

Information for this page was taken from many various sites on the Internet. For more information contact your Extension Office or any other County or State agency that deals with noxious weed control.



### **Tansy Ragwort**

An invader from Europe, Tansy Ragwort was first seen in seaports in the early 1900's and is often spread in contaminated hay. The plant's stem is stout, erect or slightly spreading, and may be branched; often groups of stems arise from the plant crown. Tansy ragwort, a biennial plant, usually germinates in fall or early winter, lives through the next year as a rosette, then dies the next year after producing flowers and seeds. Its leaves are dark green on top, whitish-green underneath, and have deeply cut, blunt-toothed lobes with a ragged/ruffled appearance. Flower clusters develop on stout, leafy elongated stems that grow up to 6 feet tall; each flower cluster is composed of many bright-yellow flowers with (usually) 13 petals. Its seeds have a white pappus and are wind-carried, resulting in rapid spread of tansy ragwort infestations. A single large plant may produce 150,000 seeds, which may lie dormant in the soil for as long as 15 years. The plant's fibrous system of coarse, light colored roots spreading from the crown can produce small adventitious shoots when stimulated by mechanical destruction or pulling.

When prevalent, tansy ragwort is one of the most common causes of poisoning in cattle and horses, caused by consumption of the weed found in pasture, hay or silage. Milk produced by affected cows and goats can contain toxins. Stock does not reject or avoid it in hay or silage; its poisonous alkaloids are unaffected by drying. Honey from tansy ragwort also contains the alkaloids.

Noxious Weed Boards recommend controlling this plant by several different methods. If there's a small infestation, dig it out or hand pull it, including the roots. Do not compost it (this risks perpetuating the seed reservoir.) Cutting off the flowers by mowing won't get rid of the plants, although this might seem like a good idea. Instead of dying, the tansy ragwort plant will hang on to flower and seed in another season; in effect, mowing it turns the plant from a biennial into a perennial, which may come back in another year. Plants damaged by mowing can recover.

There are insects which eat the tansy ragwort. The most dramatic are the larvae of the cinnabar moth, a caterpillar resembling a red and black striped tube sock. This caterpillar can chew up a lot of tansy ragwort without ill effects to itself, though it definitely sets back the ragwort. If you see such a caterpillar on the dusty miller in your garden plantings, treat it kindly even if it's dining on a prized leaf. Dusty miller (*Senecio cineraria*) is a relative of tansy ragwort and it's sometimes chomped by the cinnabar moth caterpillar. The adult moth is a rusty red, less than an inch long. Treat both the adults and the larval caterpillar form as beneficial insects.

Waiting around for insects to get rid of an infestation isn't feasible and doesn't work. They simply provide some slowing down of the plants. You may need to consult a professional for help with chemical application on big infestations.

If you've determined that the yellow-flowered plant in your garden is tansy ragwort, and the infestation is large, choose a herbicide to kill the plants. If the plant occurs in an area such as a landscape where no grasses are growing, it's possible to treat the early stage rosettes with glyphosate (sold as Round-up in many different formulations.) Glyphosate is a non-selective herbicide and can kill or damage any plant it touches, so keep it off desirable plants.



### Canada Thistle

**Description and Variation:** Canada thistle is a perennial herb with a deep-seated complex system of roots spreading horizontally which give rise to aerial shoots. The one to four foot tall stems are slender, green, and freely branched. The leaves are alternate, sessile, and deeply lobed. The leaf margins have stiff yellowish spines. The heads are many and relatively small. The plants are dioecious (all flowers on a plant are either male or female). The flowers are purple. The fruits are about 1/8 inch long, somewhat flattened, and brownish with an apical circle of long hairs, these eventually falling.

