IDAHO STATE FORESTRY CONTEST

NOXIOUS WEEDS

A **"Noxious Weed"** is defined by the Idaho State Department of Agriculture as any plant having the potential to cause injury to public health, crops, livestock, land or other property; and which is designated as noxious by the director of the Department of Agriculture.

Noxious weeds are almost always plants that have been introduced (either accidentally or purposely) into areas where they were not originally found. Since noxious weeds are not native to these areas, there are few natural controls present, and so they tend to spread rapidly, crowd out native plants, and be very difficult to control.

NOXIOUS WEED CONTROL

Developing a basic weed control strategy begins with:

1. *Identifying the weed.*

2. *Determining what makes it a problem. For example:*

   Toxicity to Humans and Livestock is one of the most common problems. Poisonous plants can cause loss of life, serious health problems, and costly animal care services. Toxic weeds in feeds are an animal's nightmare.

   Allelopathy: Some noxious weeds produce chemicals that inhibit growth or even kill adjacent plants. Weeds with this ability are said to be ***allelopathic***.

3. *Determining why it's hard to control. The reasons can include:*

   → **Life Cycle** – It's important to know whether the weed is ***perennial***, ***biennial*** or ***annual***. A perennial weed is likely to be the most difficult and costly to manage. Biennial and annual weeds have a shorter life, making them vulnerable to more control options than perennials.

   → **Ability to Reproduce and Spread** by seeds, rhizomes, roots or other parts. The quantity of seeds produced annually per plant and the life of those seeds in the environment are very important factors. Weeds that produce hundreds or thousands of seeds per plant each year create the need for years of expensive management. Some weeds produce a few seeds that may survive in the environment for 60 years or more, making it nearly impossible to totally eliminate them.

   Some perennial weeds can sprout from cut-up plant parts, so cultivating, mowing or pulling can actually increase their populations and rate of spread. Cutting or burning some weeds stimulates the roots to sprout more seed producing stalks.

CONTROL METHODS

All the factors listed above must be considered when developing a management plan for weed control. In addition, we must keep in mind that each plant species will express its own particular characteristics in relation to its environment. Much like people, the reactions of individual plants of a single species will vary under various conditions. Thus, depending on climate or other variations in growing conditions, the same weeds often must be managed in different ways in different areas.

A best weed control plan involves using more than one strategy and more than one control method. The control methods selected must be affordable while preserving or helping to create the desired environment. The most common methods for weed control include:

→ **Prevention:** Keep weeds from occurring or increasing by identifying and controlling them before they become a problem. Some prevention methods include scrubbing boots after hiking, washing equipment before/after use, and using weed free seeds for plantings.

→ **Cultural Methods:** Improve desirable plant growth to resist weed invasion. Methods include planting, fertilizing, and irrigating crops to compete with the weeds.

→ **Mechanical Methods:** Physically slow or kill weed growth by mowing, tilling, hoeing, pulling, burning, or mulching.

→ **Biological Control Methods:** Use of living organisms, such as insects that are a natural enemy of the weed, or targeted grazing with animals that are resistant to toxic weeds, such as goats.

→ **Chemical Methods:** Use herbicides to kill or slow weed growth. Always read and follow the label directions and warnings before using chemicals.

CONTEST TIP - At the Forestry Contest, you will be expected to be able to:

1) **Define the term "noxious weed"**

2) **Identify the 14 weeds listed on the chart (see next page) and their impacts on people, animals and/or the environment**

3) **Know the 5 common types of control methods and give examples of each type**

4) **Know the best control methods for weeds**

NOXIOUS WEEDS TO KNOW

The following chart lists 14 of Idaho's noxious weeds. You can learn more about these noxious weeds, their effects, and their control in the reference listed below. Download it from the Idaho Department of Lands website on the Forestry Contest page, or obtain it at local IDL area offices, the IDL Forestry Assistance office in Coeur d'Alene, the U.S. Forest Service IPNF offices in Coeur d'Alene or Sandpoint, or the Boundary and Bonner County weed superintendents.

