POISONOUS PLANTS THAT AFFECT LIVESTOCK IN DOUGLAS COUNTY

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Poisonous Plants of Douglas County

I. General Information/Management

Between $180 and $220 million dollars of damage is caused by poisonous weeds in the western United States. In Douglas County, the problem is primarily due to **overgrazing**, disturbed land, and overuse of livestock on rangeland and pastures. Overgrazing changes the plant composition and opens the land up to poisonous plants and weed invasion.

Landowners can avoid livestock poisoning in some instances by not turning animals out to graze in early spring. Warm season grasses are usually growing by mid-May or later and it would be advantageous to hold animals until those grasses have begun to establish in order to provide a suitable alternative to the early spring poisonous plants.

The best control of poisonous plants are:

1. Good grazing management using a high quality forage.
2. Avoid fertilization of native rangelands and pastures as fertilization aids weeds. For example, blue grama does not compete well in a heavily fertilized pasture.
3. Do fertilize improved pastures that have competitive plants which are adapted to high fertility and improves their vigor.

A general dryland grass recommendation would be **Russian wild rye, Variety Swift**, that is drought tolerant, can withstand heavy defoliation, produce lots of leaves (700 pounds of dry matter per acre in one year and possibly as much as 1000 pounds of dry matter in a good year per acre). This grass is very palatable and tolerant to grazing although difficult to get established due to the small seed size. Establishment may take two years.

Another grass recommendation would be **crested wheat, variety Ephraim**, a sod forming, rhizominous, drought tolerant plant. Establishment is quick but palatability decreases as the summer progresses. This grass can be mixed with dryland alfalfa to increase productivity and the longevity of the stand.

Poisonous Weeds

A- The Hemlocks (Poison Hemlock and Water Hemlock)

These are the two most toxic plants in Colorado. Poison hemlock grows in deep soils on ditchbanks and other wet areas. It is a member of the carrot family and has a carrot-like flower. The plant looks similar to dill. A hollow stem and purple spots on the stem are also identifiable characteristics. All of the plant is toxic and a minute amount will kill livestock. The plant is not real palatable but is eaten if there are few alternatives. Two tenths of a gram kills a five pound rat 100% of the time. Plants will increase in areas that are suitable for their growth (i.e. - wet, rich soils). This plant is occasionally a problem in hay.

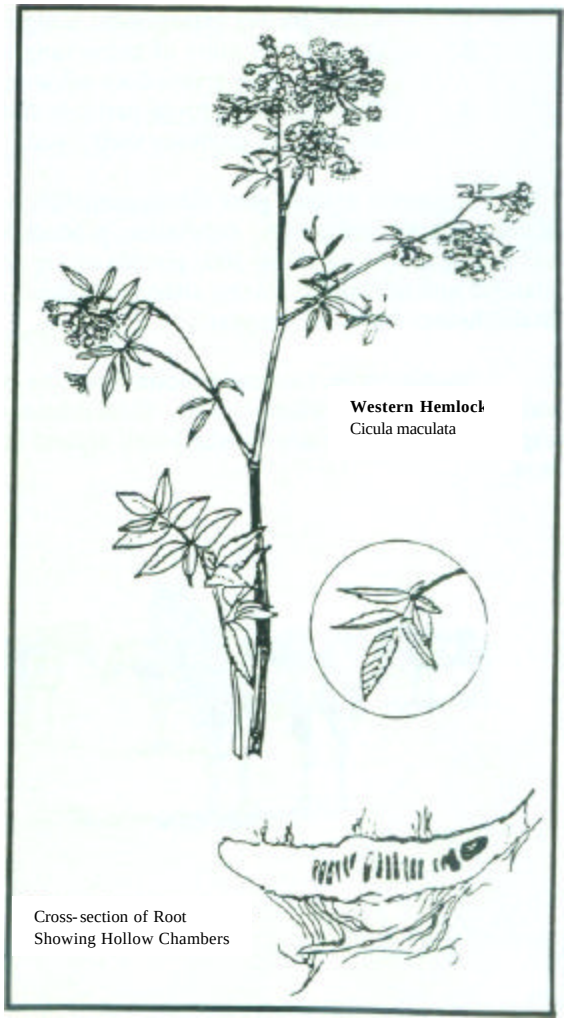
Water hemlock has larger leaves and flowers than poison hemlock but also grows in wet areas. Alkaloids (conine) in the plant are fatal to livestock.

