Toxic and Noxious weed Spotting from the Saddle.
Noxious weeds under your hoofs

- Often invasive plants go unseen
- Many times we are just eager to get on the trail and looking up rather than looking down.
- Early detection is key to protecting the areas we love
- Keeping weeds from going home with us
- Keeping animals healthy
  - Many noxious weeds are toxic and some can cause death in your animals.
How to help

• Identification of plants is important
• Lots of plants out there that are invasive just a few are toxic
• How to know if there is a poisoning
• How to know if the plant is a “weed”
• Top set of weeds to spot and stop on the trail
Tansy
Tansy ragwort (Senecio spp.)

- **ID:** A multistemmed weed with alternating leaves that produces clusters of small daisy-like yellow flowers. Many are common in pastures and along roadsides.

- **The danger:** Contain pyrrolizidine alkaloids, which inhibit cell division, especially in the liver. Damage to the liver is cumulative and irreversible, and most horses succumb to chronic exposure over time, after consuming between 50 and 150 pounds, in total.

- **Signs:** Often, there is no evidence of consumption until signs of liver failure begin to appear: photosensitization, diminished appetite and weight loss, progressing to depression, incoordination and jaundice.

- **What to do:** There is no treatment for advanced stages of liver disease due to this toxin.
Common Groundsel

*(Senecio vulgaris)*

- Winter/summer annual or biennial
- Flowers
  - yellow
  - bracts have conspicuous black tips
- Leaves
  - alternate
  - deeply indented
• Biggest challenge when found in hay
• Animals cannot select out the problem plants
• Make sure to get clean hay
knapweed (Centauria spp.)
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- **ID:** knapweed spreads via a creeping root system; its erect, stiff stems grow two to three feet high and are covered with gray hairs, and its thistle-like flowers are purple.

- **Range:** Plants appear as weeds along roadsides, in cultivated fields and pastures.

- **The danger:** Plants contain a toxic agent that has a neurological effect on the brain that inhibits the nerves and control chewing. The poisoning is chronic in nature; to receive a toxic dose, horses must consume 50 to 200 percent of their body weight over 30 to 90 days.

- **Signs:** Affected horses may appear to have tense or clenched facial muscles, and they are unable to bite or chew their food effectively. Weight loss is also common.

- **What to do:** There is no treatment, and any neural damage is permanent. Euthanasia is recommended if the horse is too debilitated to eat.
Hemlock (*Conium maculatum*)
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- **ID:** A multistemmed perennial weed with toothed, fernlike leaves and clusters of small white flowers. The stems have purple spots, which are most evident near the base of the plant.

- **The danger:** Hemlock leaves, stems and seeds contain several potent neurotoxins that affect both the central and peripheral nervous systems. Four to five pounds is a lethal dose for a horse. Most animals will avoid the plant.

- **Signs:** Signs appear within an hour or two of consumption, starting with nervousness, tremors and incoordination, progressing to depression and diminished heart and respiratory rates and possibly colic. Death results from respiratory failure.

- **What to do:** There is no treatment, but if smaller doses were consumed, animals may recover with supportive care.
Bull and Canadian thistle
Thistles

- **ID:** Spiny plants with purple flowers at tops. Bull thistle is much larger; stands 4-5 feet tall. Canadian thistle is much smaller with multiple flowers.

- **The danger:** Plants are very aggressive and produce millions of seeds. The push out desirable forage species and are unpalatable.

- **What to do:** Not “toxic” but can cause irritations in the mouth of animals check animals mouths frequently.
Bindweed, wild morning-glory
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- **ID:** Bindweed is an extremely persistent, invasive, perennial, noxious weed. It is a twining or creeping weed with alternate leaves, and white or pink funnel shaped flowers. The plant reproduces readily from seed and its extensive deep root system.

- **The danger:** The alkaloids are present in all parts of the plant. The seeds are especially toxic. Other issues: the plants will rapidly reproduce and take over trails.

- **Signs:** Affects the autonomic nervous system causing erratic behavior, may cause diarrhea.
Saint Johnswort
(*Hypericum perforatum*)
Saint Johnswort

(*Hypericum perforatum*)

- **ID:** Perennial plant with extensive, creeping rhizomes. Its stems are branched in the upper section, and can grow to 1 m high. It has opposing oblong leaves. The leaves are yellow-green in color, with transparent dots throughout the tissue and occasionally with a few black dots on the lower surface.

