



## Russian Knapweed (*Acroptilon repens*)

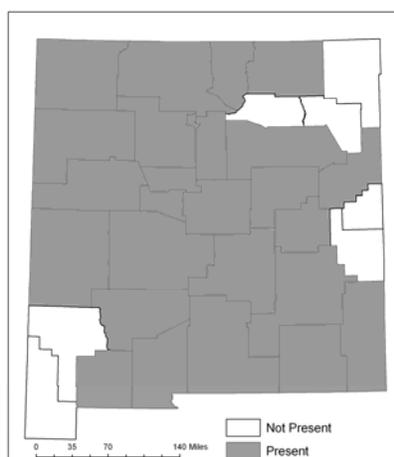
New Mexico State University Weed-Factsheet

11-06-05

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### INTRODUCTION

Russian Knapweed (*Acroptilon repens*) is a creeping herbaceous perennial weed that is currently invading New Mexico. Within New Mexico it can readily invade pastures, degraded croplands, alfalfa fields, rangeland, roadsides, riparian areas, and irrigation ditches. Russian knapweed shoots emerge early in the spring and form a rosette. By late spring, flowering stems begin to develop with flowers visible by early summer. Flowers senesce by mid summer, but shoots remain green and photosynthetic until the first frost in the fall.



This plant is originally from southeastern Asia; it is now widespread in northern states including Colorado, Montana and Wyoming. In New Mexico, it was first documented in 1943 in Quay County and to date can be found throughout most counties. Distribution is extensive in the northern counties of New Mexico where large infestations exist. Small populations exist in central and southern New Mexico and if not managed, Russian knapweed infestations could become common throughout the entire state. Rapid response and eradication of these small infestations is critical to prevent the spread of this invasive weed.

### IDENTIFICATION

Russian knapweed shoots are erect, branched and are typically 1 to 3 feet tall when mature. Leaves on the lower portion of the stem are 2 to 4 inches long and deeply lobed, while upper leaves are smaller and less lobed with smooth margins. Dense grey hairs cover the surface of both shoots and leaves. Flower heads occur on shoot tips, and are urn-shaped, generally 1/4 to 1/2 inch in diameter with smooth papery bracts. Flower color can range from pink to lavender or white. Russian knapweed roots grow vertically and horizontally in the soil and have a brown to black scaly appearance, especially near the soil surface. These black roots can be used



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to distinguish Russian knapweed from other closely related highly invasive knapweeds (Whitson et al 1996).

## REPRODUCTION & SPREAD

Russian knapweed produces 50 to 500 seeds from each shoot, which remain viable in the soil for 2 to 3 years (Ivanova 1966). However, the main method of spread for Russian knapweed is not by seed, but from adventitious buds on a creeping perennial root system. Roots have been observed to grow 6 to 8 feet deep in one season, and a single plant can expand radially up to 14 yards in two seasons (Frazier 1944). As infestations develop, they displace nearly all herbaceous resident vegetation, creating dense stands of Russian knapweed. A major reason for this plant's competitiveness is believed to be from its ability to release allelopathic chemicals that inhibit growth of other plants (Renney and Dent 1958). These compounds have been found to hamper revegetation of previously infested land even after plants have been removed. Light disturbance of the soil surface has been shown to alleviate this problem (Bottoms & Whitson 1998).



## MANAGEMENT

Prevention, early detection and eradication are the best management tools for Russian knapweed. Establishment and spread is rapid in abandoned agricultural fields and lots that are left unmanaged. This allows infestations to establish large, dense stands with large stores of carbohydrates in the root system. This stored energy allows plants to tolerate future management methods. In contrast, small establishing infestations require fewer resources to eradicate and associated plants can rapidly recover from management methods, thus eliminating the need to restore the site. The best management plan incorporates multiple strategies including cultural, mechanical and herbicidal methods. A single control strategy, such as mowing or herbicide use, is not sufficient to control old, dense infestations (Beck 2003).

### *Physical/Mechanical/Cultural*

Several nonchemical control methods have been tested, but have shown limited effectiveness. Mowing will suppress shoots, but needs to be continually repeated to have any long-term reduction in Russian knapweed populations (Beck 2003). Foraging animals do not effectively graze Russian knapweed due to the bitter flavor of the forage. In addition, Russian knapweed forage has been demonstrated to be toxic to horses (Young et al. 1970a, b). Disking or plowing infestations breaks roots into fragments that can survive desiccation and be deposited into uninfested areas, thereby increasing the infestation size.