By supplemental feeding of livestock (cattle, horses, sheep, etc.), poisoning can many times be prevented. It should be noted that Hemlock stays green throughout the winter with snow cover so landowners should use caution when snow melts and new grass is growing in conjunction with Hemlock.

Poison Hemlock
Conium maculatum

Look for fernlike leaves

Poison Hemlock stems are covered with purple spots



Western Hemlock
Cicula maculata

Cross-section of Root
Showing Hollow Chambers

B. Lupines

Lupines cause birth defects in livestock (crooked calf disease, crooked lamb disease). They are most toxic during the seed stage. Cattle are affected between 40-70 days of the gestation period. Symptoms include stiff joints, cleft palates , abortions and death at birth. Sheep can also be effected.

Lupines are less toxic than larkspur and are abundant on foothill and mountain ranges. Lupines may comprise up to 60% or more of available plants to livestock in certain areas. The problem is, however, minimal in Douglas County. When seed is set, horses will snap off the pods that are higher in sugar and, unfortunately, alkaloids than is the rest of the plant.

Avoid grazing on land heavily populated with lupine**.** Repeated mowing helps eliminate a lupine stand.

Wyeth Lupine
Lupinus wyethii

Blue or white flowers, palmate shaped leaves, with 6 or 8 leaflets radiating from central point

C. Larkspurs

On a statewide basis, eighty percent of all livestock losses are contributed to tall larkspur. There are 50 or more kinds of alkaloids in each plant. There is no practical way to determine the individual toxicity of specific plants. Tall larkspur is relatively palatable and can be habitually addictive. The plant can be identified by its purple flowers with a "spear" on the back of the flower. The leaves are palmately compound like the fingers on a hand. There are seven species of tall larkspur in Colorado, all of which vary in their toxicity. The most common one is **western tall larkspur**. It is also one of the most toxic. The toxicity of tall larkspur will change as the plant ages. It is most toxic when young, about one-half as toxic when flowering and about one-third as toxic after flowering than it was originally. Tall larkspur flowers have a high sugar content that makes it attractive to horses. Horses are intolerant of all types of toxin and with tall larkspur, the animal dies from respiratory depression (depresses the brain). Other symptoms precede such as staggering, salivation, and a general weakness. **There is no treatment for tall larkspur poisoning.** As little as two-tenths to five-tenths of a percent of body weight will kill most animals.

Ironically, tall larkspur is an outstanding feed for sheep who eat the plant readily. If a landowner were to run sheep through pastures twenty to thirty days ahead of the rest of the livestock, it would reduce other livestock losses. Lambs can gain one-half to three-quarters of a pound per day feeding on tall larkspur.

C. Larkspurs (Continued)

Some management techniques for tall larkspur in small pastures include:

1. Chemical control. Banvel at two and one-half pounds per acre mixed with one-tenth of a pound of 2 - 4D is effective if two treatments are applied during the year in two consecutive years.

   * Tordon applied at one to one and one-half pints per acre.
   (* a restricted use pesticide)

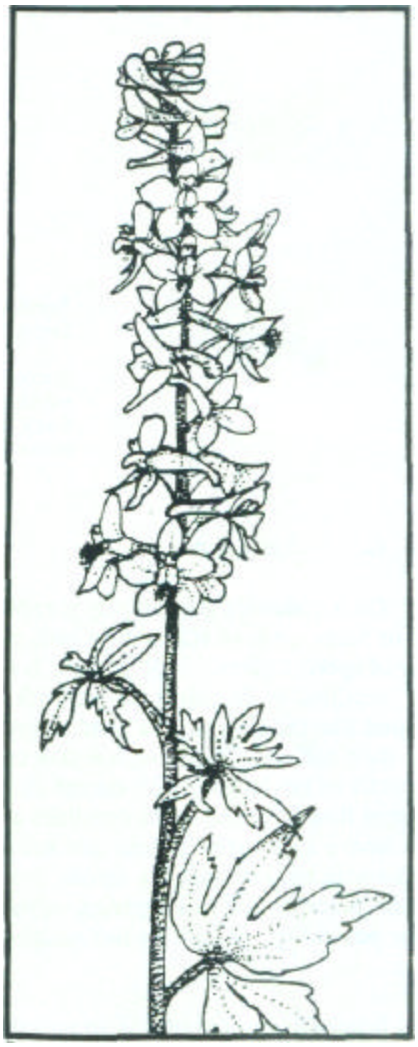
2. Repeated mowings help take out a stand.

