; **primary lateral veins** (25)30–40 per side, departing midrib at 60–80° (to 35 or 40° near apex), weakly darker, broadly convex, weakly granular adaxially, narrowly rounded, darker, weakly granular abaxially; **interprimary veins** moderately weak, 1 per segment, alternating with a single pair of minor veins; cross veins present but very weak, sometimes not apparent; **adaxial surface** closely dark granular; **abaxial surface** densely, weakly, pale lumpy-granular (densely darkish granular with an minutely aeriolate background for *Vasquez et al. 31222*).

**278.** *Rhodospatha valenzuelae (Vasquez et al. 31222, MO-6044446)*. Specimen showing leaf blade (abaxial surface), prophyll, peduncle, and post-anthesis inflorescence with spadix and detached spathe.

**279.** *Rhodospatha valenzulae* (*Valenzuela et al. 12880*, MO-6334363). Holotype showing petiole, leaf blades (adaxial and abaxial surfaces), and post-anthesis inflorescence.

**280.** *Rhodospatha valenzulae* (*Valenzuela 12880*, MO-6334364). Holotype with stem, petioles and blades (abaxial surface,) and detached inflorescence.

**Inflorescences:** erect; **peduncle** ca. 38 cm long; **spathe** green to white (immature spathe ca. 12 cm long), not seen at maturity but likely to 20 cm long; **spadix** pinkish, stipitate ca. 1 cm, **ca.** 12.5-19.0 cm long, 0.8–1.7 cm diam.

**Flowers: styles** mostly rhombic to rhombic-prismatic, 1.3–1.4 mm long in direction of axis, drying gray, matte, truncate; **stigmas** mostly oval, ca. 0.6 mm long, 0.4 mm wide, the medial sulcus usually visible.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha valenzuelae* is endemic to Peru, known only from the Distrito Palcazú at 360–800 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of Luis Valenzuela who assisted in collecting the type specimen. Luis works for the Herbario Selva Central Oxapampa (HOXA) in Oxapampa, Peru, and is a noted and productive collector who has found many new species.

**Comments:** This species is most likely confused with *Rhodospatha palcazuensis*, which occurs in the same region. However, this latter species differs by having an epiphytic habit; coarsely pale short-lineate petioles; typically somewhat narrower, more bicolorous blades that dry grayish adaxially and pale yellow-brown abaxially with weak or lacking cross-veins; and yellowish spadix.

**Paratypes: PERU. Pasco:** Oxapampa, Dist. Palcazú, Parque Nacional Yanachaga-Chemillén, Estación Biológica Paujil-hacia pozo tigre, 10°20'16"S 75°15'7"W, 360 m, 23 March 2006, *R. Vásquez et al. 31222* (MO, USM).

***Rhodospatha vandanilssoniae*** Croat & Grayum, Aroideana 47(1): 162–165, f. 79. 2024. — Type: COSTA RICA. San José: Vasquez de Coronado, Cordillera Central, Río Zurquí, 10°03'00"N 84°00'36"W, 1500–1600 m, 18 January 1986, *M. H. Grayum & P. J. Sleeper 6137* (CR, MO, NY). (**Fig. 281**).

**Habit:** appressed-climbing, understory epiphyte, ca. 2.5 m tall.

**Stem: internodes** short 2.5-3.5 cm long, to 2.5 cm diam., glossy and gray-green, drying dark brown, matte.

**281.** *Rhodospatha vandanilssoniae* (*Grayum et al. 6399*, MO-1361545). Specimen showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

**Leaves: petioles** 25.5—40.5 cm long, sheathed to geniculum, drying dark brown; **sheath** to 36 cm long, 7-8 mm high, the margin remaining intact, weakly free-ending at apex; **geniculum** sharply C-shaped, deeply concave adaxially, 3.2–3.7 cm long, the margins sharply and narrowly alate; **blades** narrowly elliptic to oblanceolate-elliptic, 32.1–51.0 cm long, 15.5-19.1 cm wide, (1.9)2.1–2.9 times longer than wide, 1.1-1.4 times longer than petioles, broadly acute and weakly short-acuminate at apex, acute at base, subcoriaceous, dark green and glossy adaxially, semiglossy and moderately paler abaxially, drying scarcely discolorous, dark grayish brown and semiglossy on both surfaces; **midrib** obtusely raised and slightly darker adaxially, narrowly raised, drying bluntly acute and concolorous abaxially; **primary lateral veins** 16–20 per side, departing midrib at 40-45°, major veins sunken and concolorous adaxially; **interprimary veins** 1 or 2 between each pair of primaries and with 1 or 2 additional minor veins between the primary and interprimary veins, minor veins visible abaxially, cross-veins not visible.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution:** *Rhodospatha vandanilssoniae* ranges from Costa Rica to western Panama at 1500–1700 m on the Caribbean slope in a *Premontane Wet Forest* life zone.

**Comments:** This species is distinguished by its habitat in high elevation cloud forests; nearly full-sheathed petioles with intact, persistent sheaths; and more or less elliptic, glossy, weakly acuminate leaf blades with up to 20 primary lateral veins per side and drying dark brown.

*Rhodospatha vandanilssoniae* was collected in fertile condition by Costa Rican botanist Vanda Nilsson in the Tapantí region in Cartago Province but the collection was never deposited in any herbarium and is considered lost (*fide* M. H. Grayum, pers. comm.).

This species could be confused with *Rhodospatha antonensis* but that Panamanian species is found growing at lower elevations (700–1200 m) with blades that dry medium brown adaxially and yellowish brown abaxially. In contrast, *R. vananilssoniae* grows in high elevation cloud forests at 1500–1700 m with the blades drying dark brown on both surfaces.

**Other Specimens Seen: Panama. Chiriquí:** Along trail between N. fork of Río Palo Alto and Cerro Pate de Macho, ca. 6 km NE of Boquete, 08°48'00"N 82°23'30"W, 1600-1700 m, 6 February 1986, *M. H. Grayum, B. Hammel & B. Bochan 6399* (MO).

***Rhodospatha vasquezii*** Delannay & Croat, **sp. nov.** — Type: PERU. Loreto: Maynas, Dtto. Iquitos, Allpahuayo, Estación Experimental del Instituto de Investigaciones de la Amazonía Peruana (IIAP), bosque primario, sotobosque con relativa abundancia de *Lepidocaryum tessmannii* "irapay", suelo arcillo-arenoso, 03°55'55"S, 73°36'25"W, 2 June 1990, *R. Vásquez & N. Jaramillo 14018* (holotype, MO-3827316; isotype, MO-3827317). (**Figs. 282–283**).

**Diagnosis:** *Rhodospatha vasquezii* is characterized by its terrestrial habit; moderately short, slender internodes; petioles sheathed for ca. 4/5 their length with the sheath narrow and persisting intact; moderately bicolorous, lanceolate, narrowly long-acuminate blades 3.1–4.6 times longer than wide and drying light greenish brown; and moderately long-pedunculate inflorescences with white, narrowly ovate, narrowly acuminate spathe and a stipitate white spadix 4.5–5.5 cm long and ca. 5 mm diam.

**Habit:** terrestrial.

**Stem: internodes** moderately short and slender, 1.5–4.0 cm long, 1.0–2.5 cm diam., drying light brown, weakly ribbed, coarsely granular.

**Leaves: petioles** 22.5–27.0 cm long, sheathed to the geniculum, finely and closely ribbed, densely granular; **sheath** narrow, tightly incurled, more coarsely ribbed than the petiole, the margin persisting intact, drying light brown; **geniculum** ca. 2.5 cm long, drying dark brown, moderately sunken; **blades** narrowly oblanceolate, 35.0–49.5 cm long, 8–16 cm wide, 3.1–4.6 times longer than wide, broadest distal of the middle, narrowly long-acuminate at apex, acute at the base, drying light greenish brown, matte adaxially, paler and yellowish green slightly glossy abaxially; **midrib** drying concolorous to slightly darker, densely short-ribbed and granular adaxially, convex to narrowly rounded, finely and narrowly ribbed, sometimes pale-streaked, and darker abaxially; **primary lateral veins** 18– 22 per side, departing midrib at 40–50°, widely spaced (1.2–2.0 cm apart), drying slightly darker, sometimes paler abaxially; **interprimary veins** separated from the primary lateral veins by 2–4 minor veins running in parallel, with a loose network of cross-veins interconnecting them; **adaxial surface** granular, often coarsely so, often short-pale-lineate; **abaxial surface** faintly and densely granular, often short-pale-lineate.

**Inflorescences:** erect; **peduncle** 9–28 cm long; **spathe** narrowly ovate, gradually acuminate, ca. 7.5 cm long, 5 cm wide when flattened, white; **spadix** white, 4.5–5.5 cm long, ca. 5 mm diam.; stipitate ca. 1 cm.

**282.** *Rhodospatha vasquezii* (*Vásquez & Jaramillo 8625*, MO-3611691). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

**283.** *Rhodospatha vasquezii* (*Diaz & Jaramillo 1272*, MO-2825833). Specimen showing petiole, leaf blade (adaxial and abaxial surfaces), prophylls, and immature inflorescence with post-anthesis spadix.

**Flowers: styles** 2.0–2.6 mm long in direction of the axis, irregularly rounded and sculpted, irregularly truncate, coarsely granular; **stigmas** ca. 0.8 mm long, 0.3 mm wide, the rim yellowish brown, the medial slit usually conspicuous, black.

**Infructescences:** ca. 9.5 cm long, 3 cm diam.; green; **style**s 4–5 mm diam., dark brown, conspicuously pale-granular; **stigmas** moderately raised, oval to rounded. 0.5–0.6 mm wide, deeply concave medially, medium brown.

**Fruits: seeds** 6 or 7 per locule, somewhat ear-shaped, pale brown, forming a semi-circle with one small area open, 1.0–1.5 mm wide across, ca. 0.5 mm thick.

**Distribution and ecology:** *Rhodospatha vasquezii* is found in the Leticia area of Amazonas Department of Colombia and in neighboring Loreto Department of Peru at 100–220 m in a *Tropical Wet Forest* life zone.

**Etymology:** The species is named in honor of Peruvian botanist Rodolfo Vasquez who made the first collection of the species in June 1979. Vasquez, in charge of the Herbario Selva Central Oxapampa (HOXA), has had a long and distinguished career and has discovered and collected many new species. One of his greatest achievements was the production of the *Flora of Río Cenepa* in Amazonas Department, Peru. This publication along with his studies in the Iquitos area and now in Pasco make him one of the most influential Peruvian floresticians.

**Comments:** This species dries a similar color to *Rhodospatha rudasii*, which also grows in the same area, but this latter species has much wider blades 2.2–2.3 times longer than wide that are obtuse or rounded at the base and at the apex rather than being acute as is the case of *R. vasquezii*.

**Paratypes: COLOMBIA. Amazonas:** Parque Nacional Natural Amacayacu. Quebrada de Agua Pudre, ca. 1.5 km NE de desemboca dura sobre el río Amacayacu, Muestreo Permanente Estratégica del MO, bosque muy húmedo, 03°47'S 70°15'W, 200–220 m, 18 October 1991, *J. J. Pipoly, III 16453* (MO). **PERU. Loreto:** Maynas, District of Iquitos, vicinity of Puerto Almendra, 03°48'S 73°25'W, 120 m, 9 November 1980, *T. B. Croat 51204* (MO); Nauta, carretera a Dtto. Iquitos, bosque inundable estacional, 04°29'S 73°35'W, 150 m, 13 December 1986, *R. Vásquez & Nestor Jaramillo 8625* (MO); Via Nauta-Iquitos, monte alto, terreno de altura, 04°30'S 73°32'W, 30 June 1979, *C. Díaz S. & N. Jaramillo 1272* (MO); Dtto. Iquitos, Allpahuayo, Estación Experiø mental del Instituto de Investigaciones de la Amazonía Peruana (IIAP). bosque primario (suelo arcillo-arenoso), 03°58'02"S 73°25'03"W, 9 October 1990, *R. Vásquez & N. Jaramillo, 14430* (MO); Amazonas, Dtto. Las Amazonas, Explornapo Camp. Inventario MacArthur, cerca de Sucusari, a lo

largo del río Napo, bosque primario en terra firme, 03°20'S 72°55'W, 24 February 1991*, J. J. Pipoly, III et al. 13571* (MO).

