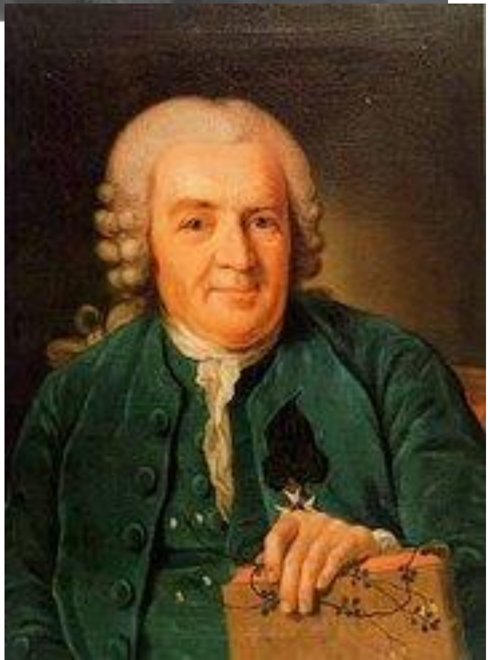
Resources for the identification and control of non-crop weeds



Carl Linnaeus (1707-1778)

Plantago foliis ovato-lanceolatis pubescentibus, spica cylindrica, scapo tereti (meaning "plantain with pubescent ovate-lanceolate leaves, a cylindrical spike and a terete scape")

Today called
Plantago media (hoary plantain)

Nepeta floribus interrupte spicatis pedunculatis

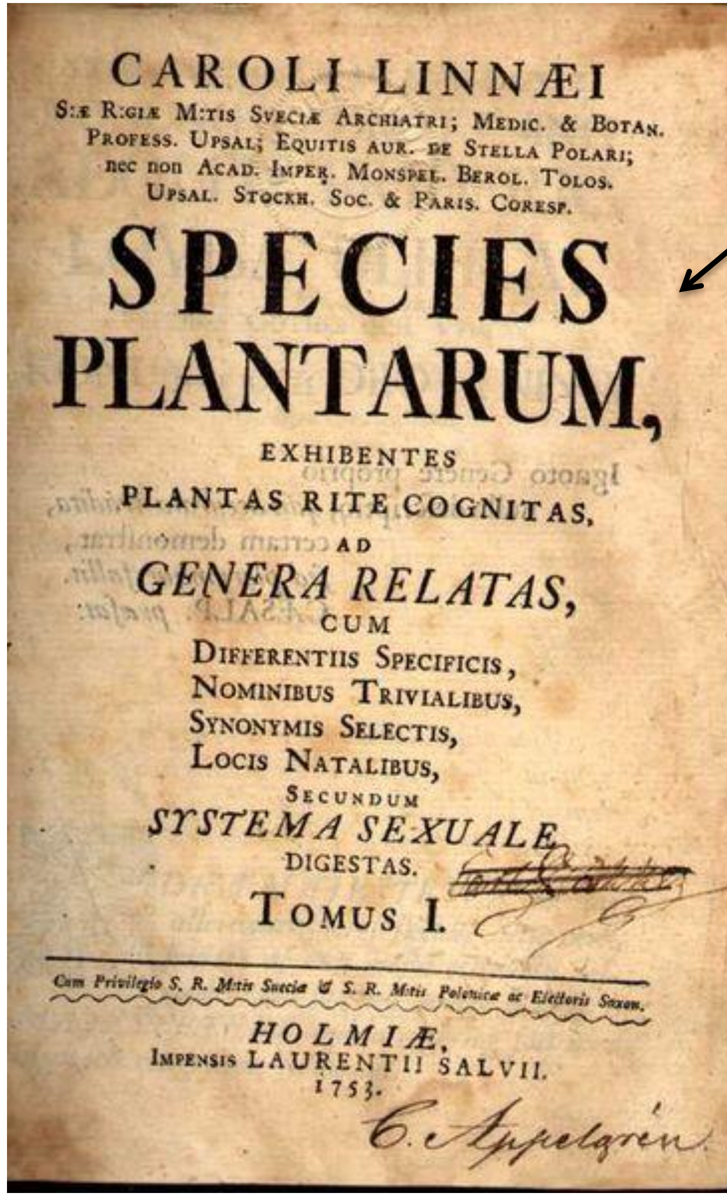
(meaning "*Nepeta* with flowers in a stalked, interrupted spike")

Today called
Nepeta cataria (catnip)

Published in 1753

Linnaeus estimated there were around 10,000 plant species in existence.

Today around 400,000 species of flowering plants have been named.



CAROLI LINNÆI

S:æ R:giæ M:tis Sveciæ Archiatri; Medic. & Botan. Profess. Upsal; Equitis Aur. de Stella Polari; nec non Acad. Imper. Monspel. Berol. Tolos. Upsal. Stockh. Soc. & Paris. Coresp.

SPECIES PLANTARUM,

EXHIBENTES
PLANTAS RITE COGNITAS,
AD
GENERA RELATAS,
CUM
Differentiis Specificis,
Nominibus Trivialibus,
Synonymis Selectis,
Locis Natalibus,
Secundum
SYSTEMA SEXUALE
DIGESTAS.

Tomus I.

Cum Privilegio S. R. M:tis Sueciæ & S. R. M:tis Poloniæ ac Electoris Saxon.

HOLMIÆ,
Impensis LAURENTII SALVII.
1753.

C. Appelgren.

Species of plants

5,940 names

Plants are properly recognized,
to
Related categories,
with the
Specific differences,
Trivial (common) names,
Select synonyms,
Places of origin,
According to sexual system

Volume 1

Weed Taxonomy

- Classification of weeds into groups
  - Kingdom — Planta
  - Class — Liliopsida
  - Subclass — Commelinidae
  - Order — Restionales
  - Family — Poaceae
  - Genus — *Arundo*
  - Species — *Arundo donax* L.

