

The background of the cover is a scenic landscape photograph. In the foreground on the left, a large, dark green pine tree branch extends into the frame. The middle ground shows a wide river flowing through a valley, with green fields and patches of forest on either bank. In the distance, a range of mountains is visible under a blue sky with scattered white clouds. The text is overlaid on this image.

# ***Selkirk Cooperative Weed Management Area***

## **Noxious Weed Handbook**

Revised 5/21



# Selkirk Cooperative Weed Management Area Noxious Weed Handbook

A citizen's guide for the control of noxious and invasive weeds  
found in Bonner and Boundary Counties in north Idaho

## Purpose

- Educate the public about the seriousness of noxious and invasive weeds.
- Help with identification of noxious/invasive weeds.
- Assist the landowner in controlling noxious/invasive weeds on their property.

## **What is a noxious weed?**

Noxious weeds are non-native plants that were brought into Idaho through human actions, accidentally or on purpose. Because they grow aggressively and have no natural enemies in our area, these species can be destructive to wildlife habitat, competitive with crops and difficult to control.

**Noxious** is a legal description for weeds found throughout the State of Idaho. This is determined by the weeds potential threat to the environment and economics of crop production.

**Toxic** means the weed can be poison or cause injury to human and/or animals. Many noxious weeds are toxic, but not all toxic plants are noxious weeds.

These guidelines are suggestions. If site specific help is needed, land managers should contact their local weed control agency. The label will describe legal use of the herbicide for pasture, right-of-way, rangeland, etc., and it will document restrictions on reentry intervals and subsequent haying or grazing restrictions. Herbicide trade names are representative of only a small number of the total products available for purchase.

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**IPNF Resource Advisory Committee**

## Helpful Web Sites

- **weed-id.com**-Identification
- **bugwood.org**-Identification
- **pnwhandbooks.org**-Chemical recommendations
- **iawcs.org**-Idaho Association of Weed Control Superintendents
- **invasivespecies.idaho.gov**-Idaho State Dept. of Agriculture
- **invasivespeciesinfo.gov**-USDA Invasive species info.
- **wssa.net**-Weed Science Society of America
- **invasive.org**-Center for Invasive Species and Ecosystem Health.
- **nezpercebiocontrol.com**-Biological Control website.
- **bonnercountyid.gov/noxious-weeds**



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## SPRAYER RENTALS:

### **Did you know that Boundary and Bonner Counties have sprayers available for rent?**

Bonner County has 150-200 gallon tow behind sprayers; Boundary County has 60 gallon three-point tractor hitch sprayers, as well as sprayers for ATV's. Contact your county Weed Superintendent to check availability and inquire about cost. Remember...Spread the word, not the weed!



## BIOLOGICAL CONTROL:

**Boundary and Bonner County Weed Superintendents are your source for Biological control agents.** We have agents for Dalmatian toadflax, Spotted knapweed, Rush skeletonweed, and others. Agents are supplied by the Nez Perce Biological Control Center at no cost to landowners. Please contact your County Weed Superintendent for more information and availability.



**READ THE LABEL-The label is the law**

# **IDAHO WEED LAW**

## **IDAHO STATUTE TITLE 22, CHAPTER 24 NOXIOUS WEEDS**

### **\* What is the purpose of this law?**

The law is to protect lands within the state from invasion by noxious weeds.



### **\* What does the law require?**

The Idaho Noxious Weed Law requires landowners to eradicate noxious weeds on their land.

Legally, eradication means; the elimination of a noxious weed based on the observation that the weed is no longer in the area during the growing season (even though weed seeds will last much longer in the area).

A provision in the law is that counties are required to enforce that the weed law, and the State of Idaho is required to ensure that counties do so. The Idaho Noxious Weed Law has many other provisions.

The law may be found in the Idaho Code, available at libraries, city and county courthouses, from weed superintendents, and the Idaho State Department of Agriculture website.



Bonner and Boundary Counties carry out the mandates of the State Noxious Weed Law, Idaho Statute Title 22, Chapter 24 Noxious Weeds.

### **Partners include:**

- ♦ **Bonner County**
- ♦ **Boundary County**
- ♦ **Idaho Department of Lands**
- ♦ **Idaho Department of Fish and Game**
- ♦ **Idaho Transportation Department**
- ♦ **Kootenai Tribe of Idaho**
- ♦ **United States Forest Service**
- ♦ **Idaho State Department of Agriculture**
- ♦ **The Nature Conservancy**
- ♦ **City of Sandpoint**
- ♦ **Boundary and Bonner County Soil Conservation Districts**



**READ THE LABEL-The label is the law**

## METHODS FOR NOXIOUS WEED MANAGEMENT

A good weed management plan uses more than one management strategy! The key to successful weed management is to create a favorable situation for desirable plant growth. Tilling, hoeing, hand pulling, mowing, and mulching can be used to deal with weed problems. Always wear gloves when handling noxious weeds. Herbicides are powerful tools, so they must be used with caution. Herbicides can be one component of an Integrated Pest Management (IPM) plan, not the only control method. Biological controls can be a part of your IPM system but will not eliminate the weed.

**Prevention** is the first line of defense against invasive/ noxious weeds. Preventive techniques may include:

- ◇ Education! Knowing how to identify weeds and being a good land steward will prevent weeds from becoming established on your land.
- ◇ Planting high quality, weed free seed crops.
- ◇ Laws, such as Noxious Weed Law can help prevent weeds before they become established.
- ◇ Keeping weeds from going to seed. This is very important for annual and biennial weeds. Perennials may reproduce from variety of ways, including by seed, roots, and stem sections.

**Cultural control** methods improve desirable plant growth which helps them resist weed invasion. Some cultural methods:

- ◇ Fertilization, which helps desirables to out compete weeds.
- ◇ Irrigation, enables desirables to out compete weeds.
- ◇ Planting seed to fill in bare areas will not allow weeds to grow.



**Mechanical methods** by physically removing weeds or slow their growth. Mechanical control is the oldest and most often used method. Examples include:

- ◇ Tilling
- ◇ Hoeing
- ◇ Hand-pulling
- ◇ Mowing
- ◇ Burning
- ◇ Mulching



**Biological control** uses a living organism to slow weed growth. Often the organism is an insect, grazing animal or plant disease which is the natural enemy of the weed. Examples of biological control:

- ◇ Livestock, such as cattle, goats, sheep and llama. Overgrazing can be extremely damaging to the area and make weeds worse.
- ◇ Insects that chew various parts of a weed can damage or kill the plant over time. Usually the immature stage of the insect does the most damage. Insects may do damage to the roots, stems or leaves.
- ◇ Plant diseases, or pathogens, may also damage or kill weeds. Pathogens can be fungi, bacteria or viruses.

**Chemical spraying** involves herbicides, chemicals used to slow or kill plant growth. The first rule for using herbicides is to **READ THE LABEL**. BEFORE USING ANY PESTICIDE AND FOLLOW ALL DIRECTIONS AND WARNINGS.



**READ THE LABEL-The label is the Law**

# **POLLINATOR AWARENESS**



**Bombus occidentalis**

## **Pollinator Facts**

- ♦ **Bees contribute over \$20 Billion to US crop production.**
- ♦ **Bees feed entirely on plant pollen and nectar.**
- ♦ **There are over 200 species of bees native to north Idaho.**
- ♦ **Bees can be bright green, blue and black as well as yellow.**
- ♦ **One queen bee can live up to 5 years.**
- ♦ **The “buzz” of a bee is made by the flapping of its wings, about 11,400 times a minute.**
- ♦ **Most bees are solitary and live alone.**
- ♦ **Animal pollination, mediated mostly by bees, is necessary for 1/3 of the foods we eat.**



# **POLLINATOR AWARENESS**

About every third bite of food you take is thanks to pollinators. Pollinators include things like ants, caterpillars, bats, moths, butterfly's, wasp, and yes BEES! Over the past couple decades our pollinators have been on the decline. There are many reasons for this including loss of habitat, pathogens, predators, and pesticide use. You can help our pollinators by being a good steward of your land.