***Rhodospatha venosa*** Gleason, Bull. Torrey Bot. Club 56: 12. 1929. — Type: COLOMBIA. Amazonas: Río Apaporis, Jinogojé (at mouth of Río Piraparaná) and vicinity), 00°15'S 70°30'W, 214 m, 27 February 1952, *Schultes & Cabrera 15689* (holotype, US). (**Figs. 284–288**).

*Rhodospatha pachysperma* Madison, Selbyana 1: 328. 1976.

**Habit:** appressed-climbing, epiphytic vine, to 8 m high (at least the proximal part of the stem appressed-climbing).

**Stem: internodes** 1–19 cm long, 8–15(20) mm diam., medium green to olive green, weakly glossy to semiglossy, drying smooth to weakly striate, brown to black.

**Leaves: petioles** 10–20(26) cm long, sheathed throughout nearly all their length; **sheath** margins persistent, inrolled; **geniculum** sharply sulcate with sometimes spreading or weakly undulate margins, 1.0–1.8(3.2) cm long, drying blackened; **blades** ovate to ovate-elliptic, 19–62 cm long, 6–33 cm wide, 1.9–3.1 times longer than wide, usually inequilateral, acute to weakly acuminate at apex, rounded to weakly cordulate at base, thinly coriaceous to subcoriaceous, often somewhat glaucescent on both surfaces, semiglossy and dark green adaxially, moderately paler and semiglossy to matte abaxially, frequently glaucous, drying dark brown to blackish adaxially, reddish brown abaxially; **midrib** slightly paler to concolorous and flat to broadly sulcate with a narrow median groove adaxially, convex and darker than surface abaxially; **primary lateral veins** 6–12(16) per side, departing midrib at 45°, sometimes barely discernable, weakly sunken adaxially, weakly raised abaxially, slightly more prominent than the interprimary veins; minor veins 6–7 running in parallel on each side of the interprimary veins.

**Inflorescences:** erect; **peduncles** 1.7–8.0 cm long, 5–14 mm diam.; **spathe** cream, 6–9 cm long, acute to acuminate at apex, naviculiform, promptly deciduous; **spadix** cream, cylindroid, weakly tapered to the rounded apex, 4.3–12.5 cm long, 8–30 mm diam., stipitate 3–7 mm, 1.5 diam.

**Infructescences: spadix** red, 3–4 mm diam., nearly flattened apically.

**Fruits: seeds** 2.

**284.** *Rhodospatha venosa* (*Croat 103011*). Live plant showing appressed-climbing, epiphytic habit, stem, petioles, leaf blades (adaxial surfaces), and inflorescence at anthesis with spathe and spadix attached.

**285.** *Rhodospatha venosa* (*Croat 102410*). Close-up of inflorescence prior to full anthesis with spathe mostly enclosing spadix.

**286.** *Rhodospatha venosa* (*Croat 103324*). Close-up of immature inflorescence and post-anthesis spadix.

**287.** *Rhodospatha venosa* (*Croat 74160*, MO-4342287). Specimen showing stem, petiole, leaf blade (mostly abaxial surface), and post-anthesis spadix.

**288.** *Rhodospatha venosa* (*Cremers & Gautier 11963*, MO-3865336). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and inflorescence at anthesis with spathe and spadix attached.

**Distribution and ecology:** *Rhodospatha venosa* ranges from eastern Colombia (Amazonas, Caquetá, Vaupés) to Venezuela (Amazonas, Bolivar), the Guianas, and Brazil (Amazonas, Amapá) at 100–900 m in *Tropical Moist Forest* and *Premontane Wet Forest* life zones,:

**Comments:** *Rhodospatha venosa* is similar to *R. oblongata*, which also has 6–7 minor veins running in parallel on each side of the interprimary veins and blades drying reddish brown abaxially; however, the latter species differs by its more elongated blades (3.1–3.5 times longer than wide vs. 1.9–3.1 times for *A. venosa*) and pinkish to reddish violet or brownish purple spadix (vs. cream colored for *R. venosa*).

**Other Specimens Seen: BRAZIL**. 25 February 1970, *A. M. W. Mennega 68-926* (U); Río Marié. Tapuruquara Mirim; 16 October 1978, *Madison et al. 343* (INPA). **Amapá:** In forest shade. Near second cachoeira on Río Iaue, 3 km E of confluence with Río Oiapoque; 02°53'N 52°22'W, 26 August 1960, *H. S. Irwin 47857* (MO, NY, US). **Amazonas:** Igarape do Parque 10 de Novembro, 16 August 1955, *Coelho 1660* (INPA); Mpio. Manaus. Cachoeira do Tarumazinho, ca. 20 km from downtown Manaus. Secondary forest; 4 February 1963, *G. Eiten et al. 5320* (US); 24 April 1961, *J. C. de Almeida 696* (INPA); Igarape de Tabatinga, 21 January 1955, *J. C. de Almeida 696* (INPA); Fazenda Gavião - PDBFF (Trilha 30 grans N). Presidento Figueiredo, 18 January 2001, *KINNUPP 1538* (INPA); [=INPA 84760], *Madison et al. PFE343* (INPA); [=INPA 84763], *Madison et al. PFE346* (INPA); Río Negro, caatinga at mouth of Río Marie, 17 October 1978, *M. T. Madison et al. 6346* (K, SEL, US); [=INPA 177436], *Soares 188* (INPA); [=INPA 190196], *Soares 252* (INPA); [=INPA 190210], *Soares 270* (INPA). **COLOMBIA**. **Amazonas:** Río Apaporis: Raudal Yayacopi (La Playa) and vicinity, 00°05'S 70°30'W, 18 August 1952, *R. E. Schultes & I. Cabrera 16941* (ECON); Río Apaporis, Jino-Gojé; entre los ríos Piraparaná y Popeyaká. Caño Unguyá; 250 m, 3 September 1952 - 11 September 1952, *H. García Barriga 14344* (COL); Río Apaporis, entre los ríos Kananari y Pacoa; 00°09'23"N 71°20'07"W, 250 m, 01 December 1951 -15 December 1951, *H. García Barriga 13934* (COL, NY, US); Desembocadura del rio Loretoyacu, arriba del Barracon cauchero; 20 November 1945, *J.M. Duque-Jaramillo 2247* (COL, MO); Cuenca Río Caqueta, en bosque alto, sobre suelo amarilla de tierra firme; 00°50'S 71°50'W, 19 November 1991, *J. Duivenvoorden et al. 1154* (MO); Río Apaporis: Raudal Jirijirimo (below mouth of Kananarí). Quartzite base; 00°05'N 70°40'W, 900 f, 21 January 1952, *R. E. Schultes & I. Cabrera 14934B* (US); Río Apaporis: Jinogojé; 00°26'30"S 70°13'42"W, 13 June 1952, *R. E. Schultes & I. Cabrera 16753* (US); Araracuara. Villazul. Río Caqueta, margen izquierda frente isla Sumaeta. Plano sedimentario terciario; 00°34'S 72°08'W, 200 - 300 m, 21 April 1989, *Ana Catalina Londoñoet al. 168* (MO). **Caquetá:** Araracuara, en bosque alto, sobre suelo podzolisado en la mesa de areniscas cerca a la pista aérea; 00°37'S 72°24'W, 6 November 1991, *J. Duivenvoordenet al. 763* (MO). **Vaupés:** Mitu, Cerro de Mitu, 380 - 560 m, 22

October 1952, *H. García Barriga 14915* (COL); Vicinity of Mitu, ca 2 km along dirt road (running from main street along Río Vaupes and past S end of run- way of airport) SE of village Mitu; 01°14'N 70°14'W, 200 m, 23 May 1983, *T. B. Croat 56811* (MO); Mitú. Mitú, bosque; 01°15'28"N 70°14'05"W, 200 m, 20 October 1939, *J. Cuatrecasas 7286* (COL). **FRENCH GUIANA**. Camp Aratai, near Crique Arataye, tributary of River Approuaques; 03°59'24"N 052°35'29"W, 50 m, 18 November 2004, *A. Haigh et al. 79* (MO); Camp Aratai, Kwata trail near Crique Arataye, tributary of River Approuagues. Primary rainforest, with gentle hills. Growing on bank of creek; 03°59'24"N 52°35'29"W, 50 m, 16 November 2004, *A. Haighet al. 59* (MO); "Massif des Emerillon, Région des Emerillon", m, 8 September 1980, *G. Cremers 6595* (CAY, MO); "Lieu-Dit Citron, Région de Paul-Isnard", m, 8 September 1983, *G. Cremers 8170*(CAY); Montagne de Kaw - Montagne de Kaw; 04°33'N 52°09'W, 100 m, 25 mars 1988, *G. Cremers 9828* (B, K, P, U, US "Montagne de Kaw, Plaine et Montagne de Kaw", m, 1 April 1984, *J. J. de Granville 6701* (CAY) ; Inselbergs du haut Marouini - A : Inselberg de la D.Z; m, 24 June 2004, *J. J. de Granville 16429* (CAY); "Crique Limonade, Région de Saül", m, 1 April 2009, *Olivier Tostain 2753*(CAY ?)*;* 1856, *P. A. Sagot s.n.* (P); 2 km SW of Saul, track Limonade, 03°32'N 53°12'W, 180 - 210 m, 22 July 1986, *Renske C. Ek & D. Montfoort 98* (CAY); 2 km SW of Saül, 03°32'N 53°12'W, 180 - 210 m, 6 September 1986, *Renske C. Ek & D. Montfoort 155* (K); Saul:Eaux Claires, 24 September 1995, *S. A. Mori & C. A. Gracie 24207* (NY); Saul: La Fumeé Oeste, 03°37'N 053°12'W, 1984, *S. A. Mori & J. J. Pipoly, III 23822* (NY); "Rivière Courouaïe, Bassin de l'Approuague", 9 April 1998, *V. Hequet 809* (CAY)*;* Route Régina - Saint Georges D.Z. 5 - P.K. 43 - Bassin du 13a. Forêt primaire de basse altitude, 04°03'N 052°01'W*,* 60 m, 6 April 1991, *G. Cremers 11963* (CAY, MO). **Cayenne:** Bassin de La Mana, 04°35'N 53°21'W, 75 m, 11 November 1991, *G. Cremers 12656* (CAY); 15 Mar 1975, *J. J. de Granville 5212* (CAY, K); Approuague-Kaw District, along lumber extraction road from N2 Hwy between Regina and St. George to the Mataroni River, 3.3 km N of N2 Hwy; 04°05'33"N 52°06'31"W, 45 m, 27 August 2011, *T. B. Croat 103324* (MO); Department of Guyane, Approuague-Kaw District, Kapiri Creek Lumber Road, departing N2 Hwy, 43 km S of Approuague River bridge (center) at ca. PK 125, ca. 1 km NW of main N2 Hwy; 03°53'09"N 052°09'57"W, 107 m, 21 August 2011, *T. B. Croat 103148* (MO, US); Along road from St. Georges to Saut Maripa, 15.5 km S of main N2 Hwy; mature tall forest, along wet ditch; 03°49'51"N 51°52'20"W, 69 m, 13 March 2011, *T. B. Croat & G. Ferry 103011* (MO). **Saint-Laurent-du-Maroni:** 2 km SW of Saul, track Limonade, 03°32'N 53°12'W, 180 - 210 m, August 1986, *R. C. Ek & D. Montfoort 408, 409* (U); Mont Galbao Trail, 03°37'N 53°12'W, 250 m, 7 August 1987, *S.A . Mori & C. A. Gracie 18667* (MO, NY); Saül and vicinity: Route de Bélizon. Near entrance to Layon Biche. Non-flooded moist forest; 03°37'N 53°12'W, 200 - 400 m, 5 August 1993, *S. A. Mori et al. 23118* (MO, NY); Saül, 03°37'N 53°12'W, 200 - 400 m, 21 April 1983, *Scott A. Mori & J. J. Pipoly, III 15641* (NY); Vicinity of Saül, along route to Béllizon, 1-3 km N

