

# Golden paintbrush (*Castilleja levisecta*)



**ENDANGERED**



*Inflorescences (left), habit (center), and habitat (right) of golden paintbrush. Photos by Tom Kaye (left and center) and Dani Marshall (right). If downloading images from this website, please credit the photographer.*

## Family

Orobanchaceae

## Taxonomic notes

The genus *Castilleja* was formerly included with the Schrophulariaceae.

## Plant description

Golden paintbrush is a perennial with many stems growing from a short branching base. Stems are usually simple, erect, or slightly decumbent at the base, 10–50 cm tall, and softly viscid-villous. Leaves are viscid-villous to hispidulous, 2–4 cm long, closely ascending, the lower leaves linear-lanceolate and entire, the upper leaves oblong-ovate or –obovate with 1–4 pairs of shallow lobes toward the apex. The inflorescences are straight and erect, with flowers remote and mostly hidden by overlapping bracts. Bracts are golden yellow, sometimes tinged with reddish-orange, about equal to the width of the upper leaves, oblong, obtuse, and usually lobed at the apex. The calyx is 1.5–1.8 cm long, externally pubescent, deeply and subequally cleft above and below, the primary lobes again deeply 2-lobed with linear obtuse segments. The corolla is 2.0–2.3 cm long, the slender galea 0.6–0.9 cm long, puberulent, and about 3–4 times longer than the unpouched lower lip.

## Distinguishing characteristics

The bright golden to yellow floral bracts of golden paintbrush distinguish it from all other *Castilleja* species that occur within its range.

## When to survey

Surveys for golden paintbrush should be completed from late April to early June when the species is flowering.

## Habitat

Extant populations of golden paintbrush in Washington state occur in sandy, well-drained soils of glacial origin, in areas influenced by sea spray. The species inhabits flat grasslands, mounded prairies,

and steep, grassy bluffs. In the Willamette Valley of Oregon, golden paintbrush is believed to have historically occurred in the well-drained soils of upland prairies that were maintained by fires set by Native Americans. It also potentially inhabited gravel outwashes of the Columbia and Santiam Rivers. Associated species include *Festuca idahoensis*, *F. rubra*, *Camassia quamash*, *Holcus lanatus*, *Achillea millefolium*, *Pteridium aquilinum*, *Vicia* spp., and *Bromus* spp.

## Range

Golden paintbrush historically ranged from the Willamette Valley of Oregon north to British Columbia. The species was believed to be extirpated in Oregon, its current range restricted to 11 known extant occurrences in the Puget Trough of Washington and British Columbia. There are about 30 reintroduced populations in Oregon, with populations ranging from 1 flowering individual to over 80,000 in a 2023 survey.

## Oregon counties

Benton\*, Clackamas\*, Lane\*, Linn, Marion, Multnomah, Polk\*, Washington — \*Introduced populations only. ODA does not require surveys in counties where the only known occurrence of the species in that county is an introduced population.

## Federal status

Delisted due to recovery (2023)

## Threats

Habitat loss due to agricultural, residential, and commercial development is one of the primary threats facing golden paintbrush. Habitat degradation caused by encroachment of native and non-native woody shrubs that produce shade and compete with golden paintbrush is also a serious threat. Major damage due to herbivory by deer, rabbits, and voles has been observed in golden paintbrush populations; herbivory by insects has also been observed and poses a minor threat. Ill-timed fires at critical points in the growing season and soil erosion pose documented threats to this species, and with its showy inflorescences, golden paintbrush is vulnerable to over-collection at public sites with high recreational use. Genetic swamping through hybridization with *Castilleja hispida* is another threat, though less common in Oregon since reintroductions are carefully selected. Drought and high temperatures during the growing season associated with climate change are likely to increase stress on golden paintbrush.

## Conservation planning

A U.S. Fish and Wildlife Service Recovery Plan was released for golden paintbrush in 2000. A U.S. Fish and Wildlife Service Recovery Plan for prairie species of western Oregon and southwestern Washington was released in 2010 and addresses conservation needs of golden paintbrush. A U.S. Fish and Wildlife Service Species Status Assessment was completed for golden paintbrush in 2019. Since golden paintbrush was federally delisted in 2023, the Oregon Department of Agriculture has partnered with Institute for Applied Ecology on ESA-mandated post-delisting monitoring.

## Did you know?

*Institute for Applied Ecology (appliedeco.org) spearheaded the trial reintroductions of golden paintbrush in the Willamette Valley beginning in 2010.*

## References

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