

# Russian knapweed

*Acroptilon repens* (L.) De Candolle;  
*Centaurea repens* L.



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**Other common names:** Turkestan thistle, mountain bluet, creeping knapweed

**Family:** Asteraceae (Sunflower)

**USDA Code:** ACRE3, CERE6

**Bayer Code (WSSA):** CENRE

**Life cycle classification:** Perennial forb.

**Legal Status:** Colorado Noxious Weed (top ten worst)

**Native to:** Eurasia

**Entry into Colorado:** Probably introduced to North America as a contaminant in crop seed. No information available on entry into Colorado.

**Current distribution in Colorado:** Russian knapweed is widespread throughout Colorado with the worst infestations occurring in the southwest portion of the state (Beck pers. comm.).



## **Biology**

**Seasonal development:** Russian knapweed emerges in early spring, bolts in May to June (elevation dependent) and flowers through the summer into fall (Beck 2000).

### **Reproduction**

**Most commonly reproduces by:** Vegetative propagation, with seed of secondary importance. Roots from a recently established plant expand rapidly and may cover up to 12 sq. yards in two growing seasons (Beck 2000).

**Numbers of seeds/plant:** 50-500 per shoot. Seeds are viable for two to three years in soil (Beck 2000).

## **Description**

**Roots:** Deep, spreading rhizomes (Stubbendieck et al. 1995)

**Stems:** Erect, 18 to 36 inches tall, with many branches

**Leaves:** Lower leaves are 2-4 inches long and deeply lobed. Upper leaves are smaller, generally with smooth margins, but can be slightly lobed. Leaves are covered with dense gray hairs.

**Flowers:** The solitary, urn-shaped flower heads occur on shoot tips and generally are ¼ to ½ inch in diameter with smooth papery bracts. Flowers can be pink, lavender or white (Beck

2000).

Fruits & seeds: Single-seeded achene, whitish and slightly ridged with pappus (Stubbendieck et al. 1995)

## Value & Uses

Wood products: No information available

Importance to/impact on livestock & wildlife: **Russian knapweed is toxic to horses**, causing nigropallidal encephalomalacia or "chewing disease" when sufficient quantities are consumed (Knight & Walter 2001).

Palatability: Deer rarely eat it (Stubbendieck et al. 1995)

Nutritional value: No information available

Cover value: No information available

Value for rehabilitation of disturbed sites: No information available

Other uses & values: No information available

## Infestations

Habitat: Russian knapweed is commonly found along roadsides, riverbanks, irrigation ditches, pastures, waste places, clearcuts and croplands. It is not restricted to any particular soil but does especially well in clay soil. Selleck (1964) observed that Russian knapweed infestations increased in dry locations but decreased in moist locations due to competition with perennial grasses.

### Impacts/Threats

**Special Challenges to Management:** Once established, Russian knapweed uses a combination of adventitious shoots and allelopathic chemicals to suppress other vegetation and spread outward into previously undisturbed areas. The plant extends radially in all directions and can cover an area of 39 feet<sup>2</sup> within two years (Watson 1980). Russian knapweed contains an allelopathic polyacetylene compound, which inhibits the growth of competing plants (Stevens 1986).

## Control Methods

### Physical

**Manual:** May reduce seed production of small, newly established patches, but not recommended.

**Mechanical:** Cutting or removal of the above ground portion of the plant reduces the current year growth, and may reduce seed production, but it will not kill Russian knapweed and may actually increase stem density. Cutting or pulling several times before the plants bolt could stress Russian knapweed plants, forcing them to use nutrient reserves stored in the root system. Once plants have bolted there are no more buds on the roots capable of reproduction, until buds begin to form again in mid-August to September. A combination of cutting and herbicides can be used to control Russian knapweed. In the fall, apply herbicide to any plants that have re-emerged. This process may have to be repeated annually for several years to exhaust the soil seed bank (CNAP 2000).

**Cultivation:** Not recommended as it will more likely spread propagules.

**Mowing:** Mowing typically increases the density of Russian knapweed and is not a recommended control technique (Beck 2000).

**Cultural:** Long-term control attempts at control must include seeding of desired species to occupy formerly infested areas and decrease re-establishment (Whitson 1999).

**Biological:**

Insects: None known

Pathogens: The Colorado Department of Agriculture's Division of Plant Industry's Biological Pest Control Section is working to establish *Subanguina picridis* (a gall forming nematode) at three sites in Colorado. However, this species is currently unavailable for general redistribution (CNAP 2000).

**Chemical**

Conventional:

<u>Trade Name (common name)</u>	<u>Product/Acre (Active ingredient/Acre)</u>	<u>Remarks</u>
Transline (clopyralid)	1 to 1.5 lb (0.38 to 0.5 lb)	Apply from bud to mid-flower growth stage or in fall
Curtail (clopyralid + 2,4-D)	3 qt (0.29 + 1.5 lb)	Apply in spring during bud to flower growth stage
Escort (metsulfuron)	0.75-1 oz (0.45 – 0.6 oz )	Apply when Russian knapweed is in the bloom to post-bloom stage
Telar (chlorsulfuron)	1.5 oz (1.125 oz)	Apply when Russian knapweed is in the bloom to post-bloom stage or in fall
Tordon (picloram)	2 – 4 pt (0.5 – 1 lb)	Apply in spring to actively growing weeds or during fall to regrowth
Tordon + 2,4-D (picloram + 2,4-D)	1-1.5 pt + 1 qt (0.5 – 1.0 lb + )	Apply in spring to actively growing weeds or during fall to regrowth

Organic: No information available

**USE PESTICIDES WISELY:** Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing.

**NOTICE:** Mention of pesticide products in this profile does not constitute endorsement of any material.

Additional comments:

Contacts:

**Links:**

Colorado Dept. of Agriculture, Division of Plant Industry  
<http://www.ag.state.co.us/DPI/weeds/Weed.html>

Colorado Natural Areas Program  
[http://parks.state.co.us/cnap/IWM\\_handbook/IWM\\_index.htm](http://parks.state.co.us/cnap/IWM_handbook/IWM_index.htm)

Colorado State University Extension Fact Sheet  
<http://www.ext.colostate.edu/pubs/natres/03102.html>

Colorado Weed Management Association  
<http://www.cwma.org>

Colorado Weed Management Guide  
[http://www.cepep.colostate.edu/WeedGuide/Weed Guide 2004.pdf](http://www.cepep.colostate.edu/WeedGuide/Weed_Guide_2004.pdf)

Weed Science Society of America  
<http://www.wssa.net>

Western Society of Weed Science  
<http://www.wsweedscience.org>

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Colorado Natural Areas Program. 2000. Creating an Integrated Weed Management Plan: A Handbook for Owners and Managers of Lands with Natural Values. Colorado Natural Areas Program, Colorado State Parks, Colorado Department of Natural Resources; and Division of Plant Industry, Colorado Department of Agriculture. Denver, CO. pp 124-126.  
[http://parks.state.co.us/cnap/IWM\\_handbook/IWM\\_index.htm](http://parks.state.co.us/cnap/IWM_handbook/IWM_index.htm)

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Whitson, T.D. 1999. Russian knapweed. *In*: R.L. Sheley and J.K. Petroff, eds. Biology and Management of Noxious Rangeland Weeds. Oregon State University Press. Corvallis, OR.

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