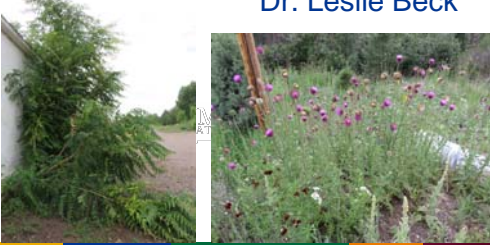




Invasive and Noxious Weeds of New Mexico


Dr. Leslie Beck


What is a weed?



- A plant out of place?
- Any plant that is objectionable or interferes with the activities or welfare of man (WSSA)
 - Often objectionable because they interfere




Weed definitions




- Native plant – part of the balance of nature that has developed over hundreds/thousands of years in a particular region or ecosystem
 - Only plants found in US prior to European settlement
- Non-native – plant introduced with help (human, animal, weather) to a new place or habitat where it was not previously found
 - All non-native plants are invasive
 - Introduced intentionally or accidentally
 - Salt cedar, kudzu, etc.

Weed definitions




- Exotic – plant not native to the continent on which it is now found




Saltcedar Common bermudagrass

Weed definitions




- Introduced species – (alien species)
 - Some have become naturalized
 - Possibility of local problem but not substantial
 - Ex: bermudagrass
 - Others naturalize, spread beyond their introduced ranges
 - Species invasive ability is high (possibly unforeseen)
 - Lack of natural predators or environmental conditions to limit population spread
 - Ex: kudzu
 - In the worst case, they *transform* the ecosystem
 - Ex: saltcedar

Weed definitions



- Invasive weed – A plant that is able to establish, grow quickly, and spread to the point of disrupting plant communities or ecosystems
 - Generally detrimental to native pop.
 - Can cause economic or environmental harm
 - Harm to human health
 - Ex: Kudzu 'eating the South'



Invasive weeds

- Native species could become invasive but are not considered to be particularly harmful
 - Ex: Coulter's horseweed (*Laennecia coulteri*), native to Southwestern states

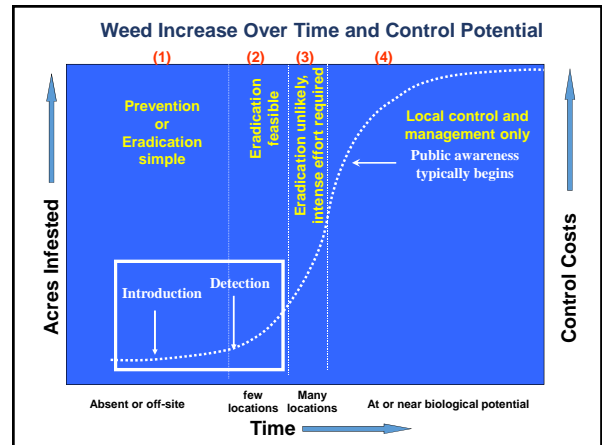


Problems with Invasive Weeds

- Global in scope
 - This is not just an issue within the United States
 - Significant risks to AG, ranching, industries, forestry, native landscapes, protected lands, fisheries, parks and recreation, residences, roadsides, etc.
 - Ex: Invasive weed species will be the number one problem in national forests within the next 10 years
 - Already the case?
 - Surpassing fire management

Invasive Weeds

- Time lags** – Lag between the time when a species is introduced and when its population growth explodes
 - Variable depending on the species
 - Short: mostly annuals (cheatgrass)
 - Long: long-living perennials (tree-of-heaven)


Weed definitions

- Noxious weed** – Any plant designated by Federal, State, or county government as injurious to public health, AG, recreation, wildlife, or property
 - All listed noxious weeds are invasive...
 - Not all invasive plants are considered noxious
- Reason for listing – weed is targeted for management or control because of its negative impact on the economy or the environment
 - New Mexico Noxious Weed Management Act of 1998

Impacts of Noxious Weeds

- Plant community**
 - Forage production, species extinction, degradation of native plant communities, changes in the ecosystem
- Wildlife**
 - Changes in habitat, grazing, adjustments in the food chain
- Watershed**
 - Increase in water runoff, erosion, and wildfire
- Recreation**
 - Loss in wildlife related recreation, hunting, camping, hiking, etc.