- **Danger:** Severe skin irritation is physically apparent, with reddening of non-pigmented and unprotected areas. This subsequently leads to itch and rubbing, followed by further inflammation, exudation, and scab formation. Lesions and inflammation that occur are said to resemble the conditions seen in foot and mouth disease. Sheep have been observed to have face swelling, dermatitis, and wool falling off due to rubbing. Lactating animals may cease or have reduced milk production; pregnant animals may abort. Lesions on udders are often apparent. Horses may show signs of anorexia, depression (with a comatose state), dilated pupils, and injected conjunctiva.

- **Signs:** Increased respiration and heart rate is typically observed while one of the early signs of St Johnswort poisoning is an abnormal increase in body temperature. Affected animals will lose weight, or fail to gain weight; young animals are more affected than old animals. In severe cases death may occur, as a direct result of starvation, or because of secondary disease from lesions. Some affected animals may accidentally drown. Poor performance of suckling lambs (pigmented and non-pigmented) has been noted, suggesting a reduction in the milk production, or the transmission of a toxin in the milk.
Teasel
Teasel

- **ID:** Somewhat spiny, short-lived perennial or biennial that dies after it goes to seed. The distinctive seed heads are popular in floral arrangements. Most often seen on roadsides and waste areas, teasel also invades agricultural fields and pastures. It is often spread by the practice of mowing standing plants after they have formed seeds.

- **Danger:** Plants will take over trial edges and can dominate a field. When introduced to pastures they will push out desirable species. Due to the spines they are not palatable.
White Cockle
White Cockle

- **ID:** It is a biennial to perennial plant that grows 1.5 to 3.5 feet tall. The plant is hairy on lower plant parts and flower stems are in clusters, with five white or pink petals.

- **Danger/problem:** White cockle can be a serious problem in small grains, alfalfa, clover and grass seed fields. Its seeds are difficult to separate from commercially produced clover or alfalfa seed. White cockle is also problematic for Washington’s timothy growers.
Buffalo Bur
Buffalo Bur

• **ID:** This annual plant is spiny, hairy and around 1/2 to 3 feet tall. The entire plant, except the petals, is covered by straight yellow spines that are 1/8 to 1/2 inch long. Flowers in clusters yellow, 5-lobed, flat and circular (rotate) and around 1 inch in diameter.

• **Danger:** Buffalo Bur is generally considered a nuisance in its native range and is toxic to livestock. It is very aggressive in pastures and rangeland, competing with forage plants. Burs can get caught on sheep wool devaluing the wool
Spurge laurel
Spurge laurel

- **ID:** low growing, shade-tolerant, long-lived evergreen shrub it has escaped from gardens and naturalized in woodlands and other shady places. The berries, leaves and bark are poisonous to humans, cats and dogs and handling the plant can cause contact dermatitis. Once established, this plant is very difficult to eradicate.

- **Damage:** Spurge laurel is a serious threat to certain native forest ecosystems particularly Garry oak woodlands and dry Madrone/Douglas fir forests.

- **Toxicity:** Caution must be used when controlling spurge laurel by hand. The caustic sap from this plant can cause severe skin and eye irritation. Always wear protective clothing, gloves and eye protection and never transport this plant or cut plant materials inside an enclosed vehicle because the caustic compounds can cause respiratory irritation.
Other plants of concern

- Other plants of concern that can cause poisoning or degrade pasture health.
- There are plenty of plants that can be invasive and even toxic that are not noxious.
Bracken fern (Pteridium aquilinum)
Bracken fern (Pteridum aquilinum)

- The relative toxicity of individual leaves is low—horses must consume hundreds of pounds to experience ill effects.
- However, bracken fern is unique among the toxic plants in that some horses seem to develop a taste for it and will seek it out even when other forages are available.
- **Signs:** Signs are related to neural dysfunctions resulting from vitamin B1 deficiency and can include depression, incoordination and blindness.
- **What to do:** Large doses of thiamin over the course of a week or two can aid in the recovery of horses whose bracken consumption is discovered before the neurological signs are severe.
Sweet pea (Lathyrus odoratus)
Sweet pea (*Lathyrus odoratus*)

- **ID:** either annual or perennial plants. Some are trailing types that may trail over rocks, fences, or trellises. Bush types may do well in borders, beds, or pots. Flowers have one large round petal surrounded by two narrow side petals and two lower petals. Flowers vary in color and may be pink, red, purple, white, or blue. They bloom in late spring and summer and even through the fall in cool climates. Sweet peas attract butterflies.