Specific epithet

  - Another species *Tamarix aphylla* (L.) Karsten

400,000 flowering plants

8,000 are considered weeds (2%)

500 are major weed problems (0.125%)

Approximately 400 plant families and 70% of these 250 weeds belong to 12 plant families. 40% are in two families.

Asteraceae (sunflower family)

Poaceae (grass family)

Major plant families of invasive and naturalized species

Family	Common name	No. invasives	No. invasives and naturalized
Poaceae	Grass	87	139
Asteraceae	Sunflower	76	133
Fabaceae	Pea	45	87
Brassicaceae	Mustard	28	55
Caryophyllaceae	Pink	15	34
Scrophulariaceae	Figwort	14	30
Chenopodiaceae	Goosefoot	16	29
Rosaceae	Rose	21	27
Polygonaceae	Smartweed	14	24
Geraniaceae	Geranium	7	22
Boraginaceae	Borage	12	20
Solanaceae	Nightshade	7	17

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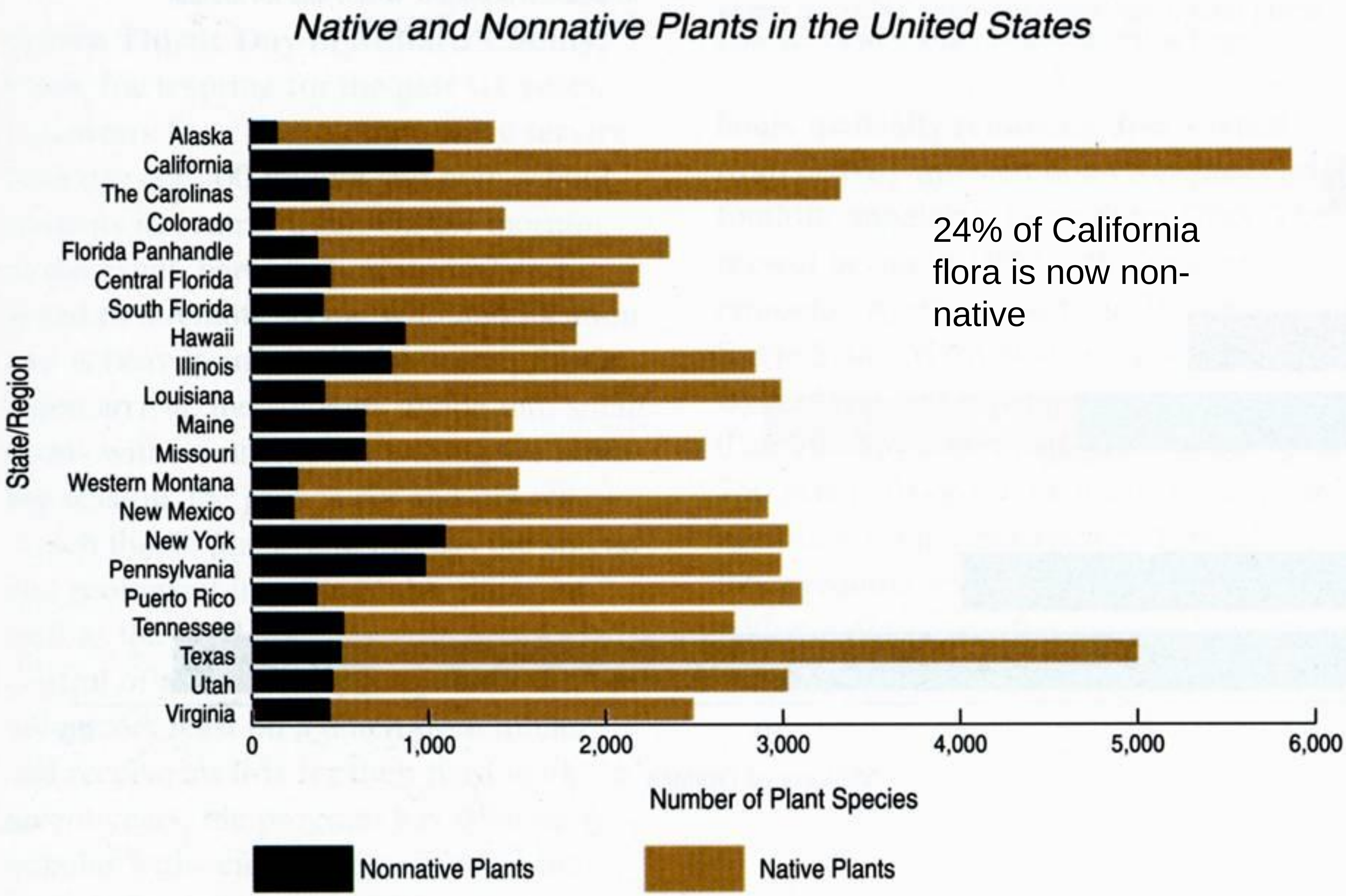
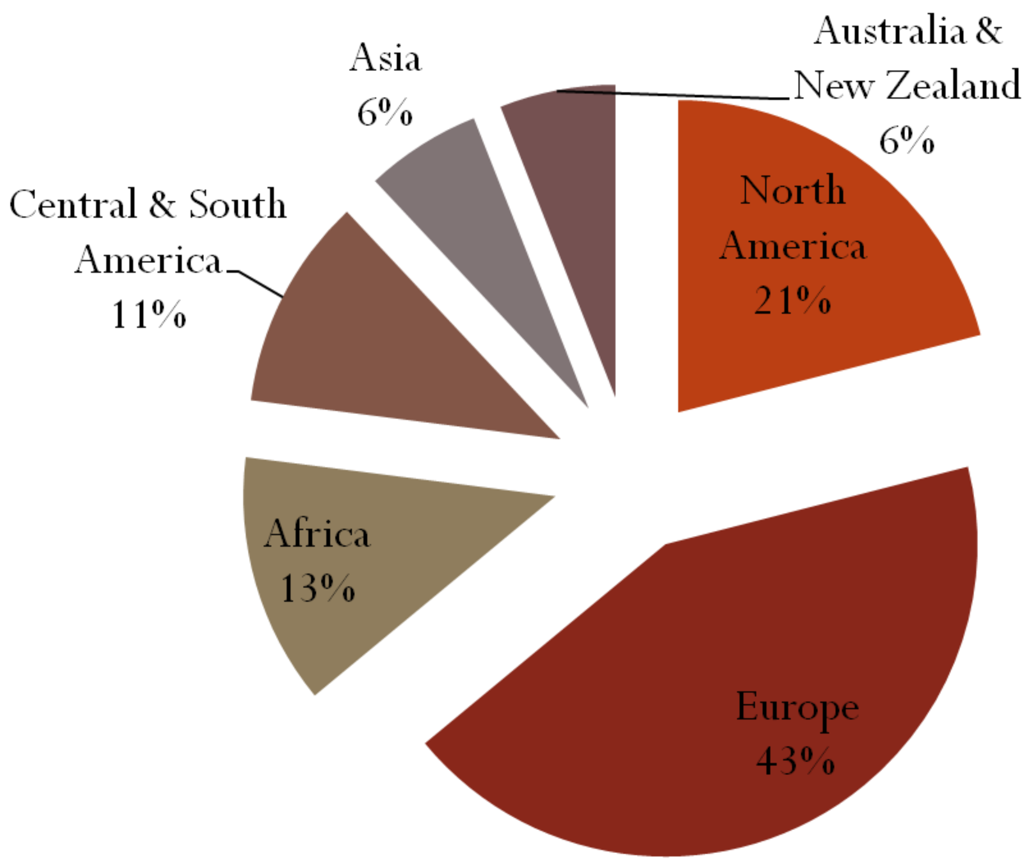