Management of Noxious Weeds



- Similar to the steps of managing a wildfire
 - Prevention
 - Smoky the Bear is particularly fond of this step
 - Detection
 - The earlier the better
 - Suppression (control/management)
 - Rapid response is key
 - Once fire has started containment and limiting the progress of the fire is key
 - Revegetation
 - Once fire has extinguished

Noxious Weeds




- New Mexico currently has 45 listed noxious weeds
 - Last updated in 2009
 - Committee is meeting to update the state list before the end of this year

http://www.nmda.nmsu.edu/wp-content/uploads/2012/01/weed_memo_list.pdf
- Federal list has 112 listed noxious weeds
 - Ex: onionweed


https://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/weed_list.pdf

Classes of Noxious Weed Species in New Mexico





- Class A Weeds: Not currently in NM or limited distribution
 - Top priority: preventing new infestations and eradicating current infestations
- Class B Weeds: Limited to a particular area in NM
 - Top priority: prevention and eradication of small populations
 - In infested areas: containment and prevention of spread are the priority

Classes of Noxious Weed Species in New Mexico




- Class C Weeds: Widespread throughout NM
 - Management decisions should be made at a local level based on feasibility of control and severity of infestation
- Watch List: Species of concern, that have potential to become problematic
 - More data needed to determine if plant should be listed
 - If plant is encountered, document location and contact appropriate authorities (county agents, specialists, NMDA)

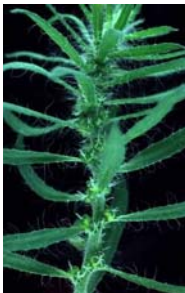
Invasive and Noxious Weeds in New Mexico

Kochia (*Kochia scoparia*)



- Invasive – Summer annual



Leaves long, narrow

No leaf stems (petioles)

Dull green in color

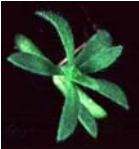

Covered in soft, fine hairs

Seeds in clusters

Can produce 14,600 seeds per plant

Becomes tumbleweed when mature

Because of prolific seed production, can easily push out native and Ag plants

Silverleaf nightshade (*Solanum elaeagnifolium*)

• Invasive - Perennial

Member of the tomato family

Spreads by aggressive rhizomes; forms a clonal colony

Foliage covered in small, star shaped hairs-dusty gray appearance

Leaves have characteristic 'wavy' margins

Numerous toxic prickles on stems/leaves; often red in color


Large purple/blue flowers; yellow stamens

Fruit are small, tomato-like berries

Fruit become more bright/yellow when mature

Toxic if ingested

Rhizomatous colonies push out native and Ag plants






Bermudagrass (*Cynodon dactylon*)

• Introduced invasive: Perennial

Seedlings are hairless





Older plants may develop hairs on blade or sheath

Hairy ligules

Finger-like seedhead

Spreads by rhizomes and stolons

Highly invasive along with high seed production

Coulter's horseweed (*Laennecia coulteri*)

• Native invasive – Summer annual

Erect growth similar to mare's tail (horseweed)

Stems and leaves are densely covered in soft hairs

Narrow oblong leaves





Leaf margins are coarsely toothed

Leaves at the base of the plant have petioles (leaf stems)

Leaves at top of plant are sessile (no petioles)

Seedheads are branched seed head puffs (similar to dandelion)

One plant can hold up to 250 of the dandelion-like seed heads, lots of seed can push out native and Ag plants

Whorled milkweed (*Asclepias verticillata*)

• Native invasive - perennial

Re-grows from spreading rhizomes

Erect growth up to 4 feet tall

Very long, slender leaves that are strongly revolute (rolled downward)