- **The danger:** In horses and other grazing animals the effects of the toxin build over time and can be quite devastating resulting in tissue damage to internal organs, convulsions, paralysis, skeletal deformity, birth defects, aortic rupture due to defective synthesis of cartilage and connective tissue, and death. Symptoms typically begin to appear when the seeds have become a major part of the animals diet (25% or more)

- **Signs:** Weakness, tremors, lethargy, head pressing, pacing, seizures, paralysis, skeletal deformity, urinary incontinence, aortic rupture, birth defects, and possibly death.

- **What to do:** Animals “may” slowly recover if they prevented from further ingestion of the plant before neuronal degeneration or cellular damage is severe. If the animal is already in the stages of advanced decline due to long term ingestion of the plant then unfortunately the damage has already been done and a full recovery is unlikely. Prevent further ingestion of the plant, Consult your veterinarian.
Foxglove
Foxglove

• **ID:** The leaves are large, soft and downy – the shape is that of a broad spear. On the edge of the leaf, there are blunt teeth. In the first year, leaves form a rosette or clump at soil level. These lower leaves have a stalk (petiole), whereas those on the flowering stem do not. The underside of the leaf is noticeably soft or downy – being covered with many small hair like structures. The stem is erect and hairy, the flowers tend to nod to one side.

• **The danger:** Contain toxins known as cardenolides or cardiac glycosides. Cardenolides interfere with the electrical conductivity of the heart, resulting in irregularities in heart rate and rhythm.

• **Signs:** Signs generally begin just a few hours after ingestion, and most horses are simply found dead. Other early signs include weakness; edema of the head, neck, and eyes; and a slow heart rate that progresses to irregularity. Seizures and inability to rise often occur before death.

• **What to do:** Rapid development of illness and signs generally make treatment impossible. Veterinarians can use activated charcoal and mineral oil to decontaminate if done so early after ingestion. Other drugs such as atropine and lidocaine that focus on specific cardiac conduction abnormalities may be useful in hospitalized cases. Digoxin-specific Fab fragments have been used successfully in small animals but are cost-prohibitive in horses.
White & Yellow Sweetclover
White & Yellow Sweetclover

• **ID:** Member of the clover family resembles small scotch broom flowers and plants. This is a biennial that can grow up to nine feet tall. Flowers are small, white or yellow & fragrant. Fruit is a smooth pod

• **The danger:** While the fresh plant is often avoided by equines, it is yellow sweet clover in hay fields that becomes a serious problem. Clover hay is often fed as dry forage during winter months, and Clover hay isn’t always bad, especially when it has been properly dried and cured. Yellow sweet clover contains coumarin, which converts to dicoumarol (a powerful anticoagulant toxin) when the plant becomes moldy.

• **Signs:** Animals usually behave normally until the problem becomes severe and become very weak, and stiff; reluctant to move because of hemorrhages in joints and muscles. Bloody milk is another sign. Other internal signs, not visible to the naked eye, include increased heart rate, anemia, and extensive internal hemorrhages that are only found after the animal has died from bleeding to death from an accidental or surgical wound.

• **What to do:** Animals that show signs of sweet clover poisoning can sometimes be saved by a direct blood transfusion. It is important to consult with your veterinarian immediately if animals are showing signs of poisoning. Intramuscular administration of vitamin K can also be done, again consult your veterinarian. It is also important to remove all animals from the sweet clover and place them on a high quality alfalfa that is high in vitamin K and in calcium.
Field horsetail
*(Equisetum arvensis)*

- Perennial with a spreading rhizome system that produces numerous shoots and tubers.
- Plants produce two types of stems. The fertile (reproductive) stems appear in the early spring and are whitish to light brown.
- The sterile (vegetative) they look like miniature pine trees with their plume-like branches.
• Horses are particularly sensitive and can be killed if large amounts of horsetail are consumed.

• Symptoms:
  – weakness, “staggers,” nervousness, faulty vision, and difficulty in turning. In advanced stages, horses may “go down” and not be able to rise. Such animals are nervous and make frantic efforts to stand (Hill and Foland, 1986).

Poisoning occurs when dry plants are in hay.
The immediate removal of contaminated forage brings about rapid recovery.
Buttercup, creeping
(Ranunculus repens)

• **Description:**
  – Flowers are mostly yellow, regular, and showy, commonly with 5 petals.
  – Leaf blades are divided into 3 toothed lobes attached to long stalks, and they’re hairy.
  – Individual fruits are small, usually horned, hooked, or beaked, and arranged in a head.
• **Poisonous part**
  – Leaves

• **Symptoms:**
  – Inflammation and narcosis

Animals usually avoid eating when adequate feed is available, but on poor pastures or on pastures heavily infested, they may consume enough to taint milk or to become ill.

