

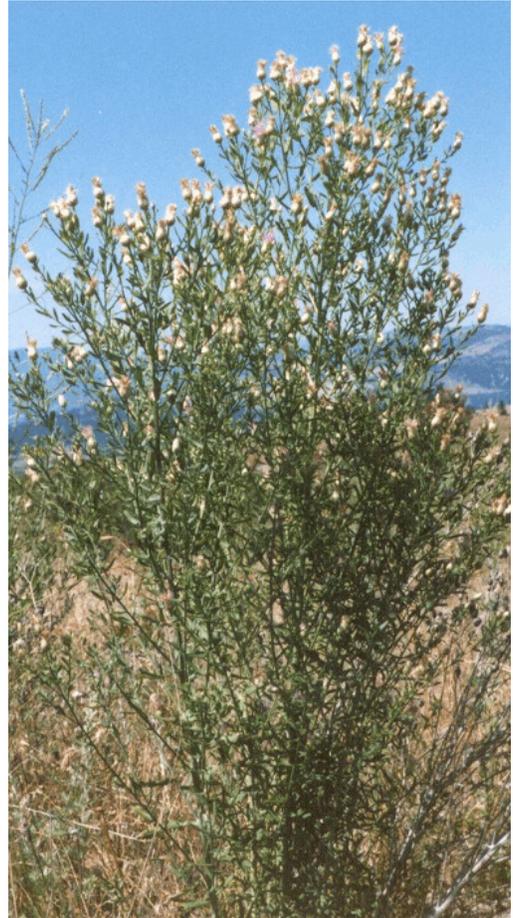
## RUSSIAN KNAPWEED

*Acroptilon repens*

**Description:** Russian knapweed is a member of the Asteraceae or Sunflower family. Russian knapweed grows 1 to 3 feet tall. Stems are erect, covered with fine, white hairs, and openly branched. Lower leaves are often lobed and toothed, and 2 to 4 inches long. Upper leaves are entire or serrated on upper leaf margins, but are attached to the stem without a stalk at their base. Flowers are cone-shaped and 1/4-to 1/2- inch in diameter. Flower heads, found at the tip of the leafy branches of the plant, are usually pink to lavender in color. Involucral bracts that have a pearly, rounded appearance with papery margins, surround the seeds of the plant as they develop. The root of the plant is dark brown to black in color and the plant is scaly and brown. Russian knapweed seeds are oblong, grey-brown and approximately 1/16 of an inch in length. The seeds are ridged and covered with many fine, white hairs and a ring of bristles on the apex of the seed.

Russian knapweed is considered a noxious weed under North Dakota state law, thus landowners are required to eradicate or control the spread of the plant.

### Plant Images:



Russian knapweed



Rosette



Young plant



Flower head

**Distribution and Habitat:** Russian knapweed is native to Eurasia. The plant is adapted to poorly drained, saline/alkaline soils, and is often found in areas with supplemental water sources. Russian knapweed is commonly found in cultivated fields, orchards, grain and alfalfa fields, pastures, along roadside and irrigation ditches, and in waste sites.

**Life History/Ecology:** Russian knapweed is a long-lived, deep-rooted perennial. The plant reproduces both from seed and adventitious buds on a creeping root system. The primary method of reproduction for Russian knapweed is vegetatively. A single plant may produce 1,200 seeds, however seeds are usually produced sparingly and seed dispersal may be passive as the bracts of the head generally remain closed. Seeds may remain viable for two or three years. Roots of the plant can grow 6 to 8 feet deep during the first growing season and 16 feet to 23 feet deep in the second season. Shoots emerge in the spring after soil temperatures remain above freezing. After emergence, Russian knapweed forms rosettes and bolts in late May to mid-June. Flowering occurs from June to September.

Plant extracts of Russian knapweed exhibit allelopathic effects. Effects have inhibited the growth of crop plants and has caused a neurological disorder, nigropallidal encephalomalacia, in horses.