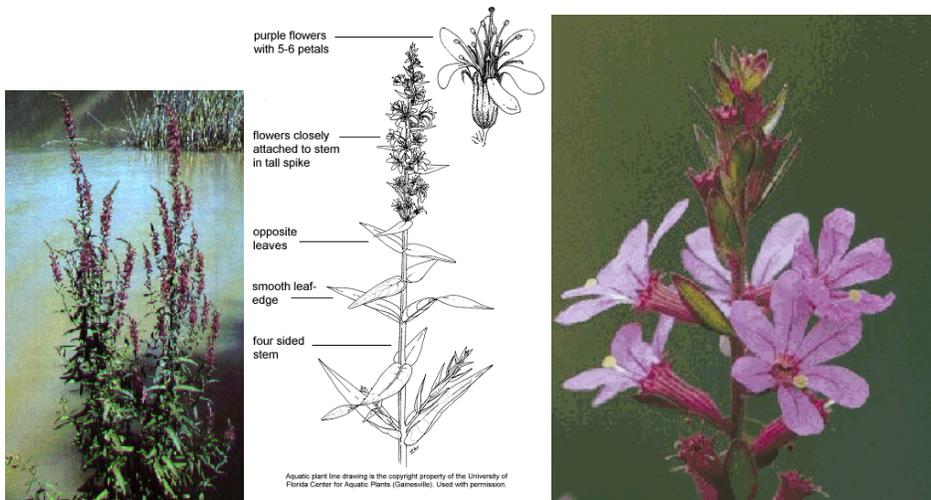
**Response to Herbicides:** Effective control can be achieved by using several broad-leaved herbicides that do not harm grasses. For more site specific control recommendations, please refer to the latest edition of the Pacific Northwest Weed Control Handbook.

**Response to Cultural Methods:** Planting competitive crops, such as alfalfa and forage grasses can be very effective in controlling an infestation of Canada thistle.

**Response to Mechanical Methods:** Repeated tillage at 21-day intervals for about four months can be effective on minor infestations of Canada thistle. Repeated mowing to weaken stems and prevent seeding is also effective in low level infestations.

**Biocontrol Potentials:** Many insects, a few nematodes, and the American Goldfinch have been reported to feed on various parts of Canada thistle. Most of these do very little damage. Three insects from Europe have been studied for biological control - *Altica carduorum* Guer (flea beetle), a leaf feeder, has not established itself well. Adults of the beetle *Ceutorhynchus litura* F. eat young thistle shoots, but do little damage. The fly, *Urophora cardui* L. is the most promising biological control agent. Eggs are laid in the terminal buds and galls develop which divert nutrients and stress the plant. Many microorganisms have been found associated with Canada thistle, but no potential biocontrol agents are known.

### Purple Loosestrife



*L. salicaria* is a herbaceous, wetland perennial that grows in a wide range of habitats. Established plants can reach heights of 2m with 30-50 stems forming wide-topped crowns that dominate the herbaceous canopy. One mature plant can produce more than 2 million seeds annually. Seeds are easily dispersed by water and in mud adhered to aquatic wildlife, livestock and people. High temperatures (>20°C) and open, moist soils are required for successful

germination and seedling densities can approach 10,000-20,000 plants/m<sup>2</sup>. A woody rootstock serves as a storage organ, providing resources for growth in spring and regrowth if the above-ground shoots are cut or damaged

### **Control recommendations**

Research is currently being conducted into methods of biological control, and the U.S. Fish And Wildlife Service has begun a search for biological control agents that might be used against this species. However, only mechanical and chemical means of control are currently available. Current control methods have only limited success. The chances of success are best with the smallest infestations, and methods of control are determined by the size of the infestation. Early diagnosis is critical. Decisions on control methods must be balanced with the chances of success and the potential damage caused by the treatment method.

