

WOODY WEED INVADERS

Integrated Pest Management for Home Gardeners and Landscape Professionals

For homeowners, the control of weedy or invasive woody species and large perennial grasses, such as bamboo, can be difficult (Table 1). Although many of these troublesome species are not closely related, they share one very important characteristic: following mechanical removal of shoot material, resprouting can occur rapidly from root crowns, rhizomes, or basal and low growing stems. In many cases, the resprouting shoots will outnumber

the original plants. This increases the difficulty of control.

Some of the species listed below, including poison oak, willow, chamise, cottonwoods (poplars), and certain wild blackberries, are natives and are not considered weedy in natural systems. However, in certain landscapes—for example, in urban settings—these species may become too dense and create a fire hazard or

restrict movement of animals or humans through these areas.

NONCHEMICAL CONTROL METHODS

Mechanical Control

Mechanical techniques such as hand pulling or hoeing are rarely effective by themselves for the control of large shrubs, mature or resprouting trees, or perennial grasses. However, under some conditions, mechanical

Table 1. Difficult-to-control shrubs, trees, and large perennial grasses in urban environments.

Common name	Scientific name	Family	Growth form
Algerian ivy	<i>Hedera canariensis</i>	Araliaceae	shrub, vine, ground cover
bamboo, golden bamboo	<i>Bambusa</i> spp., <i>Phyllostachys</i> spp., and others	Gramineae	rhizomatous perennial grass
chamise	<i>Adenostoma fasciculatum</i>	Rosaceae	shrub
cottonwood, poplar	<i>Populus</i> spp.	Salicaceae	tree
English ivy	<i>Hedera helix</i>	Araliaceae	shrub, vine, ground cover
eucalyptus, gum tree	<i>Eucalyptus</i> spp.	Myrtaceae	tree
jubatagrass	<i>Cortaderia jubata</i>	Gramineae	large bunching perennial grass
pampasgrass	<i>Cortaderia selloana</i>	Gramineae	large bunching perennial grass
periwinkle	<i>Vinca major</i>	Apocynaceae	vine
poison oak	<i>Toxicodendron diversilobum</i>	Anacardiaceae	shrub
privet	<i>Ligustrum</i> spp.	Oleaceae	shrub, tree
tree-of-heaven	<i>Ailanthus altissima</i>	Simaroubaceae	tree
trumpet creeper	<i>Campsis</i> spp.	Bignoniaceae	vine
wild blackberry	<i>Rubus</i> spp.	Rosaceae	shrub
willow	<i>Salix</i> spp.	Salicaceae	shrub, tree

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methods can control smaller shrubs or bunching perennial grasses, such as pampasgrass. For example, hand pulling, digging, or hoeing can be used to remove small shrubs or roots located in a yard or near houses. These procedures should be done in early spring or late fall when the soil is moist and the roots are easily removed. Digging when the soil is dry and hard usually breaks off the stems, leaving the stems and roots to resprout. Removing English or Algerian ivy with a shovel can be very effective if roots and stems are dug out. Cutting or mowing English or Algerian ivy followed by an application of glyphosate to the damaged leaves and cut stem tips can also provide effective control. In general though, mowing or cutting alone will not control the species listed in Table 1, unless performed repeatedly.

Cultural Control

Root barriers can delay or reduce the growth of roots into areas where they are not wanted. A root barrier may consist of a hard wall, for example thick plastic, or of fabric impregnated with herbicide, e.g. Biobarrier. Root barriers may be installed to protect structures, or they can be installed at planting to direct root growth of young plants. In the latter case, a surround-type root barrier can be used, for example, a 15-gallon nursery pot with the bottom cut out. However, no type of root barrier gives complete control; eventually roots will grow under or through the barrier and upward toward the soil surface.

Although mulches are often used to control annuals, they are not effective on herbaceous perennial or woody species that resprout from underground parts.

Burning is not effective for controlling resprouting shrubs and trees. In many cases, burning can increase the population of these species. In particular, burning is not recommended for poison oak because the smoke creates a serious health hazard.

Grazing by goats can provide control in small areas. Goats have been shown

to vigorously feed on resprouting vegetation and shrubs, including poison oak. Overgrazing, however, can also damage desirable vegetation.