of Eaux Claires; 03°37'N 53°12'W, 220 - 240 m, 9 February 1993, *T. B. Croat 74160* (CM, MG, MO, US); Vicinity of Saül, along route to Béllizon, 100-300 m past Eaux Claires; 03°37'N 53°12'W, 230 m, 8 February 1993, *T. B. Croat 74134* (B, CAY, CM, MO). **GUYANA**. Region: Pomeroon-Supenaam. Mango Landing, Issororo River. Mixed forest on reddish brown sand and clay; 7°16'N 58°51'W, 30 m, 5 July 1997, *B. Hoffman 5107* (MO, US); Kurupung River, just below Makreba Falls, W creek bank; 06°07'N 60°20'W, 85 m, 18 July 1992, *B. Hoffman 2074A* (US); Kako River. Gallery forest and up small mountain slope. Lower vegetation *Macrolobium, Hevea, Eperua grandiflora*, Annonaceae, Clusiaceae; 05°30'12"N 60°51'29"W, 809 m, 11 May 2009, *K. M. Redden et al. 6526* (MO, US); Region: Potaro-Siparuni. Pakaraima Mts, upper Ireng River, 1-2 km upstream of Catch-a-Cow. Riverine forest dominated by *Mora excelsa*; 05°00'N 59°58'W, 305 m, 16 October 1994, *P. Mutchnick et al. 43* (MO); Region: Potaro-Siparuni. Pakaraima Mtns; Ireng River, from Manaparu Creek and 3 km downriver. Mesic, riverine forest on sandy soils; 05°04'N 59°57'W, 610 m, 29 October 1994, *P. Mutchnick et al. 268* (MO, US); West Pibiri compartment, Pibiri main road, just above camp, 10 October 1993, *Renske C. Ek et al. 909* (U). **Essequibo:** Kamwatta Ck, Kairimap R, Pomeroon R, 2 July 1918, *L. B. Hohenkerk 732* (K). **Mazaruni-Potaro:** Mt. Ayanganna, east face; 05°20'04"N 59°55'30"W, 712 m, 09 June 2001, *H. D. Clarke 8972* (US); Upper Ireng River, E. bank near Catch-Cow mouth; 04°59'N 60°08'W, 900 m, 14 October 1994 - 17 October 1994, *T. W. Henkel 5916* (US). **SURINAME**. "Mont Talouakem, Région des Tumuc-Humac - Surinam", South slope to Jari River, 02°29'N 54°45'W, 8 August 1993, *P. Acevedo-Rodríguez 5941* (US); South slope to Jari River, 02°28'N 54°45'W, 615 m, 19 August 1993, *P. Acevedo-Rodríguez 6087* (US); **Sipaliwini:** Vicinity of Ulemari River, ca. 150 km upstream from its confluence with Litani River; 02°46'05"N 54°51'15"W, 300 m, 25 April 1998, *R. J. Evans & Heather Peckham 2934* (MO, WU); Along road Apoera and Witagron, on logging road immediately off highway, 6 km W of Moses Kreek; 04°50'31"N 55°49'44"W, 121 m, 19 February 2011, *T. B. Croat & G. Ferry 102410* (CAY, MO, U, US). **UNITED STATES**. **Florida:** Dade. Cultivated Plants at Kampong, Miami, 21 September 2003, *T. B. Croat 90039* (MO); **Missouri:** Saint Louis City. Missouri Botanical Garden. Research Greenhouse. Cultivated, horticulturally grown, 38°36'51"N 90°15'33"W, 28 October 2005, *G. Gust & A Townesmith 958* (MO). **VENEZUELA**. **Amazonas:** Cerro Neblina base camp of Río Mawarinuma. Mature forest on sandy "ultisol"; 140 m, 30 April 1984, *A. H. Gentry & B. A. Stein 47075* (MO); Pie de monte E of Cerro Huachamacare, 03°49'N 65°41'W, 400 m, *Á. Fernández 7468* (PORT); Randal Wamujatado Río Cunucunuma, 4 Km NE of Huachamacare, 03°51'N 65°40'W, 280 m, *Á. Fernández 7517* (PORT); 20 km from confluence, 01°56'N 67°00'W, 119 m, 21 Mar-17 April 1981, *F. Delascio C. et al. 9697* (VEN); Km. 5 toward Pimichin Yavka, 125 - 140 m, 6-19 July 1969, *G. S. Bunting et al. 3852* (MY); Maroa, 128 m, 6-19 July 1969, *G. S. Bunting et al. 4103* (MY); *J. Lister & M. Colchester 2316* (K, MYF); San Carlos de Río Negro. Margin of forest bordering

savanna; 125 m, 18 April 1970, *J. A. Steyermark 102797* (MO, VEN); Depto. Atabapo: Camino entre Culebra y La Falda del Extremo norte del Cerro Duida. Zona boscosa al suroeste de la Comunidad de Culebra; 03°40'N 65°45'W, 180 - 300 m, *J. A. Steyermark 125724* (MO, VEN); Depto. Atures: virgin rainforest along Río Cataniapo, 44-45 km SE of Puerto Ayacucho, 3 km downstream from damsite; 05°35'N 67°15'W, 200 - 300 m, 9 May 1980, *J. A. Steyermark 122141* (F, MO, NY, VEN); piedra ignea, Cerro Aratitiyope, ca. 70 km al SSW de Ocamo, con riachuelos afluente al rio Manipitare, 02°10'N 65°34'W, 1020 m, 24-28 February 1984, *J. A. Steyermark et al. 130301* (MY, VEN); SW facing base of Cerro Yapacana; 400 m, 3 May 1970, *J. A. Steyermark & G. S. Bunting 103059* (MO, NY, VEN); A lo largo del río Yatua, margen izquierda, bajando desde el Cerro Arauicaua; 01°35'N 66°10'W, 125 m, 11 April 1970 - 12 April 1970, *J. A. Steyermark & G. S. Bunting 102604* (MO, MY, US, VEN); San Carlos de Río Negro, ca 20 km S of confluence of Río Negro and Brazo Casiquiare (average rainfall 3400-3600 mm/year). IVIC main study site, 4.3 km NNE of San Carlos on Solano road; 01°56'N 67°03'W, 119 m, 23 Mar 1983, *K. Clark C83-10* (MO); Río Negro. Along stream to 0 to 2 km E of Cerro de La Neblina Base Camp which is on Río Mawarinuma, 00°50'N 66°10'W, 140 m, 22 February 1984, *R. L. Liesner 16170* (MO, VEN); Atabapo. Base of cliff and forest below it on slope of Huachamacari, 03°39'N 65°43'W, 1000 - 1300 m, 5 Mar 1985, *R. L. Liesner 18282* (MO, VEN); Cerro Neblina base camp along Río Mawarinuma; 00°50'N 66°10'W, 140 m, 2 December 1984, *T. B. Croat 59561* (MEXU, MO); Vicinity of Santa Lucia, 01°14'30"N 66°50'00"W, 100 m, 24 November 1984, *T. B. Croat 59273* (MO); Vicinity of Cerro Neblina project base camp; just east of camp along "Bongo Trail", along south bank of Río Mawarinuma. 00°50'N 66°10'W, 140 m, 27 November 1984, *T. B. Croat 59378* (CM, IBE, MO); Vicinity of Cerro Neblina base camp along trail west of Kitchen along Río Mawarinuma, 00°50'N 66°10'W, 140 m, 28 November 1984, *T. B. Croat 59390* (B, MO); Vicinity of San Carlos de Río Negro; along road between San Carlos and Solano, ca. 8 km NE of San Carlos; 01°57'N 67°02'W, 100 m, 6 December 1984, *T. B. Croat 59633* (M, MO). **Bolívar:** Mun. Sucre. Santa María de Erebato. Bosque intervenido (cafetal); 04°59'N 64°49'W, 360 m, February 1989, *E. Sanoja et al. 2596* (MO, NY, PORT).

***Rhodospatha wendlandii*** Schott, J. Bot. 2: 52. 1864. — Type : Cultivated plant of F. Wendland at Schönbrun Palace, Vienna (W, presumed lost). — Schott Icones 2993 & 2994 (W, neotype, designated here). (**Figs. 289–292**).

*Rhodospatha nervosa* Lundell, Contr. Univ. Mich. Herb. 6:3. 1941. — Type: BELIZE. Stann Creek District: Middlesex, 25 May 1939, *Gentle 2797* (holotype, MICH).

*Rhodospatha roseospadix* Matuda, Anales Inst. Biol. Univ. Nac. México 25: 176. 1954. — Type: MEXICO. Chiapas: Turqui, vic. Finca California, 15°21'00"N 092°37'48"W, 8 September 1947, *E. Matuda 17782* (holotype, MEXU; isotypes, CM, DS, NY).

**Habit: juvenile plants** terrestrial, creeping, rooting at the nodes, eventually climbing trees; **adult plants** appressed-climbing epiphyte, producing inflorescences 2–4 m above soil.

**Stem:** typically unbranched, 1–2(7) m long; **internodes** to 4 cm diam., tightly appressed to support.

**Leaves: adult leaves** closely spaced near the apex, well-spaced below; **petioles** 25–83 cm long, drying matte, usually closely and acutely ribbed abaxially, sheathed throughout most of their length (the margins typically drying lighter brown and weathering away, usually somewhat to markedly fibrous), ultimately deciduous; the free portion of the petiole sulcate; **geniculum** prominently swollen, 2.0– 4.5 cm long, shrinking and turning black on drying; **juvenile blades** ovate to elliptic, acuminate, rounded to acute at base, gray-green, mostly 4–10 cm long; **adult blades** subcoriaceous, narrowly elliptic, oblong oblanceolate to narrowly ovate, asymmetrically cuspidate-acuminate at apex, typically rounded to truncate, rarely acute or subcordate at the base, 35–72 cm long, 13–36 cm wide, (0.9)2.5–3.1 times longer than wide, usually semiglossy on both surfaces, sometimes matte on one or both surfaces, dark green adaxially, slightly to moderately paler abaxially, typically drying dark brown to gray brown or rarely gray-green adaxially, dark brown to reddish brown or rarely grayish green to greenish gray abaxially; **midrib** bluntly acute adaxially, narrowly convex or much thicker than broad abaxially; **primary lateral veins** 22–60 per side, widely spaced (1.5–2.0 cm), departing midrib at ca 60–70°, sunken above, raised beneath, usually drying paler than the surface; **interprimary veins** 0–2 per pair of primary lateral veins; minor veins usually 3–5 per pair of primary lateral veins, obscure adaxially, visible abaxially.

**Inflorescences:** arising from the distal axils; **peduncle** 12–29 cm long; **spathe** subcoriaceous, 20–44 cm long, 9–18 cm wide when fully expanded, white to creamy white or somewhat pinkish or pinkish purple, acuminate at apex; **spadix** pale green, white to pink, light red, or faintly purplish, rarely becoming bluish green, cylindroid, and weakly tapered to the blunt apex, stipitate 5–30 mm, mostly ca. 1 cm, slightly shorter than the spathe, to 1.5 cm diam.

**Flowers: stamens** ca. 3 mm long; anthers narrowly inverted V-shaped, 0.8–1.0 mm long; pollen yellowish; **ovary** 3–4 mm long, obovoid, prismatic and truncate at apex; ovules elbow–shaped, sticking together in a gelatinous mass.

**289.** *Rhodospatha wendlandii* (*Croat 76559*). Live plant showing appressed-climbing. epiphytic habit, stem, petioles, and leaf blades (adaxial surface).

**290.** *Rhodospatha wendlandii.* Live plant showing appressed-climbing, epiphytic habit, stem, petioles, leaf blades (adaxial surface), and inflorescence just after anthesis with spathe detaching from the spadix. (Photo: J. Harrison).

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**Infructescences:** erect and often curled or nodding, faintly purplish or pinkish or finally yellow-orange to yellow at maturity.

**Fruits: seeds** round, flattened, ca. 1 mm diam.

**Distribution:** *Rhodospatha wendlandii* ranges from Mexico (Veracruz) to Panama and Colombia (Chocó, Antioquia)) from sea level to 1600 m, mostly to about 550 m in *Tropical Moist Forest, Premontane Wet Forest*, and *Tropical Wet Forest life zones.*

**Comments:** Although leaf blades are typically somewhat rounded at the base, some collections, including the type of *Rhodospatha roseospadix* Matuda (*E. Matuda 17782*), are acute at the base. Noteworthy is a collection from the Lancetilla Valley in Honduras (*Standley 53109*), which differs in drying grayish on the adaxial surface and reddish brown on the abaxial surface. An associated juvenile plant with this collection more closely resembles *R. moritziana* than *R. wendlandii*;

**291.** *Rhodospatha wendlandii* (*Croat & D. Hannon 63275*, MO-3444715). Specimen showing stem, petioles, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

**292.** *Rhodospatha wendlandii* (*Hammel 26349*, MO-6440064). Specimen showing stem, petioles, leaf blades (adaxial and abaxial surfaces), and post-anthesis spadix.

however, Standley describes this plant as an epiphyte. It is possible that the plants at Lancetilla represent another species.

