

Weeds, Neighbors & Cinnamon Rolls Noxious Weed Identification and Concerns

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Today's Program

- What is a Noxious Weed?
- State and County Weed Lists
- Integrated Weed Management - IWM
- A Few Bad Actors and Why I Should Care
 - Common noxious weeds
 - Weeds on the prowl
 - Poisonous weeds
- Safety Measures
- Is Roundup a Concern?
- Weed Board Programs

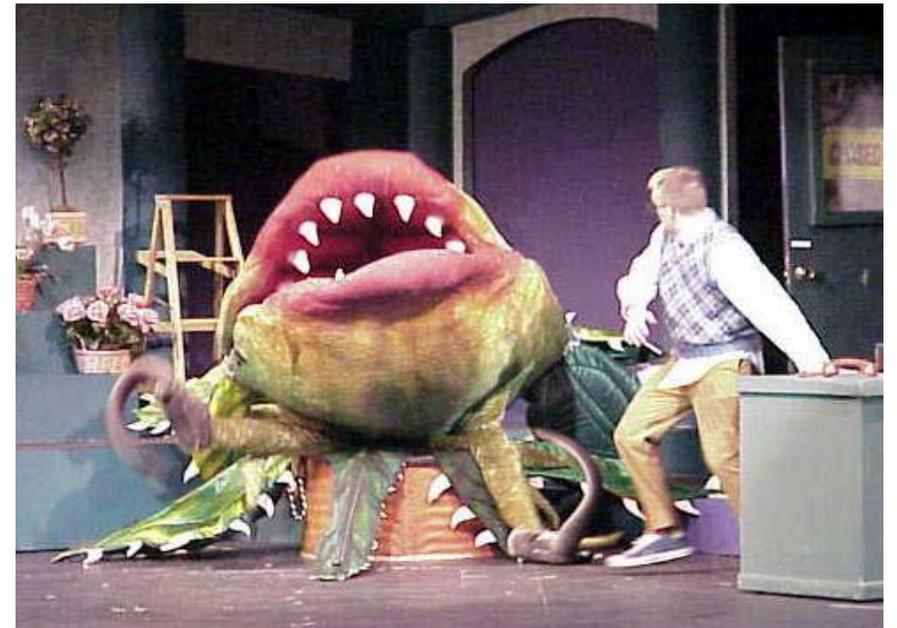


What is a Noxious Weed?



- It has nothing to do with its odor or personality!
- It is a legal term, meaning it is illegal to allow a noxious weed to grow on your property.

- They are not native.
- They are harmful to our resources – agricultural, human and natural.
- They are difficult to control.

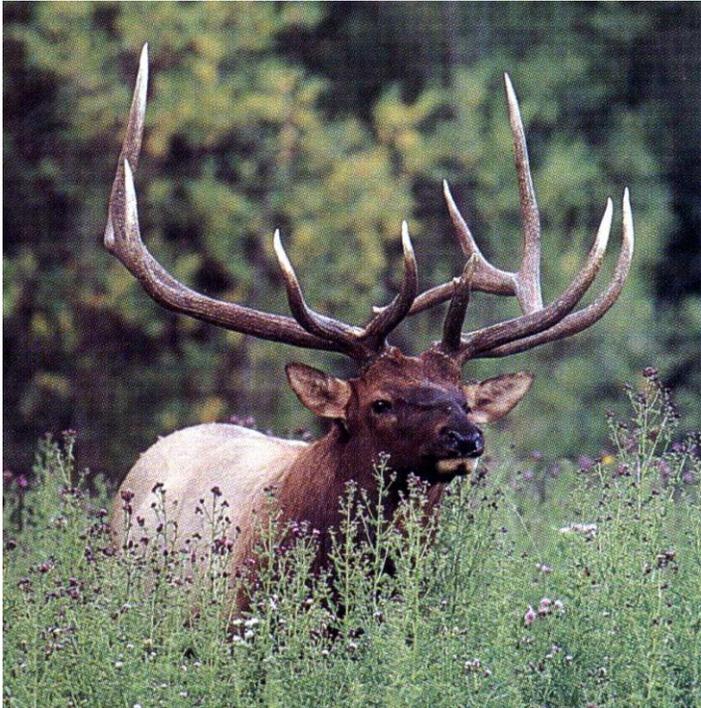


If they're non-native, how did noxious weeds get here?

- Transportation Industry**
 - Packing materials used in shipping
 - Increased internet sales shipped by mail, UPS or FedEx
 - Recreational travel
 - Immigration
- Living Industries**
 - Ornamental plant trade
 - Contaminated food and feed materials
- Ecosystem**
 - River systems
 - Wildlife
 - Short and long-term disturbance



How Are Noxious Weeds Harmful to Our Natural Resources?



Knapweed infestations diminish habitat structure and forage, reducing elk usage of an area by over 75%.



Dense milfoil infestations can deplete oxygen and alter pH levels causing fish kills.



