

English Ivy*Hedera helix* L.

Ginseng family (Araliaceae)

NATIVE RANGE

Europe, western Asia, and northern Africa

DESCRIPTION

English ivy is an evergreen climbing vine that attaches to the bark of trees, brickwork, and other surfaces by way of small rootlike structures which exude a sticky substance that helps the vines adhere to various surfaces. Older vines have been reported to reach 1 foot in diameter. Leaves are dark green with white veins, waxy to somewhat leathery, and arranged alternately along the stem. Leaf forms include a 3 to 5-lobed leaf (the most common) and an unlobed rounded leaf often found on mature plants in full sun that are ready to flower. Vines may grow for up to ten years before producing flowers. Under sufficient light conditions, terminal clusters of small, pale yellow-green flowers are produced in the fall. The flowers are attractive to flies and bees in search of late season nectar sources. The black-purple fruits have a thin fleshy outer covering, contain one to three hard, stone-like seeds and may persist through the winter if not eaten first.

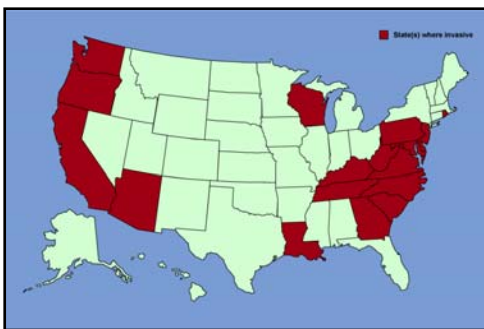


NOTE: The leaves and berries of English ivy contain the glycoside hederin which could cause toxicosis if ingested. Symptoms include gastrointestinal upset, diarrhea, hyperactivity, breathing difficulty, coma, fever, polydipsia, dilated pupils, muscular weakness, and lack of coordination. This feature also helps ensure effective seed dispersal by birds.

Poison ivy may be confused with English ivy in the winter because they both have hairy stems. However, poison ivy is deciduous and has no leaves during the winter time (English ivy has leaves all year round). During the growing season the three-leaved foliage and clusters of whitish berries help to distinguish poison ivy.

ECOLOGICAL THREAT

English ivy is a vigorous growing vine that impacts all levels of disturbed and undisturbed forested areas, growing both as a ground cover and a climbing vine. As the ivy climbs in search of increased light, it engulfs and kills branches by blocking light from reaching the host tree's leaves. Branch dieback proceeds from the lower to upper branches, often leaving the tree with just a small green "broccoli head". The host tree eventually succumbs entirely from this insidious and steady weakening. In addition, the added weight of the vines makes infested trees much more susceptible to blow-over during high rain and wind events and heavy snowfalls. Trees heavily draped with ivy can be hazardous if near roads, walkways, homes and other peopled areas. On the ground, English ivy forms dense and extensive monocultures that exclude native plants. English ivy also serves as a reservoir for Bacterial Leaf Scorch (*Xylella fastidiosa*), a plant pathogen that is harmful to elms, oaks, maples and other native plants.

**DISTRIBUTION IN THE UNITED STATES**

English ivy has been reported to be invasive in natural areas in 18 states and the District of Columbia.

HABITAT IN THE UNITED STATES

English ivy infests woodlands, forest edges, fields, hedgerows, coastal areas, salt marsh edges, and other upland areas, especially where some soil moisture is present. It does not grow well in extremely wet conditions and tolerates a wide range of soil pH but prefers slightly acid (pH=6.5). English Ivy is often associated with some form of land disturbance, either human-caused or natural.

BACKGROUND

English ivy was probably first introduced to the U.S. by European immigrants for its ornamental appeal. It persists as a popular plant for homeowners, businesses, landscape designers and others. Cooperative Extension offices continue to recommend English ivy for use as a low maintenance alternative to lawns because it is evergreen, relatively pest free, very cold hardy and fast-growing groundcover that requires little care once established.

BIOLOGY & SPREAD

English ivy spreads locally through vegetative growth and new plants can grow from cut or broken pieces of stems that are able to root in the soil. It disperses longer distances via seed which is carried to new areas by frugivorous birds including the Cedar Waxwing, Northern Robin, Stellar Jay, Mockingbird, European Starling, and House Sparrow.