Loosestrife habitat should be searched annually during late July and August for the plant. Early detection is the best approach! Effort in areas with individual plants and cluster of up to 100 plants younger plants (1-2 years old) can be hand-pulled. Do not pull after flowering because this will scatter seed. Older plants, especially those in bogs or in deep organic soils, can be dug out. Roots of older plants can be "teased" loose with a hand cultivator. Bag and remove the plants from the site. Failure to place the removed plants in a bag could result in spreading the plant along your exit route because fragments may be dropped. Dispose of the plant by burning (preferable) or in an approved landfill. Follow-up treatments are recommended for three years after the plants are removed. Clothing, equipment and personnel should be cleaned to insure no seeds are spread on them, if seeds were present on plants. If the above control method is not feasible in areas with relatively small

In areas with clusters in excess of 100 plants (up to 4 acres in size) spot application of a glyphosate herbicide to individual purple loosestrife plants is the recommended treatment where hand pulling is not feasible. Glyphosate is available under the trade names Roundup and Rodeo, products manufactured by Monsanto. Only Rodeo is registered for use over open water. Herbicides only may be applied according to label directions and by licensed herbicide applicators or operators when working on public properties. Glyphosate is nonselective so care should be taken not to let it come in contact with nontarget species. Glyphosate application is most effective when plants have just begun flowering. Timing is crucial, because seed set can occur if plants are in mid-late flower. Where feasible, the flower heads should be cut, bagged, and removed from the site before application to prevent seed set. Roundup should be applied by hand sprayer as a 1-1/2% solution (2 oz. Roundup/gallon of clean water). Rodeo should also be applied as a 1-1/2% solution (2 oz. Rodeo/gallon clean water) with the addition of a wetting agent, as specified on the Rodeo label.

Another option is to apply glyphosate twice during the growing season. Foliage should be sprayed as described above, once when flowering has just started and a second time 2-3 weeks later. With this procedure control is likely more effective, because plants are not allowed to set seed and those missed because they were not flowering the first time are treated the second time.

Excessive application of herbicide (causing dripping from the plant) can kill desirable plants under the loosestrife. These plants, left unharmed, will be important in recolonizing the site after the loosestrife has been controlled. If the desirable plants are killed, the vigorously resprouting and growing purple loosestrife seeds present in the soil will fill the void. Since purple loosestrife is usually taller than the surrounding vegetation, application to the tops of plants alone can be very effective and limit exposure of nontarget species. Complete coverage is not required to affect control.

The herbicide should be applied while backing away from treated areas to avoid walking through the wet herbicide. Equipment, clothing and personnel should be cleaned completely before entering other uninfested sensitive areas, if seeds were present in the treated area. It will be necessary to treat the same area again annually until missed plants and plants originating from the seed bank are eliminated.

Cutting purple loosestrife and subsequently flooding the area so that cut plant stalks are completely immersed has controlled purple loosestrife in at least one case. However, flooding may encourage the spread of purple loosestrife if seed are present in the soil. Artificial flooding should not be used in high-quality natural communities with an intact natural flooding regime.

In areas with large monocultures (greater than 4 acres in size) an assessment should be made to determine if the loosestrife can be eradicated with available resources. If it can not be controlled, then efforts should be placed on keeping the loosestrife out of the highest quality areas. Applying glyphosate from a vehicle mounted sprayer is usually necessary in areas with extensive stands of purple loosestrife. The most effective control can be achieved by beginning treatment at the periphery of large patches and working towards the center in successive years. This allows peripheral native vegetation to reinvade the treated area as the loosestrife is eliminated.

## Gorse



Description and Variation: Gorse is a perennial, evergreen shrub ranging from 3 feet to over 10 feet tall. Seedlings are compact, with trifoliolate leaves and thin expanded leaflets typical of legumes. With plant maturity, the leaves develop an awl-shape (spinelike). Well-developed branch spines also grow in the leaf axils. Overall, gorse plants are shrubby with stout and erect spreading branches with angular stems and a terminal thorn. Branches mature from green to brown. The plant habit is dense, sometimes 30 feet in diameter with a center of dead foliage. The shiny yellow, pea-like flowers are  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long, with an ovate banner (upper petal), oblong wings (lateral petals) and keel (lower, united petals). The wings are larger than the keel. The calyx is pubescent and deeply two-lipped. The upper lip is 2-toothed and the lower lip is 3-toothed. The ten stamens are monadelphous. The flowers are solitary or racemous, and clustered at branch tips. The seed pods are hairy,  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long, and brown when ripe. The pods burst and scatter seeds for several feet. The seeds are smooth and shiny, olive to brownish. The root system consists of a taproot, lateral roots and adventitious roots