Another noteworthy collection is one from Mexico in Tabasco at Cerro las Campanas (*Conrad et al. 2893*). This collection differs from other material from that part of Mexico in having leaf blades more acute at the base and in drying grayish on the adaxial surface and yellowish green on the abaxial surface.

**Other Specimens Seen: BELIZE**. **Stann Creek:** Stann Creek Valley, Mountain Cow Ridge. In high ridge, 16°57'07"N 88°26'07"W, 200 m, 1 Mar 1941, *P. H. Gentle 3527* (GH, NY); In high ridge, on hill slope, 17 Miles Section, Stann Creek Valley, 16°59'48"N 88°24'25"W, 40 m, 26 November 1956, *P. H. Gentle 9261* (LL); Along road and stream at Dry Creek, near District of Cayo border; 17°03'32"N 88°35'18"W, 300 ft, 14 June 1973, *T. B. Croat 24538* (MO); Vicinity of Cockscomb Mountains, 16°48'N 88°37'W, 500 f, 23 June 1930, *W. A. Schipp S-126* (BM, F, K, MO). **Toledo:** Southwestern Maya Mountains, Columbia River Forest Reserve. Trail between Gloria Camp and Edwards Camp to the South; 16°22'N 89°10'W, 15 April 1992, *B. K. Holst 4446* (MO); Southwestern Maya Mountains, Columbia River Forest Reserve. Gloria Camp; 16°22'N 89°10'W, 750 m, 13 April 1992 - 14 April 1992, *B. K. Holst 4401* (MO); Maya Mountains. Bladen Nature Reserve, Upper Bladen Branch basin, along main Bladen canyon. Shady, rocky, moist, seasonally flowing riverbed between limestone hills; 16°29'N 88°55'W, 250 m, 23 May 1996, *B. K. Holst et al. 5513* (MO); Southern Maya Mountains, Bladen Nature Reserve, upper Bladen Branch basin, along main Bladen Canyon; 16°29'N 88°55'W, 250 - 300 m, 16 May 1997, *G. Davidse & D. L. Holland 36508* (MO); Edwards Road, beyond Columbia, 16°20'N 89°10'W, 1 April 1951, *P. H. Gentle 7261* (LL); Drainage just south of "Doyle's Delight"; 16°29'42"N 89°02'21"W, 1050 m, 18 August 2004, *S. W. Brewer 1762* (BRH). **COLOMBIA**. **Antioquia:** 330 m, *E. Rentería A. et al. 2321* (HUA); Frontino. Parque Nacional Natural Las Orquideas, vereda Venados Abajo, despues de la finca Vista Hermosa, divisoria de aguas entre el rio Venados y querbrada La Selva; 06°33'01"N 76°18'54"W, 1240 - 1280 m, 25 July 2011, *Al. Zuluaga et al. 789* (NY). **Cauca:** El Tambo. Parque Nacional Natural Munchique, camino de la carretera a Nueva Granada; 2280 m, 8 July 1993, *S. Acevedo Contreras et al. 218* (COL, MO). **Chocó:** Río Mecana, ca 10 km E of Mecana. Mature forest on lateritic soil on ridge top; 06°15'N 77°19'W, 100 m, 7 March 1983, *A. H. Gentry & A. Juncosa 41090* (COL, MO); Hills behind logging camp below first rapids on R. Truando; 06°46'00"N 77°26'00"W, 40 - 200 m, 15 June 1967, *J. A. Duke 13306* (NY); Nuquí. Corr. de Arusí, Estación Biológica EL AMARGAL; 05°34'N 77°31'W, January 1999 - April 1999, *J. Jácome 396* (COL, MO); San José del Palmar Hoya del Río Torito (afluente del Río Hábita), declive occidental, Finca "Los Guaduales"; 04°54'00"N 76°19'00"W, 730 - 830 m, 2 Mar 1980, *E. Forero et al. 6541* (COL);

**Santander:** Puerto Wilches. Road to El Pedral (Santander), 100 - 200 m, 30 January 1980, *E. Rentería A. et al. 2184* (COL, HUA, MO). **Valle del Cauca:** Buenaventura. between Buenaventura and Río Calima, Cartón de Colombia Forest Concession Area, 11 km NW of Cali-Buena- ventura Highway. 18 year old regrowth, forest plot behind Pulpapel head- quarters; 03°56'30"N 77°01'00"W, 17 July 1988, *T. B. Croat 69325* (MO). **COSTA RICA. Limón:** Montanhas de Colorado, 08°32'27"N 082°54'17"W, 23 March 1989, *Alice Benzecry CR.CB.CL.113* (NY); Corcouado Nac. Park, 08°33'00"N 083°34'48"W, 10 m, *Stefan Merz 453* (CR); Coto Brus. P.I. La Amistad. Cordillera de Talamanca. Sector El Tajo. 09°01'12"N 082°57'36"W, 1300 m, 11 March 1991, *Gerardo Mora 273* (CR, MO); Above coffee fincas along Río Coto Brus, near Cotón, 23 km north of La Unión (on Panama) border, 08°58'N 083°05'W, 09 August 1974, *T. B. Croat 26687* (MO); **Puntarenas:** Cantón Osa: along road between Rincón and Boscosa, 2 km W of bridge over Río Rincón, 08°41'20"N 083°29'50"W, 50 m, 11 September 1996, *T. B. Croat 79255* (CM, CR, MO, NY); Eastern base of Fila Barriganes. Ca. 1 km S and 2 km W of Cañasas (ca. 12 km S of Rincón de Osa). Forest, 08°34'N 083°25'W, 60 m, 4 March 1985, *T. B.Croat 59810* (MO, PMA). **San José:** Tarrazu. San Marcos de Tarrazu between Cerro Toro and Cerro Hormiguero along the road between Basuero de Tarrazu and Esquipulas, vicinity of Cerro Hormiquero. 09°33'30"N 084°03'15"W, 1100 - 1200 m, 05 September 1996, *T. B. Croat 78933* (CM, CR, IBE, K, M, MO); Turrubares. Reserva Biológica Carara, Valle del Tárcoles, Cuenca del Río Grande de Tárcoles, Puesto Carara, along Río Carara, between guardpost and Río del Sur. [Original Label Coordinates 9°47'00"N 84°32'00"W]. 09°46'48"N 084°31'48"W, 130 - 170 m, 2 April 1993, *M. H. Grayum 10430* (CR, MO). **GUATEMALA. Alta Verapaz:** Cubilgüitz, 15°40'36"N 090°25'12"W, 350 m, March 1913, *Hans von Türckheim 4016* (US); 7 miles up road to Oxec along road which turns off Highway 7E between Tucurú and El Estor, ca. 6 km NE of Panzós. 15°30'21"N 089°40'23"W, 700 m, 20 July 1977, *T. B. Croat 41620* (MO, PMA); Panzos. *C. Cifuentes et al. CF049* (BIGU); Izabal: Along trail beginning from mile 33.23 between Dartmouth and Morales towards Lago Izabal, Montaña del Mico, 15°23'09"N 089°01'24"W, 35 - 150 m, 7 April 1940, *J. A. Steyermark 39079* (F.MO); Near Entre Ríos, 15°38'04"N 088°32'19"W, 18 m, 30 April 1939, *P. C. Standley 72765* (F); Montañas del Mico, 3 km W of Santo Tomás de Castilla on road to microwave tower. On limestone, with travertine deposits along stream. 15°41'37"N 088°38'47"W, 240 m, 10 September 1988, *W. D. Stevens. et al. 25618* (MO). **Izabal:** Livingston. Creek Jute, Biotopo Chocón Machacas. 15°47'22"N 088°51'58"W, 28 julio 1988, *Pedro Tenorio L. et al. 14983* (MO); Puerto Barrios. En el río Las Escobas, camino entre Puerto Barrios y Punta de Palma. 15°41'20"N 088°38'34"W, 120 m, 10 septiembre 1988, *E. M. Martínez S. et al. 23692* (MO). **Petén:** Forest between Finca Yalpemech along Río San Diego and San Diego on Río Cancuen, 16°01'40"N 090°04'31"W, 50 - 150 m, 25 March 1942, *J. A. Steyermark 45325* (F, GH, NY, US); Dolores. Dolores, Km 83, on Machaquila

Road, 16°30'32"N 089°25'40"W, 18 April 1961, *Elias Contreras 2112* (LL). **HONDURAS. Atlántida:** Campamento Quebrada Grande ca. 10 km southwest of La Ceiba. At base of north slope of Pico Bonito, from camp to 1 km east of camp. 15°42'N 086°51'W, 140 m, 08 May 1993, *R. L. Liesner & D. Mejía 26055* (MO); Along trail to dam for municipal water supply of Tela, Lancetilla Botanical Gardens, on road ca. 2 mi WSW of Tela and S of main hwy, 2 October 1987. 15°44'N 087°27'W, 70 - 90 m, 10 February 1987, *T. B. Croat & D. P. Hannon 64644* (MO); La Masica. 11 km W of La Masica. 15°38'18"N 087°10'50"W, 100 m, 12 September 1972, *M. T. Madison 694* (GH); Tela. Lancetilla Valley, near Tela. 15°42'40"N 087°27'28"W, 20 - 600 m, 06 December 1927 - 20 March 1928, *P. C. Standley 53109, 55390* (F, US); Lancetilla Valley ca. 10 miles southeast of Tela; in forest preserve along Río Lancetilla, on trail to water reservoir. 15°44'N 087°27'W, 10 - 150 m, 03 August 1977, *T. B. Croat 42659* (MO, PMA); Vicinity of Lancetilla, 15°44'N 087°27'W, 100 - 150 f, 12 August 1934, *T. G. Yuncker 5006* (MO). **Cortés:** San Pedro Sula. Guamiles semi-húmedos de Montaña El Carmén (=San Antonio del Perú). 15°29'01"N 088°04'26"W, 260 m, 2 December 1950, *Antonio Molina R. 3530* (F); **Olancho:** Along Río Olancho, on road between San Esteban and Bonito Oriental, 14.8 miles NE of San Esteban. 15°25'N 085°47'W, 635 m, 07 February 1987, *T. B. Croat & D. P. Hannon 64398* (CR, MO, PMA). **MEXICO. Chiapas:** Lacondona Reserva; Crucero frontera; Corozal. 16°54'36"N 091°04'48"W, 290 m, 11 October 1986, *B. E. Hammel et al. 15672* (MEXU, MO); Escuintla Esperanza, 15°26'24"N 092°31'12"W, 200 m, June 3, 1948, *Eizi Matuda 17938* (DS, MEXU); Cascada Mizola, 19 km south of Palenque. 17°23'24"N 091°59'24"W, 250 m, 2 October1974, *M. T. Madison 1759* (GH, SEL); Escuintla. Esperanza. In wet shaded forest. 15°26'24"N 092°31'12"W, 160 m, 5 July 1948, *Eizi Matuda 18157* (DSW, MEXU, NY); In wet forest. Salto de Agua, Esquintla. 15°22'12"N 092°37'48"W, 400 m, 4 August 1948, *Eizi Matuda 18399* (F,MEXU); Ocosingo. A 3 km al N del crucero San Javier. 16°48'28"N 091°06'42"W, 383 m, 2 September2002, *Gabriel Águilar M. et al. 2456* (MO); Palenque. Slopes and small streams along the ridges 6-12 km S of Palenque on the road to Ocosingo. 17°26'44"N 091°58'36"W, 300 m, 23 November 1972, *D. E. Breedlove & R. L. Dressler 29766* (DS); Along gravel road from Palenque to Bonampak, 60 miles SE of Palenque. 17°00'03"N 091°19'11"W, 400 m, 05 July 1977, *T. B. Croat 40187* (MO, PMA); Tapachula. 4 miles N of Tapachula, along road to Nueva Alemán. 14°58'44"N 092°14'38"W, 250 m, 20 August 1977, *T. B. Croat 43792* (MO). **Oaxaca:** Uxpanapa Region, along gravel road between Esmeralda (17 km E of Sarabia) and Río Manea (tributary of Río Verde), 11.5-13.5 mi S of Esmeralda. Roadside vegetation with primary forest elements. Veg. type: "selva alta perennifolia", 17°03'36"N 094°45'W, 90-110 m, 19 January1987, *T. B. Croat & D. P. Hannon 63275* (MEXU, MO). **Tabasco:** Tacotalpa. Cerro del Madrigal, Km 7 (4.2 mi) de la estación Tacotalpa hacia Tapijulapa. 17°30'00"N 092°48'36"W, 90 m, 17 June 1983, *Clark P. Cowan et al. 3938* (MO); Tacotalpa. 17°34'12"N 092°49'25"W, 20 - 25 m, 24 July 1980, *Clark P. Cowan & M. A. Magaña A.*

