

**Knapweed Root Weevil, *Cyphocleonus achates*,
Quick Presence/Absence Guide:**



Overview:

Successful weed biological control programs need monitoring of past releases to determine biological control agent establishment in the field. This guide provides a quick and easy method to assess presence/absence of knapweed root weevil, *Cyphocleonus achates* (CYAC) in spotted knapweed infestations.

Spotted Knapweed:

Spotted knapweed, *Centaurea maculosa*, is an herbaceous, short-lived, perennial that reproduces entirely by seed. A plant may produce up to 25,000 seeds. Seeds are brown to black in color, smooth, and less than 0.25 inch long, and can remain viable in the soil for 8 years. Flowers range in color from pink to light-purple and bloom from July to October. The flower head bracts are black-tipped, giving the plant its characteristic “spotted” appearance. Stems are typically 2 to 4 feet tall with lower leaves that are deeply lobed and upper leaves that are more linear. Spotted knapweed ranges from moist rangeland habitats to abandoned areas. Thirteen biological control agents have been approved for release for the knapweed complex, which includes spotted knapweed.



Knapweed Root Weevil (CYAC):

CYAC is a robust biological control agent that can attack spotted (preferred host) and diffuse knapweeds. CYAC overwinter as larvae in roots, where they mine the vascular tissue and reduce knapweed density. CYAC adults emerge from June to mid-September and feed on knapweed leaves. The adults are 0.5 to 0.6 inches long and generally live 8 to 15 weeks. Each female deposits more than 100 eggs during her lifetime. Eggs hatch in 10 to 12 days and larvae begin feeding on roots.

Monitoring: Monitoring should be conducted when adult weevils are abundant, typically late August. Site and weather conditions may hasten or delay peak adult abundance by up to 2 (or 3) weeks. Best survey results are obtained on hot (90 degree F +) afternoons with little to no wind.

- Count location – In an area within the same weed infestation as the original release, identify 6 sites at least 10 paces away from each other.
- # of insects per 10 sweeps – How many insects are in your net after 10 sweeps of the surrounding vegetation? Take one step between each sweep. Repeat 5 more times (for a total of 6 sweep sites, 60 sweeps) moving at least 2 steps away from the last sweep location.

Count location	# insects per 10 sweeps
1	
2	
3	
4	
5	
6	