Upland Weeds and Water Quality: Studies have shown that upland weeds, such as spotted knapweed, do not have the capacity to hold the soil during rain storms, increasing sediment loads by over 50%.

Difficult to Control



Enough said!



State & County Weed Lists

- The law gives us a framework to organize our weeds: Every year, the State adopts a list of noxious weeds, prioritized by classes A B & C.
- The County also adopts a noxious weed list, prioritized by categories I II & III.
- Class A and B-Designate weeds are state mandated to be included on the County weed list.
 - Category I includes all Class A and B-Designate noxious weeds known to grow in the County.
 - Category III includes all Class A and B-Designate noxious weeds not currently found to grow in the County.
 - All Category I & III noxious weeds are required to be controlled where found.
- **Most Class B and C weeds are those we encourage and facilitate landowners to manage – I call these voluntary compliance weeds – we do not require control on the majority of them.**
 - Category I does include several Class B and C noxious weeds that we require to be controlled.
 - Category II includes the voluntary compliance weeds – those species we receive the most requests for assistance, but do not mandate control.



Integrated Weed Management

IWM programs are based on a careful assessment of local conditions, not a single control method.

Steps to IWM

- Collect information on and monitor site conditions
- Set an action threshold
- Identify and monitor weeds
- Prevention – manage your property to prevent weeds from becoming a problem.
- Evaluate management strategies – tools in the toolbox – including costs.
- Implement strategies
- Keep records!
- Monitor and evaluate results, then start the process over for the following year.



Monitoring & Evaluation are the cornerstones of IWM

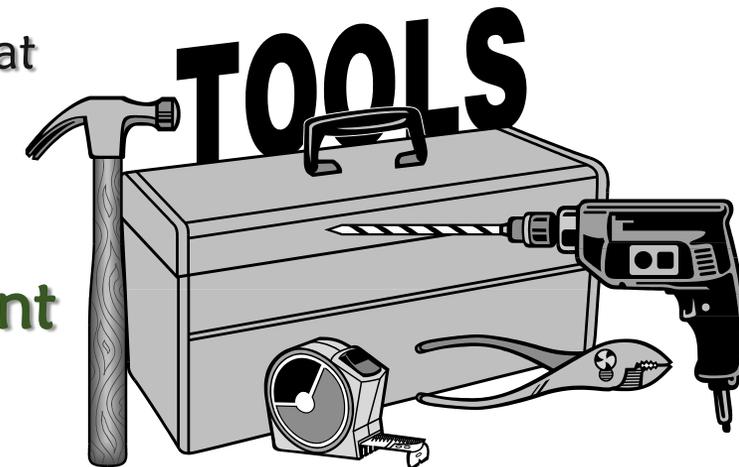


Tools in the Toolbox

There are six basic weed management tools:

- ❑ **Prevention** – education, weed-free forage, mulch, soil & gravel fill, bedding plants, currying animals, vehicle and equipment cleaning.
- ❑ **Mitigation** – surveying for and removing small populations before they become a problem.
- ❑ **Mechanical** – by hand or machinery mowing, pulling, hoeing, digging or cultivating weeds.
- ❑ **Cultural** – grazing management, fertilizing and planting competitive vegetation and crop rotation.
- ❑ **Biocontrol** – introducing specific insect or disease agents that produce a suppression of the weeds.
- ❑ **Herbicides** – spraying the weeds.

Fertilizing in conjunction with all management methods increases their effectiveness.



Noxious Weed Identification

The Bad Actors:
In the best scenario, you need to know what the weed is before you can develop a management plan.