*3128* (CSAT); Teapa. 50° slope of Cerro las Campanas 3 km E of Teapa, ca. 50 km S of Villahermosa. 17°32'24"N 092°55'48"W, 50 - 100 m, 12 August 1974, *Jim Conrad et al. 2893* (MO); 3 km E of Teapa, along road to Jalapa. 17°32'24"N 092°55'48"W, 40 m, 04 July 1977, *T. B. Croat 40127* (CAS, F, MEXU, MO); Vicinity of Teapa, along road between Teapa and Tacotalpa, 3.1 m; E of Teapa, ca. 0.25 miles S of Highway. Along stream and limestone cliffs. 17°33'N 092°58'W, 150 m, 19 February 1987, *T. B. Croat & D. P. Hannon 65369* (ENCB, MEXU, MO). **Veracruz:** Estación de Biología Tropical Los Tuxtlas, wet forest. Transect 10. 18°34'48"N 095°03'36"W, 170 - 200 m, 1 June 1981, *A. H. Gentry & E. J. Lott 32563* (MO); Los Tuxtlas, 18°34'48"N 095°03'36"W, 02 March 1987, *Guillermo Ibarra Manríquez & Santiago Sinaca C. 1254* (MEXU); Playa Escondida 28 km NE of Catemaco. 18°34'12"N 095°03'36"W, 50 m, 25 September1974, *M. T. Madison 1726* (GH, SEL); Catemaco. Estación de Biologia Tropical 'Los Tuxtlas', Lote 72, cerca del Ejido Lazaroro Cardenas. 18°34'N 095°05'W, 240 m, 14 Agosto 2006, *Thorsten Krömer & A. Peña 2799* (MO); Coatzacoalcos. 6 miles E of Coatzacoalcos along Highway 180. 18°04'48"N 094°21'36"W, 10 m, 03 July 1977, *T. B. Croat 40065* (MO); San Andrés Tuxtla. Lote 71, "El Pedregal", 18°34'N 095°04'W - 18°36'N 095°09'W, 600 m, 03 July 1986, *Santiago Sinaca C. 818* (CHAPA); Estación de Biología Tropical Los Tuxtlas, N of San Andrés Tuxtla between Sontecomapan and Montepio. Along broad trail and new border road through virgin forest. Veg. type: "selva alta perennifolia", 18°34'48"N 095°03'36"W, 150-200 m, 17 January1987, *T. B. Croat & D. P. Hannon 63157* (ENCB, MO); Alrededores de la Estación de Biologia Tropical "Los Tuxtlas", carr. Catemaco-Montepio. Selva alta perennifolia. 18°35'N 095°04'W, 120 m, 11 May 2005, *Thorsten Krömer 2176* (MO); Col. Agrícola Militar Montepio "Rancho Huber". *Selva alta perennifolia*. 18°36'N 095°05'W, 60 m, 26 June 2005, *Thorsten Krömer & Amparo Acebey 2305* (MO). **NICARAGUA. Atlántico Sur:** Comarca Waslala, 6.5 km al SE de Waslala, 13°16'N 085°24'W, 520-560 m, 14 septiembre 1982, *P. P. Moreno 17291* (MO); Caño Costa Riquita, ca. 1.8 km SW of Colonia Naciones Unidas, above (S of) road between Colonia Nuevo Léon and Colonia Naciones Unidas. 11°43'N 084°18'W, 150 - 180 m, 06 November 1977 - 07 November 1977, *W. D. Stevens 5032* (MO); Río San Juan: Municipio El Castillo, Comunidad Las Maravillas, El Puentón, 3 km al oeste de la comunidad, 11°07'15"N 084°21'04"W, 100 m, 8 Abril 2005, *C. Guadamuz 3625* (HULE, MO); Near Caño Chontaleño, 20 km NE of El Castillo. 11°08'N 084°12'W, 200 m, 18 April 1978 - 21 April 1978, *David A. Neill & Paul C. Vincelli 3624* (MO); El Castillo, lowland disturbed forest on sandy clay soils, 11°01'N 084°24'W, 35 - 50 m, 2 Sep. 1990, *Jan Salick 7844* (MO); La Lupe, ca. 25 km ENE of Boca de Sabalo; primary forest lightly logged with silvicultural treatment, clay soils, hilly, 11°08'N 084°21'W, 80 - 120 m, 28 June 1997, *Jan Salick & Eirik Stijfhoorn 8176* (MO); La Lupe, ca. 25 km ENE of Boca de Sabalo; primary forest lightly logged with silvicultural treatment, clay soils, hilly, 11°08'N 084°21'W, 80 - 120 m, 28 June 1997, *Jan Salick & Eirik Stijfhoorn 8213, 8383* (MO). **PANAMA**. January 1858,

*Moritz F. Wagner s.n.*; Distrito de Chepo. Llano-Carti. Carretera hacia Nusagandi, km. 2. Reserva privada Burbayar. Sendero rojo, 09°18'46"N 78°59'34"W, 405 m, 16 December 2012, *Orlando Ortiz 1061* (MO, PMA). **Bocas del Toro:** *A.K. Monro et al. 6383* (PMA); Bocas del Toro. Alto Uri, Rancho Santin, PILA, Punto #4. Aprox a 300 mtrs de R. Santin. 9:11:22.5/82:66:43.1, 29 July 2008, *Daniel Santamaría 7595* (MO); Faldas del "Cerro Falso Fabrega" PILA, Puntp#9. 09°09'42"N 82°40'20"W, 1020 m, 03 August 2008, *Daniel Santamaría et al. 7663* (MO, PMA); Vicinity of Fortuna Dam. Along pipeline road leaving road to Chiriquí Grande at continental divide, 2.8 road-miles from divide; 08°46'42"N 82°11'34"W, 850 - 950 m, 25 June 1986, *G. McPherson 9673* (MO); Alto Uri, Rancho Santin, PILA. Punto #4. Approx a 300mtrs de R. Santin, 09°11'22"N 82°06'43"W, 29 July 2008, *Daniel Solano et al. 7570* (MO, PMA); Changuinola. PILA. Estacion Santin, 09°07'08"N 82°39'51"W, 01 August 2008, *Daniel Solano et al. 5634* (MO, PMA); Bosque Protector Palo seco. Sendero El Verrugoso, entrando por la finca del Sr. Desiderio Meneses; 08°46'54"N 82°10'40"W, 822 m, 7 February 2013, *Jorge E. Aranda B. 4426* (MO, PMA); Cerro Frío, headwaters of Río Tskui. Point 20; 09°15'26"N 82°30'29"W, 1100 m, 24 October 2008, *Laurencio Martínez, Alex K. Monro & Daniel Santamaría 376* (MO, PMA). **Canal Area:** Gatun Lake. Raymond Shannon Trail. Barro Colorado Island, 09°09'25"N 79°50'30"W, 10 - 100 m, 16 March 1934, *J. R. Smith Netting 25* (CM, MO); Barro Colorado Island; 09°09'N 79°51'W, 10 - 100 m, *O. E. Shattuck 104* (F); *P. C. Standley 40959, 41143* (US); *T. B. Croat 6291,* 6302, *6407, 6851, 7720, 8226, 10176, 10904, 11837, 12502* (MO); Pipeline Rd. 6.5 miles NW of gate, 09°10'15"N 79°45'14"W, 100 m, 6 Dec 1970, *T. B. Croat 12761* (MO, SCZ. **Chiriquí:** Along Río Colorado; 08°50'N 82°43'W, 1200 - 1400 m, 17 March 1983, *Clem W. Hamilton & Henry Stockwell 3450* (MO); Santa Clara. Finca Hartmann; 4 April 1997, *D. W. Roubik & Liduvina Quiroz 716* (CR); Camino hacia Soledad, SO del campamento de Fortuna (sitio de presa), hasta región de finca Pitti; 08°43'N 82°17'W, 1100 m, 8 June 1976, *M. D. Correa A, N. Escobar A. & R. Mendoza 2077* (PMA); "Ojo de Agua", property of Ratidon Hartmann, vicinity of Santa Clara (between Volcán and Río Sereno); E of Volcán; 08°51'N 82°45'W, 1520 m, 16 June 1987, *T. B. Croat 66247* (CR, HNMN, MEXU, MO); On NW side of Cerro Pando; 08°49'36"N 82°42'12"W, 1400 m, 21 July 1971, *T. B. Croat 15910* (MO); Fortuna Dam Area, Fortuna-Chiriquí Grande, 1.8 mi NW of center of dam; 08°45'N 82°18'W, 1080 m, 27 June 1994, *T. B. Croat & G. H. Zhu 76504* (F, HUA, M, MO, NCY, NY, PMA); Fortuna Dam Area: Trail to Meteorological Station of Río Hornito, beginning 0.5 km S of Centro de Cientificos; 08°45'N 82°18'W, 23 June 1994, *T. B. Croat & G. H. Zhu 76300* (AAU, B, CM, G, IBE, KRAM, M, RSA, SAR, SEL, VDB, W, Z); Gualaca. Reserva Forestal Fortuna. Sendero Samudio; 08°44'04"N 82°14'57"W, 1205 m, 06 November 2013, *Orlando Ortiz, Juvenal Batista & F. Miranda 1775, 1795* (MO, PMA). **Coclé:** La Mesa region N of Cerro Gaital vicinity of (El Valle); 08°37'N 80°07'W, 2400 ft, 02 July 1978, *B. E. Hammel 3890* (MO); NE slopes of Cerro Caracoral, N rim of El Valle; 08°37'18"N