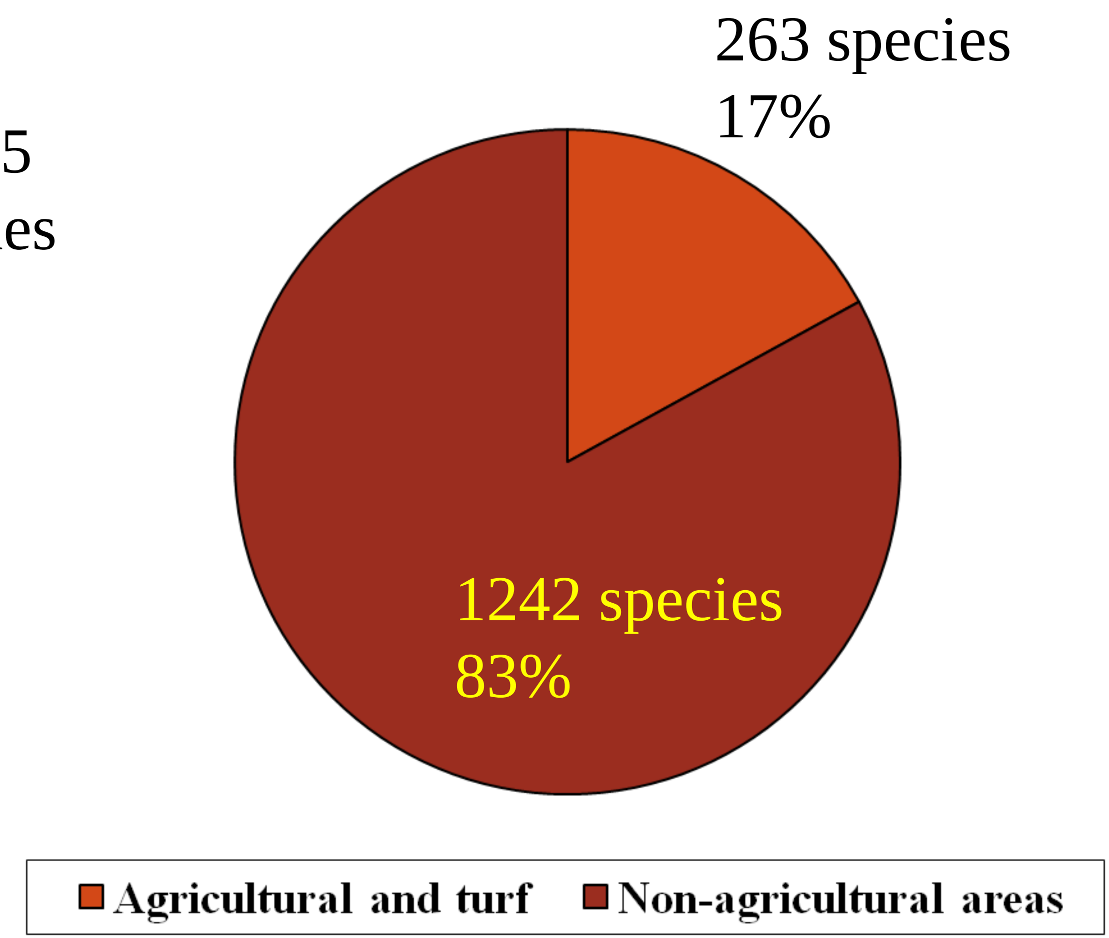
24% of California flora is now non-native