IDAHO NOXIOUS WEEDS

WEED NAME	LIFE CYCLE	TOXIC OR HAZARD TO	ECONOMIC THREAT	CONTROL PROBLEMS
Hawkweeds	P	-	Rapid spread	A, C, D
Leafy Spurge	P	H, L	Resists herbicides	B, C
Large Knotweed	P	-	Rapid spread	C, E
Oxeye daisy	P	-	Rapid Spread	A
Scotch Broom	P	H, L	Long-term seed life	B, C
Canada Thistle	P	-	Rapid spread	A, C, D
Scotch Thistle	B	-	Rapid spread	A, B, D
Dalmatian Toadflax	P	L	Resists herbicides	B, C
Yellow Toadflax	P	L	Resists herbicides	B, C
Rush Skeletonweed	P	-	Resists herbicides	A, D
Eurasian Watermilfoil	P	H, L	Clogs boat props, drowning hazard	C, E
Knapweeds	B & P	H, L	Rapid spread	A, C, D
Houndstongue	B	L	Attaches to animals, rapid spread	A
Yellow Star Thistle	A	L	Rapid spread	A

Life cycle	P = perennial; B = biennial; A = annual
Toxic or Hazard to	H = humans; L = livestock;
Economic Threat	Why it's so costly to control, e.g., "Resists herbicides" means there are few choices of chemicals that will work & these are very costly to use
Control Problems	A = mass seed production; B = seed life exceeds 15 years; C = plant parts & cut roots re-grow; D = wind carries seed, E = control methods limited

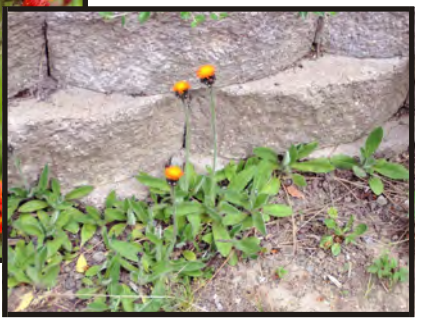
References

Goodnow, V., Frymire, K., Dingman, M. R., Hargrave, W., Ely, L. (Eds.) (n.d.) *Idaho Panhandle Noxious Weed Handbook*. Multiple agencies, counties, donors, and programs contributed to publication. Printing by Kootenai County Reprographics Center. (Free copies are available by contacting the Bonner Soil and Water Conservation District office (208-263-5310) or IDL Pend Oreille Area office (208-263-5104) in Sandpoint.)

Prather, T., Robins, S., and Morishita, D., 2004. *Idaho's Noxious Weeds, 4th Edition.* Bulletin 816. University of Idaho Extension, Moscow, Idaho. First edition 1994.

HAWKWEED

Orange Hawkweed



Hawkweed Rosette

Yellow Hawkweed

Field of Hawkweed

HAWKWEED

YELLOW *(Hieracium caespitosum)*

ORANGE *(Hieracium aurantiacum)*

- A **perennial** that spreads by root, above ground stolon and by feathery, airborne seeds.
- Grows 1 to 3 feet tall.
- The single stalk and leaves are hairy.
- Flowers are **yellow/orange**, look similar to a dandelion flower, but slightly smaller and in clusters. They bloom late May to mid June.
- Found in moist pastures, forest meadows, abandoned fields, clear cuts and roadsides.

Other Hawkweeds of Concern:

Tall Hawkweed *(Hieracium piloselloides)* There are no stolons on this hawkweed. Upper and lower leaf surfaces are smooth or with only few simple hairs. Yellow flowers bloom June through September.

Yellow Devil Hawkweed *(Hieracium glomeratum)* upper and lower leaf surfaces are covered with short stiff hairs giving the plant a rough texture. Stolons are absent in this hawkweed.

Note: There are native hawkweeds that grow in our region. These hawkweeds are **not** invasive. If you are unsure, please call your Noxious Weed Control Office for assistance.