Controlling noxious weeds helps native plants thrive and thus helps pollinators thrive. When applying pesticides, apply in early morning or early evening when insects are less active. Most herbicides are safe for pollinators but make sure when reading the label that there are no restrictions to application when pollinators are present.



**READ THE LABEL-The label is the Law**

## Absinth Wormwood



# Absinth Wormwood

## *Artemisia absinthium*

- ⇒ A semi-woody, clump forming perennial that spreads by seed.
- ⇒ Grows 1-3 feet tall.
- ⇒ Highly aromatic when crushed.
- ⇒ Leaves and stems of the plant are covered with fine silky hairs.
- ⇒ Numerous yellow flower heads appear July-Sept.
- ⇒ Prefers dry, sandy to gravelly soils in disturbed sites. Often found in pastures.
- ⇒ Not an Idaho State Noxious Weed but listed in Boundary and Bonner Counties.

## Control Methods

**Chemical control:** Spray with aminopyralid (Milestone<sup>®</sup>), aminopyralid + metsulfuron (Opensight<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>), aminocyclopyrachlor (Method<sup>®</sup>). Use of a surfactant is essential for control due to fine hairs covering the plant.

### **Non-Chemical:**

- \* Pasture health and fertilization are important.
- \* Minimize soil disturbance.
- \* Mowing several times a year will reduce seed production
- \* Small infestations may be hand dug.

**Biological:** There are no known biological control methods.

## Canada Thistle





# Canada Thistle

## *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 seeds. Each plant is capable of producing over 40,000 wind-borne seeds.
- ⇒ Grows 1-5 feet tall.
- ⇒ Hollow stems branch near the top. Leaves are wavy, dark green and shiny with sharp spines.
- ⇒ Flowers are lavender to rose-purple and bloom June through August.
- ⇒ Can be found in cultivated fields, meadows, pastures, logging sites.

## Control Methods

**Chemical:** Spray when the plants are actively growing, preferably before bloom. aminopyralid (Milestone<sup>®</sup>), clopyralid + 2,4-D (Curtail<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>). Fall application to green leaves before a killing frost gives good control. May take several years to deplete extensive root system.

### **Non-chemical:**

- \* Cultivation should occur every 2 weeks through the growing season for 2 years to deplete root system.
- \* Remove flower heads to prevent seed production.
- \* Repeated mowing is NOT effective.
- \* Fertilize to promote desirable plants.

**Biological:** Most animals won't graze on plant but may consume flower heads.

**READ THE LABEL-The label is the law**

## Common Tansy



# Common Tansy

## *Tanacetum vulgare*

- ⇒ A perennial that spreads by seed and root stalk.
- ⇒ Grows to 2-6 feet tall.
- ⇒ The leaves are fern-like and emit a strong odor when crushed.
- ⇒ Clusters of small yellow, button like flowers heads bloom from June until killing frost.
- ⇒ A problem in pastures, roadsides, stream sides, and abandoned fields.
- ⇒ Not an Idaho State Noxious Weed but listed in Boundary and Bonner Counties.

## Control Methods

**Chemical control:** Use aminopyralid + metsulfuron (Opensight<sup>®</sup>), metsulfuron (Escort<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>), 2,4-D + triclopyr (Crossbow<sup>®</sup>) before the plants flower for best control. A fall treatment before a killing frost works well.

### **Non-Chemical:**

- \* Seed dispersal can be prevented by mowing or pulling before they bloom.
- \* Cultivate at regular intervals.

**Biological:** No known agents are available. Goats may graze although it is not very palatable.

**READ THE LABEL-The label is the law**

## Dalmatian Toadflax





# Dalmatian Toadflax

## *Linaria dalmatica*

This plant is difficult to control due to its waxy leaf cuticles. Was introduced as ornamental, a snap-dragon.

- ⇒ A perennial plant that spreads by root fragments and seed.
- ⇒ Grows to 4 feet tall.
- ⇒ Leaves are thick and waxy, have no petiole and are blue-green.
- ⇒ The yellow snapdragon-like flower are often tinged with orange or red and are located along the flower spikes at the top of the plant. Plants flower from late spring till fall.
- ⇒ An aggressive plant in pastures, roadsides and abandoned fields.

**CAUTION:** Toxic to animals, causes cyanide poisoning, although large amounts must be ingested in a short period.



## Control Methods

**Chemical:** dicamba (Banvel<sup>®</sup>), chlorsulfuron (Telar<sup>®</sup>), aminocyclopyrachlor(Method<sup>®</sup>) will give good control. An MSO surfactant must be used due to the waxy leaves.

**Non-chemical:**

- \* Cultivation every 2 weeks during the growing season is effective.
- \* Small infestations can be hand pulled or dug out

**Biological:** There are biological agents available for this plant and are already present in north Idaho.

## Field Bindweed



# Field Bindweed

## *Convolvulus arvensis*

Also known as Morning glory.

- ⇒ Perennial with extensive root system, often climbing.
- ⇒ Stems prostrate, 1-4 feet long.
- ⇒ Leaves alternate, more or less arrowhead shaped, pointed or blunt lobes at base.
- ⇒ Flowers are bell shaped or trumpet shaped, white to pinkish, approx. 1" in diameter.
- ⇒ Found in lawns, cultivated fields, waste places, roadsides.
- ⇒ Flowers late June until frost.
- ⇒ Seeds can be viable for 50 years.
- ⇒ Root system can grow to depths of 10'.

## Control Methods

**Chemical:** Spray with 2,4-D + Dicamba (Weedmaster®) early spring to suppress plant. Several years of applications will be needed to control. Dicamba + 2,4-D(Weedmaster®) can be used any time of growing season up to killing frost. Aminocyclopyrachlor (Method®) may be used but caution must be used to avoid spray runoff since it is a non-selective herbicide and sensitive to many trees.

### **Non-Chemical:**

- \* Cultivation every few weeks.
- \* Mowing is **not** a viable means of control.

**Biological:** No known biological agents are known at this time. Sheep are known to graze on bindweed.

**READ THE LABEL-The label is the Law**

# Hawkweed



## Hawkweed

*Hieracium caespitosum* (yellow)

*Hieracium aurantiacum* (orange)

- ⇒ A perennial that spreads by root, above ground stolon, below ground rhizomes, and by feathery, airborne seeds.
- ⇒ Grows 1-3 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 late June.
- ⇒ Found in moist pastures, forest meadows, abandoned fields, clear cuts, and road sides.

### **Other hawkweeds of concern: All Noxious**

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

**Yellow Devil Hawkweed** (*Hieracium glomeratum*) Upper and lower leaf surfaces are covered with short stiff hairs giving plant a rough surface. Stolons are absent.

## Control Methods

**Chemical:** Treat with aminopyralid (Milestone®), aminopyralid + metsulfuron (Opensight®) dicamba + 2,4-D (Weedmaster®) Best results if sprayed before bloom. Surfactants must be used with herbicides.

**Non-Chemical:** Pastures must be healthy to recover from infestations, so fertilization is important. Mowing is **not** effective since rosettes grow close to ground, and stolons can be further spread.