Percent Origin of Weeds in California



Proportion of weeds in agricultural vs non-agricultural areas

Total of 1505 weedy species



Taxonomic treatments in California

From “A Flora of California” by Willis Jepson

2. **L. punctata** Goodding. LILAC SUNBONNET. (Fig. 392.) Low flat-topped plants 1 to 2 inches high, 2 to 7 inches across, seeming as if prostrate; herbage minutely tomentulose or rarely glabrate; leaves with deltoid 3-toothed or 3-lobed apex, sometimes with a pair of teeth or lobes below the 3 terminal teeth, all the teeth bristle-tipped and the petiolar or cuneate base with simple or 2 or 3-forked bristles; flowers subsessile; calyx-lobes ⅘ to as long as corolla-tube; corolla lilac, 7 to 10 lines long, subregular, its lobes about 2 lines wide, purple-dotted, each with 2 very shallow longitudinal channels from above the middle towards the base and ending below in a lunate yellow ridge; capsule narrowly oblong, acute, 3-sided, the cells 3 to 9-seeded.

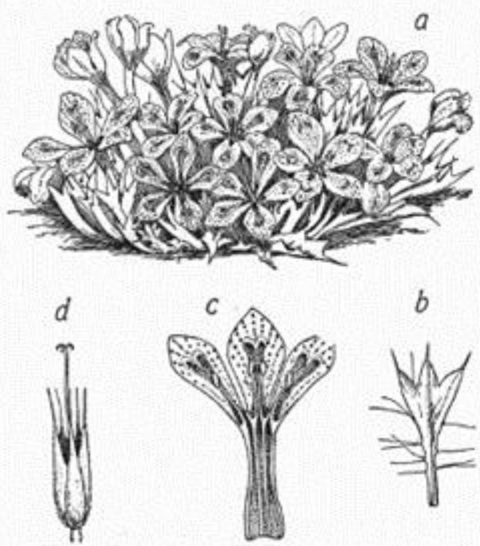


Fig. 392. LANGLOISIA PUNCTATA Goodding. *a*, habit, × 1; *b*, leaf, × 1; *c*, long sect. corolla, × 1½; *d*, calyx and pistil, × 1½.

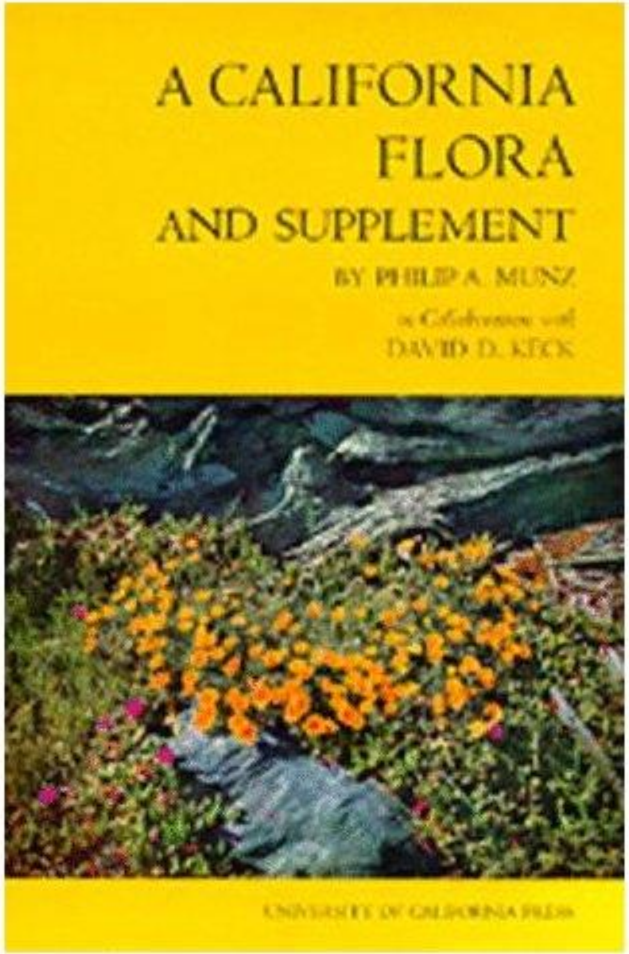
Gravelly hills and mesas, 900 to 4500 feet: Inyo Co.; central and eastern Mohave Desert. East to Nevada and Arizona. Apr.-June.

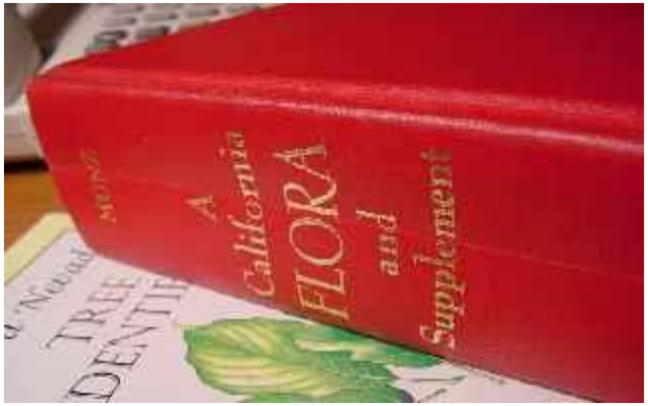
Locs.—Inyo Co.: Silver Cañon, White Mts., *Heller* 8308; Bishop, *Almeda Nordyke;* Argus Range (n. end), *C. N. Smith* 139; Hanaupah Cañon, Panamint Range, *Jepson* 7010. Mohave Desert: betw. Kelso and Baker, *Jepson* 20,582; Amboy, *Newlon;* Ludlow, *Jepson* 5494; Lavic (5 miles s.), *J. Grinnell;* Newberry (lava fields sw.), *Newlon* 498; Ord Mt., *Jepson* 15,496; Barstow, *Jepson* 5361.