MANAGEMENT OPTIONS

Manual, mechanical and chemical control methods are all effective in removing and killing English ivy. Employing a combination of methods often yields the best results and may reduce potential impacts to native plants, animals and people. The method you select depends on the extent and type of infestation, the amount of native vegetation on the site, and the time, labor and other resources available to you. Whenever possible and especially for vines climbing up trees or buildings, a combination of cutting followed by application of concentrated systemic herbicide to rooted, living cut surfaces is likely to be the most effective approach. For large infestations of ivy spanning extensive areas of ground, a foliar herbicide may be the best choice rather than manual or mechanical means which could result in soil disturbance.

Biological

There are no biological controls currently available for English ivy.



Chemical

Systemic herbicides like triclopyr (e.g., Garlon® 3A and Garlon® 4) and glyphosate (e.g., Accord®, Glypro®, Rodeo®) are absorbed into plant tissues and carried to the roots, killing the entire plant within about a week. The evergreen nature of English ivy means that it continues to grow through the winter months although at a reduced rate. Herbicide applications can be made any time of year as long as temperatures are above 55 or 60 degrees Fahrenheit for several days and rain is not expected for at least 24 hours. Fall and winter applications will avoid or minimize impacts to native plants and animals. Repeated treatments are likely to be needed. Follow-up monitoring should be conducted to ensure effective control. Herbicidal contact with desirable plants should always be avoided. In areas where spring wildflowers or other native plants are interspersed, application of herbicides should be conducted prior to their emergence, or delayed until they have died back. If native grasses are intermingled with the ivy, triclopyr should be used because it is selective for broad-leaved plants and will not harm grasses.

Glyphosate products referred to in this fact sheet are sold under a variety of brand names (Accord®, Rodeo®, Roundup Pro® Concentrate) and in three concentrations (41.0, 50.2 and 53.8% active ingredient). Other glyphosate products sold at home improvement stores may be too dilute to obtain effective control. Triclopyr comes in two forms – triclopyr amine (e.g., Garlon® 3A, Brush-B-Gone®, Brush Killer®) and triclopyr ester (e.g., Garlon® 4, Pathfinder®, and Vinex®). Because Garlon® 3A is a water-soluble salt that can cause severe eye damage, it is imperative that you wear protective goggles to protect yourself from splashes. Garlon® 4 is soluble in oil or water, is highly volatile and can be extremely toxic to fish and aquatic invertebrates. It should not be used in or near water sources or wetlands and should only be applied under cool, calm conditions.

Basal bark application

Use a string trimmer or hand saw to remove some of the foliage in a band a few feet from the ground at comfortable height. To the exposed stems, apply a 20% solution of triclopyr ester (Garlon® 4) (2.5 quarts per 3-gallon mix) in commercially available basal oil with a penetrant (check with herbicide distributor) to vine stems. As much as possible, avoid application of herbicide to the bark of the host tree. This can be done year-round although efficacy may vary seasonally; temperatures should be above 50° F for several days.

Cut stem application

Cut each vine stem close to the ground or at a comfortable height and cut again a little higher up. Remove cut pieces to make a vine-free band around the tree trunk. The upper portions of cut vines will eventually die, rot and fall off the host tree. To the freshly cut surfaces of the living rooted stems apply a 25% solution of triclopyr amine (Garlon® 3A) or glyphosate (e.g., Accord®) mixed in water. Homeowners can apply products like Brush-B-Gone®, Brush Killer® and Roundup Pro Concentrate® undiluted to cut stems. Using a paint brush or a plastic spray bottle, apply herbicide to the cut surface especially the perimeter inside the bark which is the living portion of plant.



