



## Weeds, Damn Weeds, & Noxious & Invasive Weeds

**Some definitions:** *A weed by any other name?*

- **Weed** – “Any undesirable or troublesome plant, especially one that grows profusely where it is not wanted” (Dictionary.com).
- **Introduced species** – “A species living outside its native distributional range, which has arrived there by human activity, either deliberate or accidental” (Wikipedia 2015). Terms like alien, and exotic are also applied (loosely).
- **Naturalized species** – An introduced species that is reproducing successfully in a habitat in which it is not native. Such a species may or may not be invasive, but naturalized does NOT = native.
- **Noxious weed** – “Legal term for any invasive, non-native plant that threatens agricultural crops, local ecosystems or fish and wildlife habitat” (WA NWCB 2015). Noxious weeds are designated and regulated by state law.

### State noxious weed law in brief

[State noxious weed list <https://www.nwcb.wa.gov/printable-noxious-weed-list> ]

- Class A noxious weeds are non-native species whose distribution in Washington State is still limited. Eradication of all existing infestations of Class A plants is required by law. (37 species).
- Class B noxious weeds are nonnative species whose distribution is limited to portions of Washington State (62 species).
  - Species are designated for control in state regions where they are not yet widespread. Prevention of new infestations in these areas is the primary goal.
  - In regions where a Class B species is already abundant, control is decided at the local level. Containment of these weeds is the primary goal so that they do not spread into un-infested regions.
  - The Washington State Noxious Weed Board or a County Noxious Weed Board can designate a Class B noxious weed for mandatory control.
- Class C noxious weeds are either already widespread in Washington or are of special interest to the agricultural industry. Class C status allows a county to enforce control if it is beneficial to that county (*for example*: to protect crops; 50 species).
- Quarantine list [ <http://www.nwcb.wa.gov/searchResultsQuarantine.asp> ] -- sale or distribution is prohibited in the state. All Class A noxious weeds are on this list. There are also plants on the list to prevent them from being imported and spread in our state (101 species).

## Invasive Species

*Remember the definition of a native plant from Week 1:*

**native plant** -- a plant “that occurs naturally in a particular region, ecosystem, or habitat without direct or indirect human intervention.” -- US National Arboretum (USDA).

**Invasive species** – “Any nonnative species that significantly modifies or disrupts the ecosystems it colonizes” (Encyclopedia Britannica [online]), especially those capable of establishing in relatively intact ecosystems (JE). *An invasive plant has the ability to thrive and spread aggressively outside its natural range* (US National Arboretum).



**Impacts of invasive species**

- Threaten natural ecosystems, agroecosystems, and infrastructure.
- Threaten all natural habitats (different invaders threaten different habitat types).
- Threaten preserved natural areas as well as restoration projects.
- Considered the second greatest threat to endangered species (after habitat loss).

**10 Worst Weeds of Whatcom County** (a subjective list)

Review habitats, impacts, & control methods.

<b>Common name</b>	<b>Scientific name</b>	<b>Weed class</b>	<b>Wetland indicator status*</b>	<b>Shade tolerance</b>	<b>Manual control</b>
English holly	<i>Ilex aquifolium</i>	not listed	FACU	High	Mod-low
English ivy	<i>Hedera helix</i>	C	FACU	High	High
herb Robert	<i>Geranium robertianum</i>	B- Selected	FACU	High	Moderate
garlic mustard	<i>Alliaria petiolata</i>	A	FACU	High	Mod-high
Scotch broom	<i>Cystisus scoparius</i>	B	NL	Low	High
reed canarygrass	<i>Phalaris arundinacea</i>	C	FACW	Med-low	Low
invasive knotweeds	<i>Polygonum cuspidatum</i> , <i>P. sachalinense</i> , <i>P. x bohemica</i>	B- Designate	NL	Med-low	Low
purple loosestrife	<i>Lythrum salicaria</i>	B- Designate	OBL	Low	Moderate
yellow iris	<i>Iris pseudacorus</i>	C	OBL	Low	Mod-low
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	B- Selected	OBL	Med-high	Mod-low

