
WILD BLACKBERRIES

Integrated Pest Management for Home Gardeners and Landscape Professionals

Of the eleven species of *Rubus* in California, four were introduced primarily from Eurasia. Most species of wild blackberry, also called brambles, provide important sources of food and cover for many birds and mammals. Four species, however, are considered weeds. Two of these are non-natives, cutleaf blackberry (*Rubus laciniatus*) (Fig. 1) and Himalaya blackberry (*Rubus discolor* [= *R. procerus*]) (Fig. 2). In addition, two native species can also be weeds under certain conditions. For example, thimbleberry (*Rubus parviflorus*) (Fig. 3) competes with conifers during establishment in reforested areas, and California blackberry (*Rubus ursinus* [= *R. vitifolius*]) (Fig. 4) can infest areas adjacent to streams and ditches. Of these weedy species, the most common, vigorous, and troublesome is Himalaya blackberry.

IDENTIFICATION

Of the four weedy wild blackberries, thimbleberry is the only nonvining species. It also lacks prickly stems and has a simple leaf (no leaflets). Both Himalaya and cutleaf blackberry have five-angled stems, but Himalaya blackberry can easily be distinguished from the other wild blackberries by its five distinct leaflets, each leaflet toothed and generally oval in shape. By comparison, cutleaf blackberry has five very deeply lobed leaflets and California blackberry has only three leaflets. Not all wild blackberry leaves are deciduous—many remain evergreen. This is an important feature for chemical control in late fall and winter.

Himalaya blackberry has showy flowers that form in large clusters at the end of shoots. Each flower is about



Figure 1. Cutleaf blackberry.

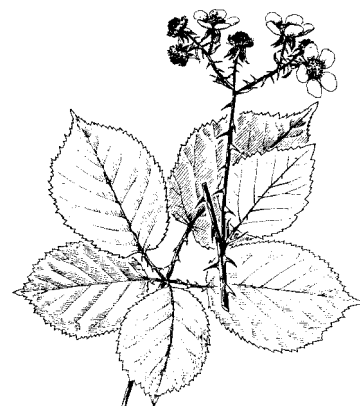


Figure 2. Himalaya blackberry.



Figure 3. Thimbleberry.



Figure 4. California blackberry.

1 inch across with five white or pink petals. The fruits are black and tasty when ripe. New canes are produced each year from the crown (base of the plant), replacing those that die naturally. New plants start from crown regrowth, rhizomes, and seeds that

germinate in fall and spring. Reproduction is similar for the other three species.

IMPACT

The scrambling habit of Himalaya and the other vining wild blackberries

smothers existing plant growth. In addition, the tangled mass of thorny stems blocks access of humans, livestock, equipment, and vehicles to pastures and waterways. In forest areas, timber-logging operations create large open areas that are often invaded by wild blackberries. When grazed, the thorny stems can injure nasal passages of livestock. Another undesirable aspect of vining blackberry plants is that they are a good source of food and shelter for rats.

BIOLOGY

Many animal species feed on wild blackberries; consequently, seeds are easily spread from one area to another in animal droppings. Wild blackberry seeds have a hard seed coat and can remain dormant for an extended period. Once seeds germinate and grow, and the plants become established, expansion of the thicket is almost entirely a result of vegetative growth from rhizomes. Over time a single plant may cover a very large area.

Wild blackberry plants can live for 25 years or more. They produce vines that arise from a central crown or from buds that form along rhizomes (horizontal, underground shoots) (Fig. 5). First-year canes do not produce flowers. In the second year, the canes fruit and die. Tips of first-year canes that contact the ground form roots at the nodes, contributing to the lateral expansion of the plant.

Wild blackberry flowers are pollinated primarily by bumblebees and honey bees. The flowers can be self-pollinated but fruit set is increased by cross pollination.

MANAGEMENT

Wild blackberries are able to regenerate from the crown or rhizomes following mowing, burning, or herbicide treatment. This makes them difficult to control, and control measures often require follow-up treatment. Land managers often rely on a combination of mechanical and chemical control methods followed by a prescribed burn to dispose of vegetative material.

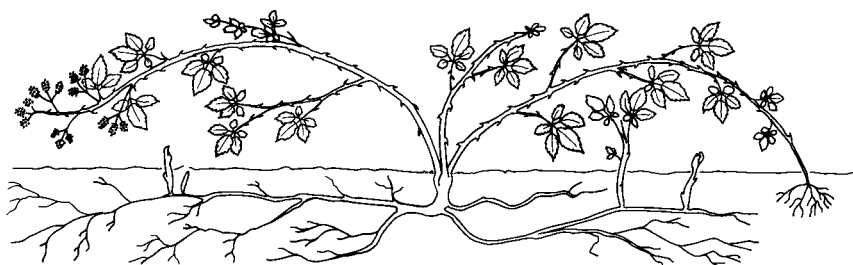


Figure 5. Vegetative growth of a blackberry plant from a central crown.