Tall larkspur is usually found on moderate to high elevated sites usually where moisture is abundant. It is less prevalent on the dry plains. It can be found anywhere that pine trees are growing.

Low larkspur causes bloat in cattle and can be a problem as livestock move through the mountains. In general, low larkspur is not a problem in Douglas County. Low larkspur has a dark blue to purple flower and can grow to ten inches in height. It has deeply divided leaves and the same alkaloids that are found in tall larkspur. Low larkspur lasts only three to four weeks on the range and plants die soon after they set flowers. The plant can be found on gravelly hillsides and south facing slopes. Symptoms on cattle are bloat, the same as found in tall larkspur. Horses tend to stagger and die quickly from convulsions. There is no anecdote so the treatments are targeted towards the symptoms. Treat with physostigmine.

If an animal has been feeding on pastureland contaminated with larkspur it is best to remove the animal and change pastures. It is important not to stress the animal if they have been feeding on larkspur.

Many people have shown concern over toxicity from larkspur infested hay from the mountains. This is not a problem because the toxicity of the alkaloids diminishes when the plant dies. In addition, the mowing process helps remove the amount of larkspur in the hay by reducing the number of plants.



Larkspur

Blue flowers with one backward facing spur
Similar to garden delphinium

D. Locoweeds (Mitkvetch)

These plants cause rapid and extreme effects on the nervous system. Plants are relatively unpalatable, usually grow on heavy and alkali soils. White loco is the plant that most frequently causes "loco horses". It is found in shallow, gravelly soils. The plant is very toxic and causes sub-acute toxicity. The pods are the most toxic part of the plant. Under poor grazing management, the plant increases dramatically. An animal can consume up to 30% of its body weight in white loco. The animal becomes stagnant, depressed and acts disoriented. Loco horses are schizophrenic and eventually the nervous and liver tissue degenerates. The damage is permanent and symptoms may re-occur in six months without further exposure of the animal to the plant. It should be noted that some locoweed species are never toxic, others only toxic under certain conditions. Usually a problem occurs if there is no other feed available as plants are relatively unpalatable.

Twogrooved Milkvetch
Aslralagus hisulcalus

Silky Crazyweed
Oxytropis sericea

E. Senecios

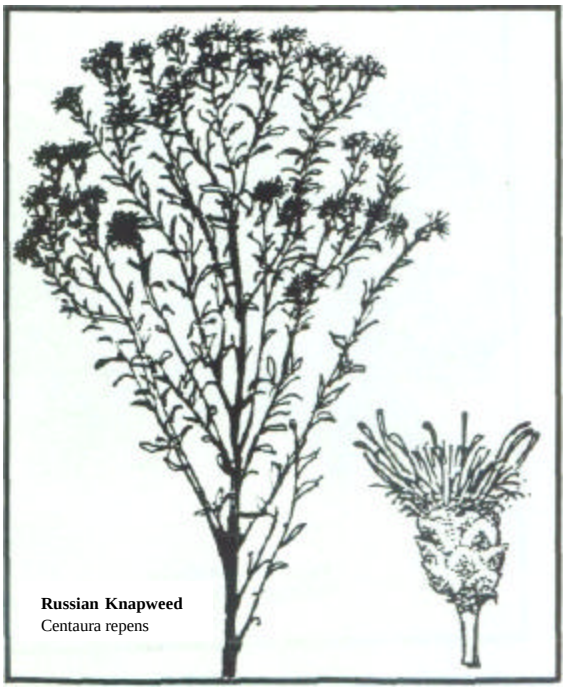
There are about two or three cases of horse poisoning due to Senecio plants each year in Douglas County. Senecios are usually unpalatable in pastures but if an animal starts feeding it can become addicted. Senecio poisoning is characterized by rapid liver failure caused by alkaloids. The condition is irreversible as the poisoning is cumulative. Symptoms include depression, sleepiness, wandering aimlessly, yellow around the white parts of the eye, blisters on the muzzle, lesions, on the alimentary canal. Twenty to one hundred fifty pounds fed upon by horses will cause irreversible damage. Probably one of the most common Senecios is Tansy ragwort. Many of the Senecios are yellow flowering plants found in pastures. It should be noted that other plants that are yellow flowering in pastures may or may not be poisonous and are not Senecios. Usually Senecio plants are sorted out in hay because of its woody properties. The exception to this would be chopped hay.