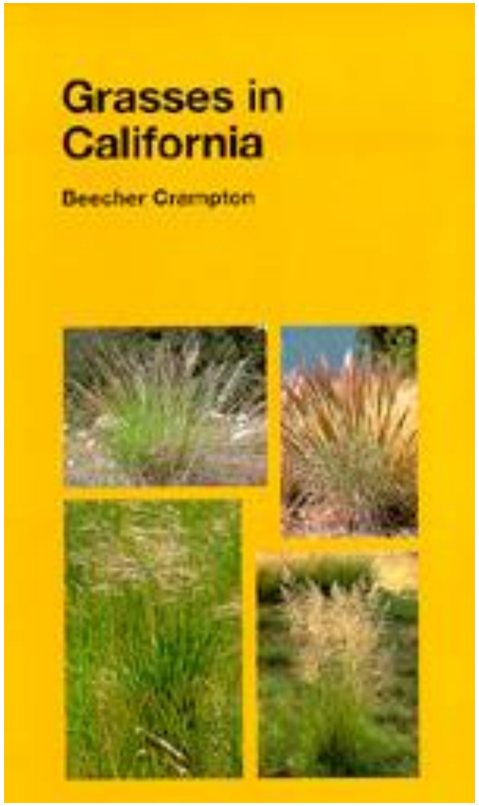
The anthers, borne on very short filaments inserted unequally in the throat, approximate about the style at mouth of throat, leaving pin-hole entrances to the tube beween the filaments.

Refs.—LANGLOISIA PUNCTATA Goodding, Bot. Gaz. 37:58 (Jan., 1904); Hel., Muhl. 1:57 (Feb., 1904); Jepson, Man. 808, fig. 780 (1925). *Gilia setosissima* var. *punctata* Cov., Proc. Biol. Soc. Wash. 7:72 (1892), type loc. Surprise Cañon, Panamint Range, *Coville* 716. *Navarretia setosissima* var. *punctata* Cov., Contrib. U. S. Nat. Herb. 4:154 (1893). *Gilia punctata* Munz, Man. 402 (1935). *L. lanata* Brand; Engler, Pflzr. 4^{250}:169 (1907), type loc. Candelaria, Nev., *Jones* 3965.