CONTROL METHODS

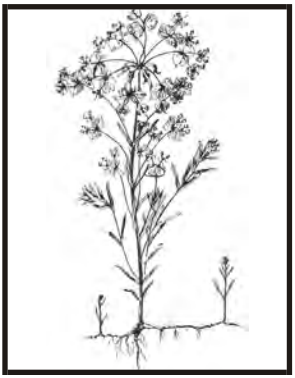
Chemical: Treat with Milestone® (aminopyralid), Curtail® (clopyralid + 2,4-D), Chaparral® (aminopyralid + metsulfuron), Brazen® (clopyralid + triclopyr) or Hi-Dep® (2,4-D) before bloom. **These products not recommended for home landscapes.**

Non-Chemical:

- Pasturelands must be healthy to recover from infestations and treatments, so fertilization is important.

Biological: There are no biological controls available in Idaho at this time. Hawkweeds are unpalatable, although sheep or goats may eat the plant.

LEAFY SPURGE



LEAFY SPURGE

LEAFY SPURGE *(Euphorbia esula)*

Because of the ability to store nutrients in its root system for several years, leafy spurge is a difficult plant to control.

- An aggressive **perennial** that spreads by rootstalks and seeds.
- Grows 1 to 3 feet tall.
- Narrow **bluish-green** leaves are up to 4 inches long.
- Flowers are small and enclosed by **yellowish-green, heart-shaped bracts** and bloom from May into the fall.
- Stems, leaves and flowers contain a **toxic milky latex sap**.
- It can be found in any type of soil and is commonly found in rangeland, pastures, roadsides, waste areas and wetland sites.

Caution: Horses and cattle should not graze the plants; the toxic sap causes blisters or ulcerations.

CONTROL METHODS

Chemical: Tordon® (picloram) applied in late spring or fall will give season-long suppression of leafy spurge. Hi-Dep® (2,4-D), Weedmaster® (dicamba + 2,4-D) or Crossbow® (triclopyr + 2,4-D) will provide some control, but must be applied 2 to 4 times each growing season. **These products not recommended for home landscapes.**

Non-Chemical:

- Fertilization and pasture health are extremely important.
- Mow and pull to prevent seed production. The sap of leafy spurge is **toxic**; skin and eye protection are needed when handling this plant.
- DO NOT CULTIVATE; new plants can begin from the cut root segments.

Biological: Several insect biological control agents are available for this plant and may be present in North Idaho infestations including flea beetles whose adults feed on leaves and flowers and the larvae feed on root hairs or roots. Sheep, goats, and hogs will graze leafy spurge. It is not only satisfactory forage for these animals, but they actually prefer it. Constant grazing slows the weed's spread and starves out the root system.

LARGE KNOTWEEDS

Giant

Giant

Japanese

Bohemian

Bohemian

LARGE KNOTWEEDS

Because of knotweeds extensive root system, once this weed is established it is difficult to control.

- Woody, upright **perennial** that spreads from long creeping roots and stem pieces.
- Found along roadsides, ditch banks, waste areas and pastures.
- Grows from 4 to 9 feet tall.
- **Bamboo-like stems** are green with **red or purple** spots.
- Small **greenish-white flowers** in early autumn.

➢ **JAPANESE KNOTWEED** *(Polygonum cuspidatum)*
- Small, greenish-white to cream colored drooping flower clusters appear at the end of stems and in leaf axils.

➢ **GIANT KNOTWEED** *(Polygonum sachalinense)*
- Distinguished by large heart-shaped leaves up to 12 inches long.

➢ **BOHEMIAN KNOTWEED** *(Polygonum X bohemicum)*
- A hybrid of Japanese and giant knotweed.
- Greenish-white to cream upright flower clusters.

CONTROL METHODS

Chemical: Garlon 4® (triclopyr), Arsenal® (imazapyr) or Banvel® (dicamba) can be applied when the knotweeds are actively growing and have reached the bud to early flowering stage of growth. **These products not recommended for home landscapes.**

Non- Chemical:

- Never transplant pieces of knotweed into your home landscape.
- Digging is a good option when the plant is small.
- Cutting it back to the ground at least twice a month during the growing season for several years may control it. It is best to remove, rake or carefully dry all knotweed vegetation you cut because stems or stem fragments can sprout creating new plants.