Tansy ragwort
Senecio jacobaea

Emerging rosette leaves

F. Knapweeds

Russian knapweed is not a terribly toxic plant. It is a problem as a pasture weed and in hay. Horses can be susceptible but usually will not eat knapweed as the eating of the plant has an effect on the area of the brain that controls the swallowing process. The symptoms of Russian knapweed poisoning are paralysis of the pharynx and, if they do feed, animals may become addicted. There is no reversal of the poisoning. Repeated applications of Tordon is an effective way to control Russian knapweed. In addition, sheep will graze Russian knapweed when the plant is young and tender. An effective management tool would be to graze Russian knapweed two or three times in a pasture when the plants are young and then spray with Tordon. **IT SHOULD BE NOTED THAT RUSSIAN KNAPWEED IS NOTA REAL COMMON PLANT IN DOUGLAS COUNTY. Diffuse knapweed**is the most numerous here. The toxicity is unknown at this time. However, diffuse knapweed is suspected of causing the same symptoms.



Russian Knapweed
Centaura repens

III. Feed Crops

All feed crops should be tested for nitrates before they're fed to animals. If nitrate levels are less than 3000 parts per million (ppm), the feed is safe. If 6000-9000 ppm in beef ration, the feed is probably okay but may produce problems. If 9000 ppm or higher, the feed is toxic. Feed that is rained on before it is cut will be high in nitrates a week after the rain. Also, if the hay is cut early in the morning when there is more dew, nitrate levels can be higher.

It is recommended that **alfalfa** and **improved varieties of milkvetch** are the only two legumes to be fed to horses. Alfalfa is not a problem from harvested hay but can be a problem if grazed early before bloom. The immature plants tend to cause the bloat (frothy bloat) poisoning. After bloom or after freeze alfalfa has not shown bloat problems in livestock. A few plants of alfalfa in a pasture or meadow generally is not a concern for landowners. To prevent bloat, use bloat guard blocks (poloxalene) that are fed to cattle.

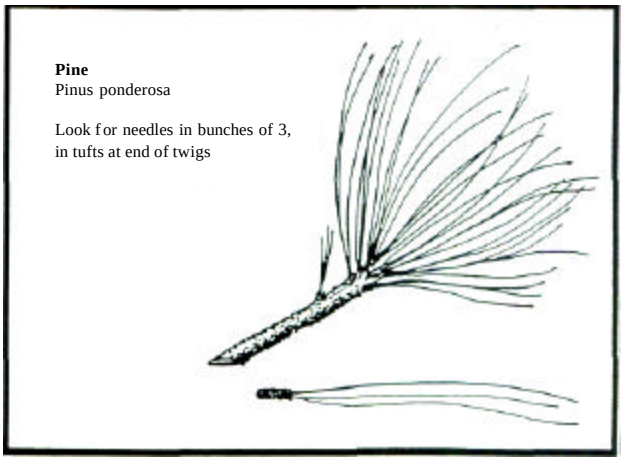
Yellow and white sweetclover problems are of little importance unless moldy or damaged as feed.

Oat hay can cause nitrate poisoning if cut fairly wet or if it molds in the bale.

Millet tends to trap nitrates at the base. **Sorghums** may cause nitrate poisoning. Symptoms of sorghum nitrate poisoning are muddy brown membranes. Nitrate poisoning can be treated with Sodium thiosulfate.

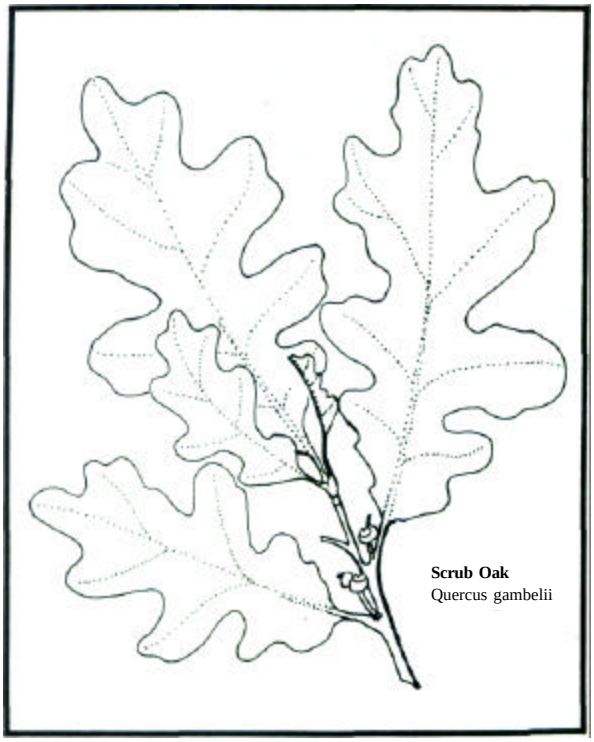
IV. Ornamentals

Pine Needles - can cause spontaneous abortion in cattle in last trimester. The problem usually occurs after a heavy snow and there is no other feed available. Pinine oil in the needles is the culprit.