Published in 1909



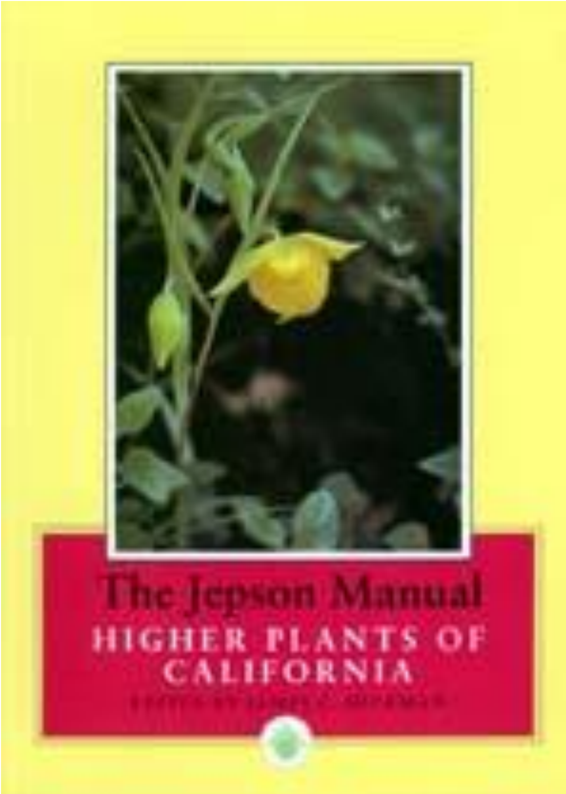


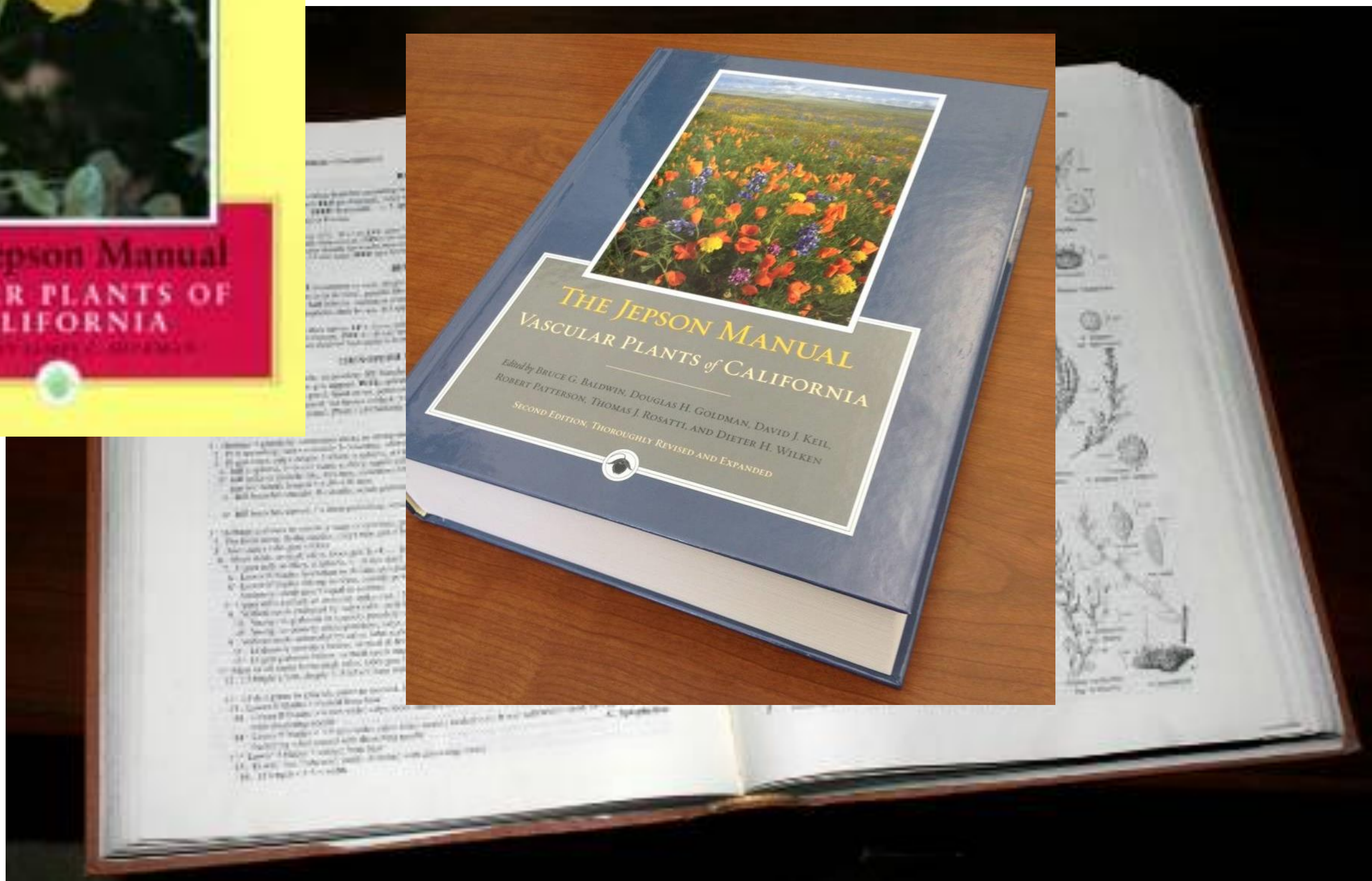


Published in 1974

Published in 1959

Published in 1993
2^{nd} Edition in 2012





Advantages and Disadvantages of Floras

- Advantages
  - Highly accurate, particular with accompanying herbarium
  - All species usually included
- Disadvantages
  - Have to be highly trained to use them
  - Not readily accessible
  - Rely on dichotomous keys
  - Keys generally use mature plant characteristics

B. vulgaris L. Pl < 1 m, from thick taproot. **LF** 5–14 cm; petiole ± = blade; blade base tapered to truncate. **INFL** 11–45 cm; bracts (0)2–8 mm. **FL**: sepals 2–2.5 mm, incurved, back keeled in fr, margin scarious ... 18. Disturbed places, ... native to s Eur. ... SCo, ChI; to e US; ...

