

Invasive Plant Management - Rangeland Principles (Note Guide)

Why Care? ... The spread of noxious weeds:

- Signal ecological decline of entire watersheds.
- Reduce beauty and biodiversity of natural areas.
- Cause widespread economic losses in agriculture and recreation.
- Problem for all lands: urban, rural, private, state, and federal lands.
- Noxious weed species spare no segment of society—rancher, farmer, fisher, and cyclist alike
- Can't leave well enough alone - when unmanaged, they spread rapidly, unceasingly, and silently.

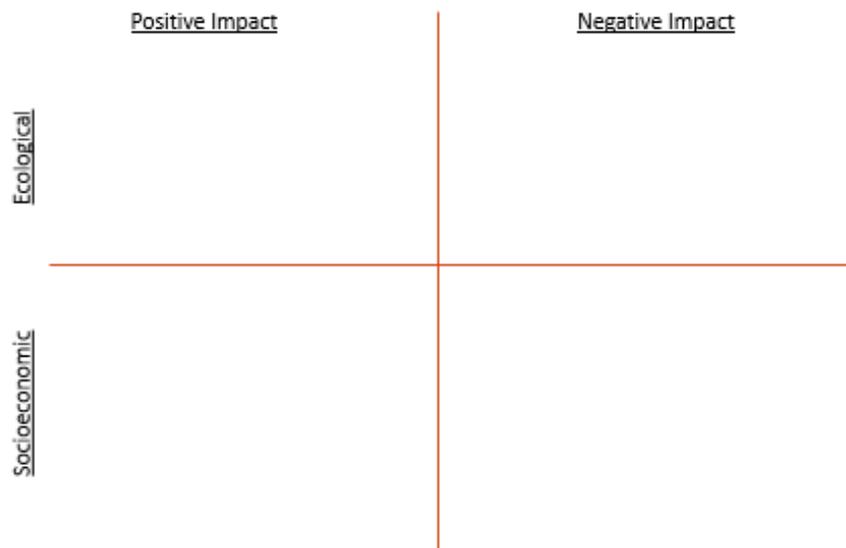
Invasive/Noxious Weeds:

- <https://www.cals.uidaho.edu/edComm/pdf/bul/bul0816.pdf>
- <http://invasivespecies.idaho.gov/control-strategies/>
- <http://www.idahoweedawareness.net/vfg/weedlist/weedlist.html>

Exotic Invasive Species – more than just plants

- Animals (e.g., wild boar, starling)
- Insects (e.g., fire ants, killer bees)
- Microbes (e.g., white nose syndrome in bats, chestnut blight)
- Viruses (e.g., zika virus, west nile virus)

Why are Weeds Bad... or Good



What can be done?

- Prevention: the single best way to limit impacts of nonnative species
- Early Detection and Rapid Response
- Eradication: may be feasible early in an invasion or in a restricted area
- Control:
 - **biological:** introducing a natural enemy, predator or parasite
 - **chemical:** pesticides, herbicides, and fungicides
 - **mechanical:** physically removing the invasive species or changing the habitat conditions
- Research: provides the basis for invasive species action
- Restoration: minimize the chance an area will be reinvaded
- Education and Public Awareness

Land Planning with Weeds

- Prevention
 - Consider vectors of introduction
 - Develop plans to minimize introduction
 - Minimize disturbances that may favor weeds
- Early Detection
 - Develop strategy for early detection
 - Eradicate when possible

Maintain Healthy Plant Communities



Figure 1. A healthy, weed-resistant plant community consists of a diverse group of species occupying all the niches (sites) and using all the resources in the system, keeping them from weeds.

Weed Control Approaches

Chemical Control – Proven uses of herbicides on rangelands:

1. Control undesirable plants to favor more desirable species.
2. Increase effectiveness of mechanical, fire, or biological methods.
3. Rejuvenation of tall shrubs and low trees, used as forage by big game
4. Eradication of poisonous plants
5. Eradication of small infestations
6. Kill existing community to prepare for range seeding or planting
7. Maintenance control or retreatment when applied periodically following primary treatment.

Mechanical - removal or damage to weeds with physical/mechanical forces

- Brush Sculpting
- Chains
- Shredding/Mastication

Biological - suppress weeds with living organisms including parasites or pathogens.

...the planned use of living organisms to reduce the vigor, reproductive capacity, density, or effect of weeds...

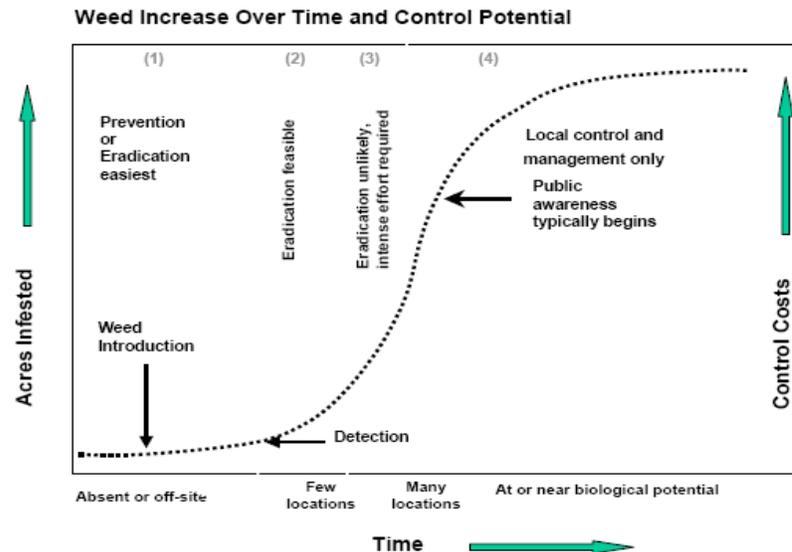
Requirements necessary for biological control agents to be successful:

1. Destructive enough to control weeds
2. Host specific enough to not endanger non-target species
3. Able to survive and reproduce in target environments

Cultural - alter land management practices (fertilize, cultivate, graze, burn) to suppress weeds

- Targeted grazing = Cultural Control by carefully controlled grazing practices

What can be done?



Weed Survey

- Collect information about weed biology and ecology.
- Document growth requirements
- Identify sites susceptible to invasion
- Evaluate progress of weed management plan

Weed Mapping

- Delineate extent
- Document control activities
- Monitor spread overtime

Integrated Weed Management = Mechanical + Chemical + Biological + Cultural = Keep weeds to manageable level with individual or combination of techniques

Coordinated Weed Management Groups

- Develop plans across land ownerships
- Leverage resources
- Time
- Equipment
- Money
- Expertise
- Apply for state and federal funds

Monitoring and Evaluation

- Was weed population adequately suppressed?
- Was cost of suppression acceptable?
- What were non-target effects?
- Should treatment be repeated or modified?
- Were land management goals met?

Steps to Follow for Weed Control:

- 1) Prioritize goals:
 - Do you aim to eradicate or merely contain an infestation?
 - Which weeds are your highest priorities in the short-vs. long-term?
 - What are the potential impacts of the various weeds that you may treat?
 - Which weeds are listed on federal, state, or county noxious weed lists?
- 2) Monitor:
 - Carefully follow the progress of your efforts and make corrections to your activities as needed.
 - Follow-up treatments can be applied as necessary
- 3) Revegetation:
 - It is important that while you want to rid an area of invasive plants, you also want to promote restoration of native plant communities.