Biological: No effective biological control is available at this time.

OXEYE DAISY

OXEYE DAISY

OXEYE DAISY *(Leucanthemum vulgare)*

Also known as Field daisy, Marguerite daisy and Poverty weed.

- A short-lived **perennial** that spreads from seeds (2,000 to 4,000 per plant) and from the spreading roots.
- Grows 1 to 3 feet tall.
- The **glossy green** leaves get smaller as they grow up the stem.
- Daisy-like flowers are made up of **white petals** with a golden center and blooms appear June through September.
- Likes to grow in abandoned meadows and overgrazed pastures.

CONTROL METHODS

Chemical: Milestone® (aminopyralid), Escort® (metsulfuron) or Curtail® (clopyralid + 2,4-D) are effective before bloom. **These products not recommended for home landscapes.**

Non-Chemical:

- Dig plants when the soil is moist.
- Grazing - sheep, goats and horses may eat oxeye daisy.
- Applications of nitrogen fertilizer are effective in encouraging strong grass growth leaving no room for oxeye daisy seeds to germinate.

Biological: There are no known biological control methods being used at this time.

SCOTCH BROOM

SCOTCH BROOM

SCOTCH BROOM *(Cytisus scoparius)*

Seed pods resemble pea pods, which snap open at maturity and throw seeds for some distance.

- A **perennial** shrub that spreads by seed. It has an average life span of 17 years.
- Grows to 10 feet tall
- Stems are erect, woody, **green to brownish green and five-angled**. Leaves are small (1/2 inch) and fall off in times of stress.
- Pea-like flowers are **bright yellow** and bloom in June.
- Found in pastures, waterways and along roadsides.

Caution: Goats will browse the plants with no ill effect; however, it has been reported as toxic to other livestock.

CONTROL METHODS

Chemical: Spray with Garlon 4® (triclopyr), Milestone VM Plus® (aminopyralid + triclopyr), or Crossbow® (triclopyr + 2,4-D) any time the plants are actively growing. Basal bark application is an effective control method. **These products not recommended for home landscapes.**

Non-Chemical:

- Plant crowns can be dug out.
- Repeated cultivation will destroy seedlings.
- Mowing and burning are not effective.

Biological: Biological control agents are available for this plant and may already be present in North Idaho infestations including the gorse or broom tip moth, Scotch broom seed weevil and the Scotch broom twig miner.

THISTLE, CANADA

THISTLE, CANADA

THISTLE, CANADA *(Cirsium arvense)*

This plant is difficult to control due to its extensive root system which may extend up to 20 feet across and 15 feet deep.

- A **perennial** that spreads by horizontal roots and by seed. Each plant is capable of producing more than 40,000 wind-borne seeds.
- Grows 1 to 5 feet tall.
- **Hollow stems** branch near the top. Leaves are wavy, **dark green** and shiny with sharp spines.
- Flowers are **light lavender** to **rose-purple** and bloom June through August.
- Can be found in cultivated fields, meadows, pastures and waste areas.

CONTROL METHODS

Chemical: Spray while plants are actively growing but before development of buds with Brazen® (clopyralid + triclopyr), Milestone® (aminopyralid), Curtail® (clopyralid + 2,4-D) or Banvel® (dicamba). Fall application to green leaves before a killing frost gives good control. **These products not recommended for home landscapes.**

Non-Chemical:

- Cultivation should occur every 10 days through the growing season for two years. Remove flower heads to prevent seed production.
- Tilling or mowing will stress Canada thistle and force it to draw upon stored root nutrients. The key to control perennials is to exhaust stored up nutrients in the roots, regardless of the control procedure used.
- Improve fertility to favor grass or other desirable plant growth.

Biological: Biological control agents are available for this plant and may already be present in North Idaho infestations including a stem weevil, a bud weevil and a stem gallfly. Most animals will not graze thistles, although some will occasionally consume flower heads.

