UPLAND WEEDS on the JICARILLA NATION

or

What Is GREEN on the RANGE Is NOT ALWAYS EDIBLE

by

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Jicarilla Reservation Attributes

- 880,000 acres of trust land
- 20% open range
- 28% shrub infested range
- 29% woodland PJ-oak
- 15% commercial timber
- 7% other - badlands, rock outcrops, roads, oil and gas development
Wildlife/Hunting/Fishing

Welcome to the Jicarilla

The Jicarilla Apache Indian Reservation encompasses 840,000 acres of scenic mountains and rugged mesas in northern New Mexico. The reservation extends 70 miles.

Accommodations

Headquarters for the Jicarilla Apache Tribe is located in Dulce. Dulce can be reached via US Highway 64 from...
Oil and Gas Resources

- Major revenue source
- Loss of rangeland and wildlife habitat
100 Range Units

Summer and winter ranges
Sizes vary from 2,500 to 20,000 acres
10-20 inches precipitation
Sagebrush grassland to Douglas fir
Small family-run livestock operations
Noxious Weed Inventory

- Weed inventory began in 1989
- Personnel changes and budget reductions have inhibited continuity in an effective weed management program
- A GIS and GPS spatial database has been initiated to identify weed types and spatial distribution on the north half
Tribal Perspective

While the goal to treat weeds has been present, the follow-up by the BIA and the Jicarilla Apache Nation has been limited.

- Lack of effective coordination between BIA and JAN
- Lack of awareness regarding the serious effects of weeds
- JAN EPO strict regulation of use of chemicals on the reservation
- Increased new construction and disturbances
- Consistent funding of a weed management program
- Licensing and training procedures are cumbersome
Goals

• Develop a weed management plan based on weed inventory and mapping
• Establish a coordinated communication process between involved parties – NMDOT, JAN, BIA, Oil and Gas companies, USFS, BLM, etc.
• Treat high priority and troublesome plants in critical environments
• Educate local public to avoid an increased regulatory environment
• Follow-up monitoring and treatment
Weeds vs Invasive Transformers

- **Weeds** – unwanted plants that are out of place, or interfere with land management objectives
- **Invasive transformers** – alter the landscape, making it difficult for native plants to survive
Weed List

- Musk thistle
- Canadian thistle
- Russian knapweed
- Cheatgrass
- Whitetop
- Larkspur (toxic alkaloids)
- Sagebrush
- Salt cedar
- Jointed goatgrass
Musk Thistle

Musk thistle
Carduus nutans L.

Musk thistle is biennial or sometimes a winter annual, which grows up to 6 feet tall. Leaves are dark green with light green midrib, deeply lobed, and spiny margined. Leaves extend onto the stem giving a winged appearance. Flower heads are terminal, solitary, 1 1/2 to 3 inches in diameter, and usually bent over. Flowers are deep rose, violet or purple, occasionally white; they are subtended by broad, spine-tipped bracts. Fruit is 2 1/6 inches long, shiny, yellowish-brown with a plume of white hair-like fibers.

Musk thistle was introduced to the U.S. in the early part of the century and is now widespread throughout the U.S. and Canada. It is native to southern Europe and western Asia. It invades pasture, range and forest lands along with roadsides, waste areas, ditch banks, stream banks and grain fields. It spreads rapidly forming extremely dense stands which crowd out desirable forages. Chemical control is effective. An introduced biological control agent, the musk thistle weevil, feeds on the seeds and can limit the spread of this plant.
Musk thistle

- Nodding thistle
- Each plant can produce 10-20,000 seeds, 1/3 of which can be viable
Cheatgrass

**Downy brome**
*Bromus tectorum* L.

Downy brome is an annual or winter annual, 4 to 30 inches tall, reproducing by seed. Leaf sheaths and flat blades are densely covered with soft hair. Ligules are short. Inflorescence is dense, slender, usually drooping, 1-sided, 2 to 6 inches long. Spikelets are nodding, slender 3/8 to 3/4 inch long. Ausens are 3/8 to 5/8 inch long, usually purplish at maturity.

Downy brome was introduced from the Mediterranean region in packing material and first found near Denver, Colorado. It is now widely distributed throughout North America and is common along roadsides, waste areas, reseeded pastures and rangelands, and cultivated crop areas. Although downy brome is considered an invader, in certain intermountain ranges it has become the primary green forage utilized by livestock. The plant competes with more desirable perennial grasses for moisture because of its winter and early spring growth habit. After maturity it becomes a nuisance and a fire hazard. It is also a common crop seed contaminant very difficult to separate from grass seed.

Non-standard name: cheatgrass.
Cheatgrass

- Over 40 million acres infested in the west

- Has become more prevalent in the past 4 years during drought
Canada thistle

*Cirsium arvense* (L.) Scop.

Canada thistle is a colony-forming perennial from deep and extensive horizontal roots. Stems are 1 to 4 feet tall, ridged, branching above. Leaves are alternate, lacking petioles, oblong or lance-shaped, divided into spiny-tipped irregular lobes. Flowers are unisexual, on separate plants; flowers purple (occasionally white) in heads 1/2 to 3/4 inch in diameter; involucral bracts spineless. Fruits are about 1/8 inch long, somewhat flattened, brownish, with a tuft of hairs at the top.

Canada thistle is a native of southeastern Eurasia. It was introduced to Canada as a contaminant of crop seed as early as the late 18th century. Canada thistle differs from other species of the true thistle in that there are male and female flower heads, and these are on separate plants. By asexual reproduction, it is possible that a colony of male plants would produce no fruits, but still maintain itself. This aggressive weed is difficult to control; for example, breaking up the roots by plowing only serves to increase the number of plants. Flowering occurs during July and August.