**Biological:** Agents are in final stage of approval.

**NOTE:** There are native hawkweeds in our area that are not invasive. For more information on invasive vs. native hawkweed see: <http://msuextension.org/publications/agandnaturalresources/eb0187.pdf>



## Hoary Alyssum



# Hoary Alyssum

## *Berteroa icana*

- ⇒ Can be an annual, biennial, or short lived perennial that spreads by seed.
- ⇒ Grows 1 to 3 feet tall.
- ⇒ The leaves are covered with fine star shaped hairs.
- ⇒ The leaves are covered with fine hairs.
- ⇒ Clusters of white flowers appear May-September.
- ⇒ The plant prefers dry, sandy soil and can be found in pastures, road sides, forestry roads.

**CAUTION:** This plant can be toxic to horses.



## Control Methods

**Chemical:** Metsulfuron (Escort<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>), chlorsulfuron (Telar<sup>®</sup>), will control when applied, most effectively during spring and fall. A surfactant must be used due to the fine hairs on plant.

### **Non-Chemical:**

- \* Hand pulling is effective on small infestations.
- \* Mowing before blooming will reduce seed production.

**Biological:** No known biological agents at this time.

## Horseweed (Marestail)



# Horseweed (Marestail)

## *Conyza canadensis*

- ⇒ Winter or summer annual.
- ⇒ Grows 1-5 feet tall.
- ⇒ Stems are erect, unbranched below but often branched above.
- ⇒ Leaves alternate, lower leaves spatulate coarsely toothed. Upper leaves lance shaped to linear.
- ⇒ Fine hairs on leaves.
- ⇒ Flowers are small white-yellow. Seeds are airborne. Flowers late June–September.
- ⇒ Common along road sides, pastures, cultivated fields.
- ⇒ Not an Idaho State Noxious Weed but listed in Boundary and Bonner Counties.

## Control Methods

**Chemical:** aminopyralid (Milestone<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>), clopyralid + 2,4-D (Curtail<sup>®</sup>) applied to seedlings to suppress plants. Surfactant must be used.

**Non-Chemical:**

- \* Mowing before seed production will reduce soil seed bank.
- \* Small infestations can be hand pulled.

**Biological:** No known biological agents.

**READ THE LABEL-The label is the law.**



# Houndstongue





# Houndstongue

## *Cynoglossum officinale*

- ⇒ A biennial plant that spreads by seed.
- ⇒ Grows 1-4 feet tall.
- ⇒ 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 sites, roadsides.

**CAUTION:** Houndstongue is toxic to animals. Animals may live for 6 months or longer after consuming a lethal dose. Sheep are more tolerant to houndstongue poisoning than are cattle or horses.



## Control Methods

**Chemical:** aminopyralid (Milestone®), aminopyralid + metsulfuron (Opensight®), dicamba + 2,4-D (Weedmaster®) are effective when applied to actively growing plants. A surfactant should be used.

### **Non-Chemical:**

- \* Hand pulling can be done on small infestations before plants begin to seed. Always wear gloves.
- \* Mowing will reduce seed production. Make sure to mow before blooming.
- \* Healthy soils will prevent infestations, fertilizing is important.

**Biological:** No legal forms of biological agents are available but are present in Boundary and Bonner Counties.

**READ THE LABEL– The label is the law**

# Knapweed



Diffuse Knapweed



Meadow Knapweed



Knapweed rosette



# Knapweed

## Spotted Knapweed (*Centaurea stoebe*)

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

## Other knapweeds of concern: All Noxious

**Diffuse Knapweed** (*Centaurea diffusa*). Sometimes called tumble knapweed, it spreads by the windblown mature plants. Flowers are white to purplish; bracts are tipped with a spine. Grows 1-2' tall. Flowers July- September.

**Meadow Knapweed** (*Centaurea pratensis*). Perennial, grows to 3'. Leaves are long-stalked. Flowers are large pink to purplish-red.

## Control Methods

**Chemical:** Spray with aminopyralid (Milestone<sup>®</sup>), dopyralid + 2,4-D, (Curtail<sup>®</sup>), aminopyralid + metsulfuron (Opensight<sup>®</sup>) in the spring when the plant is actively growing but before flowering. In the fall spray aminopyralid + metsulfuron (Opensight<sup>®</sup>) before a killing frost.

### **Non-Chemical:**

- \* Mowing or cutting will promote lower growing plants but may reduce seed production
- \* Cultivation at regular intervals.
- \* Hand pulling. ***Be sure to wear gloves.***

**Biological:** Root and seed weevils are available and are already present in much of north Idaho.

READ THE LABEL-The label is the Law

# Kochia



# Kochia

## *Bassia scoparia*

- ⇒ A bush-like annual that spreads by seed.
- ⇒ Grows 1-4 feet tall.
- ⇒ Leaves are alternate, upper leaf surface is smooth with fine hairs beneath. Turn purplish-red as the plant ages.
- ⇒ Small green flowers produce up to 14,000 seeds per plant. Flowers June-October.
- ⇒ Drought tolerant, breaks off and becomes a tumbleweed as it dies in the fall.
- ⇒ Found along roadsides and other dry area.
- ⇒ Not an Idaho State Noxious Weed but listed in Boundary and Bonner Counties.

**CAUTION:** Can be toxic to live-



stock.

## Control Methods

**Chemical:** aminopyralid + metsulfuron (Opensight®), chlorsulfuron (Telar®), dicamba + 2,4-D (Weedmaster®), tridopyr + 2,4-D (Crossbow®) can be effective when plants are small. As plant ages it can become chemical tolerant.

**Non-chemical:**

- \* Hand pulling can be effective in small areas.
- \* Mowing will prevent seed production.
- \* Cultivating several times during growing season will reduce seed production.

**Biological:** There are no known biological agents.

**READ THE LABEL-The label is the law**



## Large Knotweeds



# Large Knotweeds

Because knotweeds have an extensive root system, once established they are difficult to control.

- ⇒ Woody, upright perennial that spreads from long creeping roots and stem fragments.
- ⇒ Found along roadsides, ditch banks, waste areas.
- ⇒ Grows 4-10 feet tall.
- ⇒ Bamboo like stems are green with red or purple spots.
- ⇒ Small greenish-white flowers in early autumn.

**All 3 of the large knotweeds are noxious weeds.**

**Japanese Knotweed** (*Polygonum cuspidatum*): Small greenish-white colored drooping flower clusters appear at end of stems.

**Giant Knotweed** (*Polygonum sachalinense*) Distinguished heart shape leaves up to 12 inches long.

**Bohemian Knotweed** (*Polygonum X bohemicum*) A hybrid of Japanese and Giant knotweed. Green-white upright flower clusters.

## Control Methods

**Chemical:** triclopyr (Vastlan<sup>®</sup>), imazapyr (Polaris<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>), aminopyralid (Milestone<sup>®</sup>), can be applied when actively growing and have reached early bud to early flowering stage of growth.

**Non-chemical:**

- \* Never transplant as an ornamental.
- \* Digging is a good option when plant is small.
- \* Cutting back all new growth to ground at least twice a month during the growing season for several years may control. Make sure to remove all plant material as plant can re-grow from cuttings.

**Biological:** Agents are in final approval stage at this time. Goats and sheep will graze on plant.

**READ THE LABEL-The label is the Law**

## Leafy Spurge



# Leafy Spurge

## *Euphorbia esula*

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

- ⇒ An aggressive perennial that spreads by seed and roots.
- ⇒ Grows 1-3 feet tall.
- ⇒ Narrow bluish-green leaves up to 4" long.
- ⇒ Flowers are small and enclosed by yellowish-green heart shaped bracts and bloom from May until frost.
- ⇒ Seeds capsules often explode when dry, often propelling the seeds more than 20 feet.
- ⇒ Stems, leaves, and flowers contain a toxic milky latex sap.
- ⇒ It can be found in any type of soil.

