

Grand Coulee owl-clover (*Orthocarpus barbatus*)

Orobanchaceae (Broom-rape Family)

RANGE

- Highly restricted distribution in western North America, from southern British Columbia south to Grant County in south-central Washington (USA)
- In B.C., reported from only four locations in the south Okanagan Valley near Osoyoos, and two locations in the Similkameen Valley

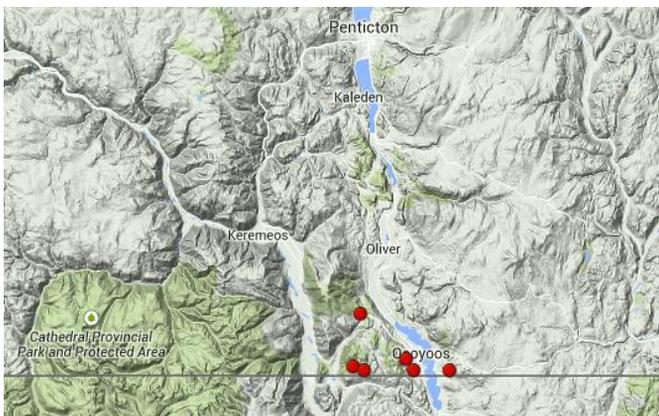


Figure 1 B.C. distribution of *Orthocarpus barbatus* (BC CDC 2014)

HABITAT

- Hot, dry shrub-steppe habitats with silty to sandy, moderately to well drained soils in the Bunchgrass and Ponderosa Pine Biogeoclimatic Zones
- Generally south-facing aspects with gentle to moderate slopes, although it has been found on east aspects and on steeper slopes (up to 35%)
- Associates include sagebrush (*Artemisia* spp.), common rabbit-bush (*Ericameria nauseosa*), needle-and-thread grass (*Hesperostipa comata*), prairie sagewort (*Artemisia frigida*) and woolly plantain (*Plantago patagonica*)



Figure 2 Shrub-steppe habitat west of Osoyoos, B.C.



Figure 3 Shrub-steppe habitat near the Similkameen Valley, B.C.

LIFE HISTORY

- Annual species that grows each year from seed, germinating during spring warm-up and before water evaporates from the soil
- Flowering occurs from May into June with seeds maturing during this time; plants turn light brown and die as the summer conditions become dry and hot
- Seed release occurs in late fall or winter when capsules dry and split open
- Does not reproduce vegetatively, so survival of a population depends on seeds and seed bank
- Seeds possibly dispersed by insects or small mammals
- May be subject to annual population fluctuations due to varying environmental conditions

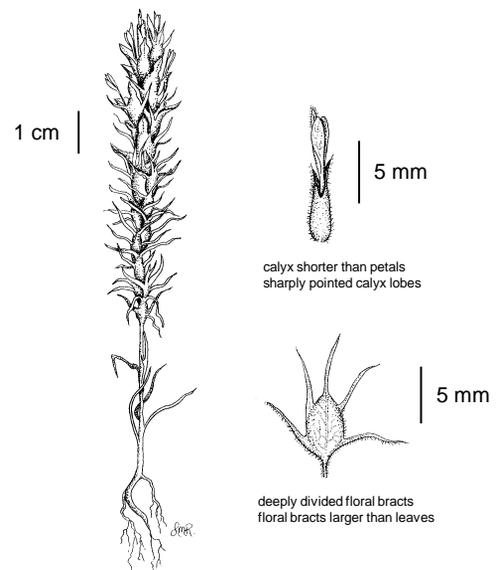


Figure 4 Illustration of *Orthocarpus barbatus* (Douglas et al. 2000)

Orthocarpus barbatus (continued)

DESCRIPTION

General

- Small, green or yellow-green herb
- Stems simple or branched, usually reddish
- From 5 to 25 cm tall with spreading hairs on leaves and stem

Leaves

- Leaves 2 to 4 cm long, stalk-less, and arranged alternately along stem
- Leaves linear to narrowly lanceolate on lower plant, and deeply divided above into 3 to 5 narrow lobes

Flowers

- Flowers grouped tightly in an upright, prominently bracted spike (terminal aggregation)
- Bracts larger than leaves, usually bright yellow-green, cleft into 3 to 5 sharply pointed, narrow lobes
- Petals yellow and fused, from 10 to 12 mm long, and enclosing stamens and pistils
- Calyx (fused sepals) shorter than petals and 2-cleft, with each segment divided into 2 lobes

Fruits

- Capsules elliptical and contain several seeds, each with a tightly appressed (laying flat), netted coat



Figure 5 Close-up of bright, yellow-green flowering spikes, yellow petals, and deeply divided floral bracts

IDENTIFICATION TIPS

- Characterized by bright, yellow-green flowering spikes and deeply divided floral bracts
- May be confused with Thompson's Paintbrush (*Castilleja thompsonii*), which is found in some of the same sites
- Thompson's Paintbrush is a larger, perennial plant with pale or creamy yellow spikes, and rounded leaf and calyx lobes, whereas *O. barbatus* is an annual, smaller in stature, and distinguished by bright yellow-green spikes and sharply pointed calyx lobes



Figure 6 Plants gone to seed, showing dry, split capsules

GENERAL THREATS AND GUIDANCE

- **Avoid development in areas with known occurrences of *Orthocarpus barbatus* through project relocation or redesign**
- Protect shrub-steppe grassland habitat from disturbance and development and consider restoration (including invasive plant removal) following professional advice
- Follow provincial methods for when and how to conduct plant species at risk surveys
- Follow provincial policy and guidance on how to avoid, minimize, restore and offset impacts to plant species at risk and their habitats
- Report any sightings to the B.C. Conservation Data Centre (cdccdata@gov.bc.ca) and FLNR Ecosystems Section (josie.symonds@gov.bc.ca)

REFERENCES

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