Common Noxious Weeds



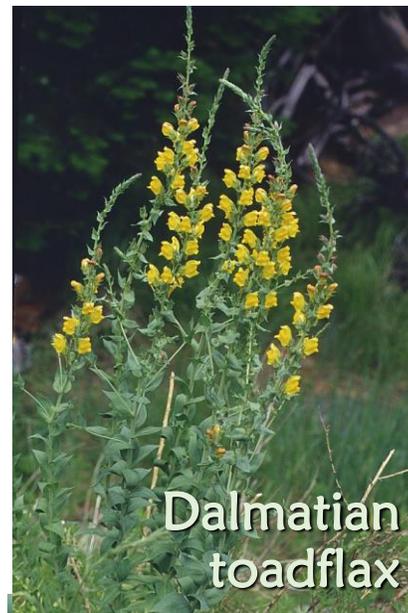
Spotted Knapweed



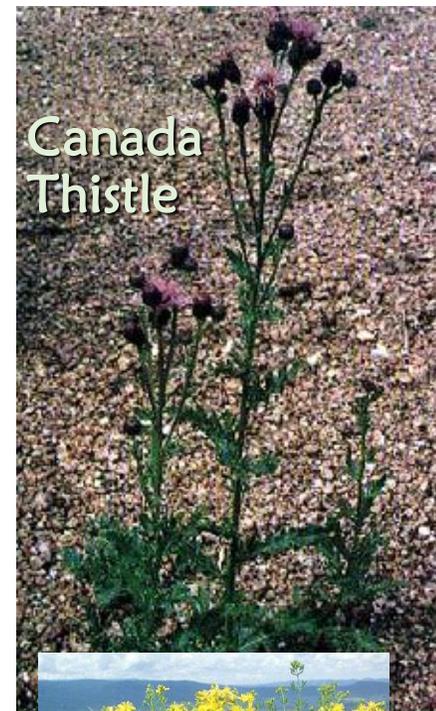
Common Tansy



Ox-eye Daisy



Dalmatian toadflax



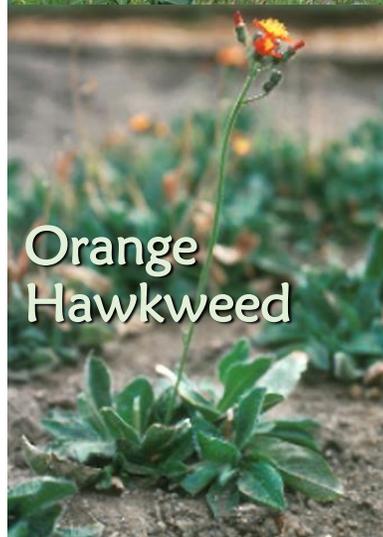
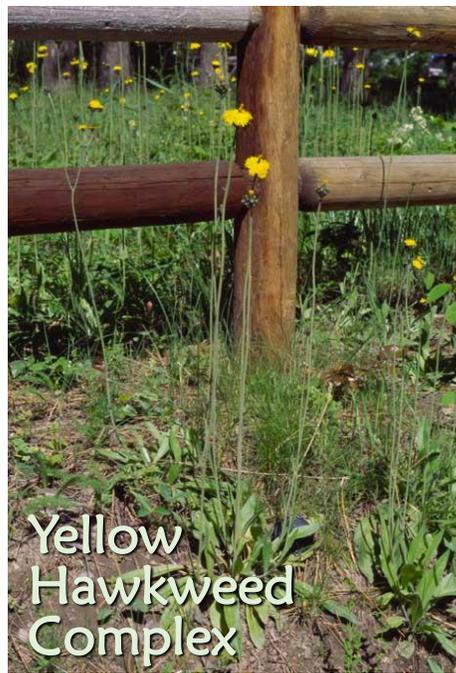
Canada Thistle



Sulfur Cinquefoil



Yellow Hawkweed Complex



St. Johnswort

Canada Thistle

□ Perennial Life-cycle

- New rosettes emerge in late fall or early spring, an extensive rhizomatous root system develops.
- Stalks bolt-up and emerge from nodes along the root system, May-September.
- Flowering occurs July-September.

□ Morphology

- Leaves are slightly lobed, shiny dark green and the lobes and tips are armed with a sharp spine.
- Flower stalks elongate near the top of the stem and bear multiple flower heads of purple, rarely cream, disc flowers.
- Plants are dioecious, only 5% of reproduction is by seed, the remainder is by root spread and fragmentation.

□ Distribution

- Present in the county since early 1900's, now widespread through out the county.
- Found in pastures, fields, along roads, fence-lines, forest openings.



Common Tansy



□ Perennial Life-cycle

- New rosettes emerge in late fall or early spring, a hearty, weakly rhizomatous root system develops.
- Stalks bolt-up from seed and emerge from the root system.
- Flowering occurs late July-September.

□ Morphology

- Leaves are deeply dissected, soft, dark green with a fern-like appearance.
- Flower stalks elongate near the top of the stem and bear multiple clusters of flower heads composed of bright yellow discoid flowers.
- Reproduction is by seed and root spread.

□ Distribution

- Widespread through-out the county, preferring sub-irrigated areas.
- Found in pastures, fields, along roads, fence-lines, forest openings.
- Tansy is an abortive, pregnant livestock should be kept off of it.
- Plants contain alkaloids that in high doses can have a psychoactive affect, but may also damage the liver.



Dalmatian Toadflax

- **Short-lived Perennial Life-cycle**
 - New sprouts emerge in early spring from seed or the spreading, weakly rhizomatous root system.
 - Numerous flower spikes bolt up from the root system in early spring.
 - Flowering occurs May-September.
- **Morphology**
 - Leaves are entire, clasp around the stem and are covered with a waxy cuticle giving the plant a light, slightly blue-green color.
 - Flowers are arranged alternately along the spikes, opening at the bottom and blooming up, with seeds ripening below before bloom is finished at the top.
 - Reproduction is primarily by seed, some by root.
- **Distribution**
 - Widespread through out the county, preferring loose glacial outwash soils.
 - Found in pastures, fields, along roads, fence-lines, dry open areas.
 - Has allelopathic properties, preventing germination of desirable plants.



