Invasive Plants

Common Issues

Invasive plants, sometimes referred to as “noxious weeds,” are non-native plants that are capable of aggressively displacing native species. Invasive plants can cause serious problems for ecosystem health, wildlife habitat, and agricultural productivity and should be contained, suppressed, or eradicated. Colorado law requires each county to control noxious weeds. Routt and Moffat counties both have active weed programs.

Questions to Consider

- Which invasive species are present, where are they located, and in what amount?
- How are invasive seeds or plants arriving onto the property?
- Do these species reproduce via seed, fragmentation, and/or budding?
- What treatment options are possible and appropriate given proximity to the river, livestock operations, public use areas, etc.?
- Is there a risk that grazing, haying, or landscaping operations might spread seeds or plant segments that can resprout to other locations?

Principles of River Health

Non-native Species Harm the Ecosystem

Native plants and animals have evolved in the Yampa Valley over many thousands of years. They have complex inter-relationships. Non-native species did not coevolve with native species, and because of this, they upset the balance of processes in the ecosystem. For example, non-native species may shade out or overtake the root systems of native plants and pasture grasses, change soil chemistry,

or be poisonous to deer, elk, or livestock. They can also outcompete native species for resources (like sunlight, water, and nutrients), which can greatly reduce biodiversity across the landscape and create an unhealthy monoculture.

The River Carries Seeds

Invasive species spread in various ways, including by releasing seeds and by regrowing from branches, stems, or root material. This spread can be especially problematic in the river corridor because the river itself can carry seeds or plant material long distances. If upstream neighbors are not actively managing weeds, the seeds or plant segments can and will be transported onto downstream properties, especially with the spring flood.

Integrated Weed Management is Best

Integrated weed management means combining multiple strategies rather than relying on a single method. It involves using a mix of biological, cultural, manual, mechanical, chemical, and preventive control practices to manage weeds in a sustainable, coordinated, and environmentally responsible way. Integrated weed management offers the most durable, cost-effective, and ecologically sound framework for the long-term management of invasive plants because it focuses on prevention, diversity of tactics, and ecosystem restoration rather than short-term eradication.

Herbicides Can Hurt the River

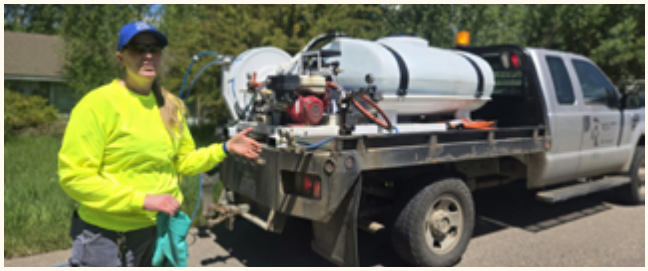
Herbicide application is a common and useful tactic to use in managing weeds. However, it should be done mindful of the proximity to the river, water table elevation, and timing of flood irrigation efforts to prevent unintended release of herbicide into nearby waterways. Herbicides in stream habitats can be toxic to aquatic plants, invertebrates, and fish.

Recommended Practices or Actions

Managing invasive plants involves collaboration, planning, employing a variety of techniques. These actions, described below, will protect habitats and the economic viability of ranchlands by reducing the spread of weeds.

Establish Partnerships

Managing weeds is a collaborative effort. Weeds don't respect property lines, so all neighbors must work together. The county weed program, Colorado State University (CSU) extension office, and conservation district can help identify weeds and make a plan to manage them. Local weed personnel are the most knowledgeable about local conditions and the effectiveness of available treatments.



County Weed Program staff are a great partner in land management | Photo courtesy of Steamboat Pilot & Today

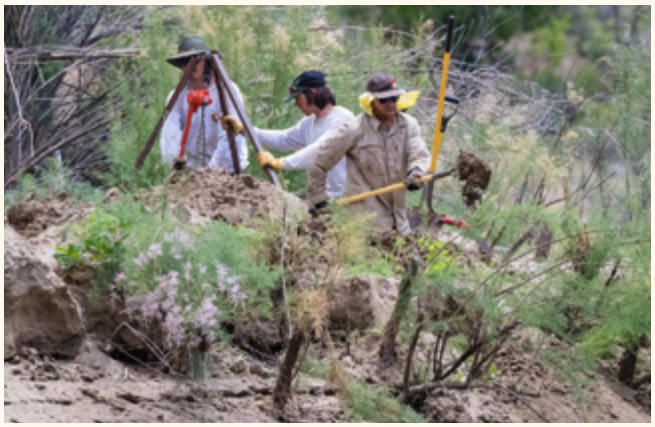
Make a Plan

Leafy Spurge is a principal concern along the Yampa River | Photo By Peter Williams, Yampa River Leafy Spurge Project

It is important to first develop a strategy for managing noxious weeds, so the pathway to success is understood. A plan should include the following: what are the desired outcomes regarding invasive plants? What does success look like? How will success be measured? Would an infestation map of the target species be helpful? What are the available options for treatment? What outside resources are available? Who will do the work? What is the available budget?

Use Manual Treatment for a Targeted Approach

Manual treatment is the hands-on removal of invasive plants with hand tools without the use of machinery. Although labor intensive, manual treatments are targeted and can sometimes be less expensive than herbicide application. For example, musk thistle, a biennial, can be killed as a rosette early in its development using a shovel. However, only certain species can be killed by digging or cutting, and these activities can make infestations of some species worse, so it is important to understand the life cycle and biology of the target species.