THISTLE, SCOTCH

THISTLE, SCOTCH

THISTLE, SCOTCH *(Onopordum acanthium)*

Also known as cotton thistle.

- A **biennial** that has a thick, fleshy taproot that may extend down 1 foot or more. Scotch thistle reproduces only by seed.
- Grows to 12 feet tall
- Leaves are large (up to 2 feet long and 1 foot wide), spiny, and covered on both sides with fine woolly hairs, giving the plant a **silvery-gray look**.
- **Purple** flowers appear July through September.
- Thrives in sunny, moist areas along rivers and streams but can also be found in pastures, fields, and along roadsides. It prefers light, well-drained, sandy or stony soils.

CONTROL METHODS

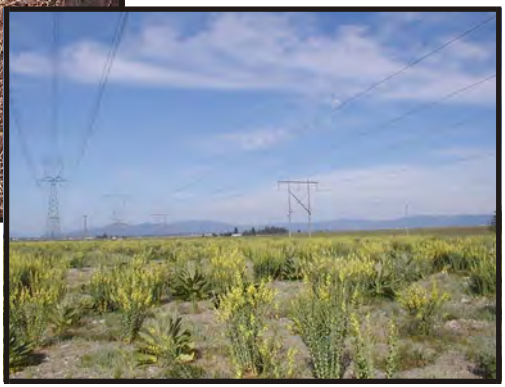
Chemical: Spray with Milestone® (aminopyralid), Banvel® (dicamba), Brazen® (clopyralid + triclopyr), or Curtail® (clopyralid + 2,4-D) in the spring before flower stalks lengthen or in the fall on rosettes. **These products not recommended for home landscapes.**

Non-Chemical: This thistle is biennial. The key to successful management is to prevent seed formation.

- Digging up or tilling the rosettes are effective methods, however, it is important to remove the entire crown.
- Mowing is not a good option and may actually add a year to their life span.
- Plants that are cut or pulled while flowering must be removed from the site to prevent the seeds from reintroducing new plants.
- Fertilize pastures to keep them in optimum condition so grasses can compete.

Biological: Biological control agents are available for this plant and may already be present in North Idaho infestations including the thistle seed head weevil. Most animals will not graze thistles, although some will occasionally consume flower heads.

TOADFLAX, DALMATIAN



TOADFLAX, DALMATIAN

TOADFLAX, DALMATIAN *(Linaria dalmatica)* ☠

It is difficult to control due to its extensive root system.

- A perennial plant that spreads by **creeping roots** and by **seed.**
- Grows to 4 feet tall.
- Leaves are **thick and waxy**, have no stems and are **blue-green**.
- The **yellow snapdragon-like flowers** are often tinged with orange or red and are located along the flower spikes at the top of the plant. Plants flower from midsummer to fall.
- An aggressive weed of pastures, roadsides and abandoned lots.

Caution: Toadflaxes contain cyanogenic glucosides which can cause cyanide poisoning if grazed, although large amounts must be ingested in a short period of time.

CONTROL METHODS

Chemical: Escort® (metsulfuron), Banvel® (dicamba), Tordon® (picloram), or Telar® (chlorsulfuron) gives control when applied before bloom. **These products not recommended for home landscapes.**

Non-Chemical:

- Cultivation at 10-day intervals can be a viable control method.
- Small infestations can be pulled and the root systems dug out.

Biological: Biological control agents are available for this plant and may already be present in North Idaho infestations including the toadflax flower-feeding beetle; the defoliating toadflax moth; the toadflax capsule weevil and the toadflax stem mining weevil.

TOADFLAX, YELLOW

TOADFLAX, YELLOW

TOADFLAX, YELLOW *(Linaria vulgaris)* ☠

This plant is difficult to control due to its extensive root system.

- A **perennial** plant that spreads by **creeping roots** and by **seed**.
- Grows to 3 feet tall.
- Leaves are **long, narrow** and **pale green** in color.
- **Snapdragon-like flowers** are **yellow** with an orange throat, clustered at the top of the stem. The plant flowers June through August.
- An aggressive weed of pastures and roadsides.