Hawkweed Complex

Orange & Yellows

□ Perennial Life-cycle

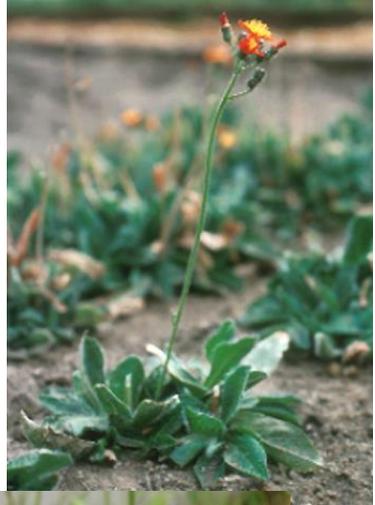
- New rosettes emerge in late fall or early spring, a fibrous root crown develops.
- A single flower stalk bolts up from each rosette, and blooms May-September.

□ Morphology

- Basal leaves are entire, soft, covered with fine hairs.
- When present on the flower stalk, leaves are greatly reduced.
- Single flower stalks bear a cluster of small yellow or bright orange ray flowers.
- Involucre bracts are covered with dark hairs.
- Reproduction is by seed and above and below ground stolons.
- Species are known to interbreed, leading to gradations in leaf appearance and flower color.

□ Distribution

- Widespread through out the county.
- Found in pastures, along roads, fence-lines, forest openings and understory.
- Affects water availability and nutrient cycling, out-competing desirable vegetation.
- Private and public wildland infestations are devastating to fish and wildlife habitat, as well as aesthetics for tourism promotion.
- Known to have allergenic and toxic properties, but toxin is unknown.



Spotted Knapweed

□ Perennial Life-cycle

- New rosettes emerge in late fall or early spring, a deep taproot develops.
- Stems bolt-up and emerge from the root crown in May.
- Flowers mid-July into August.

□ Morphology

- Basal leaves are deeply lobed, becoming smaller and slightly lobed to entire up the stem.
- Fine hairs on the leaves and stems give plant a gray-greenish color.
- One to multiple branched stems have composite flower heads at the ends.
- Disc and ray flowers are pinkish-purple, rarely cream.
- Involucre bracts are tipped with a dark comb-like fringe.

□ Distribution

- Widespread through out the county.
- Found in pastures, along roads, fence-lines, forest openings.
- Out-competes desirable vegetation.
- Private and public wildland infestations are devastating to fish and wildlife habitat, as well as aesthetics for tourism promotion.



St. Johnswort

□ Perennial Life-cycle

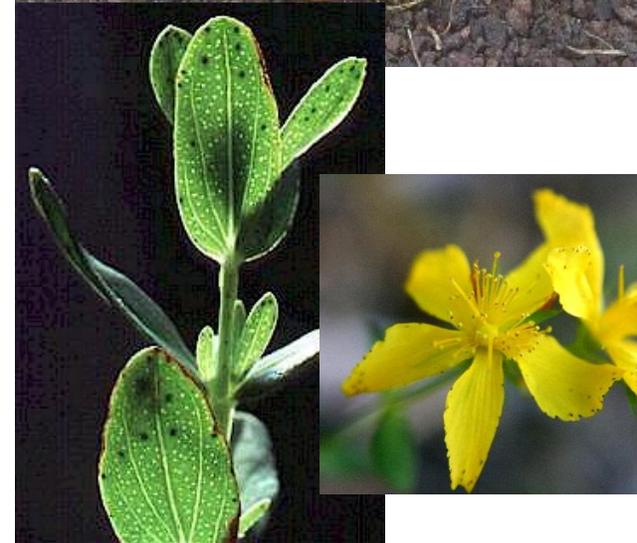
- New shoots emerge in late fall or early spring, a spreading root system develops.
- Stems bolt-up and emerge from the root crown in late spring.
- Flowers July through September.

□ Morphology

- Leaves are small, ovoid in shape and a dark green
- Multiple tiny perforations occur between the leaf veins with dark spots along the edges.
- One to multiple weakly branched stems bear a loose cluster of bright yellow flowers with dark spots along the edges.
- The dark spots contain hypericin, the psychoactive compound.

□ Distribution

- Widespread through out the county.
- Found in pastures, along roads, fence-lines, forest openings.
- Multiple medicinal uses, externally as an anti-microbial.
- Internally used as an SSRI for mood modulation, although causes photosensitivity.



Sulfur Cinquefoil

- **Perennial Life-cycle**
 - New rosettes emerge in late fall or early spring, a taproot with branches develops.
 - A single flower stalk, 6"-18" tall, bolts up from each rosette, branching toward the top.
 - Flowering occurs late May-July.
- **Morphology**
 - Leaves are soft, palmately compound with serrated edges, green above and underneath.
 - Stems have stiff hairs arranged perpendicular to the stem.
 - Single flower stalks bear a loose cluster of small pale yellow flowers with five petals.
 - Reproduction is by seed.
- **Distribution**
 - Widespread through out the county, thrives in thin, low nutrient soils.
 - Found in pastures, along roads, fence-lines, forest openings.