Leaf margins are entire

Central stem is yellowish green with vertical lines of pubescence

Cream-colored flowers with 5 petals grouped together in dense, umbrella-like clusters

Long hairs give seed high mobility

Very toxic to livestock

Camelthorn (*Alhagi psuedalhagi*)

• Class A: Perennial

Aggressive rhizomes can spread up to 30 feet (6 feet deep)

Plant is usually light green in color

Leaves smooth, oval to lance-shaped, and margins entire


Recognizable by long spiny branches



Each spine tip will be tan/brown/dark brown in color

Spines can over 2 inches long

Flowers are pinkish purple, small and pea-like

VERY aggressive, easily crowd out native and AG plants



Yellow Toadflax (*Linaria vulgaris*)

• Class A: Perennial

Grows up to 3 feet tall

Spreads by underground rhizomes which helps form colonies

Leaves are numerous dispersed along stem

Leaves are narrow, hairless, and have pointed tips




Flowers resemble snapdragons (spur-like appendage at the base)

Flowers are yellow with hairy, orange throats

Flowers bloom in the summer and smell bad


Also known as butter and eggs

Can easily crowd out native and AG plants

Russian knapweed (*Acroptilon repens*)

- Class B: perennial



Grows from a basal rosette

Newly emerged/lower leaves are toothed and covered in fine hairs

Upper stem leaves smaller with toothed or entire margins

Leaves are bluish-green in color

Spreads via aggressive rhizomes

Rhizomes help form a colony


Pink/purple flowers

Outer bracts under flower heads have broad, papery tips

Forms dense colonies that quickly push out native plant species

Malta starthistle (*Centaurea melitensis*)

- Class B: annual/biennial



Looks very similar to yellow starthistle (Class A)

Start as a basal rosette

Grayish-green leaves with stiff hairs

Leaves attach to stems to form "wings"

Flowers appear slightly earlier (June) than yellow

Yellow flowers


flowers and spines smaller than yellow

Flower spines are slender and purple-brownish tinged

When infestations are high, native species can experience drought, even in the presence of rainfall

Musk thistle (*Carduus nutans*)

- Class B: Biennial



Grows from a basal rosette

Both leaves and stems have sharp spines

Leaf margins are deeply lobed with white tinge

Leaves dark green with light green midrib

Leaf bases extend down to stem, creating spiny wings

Long hairs only along main leaf veins

Bright pink/purple flowers atop long erect stalks

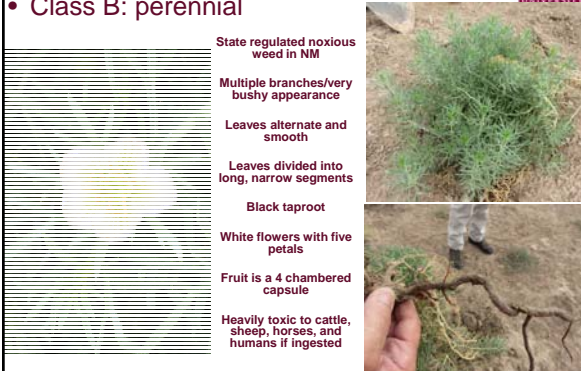
Spines on flowers as well

Invasive to native and Ag plants

Spines can be harmful to grazing livestock and wildlife

African rue (*Peganum harmala*)

- Class B: perennial



State regulated noxious weed in NM

Multiple branches/very bushy appearance

Leaves alternate and smooth

Leaves divided into long, narrow segments

Black taproot

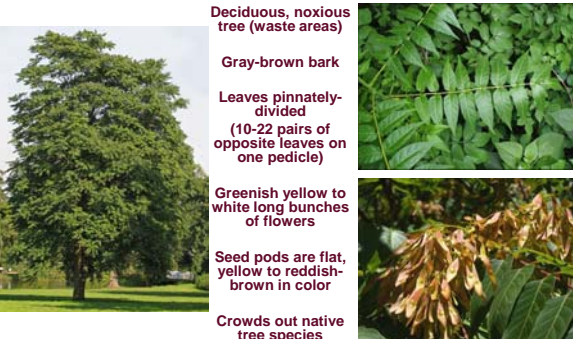
White flowers with five petals

Fruit is a 4 chambered capsule

Heavily toxic to cattle, sheep, horses, and humans if ingested

Tree of heaven (*Ailanthus altissima*)

