

RESTORATION

Can restoration reduce the potential for weed invasion or Russian olive re-invasion? Weed invasion has been reported as a significant problem in many Russian olive removal projects, and we found higher Russian olive seedling densities in removal plots compared to plots where we did not remove Russian olive. We are testing four different restoration mixes (herbaceous layer only, herbaceous + shrub, herbaceous + tree, and herbaceous + tree + shrub) against a no-restoration protocol to ask if the mixtures promote restoration success and reduce weed invasion.



Tracking Recovery

Researchers from Ft. Keogh, NRCS, and NPARL are collaborating to track ecosystem recovery over time following Russian olive removal. We will be comparing bird diversity, insect diversity, soil health among our treatments and where Russian olive has not been removed.



Tree removal results in a canopy change.

For More Information:

Erin Espeland, Plant Ecologist
406-433-9416 • erin.espeland@ars.usda.gov



USDA-ARS Northern Plains
Agricultural Research Laboratory
Agricultural Systems Research Unit

United States Department of Agriculture
Agricultural Research Service

1500 N. Central Ave., Sidney, Montana 59270
www.sidney.ars.usda.gov • 406-433-2020 • fax 406-433-5038

As the principal in-house research arm of the U.S. Department of Agriculture, ARS conducts research to develop and transfer solutions to agricultural problems of high national priority and provides information access and dissemination to:

- Ensure high quality, safe food and other agricultural products
- Assess the nutritional needs of Americans
- Sustain a competitive agricultural economy
- Enhance the national resource base and the environment, and
- Provide economic opportunities for rural citizens, communities, and society as a whole.

For more information about ARS, visit the web site at <http://www.ars.usda.gov/>



The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue SW, Washington, D.C. 20250-9410 or call 202-720-5964 (Voice and TDD). USDA is an equal opportunity provider and employer.

June 2012



RUSSIAN OLIVE
REMOVAL AND
RESTORATION



RUSSIAN OLIVE

THE TREE

Russian olive is a tree that was imported into the United States in the late 1800s as an ornamental. It has been planted in the Northern Great Plains as part of soil conservation programs. This hardy tree establishes well in harsh climates and disturbed areas. It has spread quickly in riparian areas, out-competing native tree species. Riparian habitat invasion by Russian olive has resulted in decreased forage quality and decreased forage utilization. This tree, once established, is difficult to eradicate because of its capacity to stump- and root- sprout. Its seed bank is long-lived.

Related Studies

We are using a Russian olive invasion at Ft. Keogh Livestock and Range Research Laboratory (LARRL) in Miles City to conduct basic research on Russian olive control and its potential benefits. This site is part of a regional project determining what eats Russian olive fruits (rodents, deer, birds, insects) and how this predation may affect tree establishment (Kevin Delaney, NPARL). In addition, researchers from USDA-ARS NPARL, LARRL, and USDA-NRCS are conducting research to examine the effects of Russian olive removal and subsequent revegetation on ecological communities (soil health, birds, insects, weeds) and cottonwood establishment.

ITS REMOVAL

Best Practices

We assessed best removal practices by questioning land managers in MT, ND, SD, and WY who manage both upland and riparian habitats.

- Machines they used were chainsaw, tree shear, Marshall saw, and Timber Ax.
- Reported resprout rates ranged from 3-60%
- Tree shear with triclopyr applied to the cut stump had the fewest reported resprout rates
- Re-treatment the following year was required

Cautionary tales:

Using Imazapyr created dead zones surrounding the trees. Weed invasion post-removal was a problem

~~imazapyr~~



(April 2011)

OUR REMOVAL TECHNIQUE

- Tree shear with spray attachment
- Cut 2500 stumps to ground level
- Applied Element (triclopyr): Basal Bark oil (1:3 ratio) within 15 minutes of cut
- Resprouts foliar sprayed (1 oz Remedy (triclopyr): 3 tsp Milestone (Aminopyralid) with < 1 oz surfactant

Results:

We had a 0.4% stump resprout rate with this technique.

A total of 3.9% of trees resprouted, mostly root resprouts likely due to the 100 year flood event of 2011.