Pine
Pinus ponderosa

Look for needles in bunches of 3, in tufts at end of twigs



Scrub Oak
Quercus gambelii

Scrub Oak (Gambel Oak) - In late spring when buds or leaves get cold shock, one toxin (tannic acid) affects the digestive tract and oxalic acid affects the kidneys of animals. Diarrhea or constipation are two of the symptoms shown. Calcium plugs occur in the kidneys causing death. There are no treatments for oak poisonings. The animal may recover, however, on their own. The problem usually shows up in yearling cattle in late April or May. Cattle settle in scrub oak during storms or cold nights and eat the buds or immature leaves rather than going out and grazing grass. In horses, oakbrush causes digestive disorders also. It should be noted that the acorns are not toxic. Also only buds and immature leaves are toxic once hit by the cold. All oak plant buds may not be affected. To prevent oakbrush poisoning, provide early feed in the morning.

Chokecherry - Two kinds of poisoning occur. The alkaloid in chokecherry is of low toxicity but cyanogenic glycoside (cyanide) is very toxic. The toxin is in the leaves. The use of phenoxy herbicides (such as 2,4-D) on chokecherry intensifies the toxin and can cause big problems if animals are turned on spray areas before leaves have dropped. The phenoxy herbicide changes the metabolism and makes leaves real sweet after they are sprayed and animals are enticed to feed on them. Chokecherry poisoning occurs in the same way as oak poisoning in the spring (i.e. cold stress). It rarely gets diagnosed in time to treat. If diagnosed early, it can be treated with sodium nitrate/sodium thiosulfate. Check with your veterinarian. Otherwise chokecherry leaves are not real palatable to livestock and actually have a bitter taste.

Chokecherry
Prunus virginiana

Cream colored clusters of flowers in spring

V. Miscellaneous Poisonous Plants

Redroot Pigweed
Amaranthus retroflexus

Pigweed - Hay containing pigweed can cause problems with cattle. Pigweed seeds in the ruminant can cause nitrate poisoning. In the winter is when landowners would notice the problem in hay. There could also be high nitrates in harvested areas where pigweed is abundant. Controlling pigweed is the best preventative method.

Monkshood - Grows in wet, shady soils and areas. It greens up later in the growing season. This plant is a close cousin to tall larkspur, looks like tall larkspur, is more toxic than its close relative. The flower shape of monkshood is different than larkspur and bloom time is August - September whereas tall larkspur blooms in mid-July. This plant is most often found on higher elevations near creeks.

Monkshead
Aconitum columbianum

Dark blue flowers, from a distance similar to Larkspur, but Monkshood flowers have a helmet shaped upper sepal and no backwards spur

Death Camas - One of the first plants that greens up in April. It prefers shallow, clay soils on a southern exposure. A very toxic plant. All parts (leaves, bulb, flower) of the plant are poisonous. Bees have been known to die from the nectar of death camas. The plant looks similar to an onion. Onions, however, have succulent, hollow leaves and death camas has solid leaves shaped like a V. Death camas is relatively unpalatable and can be managed by competition. The old myth is animals have to eat the bulb to be poisoned, however the bulb is six to eight inches below the ground. The above ground parts only grow two to six inches in height. Poisoning is acute and death is quick. It also causes deformities in calves and lambs. Arrowgrass seeds and flowers are similar to death camas. It grows in wet, boggy areas and is less toxic than death camas. Death camas is a close cousin to yucca (which is non-toxic).

Meadow Death Camus
Zigadenus gramineus

V. Miscellaneous Poisonous Plants (Continued)

Horsebrush - Contains glycosides and alcohol products that can cause death in horses. Glycosides in the plant can also cause photosensitization. Symptoms include blistering from sunlight, open sores, and lesions around eyes and ears. To treat horsebrush poisoning put the horse in the barn as detoxification will occur in three to four weeks. Horsebrush also effects sheep and cattle but is not real palatable and takes great quantities ingested to kill livestock. The plant is found most often in mountain valleys.