80°06'30"W - 08°37'42"N 80°07'00"W, 2700 - 3200 ft, 13 March 1981, *K. J. Sytsma 3786* (MO); Parque Nacional Omar Torrijos. Cano Sucio. Area del Tife. Bosque humedo; 08°43'18"N 80°37'56"W, 247 m, 20 July 2013, *O. O. Ortiz 1425* (MO, PMA); Vicinity of El Valle de Antón; at La Mesa, 0.2 mi from jct. of Finca Macarenitas and Finca Adela at Finca Gabriella, along water lines to reservoir; 08°38'N 80°09'W, 7 July 1994, *T. B. Croat & G. H. Zhu 76743* (K, MO, S); Vicinity el Valle de Antón, at forested flat area near Finca Macarenita at La Mesa; 08°36'N 80°07'W, 800 m, 6 July 1994, *T. B. Croat & G. H. Zhu 76675* (MO, PMA); La Pintada. Palmarazo, Río San Juan, Parque NacionalOmar Torrijos. Area de Calle Larguita, bosque primario; 08°42'58"N 80°40'21"W, 17 julio 2013, *Álex Espinosa 6134A* (HUA, MO, PMA); Vicinity El Copé, Alto Calvario, ca. 6 mi N of El Copé, 08°39'45"N 80°35'26"W, 770 m, 12 July 1994, *T. B. Croat & G. H. Zhu 76762* (MO). **Colón:** Distrito de Donoso. Area de Concesion Minera Panama. Coastal Road. Km16. Coordenadas en UTM: 0537499 985005; 108 m, 10 June 2013, *Orlando Ortiz et al. 1344* (MO, PMA); 9-12 mi E of Transisthmian Highway on Santa Rita ridge. [Coordinates on original label: 9º20'N, 79º45'W], 09°22'00"N 79°39'30"W - 09°23'30"N 79°41'30"W, 500 - 550 m, 17 - 18 April 1988, *Sue A. Thompson 4842* (CM, MO); Santa Rita Ridge Road, along trail at end of road which goes to Río Indio, beginning 10.6 km from Iransisthmiam Hwy, 3 km beyond hydrographic station; 09°22'30"N 79°41'30"W, 380 m, 13 April 1976, *T. B. Croat 34339* (MO); Along road between Portobelo and Nombre de Dios, 1.2 mi. beyond the junction of the road to Isla Grande. [Coordinates on original label: 9º36'N, 79º35'W], 09°34'N 79°34'W, 05 April 1980, *T. B. Croat 49793* (MO, SEL); Vicinity of Río Indio, east of Portobello, 09°33'30"N 79°32'30"W, 0-300 f, 22 March 1976, *T. B. Croat 33676* (MO); Along Río Guanche, 5 km above bridge on Colón-Portobelo road, 09°22'30"N 79°41'30"W, 250 m, 6 April 1993, *T. B. Croat 75162* (CM, K, M, MO); Along Río Iguanita near bridge along Portobelo Road. [Coordinates on original label: 9º28'N, 79º42'W], 09°29'50"N 79°41'31"W, 50 m, 05 April 1980, *T. B. Croat 49780* (MO); Donoso. MPSA Concession. Forest around Petaquilla Tower. Collected with: J. De Gracia, J. Martínez, H. Quiel, & M. Merello, 08°48'53"N 80°39'59"W, 23 May 2012, *B. E. Hammel 26349* (MO); Area de Concesion Minera Panama. coastal Road. Coordenadas en UTM: 537528 984923; 102 m, 22 May 2013, *Orlando Ortiz et al. 1327* (MO, PMA); Portobelo. 6 miles S of Portobelo, 09°30'N 79°41'W, 17 July 1970, *T. B. Croat 11406* (F, MO, NY). **Darién:** Parque Nacional del Darién, along S branch of Río Pucuro; forest and ridge S of river and up river from old village of Tacarcuna; ca. 18 km E of Pucuro; 08°05'N 77°16'W, 600 - 800 m, 25 October 1987, *B. E. Hammel et al. 16499* (MO); Cerro Sapo; ca. 5 km south of Garachiné; along ridge at north approach to cerro; 7°59'N 78°25'W, 600 - 800 m, 23 March 1986, *B. E. Hammel et al. 14860* (MO); South of El Real, region called Alturas de Nique, near Cana mine. Near camp, along trail to Río Seteganti; 7°45'N 77°40'W, 500 m, 23 August 1987, *Gordon McPherson 11557* (MO); Parallel to Río Tucutí on ridge upstream ca. 2 hrs (piragua) above

Tucutí; 7°54'N 77°56'W, 160 m, 25 July 1962, *James A. Duke 5270* (MO); Vicinity of airstrip at Cana gold mine; 7°45'N 77°41'W, 480 m, 29 July 1976, *T. B. Croat 38053* (MO); Vicinity Cerro Pirre, along trail from base camp to Rancho Frío on slopes of Cerro Pirre; 7°58'N 77°43'W, 200 - 450 m, 27 July 1994, *T. B. Croat & G. H. Zhu 77128* (CAS, CM, MO, PMA); Pinogana. Along headwaters of Río Tuquesa, ca. 2 km air distance from the Continental Divide, in vicinity of upper gold mining camp of Tyler Kittredge; 08°33'30"N 77°29'00"W, 600 m, 25 August 1974, *T. B. Croat 27155* (MO). **Panamá:** Isla de Barro Colorado. Sendero Snider Molino, transecto #3; 03 February 2000, *Blanca Araúz & Rafael Aizprúa B1720* (MO); Distrito de Campana. Parque Nacional Altos de Campana. Sendero hacia la Cruz; 24 May 2014, *Orlando Ortiz et al. 2391* (MO, PMA); Kunayala (formerly San Blas) Nusigandi, along El Llano-Carti Road, 0.7 miles beyond Cuna Headquarters, located 10.9 miles N of Pan-American Highway, 11.6 miles N of Pan-American Highway; 09°18'N 78°59'W, 450 m, 03 April 1993, *T. B. Croat 75106* (CUVC, MO), *75145* (CM, MO); Along road to Cartí Suitupo from El Llano; 13.2 km North of Pan American Highway; 09°16'N 78°57'W, 370 m, 11 February 1986, *W. Scott Hoover 1314* (CM, MO); Capira. Cerro Campana in forest along trail from 2700 ft. to top (ca. 3200 ft.), 08°41'26"N 79°55'15"W, 2700 - 3200 f, 2 July1978, *B. E. Hammel 3770* (MO); Middle slopes of Cerro Campana, ca. 1 mile from Interamerican Highway, 08°43'09"N 79°53'25"W, 150 m, 15 June 1976, *T. B. Croat 35955* (MO); Chepo. 16-18 km from Interamerican Highway on the El Llano-Cartí Road, 09°17'50"N 78°56'03"W, 400 m, 28 March 1974, *E. L. Tyson & M. H. Nee 7347* (MO), *7350* (GH, MO); El Llano-Cartí Road, 5-6 miles N of Interamerican Highway at El Llano, 09°15'30"N 78°55'50"W, 350 - 375 m, 7 May 1976, *T. B. Croat 34785* (MO); Along trail between Río Majé and Quebrada Brava, 09°06'21"N 78°45'36"W, 60 m, 4 May 1976, *T. B. Croat 34655* (MO); Trail behind Peluca meterological station; 09°22'56"N 79°32'38"W, 200 m, 25 March 1973, *Helen Kennedy & Robert L. Dressler 2965* (MO); Campo Tres, beyond Cerro Jefe, 09°18'03"N 79°15'57"W, 700 m, 21 August 1974, *T. B. Croat 27079* (MO); Vicinity of Cerro Jefe, 4.6 km beyond peak on road to Altos de Pacora, 26.3 km from the Inter-American Highway; 09°14'20"N 79°20'25"W, 600 m, 12 June 1976, *T. B. Croat 35937* (MO). **San Blas:** Near Nusigandi on El Llano-Cartí road. Forest along Sendero Nusigandi, west of road. [Coordinates on original label: 9º15'N 79º00'W], 09°20'N 78°59'W, 300 - 350 m, 26 March 1987, *Gordon McPherson 10746* (MO); Río Cangandi at confluence of Quebrada Titamibe. [Coordinates on original label: 9º24'N, 79º7'W], 09°24'30"N 79°07'00"W, 60 m, 8 February 1986, *Greg C. de Nevers & Heraclio Herrera 7032* (MO); El Elano-Cartí Road, 14 mi N of Panamerican Highway; 09°21'N 78°57'W, 300 m, 12 July 1988, *T. B. Croat 69248* (MO); (Comarca de Kunayala): Nusigandí, El Llano-Cartí Road, 10.1 mi N of Interamerican Hwy; then ca. 0.5 mi N, Paseo Mariska near road; 09°20'N 78°59'W, 300 m, 20 July 1994, *T. B. Croat & G. H. Zhu 77022* (MO, PMA); (Comarca de Kunayala); Nusigandí, El Llano-Cartí Road, 9 mi N of main highway; Nergan Igar

(Nergan Trail), 09°20'N 79°59'W, 350 m, 2 July 1994, *T. B. Croat & G. H. Zhu 76559* (CR, HUA, MO, PMA). **Veraguas:** Santa Fe. Río Guayabalito. Areas boscosas en las proximidadea del rio. Cercano al limite con la provincia de Colon (Río Belen); 08°47'40"N 80°45'46"W, 109 m, 19 March 2014, *Alvin Zapata et al. 3553* (MO, PMA); Above Santa Fe beyond Escuela Agrícola Interamericana, 1.8 miles beyond fork in road on Pacific slope; above rocky ravine on side of Cerro Tute; 08°30'49"N 81°02'11"W, 700 - 1000 m, 05 April 1976, *T. B. Croat 34201* (MO); Valley of Río Dos Bocas on road between Alto Piedra (above Santa Fé) and Calovebora, along road; 08°33'03"N 81°10'17"W, 350 - 400 m, 29 August 1974, *T. B. Croat 27438* (MO); Vicinity of Santa Fé, along road between Alto Piedra and Calovebora, 0.5 mi N of Alto Piedra, on slopes of Cerro Tute, Parque Nacional Cerro Tuté; 08°30'28"N 81°07'20"W, 800 - 1030 m, 15 July 1994, *T. B. Croat & G. H. Zhu 76889* (MO, PMA).

***Rhodospatha yotocoensis*** Croat, **sp. nov.** — Type: COLOMBIA. Valle del Cauca: Yotoco, Cordillera Occidental, eastern slopes; along highway between Dapa and Loboguerrero at Parque Yotoco, 03°52'N76°22'W, 1485-1550 m, 17 February 1990, *T. B. Croat 70724* (holotype, MO-3784042-45). (**Figs. 293–296**).

**Diagnosis:** *Rhodospatha yotocoensis* is characterized by drying dark brown; petioles with the sheath breaking into long dark brown fibers; large, oblong-elliptic, short-acuminate blades 2.7–2.8 times longer than wide and drying dark brown with widely spaced primary lateral veins; and large, long-pedunculate inflorescences with a large, creamy, acuminate (drying black) spathe and a long, purplish violet spadix.

**Habit:** appressed-climbing epiphyte.

**Stem: juvenile internodes** 4–5 cm long, ca. 4 mm diam.; **adult internodes** 1–4 cm long, 1.0–3.7 cm diam.,pinkish when young, becoming medium green, semiglossy, drying dark brown to yellow brown, coarsely ribbed and closely cross-fissured.

**Leaves:** distichous, erect-spreading; **petioles** 46–59 cm long, clasping the stem, sheathed to the geniculum; **sheath** deciduous, breaking into long dark-brown fibers along the petiole; **juvenile blades** lanceolate, 17–18 cm long, 4–5 cm wide, drying dark brown; **adult blades** subcoriaceous, oblong-elliptic, 38–65 cm long, 13.5–24.0 cm wide, 2.7–2.8 times longer than wide, inequilateral (one side to 2.5 cm wider), short-acuminate at apex, inequilateral and acute-rounded at base and shortly decurrent, dark green and semiglossy adaxially, moderately paler and glossy abaxially,

**293.** *Rhodospatha yotocoensis* (*Croat 70724*, MO-3784043). Holotype showing stem, petioles with sheath breaking into long fibers, and leaf blade (adaxial surface).

**294.** *Rhodospatha yotocoensis* (*Croat 70724*, MO-3784045). Holotype showing petiole and leaf blade (adaxial and abaxial surfaces).

**295.** *Rhodospatha yotocoensis* (*Croat 70724*, MO-3784044). Holotype showing post-anthesis inflorescence with spadix and detached spathe.

**296.** *Rhodospatha yotocoensis* (*Croat 70724*, MO-3784042). Holotype showing juvenile plants.

drying dark brown and matte adaxially, reddish brown and weakly glossy abaxially; **midrib** narrowly sunken and marginally discolorous adaxially, thicker than broad and much paler abaxially, drying narrowly sunken, concolorous to paler adaxially, narrowly round-raised, densely granular abaxially; **primary lateral veins** 25– 33 per side, spaced 1–2 cm, departing midrib at 70–90°, sunken adaxially, convex abaxially, drying paler, weakly sunken adaxially, round-raised, darker, matte abaxially; **interprimary veins** weakly raised, often undulate; minors veins 1 or 2 running between the interprimary veins and the primary lateral veins.

**Inflorescences:** erect; **peduncle** 14–34 cm long, drying dark brown; **spathe** pale green or cream, 23–32 cm long, to 12 cm wide when flattened, narrowly long-acuminate, drying blackish brown, weakly glossy, veins close and obscure; **spadix** cylindroid-tapered, 11.5–23.0 cm long, 1.1–1.5 cm diam., purplish-violet or pinkish, drying dark brown.

**Flowers: styles** moderately small, mostly rectangular to rectangular-prismatic, 1.6–1.8 mm long, 1.2–1.4 mm wide, grayish brown, matte; **stigmas** ca. 1 mm long, 0.4–0.6 mm wide, blackened, weakly glossy, the medial slit moderately obscure to moderately prominent.

**Infructescences:** not seen.

**Distribution and ecology:** This species is endemic to Colombia, found only on the eastern slopes of the Cordillera Occidental in a restricted area between Km 18 on the Cali-Buenaventura Highway to Parque Yotoco near the summit of the divide in Valle del Cauca Department at 1480–1900 m in a *Montane Rain Forest* life zone.