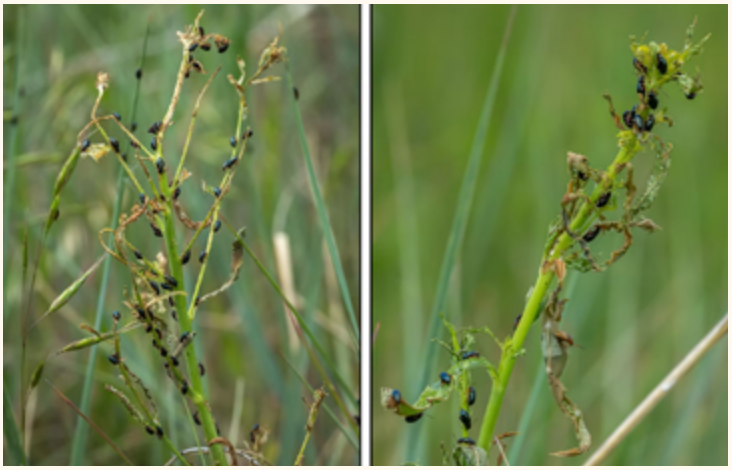
Manual removal of tamarisk demands dedication and physical labor | Photo by Dave Cawley, Deseret News

Increase Impact with Mechanical Treatment

Mechanical treatment is the use of machines to saw, mow, mulch, bulldoze, or uproot invasive species. This technique can be effective on large plants or large infestations. If treatments cause significant soil disturbance, it is important to consider whether the disturbed soil might be colonized by other invasive species. If so, it may be smart to revegetate the area promptly with native seeds and plants, and to monitor changes over time.

Focus on the Long Term with Biological Control

Biological control (biocontrol) is the introduction of natural enemies (predators, parasites, or diseases) for the long-term reduction or suppression of invasive species. This often requires research and monitoring, and only approved biocontrol agents should be used, so it is important to partner with Colorado Department of Agriculture (CDA) Insectary or a local organization like the Yampa River Leafy Spurge Project.



Aphthona spp. is one of several approved biocontrol agents that have shown promise in leafy spurge suppression in the Yampa Valley
Photo by Peter Williams, Yampa River Leafy Spurge Project

Be Proactive with Cultural Treatment

Cultural treatments are management practices that make environments less suitable for invasive species and more favorable for native or desired species, such as controlled burning, crop rotation, planting competitive native species, or adjusting grazing patterns. These management practices require long-term commitment and planning but are incredibly important on a large ranch or other parcel because they reduce opportunities for weed invasions.

Use Chemical Treatment with Care

The use of herbicides should be thought of as the last step after integrating all other treatments. Herbicides can be highly effective and fast acting, but they are more dangerous to the environment and the river than any other treatment type. The use of herbicides requires careful compliance with the product label and regulations. Not all herbicides are formulated for use near the river. Some common herbicides, like glyphosate (trade name: RoundUp), are harmful to fish and aquatic life. It is very important to learn about each herbicide and to understand that they are each unique. Applicators are legally required to follow labels closely regarding setbacks from the river or other water bodies.

Guide to Controlling Common Invasive Species

The following species are problematic in the Yampa River basin and should be actively treated by landowners and land managers. It is important to implement an integrated management plan, incorporating all of the available treatments. Do not rely exclusively on herbicide application. Pay particular attention to the label's application setbacks from rivers, streams, and water bodies.

Leafy Spurge

Cultural—Do not bale hay from fields with Leafy Spurge, as seeds will be transported. Do not import hay with seeds.

Biological—Flea beetle and longhorn beetles available from Leafy Spurge Project.

Chemical—Targeted application of Tordon® 22K + 2,4-D: apply in the spring or fall. Do not spray into water- is toxic to aquatic life.

Whitetop

Cultural—Avoid overgrazing pastures. Avoid importing topsoil with weed seeds.

Biological—Consult Palisade Insectary website for available biocontrol.

Chemical—Targeted application of Escort and Telar are only effective when sufficient soil moisture is available, with a good non-ionic surfactant.

Various Thistles

Biological—Consult Palisade Insectary website for available biocontrol.

Manual—Dig rosettes using a spade, with at least 4" of tap root.

Chemical—Targeted application of Milestone®, Curtail®, 2,4-D with Tordon®, Telar® or Vanquish® on rosettes, pre-flower.

Russian Thistle

Chemical—Glyphosate is traditionally effective, but Moffat County has a glyphosate-resistant strain. For resistant strains, treat with targeted application of triclopyr, dicamba or 2,4-D.

Russian Olive

Mechanical/Chemical—Cut stump treatment involves cutting trunk and applying herbicide to cambium layer of stump: picloram, triclopyr, or glyphosate plus imazapyr.

Tamarisk

Biological—Consult Palisade Insectary website for available biocontrol.

Mechanical/Chemical—Cut stump treatment involves cutting trunk and applying herbicide to cambium layer of stump: picloram, triclopyr, or glyphosate plus imazapyr.

Management information adapted from Routt County Weed Program and CDA Insectary

Benefits of Implementing Recommended Practices

- Protection of economic productivity
- Health of grazing livestock
- Improved riparian condition and wildlife habitat
- Reduction of burrs, stickers, and thorns when walking property

Reference and Resource Materials

Routt County has developed a very useful Weed Management Guide that provides guidance on how to treat weeds in our area.

The Moffat County Weed Program provides integrated pest management programs and recommendations for landowners and operators.

In Moffat County, Colorado First Conservation District assists in the management, sustainability, and improvement of its natural resources.

The Yampa River Leafy Spurge Project engages landowners, agencies, educators and organizations to coordinate the establishment of effective programs of integrated management for invasive leafy spurge.

Information about biological control can be found at Palisade Insectary, where the CDA develops effective biocontrols for farmers, ranchers, and landowners.

A comprehensive book for planning invasive species management is Weed Control in Natural Areas in the Western U.S., which lists each species and discusses various treatments.

CDA publishes a Colorado Noxious Weed List for the state.