Growth and Development: Young gorse plants are compact, with a rosette-like habit. The leaves are trifoliolate at this stage, with thin, expanded leaflets. Most growth occurs in spring and early summer. Growth slows in the summer from moisture stress, and it is slowed in winter by the shorter days and colder soil temperatures. The plant matures rapidly, and the leaves become narrow and small and eventually pointed (awl-like). During the second stage of gorse development, the foliage leaves harden into spines, spines develop in leaf axils, the leaf cuticle thickens and the leaf surface produces a thick wax. Gorse is typically shrub-like, but plants growing in exposed, windy habitats can be mat-like or cushion-like, due to the growing tips killed by wind or salt-spray. Gorse plants live for an estimated 30 years. Plants grow outward, leaving a center of dry, dead vegetation. Individual plants can be up to 30 feet in diameter, forming dense, impenetrable thickets. The combination of dead plant matter and a high oil content create a fire hazard. The root system consists of a tap root, lateral roots and adventitious roots. Extensive lateral roots are found a couple of inches below the surface. A mat of adventitious roots descending from procumbent branches support the lateral roots. Nitrogen-fixing bacteria are located in the root nodules of gorse, and they thrive under aerobic conditions, and this fixating metabolism slows if the roots are flooded.

Fire plays a role in the ecology of gorse, and it has been described as a 'fireweed'. Fire cracks the hard and waxy, impermeable seed coat and fire also removes the heavy litter associated with mature plants. This opens an area of light and moisture for seedlings. Plants recover quickly after fire, with regrowth from the stems or from the root crown. While gorse prefers cool, moist habitat, this plant has characteristics that allow it to occupy areas of drought or sites that are sunny, exposed and dry. The characteristics include: spiny leaves covered with thick cuticles; grooved hairy stems; large roots on young plants that allow high water uptake, and they are used as an anchor for exposed, windy sites.

Reproduction: Gorse reproduces primarily by seed, but it can also spread vegetatively. Gorse usually produces flowers in late winter or early spring (Jan – Mar), but they may flower throughout the year, depending on the site. Buds only form once, but some flowers delay development. Seeds are developed twice a year. The gorse flowers are complex and one of the most advanced in the legume family. Bees are attracted to this early season pollen source, and they are the primary pollinators. The pollen and style are hidden within the keel (2 fused petals) until the bee trips a release mechanism when landing on the landing platform composed of 2 wing petals. Gorse seed has a hard, water-impermeable seed coat. Seeds remain viable for 30 years, with one report of viability after 70 years. Seeds are ejected from the pod and most fall within 2 meters of the parent plant. Vehicles, animals and ants spread seeds. Streamside gorse seed will also disperse along waterways. Germination occurs at any time of the year, depending on suitable conditions. Heat stimulates germination, and a light burn will produce a flush of seedlings. Temperatures above 100 C are lethal.

Gorse can resprout from stumps, resulting in a root system older than the shoot system. Growth from this type of resprouting will produce flowers after 2 years. Root cuttings will produce flowers 6 months after rooting.

**Control:** "Control of gorse can be considered in two stages. First is the control of established plants. Second is the control of new plants emerging from seeds that may last more than 30 years in the soil. The most effective control program usually includes a combination of herbicides, burning and cultivation or mowing. Establishing competitive pasture species, forest trees or other crops helps resist gorse invasion as well as other weeds. When using herbicides, it is crucial to thoroughly wet the foliage. The best time to apply herbicides is after bloom drop, but applications at other times usually give good control also.