**CAUTION:** Horses, cattle should not graze due to toxic sap.



## Control Methods

**Chemical:** dicamba (Banvel<sup>®</sup>), imazapic (Plateau<sup>®</sup>), aminocyclopyrachlor (Method<sup>®</sup>) can be used but may be required 2-4 times per year. Use a surfactant.

### **Non-Chemical:**

- \* Fertilization and pasture health are extremely important.
- \* Mow or pull weeds to prevent seed production. The sap of leafy spurge is toxic; **skin and eye protection are needed when handling.**
- \* Do **not** cultivate, new plants can begin from cut root segments.

**Biological:** Several insect agents are available and may be present in north Idaho. Sheep and goats are known to graze on plant. Constant grazing will slow the spread and starves out the root system.



## Oxeye Daisy





# Oxeye Daisy

## *Leucanthemum vulgare*

Also known as Poverty Weed and Field Daisy.

- ⇒ Short lived perennial that spreads by seeds (2000-4000 per plant) and from the spreading roots.
- ⇒ Grows 1-3 feet tall.
- ⇒ The glossy green leaves get smaller as they grow up the stem.
- ⇒ Daisy-like flowers are made up of white ray flowers with a golden center and bloom from June-September.
- ⇒ Likes to grow in abandoned fields, meadows, and over grazed pastures. Often found in "wildflower" seed mixes.

## Control Methods

**Chemical:** Aminopyralid + metsulfuron (Opensight®), dopyralid + 2,4-D (Cutrail®) are very effective before bloom or in fall after re-growth.

**Non-Chemical:**

- \* Dig plants when soil is moist.
- \* Regular cultivation is effective.
- \* Application of fertilizer are effective in encouraging strong grass growth leaving no room for oxeye daisy seeds to germinate.

**Biological:** No known biological methods. Goats and sheep are known to graze on oxeye daisy.

# Perennial Sowthistle



# Perennial Sowthistle

## *Sonchus arvensis*

- ⇒ A perennial that spreads by rhizome-like roots.
- ⇒ Grows 2-4 feet tall and exude a milky juice.
- ⇒ Leaves have a clasping base and mildly prickly margins which vary from deeply toothed to entire. Upper leaves are fewer and much smaller than basal leaves.
- ⇒ Flowers are 1-2 inches wide, rich yellow in color. Numerous gland-tipped hairs on bracts and flower stalks help distinguish this species.
- ⇒ Flowers from early June-Sept.
- ⇒ Found in pastures, roadsides and disturbed sites.

## Control Methods

**Chemical:** 2,4-D in fall to rosettes or spring before flowering. aminopyralid (Milestone<sup>®</sup>), clopyralid + 2,4-D (Curtail<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>). Use of a surfactant is important.

**Non-chemical:**

- \* Cultivation throughout growing season but entire crown and root fragments must be removed.
- \* Mowing is **not** a good option.
- \* Plants that are cut or pulled must be done before going to seed.

**Biological:** Both cattle and sheep will graze. No known agents are available

READ THE LABEL-The label is the Law

## Rush Skeletonweed



# Rush Skeletonweed

## *Chondrilla juncea*

- ⇒ Perennial which spreads by both seed and creeping roots.
- ⇒ Grows 1-4 feet tall.
- ⇒ Dandelion like rosettes. Stems are bare, except lower 4-6 inches which are covered with coarse brown hairs. Stems produce a milky latex juice.
- ⇒ Flowers are yellow and scattered among branches.
- ⇒ Found in disturbed areas.

## Control Methods

**Chemical:** Spray with aminopyralid + metsulfuron (Opensight®), clopyralid + 2,4-D (Curtail®) to rosettes in spring or in fall before a killing freeze. Make sure to use surfactant at high rate.

### **Non-Chemical:**

- \* Constant hand pulling for several years on small infestations.
- \* Mowing and cultivation are **not** effective. Cultivation will spread root fragments and increase the population.
- \* High nitrogen fertilizers assist in desirable plants to out compete rush skeletonweed.

### **Biological:**

Control agents may already be present in some areas of north Idaho. Continuous grazing by sheep or goats can reduce densities.



# Scotch Broom





# Scotch Broom

## *Cytisus scoparius*

Green stems all year long. Seed resemble pea pods, which snap open at maturity and throw seeds some distance.

- ⇒ A perennial shrub that spreads by seed. It has average life span 17 years.
- ⇒ Grows to 10 feet tall.
- ⇒ Stems 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.
- ⇒ Seeds can live for more than 60 years in soil.

**CAUTION:** Can be toxic to live-  stock.

There are four genera of brooms which are  prohibited in Idaho. Chamaecytisus (Tagasaste), Cytisus (Scotch Broom), Genista (French Broom) and Spartium (Spanish Broom).

## Control Methods

**Chemical:** Spray with triclopyr (Vastlan<sup>®</sup>), aminopyralid + triclopyr (Capstone<sup>®</sup>), triclopyr + 2,4-D (Crossbow<sup>®</sup>) at any time the plant is actively growing. Basal bark application with triclopyr is an effective control method. Use a surfactant.

### **Non-chemical:**

- \* Plants can be dug out.
- \* Repeated cultivation will destroy seedlings.
- \* Mowing and burning are **not** effective.

**Biological:** Biological control agents are available for this plant. Goats will browse with no ill effects.

**READ THE LABEL-The label is the law**

# Scotch Thistle





# Scotch Thistle

## *Onopordum acanthium*

Also known as cotton thistle.

- ⇒ A biennial that has thick, fleshy taproot that may extend down 1 or more feet. Only reproduces 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.
- ⇒ Thrives in sunny, moist areas along stream banks, but can be found in fields, pastures. Prefers well-drained, sandy or gravelly soils.
- ⇒ Flowers are purple to occasionally white, globe shaped up to 2 inches in diameter.
- ⇒ Blooms July through September

## Control Methods

**Chemical:** Aminopyralid (Milestone<sup>®</sup>), dicamba + 2,4-D (weedmaster<sup>®</sup>), clopyralid + 2,4-D (Curtail<sup>®</sup>). Spray rosettes throughout growing season and mature plants before flowering. Use a surfactant

### **Non-chemical:**

- \* Digging up or tilling rosettes are effective methods, however entire crown must be removed.
- \* Mowing is **not** an effective control method.
- \* Plants that are cut or pulled while flowering must be removed to prevent future infestations.
- \* Fertilize to promote desirable plants to out compete scotch thistle.

**Biological:** Most animals will not graze but occasionally consume the flower heads.

READ THE LABEL- THE LABEL IS THE LAW

## Small Bugloss





# Small Bugloss

## *Anchusa arvensis*

- ⇒ A weedy annual that spreads by seed.
- ⇒ Grows 6-12 inches tall.
- ⇒ Leaves and stems are covered with bristly hairs that arise from warty bumps.
- ⇒ Leafy coil flower stems bear small blue flower. Blooms from June to September.
- ⇒ Prefers dry, sand to gravelly soils. Often found in open pastures and roadsides.

## Control Methods.

**Chemical Control:** Spray before bloom with dicamba + 2,4-D (Weedmaster<sup>®</sup>), metsulfuron (Escort<sup>®</sup>), chlorsulfuron (Telar<sup>®</sup>). Fall applications of these products to new rosettes (before a killing frost) give good control. A surfactant is highly recommended to increase effectiveness of any herbicide.

### **Non-Chemical:**

- \* Bugloss cannot withstand regular cultivation.
- \* Prevent seed production by cutting and destroying flower heads. Plants may be hand pulled or dug out.

**Biological:** There are no known biological control at this time.

**READ THE LABEL-The label is the law**

## Spotted Catsear



# Spotted Catsear

## *Hypochaeris radicata*

Also known as false Dandelion.