Caution: The toadflaxes contain cyanogenic glucosides which can cause cyanide poisoning if grazed, although large amounts must be ingested in a short period of time

CONTROL METHODS

Chemical: Escort® (metsulfuron), Banvel® (dicamba), Tordon® (picloram), or Telar® (chlorsulfuron) gives good control when applied before bloom. **These products not recommended for home landscapes.**

Non-Chemical:

- Cultivation at 10-day intervals can be a viable control method.
- Small infestations can be pulled and the root systems dug out.

Biological: Biological control agents are available for this plant and may already be present in North Idaho infestations including the toadflax flower-feeding beetle, the toadflax moth and the toadflax capsule weevil.

RUSH SKELETONWEED

RUSH SKELETONWEED

RUSH SKELETONWEED *(Chondrilla juncea)*

The large, deep root system makes skeletonweed difficult to control.

- A **perennial** which spreads primarily by seed, but also by creeping roots.
- Grows 1 to 4 feet tall.
- Leaves at the base look like a dandelion rosette. Stems are bare, except the lower 4 to 6 inches which is covered with **coarse brown hairs**. Stems and leaves produce a **milky latex juice**.
- Flower heads are **yellow** and scattered among the branches.
- Found in disturbed areas.

CONTROL METHODS

Chemical: Spray with Milestone® (aminopyralid), Chaparral® (aminopyralid + metsulfuron), Escort® (metsulfuron) or Brazen® (clopyralid + triclopyr) preferably to rosettes in spring or fall. **These products not recommended for home landscapes.**

Non-Chemical:

- Constant hand pulling or digging two to three times per year for 6 to 10 years can be effective for small infestations.
- Mowing and cultivation are ineffective; mowing does not prevent root spread and cultivation actually spreads root fragments.
- High nitrogen fertilizer assists in minimizing the effects of rush skeletonweed.
- Competitive legume plantings, such as alfalfa, may reduce rush skeletonweed through increased soil fertility and competition for soil moisture, as well as shading the rush skeletonweed plants.

Biological: Control agents may already be present in North Idaho infestations including the skeletonweed gall midge, which feed on leaves and stems. The skeleton gall mites feed on auxiliary and terminal buds. Rush skeletonweed rust attacks the leaves, stems, buds, and flowers of these plants. Continuous moderate grazing by sheep can reduce densities.

WATERWEEDS, SUBMERGED

EURASIAN WATERMILFOIL *(Myriophyllum spicatum)*

An aquatic, underwater plant that can be confused with native milfoils. The time to identify Eurasian watermilfoil is mid-June through September.

- A **perennial** plant that grows 35 feet, creating mats of floating vegetation. It reproduces by **roots, seed and fragment** (the fragmentation occurs in late summer and fall).
- Leaves are **feather-like** and tend to collapse around stem if removed from the water (native milfoil leaves do not collapse when removed from the water).
- Small flowers appear on leafless, **reddish spikes** that stand above the water surface by a few inches.
- Found in water shallower than 25 feet deep, depending upon light penetration.

CONTROL METHODS

Chemical: Chemical control is limited to herbicides labeled for aquatic use. Report any suspected infestation in a public waterway to your County Noxious Weed Department. **Aquatic herbicides can only be applied to public waterways by government agencies with permits.**

Non-Chemical:

- All water weeds can be raked, pulled or cut and disposed of on dry land.

Biological: No effective biological control is available at this time.

KNAPWEEDS

Spotted Knapweed

Diffuse Knapweed

Meadow Knapweed

Knapweed Rosette

KNAPWEEDS

KNAPWEEDS ☠

SPOTTED *(Centaurea stoebe)*

- A perennial plant that spreads by seed.
- Grows 3 to 5 feet tall
- **Pink to purple flowers** and blooms from June to October.
- Each flower head has stiff bracts, which are **black tipped**, giving the flower head its 'spotted' appearance.
- Found on any disturbed site and thrives under a wide range of environmental conditions.