Foliar application

From summer to fall, apply 2 to 5% solution (8 to 20 oz. per 3-gallon mix) of triclopyr ester (Garlon® 4) mixed in water with a non-ionic surfactant to the leaves. Thoroughly wet the foliage but not to the point of runoff. Some control may be achieved with glyphosate as a 2 to 4-percent solution (8 to 16 oz. per 3-gallon mix) mixed in water with a 0.5 to 1.0 %non-ionic surfactant, but repeat applications are likely to be necessary. During foliar applications some of the herbicide is also absorbed through the stem for additional (basal bark) effect. Because English ivy is evergreen, the ideal time to treat it is during mild spells in winter when most native plants are dormant, to avoid affecting non-target species. However, winter treatments may be less effective than summer through fall applications.

Manual and Mechanical

Vines growing as groundcover can be pulled up by hand, with some difficulty, and left on-site or bagged and disposed of as trash. Always wear gloves and long sleeves to protect your skin from poison ivy and barbed or spined plants. For climbing vines, first cut the vines near the ground at a comfortable height to kill upper portions and relieve the tree canopy. A large screw driver or forked garden tool can be used to pry and snap the vines away from the tree trunks. Vines can be cut using a hand axe or pruning saw for larger vines or a pruning snips for smaller stems. Try to minimize damage to the bark of the host tree. Rooted portions will remain alive and should be pulled, repeatedly cut to the ground or treated with herbicide. Because cutting will likely result in vigorous regrowth, vigilance is required to ensure long term control.

Mulching

Mulching may be an effective choice for smaller infestations when herbicides are not appropriate. Cover the entire infestation with several inches of mulch. This may include wood chips, grass clippings, hay or similar degradable plant material. Shredded or chipped wood may be the best option since hay and grass may potentially carry weed seeds. Covering the area with cardboard may improve the effectiveness and longevity of this method. The mulch should stay in place for at least two growing seasons and may need to be augmented several times. Mulching can also be done following herbicide treatment.

USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.

CONTACTS

For more information on the management of English ivy, please contact:

- * Jil Swearingen, National Park Service, jil_swearingen@nps.gov
- * Sandra Diedrich, sddivy@teleport.com
- * Kris Johnson, National Park Service, kris_johnson@nps.gov
- * Sue Salmons, National Park Service, sue_salmons@nps.gov
- * Ron Dean, National Park Service, ron_dean@nps.gov
- * James Akerson, National Park Service, james_akerson@nps.gov

SUGGESTED ALTERNATIVE PLANTS

A wide variety of attractive and ecologically adapted and beneficial native plants can be substituted for English ivy. Select plants adapted to the level of light available on the site (i.e., full sun, shade, part-shade). Plants that will eventually spread to cover an area of ground include flowering plants like eastern prickly pear cactus (*Opuntia humifusa*), blue phlox (*Phlox*

divaricata), wild ginger (*Asarum canadense*), Allegheny spurge (*Pachysandra procumbens*), and green and gold (*Chrysogonum virginianum*); ferns like Christmas fern (*Polystichum acrostichoides*), northern maidenhair fern (*Adiantum pedatum*), northern lady fern (*Athyrium filix-femina*), sensitive fern (*Onoclea sensibilis*), and cinnamon fern (*Osmunda cinnamomea*); grasses like red fescue (*Festuca rubra*), wild oats (*Chasmanthium latifolium*), bottlebrush grass (*Elymus hystrix*) and switch grass (*Panicum virgatum*); and sedges like Pennsylvania sedge (*Carex pennsylvanica*) and tussock sedge (*Carex stricta*). Native vines that are good replacements for English ivy include trumpet creeper (*Campsis radicans*), Virginia creeper (*Parthenocissus quinquefolia*), passionflower vine (*Passiflora lutea*), Dutchman's pipe (*Aristolochia macrophylla*), and native wisteria (*Wisteria frutescens*)*.

*NOTE: If you wish to plant wisteria, make certain that it is the native species. Two commonly planted ornamental wisterias, Chinese wisteria (*Wisteria sinensis*) and Japanese wisteria (*Wisteria floribunda*), are exotic and aggressive invaders. Please consult the native plant society in your state for more information on species native to your particular area.