Biological Control

Biocontrol agents, such as introducing an insect or disease which might attack the root stock of an undesirable plant, are not yet available for the control of any urban woody species. Because some of these plants are desirable ornamentals in many areas, there would be considerable opposition to the introduction of biocontrol agents. Furthermore, some of these weedy species, including poison oak, willow, chamise, cottonwoods (poplars), and certain wild blackberries, are natives with natural control agents already present. Consequently, biocontrol is not an option for their management.

CHEMICAL CONTROL

Homeowners in California can purchase the postemergence herbicides fluazifop, triclopyr, glyphosate, and combinations of glyphosate with triclopyr or imazapyr for control of shrubs, mature and resprouting trees, and large perennial grasses. Depending on the compound, these chemicals can be used as a cut stump treatment, stem injection (frill or hack-and-squirt application), or as a foliar spray (applied to leaves) (Table 2). When using herbicides, extra care must be taken to keep the material from contacting desirable plants because these non-selective materials can cause serious plant injury. Also protect yourself by wearing appropriate protective equipment as stated on the herbicide label (Fig. 1).

Foliar Application

The effectiveness of foliar-applied herbicides to control woody plants or large perennial grasses depends on three factors:

1. Application at proper growth stage.

Postemergence applications are most effective after the leaves are fully developed and when the plant is actively growing. This is often in late summer or early fall.

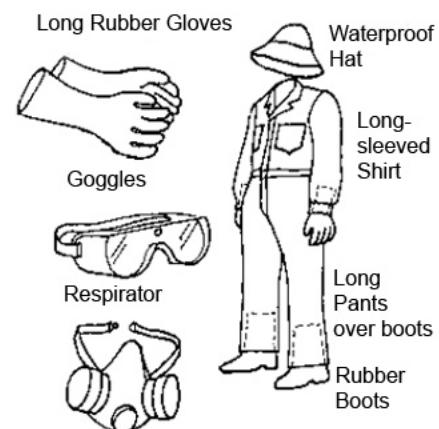


Figure 1. Use chemicals safely. Be sure plant and site are on the label. Follow label directions for mixing the herbicide and wearing protective clothing. Check label for other precautions.

Avoid making applications too early in the spring or summer or after the leaves have begun to turn color and senesce (age).

2. Spray-to-wet coverage. All leaves and stems should be glistening following herbicide application. However, coverage should not be to the point of runoff. In many cases, one application of herbicide does not completely control these species. Re-treatment should be made when new leaves are fully expanded. Treated areas should be watched closely for at least a year and retreated as necessary.

3. Proper concentration. Generally a higher rate of herbicide is required to control shrubs, large grasses, and resprouting trees than is required to kill seedlings of herbaceous plants. With most of these herbicides, a solution of 1% to 2% active ingredient is appropriate. Too high a rate may kill the conducting tissues in the plant before the herbicide reaches the below-ground buds. This may result in killing the above-ground portion of the plant, but allow recovery of underground reproductive parts such as rhizomes.

Cut Stump or Stem Application

Stump treatments are most effective during periods of active growth. Stems

of shrubs, trees, or bamboo should be cut close to the soil surface. *Immediately* after cutting, herbicide should be applied with a paint brush or with a plastic squeeze bottle. Delaying application will result in poor control. For small stumps, completely cover the cut surface; for large stumps, it is only necessary to wet the cambium (the outer ring of wood, next to and including the bark). For vines or small-stemmed shrubs, stems can be cut with loppers or clippers and herbicide solution painted or sponged onto the cut end.

Treatment solutions should contain 8% to 10% triclopyr (the 8% material avail-

able to homeowners in nurseries and other stores will work fine, undiluted) or 8% to 10% glyphosate. (If using a brand that has 18% glyphosate listed in the active ingredients, make a 1:1 solution of the product and water. If the product contains 41% glyphosate, use 1 part product and 3 parts water.)

Regrowth from cut stumps can be sprayed when leaves fully expand. Cut stump application of glyphosate can sometimes injure non-targeted plants of the same species in close proximity to the treated plant. This occurs via herbicide translocation through root grafts. This type of root grafting damage depends on the species. Rarely, if

ever, does root grafting occur between plants of different species.

Stem Injection (Frilling or Hack-and-Squirt)

A hatchet or machete can be used to partially (hack) or completely (frill) girdle the trunk of a tree or the stems of a large shrub, using downward strokes to flare out (or "frill") the bark and cambium (Fig. 2). Apply triclopyr, glyphosate, or glyphosate mixtures undiluted into the frill or hack marks. For most effective control, it is best to completely girdle the stems. As with cut stump treatments, similar root grafting injury can occur with stem injection treatment.

