Cynosurus echinatus
HEDGEHOG DOGTAIL

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SAINT MARY'S COLLEGE

ENGLISH NAMES	hedgehog dogtail, bristly dogstail, rough dogstail, annual dogtail
SCIENTIFIC NAME	*Cynosurus echinatus*
FAMILY	Poaceae or Gramineae (Grass)

Hedgehog dogtail is a short, tufted, annual grass.

RANGE/KNOWN DISTRIBUTION

Hedgehog dogtail is native to Europe but has been introduced to North and South Africa and western Asia. It has also been introduced to many parts of North America, and is well established west of the Cascade Mountains, from British Columbia to Oregon. Hedgehog dogtail can be locally abundant but is infrequent in Garry oak meadows and in Douglas-fir (*Pseudotsuga menziesii*) and arbutus (*Arbutus menziesii*) forests in southwestern British Columbia.

IMPACTS ON GARRY OAK AND ASSOCIATED ECOSYSTEMS

Non-native grasses such as hedgehog dogtail are present in most Garry oak ecosystems and may comprise over 30 percent of the vegetation. Annual, non-native grasses compete aggressively for light and water early in the spring when they are critical resources. Introduced annual grasses affect the amount and quality of litter, alter nutrient cycling and change the composition of soil biota.

Introduced grasses can significantly change the plant composition in oak ecosystems. Non-native annual grasses, including hedgehog dogtail, may negatively impact plants at risk in Garry oak ecosystems by competing with them for limited resources.

Non-native, annual grasses tend to be more competitive than native species at sites with high nitrogen levels. Invasions of these grasses often follow invasions of nitrogen-fixing shrubs such as Scotch broom (*Cytisus scoparius*).

FIELD DESCRIPTION

Hedgehog dogtail is a hairless, short annual, 20-50 cm tall, with shallow, fibrous roots. It has a distinctive bristly, dense, oval panicle (seed head) that is 1-4 cm long and greater than 1 cm thick. Fertile and sterile spikelets (grass flower units) are paired.

Expert consultation may be required as grass identification may be difficult.

Sterile spikelet, fan-like,
4–5 mm long
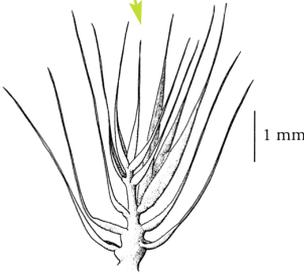
2-flowered
fertile spiklet

2 mm

1 mm
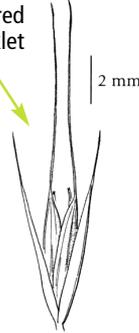
Ligules (projections from
sheath), 2–7 mm long,
membraneous, blunt, the
margins coarsely jagged
to toothed
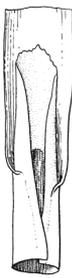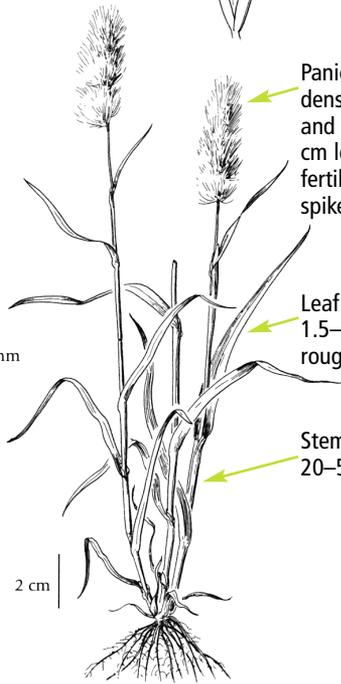
Panicle (seed head),
dense, erect, bristly
and egg-shaped, 1–4
cm long with paired
fertile and sterile
spikelets

Leaf blades flat,
1.5–2.5 mm wide,
rough

3 mm

Stems hollow, erect,
20–50 cm tall

Leaf sheaths
split open

2 cm

Illustrations from *Vascular Plants of the Pacific Northwest* by C.L. Hitchcock,
A. Cronquist, M. Ownberg and J.W. Thompson © 1955–69 reprinted by
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LIFE HISTORY

Hedgehog dogtail reproduces from seeds. Seeds germinate in the fall
and plants survive the winter as small seedlings. The plants flower
early the following spring and set seed in early summer to take
advantage of early spring moisture. Hedgehog dogtail produces large
numbers of seeds that persist in the seed bank.

HABITAT

Hedgehog dogtail grows in disturbed areas such as clearings and roadsides and is often associated with other exotic grasses. It is also found along the edges of dry forests, in thin soils, and over broken rock.

MANAGEMENT

Hedgehog dogtail is well-established in many thin-soiled Garry oak ecosystems. The highest priority should be placed on its control or removal in the areas of highest conservation value, such as areas with rare or endangered plants.

> **Develop a long-term, realistic program for invasive species removal before undertaking any work. Before taking action, expert advice should be obtained. Please refer to the introductory section of this manual.**

PHYSICAL CONTROL: Hand pulling of annual grasses such as hedgehog dogtail may be effective early in the spring before the seed sets, but this is very labour intensive. It can also be difficult, as non-native grasses will likely be mixed with native species. Carefully identify native and non-native species before starting removal of non-native grasses. It is very important to minimise soil disturbance when hand pulling.

BIOLOGICAL CONTROL: No known biological agents are available.

CHEMICAL CONTROL: Non-selective herbicides will kill hedgehog dogtail but will also kill native grasses and wildflowers. Selective herbicides, such as fluazifop and sethoxydim, kill only broad-leaved grasses but will not harm sedges, wildflowers or fine-leaved grasses such as the native Roemer's fescue (*Festuca idahoensis* ssp. *roemeri*).

Herbicides should only be used with extreme caution, and under expert advice, in sensitive Garry oak ecosystems.

OTHER TECHNIQUES: Mowing may be useful to reduce annual grasses such as hedgehog dogtail if it is done before the seed sets in the early summer. Plant material should be removed after it is mowed to reduce the amount of litter. Mowing should be done after the wildflowers have set seed (early to mid July), which leaves a very narrow window of time for effective control. Hedgehog dogtail growing on rocky outcrops may need to be cut with a "weed-wacker" rather than a mower.

More research is needed to investigate the responses of hedgehog dogtail to mowing and other potential management techniques such as fire and grazing.

PREVENTATIVE MEASURES: The best way to minimise the invasion and spread of hedgehog dogtail is to prevent soil disturbance in natural areas. The use of fertiliser should be avoided in Garry oak areas because fertiliser can favour non-native grasses. Encourage plant nurseries, gardeners and farmers to stock and use native or non-invasive species, and to avoid using non-native grasses such as hedgehog dogtail.

PERSISTENCE: Control of well-established infestations of hedgehog dogtail is very difficult because of the persistent seed bank.

GENERAL COMMENTS

"*Cynosurus*" comes from the Greek *kynos*, "of a dog" and *oura*, "tail", which describes the long, bristly panicle of a related species. The common name "dogtail" is from the same origin.

REFERENCES

Douglas, G.W., D. Meidinger and J. Pojar (eds.), 2001. *Illustrated Flora of British Columbia, Volume 7: Monocotyledons (Orchidaceae through Zosteraceae)*. Ministry of Sustainable Resource Management, Ministry of Forests, Victoria, BC.

For more information contact the Garry Oak Ecosystems Recovery Team, or see the website at www.goert.ca