\*2017 Whatcom County Noxious Weed List. <http://wa-whatcomcounty.civicplus.com/DocumentCenter/View/28521>



## FOREST

**English holly.** A highly shade tolerant, evergreen perennial that threatens upland and riparian forests. Capable of invading undisturbed habitats. Abundant seedlings outnumber those of native trees and shrubs in some urban and rural forests in the Puget Lowland. Branches and stems are capable of rooting when in contact with soil. Even cut stems may take root. Birds produce attractive red fruits and disperse to more distant sites. Manual controls (including weed wrench) can be effective on seedlings & small saplings, but root fragments left in the soil will resprout. Established trees require cut-stem or injection herbicide treatment for eradication, but repeated, frequent cutting eliminates fruit production (must be persistent). The species is dioecious (male & female sexes occur on plants). Only females produce fruit.

**English ivy.** A highly shade tolerant, evergreen perennial that threatens upland and riparian forests. Capable of invading undisturbed habitats. Spreads widely via bird-dispersed fruit. Vegetative creeping and climbing are the cause of overwhelming spread in natural areas, forming dense mats and leading in time to ‘ivy deserts’ where few forest species are able to reproduce. Cutting vines and creating ‘life rings’ around tree trunks, and hand-pulling of mats are generally the most-effective controls, but are labor intensive where infestations are extensive. Some very old, thick roots may require cut-stem herbicide treatment as a final stage of control.

**herb Robert.** A highly shade tolerant perennial that threatens upland forest habitats, especially where disturbed. May produce chemicals that inhibit competing native plants. Spread primarily by humans (along trails and roads) and other terrestrial animals. Individual plants are easily pulled out by hand, but where highly abundant or widespread this can become overwhelming. Pulled material should be carefully bagged and placed in trash.

**garlic mustard.** A highly shade tolerant biennial that threatens upland and riparian forests. Spread primarily by humans (along trails and roads). Produces chemicals that inhibit the growth of other plants. Garlic mustard displaces native plants due to rapid spread, dense growth pattern, and long seed viability (up to 10 years). Hand-pulling is effective on mature plants, which may reach two to three feet tall. If roots break off they must be dug out. Rosettes are not amenable to hand-pulling and must be dug out. All pulled or dug material should be carefully bagged and placed in trash. Plants in bud when pulled can still form viable seeds.



## **PRAIRIES, BALDS, OLD PASTURES & UPLAND RESTORATION SITES**

**Scotch broom.** Strongly taprooted, perennial invader of upland prairies, balds, waste places, and open woodlands. Nitrogen-fixing legume that changes soil chemistry in its own favor & to the detriment of natives adapted to low-nutrient soils. Seeds remain viable for decades (50+ years). Seedlings can be pulled by hand, esp. when soil is moist. Weed wrench highly effective on mature specimens. Youngish specimens resprout after cutting or mowing, but 'old-growth' brooms may not. Tolerant of some crowding but not of forest shade. Can be shaded out by forest succession but must be controlled while trees get established. Because of its extended seedbank life, a persistent, long-term effort is required to control Scotch broom in open habitats.

## **RIPARIAN & WETLANDS**

**reed canarygrass.** Invader of riparian zones, floodplains, wetland fringes, and relatively moist waste places. Tolerant of some shade, especially under a deciduous canopy. Spreads by seed and by aggressive rhizomatous growth. Very small patches may be dug up, taking extreme care to get all the rhizomes. So widespread & dominant that control is only attempted under particular circumstances, such as to establish trees & shrubs or to protect a rare resource. Successful manual control can be achieved by covering with weed fabric for about three-years. Cardboard and woodchips tend to break down before reed canarygrass is killed. Where control is a necessity, most programs use herbicides.

**invasive knotweeds.** Moderately shade tolerant invaders of riparian zones, floodplains, wetland fringes, and waste places. Purportedly reproduces only by fragmentation. Successful manual control requires superhuman effort & persistence [anyone considering such should watch the video How to control knotweed without chemicals on the King County website, <http://www.kingcounty.gov/services/environment/animals-and-plants/noxious-weeds/weed-identification/invasive-knotweeds/knotweed-control-video.aspx> ]. All control programs greater than backyard scale use herbicides.