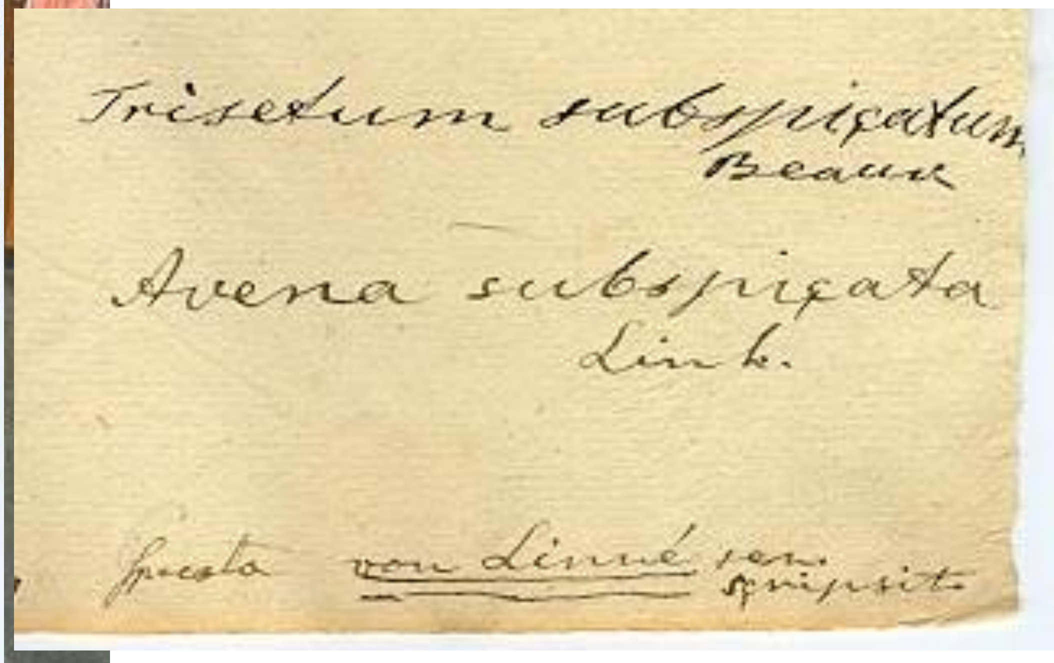
CHENOPODIUM PIGWEED, GOOSEFOOT

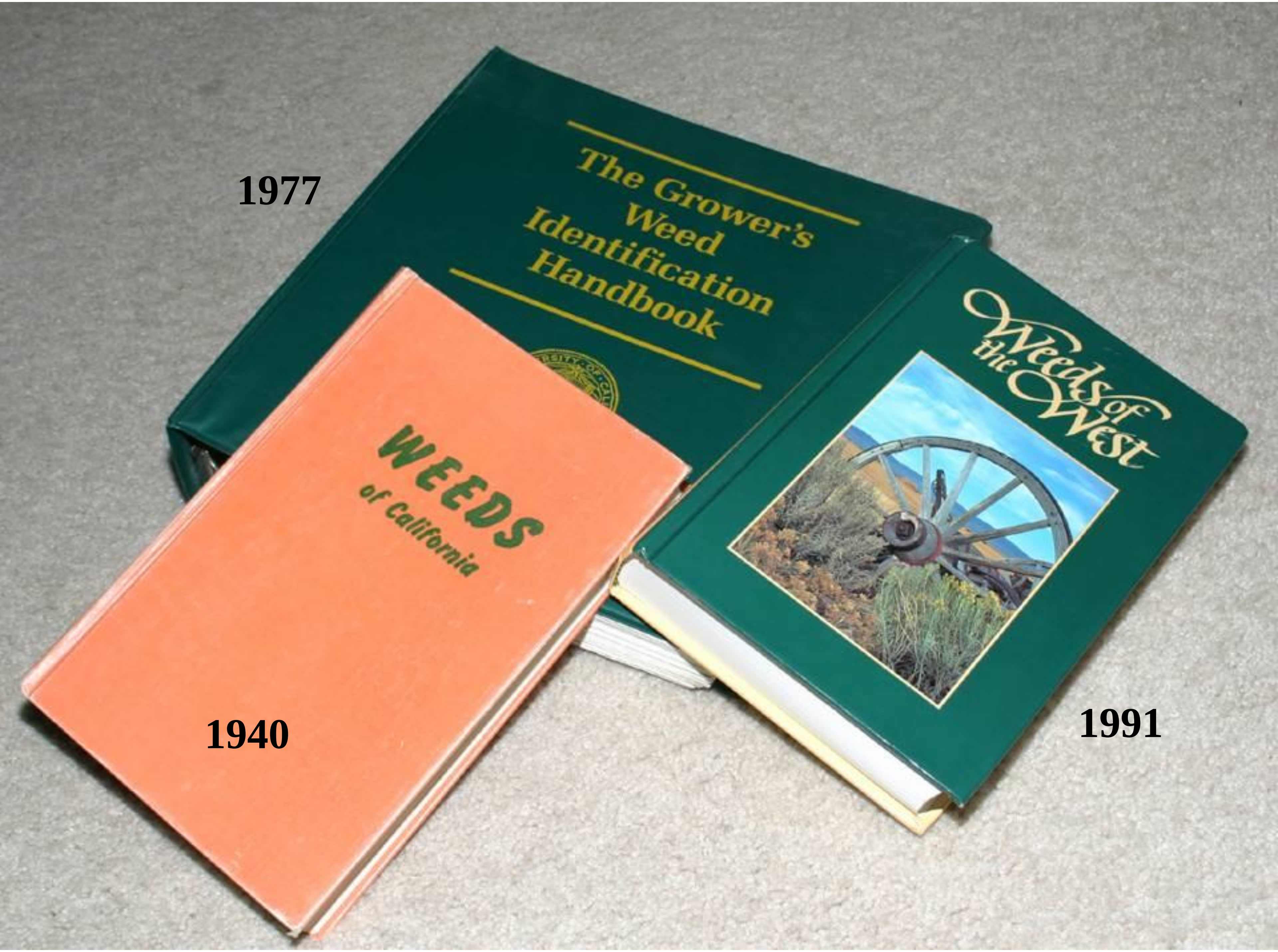
Ann or per, glabrous, glandular, or powdery. **ST**: branches 0 to gen ± spreading. **LVS** gen petioled, linear to deltate, entire to lobed, reduced upward; base gen tapered. **INFL**: spheric clusters, spikes, or panicle-like, gen dense; bracts gen 0; fls gen sessile. **FL**: calyx segments gen 5, fused or not, persistent, flat to keeled; stamens gen 5; ovary lenticular to spheric, stigmas 2–5. **SEED** vertical or horizontal, red-brown to black; wall very thin. ± 150 spp.: temp; some cult for food or grain. (Greek: goose foot, from lf shape of some) [Wahl 1954 Bartonia 27:1–46; Crawford 1975 Brittonia 27:279–288] Fr gen required for identification.