**Etymology:** The species is named for the Yotoco Reserve in Valle del Cauca where it has mainly been found.

**Comments:** *Rhodospatha yotocoensis* resembles *R. paraguasensis*, which also grows at high elevations in the Cordillera Central. However, the latter species differs by its terrestrial habit; petioles with the sheath breaking into pale fibers (rather than dark brown as in the case of *R. yotocoensis*); blades drying lighter brown with more closely spaced primary lateral veins; and erect inflorescences (rather than pendent for *R. yotocoensis*).

**Paratypes: COLOMBIA. Valle del Cauca:** Cali, Finca Zingara, Km. 18 carretera al mar o Simón Bolivar, via a Dapa, bosque de niebla, 1900 m, *J. Giraldo G. 384* (MO); Reserva Forestal de Yotoco, Cordillera Occidental, vertiente oriental, 18 km W of Buga, bosque, 03°52'N 76°33'W, 1610 m, 29 April 1995, *P. A. Silverstone-Sopkin & N. Paz Z. 7476* (CUCV, MO); Yotoco Valley, *Manuel López-Figueiras 8082* (US); Municipio Dagua, Finca Villa Carolina, Parcelación El Ensueño, Cordillera

Occidental, western slopes, cloud forest above the finca, 03°33'49"N, 76°36'12"W, 1825 m; 20 November 1999, *P. A. Silverstone & N. Paz 8417* (CUVC, 38300).

***Rhodospatha zamorana*** Croat, **sp. nov.** — Type: ECUADOR. Pichincha: Ca. 6–8 km N of Alvaro Pérez Intriago (Km 113, Quito-La Independencia hwy.), along tributary of Río Guayllabamba, 00°10'N 79°03'W, 600 m, 7 April 1989, *M. H. Grayum, N. Zamora & Á. Gómez 9365* (holotype, MO-3733366-67; isotype, QCNE). (**Figs. 297–298**).

**Diagnosis:** *Rhodospatha zamorana* is characterized by its short internodes; petioles sheathed 3/4 to 4/5 their length; markedly bicolorous, broadly ovate-elliptic, markedly inequilateral blades 1.4–1.8 times longer than wide and drying brownish, rounded at apex and markedly inequilateral (attenuate-subcordate with 1 or 2 indistinct interprimary veins running between the primary lateral veins; and large inflorescences with a long peduncle closely enveloped by a prophyll extending most of its length and arching spadix turning deep olive-blue-green.

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** short, 1.5–3.0 cm long, 1.5–2.0 cm diam.,dark green and matte-subvelvety, drying pale brown, matte, prominently and closely longitudinally ribbed and closely cross-fissured.

**Leaves: petioles** 32–40 cm long, green and smooth at base, drying yellowish brown, finely ribbed on magnification, sheathed 3/4 to 4/5 their length; **sheath** thin, mostly dark brown, persistent; **geniculum** 3–4 cm long, drying darker, shrunken; **blades** thinly coriaceous, broadly ovate-elliptic, 39–45 cm long, 25–30 cm wide, 1.4–1.8 times longer than wide, rounded at apex, rounded at base, widest mostly proximal of middle, moderately bicolorous, semiglossy adaxially, weakly glossy abaxially, drying dark grayish brown or medium gray-green adaxially, light brown or light green to yellow-brown abaxially; **midrib** sunken adaxially, round-raised abaxially, drying concolorous; **primary lateral veins** 24–30 per side, departing midrib at 60–90°, concolorous adaxially, slightly darker abaxially; **interprimary veins** 1 or 2, visible below; minor veins visible between the primary lateral veins and the interprimary veins and between adjacent interprimary veins.

**Inflorescences:** ca. 2.5 m above ground; **peduncle** subterete, 27–39 cm long, pale green, closely enveloped by a prophyll extending most of its length, drying yellowish brown, prophyll drying light brown; **spathe** 15.5–17.5 cm long, light green abaxially, white adaxially; **spadix** (somewhat

**297.** *Rhodospatha zamorana* (*Grayum et al. 9365*, MO-3733367). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and immature inflorescence.

**298.** *Rhodospatha zamorana* (*Grayum et al. 9365*, MO-3733366). Holotype showing stem, petiole, leaf blade (adaxial and abaxial surfaces), and post-anthesis spadix.

immature) 11–25 cm long, 10–18 mm diam., initially straight and green-colored, later arching and deep olive-blue-green.

**Flowers: styles** rhombic, 1.4–1.6 mm long, drying dark brown, matte; **stigmas** 0.6–0.7 mm long, 0.2 mm wide, blackened.

**Infructescences: styles** 3.5–4.0 mm wide, sub-quadrangular, drying dark brown, matte, lumpy, sunken or flat; **stigmas** broadly oval to subrounded, deeply excavated medially with a pale brown, thick, prominently raised margin.

**Fruits: seeds** tan, glossy, discoid with a V-shaped notch on one side, ca. 0.4 mm thick with the outer perimeter narrow and fimbriate or granular.

**Distribution and ecology:** This species is endemic to Ecuador, found in El Oro, Imbabura and Pichincha Provinces at 600–1230 m in a *Premontane Wet Forest* life zone.

**Etymology:** This species is named in honor of Costa Rican forest engineer and botanist Nelson Zamora who collected the type specimen along with Michael H. Grayum and Á. Gómez. Zamora graduated from the School of Environmental Sciences of the National University of Costa Rica in Heredia and remained at the university, becoming a lecturer and teaching botanical forestry and dendrology. At the same time, he taught in the Department of Forestry Engineering at the Technological Institute of Costa Rica and worked as a botanist for the Museo Nacional and Herbarium (CR). From 1992 he worked for the National Institute of Biodiversity (INBio) in Santo Domingo, Heredia, until its incorporation into the Museo Nacional. He is a specialist on Fabaceae and has also published several books on the topics of arborescent flora in Costa Rica, trees of the Osa Peninsula and volume two of *Árboles de Costa Rica*. Finally, he is one of the editors of the *Manual de Plantas de Costa Rica*.

**Comments:** *Rhodospatha zamorana* resembles *R. grayumiana* from Chocó Department in Colombia. However, this latter species differs by drying yellowish-brown overall (vs. darker brown or greenish brown as in the case of *R. zamorana*); petioles sheathed nearly to the apex ; and inflorescence with a shorter peduncle and a prophyll exceeding it.

**Paratypes: ECUADOR**. **El Oro:** Piñas, Parroquia El Placer. Reserva Ecológica Buenaventura, propiedad de la Fundación Jocotoco, Cerro Las Bateas, Sendero White - Tipped Sickle-bill, bosque primario, Bosque Húmedo Premontano, 03°40'13"S 79°45'32"W, 1230 m, 11 April 2005, *H. Vargas et al. 5450* (MO, QCNE). **Imbabura:** Valley of Río Mira on border of Carchi Province, between Ibarra and Lita, 2 km east of Lita, 665 m, 8 September 1976, *T. B. Croat 38955* (F, MO,

QCNE); In valley of Río Mira on border with Carchi province, between Ibarra and Lita, 2.5 km East of Lita; steep forested slopes, 00°52'26"N 78°21'00"W, 750-775 m, 8 September 1976, *T. B. Croat 38982B* (MO, QCNE). **Pichincha:** Mostly primary forest at E side of Río Lelia, ca. 16 km (as-the-crow-flies) SE of Santo Domingo de los Colorados, 00°18'05"S 79°02'00"W, 800 m, 12 April 1989, *M. H. Grayum & N. Zamora 9417* (MO, QCNE).

### *Rhodospatha* sp. #1. (**Fig. 299**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** elongated, ca. 1.5 cm diam., drying brown.

**Leaves: petioles** ca. 46 cm long, sheathed for 3/4 their length; **sheath** persisting intact, drying grayish brown; **geniculum** ca. 2.5 cm long; **blades** coriaceous, oblong-elliptic, ca. 46 cm long, 18 cm wide, 2.5 times longer than wide, 1.1 times longer than petioles, obtuse and weakly short-acuminate at apex, cuneate and weakly attenuate at base, widest near the middle, drying medium grayish brown, matte adaxially, medium reddish brown, weakly glossy abaxially; **midrib** drying deeply sunken, concolorous, minutely granular adaxially, round-raised, slightly grayish, conspicuously and densely granular abaxially; **primary lateral veins** ca. 22 per side, 1.5–2 cm apart, departing midrib at 45–50°, drying concolorous; **interprimary veins** weak, with 3 minor veins running in parallel on each side, with numerous prominent branching cross-veins connecting them; **adaxial surface** drying moderate smooth, sparsely granular at higher magnification; **abaxial surface** sparsely short-ridged, weakly granular.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha* sp. #1 is endemic to Colombia, found only in Magdalena Department at 1190 m.

**Comments:** This species does not closely match any other in the genus in the Santa Marta area. It is similar to *Rhodospatha* sp. #3, which occurs in the adjacent Department of Guajira. The latter species has a similarly ridged dried stem and long-petiolate and elliptical, somewhat bicolorous blades drying brownish but has less coriaceous blades, 3.3–3.5 times longer than broad and paler

**299.** *Rhodospatha sp*. #1 (*Gentry & Sáenz 76220,* MO-4359154). Specimen showing stem, petiole, and leaf blade (adaxial and abaxial surfaces).

and more greenish gray adaxially and lighter reddish brown abaxially with less conspicuous cross-veins and short pale lineations abaxially.

**Specimen Seen: COLOMBIA. Magdalena:** Alto de Mirador, Sierra Nevada de Santa Marta. Transect 2, 10°55'N 73°50'W, 1190 m, 4 Mar 1992, *A. H. Gentry & C. Sáenz 76220* (MO).

### *Rhodospatha* sp. #2. (**Fig. 300**).

**Habit:** terrestrial, 80 cm high.

**Stem: internodes** 1.5 cm diam.

**Leaves: petioles** not seen; **blades** ovate-elliptic, 25–37 cm long, 9.0–16.5 cm wide, 2.3–2.7 times longer than wide, acute and abruptly to gradually short-acuminate at apex, obtuse to cuneate and weakly attenuated at base, widest near the middle, drying medium grayish brown and matte adaxially, yellowish gray-brown and weakly glossy abaxially; **midrib** drying concolorous, rounded, 5–7-ribbed, warty, minutely short-pale-lineate adaxially, medium brown, narrowly rounded often with a medial rib, densely short-pale-lineate along its margins abaxially; **primary lateral veins** 16–18 per side, spaced 1–1.7 cm, departing midrib at 60–70°, drying concolorous adaxially, narrowly rounded and slightly darker abaxially; **interprimary veins** weaker, with 2–5 minor veins running in parallel on each side, with numerous prominent cross-veins connecting them; **abaxial surface** densely red-speckled.