**Purple loosestrife.** An invader of ponds, lakeshores, and other wetlands. Spreads mainly by seed -- a mature plant may produce two to three million tiny seeds per year, and seeds remain viable for about two years -- but is also capable of vegetative spread and by stem and root fragmentation.

Hand pulling is effective for small patches or when a large labor force is available. If plants are in flower or seed, cut off and bag all flower stalks and seed heads before pulling. Hand-pulling is most effective when plants are rooted in mucky or otherwise loose wet soil. Grasp the base of the plant and pull slowly with steady pressure to release roots from the soil. Hand-pulling is easiest when plants are young. Older plants have larger roots that can be eased out with a garden fork. All plant material should be carefully bagged and placed in trash. Root fragments left during plant removal will resprout. Removed stems left on moist soil will grow roots and sprout.

Several biological control agents are available for purple loosestrife and have been effective at reducing large infestations. They are not very effective on small patches.



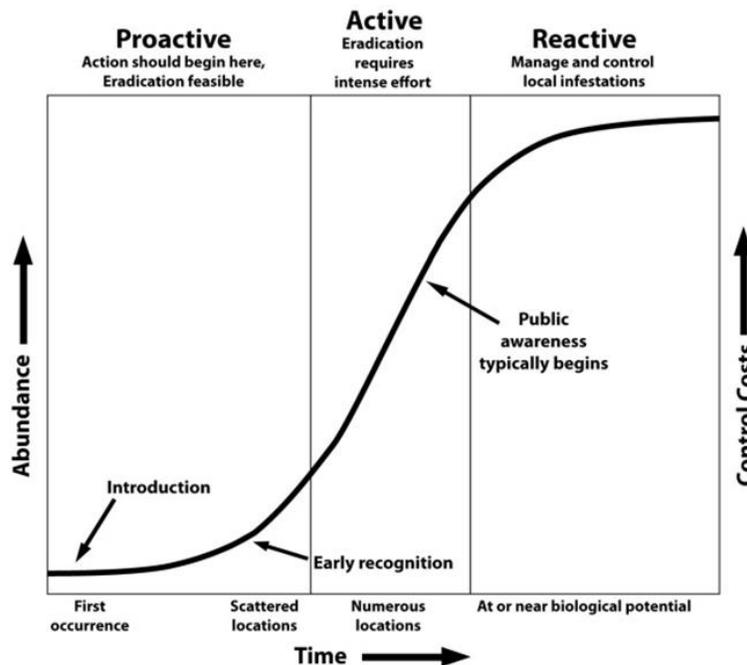
**yellow iris.** Fast-growing invader of wetlands and riparian areas. Spread is by seed and by rhizomes, and both seeds and rhizome fragments can be spread by floating downstream. Yellow iris can form dense mats, out competing and excluding native vegetation. Small stands can be dug up, taking care to remove as many rhizomes as possible. Gloves should be used when handling, as the plant's sap can cause skin irritation in some people. Plant parts should be disposed of carefully, as rhizomes can resprout if left in contact with the ground. Treated areas should be monitored for regrowth from missed rhizomes. Some control may be obtained for plants in standing water by cutting all leaves and stems below the waterline. Covering plants with a heavily weighted tarp or plastic for several years can also control small patches.

### AQUATIC

**Eurasian watermilfoil.** Perennial rooted submersed aquatic. Spreads vegetatively, by seed, and by fragmentation. Outcompetes native species, degrades fish habitat, reduces water quality, clogs waterways and impedes recreation. Control is difficult and usually imperfect. Manual removal easily results in fragmentation (& risk of spread). Aquatic chemical herbicides are used by professionals.

### ONE TO THINK ABOUT

**Norway maple (*Acer platanoides*).** Shade tolerant deciduous tree introduced from Europe. Planted widely as a street and yard tree. Naturalizing in Puget Lowland, in deciduous urban forests and riparian areas, and other disturbed woodlands. Currently under the radar, no legal status.