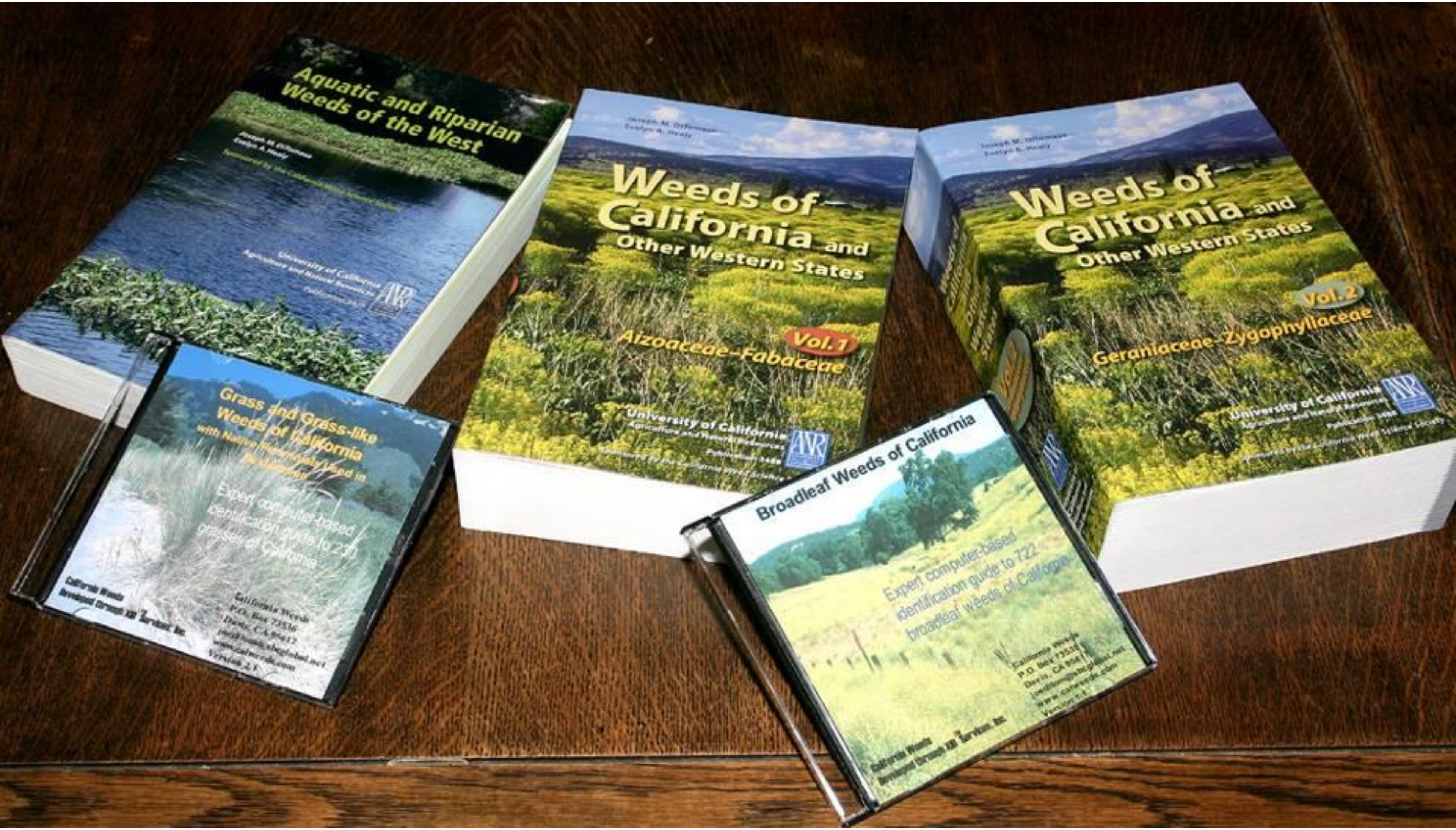
1. Herbage ± glandular, sometimes sticky or strong-smelling
 2. Pl ± sprawling; calyx minutely 3–5-toothed, obovoid, netted, tube enclosing fr .... ***C. multifidum***
 2' Pl gen erect; calyx deeply 5-lobed, ± spheric, not netted, lobes gen folded over fr
  3. Infl ± spheric, 3–6 mm diam, axillary; sepals yellow-glandular; seed gen vertical; longest lvs < 30 mm ***C. pumilio***
  3' Infl spike or panicle-like, 10+ mm, sometimes terminal; sepals glabrous to short-stalked-glandular; seed gen horizontal; longest lvs 30–120 mm
   4. Infl branches straight; fls sessile; sepals glabrous to sparsely sessile-glandular; fr wall free from seed .... ***C. ambrosioides***
   4' Infl branches curved; fls short-pedicelled; sepals densely short stalked-glandular; fr wall adherent to seed .... ***C. botrys***
1' Herbage glabrous to minutely scaly or powdery, gen not strong-smelling
 5. Per from stout, fleshy caudex; calyx tube gen > lobes in fr .... ***C. californicum***
 5' Ann; calyx tube gen < lobes
  6. Most seeds vertical; calyx lobes gen 3(–4) — horizontal seeds few, with 4–5 calyx lobes
   7. Upper infls axillary, ± spheric, < 10 mm diam
    8. Lower lf blades lanceolate to deltate, gen glabrous below; sepals thickened or ± fleshy in fr ...... ***C. foliosum***
    8' Lower lf blades oblong to ovate, densely powdery below; sepals thin or membranous in fr — vertical and horizontal seeds gen ± equal in number .... [2]***C. glaucum***
   7' Upper infls axillary or terminal, spike-like, 15+ mm
    9. Vertical seeds enclosed by calyx tube; style lobes ascending
     10. Young lvs glabrous or sparsely powdery; calyx lobes abruptly pointed .... ***C. chenopodioides***
     10' Young lvs densely white-powdery; calyx lobes rounded to acute .... ***C. macrospermum*** var. ***halophilum***
    9' Vertical seeds subtended by calyx tube; style lobes spreading
     11. Lf densely powdery below; vertical & horizontal seeds often ± equal in number .... [2]***C. glaucum***
     11' Lf gen glabrous below; vertical seeds many more than horizontal .... ***C. rubrum***
  6' Most or all seeds horizontal; calyx lobes gen 5
   12. Lf bright green, deeply 3–5-lobed, base truncate to cordate, tip acuminate to long-tapered; fr 1.5–3 mm diam .... ***C. simple***

Herbarium

Hortus mortus




1977
The Grower's Weed Identification Handbook
WEEDS of California
1940
Weeds of the West
1991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Geraniaceae-Zygophyllaceae
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