Noxious Weeds on the Prowl

Mandatory Control



Leafy Spurge



Rush Skeletonweed



Common Catsear



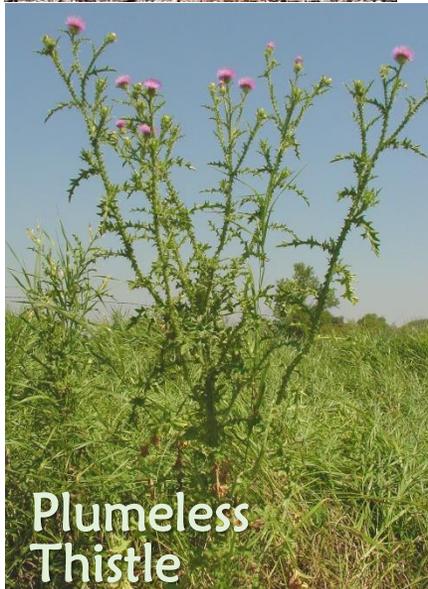
Common Bugloss



Queen Anne's Lace



Musk Thistle



Plumeless Thistle



Scotch Thistle



Scotch Broom



Meadow Knapweed

Common Bugloss



□ Perennial Life-cycle

- Rosettes emerge in the spring and a deep, hearty taproot develops.
- Multiple, stout, fleshy stalks, 2'-5' tall grow up from the rosette in the spring.
- Flowering occurs May-September.

□ Morphology

- Basal leaves are large and strap-shaped (like an ox's tongue), stem leaves reduce somewhat in size up the stem.
- Fine hairs on the leaves and stems give plant a grayish-green color.
- Flower stalks branch near the top as the plant begins to bloom.
- Flowers are small, vary in color through shades of blue, purple, pink and white, although the center is always white.
- Bloom starts at the bottom, in an unfurling coil at the ends of the stems.
- Nut-let seed pods with four small hard seeds form as the stalk elongates.
- Reproduction is by long-lived (50 years) seed.

□ Distribution

- Currently known in three primary sites, most in the south end of the county.
- Highly invasive into range and pasture lands.
- If it invades a hayfield, harvesting and baling it with the hay can ruin the product.
- Re-introduction is constant due to the proximity of large populations in Spokane County.



Common Catsear

□ Perennial Life-cycle

- Rosettes emerge in the spring and a deep, taproot develops.
- Multiple thin, hard stalks, 10"-18" tall grow up from the rosette in the spring.
- Flowering occurs May-September.

□ Morphology

- Basal leaves are ovate linear, lobed sparse to densely hairy with bumps on the upper surface.
- Flower stalks branch about half-way up and blooms form at the ends.
- Flower heads are large dandelion-like with yellow ray flowers.
- Seeds are small, light-weight and have a pappus, allowing them to disperse widely on the wind .
- Reproduction is by seed.

□ Distribution

- Currently known in several primary sites, in Newport, Lone, Metaline and several USFS properties.
- Highly invasive into yards, range and pasture lands.
- Associated with string-halt in horses.
- Re-introduction is constant due to the proximity of large populations in Bonner County and from visitors from the west side of the state.



Leafy Spurge

□ Perennial Life-cycle

- Sprouts emerge in early spring from seed and a deep extensive rhizomatous root system develops.
- A multitude of stalks, 1'-5' tall bolt-up and emerge from nodes along the root system from May-September.
- Flowering occurs late May into July.

□ Morphology

- Abundant leaves are linear, soft, smooth and a medium green.
- Flowers are arranged in a loose panicle toward the top of the stems, are small greenish and sit within a pair of chartreuse colored bracts.
- Reproduces by prolific and long-lived seed that ejects up to 15'; and, the vast root system that is full of reproductive buds.

□ Distribution

- Currently known in three primary sites, predominantly the Riverbend area.
- Can invade pastures, fields, along roads, waterways and forest openings.
- Entire plant oozes a corrosive milky latex sap when crushed that can produce dermal reactions and blindness.
- Cows and horses should not graze, but sheep and goats thrive on it.
- Pulling and mowing stimulate nodes to generate more shoots, tilling spreads it.
- No technology or management strategies exist to eradicate an infestation once it has established.



Meadow Knapweed

□ Perennial Life-cycle

- Rosettes emerge mid-spring from seed and root crowns, with a deep taproot.
- One to multiple stalks, 1'-5' tall bolt-up from the rosettes.
- Flowering occurs July to September.

□ Morphology

- Basal leaves are linear-ovate, slightly lobed to entire, stem leaves are reduced and linear, all a light to medium green and covered with short stiff hairs.
- Flower heads form at the ends of the branched stems, are large with rosy-purple (rarely white) disc and ray flowers.
- The involucre bracts are shiny, papery and are lined with a long fringe.
- Reproduces by seed and root crown division.