**Response to Mechanical Methods:** Hand pulling - effective on seedlings and plants up to 1 meter or so tall, and before seed production. Seedlings are easiest to remove after rain, when the whole root system is removed. Hand hoeing – effective when gorse is growing with beneficial vegetation nearby. Hoeing, and cutting off the top of plants will expose them to the sun, drying them out. Cutting – before seed production will prevent further dispersal, but the plants will resprout from the stump. Cutting is a necessary step when working with large plants, to remove the above ground portion. Hand-digging – effective on small infestations, is one way to control a plant the capability to resprout from the roots. Chopping, Cutting or Mowing – an option for flat areas. Several mowings may be necessary to deplete root reserves; if only one cut, it is recommended to use before flower production. Cutting is recommended before herbicide application. A cut gorse plant will resprout from the crown in greater density if herbicides are not applied.

**Biocontrol Potentials:** Goats are cost-effective as a control option on gorse when used against seedlings or on regrowth less than 4 inches high. Goats will defoliate twigs and bark from mature stands of gorse. After a two-year period there was a significant reduction in gorse crowns. Chickens are effective in potentially reducing the seed bank in mature stands of gorse. The seeds are digested and destroyed, and chickens grazed back the vegetation in areas of one acre or less.

The gorse weevil (*Apion ulicis*) was introduced from France to California in 1953, and was considered established by 1982 in CA and OR. The grub eats the seed. When the seed matures and opens, the mature weevil continues to eat the spines and flowers. The weevil is only partially successful, as the root reserves enable gorse to recover, and a cool coastal climate delays the seed pods opening, killing the weevil larva in the pod. The gorse weevil was released in Washington in the mid-1960's, and is presently associated with most populations of gorse along the Pacific Coast.

### French Broom



### Scotch Broom



### Where are you likely to find it?

Scotch broom invades roadsides, other disturbed areas, pastures and native grasslands. Scotch broom is widespread in the Pacific Northwest. Broom is common along road corridors.

Scotch broom is a prodigious seed producer. The seeds have hard coats enabling them to survive in the environment for up to 80 years. The seeds are transported from place to place in mud stuck to vehicles, equipment, shoes and the feet of animals. Seeds may be carried via runoff from roads into streams and gullies. Then seedlings may establish along streamsides and along gully walls. Scotch broom forms dense brush fields over six feet tall. The brush fields diminish habitat for grazing animals, such as Elk. Areas of dense brush shade out and kill native grassland plants in invaded areas, and favor invasion by other woody, non-grassland plant species.

### How do you get rid of it?

Pull out the entire plant, including roots. When the soil is moist, small plants can be pulled easily by hand. Winter and spring are good seasons to do this. Larger plants must be removed with a tool (available for check-out at City Hall). Be sure to remove the entire plant. Broken stems re-sprout and are much harder to remove latter. Plants can be left where pulled.

Well planned prescribed burns in fall can further reduce the broom in infested grasslands: Dense infestations of broom and infestations in the shade remain too moist to carry fire and will require pulling and some time to dry prior to a successful burn. A head fire is likely to only burn the tops off of the broom, and the broom will survive. A slow, hot, backing fire kills most of the broom. Some plants are consumed outright, and others are scalded around the root collar, later dying from the injury. Use of a backing fire reduces the need for laborious manual removal.