- ⇒ A perennial that reproduces by seed and creeping stems.
- ⇒ Grows 1-3 feet tall.
- ⇒ Has milky juice when stems broken.
- ⇒ Basal rosette.
- ⇒ Foliage covered in coarse yellowish hairs that are rough to touch.
- ⇒ Blooms yellow flowers from May to September.
- ⇒ Found roadsides, abandoned fields, lawns and pastures.
- ⇒ Not an Idaho State Noxious Weed but listed in Bonner and Boundary Counties.

## Control Methods

**Chemical:** aminopyralid (Milestone<sup>®</sup>), 2,4-D + tridopyr (Crossbow<sup>®</sup>), clopyralid + 2,4-D (Curtail<sup>®</sup>) are effective in controlling throughout the growing season. Use a surfactant.

### **Non-chemical:**

- \* Hand pulling is effective as long as taproot is removed.
- \* Mowing is **not** effective.
- \* Repeated cultivation for several years is effective.

**Biological:** No known agents are available. Heavy grazing may help control as the weed is palatable.

## St. Johnswort



# St. Johnswort

## *Hypericum perforatum*

Also known as Klamath weed or common goatweed.

- ⇒ A perennial that spreads by underground rhizomes and by seed.
- ⇒ Grows 1-3 feet tall.
- ⇒ Each tiny leaf is spotted with translucent dots.
- ⇒ Flowers have bright yellow petals and deep purple dots along the jagged edges.
- ⇒ Prefers poor soil and full sun, found along roadsides, dry pastures and abandoned fields.
- ⇒ Not an Idaho State Noxious Weed but listed in Boundary and Bonner Counties.

**CAUTION:** Animals that consume St. Johnswort and are exposed to full sun, can develop severe sunburn. Young cattle and sheep are most affected.



## Control Methods

**Chemical:** aminopyralid (Milestone<sup>®</sup>), metsulfuron (Escort<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>) are effective when applied in spring up to bloom.

**Non-chemical:**

- \* Hand pulling or digging can be effective on small infestations.
- \* The use of fertilizer and good watering habits has been shown to control the spread of St. Johnswort.
- \* Cut and bag flower heads, if possible, to prevent plants from going to seed.

**Biological:** The leaf eating beetle is already present in north Idaho.

**READ THE LABEL-The label is the law**



# Tansy Ragwort



# Tansy Ragwort

## *Jacobaea vulgaris*

- ⇒ A biennial or short lived perennial that spreads from fleshy root fragments and by seed. Rosette at base.
- ⇒ Grows 1-6 feet tall.
- ⇒ Leaves are dark green on top and a whiteish-green underneath.
- ⇒ Numerous flowering stems on each branch, showy bright yellow flower, daisy-like at end of each stem.
- ⇒ Thrives in low-fertility soils, disturbed areas, forest and overgrazed pastures.
- ⇒ Can grow in sun or shade.

**CAUTION:** This weed is toxic to live-stock.



## Control Methods

**Chemical:** aminopyralid (Milestone<sup>®</sup>), dicamba + 2,4-D (Weedmaster<sup>®</sup>), triclopyr + 2,4-D (Crossbow<sup>®</sup>), metsulfuron (Escort<sup>®</sup>) will control if sprayed early in spring before blooming.

### **Non-chemical:**

- \* Cultivation is moderately effective if repeated throughout the growing season.
- \* Hand-pulling is effective before flowering; plants need to be removed from site to prevent regrowth. Use gloves as plant has a lasting odor.

**Biological:** Do not let animals graze on plant. Biological control agents are available for this plant and are present in north Idaho.

**READ THE LABEL-The label is the law**

## Vipers's Bugloss



# Vipers's Bugloss

## *Echium vulgare*

Also known as blueweed

- ⇒ A biennial or winter annual plant with thick, black taproot that spreads by seed. Each plant may produce 2,800 seeds.
- ⇒ Grows to 5 feet tall.
- ⇒ The leaves and stems are covered with stiff hairs.
- ⇒ Bright blue flowers with hot pink-colored stamens. Blooms June to September.
- ⇒ Grows well in many soil types. Often seen in well drained sandy/gravelly soils, including the gravel of roadsides.

**CAUTION:** Toxic to horses, cattle and sheep.



## Control Methods

**Chemical:** Spray before bloom with dicamba + 2,4-D (Weedmaster<sup>®</sup>), metsulfuron (Escort<sup>®</sup>), glyphosate (Roundup<sup>®</sup>). A fall application to rosettes of plants before a killing frost is effective. A surfactant must be used.

### **Non-chemical:**

- \* Cultivation is effective for control.
- \* Prevent seed production by cutting and destroying flowers, roots will die at end of season.
- \* Plants may be hand pulled or dug, be sure to remove roots below the crown.
- \* Mowing is **not** a good control option.

**Biological:** There are no known biological agents.

**READ THE LABEL-The label is the law**



# Whitetop





# Whitetop

## *Lepidium draba*

Also known as Hoary Cress and Pepperwort.

- ⇒ A perennial plant spreading by both seed and creeping roots.
- ⇒ Grows up to 2 feet tall.
- ⇒ Grayish green leaves are arrow-head shaped and clasp the stem on upper plant and lower leaves are stalked. Leaves may be sparsely to densely hairy.
- ⇒ Seed pods are heart shaped.
- ⇒ Grows in cultivated fields, pastures, roadsides and abandoned fields.

**CAUTION:** Whitetop can cause stomach problems in all animals.



There are 3 genus of *Lepidium* that are indistinguishable except for their fruits. All 3 should be treated as noxious weeds.

## Control Methods

**Chemical:** aminopyralid + metsulfuron (Opensight®), metsulfuron (Escort®), chlorsulfuron (Telar®). Use a surfactant due to the possibility of hairs present.

**Non-chemical:**

- \* Cultivating will eventually eliminate weed if repeated every 2 weeks throughout growing season.
- \* Mowing close to ground will reduce seed production.
- \* Hand pulling or digging are effective on small infestations.
- \* Competitive desirable plants will suppress whitetop.

**Biological:** there are no known biological agents. Do not allow animals to graze.

**READ THE LABEL-The label is the law**

## Yellow Toadflax



# Yellow Toadflax

## *Linaria vulgaris*

Similar to Dalmatian toadflax, difficult to control. Also known as butter and eggs.

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

**CAUTION:** The toadflax's contain toxins which can cause cyanide poisoning, although large amounts must be consumed in a short period of time.



## Control Methods

**Chemical:** chlorsulfuron (Terlar<sup>®</sup>), dicamba (Banvel<sup>®</sup>), aminocyclopyrachlor (Method<sup>®</sup>) will provide good control. A surfactant must be used.

### **Non-chemical:**

- \* Cultivation every 2 weeks through growing season is effective.
- \* Small infestations may be hand pulled or dug up, be sure to remove entire root system.

**Biological:** There are biological agents available and may be present in north Idaho. Do not allow animals to graze.

## 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 primarily propagates through stem fragments.
- ⇒ Can grow in up to 25 feet of water and fill that volume with plant material creating floating mats of vegetation by late summer.
- ⇒ Leaves are feather like and composed of 12-24 pairs of thread like teeth on each leaf. Usually there are 4 leaves whorled around the stem at each node.
- ⇒ Stems are often highly branched near the surface.
- ⇒ Small flowers appear on leafless reddish spikes that emerge from the water.
- ⇒ Frequently misidentified and confused with other submerged aquatic plants.
- ⇒ Eurasian watermilfoil can hybridize with Northern watermilfoil producing intermediate forms. These plants are considered invasive.

#### **Can be confused with native plants:**

Northern watermilfoil (*Myriophyllum sibiricum*) and Whorled watermilfoil (*Myriophyllum verticillatum*), Coontail (*Ceratophyllum demersum*).