□ Distribution

- Currently known in four primary sites, Box Canyon, Cedar Creek, McCloud Creek and under the BPA powerlines to the north of Power Lake.
- Can invade pastures, fields, along roads and forest openings.
- Originally brought in as sheep forage and garden ornamental.



Queen Anne's Lace

□ Biennial Life-cycle

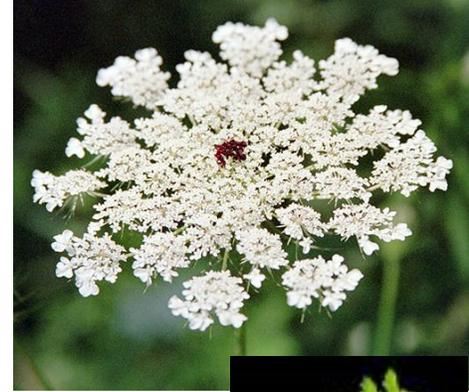
- Rosettes emerge in the spring with a fern-like appearance and a deep taproot develops.
- A hollow stalk, 1'-5' tall grows up from the rosette the second spring.
- Flowering occurs July-August.

□ Morphology

- Leaves are deeply dissected, soft and a deep green.
- Flowers are borne in an umbel, creamy white, although often there is a single or small cluster of deep red flowers in the middle of the inflorescence.
- Specialized bracts fold up around the flower head as it goes to seed.
- Reproduction is by seed, in capsules that are flat, light-weight, have a narrow wing lined with curved hooks, allowing it to easily attach to passing animals or birds.

□ Distribution

- It had been in the county a for awhile before it started to spread aggressively, we are working to contain it.
- Infestations can become extensive, destroying forage in pastures, rangeland and wildlife habitat.
- It is botanically identical to the domestic garden vegetable with which it will cross, destroying the seed crop as its root is inedible.



Rush Skeletonweed

□ Perennial Life-cycle

- Rosettes emerge in fall or early spring from seed, a deep extensive rhizomatous root system develops with a multitude of reproductive buds.
- Heavily branched stalks with stiff reddish downward curved hairs at the base, 1'-5' tall bolt-up from rosettes, June-October.
- Flowering occurs late July-September.

□ Morphology

- Basal leaves are deeply lobed, resembling a dandelion, and senesce by August.
- Stem leaves are sparse, small, linear, smooth and a medium green.
- Flower heads develop in the leaf nodes and at the end of stem branches, are composed of small bright yellow ray flowers.
- Reproduces by seed with a large pappus, documented to be carried 100 miles on the wind; and, the vast root system full of reproductive buds.

□ Distribution

- Currently contained to the south end of the county with a few scattered plants as far north as Lone, can invade fields, along roads and forest openings.
- Entire plant oozes a sticky latex sap when crushed.
- It can be grazed, but has an acrid taste.
- Pulling and mowing stimulates nodes to generate more shoots, tilling spreads it.
- The rush skeletonweed gall mite, *Cystiphora schmidti*, is moderately effective.



Scotch Broom

□ Perennial Life-cycle

- New seedlings sprout in spring.
- Deciduous shrub with a branched woody stem, 6"-96" tall arises from a deep, spreading taproot.
- Flowers May into June.

□ Morphology

- Small, dark green trifoliate leaves, grow along the ridged, dark green stems.
- Small, bright yellow (sometimes tinged with red) pea-like flowers emerge in leaf nodes.
- Reproduction is by a large, round, long-lived (60+ years) seed.

□ Distribution

- Known in several locations under the BPA powerlines.
- Will invade reforestation sites, pastures, rangeland and roadsides.
- Originally believed it would not do well here, but it does just fine.
- Likes our infertile, glacial outwash soils.
- Creates increased fire hazard.



Thistles

Musk, Plumeless & Scotch

□ Biennial Life-cycle

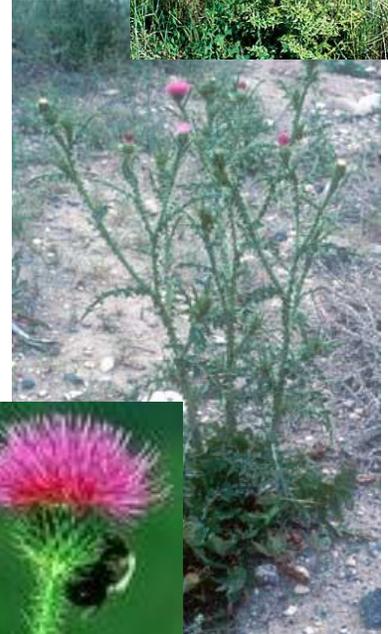
- Large rosettes emerge in fall or spring, musk has a light colored mid rib, plumeless has narrower leaves, Scotch are enormous (in excess of 6'), and deep taproots develop.
- Tall stalks, musk up to 7', plumeless up to 9', Scotch over 12' grow up from the rosette the second spring.
- Flowering occurs June-August.

