Thistle Control in Teton County Idaho

Teton County Weeds
150 Courthouse Dr
Driggs, ID 83422
208.821.0984

Musk Thistle *Carduus Nutans*

- Introduced in 1853 in ship ballast water in New Jersey.
- Biennial, sometimes winter annual; reproduces only by seed.
- Good competitive pasture cover can reduce seed germination by 90%
- Estimated seed production is 8,622 per sq. meter with 65% viability.
- By wind, most seeds travel no further than 50m from the parent plant.
    - Less than 1% travel more than 100m from the parent.

Second Year Rosette

Loke T. Kok, Virginia Polytechnic Institute and State University, Bugwood.org;

Musk Thistle *Carduus Nutans*

- Models suggest it is economically beneficial to control musk thistle on production range when ground covered by thistles exceeds 2.5%.
- Designated noxious.

First Year Rosettes

Musk Thistle *Carduus Nutans*

Plumeless Thistle

Carduus Acanthoides

Plumeless Thistle *Carduus Acanthoides*

Loke T. Kok, Virginia Polytechnic Institute and State University, Bugwood.org;

- Annual that occasionally grows as a biennial; reproduces only by seed.
- Introduced from Eurasia in the 1800s.
- Can hybridize with Musk Thistle.
- Smaller flowers than musk thistle and spines all the way up the stem.
- Designated noxious.

Bull Thistle *Cirsium vulgare*

John Cardina, The Ohio State University, Bugwood.org;

Bonnie Million, National Park Service, Bugwood.org;

Bull Thistle *Cirsium vulgare*

- Introduced from Eurasia in the 1800s.
- It is usually a biennial, grows 3-4’, and reproduces only by seed.
- Seeds have a feathery pappus (tuft) that detaches at maturity, so seeds fall within a few feet of the parent. (the tufts attach more strongly to musk thistle seeds allowing them to be carried by the wind.)
- Not considered as invasive as Musk or Scotch- not designated noxious in Idaho.

Scotch Thistle

Onopordum acanthium

Bonnie Million, National Park Service, Bugwood.org

John M. Randall, The Nature Conservancy, Bugwood.org

Scotch Thistle

Onopordum acanthium

- Biennial reproducing only by seed; introduced in the 1800s.
- Scotch thistle is a big plant, larger than any other thistle in Idaho.
- Not well established in Teton County.
- Particularly resistant to 2, 4-D.
- Designated noxious- high priority for Teton County.

Biennial Thistle Control

Mechanical

- Mowing can reduce seed production, but usually needs to be repeated every week for 4-7 weeks.
- Cultivate or pull- be sure to remove root crown 2-4” below ground level.
- Flower heads cut 4 or more days after flowers first open can produce viable seeds.

Cultural

- Healthy competitive vegetation reduces establishment.
- Only fertilize according to soil testing- extra nitrogen can benefit thistles.
- Grazing attempts can cause overgrazing on surrounding desirable plants.
    - Goats will graze plants as flower heads are forming and can be effective.

Biennial Thistle Control

Biological	• Established agents- must reduce seed production by 69% to reduce populations.
	  ○ Agents established in the valley do not reduce production by 69% or more.
	  ○ One weevil species that was released in the ‘60s is no longer legal to re-distribute.

Chemical	• Call the County for site specific recommendations. • Spray is most effective in spring from rosette to first flowers and on fall rosettes. • Milestone (aminopyralid), Opensight (aminopyralid + metsulfuron), Telar (chlorsulfuron) where label permits.

Canada Thistle *Cirsium arvense*

Ohio State Weed Lab , The Ohio State University, Bugwood.org;

Rob Routledge, Sault College, Bugwood.org;

Canada Thistle

Cirsium arvense

- Introduced to the US in the 1600s as a seed contaminant.
- Perennial that reproduces by spreading roots and by seed.
- Root fragments as small as 3 mm can produce plants when spread by cultivation- makes eradication difficult.
- While seeds can remain viable for more than 20 years, the soil seed bank usually persists less than five years.
- Designated noxious- competes aggressively with native plants and crops.