**History of Introduction:** Russian knapweed is native to Eurasia where distribution included, Mongolia, western Turkestan, Iran, Turkish Armenia, and Asia Minor. Russian knapweed was first introduced in North America in the early 1900s as a contaminant of Turkestan alfalfa. The plant is common and widespread in the western and central regions of the United States. Russian knapweed is the most widespread of the knapweeds in North Dakota and is the most difficult to control. In North Dakota, Russian knapweed has been reported in Hettinger, Slope, Grant, Kidder, Bowman, Billings, McKenzie, Stark, Barnes, Golden Valley, Benson, Burke, Divide, Mercer, Morton, Renville, Stutsman, and Williams counties.

**Effects of Invasion:** Russian knapweed can suppress other plant species and establish a single species stand, resulting in a less diverse plant community. Roots and leaves of the plant also have been found to produce chemicals that inhibit the germination or growth of other plant species. Consequently, Russian knapweed can reduce forage for livestock and reduce biodiversity for wildlife habitat.

### **Control:**

Russian knapweed is a persistent plant that can most effectively be controlled by preventing populations from establishing. Maintaining healthy, natural communities through proper land management will reduce the likelihood of Russian knapweed invasions. Control methods that stress Russian knapweed and cause the plant to expend nutrient reserves in the root system, eliminate seed production, or control the vegetative spread of the plant have been the most successful. Land managers should integrate control methods and continue to aggressively monitor infested areas at least three times a year to find plants that have recently bolted, flowered, or bloomed late. Long-term control should involve planting competitive, desirable plant species to occupy the bare ground that used to be infested by Russian knapweed.

*Mechanical* - Hand pulling Russian knapweed is difficult and generally only reduces growth and eliminates seed production of the plant for that particular year because the roots of Russian knapweed will not be eradicated. However, hand pulling may be effective for small infestations if a majority of the root system is removed. Cultivation produces root fragments that quickly spread and regrow into new plants. However, deep plowing may have some control on Russian knapweed due to burial of the root fragments. Mowing of Russian knapweed only controls the top growth of the plant, but if done frequently, the new growth will be less vigorous. Mowing may be less effective than hand pulling

because cutting does not remove any portion of the Russian knapweed root. Burning is generally not effective because rootstocks of the plant will produce new growth. Further research is needed to determine the effectiveness of prescribed burns for Russian knapweed control.

*Chemical* - A number of herbicides are available for control of Russian knapweed. Russian knapweed is best controlled in the fall following several hard frosts. In pasture and rangeland, 2,4-D and dicamba applied late in the season at higher rates will control Russian knapweed. Picloram, clopyralid, clopyralid plus 2,4-D, and clopyralid plus triclopyr all provide good to excellent Russian knapweed control when applied in mid-October in North Dakota. Metsulfuron plus 2,4-D provides good Russian knapweed control when applied in the bud to early bloom stage or in the fall following a frost. Imazapic can also be applied for Russian knapweed control. Herbicides combined with competitive grass species has also provided effective Russian knapweed control.

Contact your local county extension agent for recommended use rates, locations, and timing.

*Biological* - In 1984, *Subanguina picridis*, a gall-forming, nematode was introduced in the United States for Russian knapweed control. The nematode forms galls on the stems, leaves, and root crowns of the plant. Other insects and mites are being studied for possible future release. However, biocontrol agents for Russian knapweed have not been introduced into North Dakota and their use is not recommended.

Grazing Russian knapweed may not be an effective control method because the plant is generally avoided by grazing animals. The plant is also poisonous to horses and should be removed or fenced off to prevent horses from grazing infested areas.

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Russian knapweed and young plant photograph courtesy of Stevens County Noxious Weed Control Board, Washington.

Rosette photograph courtesy of Weeds of the West, Tom Whitson.

Flower head photograph courtesy of Washington State Noxious Weed Control Board.