Because of the extensive underground root system, digging out the plants in a home landscape is a difficult undertaking. Home gardeners generally must rely on foliage-applied herbicide treatments to control an infestation of wild blackberries. One nonchemical option in the home landscape is the use of a rototiller to till the ground several times after the canes have been removed.

Mechanical Control

Wild blackberries can be easily controlled by *repeated* tillage. For this reason, they are not a problem in cultivated agricultural systems. A single cultivation, however, can fragment the rhizomes and spread the weed.

Bulldozing can also cause resprouting and can spread the weed by means of root and stem fragmentation.

Mowing is not an effective means of controlling wild blackberries. In many cases it stimulates the formation of suckers from lateral roots and induces branching. Despite the lack of long-term control, however, mowing or chopping can provide short-term canopy reduction that will encourage the growth of grasses and broadleaf plants.

Burning, like mowing, is not an effective long-term strategy because wild blackberry plants vigorously resprout from rhizomes. However, like mowing, it also provides short-term canopy reduction.

Biological Control

Because many *Rubus* species are native or of economic importance, biocontrol is not a practical method of control in California. In Australia, however, blackberry leaf rust (*Phragmidium violaceum*) has been released for control of the weed. Thus far this program has not been successful because the rust has not caused significant damage to its host.

Chemical Control

Blackberry plants usually regrow following herbicide application; thus, repeated treatments may be necessary for effective long-term control.

Herbicides Applied to the Soil. In noncrop areas, tebuthiuron (Spike) is registered for use by licensed applicators for brush control. Tebuthiuron is a nonselective urea herbicide that is used for total control (i.e., it eliminates other vegetation in the treatment area) of shrubs, trees, and other weeds. It can be applied in a pelleted formulation at the base of the plant to provide long-term control of wild blackberries.

Herbicides Applied to the Plant. Herbicides can be used in rangeland, pastures, noncrop areas, along roadsides, and in right-of-ways to control actively growing wild blackberry plants.

To effectively control blackberries during the growing season, an herbicide must be transported within the plant to the rhizomes and new growing points. For this to occur, the herbicide must move in the phloem with the plant

sugars produced through photosynthesis. In early summer during the rapid extension of canes and expansion of foliar tissue, sugars are transported within the plant from the underground storage tissues to the shoots. After midsummer, new growth is reduced in wild blackberry first-year canes (nonflowering shoots) because these shoots are actively transporting sugars to the rhizomes. These sugars are stored for the following year's growth. In the flowering shoots (second-year canes), movement of sugars from the shoots to the rhizomes occurs later in the season than it does for first-year canes and is most active after completion of fruiting.

Time a foliar herbicide application so that it coincides with the maximum rate of sugar movement to the root system. This will depend upon whether the plants are primarily first-year canes or a combination of both first- and second-year canes. In a situation where only first-year canes are present (for example when plants have been burned or mowed), the most effective time for optimal herbicide transport to the root system is in late summer. Herbicide application at this time reduces the likelihood of regrowth in subsequent years. Where the bramble infestation consists primarily of second-year canes or a combination of first- and second-year canes, apply an herbicide in early fall, before plants become dormant. Herbicides applied too early generally result in good kill of the top growth, but very little movement of the chemical to the root system. Consequently, the plant regrows.

It is important to note that plants under stress from drought or grazing do not translocate sugars as rapidly as do actively growing plants. *Thus, chemical control of wild blackberry plants under stress is difficult and not recommended.*

Foliar-applied herbicides. Herbicides used to control wild blackberry during the growing season include glyphosate, dicamba, dicamba/2,4-D combinations, and triclopyr. Of these,

glyphosate (Roundup) and triclopyr (Brush-B-Gone, Blackberry and Brush Killer) are registered for use by home gardeners.