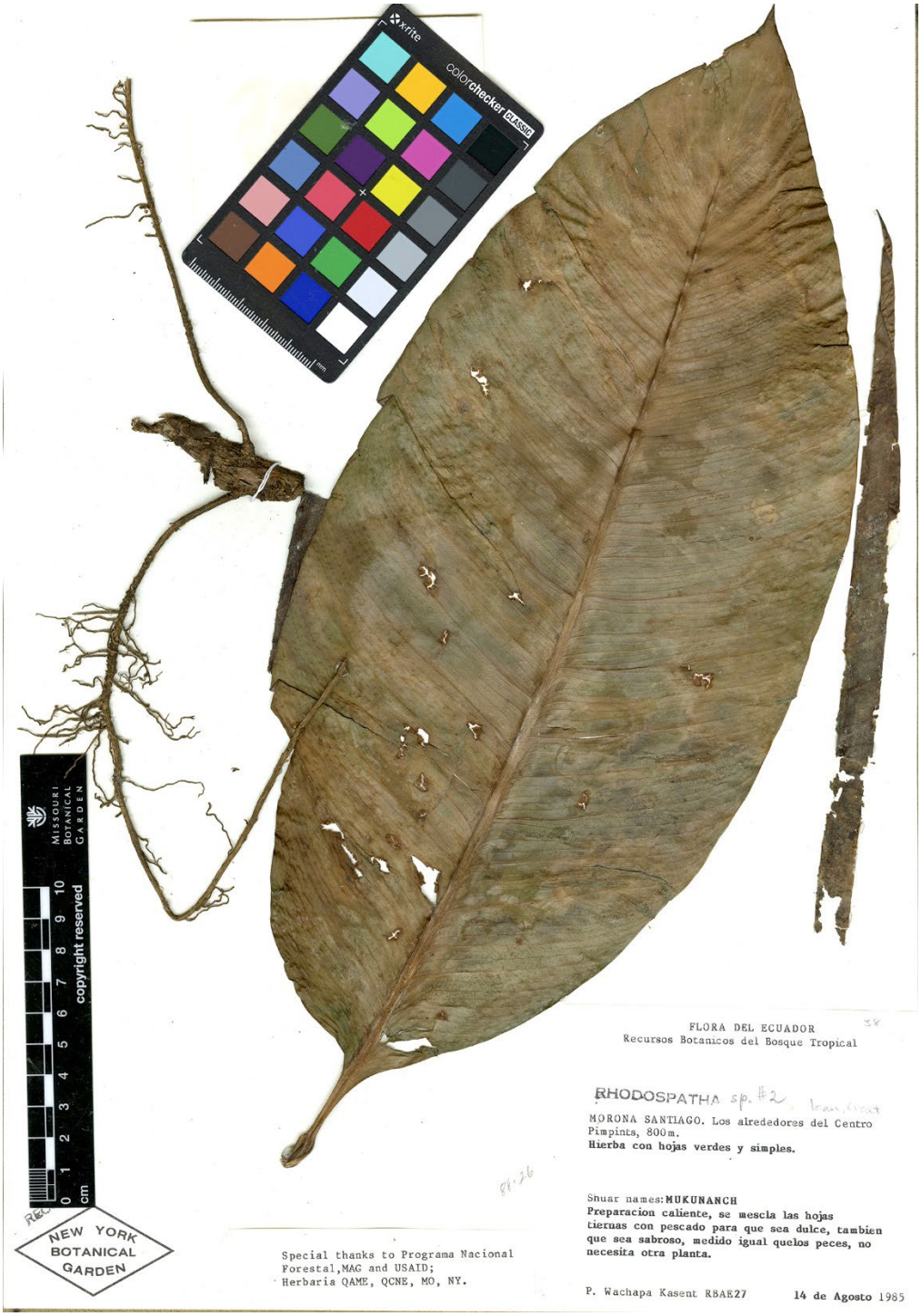
**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha* sp. #2 is endemic to Ecuador, found only in Morona-Santiago Province at 330–800 m.

**Comments:** This species is cultivated by local indigenous people and given the Shuar name ‘Mukunanch’ or ‘Mukuntach Nuka’. The tender leaves are used for alimentary and medicinal applications. As a hot dish ‘mukuntach’ and fish are mixed in equal portions to make the fish sweet and tasty.

**Specimens Seen: ECUADOR. Morona-Santiago:** Los alrededores del Centro Pimpints, 800 m, 14 August 1985, *P. Wachapa Kasent RBAE27* (MO, NY); Los alrededores del Centro Tuutin Entsa, cerca Taisha, 330 m, 9 September 1985, *L. Anananch RBAE170* (NY).




**300.** *Rhodospatha sp*. #2 (*Wachapa Kasent RBAE27*, NY). Specimen showing stem, roots, and leaf blade (abaxial surface).

### *Rhodospatha* sp. #3. (**Fig. 300**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** ca. 3 cm long, to 2.5 cm diam., drying medium brown with deep vertical ridges (sometimes also with conspicuous transverse cross-checking), glossy, with deep grooves and narrow acute closely spaced ridges, the epidermis overlaying a densely and minutely granular stem and petiole surface.

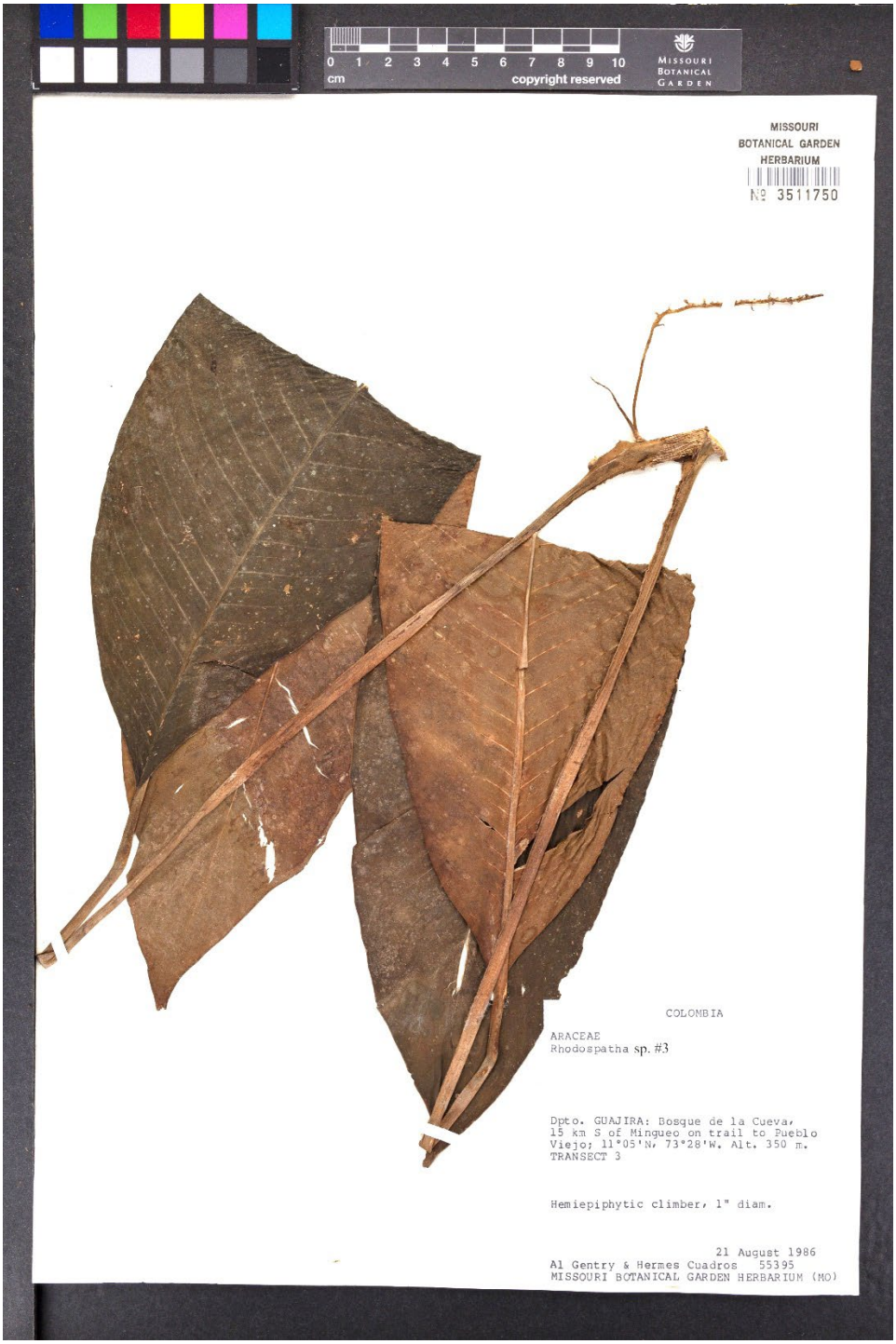
**Leaves: petioles** 33.5–34.0 cm long, narrowly and shallowly sulcate adaxially, drying yellowish brown, finely several ribbed adaxially, otherwise finely and closely ribbed, minutely and densely and dark-dotted, sheathed 0.4–0.6 its length; **sheath** narrow, mostly only 1–2 mm wide, drying medium brown, slightly paler than shaft with the margin cracking and sometimes flaking free, in part persisting intact, drying medium brown; **geniculum** ca. 3 cm long, sharply and narrowly sulcate, drying darker brown; **blades** narrowly ovate-elliptic, 38–40 cm long, 11.5 cm wide, 3.3–3.5 times longer than wide, 1.1 times longer that petioles, acute and gradually short-acuminate at apex, cuneate and slightly decurrent at base, widest slightly below the middle, drying dark brownish green adaxially, medium reddish brown abaxially; **midrib** drying narrowly sulcate and weakly paler with margins broadly convex and concolorous, densely granular like the remaining leaf surface adaxially, narrowly round-raised, concolorous, densely granular abaxially; **primary lateral veins** ca. 22 per side, departing midrib at 50–60°, drying scarcely raised, concolorous to weakly paler adaxially, narrowly rounded, essentially glabrous, concolorous abaxially; **interprimary veins** weak, 1 minor vein of similar strength running in parallel on each side; cross-veins few and inconspicuous when present, usually not visible; **adaxial surface** smooth to weakly and sparsely low-granular; **abaxial surface** more irregular, often sparsely blunt-granular, sometimes densely to sparsely short-pale-lineate.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha* sp. #3 is endemic to Colombia, found only in Guajira Department at 350 m in a *Tropical Moist Forest* life zone.

**Comments:** *Rhodospatha* sp. #3 is closest to *Rhodospatha* sp. #1 from the Sierra Nevada de Santa Marta in the Deparment of Magdalena, which has a similarly ridged dried stem and long-petiolate, elliptical, somewhat bicolorous blades drying brownish. However, the latter has more coriaceous blades only 2.5 times longer than broad and darker gray-brown adaxially and darker




**301.** *Rhodospatha sp.*#3 (*Gentry & Cuadros 55395,* MO-3519750). Specimen showing stem, petioles, and leaf blades (adaxial and abaxial surfaces).

reddish brown abaxially with more conspicuous cross-veins. It also occurs at higher elevations and lacks the short pale lineations on the abaxial blade surface like those of *Rhodospatha* sp. #3.

**Specimens Seen: COLOMBIA. Guajira:** Bosque de la Cueva, 15 km S of Mingueo on trail to Pueblo Viejo. Transect 3, 11°05'N 73°28'W, 350 m, 21 August 1986, *A. H. Gentry & H. Cuadros V. 55395* (MO).

### *Rhodospatha* sp. #4. (**Fig. 302**).

**Habit:** appressed-climbing epiphyte.

**Stem: internodes** to 3 cm diam.

**Leaves: petioles** ca. 42 cm long, sheathed to the geniculum; **sheath** broad, persisting intact, drying blackish brown; **geniculum** sharply sulcate, ca. 4 cm long, drying darker, continuous with the diminishing sheath margins; **blades** ovate-elliptic, ca. 61 cm long, 34 cm wide, 1.7 times as long as wide, gradually and weakly acuminate at apex, inequilaterally rounded at base, glossy, drying grayish green to medium green to medium reddish brown and matte to weakly glossy adaxially, paler, yellowish red-brown, semiglossy abaxially; **midrib** sunken and paler adaxially, drying broadly rounded, coarsely ribbed, densely and minutely areolate-granular, nearly concolorous adaxially, narrowly rounded, coarsely several-ribbed, densely granular, nearly concolorous abaxially; **primary lateral veins** ca. 23 per side, widely spaced (1.5–3 cm), departing midrib at an acute angle then spreading out at a 75–85° angle (to 40° near apex), drying weakly raised, concolorous adaxially, narrowly rounded and darker abaxially; **interprimary veins** moderately distinct, with 2 or 3 minor veins on each side of interprimary veins; cross-veins when present very weak; **adaxial surface** drying moderately smooth, weakly granular on magnification, paler and more greenish, and densely dark-speckled and yellowish red-brown below moderately granular; **abaxial surface** more moderately smooth, closely and moderately conspicuously dark-speckled.

**Inflorescences:** not seen.

**Infructescences:** not seen.

**Distribution and ecology:** *Rhodospatha* sp. #4 is endemic to Venezuela, found only in Táchira State at about 1500 m in a *Premontane Rain Forest* life zone.

**302.** *Rhodospatha sp.*#4 (*Croat & Bunting 38495*, MO-2385513). Specimen showing petioles and leaf blades (adaxial and abaxial surfaces).

**Comments:** *Rhodospatha* sp. #4 is probably most easily confused with *R. deliciosensis* from the same part of Venezuzela, at more than 2100 m elevation southeast of Delicias. While both species have leaf blades of similar size and shape with fully winged petioles and a persistent sheath, *R. deliciosensis* differs in having less bicolorous blades with the adaxial surface drying more coarsely ridged, granular, and darker brown, and the abaxial surface more coarsely granular.

**Specimens Seen: VENEZUELA. Táchira:** 25 km SW and above Rubio, ca. 7°37'N 72°25'W, ca. 1500 m, *T. B. Croat & G. S. Bunting 38495* (MO-2385513).

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