Table 2. Homeowner herbicides used to control shrubs, trees, and large perennial grasses of urban environments.¹

Common name	Example trade name ¹	Plant group	Application technique
fluazifop	Ortho Grass-B-Gon Grass Killer for Landscapes	perennial grasses	foliar
glyphosate	Roundup	perennial grasses	foliar, cut stem (bamboo)
		vines, shrubs, resprouting trees	foliar, cut stem / stump
		trees	cut stump, stem injection
glyphosate + imazapyr	Ortho GroundClear Complete Vegetation Killer	perennial grasses	foliar, cut stem (bamboo)
		vines, shrubs, resprouting trees	foliar, cut stem / stump
		trees	cut stump, stem injection
glyphosate + triclopyr	Roundup Poison Ivy & Tough Brush Killer Plus	vines, shrubs, resprouting trees	foliar, cut stem / stump
		trees	cut stump, stem injection
triclopyr	Brush-B-Gon Poison Concentrate EasyGone Brush Killer	vines, shrubs, resprouting trees	foliar, cut stem / stump
		trees	cut stump, stem injection

¹ Other products may be available with these active ingredients.

SUGGESTED READING

Brush Control. 1997. Auburn. Everest, J. W. and M. Patterson. Alabama Cooperative Extension Pub. ANR-1058. Also available online, <http://www.aces.edu/pubs/docs/A/ANR-1058/>

¹Pest Notes: *Invasive Weeds*. In press 2007. C. E. Bell, et al. Oakland. Univ. Calif. Agric. Nat. Res. Publ. 74139. Also available online, <http://www.ipm.ucdavis.edu/PMG/menu.weeds.html>

¹Pest Notes: *Poison Oak*. May 2000. J. M. DiTomaso and W. T. Lanini. Univ. Calif. Agric. Nat. Res. Publ. 7411. Also available online, <http://www.ipm.ucdavis.edu/PMG/menu.weeds.html>

For more information contact the University of California Cooperative Extension in your county. See your telephone directory for addresses and phone numbers.

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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 Urban 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.

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¹Pest Notes: *Pesticides: Safe and Effective Use in the Home and Landscape*. Apr. 2006. C. A. Wilen, et al. Oakland. Univ. Calif. Agric. Nat. Res. Publ. 74126. Also available online, <http://www.ipm.ucdavis.edu/PMG/menu.methods.html>

¹Pest Notes: *Wild Blackberries*. Apr. 2002. J. M. DiTomaso. Oakland. Univ. Calif. Agric. Nat. Res. Publ. 7434. Also available online, <http://www.ipm.ucdavis.edu/PMG/menu.weeds.html>

¹Weeds of California and other Western States. 2007. DiTomaso, J. M. and E. A. Healy. Oakland: Univ. Calif. Agric. Nat. Res. Publ. 3488. ♦

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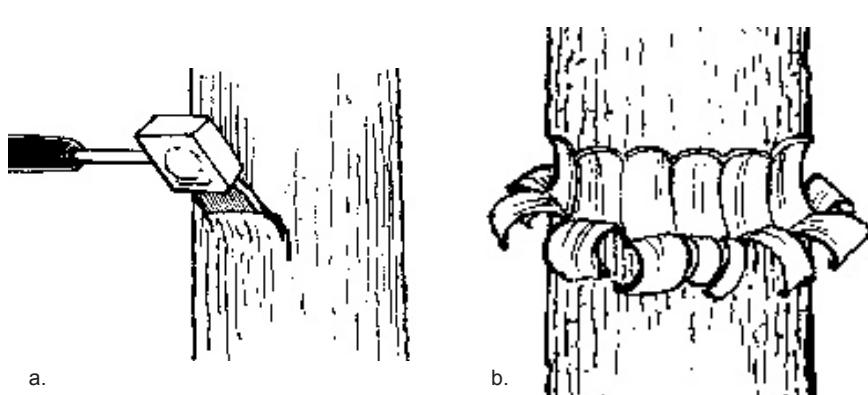


Figure 2. Hack and squirt method. Use a hatchet (a) to make a series of overlapping or frill cuts in the tree bark around the entire circumference of the trunk (b). Immediately apply herbicide into the cuts. This method is best suited to trees 4 to 5 inches in diameter.

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.

Pesticides applied in your home and landscape can move and contaminate creeks, rivers, and oceans. 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 or 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.

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