*Early spring growth appears as rosette with spry leaf, hairy stems.*

*Clusters of purplish flower heads up to 1/2 inch across appear in late summer on thin peduncles. Roots under the flowers are abundant.*
Canada thistle

Most prevalent in mountain valleys and agricultural areas
Whitetop

A deep rooted perennial up to 2 feet tall, reproducing from root segments and seeds. Leaves are blue-green in color, lance-shaped. Lower leaves are stalked; upper leaves have two lobes clasping the stem. Plants have many white flowers with four petals, giving the plant a white, flat-topped appearance. Heart-shaped seed capsules contain two reddish-brown seeds separated by a narrow partition. Plants emerge in very early spring and have bloomed and set seed by mid-summer.

This perennial is common on alkali flats, disturbed soils and is highly competitive with other species once it becomes established. It can be controlled effectively with herbicides. Two other Cardaria species, long-podded whitetop (C. longiflora L.) and hairy whitetop (C. pulvinata (C.A.Mey) Jarmolinski) are common in the western U.S. with differences in seed capsules and fruit used to identify each species.

Non-standard name: whitetop.
Hoary Cress (Whitetop)

- Becoming more prevalent along roadsides and wet areas
- 75% biomass lies in the roots
Sagebrush
Russian knapweed

Centauria repens L.

Russian knapweed

Asteraceae
(Sunflower family)

Russian knapweed is perennial, forming dense colonies by adventitious shoots from widely spreading black roots. Stems are erect, openly branched, 18 to 36 inches tall. Lower leaves are deeply lobed, 2 to 4 inches long; upper leaves entire or serrate, narrow to a sessile base. Cone-shaped flowering heads are 1/4 to 1/2 inch in diameter, solitary at the tip of hairy branchlets. Flowers are pink to lavender. Many pearly involucral bracts form with rounded or acute papery margins.

Russian knapweed is a native of Eurasia, probably introduced in North America about 1888. It is now widely established in the western U.S. This species forms colonies in cultivated fields, orchards, pastures and roadides. Russian knapweed plants spread by black, deep growing roots which penetrate to a depth of over 8 feet. Flowering occurs from June to September.

Leaves of newly-emerging plants are toothed and serrated with green hue, giving them a blue-green color.

Flowers of this perennial are pinkish-purple. Bracts have papery papery tips.
Russian knapweed infestation

- Prefers clay soils and favorable moisture regimes
- Allelopathic plant – toxic to other plants
- Has a 20 foot deep root system
- Spreads in area by 27% per year
Russian knapweed

Spread by oil and gas vehicles on reservation roads
Larkspur

Low larkspur
Delphinium nudatum Pritz. ex Walp.

A simple, rarely branched perennial, typically reaching 10 to 20 inches in height, arising from a shallow, clustered, tuberous root system. Leaves are deeply parted into linear finger-like lobes. Large showy flowers are blue-purple or sometimes pale blue to white, with prominent spurs. Normally 3 spreading, beaked, seed follicles form from each flower.

Low larkspur is widespread throughout the West. It is listed by some authors as *D. nudatum* DC. and *D. nudatum* Greene. At least 20 species or varieties of Delphinium are reported in the western U.S. Like many other members of the genus, low larkspur is poisonous to livestock.
Low Larkspur

- Grows 10-20 inches
- Produces toxic alkaloids
- Know what’s in your pasture
Jointed Goatgrass

*Jointed goatgrass*
*Aegilops cylindrica* Host

Jointed goatgrass is a winter annual, 15 to 30 inches tall with one to many erect stems or tillers. Leaves are alternate, simple, with auricles at the base and a leaf blade 1/8 to 1/4 inch wide, with hairs. The spike is cylindrical, more than 10 times as long as it is wide. It contains 2 to 12 spikelets that fit into the contour of the rachis, spikelets 1/2 inch long with 1 to 3 viable seeds. Glumes several-ribbed with a keel on one side extending into a single awn or beard. At maturity, spikelets separate with a segment of the rachis still attached.

Jointed goatgrass is native to southern Europe, but it is now established in most winter wheat growing areas of North America, spread as a weed contaminant or by custom combiners. It is found mostly in wheat fields, but it survives along road sides, in waste areas, alfalfa fields and pastures. The plant is most difficult to control in areas where winter wheat is grown continuously. Flowering and seed production may occur from May to July.

Non-standard name: jointgrass.
Oil and Gas Disturbance

- 3,000 active wells on the reservation
- Projected increase of an additional 3,000 wells in the next 10-15 years
- A major contributor to weed establishment
Control Methods
Integrated Weed Management (IWM)

• Biological
• Mechanical
• Cultural (grazing)
• Chemical
Biological Control

Dr. Mark Schwarzlaender
Professor of Biological Weed Control, U of Idaho
Bugs in the Bag

Net used to collect bugs in Russian knapweed
Rhinocyllus conicus weevil

Controlling musk thistle on the Jicarilla Apache
Reseeding Highway Construction in Dulce

Timely reseeding of disturbed areas deters weed establishment
Mechanical Treatment

Safety of Dams program uses mowing and disking to control weeds
Goat Power--Grazing Control of Musk Thistle
Sagebrush Treatment

- Spike – tebuthiuron
- Aerial application using GPS technology
- Over 10,000 acres treated
Weed Awareness

NMDOT has been very proactive in treating weeds along highway ROWs.

Dulce is a primary source of weed seed.

There is a need for a more effective weed management program.