

WATER HEMLOCK

Cicuta douglasii (DC.) Coult. & Rose

Family: *Apiaceae* (Parsley).

Other Scientific Names: None.

Other Common Names: Douglas's water hemlock, Western water hemlock.

Legal Status: Not categorized.



Identification

Growth form: Perennial forb.

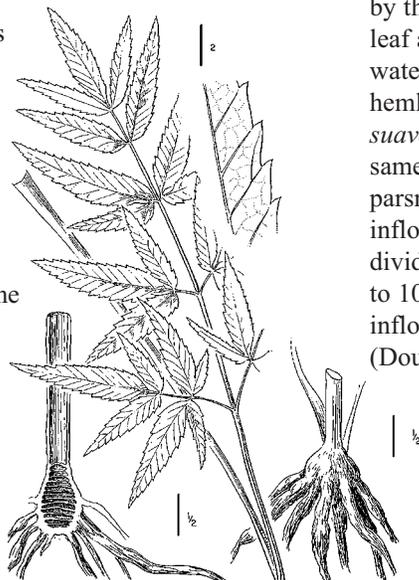
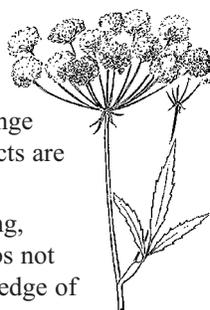
Flower: Flower heads comprise several to many small, compact clusters forming several compound umbels. Flowers range from white to greenish; involucre bracts are mostly lacking (Douglas et al. 1998).

Seeds/Fruit: Egg-shaped, 2–4 mm long, smooth, glabrous, corky-thickened; ribs not equal, with a narrow raised border on edge of dark intervals (Douglas et al. 1998).

Leaves: Basal and stem leaves divided 1–3 times, leaflets 3–4 times as long as broad, lance-shaped to narrowly oblong or elliptical, sharply pointed and toothed, 4–7 mm long; lateral veins ending at base of the teeth (Douglas et al. 1998).

Stems: Solitary or in a cluster, from a tuberous-thickened and chambered base; leafy, glabrous, 0.5–2.0 m tall. Stems hollow, streaked with purple. The somewhat swollen base with cavities separated by cross partitions of solid tissue is easily seen when the stem is split lengthwise at the base just above the roots.

Roots: Taproot or clusters of tuberous roots around the stem base; chambered. Chambers contain the highly toxic yellowish, oily exudate, cicutoxin. USE EXTREME CAUTION when cross-sectioning the roots.



Seedling: Seedling leaves are fern-like in appearance.

Similar Species

Exotics: Poison hemlock (*Conium maculatum*), which is similar in appearance and highly poisonous, is locally common in the Vancouver and Victoria areas and rare in south-central BC (Douglas et al. 1998). Differs from water hemlock by having fern-like leaves that give the plant a lacy appearance compared to water hemlock, where the leaflets are 3–4 times as long as broad. Fruits of water hemlock also have a narrow raised border, whereas the fruits on poison hemlock are egg-shaped, flattened, and smooth.

Natives: There are 4 native *Cicuta* species in BC and all are highly poisonous. Spotted cowbane (*Cicuta maculata*) is common throughout BC and differs from water hemlock in its much narrower leaves and notable spots on the stems. Bulbous water hemlock (*Cicuta hulfifera* L.), which is infrequent east of the Cascade Mountains (Douglas et al. 1998), is readily recognized by the small bulblets that grow at the angles formed by leaf and stem (Frankton and Mulligan 1970). European water hemlock is rare in northeastern BC. Water hemlock is also similar to hemlock water-parsnip (*Sium suave*), which occupies similar habitats and has the same distribution as spotted cowbane. Hemlock water-parsnip is not poisonous; its roots are solid; the inflorescence has bractlets; and the leaves are once divided, with each leaflet being linear and growing up to 10 cm long. Water hemlock roots are chambered, the inflorescence is bractless, and the leaflets are divided (Douglas et al 1998).

Impacts

Agricultural: All water hemlocks are highly poisonous to livestock. A single root can kill a mature cow.

Ecological: Commonly grows in wet stream banks, ditches, marshes, meadows, and wet pastures.

Human: Water hemlock is a highly poisonous plant that should be handled with care. All parts of the plant are poisonous to humans.

Habitat and Ecology

General requirements: Water hemlock is generally found on moist soils, can tolerate poorly drained soils, and is often scattered in riparian areas. It is usually found along streams, irrigation ditches, and the borders of marshes (Douglas et al 1998).

Distribution: In BC it is found in wet habitats east of the Coast-Cascade mountains and north to the Yukon (Douglas et al. 1998). It is present in all agricultural reporting regions.

Historical: Native.

Life cycle: Douglas's water hemlock is a biennial that can grow 3 m tall. In the first year, plants form a small seedling that resembles wild carrot. Plants usually bolt

in the second year and produce numerous clusters of white flowers. Plants flower from April through July. Seed-set begins in July and continues into winter. Most seeds mature before dispersal and can germinate immediately if environmental conditions are favourable, but some seeds remain dormant.

Mode of reproduction: By seed.

Seed production: No information available.

Seed bank: No information available.

Dispersal: By water and wind. Can also be spread by machinery, on clothing, or in transported soil.

Hybridization: No information available.

Management

Biocontrol: None.

Mechanical: Water hemlock can be controlled by digging, repeated mowing, and pulling. **Care should be taken to avoid contact with bare skin** (wear latex or rubber gloves). Wash hands thoroughly after handling any part of this plant. Dispose of gloves and thoroughly clean any equipment used to control this plant immediately after use.

Fire: No information available.

Herbicides: No information available. Application of herbicide will likely be restricted by proximity to water and riparian areas. Consult the most recent edition of BC Ministry of Agriculture, Food and Fisheries Crop Production Guides for specific recommendations.

Before applying herbicides, read the label for full use and precautionary instructions.

Cultural/Preventive: Prevent the establishment of new infestations by removing plants, eliminating seed

production, and maintaining healthy native communities. Fence infestations to restrict livestock access if practical.

Integrated Management Summary

The tendency of this species to grow in wet areas may restrict the use of herbicides. Eliminate seed production and exhaust the soil seed bank by removing seed heads before seeds mature. Use latex or rubber gloves for hand-pulling, and avoid touching the plant with bare skin. Dispose of gloves after contact with the plant and thoroughly clean all equipment used in handling this plant before subsequent use.

References

Douglas, G. W., G. B. Straley, D. Meidinger, and J. Pojar. 1998. *Illustrated Flora of British Columbia*. Vol. 1: *Gymnosperms and Dicotyledons (Aceraceae through Asteraceae)*. Province of British Columbia.

Frankton, C., and G. A. Mulligan. 1970. *Weeds of Canada*. Publication 948. Ottawa: Canada Department of Agriculture.