□ Morphology

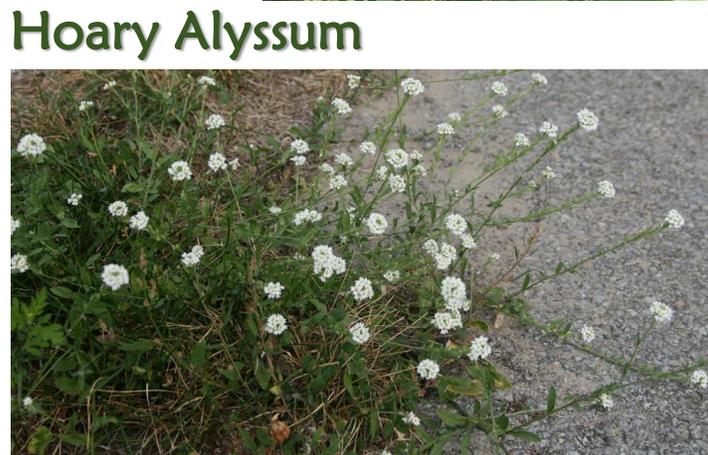
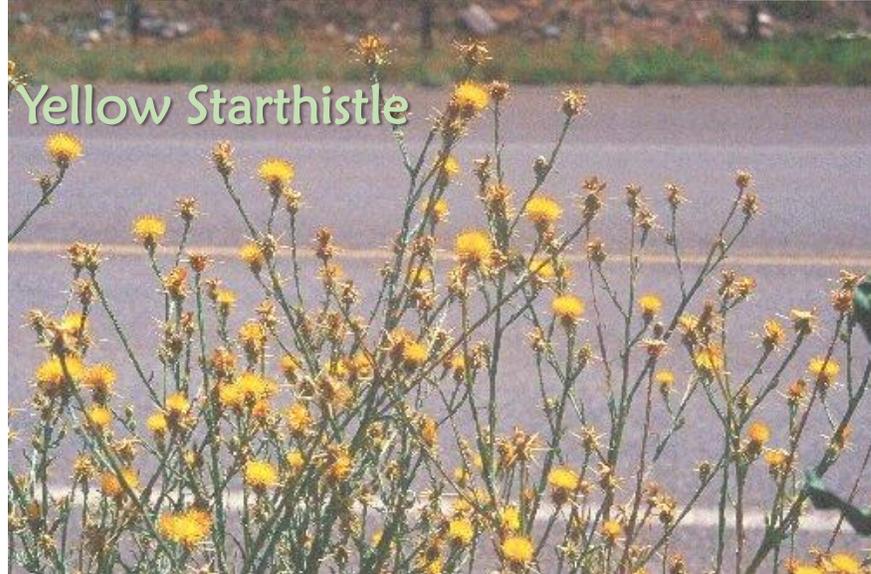
- Basal leaves are deeply dissected, Scotch less so, are soft and a deep green (Scotch is a pale grayish-green) with the lobes and tips armed with sharp spines.
- Stems are winged and spiny, with musk and Scotch branching low, plumeless branches 1/3 the way up, spreading wide, giving the plant a candelabra-like shape.
- Flower heads are borne at the ends of branches and stems, musk flower stalks elongate, are bare and the inflorescence tips in a 'nod', plumeless are small, Scotch are large and round.
- Reproduction is by a soft, short-lived, heavy seed with a weakly attached pappus.

□ Distribution

- Musk is eradicated, Scotch is limited to two sites and plumeless is more widely spread in the north end of the county.
- Disturbance is not necessary for these thistles to invade.
- Infestations can become extensive, destroying forage in pastures, rangeland and wildlife habitat.



Poisonous Weeds



Houndstongue

February Daphne

□ Perennial Life-cycle

- New seedlings sprout in late winter.
- Deciduous shrub with one to multiple woody stems, 6"-96" tall arising from a deep taproot.

□ Morphology

- Small, light purple to pinkish flowers emerge in clusters along bare stems.
- Leaves follow flowering, are soft, smooth, olive leaf shaped, dark green above and a light blueish-green below.

□ Distribution

- Known in two locations, starting to spread.
- Found in upland and riparian forest under-story.
- Impact to ecosystem function is anticipated.

□ Toxicity

- Compounds are mezerein and daphnin, affecting cell cycle functions.
- All plant parts are lethally toxic to mammals.
- Birds can and do consume berries, widely dispersing seeds.



Hoary Alyssum

□ Annual Life-cycle

- Emerges as a rosette in the spring or fall.
- One to multiple coarse, branched stems, 6"-18" tall, shoot up in the spring.

□ Morphology

- Fine, star shaped hairs on the leaves and stems give it a gray-greenish color.
- Small white flowers form at the ends of the branches and stems, seeds form as the stalk elongates.

□ Distribution

- Newer invader, but is starting to spread rapidly.
- Found in pastures, alfalfa fields and along roadsides.
- Difficult to control once population levels increase.