### Curlyleaf pondweed (*Potamogeton crispus*)

- ⇒ Perennial that grows in early spring and dies back in summer.
- ⇒ Color varies from olive green to a reddish-brown.
- ⇒ Leaves are 3 inches long and have a distinct lasagna-noodle waviness with finely serrate edges.
- ⇒ Can reproduce through fragmentation and dense winter buds that look like sharp pinecones.
- ⇒ Can sometimes co-occur with eurasian watermilfoil due to difference in time of year that vegetative parts of the plant grow and fill the water.

# WATERWEEDS, SUBMERGED



**Chemical control:** Chemical control of aquatic weeds is usually limited to professional applicators.

**Non-Chemical:** Submerged aquatic weeds can be raked, pulled, or cut by hand. Be sure to collect any fragments because each one can start a new plant. Dispose of removed plant material by composting well away from water. Use of a pool skimmer helps collect fragments.

Avoid launching at ramps hopelessly overrun with eurasian watermilfoil or curlyleaf pondweed. Weeds trapped between bunks and boat can be impossible to locate and remove. **CLEAN, DRAIN, DRY!**



## WATERWEEDS, MARGINAL

### Flowering Rush (*Butomus umbellatus*)

- ⇒ A perennial that spreads primarily from root fragments.
- ⇒ Prefers to grow in permanently or seasonally flooded areas.
- ⇒ Roots are thick rhizomes, but can be fibrous early in plant establishment.
- ⇒ Leaves attach directly to the rhizome, may be 40 inches long and are triangular in cross section near the base.
- ⇒ White to pinkish flowers with 3 petals and arranged in an umbel. Many plants will never flower.

### Yellow Flag Iris (*Iris pseudacorus*)

- ⇒ A perennial with a large underground root system. These plants spread by floating seeds.
- ⇒ Prefers to grow in moist soils in marshes, stream banks, roadside ditches or along shorelines.
- ⇒ Once established, these plants can clog small streams and dominate shallow wetlands, wet pastures and ditches.

### Purple Loosestrife (*Lythrum salicaria*)

- ⇒ An erect rhizomatous perennial that can grow to 6—8 feet tall.
- ⇒ Usually in moist or marshy sites.
- ⇒ Leaves are opposite or whorled and simple, entire.
- ⇒ Flowers are rose-purple having 5-7 petals in long vertical racemes.

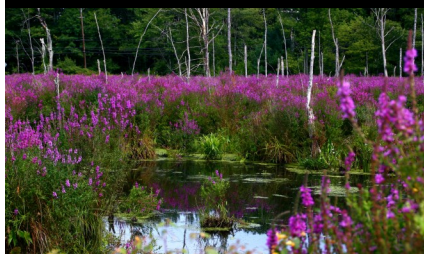
**Chemical control:** Chemical control of aquatic weeds is usually limited to professional applicators.

**Non-Chemical:** Plants can be dug out or repeated cultivation will destroy seedlings.

**Prevention:** Humans are primary drivers of inter-lake aquatic plant spread through movements of boats, trailers and other gear with plant fragments attached. Remove all plant fragments, even tiny ones, before relaunching. This can be done on the boat ramp, or at home with a garden hose.

# WATERWEEDS, MARGINAL

Purple Loosestrife



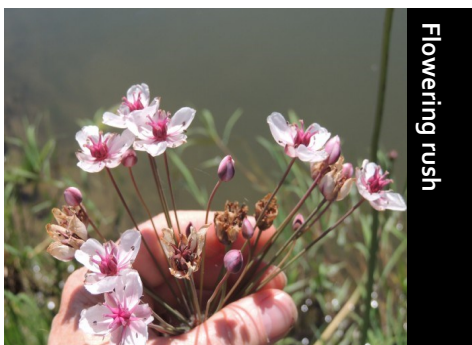
Yellow flag iris rhizome



Yellow flag iris



Flowering rush



Flowering rush



Purple Loosestrife



Photo by:  
Richard Old  
[www.xidservices.com](http://www.xidservices.com)

# EDRR Noxious Weeds Of Concern

In addition to the weeds in our region, there are a few weeds that are listed on Idaho State Noxious Weed List that pose a threat to our area. Weed Superintendents encourage landowners to look out for these weeds as they are not yet established. EDRR is early detection rapid response.

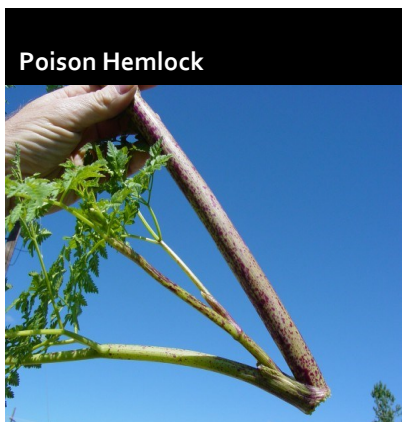
- Jointed goatgrass (*Aegilops cylindrica*)
- Common Reed Grass (*Phragmites australis*)
- Puncturevine (*Tribulus terrestris*)
- Poison hemlock (*Conium maculatum*)



Jointed Goatgrass



Common Reed Grass



Poison Hemlock



Puncturevine

## Toxic Plants

Most poisonous plants have an unpleasant taste that animals avoid if they have other food to eat. Ensure that your animals have plenty of hay and/or healthy pasture to graze. If you suspect a poisoning, call a veterinarian as quickly as possible.

### Toxic In Hay:

Dogbane	Nightshades
Fiddleneck	Poison or water hemlocks
Field horsetail	Red/Alsike clover (for horses)
Jimsonweed	Russian knapweed
Johnsongrass	Spurges
Milkweeds	Sweetclover (if moldy)
Mustard (some)	Yellow starthistle

### Toxic Range Plants:

Arrowgrass	
Bouncingbet	Larkspurs
Brackenfern	Locoweeds
Buttercups	Lupine
Chokecherry	Monkshood
Curly dock	Ponderosa pine
Death camas	Ventenata
False hellebore	Wild onion
Halogeton	

## **CAUTION WHEN USING HERBICIDES; READ THE ENTIRE LABEL CAREFULLY!**

Any time herbicides are used, the applicator is legally required to follow the directions and precautions stated on the label. Note what safety equipment is needed; where, when and how the herbicide can be applied; the plants it can be used on; mixing rates, disposal and storage requirements. When using **any** chemical product, **READ THE LABEL!** Idaho follows the EPA approved label because the **LABEL IS THE LAW!**

### **Conversion Table**

1 ml	=1 cc	1 oz	=26.4 grams
1 teaspoon	=5 ml	16 oz	=1 pound
3 teaspoons	=1 tablespoon	1 pound	=454 grams
1 tablespoon	=15 ml	2000 pounds	=1 ton
2 tablespoons	=1 oz		
16 tablespoons	=1 cup	Length & Area	
1 cup	=8 oz	1 mile	=5280 feet
2 cups	=1 pint	1 mile	=1.6 kilometer
2 pints	=1 quart	1/2 acre	=21,780 sq. ft
8 pints	=1 gallon	1 acre	=43,560 sq. ft
1 gallon	=128 oz		

#### Small Quantity Dilution Table

***To mix small quantities use the following dilution table.***

*If dosage on table shows: Use the following amount of chemical for each gallon of water.*

