

# Russian Knapweed

Russian knapweed is a creeping, herbaceous perennial of foreign origin that reproduces from seed and vegetative root buds. Shoots, or stems, are erect, 18 to 36 inches tall, with many branches. Lower leaves are 2 to 4 inches long and deeply lobed. Upper leaves are smaller, generally with smooth margins, but can be slightly lobed. Shoots and leaves are covered with dense gray hairs. The solitary, urn-shaped flower heads occur on shoot tips and generally are 1/4 to 1/2 inch in diameter with smooth papery bracts. Flowers can be pink, lavender or white. It has vertical and horizontal roots that have a brown to black, scaly appearance, especially apparent near the crown. The weed forms dense, single species stands over time due to competition and bio-chemicals it produces that inhibit the growth of other plants. **Russian knapweed is toxic to horses if forced to eat it.**

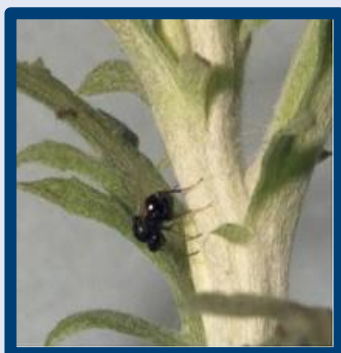


Russian knapweed emerges in early spring, bolts in May to June and flowers through the summer into fall. It produces seeds sparingly, approximately 50 to 500 per shoot. Seeds are viable for two to three years in soil. Its primary method of reproduction is from vegetative propagation, with seed of secondary importance. Roots from a recently established plant expand rapidly and may cover up to 12 square yards in two growing seasons. It begins to develop buds on its roots that will emerge to form rosettes that fall or the following spring. Root buds continue to grow throughout the winter but once rosettes emerge in spring, remaining root buds slough off and no buds occur on roots until this cycle begins again in late summer. This active root bud growth and development in fall through winter may be the reason that Russian knapweed is susceptible to herbicides applied in fall and winter.



Like other creeping perennials, the key to Russian knapweed control is to stress the weed and cause it to expend nutrient stores in its root system. An integrated management plan should be developed that places continual stress on the weed. Currently, the best management plan includes cultural control combined with mechanical and/or chemical control techniques. A single control strategy, such as mowing or herbicide, usually is not sufficient. In most circumstances, an herbicide alone will not effectively manage Russian knapweed.

## Bio Control



*Rust fungus* develops from its overwintering stage and germinates into spores that require cross pollination. After initial cross pollination they develop into single celled yellow-brown spores, which are self-producing. The advantage of this method of development is rapid spread with multiple, reproductive generations each season. When days shorten in the autumn, the rust develops the overwintering spores occurs on upper and lower leaf surfaces. Spores are wind dispersed.

*Nematodes* are thin white worms, 1.5mm long and are highly active in water. The first generation nematodes are larger than the second. Males and females are present at the same time in galls, but in variable ratios. The first generation lay eggs for one month, finishing in early-June. The second generation is highly productive and lay eggs from the time the first generation dies until gall desiccation, which is usually in July. Females deposit eggs in clusters inside the galls.

*Jaapiella ivannikovi* is a gall midge that that lays its eggs on the growing tip of the plants galling that growing point, greatly reducing seed production and plant height. New galls were found at the release sight within a few weeks of release.

*Aulacidea acroptilonicis* is a gall wasp that stunts the growth of Russian Knapweed.

**Chemical Control-** various broadleaf herbicides are effective on Russian knapweed, especially during the fall. Excellent control has been achieved into November, even after the plants have turned brown for the winter. It is however, difficult to control in cultivated fields and does not respond very well to Roundup. Constant vigilant monitoring of infestations is critical to long term control though. Please consult the District for specific recommendations.

**County Impact-** *Russian knapweed has been particularly troublesome along many of the Counties' waterways and in some cropping systems. The District crews will treat this weed in rangeland for landowners requesting our assistance because of its aggressive nature and where it inhabits. It doesn't seem to grow as well in dry open rangeland.*