OTHER KNAPWEEDS OF CONCERN:

DIFFUSE KNAPWEED *(Centaurea diffusa)* Sometimes called tumble knapweed, it is spread by the tumbling of windblown mature plants.

MEADOW KNAPWEED *(Centaurea pratenis)* Flowers are large pink to purplish-red heads at the end of the branches.

Caution: Animals will not typically graze the plant due to the unpleasant taste. Horses may develop brain, respiratory, or liver damage due to carcinogenic compounds.

CONTROL METHODS

Chemical: Spray with Milestone® (aminopyralid), Curtail® (clopyralid + 2,4-D), Brazen® (clopyralid + triclopyr) or Hi-Dep® (2,4-D) in the spring when the plant is actively growing but before flower heads form. In the fall, spray newly emerging rosettes before a killing frost. **These products not recommended for home landscapes.**

Non-Chemical:

- Mowing or cutting plants will produce low-growing flowers, although the potential seed production is reduced.
- Knapweed does not survive cultivation at regular intervals.
- The plant may be pulled ***(be sure to wear gloves)*** to remove most of the taproot; it is easiest after a soaking rain.

Biological: Biological control agents are available for this plant and may already be present in North Idaho infestations including seed head flies, weevils and moths and root feeding weevils.

HOUNDSTONGUE

HOUNDSTONGUE

HOUNDSTONGUE *(Cynoglossum officinale)*

☠ The Velcro™-like seeds easily attach to animals and are spread to new sites.

- A **biennial** plant that spreads by seed.
- Grows 1 to 4 feet tall the second year.
- Leaves are **hairy**, have distinct veins and are shaped like a hound's tongue.
- **Reddish-purple** flowers are small and develop a Velcro™-like seed that sticks to almost anything it touches.
- Found in pastures, disturbed areas and roadsides.

Caution: Houndstongue is toxic to animals. It contains pyrrolizidine alkaloids, causing liver cells to slowly die. Animals may live for six months or longer after consuming a lethal dose. Sheep are more resistant to houndstongue poisoning than are cattle or horses.

CONTROL METHODS

Chemical: Apply Milestone® (aminopyralid), Chaparral® (aminopyralid + metsulfuron), or Escort® (metsulfuron) in early spring while plants are actively growing but before bloom stage. A surfactant is recommended to increase the effectiveness of any of the herbicides used. **These products not recommended for home landscapes.**

Non-Chemical:

- Hand pulling can be done on small sites in the spring before the plants produce their seeds. Always wear gloves.
- Mowing will reduce seed production. Make sure to mow before the plant blooms.
- Pasturelands must be healthy to recover from infestations and treatments, so fertilization is important.

Biological: No effective biological control is available at this time.

YELLOW STARTHISTLE

YELLOW STARTHISTLE

YELLOW STARTHISTLE *(Centaurea solstitialis)*

- An **annual** that reproduces by seed.
- Grows 2 to 3 feet tall.
- Very rigid branches covered with fine, soft hairs.
- Flower heads are **yellow**, located singly on the ends of branches and armed with outwardly pointed **stiff yellow spines** up to 1 inch long.
- Found along roadsides and in waste areas.

Caution: Plant causes "chewing disease" in horses and may also cause liver and brain damage due to carcinogenic compounds

CONTROL METHODS

Chemical: Spray in the rosette stage or before bud formation with Milestone® (aminopyralid), Chaparral® (aminopyralid + metsulfuron), Brazen® (clopyralid + triclopyr),or Curtail® (clopyralid + 2,4-D). **These products not recommended for home landscapes.**

Non-Chemical:

- It is possible to control small infestations by hand pulling and cultivation. This weed is difficult to handle, so good gloves and tools will make this task easier.
- Mowing can help stop seed spread over a wide area, but it usually has a negative effect. When mowed, yellow starthistle becomes denser.

Biological: Biological control agents are available for this plant and may already be present in North Idaho infestations including the yellow starthistle bud weevil, the yellow starthistle peacock fly, the yellow starthistle hairy weevil, the yellow starthistle flower weevil and the yellow starthistle gall flies.