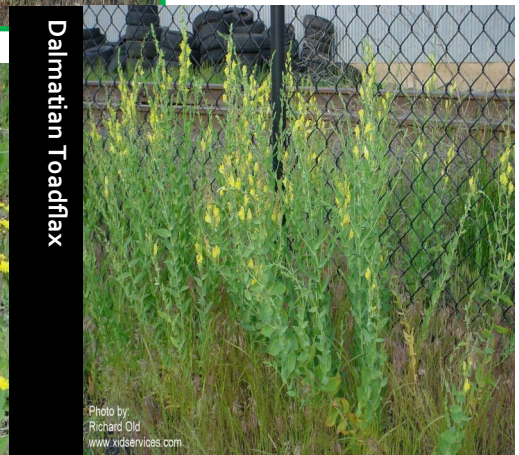
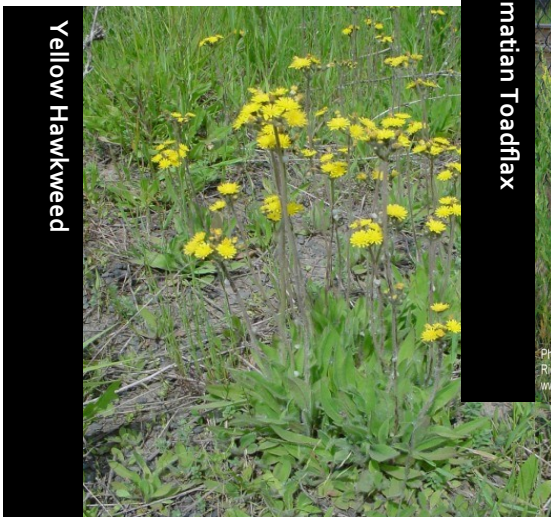
2 pints(1 qt) per acre	3/4 oz.
3 pints(1 1/2 qt) per acre	1 1/4 oz.
4 pints(2 qt) per acre	1 1/2 oz
6 pints(3 qt) per acre	2 1/4 oz

If there are any questions about the use of an herbicide product, **please call your local weed control agency for guidelines.**



## Surfactants:

It is common and usually necessary to use surfactants when applying herbicides. These products increase the effectiveness of the treatment by making the herbicide penetrate the leaf surface, increase coverage, and can make them rain fast. Plants with fine hairs like common mullein, hawkweed, absinth wormwood, bugloss, and others must be sprayed with herbicides mixed with surfactants. Other plants that have waxy stems and leaves or plants with very few leaves also need a surfactant. Use the higher rate of surfactant that is on the label when spraying these plants.



# SPRAYER CALIBRATION



**Why is sprayer calibration important? You need to know how much chemical your sprayer is applying per acre. If you don't know how much your sprayer is applying you will not know how much chemical to put in the tank. Below are easy steps to help you determine sprayer calibration.**



## BACKPACK/HANDSPRAYERS

This is an easy method to calibrate your small sprayers. It is based on the following principal: because 1 gallon=128 ounces and the test area to be sprayed is 1/128th of an acre, therefore ounces collected=gallons per acre.

1. Make sure the sprayer is clean and rinsed out. Use straight water- NO herbicide for this test. Make sure sprayer is working properly- good pressure, no leaks, and a clean spray tip.
2. Measure out an area 18.5' x 18.5', this is 1/128th of an acre. Or any measurement that is 340 sq. ft.
3. Record the time it takes you to spray the measured area. Repeat several times and take the average. Be sure to use same speed and pressure each time.
4. Spray into a container for the average time it took you to spray the measured area. Measure the water collected in ounces. The amount collected in ounces equals gallons applied per acre.

Example: it took you 51 seconds to spray the measured area. You then sprayed into a container for the same time and collected 40 ounce. Therefore 40 ounces=40 gallons per acre.

## ATV Boom sprayers

1. Make sure the sprayer is clean and rinsed out. Again, use straight water-NO herbicide. Make sure all nozzles are working uniformly.
2. Measure the spray width of one nozzle in feet, or nozzle spacing on the boom in feet, to determine the distance to travel a distance that will cover 340 sq. ft or 1/128th of an acre.
3. Drive the ATV the distance to cover the 1/128th of an acre and time yourself. Drive the speed that you will be spraying at. Repeat several times and get an average time.
4. Catch the spray in a container from **one** nozzle for the average time it took to travel the distance to cover 1/128th of an acre. Measure the amount collected in ounces. The amount collected in ounces is the same number as gallons per acre.

Example: If your nozzle spacing is 20" (1.67') you will need to travel 204 feet ( $1.67 \times 204 = 340$  sq. ft.). Lets say it took you 31 seconds to cover the 204 feet. Now collect from **one** nozzle for 31 seconds. If in 31 seconds you collected 25 ounces from one nozzle you would be applying 25 gallons per acre.

## How much chemical to add to tank?

- 1) Read the Label and determine the amount per acre. Remember to change the volume to fluid ounces if given in another measurement (16 oz.=1pint).
- 2) Divide tank capacity by the gallons per acre (GPA). This tells you how many acres one tankful will cover. Record the number.
- 3) Multiply the amount of herbicide you want in step #1 by the acres that can be sprayed from one tankful (step #2). This is how much herbicide you will add to tank.

Example: You have determined that your sprayer is calibrated at 64 gallons per acre (GPA). Your backpack sprayer is 4 gallons. 4 divided by 64=.0625. This means you can cover .0625 acres with one tank. The label calls for 1 pint per acre. Change this to ounces (16 oz.). Multiply 16 x .0625=1. So you will put 1 ounce of herbicide in your 4 gallon backpack. Suppose you have a 25 gallon tank that applies 64 GPA: just divide 25 by 64.  $25/64=.39$ . Multiply .39 by the rate on label of 16oz/Acre. So you would add 6.25 oz.

# CHEMICAL MIXING GUIDE

Combining herbicides into a spray mixture must follow a strict order so that chemicals will go into solution and give the best results for controlling your noxious weeds. Many labels will give you directions when mixing.

**STEP 1:** Fill spray tank 1/3 full of amount of water needed.

**STEP 2:** Check the label for any incompatibility of combining herbicides.

**STEP 3:** Use the WALES acronym. It begins with addition of herbicides that start with W or WP (dry wettable powders) and WDG (water dispersible granules) placed in the spray tank. Most types of these products suggest pre-soaking the herbicide in small amounts of water to enable the products to properly dissolve. Chemicals like aminopyralid + met-sulfuron, chorsulfuron are WDG's.

**STEP 4:** Next comes the A in WALES: Agitate. You can agitate the tank by adding more water to the tank.

**STEP 5:** Then the L: Liquid or flowable herbicides are added.

**STEP 6:** E in WALES is for emulsifiable concentrates. This will be chemicals like aminopyralid, 2,4-D, glyphosate, dicamba + 2,4-D.

**STEP 7:** The final letter in WALES, S is for your surfactants. Surfactants are the last part of your tank mix. Fill tank to appropriate level for your application.

Contact your county Weed Superintendent if you need any help.

**Remember when mixing dry formulations of chemicals that you use the measuring device that comes with the chemical. These are pre-calibrated by weight for that specific chemical!**

# How To Read A Pesticide Label

Labels are legal documents providing directions on how to mix, apply, store, and dispose of a pesticide product. The label is the law. Using a pesticide inconsistent with its labeling is a violation of federal law.