### Phases of Invasive Species Invasion and Control

University of Georgia, Center for Invasive Species and Ecosystem Health  
[ [http://www.eddmaps.org/about/why\\_plants\\_invasive.html](http://www.eddmaps.org/about/why_plants_invasive.html) ]



## NOXIOUS AND INVASIVE SPECIES – SELECTED REFERENCES

### IDENTIFICATION & GENERAL

Boersma, P.D., S.H. Reichard, and A.N. Van Buren. 2006. **Invasive Species in the Pacific Northwest**. University of Washington Press, Seattle, WA. 285 pp.

DiTomaso, J.M., and E.A. Healy. 2003. **Aquatic and Riparian Weeds of the West**. University of California, Agriculture and Natural Resources Publication 3421. 442 pp.

DiTomaso, J.M., G.B. Kyser, et al. 2013. **Weed Control in Natural Areas in the Western United States**. Weed Research and Information Center, University of California. 544 pp.

Taylor, R.J. 1990. **Northwest Weeds: The Ugly and Beautiful Villains of Fields, Gardens, and Roadsides**. Mountain Press, Missoula, MT. 177 pp.

Whitson, T.D., et al. 1992. **Weeds of the West**. Western Society of Weed Science, Newark, CA. 630 pp.

Tu, M., C. Hurd, and J.M. Randall. 2001. **Weed Control Methods Handbook: Tools & Techniques for Use in Natural Areas**. The Nature Conservancy. 219 pp.

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### WEBSITES

**Washington State Noxious Weed Control Board** [ <http://www.nwcb.wa.gov/> ]

**Washington State Quarantine List** [ <http://www.nwcb.wa.gov/searchResultsQuarantine.asp> ]

**Whatcom County Noxious Weed Control Board**. 2017. 2017 Whatcom County Noxious Weed List. <http://wa-whatcomcounty.civicplus.com/DocumentCenter/View/28521>

**King County Noxious Weed Program** – <http://www.kingcounty.gov/environment/animals-and-plants/noxious-weeds.aspx> . *The King County Noxious Weed Program is better funded than some, and has produced a bunch of excellent fact sheets, best management practices, and other tools that are useful all over Western Washington.*

**Washington Invasive Species Council**. <http://www.invasivespecies.wa.gov/>

**City of Portland - No Ivy League** -- <https://www.portlandoregon.gov/parks/47820> . *Don't miss exploring this delightful and informative website!*

**Weed Research and Information Center, University of California Cooperative Extension and Agricultural Experiment Station**.

[http://wric.ucdavis.edu/information/natural%20areas/natural\\_areas\\_common\\_A-B.htm](http://wric.ucdavis.edu/information/natural%20areas/natural_areas_common_A-B.htm) *This site contains the excellent individual species treatments from DiTomaso, Kyser, et al (2013), above.*



- ECOLOGY & MANAGEMENT OF SELECTED SPECIES IN THE PACIFIC NORTHWEST  
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[http://www.jstor.org/stable/pdf/41425841.pdf?seq=1#page\\_scan\\_tab\\_contents](http://www.jstor.org/stable/pdf/41425841.pdf?seq=1#page_scan_tab_contents) [Article can be read online – but not downloaded – by opening a free JSTOR account]

#### RECOMMENDED VIDEOS

**English Ivy - Managing an invasive alien species** (00:08:43).

<http://www.co.thurston.wa.us/tcweeds/Weedlistdetail/Ivyvideo.htm>

Herndon Environmental Network. 2014. **How to identify and remove garlic mustard.** Video (00:03:45). <https://www.youtube.com/watch?v=S11HFFr89Ao> *The first 2:00 of this video is excellent – I recommend stopping there! What follows is questionable advice for our area. You would be better off leaving garlic mustard in place – and reporting it to your local weed board – than doing anything that risks dispersing the infestation to a new area!*

#### **Invasive knotweed control videos – King County Noxious Weed Control Program**

1. **Introduction to knotweed** (00:03:41) -- About the plant, how to identify it, and how it damages river banks.

2. **How to control knotweed without chemicals** (00:06:42). If, after watching this, you still want to try, you must be an indomitable person!