- Glyphosate formulated into a product with 41% active ingredient (a.i.) can provide good to excellent control of wild blackberries when applied in a 0.5 to 1.5% solution (i.e., about 0.6 to 2 oz of product per gallon of water). One product available for use in the home landscape with this concentration of active ingredient is Roundup Super Concentrate. Glyphosate products that have a lower concentration of active ingredient, such as Roundup Concentrate (18% a.i.), will require a 1.5 to 3.5% solution (i.e., about 2 to 4.5 oz per gallon of water) for effective control. Late summer or early fall treatments give better control than treatments before or during flowering. To obtain good control, however, complete foliage coverage (spray-to-wet) is essential. Burning or mowing 40 to 60 days after spraying with glyphosate increases the level of control and also contributes to good pasture establishment by removing stem debris. Shoots recovering from sublethal glyphosate treatment tend to die more quickly when subjected to heavy grazing. (Be sure to wait at least 2 weeks before grazing after treatment if less than 10% of the area was treated. If more than 10% of the area was treated, animals cannot be grazed on the land until 8 weeks following treatment.)
- Dicamba (Banvel, Vanquish) plus 2,4-D or dicamba alone applied in late summer gives good control of wild blackberries. However, 2,4-D alone provides only fair control and will result in resprouting.
- Triclopyr is available to licensed applicators for commercial use in either amine (Garlon 3A) or ester (Garlon 4) formulations. Triclopyr ester (0.75 to 1% solution) is the most effective formulation of triclopyr on thimbleberry and the other three

species of wild blackberries. Absorption of the herbicide into the foliage is not as good with the amine form. Nevertheless, it also provides good control when applied at a 1% solution. The best time to apply either form of the herbicide is midsummer. When air temperatures are above 80°F, it is best to use the amine formulation because the ester form is subject to vaporization. The timing for control of wild blackberries with triclopyr is somewhat earlier than that recommended for glyphosate. Like glyphosate, apply triclopyr spray-to-wet on the foliage. Sometimes glyphosate and triclopyr (1% solution each) are used in combination to achieve better control. Triclopyr is available in retail stores for use in the home landscape in products formulated at a lower concentration than those available to licensed applicators. Carefully read and follow the label of these products (Brush-B-Gone Concentrate, Blackberry and Brush Killer) to apply the correct amount to plants.

Basal bark treatment. Concentrated forms of triclopyr (often mixed with commercially available seed oils for better penetration) can be applied to basal regions of wild blackberries by backpack sprayers using a solid cone, flat fan or a straight-stream spray nozzle. Thoroughly cover a 6- to 12-inch basal section of the stem with spray, but not to the point of runoff. Basal bark applications can be made almost any time of the year, even after leaves have senesced. In areas where people frequently harvest the fruit of wild blackberries, a mid-fall basal bark treatment may be desirable to avoid human contact with the chemical.

Dormant stem and leaf treatment. As an alternative to basal bark treatments, a 1% solution of triclopyr ester can be applied to dormant leaves and stems (late fall and winter) in a 3% crop oil concentrate mixture (see labels for rate to use to obtain the desired concentration). As with other herbicide applications, spray the plant until it is

thoroughly wet, but not to the point of runoff. Like basal bark treatments, the timing of this technique prevents human contact with the herbicide during berry-picking season.

REFERENCES

McHenry, W. B. 1990. *Wild Blackberry Control*. Oakland: Univ. Calif. Agric. Nat. Res. OSA 7186.

For more information contact the University of California Cooperative Extension or agricultural commissioner's office in your county. See your phone book for addresses and phone numbers.

AUTHOR: J. M. DiTomaso

EDITOR: B. Ohlendorf

TECHNICAL EDITOR: M. L. Flint

DESIGN AND PRODUCTION: M. Brush

ILLUSTRATIONS: Figs 1-4: adapted from Hitchcock, C. L. et al. 1961. *Vascular Plants of the Pacific Northwest*. Pt. 3. Seattle: Univ. Wash. Press; Fig. 5: Seventeenth Street Studios

Produced by IPM Education and Publications, UC Statewide IPM Program, University of California, Davis, CA 95616-8620

This Pest Note is available on the World Wide Web (<http://www.ipm.ucdavis.edu>)



This publication has been anonymously peer reviewed for technical accuracy by University of California scientists and other qualified professionals. This review process was managed by the ANR Associate Editor for Pest Management.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned.

This material is partially based upon work supported by the Extension Service, U.S. Department of Agriculture, under special project Section 3(d), Integrated Pest Management.

WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash nor pour pesticides down sink or toilet. Either use the pesticide according to the label or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

The University of California prohibits discrimination against or harassment of any person employed by or seeking employment with the University on the basis of race, color, national origin, religion, sex, physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or status as a covered veteran (special disabled veteran, Vietnam-era veteran, or any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized). University policy is intended to be consistent with the provisions of applicable State and Federal laws. Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action/Staff Personnel Services Director, University of California, Agriculture and Natural Resources, 300 Lakeside Dr., Oakland, CA 94612-3350; (510) 987-0096.