□ Toxicity

- Compound is unknown.
- Has only affected some horses to date.
- Feeding active charcoal and giving ameliorative treatment to symptoms can reverse damages.



Houndstongue

□ Biennial Life-cycle

- Rosettes emerge in the spring and a deep taproot develops.
- A stout, fleshy stalk, 2'-4' tall grows up from the rosette the second spring.
- Flowering occurs mid-late spring.

□ Morphology

- Basal leaves are large, stem leaves reduce in size up the stem.
- Fine hairs on the leaves and stems give plant a gray-greenish color.
- Stems branch near the top as the plant begins to bloom.
- Small, deep magenta flowers bloom, starting at the bottom, in an unfurling coil at the ends of the stems.
- Burred seed pods form as the stalk elongates.

□ Distribution

- Has been present for over 60 years, but seems to spread locally.
- Found where animals bed down in pastures and forest burn piles.

□ Toxicity

- Pyrrolizidine alkaloids cause irreversible liver damage.
- Due to feeding habits, mostly equines are affected.
- Poisoning occurs over time based on ratio of volume consumed vs body weight.
- Burs present a choking hazard for livestock and wildlife; and, foul wool for harvest.



Tansy Ragwort

□ Biennial Life-cycle

- Rosettes emerge in the spring and a fibrous root system develops.
- A stout stalk, 18"-54" tall grows up from the rosette the second spring.
- Flowering occurs July-September.

□ Morphology

- Basal leaves are lobed to dissected, frilly in appearance.
- Leaves and stems are smooth and shiny, deep green, the underside of leaves a lighter green.
- Stems branch near the top as the plant begins to bloom.
- Clusters of small, bright daisy-like yellow flowers bloom at stem tops.
- Reproduction is by seed, dispersed by wind, animals and human activities.

□ Distribution

- Introduced on forest sites by contaminated equipment and vehicles.
- Only one site, along Ruby Creek Road, remains in the county.

□ Toxicity

- Pyrrolizidine alkaloids cause irreversible liver damage.
- Wildlife and livestock are vulnerable.
- Poisoning occurs over time based on ratio of volume consumed vs body weight.
- Alkaloids identified in honey of bees foraging on tansy ragwort.



Yellow Starthistle

❑ Fall Annual Life-cycle

- ❑ Rosettes emerge in the late fall and a deep taproot develops.
- ❑ A stiff stalk, 18"- 60" tall grows up from the rosette in the spring.
- ❑ Flowering occurs July-September.

❑ Morphology

- ❑ Basal leaves are lobed to dissected.
- ❑ Stems are 'winged', leaves are mostly reduced and linear, covered with cottony fine hairs giving the plant a gray-bluish green color.
- ❑ Flower heads are large with bright yellow disc flowers, long sharp spines grow at the tips of the involucre bracts.
- ❑ Reproduction is by seed, dispersed by birds, animals and human activities.

❑ Distribution

- ❑ Introduced occasionally along highways.
- ❑ One site at the very south end of the county, appears to be eradicated.

❑ Toxicity

- ❑ Neuro-toxin, irreversibly affecting only horses.
- ❑ Poisoning occurs over time at 50%-200% consumed plant weight of horse's body weight.
- ❑ Thorny bracts have caused choking in wildlife.



The consequences and cost of failure to manage noxious weeds :

- Loss of property values
- Loss of production
- Loss of aesthetics
- Loss of recreational opportunities
- Loss of tourism income
- Loss of soil health
- Loss of wildlife habitat



A Few Words on Safety

- Always wear gloves when handling weeds.**
 - Some are allergens.
 - Some are toxic.
- Be aware of your surroundings.**
 - Look out for co-workers.
 - Be careful around pets.
- When using herbicides:**

**Always read and follow the label – it's
the LAW!**



Does Roundup Cause Cancer?

What is Roundup Herbicide?

- Active ingredient is glyphosate.
- Inert ingredients include a proprietary blend of surfactants, other adjuvants and carriers designed to improve efficacy and application delivery.

What Do the Studies Say?

- Tests are mixed so the results are mixed.
- Some studies test just glyphosate, which has shown to be very safe.
- Some test the whole product, which has returned mixed results, although many studies indicate it may be harmful.
- Some studies are epidemiology reviews that show patterns, but cannot determine cause and effect.

Conclusion? – The jury is still out.



Programs We Offer:

We're from the government and we're here to help...

- Neighborhood Cooperative Cost-Share
- Mandatory Weed Control Cost-Share
- Weed Free Hay Certification
- Biological Control of Weeds – FREE
- Grant administration for specific projects, such as aquatic weed management.
- Talks and presentations to community groups.
- Pesticide license recertification credit classes and workshops.



A photograph of a deer standing in a field of green and yellowing plants. The deer is looking towards the left. The background is dark and out of focus.

Only You Can
Prevent Weed
Spread!