## What information does the front label contain?

- ⇒ Brand Name: Different names are used by different manufacturers even though their products contain the same active ingredient. The brand name (or trade name) is a unique name used to advertise the product.
- ⇒ Product Type: Listed under the brand name is what the product will control. Such as; herbicide for the control of woody brush and weeds.
- ⇒ Active Ingredient: The chemical(s) responsible for controlling the pest. May be listed by common name and/or chemical name with percentage in the product.
- ⇒ Common Name: a simpler name given by the EPA to a chemical for easier recognition.
- ⇒ Chemical Name: The complex name identifying the chemical components.
- ⇒ Inert Ingredients: Not required to be individually listed but their percentage must be.
- ⇒ Signal Words: Indicate the relative acute toxicity to humans and animals. The statement, KEEP OUT OF REACH OF CHILDREN must also appear. Signal words are caution, warning, danger.
- ⇒ Precautionary Statement: Information about possible hazards.
- ⇒ First Aid or Statement of Practical Treatment: Details what to do if there is an accidental poisoning.
- ⇒ Directions for Use: What pest the product is registered to control. Where the product can be used. How to apply the product. How much product to use. When the product should be applied. How often to apply the product. How soon the crop can be used or eaten after the application. When people and animals can re-enter a treated area.
- ⇒ Storage and Disposal: How to best store the chemical and what to do with unused product or an empty container.

**READ THE LABEL– The label is the law!**



## CHEMICAL SUGGESTIONS

**The SCWMA does not recommend any product or company. All brands and names listed are for reference purposes only**

Common Name	Brand Name
2,4-D	Weedar <sup>®</sup> (and generics)
Aminopyralid	Milestone <sup>®</sup>
Aminopyralid + metsulfuron	Opensight <sup>®</sup>
Metsulfuron	Escort <sup>®</sup> (and generics)
Chlorsulfuron	Telar <sup>®</sup> (and generics)
Dicamba	Banvel <sup>®</sup>
Glyphosate	Roundup <sup>®</sup> (and generics)
Dicamba + 2,4-D	Weedmaster <sup>®</sup> /Trimec Classic <sup>®</sup>
Clopyralid	Transline <sup>®</sup> /Stinger <sup>®</sup>
Triclopyr + 2,4-D	Crossbow <sup>®</sup>
Triclopyr	Garlon <sup>®</sup> /Vastlan <sup>®</sup>
Imazapyr	Polaris <sup>®</sup> (and generics)
Clopyralid + 2,4-D	Curtail <sup>®</sup> (and generics)
Aminocyclopyrachlor	Method <sup>®</sup>
Aminopyralid + triclopyr	Capstone <sup>®</sup>

**If you need help with chemicals contact your County Weed Superintendent.**

## DIRECTORY OF COOPERATING AGENCIES

### County Noxious Weed Control Offices:

- Bonner County Noxious Weed Department.....(208)255-5681 ext 6  
1500 HWY 2, Ste 101, Sandpoint ID 83864  
chase.youngdahl@bonnercountyid.gov
- Boundary County Noxious Weed Department.....(208)267-5341  
PO Box 267, Bonners Ferry ID 83805  
dwenk@boundarycountyid.org

### Other Members:.

- North Zone of Idaho Panhandle National Forest.....(208)263-5111  
1602 Ontario St, Sandpoint ID 83864  
Jeremy.kleinsmith@usda.gov
- Idaho Department of Lands .....(208)263-5104  
2550 Highway 2 West, Sandpoint, ID 83864  
jlurnow@idl.idaho.gov
- Idaho Fish and Game Panhandle Region.....(208)769-1414  
2885 Kathleen Ave, Coeur d'Alene, ID 83815  
Robert.akins@idfg.idaho.gov
- Idaho Transportation Department.....(208)772-1200  
600 W Prairie Ave, Coeur d'Alene, ID 83815  
shannon.thornton@itd.idaho.gov
- Kootenai Tribe of Idaho.....(208)267-3519  
P.O. Box 1269, Bonners Ferry, ID 83805  
souls@kootenai.org
- The Nature Conservancy  
65 McClintock Rd, Moyie Springs, ID 83845  
kmcclintock@TNC.org

# GLOSSARY OF TERMS



**Active ingredient**-in an herbicide, the chemical that effectively controls or kills the weed.

**Alternate**-leaves that are arranged singly up the stem, not opposite each other.

**Annual**-a plant that completes its life cycle in one year.

**Aquatic weed**-a weed that grows in the water or extremely wet soils.

**Axil**-the angle formed between the leaf and stem.

**Basal**-at the base of a plant.

**Biennial**-a plant that completes its life cycle in two years.

**Bract**-leaf-like structure at the base of leaves or flowers, or an inflorescence.

**Clasping leaves**-leaves that appear to wrap around the stem.

**Contact herbicide**-chemical that affects just the part of the weed that was sprayed.

**Disk flower**-tiny flowers in the central portion of flower head of certain composite plants, such as daisy.

**Dissected**-deeply and repeatedly divided into smaller parts.

**Elliptic**-narrowly oval, broadest at the middle and narrower at the two ends.

**Eradication**-the elimination of a noxious weed based on the observation that it no longer is in the area during the growing season.

**Fragmentation**-a part broken off or detached. Some weeds break off in sections and those pieces can grow into more weeds.

**GPA**-gallons per acre.

**Inert ingredient**-in an herbicide, the carrier or substance that contains the active ingredient, for example, clay, water, or oil.

**Inflorescence**-a group or cluster of flowers arranged on a stem; a flower cluster.

**Lanceolate**-lanced shaped; much longer than wide.

**Lobed**-leaf cut into shallow segments.

**Margin**-the edge, as in the edge of a leaf blade.

**Nodding**-a flower that is not pointed upward, bent sideways to the stem.

**Non-selective herbicide**-chemical that will control or kill any green, living plant.

**Noxious weed**- a weed placed on the noxious weed list by legislation.

**Opposite**-leaves situated directly across the stem from each other.

**Ovate**-egg-shaped in outline.

**Perennial**-a plant that lives more than two years.

**Petiole**-a leaf stalk.

**Plant competition**-when many different grasses and weeds live in a particular area, they all struggle for room, nutrients, and water.

**Prostrate**-laying flat on the ground.

**Pubescence**-the hairs on a leaf, stem, or flower.

**Ray flower**-flower at the edge of a flower head of certain composite plants, such as daisy; each ray flower resembles a single petal.

**Rhizome**-an underground, creeping stem that resembles a root.

**Rosette**-compact flat cluster of early leaves of a plant, before flower formation.

**RTU**-ready to use.

**Selective herbicide**-chemical control that will only affect certain plants.

**Spines/prickles**-rigid, sharp pointed structures found on various parts of plants.

**Spreader-sticker**-see 'Surfactant'.

**Stamens**-flower structure in which pollen forms.

**Stolon**-a creeping, above ground stem.

**Summer annual**-an annual that germinates in spring and completes its life cycle that year.

**Surfactant**-a material, that when added to an herbicide can improve the spreading-sticking properties of the liquid or slow evaporation.

**Systemic herbicide**-chemical that controls or kills the plant by being absorbed through the plant surfaces and moves throughout the roots and leaves.

**Taproot**-a thick, central root with minimal branching, i.e. dandelions.

**Toxic**-mean the weed can be poisonous or cause chemical injury to human and/or animals.

**Whorled**-three or more leaves from a single node on a stem.

**Winged stem**-a flattened out, 'wing like' structure of plant tissue that extends along a plant stem, often from the base of a leaf.

**Winter annual**-an annual that germinates in the fall and completes its life cycle the following year.



**Always** clean machinery before moving to new areas as weed seeds and plant fragments can spread weeds.

**Don't** dump aquarium plants or fish in our waterways.



**Always Clean** watercraft and trailers of all plant parts before leaving the boat launch.

Before buying or donating plants and seeds be sure you are not **sharing** noxious weeds.



Check **camping/hunting gear** for weed seeds/ plant parts before you leave camp site.

Always use Noxious **Weed Free forage** on public grounds and clean animals of weed seeds and plant parts.



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**Clean** recreational vehicles of weed seeds and plant parts before leaving trailhead.

Purchase **noxious weed free** seed and feeds for wild and domesticated animals along with crop and garden seed plantings.