Prescribed burns in grass consume some broom seeds and break the seed coats of others, allowing pathogens to enter and kill the seeds. Still other seeds may be stimulated to germinate so that plants can be pulled out. Over time, regular prescribed burning may be expected to help deplete the pool of long-lived buried broom



Japanese knotweed is a semi-woody perennial. It has been cultivated commonly because of its interesting, fast-growing and hollow, bamboo-like stems that form dense leafy thickets, 1-3 m tall, and its late summer flower clusters. The stems become tough and woody with age, have ridges and exhibit the characteristic swelling of the nodes and the presence of circling sheaths of tissue found in members of the buckwheat (smartweed) family. Shoots arise from coarse spreading rhizomes that generally reach lengths as much as 20 m. The broadly ovate stalked leaves are attached singly and have blades up to 15 cm long and about as wide as long. Most commonly they have a flattened base, but this may also be rounded or somewhat heart-shaped, and have a short pointed tip. Each shrubby clump bears clusters of either male or female flowers from the upper leaf axils. The flowers are small and greenish or white, and although functionally unisexual, each male or female flower possesses the complementary, but vestigial, organs of the other sex. Flowers bloom in August and September, in North America, with female flowers producing a small 3-angled, shiny black-brown fruit (achene), if male plants are nearby.

**Control Measures:** *Knotweed is becoming a problem in town. New information about the best way to remove this invasive plant is available through the Lincoln Soil and Water Conservation District – 265-2631.*

### Poison Hemlock



This toxic plant was introduced to North America from Europe, and has often been mistaken for a garden ornamental. The plant is attractive, but can be lethal to people and animals when swallowed or absorbed. Furthermore, all parts of this plant are poisonous: leaves, stems, roots and fruits.

Poison hemlock is a member of the wild-carrot family, and is common along roadsides, waterways and in cultivated areas. It resembles anise or wild parsley, and is classified in the family Umbelliferae, the parsley family. It contains volatile alkaloids that have been used as a poison since ancient times.

The stem is green, hollow, smooth (not hairy) and marked with purple streaks and blotches that are definite identifiers. The finely divided leaves, fernlike, resemble Queen Anne's lace. Flowers are lacy and white, appearing in early summer, from late May to August.

Poison hemlock is a biennial; it grows from seeds, and produces, during the first year, a rosette of fernlike leaves close to the ground. The second season it bolts to form tall, erect, flowering stems that can be from 4 to 8 feet tall. The white flowers develop into green, ridged seed capsules that turn brown when the seeds mature. The leaves and flowers have a distinctive smell often described as a "mousy" odor.

Do not allow this weed to go to seed. Wear gloves when handling it. Skin contact isn't dangerous in the way that eating the plant is (people have been poisoned by mistaking the plant for an edible parsley or fennel and eating it). However, you do want to limit your exposure to the plant and its oils.

Don't put it into the compost - dead stalks can remain poisonous for two or three seasons. Don't incinerate it (don't inhale the smoke). Apply a registered herbicide to the rosette stages if you have a large patch. It is susceptible to the herbicide 2,4-D applied to the plant's early growth.

### American Waterweed



American waterweed (*Elodea canadensis*) is what many people commonly think of as "that aquarium plant." It is also known by several other common names such as Canadian waterweed, common elodea, or anacharis. American waterweed is an attractive aquarium plant, due to its availability in the aquarium trade, it has been introduced to several countries where it is not native, and is now considered a noxious weed in some

American waterweed is usually fairly easy to distinguish American waterweed has three leaves per whorl, American waterweed lives entirely underwater with the exception of small white flowers which bloom at the surface and are attached to the plant by delicate stalks. It produces winter buds from the stem tips which overwinter on the lake

bottom. It also often overwinters as an evergreen plant in mild climates. In the fall leafy stalks will detach from the parent plant, float away, root, and start new plants. This is American waterweed's most important method of spreading, with seed production playing a relatively minor role.

Silty sediments and water rich in nutrients favor the growth of American waterweed and in nutrient-rich lakes, it is sometimes perceived as a nuisance. However, it will grow in a wide range of conditions, from very shallow to deep water, and in many sediment types. It can even continue to grow unrooted, as floating fragments. It is found throughout temperate North America. American waterweed is an important part of lake ecosystems. It provides good habitat for many aquatic invertebrates and cover for young fish and amphibians. Waterfowl, especially ducks, as well as beaver and muskrat eat this plant. Also, it is of economic importance as an attractive and easy to keep aquarium plant.