### *Biological control*

The Russian knapweed gall nematode has been released in New Mexico in the Farmington region. This nematode feeds on leaves, stems and root crowns. As a result of feeding visible galls are formed containing the nematodes (Rees et al. 1996). Unfortunately, releases have not shown any reduction in Russian knapweed populations. Several other insects are currently being evaluated for releases into the western United States, but field releases are not expected for several years.

## Herbicides

Select herbicide treatments can be effective for short-term management of Russian knapweed. Herbicide control of Russian knapweed can vary dramatically due to environmental variables, but several options are available that provide consistent short-term control (1-3 years) (Beck 2003). See table 1 for a list of herbicides available for management of Russian knapweed.

**It is important to read the herbicide label BEFORE making any application, as different herbicides will have different requirements and restrictions.**

**Table 1. Herbicide options for management of Russian knapweed**

Herbicide	Active Ingredient	Rate of Herbicide	Timing of application	Comments
Tordon 22K <sup>#</sup>	picloram	1-2 qts/A	Anytime plants are actively growing or in the fall after frost.	<ul style="list-style-type: none"> <li>Residual herbicide.</li> <li>Selective, will not harm many grass species.</li> </ul>
Tordon 22K <sup>#</sup> + 2,4-D <sup>1*</sup>	picloram + 2,4-D	1 – 1.5 qt/A + 0.5 lbs ai/A	Anytime plants are actively growing or in the fall after frost.	<ul style="list-style-type: none"> <li>Residual herbicide</li> <li>Selective, will not harm many grass species.</li> </ul>
Reclaim + 2,4-D <sup>1*</sup>	clopyralid + 2,4-D	1.0 pts/A + 0.5 lbs ai/A	Anytime plants are actively growing. Best results in the fall.	<ul style="list-style-type: none"> <li>Residual herbicide.</li> <li>Selective, will not harm many grass species.</li> </ul>
Transline <sup>#</sup> (or Reclaim)	clopyralid	0.67-1.33 pts/A	Anytime plants are actively growing. Best results in the fall.	<ul style="list-style-type: none"> <li>Residual herbicide.</li> <li>Selective, will not harm many grass species.</li> </ul>
Plateau + methylated seed oil	imazapic + methylated seed oil	12 fl oz/A + 1 qt/A	Late fall after stems have senesced and a frost has occurred.	<ul style="list-style-type: none"> <li>Residual herbicide.</li> <li>Selective, will not harm cool season grass species.</li> <li>Use lower rate when cool season grasses are present.</li> <li>Moderate control can result some years.</li> </ul>
Arsenal <sup>#</sup>	imazapyr	2 pts/A	Anytime plants are actively growing or in the fall after frost.	<ul style="list-style-type: none"> <li>Residual herbicide.</li> <li>Nonselective, will harm most species.</li> </ul>
Many compounds <sup>1*</sup>	glyphosate <sup>1</sup>	3-4 lbs ae/A	Flowerbud stage	<ul style="list-style-type: none"> <li>Nonselective, will harm most species.</li> <li>Poor control can result some years.</li> </ul>
Escort <sup>#</sup>	metsulfuron	0.75 – 1.0 oz/A	Flowerbud stage – bloom stage, or fall before frost.	<ul style="list-style-type: none"> <li>Residual herbicide.</li> <li>Selective, will not harm many grass species.</li> <li>Will persist in high pH soils.</li> </ul>
Telar <sup>#</sup>	chlorsulfuron	1.0 – 2.0 oz/A	Flowerbud stage – bloom stage, or fall before frost.	<ul style="list-style-type: none"> <li>Residual herbicide.</li> <li>Selective, will not harm many grass species.</li> <li>Will persist in high pH soils.</li> </ul>

<sup>1</sup> Many types of this herbicide are available for use.

\* Indicates product is a restricted use pesticide in New Mexico

# Use of a nonionic surfactant is recommended.

## REFERENCES

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## SELECT WEBSITES ON RUSSIAN KNAPWEED

<http://www.cdfa.ca.gov/phpps/ipc/weedinfo/acroptilon.htm>

<http://tncweeds.ucdavis.edu/esadocs/documnts/acrorep.pdf>

<http://www.unce.unr.edu/publications/FS04/FS0437.pdf>

<http://www.ext.nodak.edu/extpubs/plantsci/weeds/w1146w.htm>

<http://www.montana.edu/wwwpb/pubs/knapweed/circ311.html>

<http://www.ext.colostate.edu/pubs/natres/03111.html>

[http://www.colostate.edu/Depts/SoilCrop/extension/CEPEP/profiles/Russian\\_knapweed.pdf](http://www.colostate.edu/Depts/SoilCrop/extension/CEPEP/profiles/Russian_knapweed.pdf)