*Doesn’t retain its toxicity in hay.*
**Description:** Generally large shrubs or open trees. The leaves are alternate, simple, leathery, lanceolate, and often evergreen. The flowers are produced in large, showy, terminal clusters, ranging in color from white to purple, to red.
• **Poisonous Part**
  – All parts of the plant including the nectar.

• **Symptoms:**
  – Vomiting, vertigo, death from respiratory failure
  – Painful gastroenteritis, and diarrhea which may be bloody.

Most poisoning occurs in the winter months because the leaves are generally evergreen and are attractive to animals when other forages are scarce.

Animals eating approximately 0.2 percent of their body weight to develop signs of poisoning.
Nightshades

• The leaves are dark green and smooth textured somewhat similar to that of a tomato plant.

• The juicy, many-seeded berries are initially green, ripening to red or purplish black.

• Nightshades are widespread
Nightshade

- The poisonous nightshades contain alkaloids of three major types: tropane, found in belladonna, jimsonweed, and henbane; pyridine, in tobacco; and steroid, in some members of the nightshade genus.

- Stems and leaves are poisonous to livestock. Nightshade contains alkaloids that interfere with digestion by inhibiting the autonomic and parasympathetic nervous systems and by directly irritating the digestive system.

- Symptoms:
  - abdominal pain, stupidity, dilation of pupils, loss of appetite, diarrhea, loss of muscular coordination, unconsciousness
  - death
MUSTARDS (*Brassica*) spp

- Typically yellow flowers
- Irregularly lobed leaves with wavy margins toward the base of the plant and much smaller, unlobed leaves at the top of the plant.
Mustards

- Many mustards are harmless when young and are grazed without incident. However, seeds and vegetative parts (fresh and dry) may contain the toxic principle glucosinolate (isothiocyanate).

- Feeds containing grain screenings with a large number of mustard seeds may be dangerous to horses. Mustard oils, which are released by enzymes when mustard seeds are moistened with cold water before feeding, are strong irritants.

- **Symptoms:**
  - acute/chronic anorexia, severe gastroenteritis, salivation, diarrhea, paralysis, photosensitization, and hemoglobinuria.
Nuisance weeds

• Dock
Nuisance weeds

• Black medic
Nuisance weeds

• Birdsfoot trefoil
Nuisance weeds

• Velvet leaf
Nuisance weeds

• “glandweed”
Tar weed  (*Madia exigua*)
Nuisance weeds

- Mullein
Removal of weeds

- Control options:
  - Trail:
    - keep horses from eating “un-known” plants.
    - Pull plants where possible
    - Take out of the area
    - At minimum take the flowers
  - Pasture:
    - Check edges near forested area and create a buffer
    - Pull plants when seen
    - Keep pastures mowed/ maintained
    - Do not over graze
    - Reseed areas with desirable forage
Take home message

- Lots of plants are problem plants
- Some are poisonous
- Some are nuisance
- Some are noxious
- Knowing what is good and what plants are ok is important
Prevention

- Spot one stop it from spreading
- Use “weed free” hay when possible
- Check animals for any seeds hitch kicking
- Education and Identification is key
- Cleaning animals before and after a ride keep your weeds at home and keep the weeds from the trial on “site”
From trail to pasture

• What to do on the trail vs what to do in a pasture

• Control options:
  – Trail
    • Pull plants when possible, Bag all parts
    • If only able to get flowers at least do that do not drop plants on the trail as they will go to seed
    • Contact the county program for assistance
  – Pasture
    • Remove plants from area
    • Pull out by the roots
    • Treat low growing plants with a selective herbicide
    • Replant with pasture grasses
    • Watch the area for 3-5 years
Good pasture management and promotion of beneficial forage is the best way to prevent poisoning.

Poisonous plants, shrubs, and weeds are present everywhere, with education, careful attention and good management, you can prevent them from causing problems with your livestock.

• If given the choice animals will avoid ingesting most toxic plants.

• Poisonous plants may contribute to the death of an animal already suffering from malnutrition or an unidentified illness.

• Most poisonous plants are dangerous only when consumed in large quantities.
Pasture renovation

- Do not over graze
- Take out weeds
- Replant (no till drill)
What can you spot?
What can you spot?