- Class B: perennial



Deciduous, noxious tree (waste areas)

Gray-brown bark

Leaves pinnately-divided (10-22 pairs of opposite leaves on one pedicle)

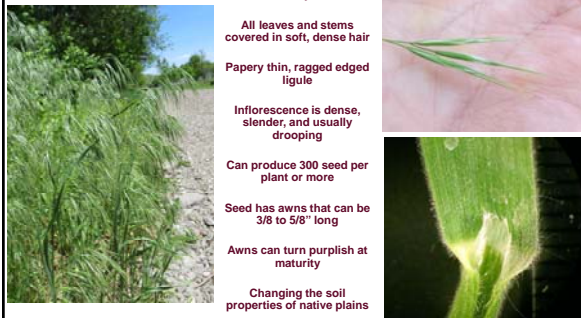
Greenish yellow to white long bunches of flowers

Seed pods are flat, yellow to reddish-brown in color

Crowds out native tree species

Cheatgrass (*Bromus tectorum*)

- Class C: winter/summer annual



Aka: downy brome

All leaves and stems covered in soft, dense hair

Papery thin, ragged edged ligule

Inflorescence is dense, slender, and usually drooping

Can produce 300 seed per plant or more




Seed has awns that can be 3/8 to 5/8" long

Awns can turn purplish at maturity

Changing the soil properties of native plains

Jointed goatgrass (*Aegilops cylindrica*)

- Class C: summer annual

Bunch-type growth (up to 2.5 feet tall)

Seed can hybridize with winter wheat (similar in appearance)

Seeds of hybrids usually sterile

Leaves alternately arranged

Long hairs on leaf margins and sheaths

Auricles present




Spike-inflorescence cylindrical in shape

Seedhead contains 2-12 cylindrical seeds that fit into the contour of the rachis (main stem)

Can invade wheat and forage crop production lands in production and in fallow

Bull thistle (*Cirsium vulgare*)

- Class C: biennial

Grows from a basal rosette

Both leaves and stems have sharp spines

Spines much more pronounced than musk thistle

Leaf margins deeply lobed

Leaves prickly and hairy on upper surface, cottony underneath




Flowers clustered at the ends of branches on erect stalks

Bright pink/purple flowers with spiny bracts

Outcompetes native plants and desirable wildlife and livestock forage plants

Salt cedar (*Tamarix ramosissima*)

- Class C: perennial

Can be deciduous or evergreen

Bark on saplings and stems is reddish-brown

Leaves small and scale-like

Leaves are on slender branched stems

Small pink flowers borne in finger-like clusters

Mature flowers small with five petals

Can transpire up to 100 gallons of water a day

Changes the soil composition of riparian lands

Russian olive (*Elaeagnus angustifolia*)

- Class C: perennial





Fast growing tree

Trunks and branches have 1 to 2" thorns

Leaves are narrow with light colored veins

Leaves covered in minute scales (give plant scaly appearance)

Scales more abundant on underside of leaf




Flowers yellow with olive-like fruit

Fruit are silvery at first but mature to tan or brown

Crowds out important native riparian plants and wildlife habitats

Siberian elm (*Ulmus pumila*)

- Class C: perennial

Deciduous, noxious tree

Light or dark gray bark

Leaves oval shaped with toothed margins




Reddish-pink flowers in drooping clusters

Seed pods thin, papery, green/brown, with deep notch at tip

Rapid growth can easily crowd out native species

Quackgrass (*Elytrigia repens*)