OTHER LINKS

- <http://www.invasive.org/search/action.cfm?q=Hedera%20helix>
- http://www.hear.org/starr/hiplants/images/thumbnails/html/hedera_helix.htm

AUTHORS

Jil M. Swearingen, National Park Service, Washington, DC
Sandra Diedrich

REVIEWERS

James Akerson and Ron Dean

PHOTOGRAPHS

Jil M. Swearingen, National Park Service, Washington, DC

REFERENCES

- Animal Poison Control Center. <http://www.asPCA.org/toxicplants/M01879.htm>
- Assiut University (Egypt). English ivy. <http://www.aun.edu.eg/distance/pharmacy/poison/hedera.htm>
- Collins, Christi. 1994. Some notes on *Hedera helix* The English ivy. The Nature Conservancy.
- Czarapata, E. J. 2005. Invasive plants of the upper midwest: an illustrated guide to their identification and control. The University of Wisconsin Press. 215 pp.
- Dirr, Michael A. 1990. Manual of woody landscape plants: their identification, ornamental characteristics, culture, propagation and uses. Stipes Publishing Company, Champaign, IL.
- Fernald, M.L. 1970. Gray's Manual of Botany. Eighth ed. D. Van Nostrand Co., New York, N.Y. p.1078.
- Harty, Francis M. 1993. How Illinois kicked the exotic species habit. In B.N. McKnight (ed.), Biological Pollution. Indiana Academy of Science, Indianapolis, Indiana. Pp. 195-209.
- Holloran, P., A. Mackenzie, S. Ferrell, & D. Johnson. 2004. The Weed Workers' Handbook: A Guide to Techniques for Removing Bay Area Invasive Plants. The Watershed Project and California Invasive Plant Council. 120 pp.
- Lewis, W.H., and M. Elvin-Lewis. 1977. Medical Botany: Plants Affecting Man's Health. John Wiley and Sons, Inc.
- McElrone, A., Sherald, J. L. and Pooler, M. R. Identification of alternative hosts of *Xylella fastidiosa* in the Washington, DC area using nested polymerase chain reaction (PCR). J. Arboric. (In press)
- Miller, James H. 2003. Nonnative invasive plants of southern forests: a field guide for identification and control. Gen. Tech. Rep. SRS-62. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 93 p.

- Pennisi, B.V., et al. 2001. Commercial Production of English Ivy. University of Georgia College of Agriculture and Environmental Sciences. Bulletin 1206. <http://pubs.caes.uga.edu/caespubs/pubcd/B1206.htm>
- Radford, A.E., H.E. Ahles, and C. Ritchie Bell. 1968. Manual of the Flora of the Carolinas. The University of North Carolina Press, Chapel Hill, NC. Pp. 758-9.
- Randall, J. M., and Marinelli, J. 1996. Invasive Plants: Weeds of the Global Garden. Brooklyn Botanic Garden, Handbook #149. p. 7-11.
- Salmons, S. 2000. Rock Creek Park Invasive Non-native Plant Mitigation Program, Final Report. January, 23 pp.
- Sherald, J. L. and Kostka, S. J. 1992. Bacterial leaf scorch of landscape trees caused by *Xylella fastidiosa*. J. Arboric. 18: 57-63.
- Slattery, B. E., K. Reshetiloff, and S. Zwicker. 2003. Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed. U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis MD. 82 pp. Call: (410) 573-4500.
- Southeast Exotic Pest Plant Council. 2004. Invasive Plant Control Manual.
- Swearingen, J. 2009. WeedUS Database of Plants Invading Natural Areas in the United States: English Ivy (*Hedera helix*). <http://www.invasive.org/weedus/subject.html?sub=3027>.
- Thomas, L.K., Jr. 1980. The Impact of Three Exotic Plant Species on a Potomac Island. National Park Service Scientific Monograph Series, no. 13. 179 pp.
- USDA, NRCS. 2009. The PLANTS Database (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- Uphof, J.C.T. 1968. Dictionary of Economic Plants. J. Cramer Publishing Co., Lehre, Germany.
- Virginia Native Plant Society. 1995. Invasive Alien Plant Species of Virginia: English ivy (*Hedera helix*). Virginia Department of Conservation and Recreation.
- Virginia Native Plant Society Potomac Chapter. 2004. Native Alternatives to English Ivy.