Canada Thistle Control

Mechanical	• **Mowing** can reduce nutrient storage in roots, but must be repeated every 3-4 weeks for multiple seasons. • **Tilling** is likely to spread root fragments and increase infestation.
Cultural	• Neither **grazing** or **burning** have been shown to be effective.
Biological	• Three insects have been released- no significant impact.
Chemical	• Call the County for site specific recommendations. • Milestone (aminopyralid), Opensight (aminopyralid + metsulfuron), Telar (chlorsulfuron) where label permits.

Thistle Bio-Control Agents

The seven approved biological control agents attack four distinct parts of thistle plants: two are stem/root miners and gallers, two are seed feeders, one is a bud/leaf feeder, and one is a root crown feeder. Musk Thistle leaf beetle (*p. chalcomera)* has not established despite repeated introductions. *R. Conicus* was one of the first biocontrol agents- introduced in 1969, it was known to attack native thistles, but considered acceptable. Now that the role of native thistles in the ecosystem is better understood, the sale/transport of this agent is illegal.

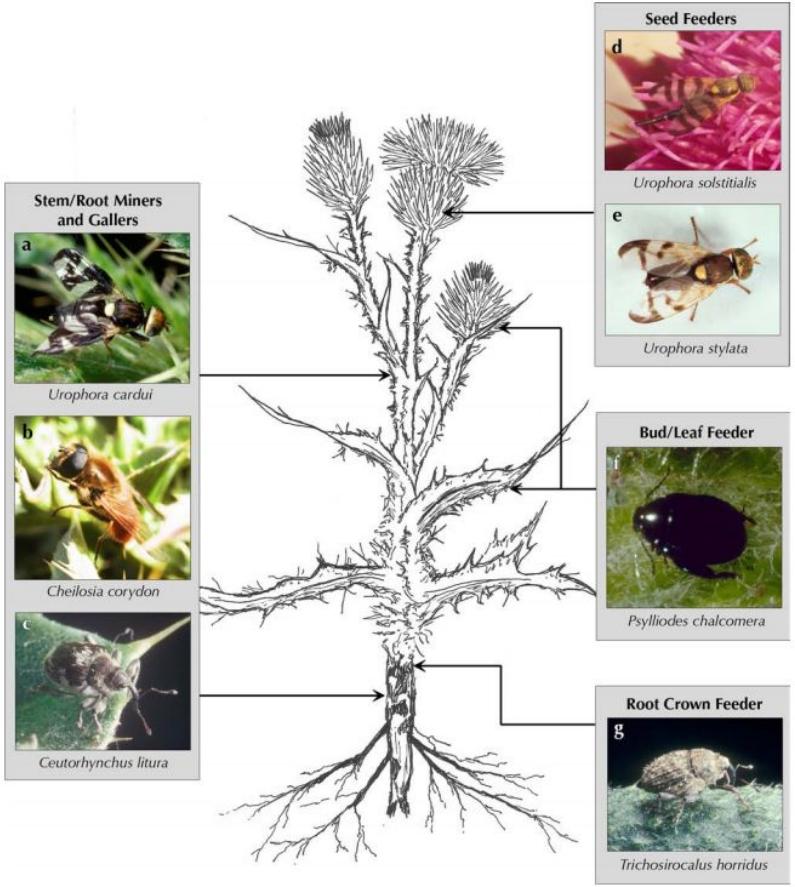

Figure 3-4. General location of attack for approved biological control agents for exotic thistle insects on a thistle plant. Plant drawing: Rachel Winston (MIA Consulting). Photos: a, c, and g, Laura Parsons (University of Idaho); b and d, Eric Coombs (Oregon Department of Agriculture); e, Peter Harris (Agriculture and Agri-Food Canada, Bugwood.org); f, USDA-APHIS, Bugwood.org.

Native Thistles

Don’t murder these, they are good for pollinators and don’t invade landscapes.

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Want to learn more?

Check out these resources:

- MT Thistle Identification Guide
- Weed Control in Natural Areas-
  - Musk Thistle Control
  - Canada Thistle Control
- Biology and Biological Control of Exotic Thistles