- Watch List: perennial

Perennial grass

Rolled vernation

Spreads through extensive rhizomes

Short membranous ligule




Long, clasping auricles

Listed in 41 states as a noxious weed

Easily crowds out agricultural plants

Spiny cocklebur (*Xanthium spinosum*)

- Watch List: summer annual

Upright growth, can be up to 4 feet tall

Leaves are shiny, dark green, sparsely hairy on upper surface, softly hairy underneath

Stems are hairy and branching

Flowers are small, inconspicuous, and a creamy green color

Fruit are egg-shaped burrs, armed with hooked spines

Each burr has 2 seeds

Burrs are a nuisance to grazing livestock and humans

Seeds are toxic to humans and livestock



Who to contact?

- Your local County Extension Agent
<http://aces.nmsu.edu/county/>
- University Specialists
NMSU
Leslie Beck
Extension Weed Specialist
- Diagnostic website
plantclinic.nmsu.edu



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Cooperative Extension Service

Ask Our Answer People

For even more help, visit our [Extension Calling Directory](#)

Click a county to go to its extension website.

1. Bernalillo	14. McKinley
2. Catron	15. Mora
3. Chaves	16. Otero
4. Cibola	17. Quay
5. Colfax	18. Rio Arriba
6. Curry	19. Roosevelt
7. De Baca	20. San Juan
8. Doña Ana	21. San Miguel
9. Grant	22. Sandoval
10. Guadalupe	23. Santa Fe
11. Hidalgo	24. Socorro
12. Lincoln	25. Taos
13. Los Alamos	26. Terrell
14. Luna	27. Union
15. McIntosh	28. Valencia
16. Mora	29. Yuma

CSIS map (PDF)

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Plant Diagnostic Clinic

- Plant Diagnostic Clinic Home
- Personnel
- Upcoming Events
- Clinic Development
- Diagnostic Statistics
- Submission Forms
- Publications
- First Detector Resources
- PowerPoint Presentations
- Master Gardener Resources
- "News You Can Use"
- Disease Gallery
- Useful Resources
- NMSU Distance Diagnostic System

Bacterial leaf scorch on chitalpa

Plant Diagnostic Clinic

The Plant Diagnostic Clinic is designed to provide plant diagnostic services for the state of New Mexico. Our services include analysis of plant material for plant pathogens and environmental stresses as well as suggesting appropriate control measures when available. The clinic also facilitates insect and weed identification through referrals to other specialists. Our clients include Extension Personnel, Crop Consultants, Growers, Retailers, Landscape Professionals, Golf Courses, Researchers, Government Agencies, and Homeowners.

The Plant Diagnostic Clinic works very closely with the New Mexico Cooperative Extension county offices. For initial assistance with plant problems contact the county extension office near you. The County Extension staff will assist you with sample submission to the clinic, if needed. No diagnostic service fees will be applied to samples submitted through extension offices. If you would like to use our services directly, please review the pages of this document for information on fees, how to collect and send a sample and the required sample submission form. A sample that was improperly collected, packed, and/or shipped and arrives in poor condition

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Please be advised: if pests of regulatory significance are identified on submitted samples, we are required to notify the New Mexico Department of Agriculture.

Submission Forms

When submitting samples for analysis:

- Always use a submission form:
 - Plant Specimen Submission Form
 - Arthropod Identification Form
 - Plant and Weed Identification Form
 - Hermetiable Soil Analysis Submission Form
- For information on how to collect the best sample please see the Guidelines For Submitting Samples.
- Providing as much information on the form as possible will help in ensuring an accurate diagnosis of the problem.
- Make sure you include the form with your samples. You may also want to keep one copy of the form for your records.
- Include your fax number or email address and indicate how you would prefer to receive the results.
- It is helpful if the sample is taken from an area that has early symptoms of the problem. Areas that are completely dead are insufficient for diagnosis.
- Please include a check for the appropriate amount when submitting to the clinic directly. See the Fee Schedule for additional information. Checks need to be made out to NMSU Plant Diagnostic Clinic.

ACES Calendar
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