Little Leaf Horsebrush
Telradymia glabrata

Dark green leaves, sharply pointed

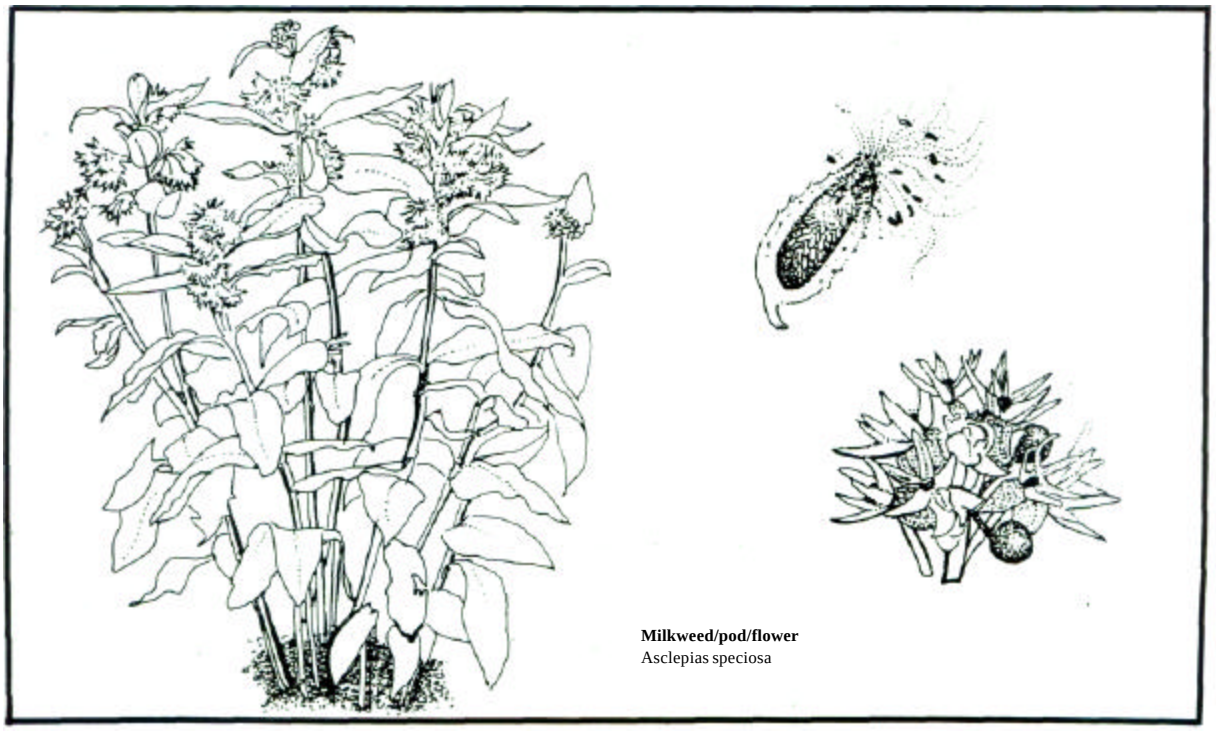
Greasewood
Sarcobatus vermiculaius

Many ihorns, bright green fleshy leaves

Greasewood - This plant grows in heavy or sdty soils on dry sites. Oxalates in the plant cause an accumulation of crystals in the kidneys causing kidney failure. The plant is most toxic when leaves first appear in the spring. Horses, sheep and cattle all are susceptible but cattle and sheep are more tolerant. The plant grows to 5 feet tall.

V. Miscellaneous Poisonous Plants (Continued)

Showy Milkweed - All milkweed plants are poisonous. Showy milkweed gets four feet tall. It is a common pasture weed and also found in ditchbanks, especially in irrigated areas. The plant contains lactone, which makes it bitter and unpalatable. Lactone causes lesions on lips. One-half to twenty pounds of milkweed will kill a horse. Symptoms include depression, lack of coordination, difficulty in breathing. The plant is found in hay that has been harvested from ditch areas. A milky latex or sap is present as a diagnostic tool for identification.



Milkweed/pod/flower
Asclepias speciosa

Broom Snakeweed – A common range plant that increases with overgrazing. It is usually a minor problem except in drought situations. It greens up early in the spring before other plants. The plant causes spontaneous abortions and sub-acute poisonings.

Broom Snakeweed
Guitierrezia sarothrae