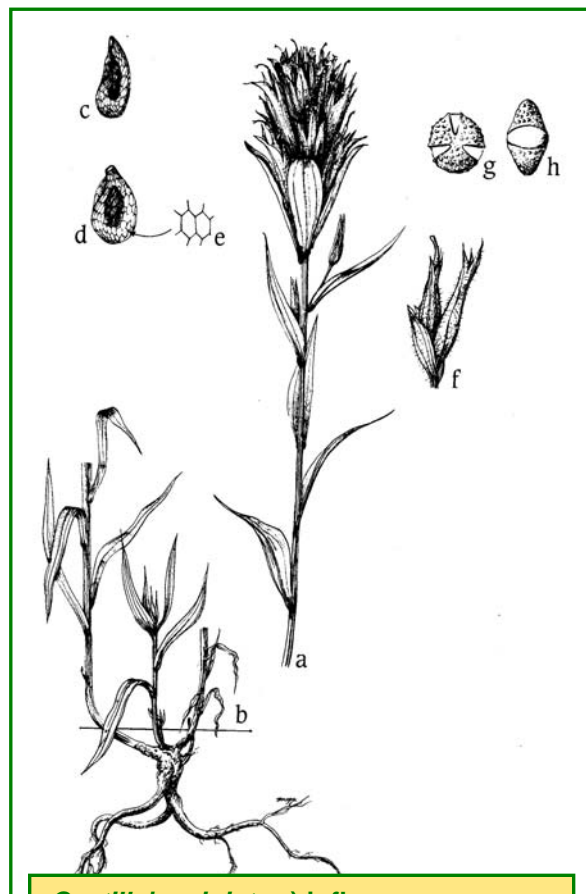


Scientific Name: *Castilleja miniata* Dougl. ex. Hook.

Family: *Scrophulariaceae*

Common Names: common red paintbrush, giant red Indian paintbrush, scarlet paintbrush



***Castilleja miniata* a) inflorescence, b) underground growth, rhizome, c-d) seed, e) seed texture, reticulation, f) flower including bract, g-h) pollen grain.**

Plant Description

Perennial herb; stems are mostly 20 to 60 cm tall, glabrous or somewhat hairy; leaves, alternate and sessile, narrowly lanceolate to ovate, three-nerved, usually glabrous, entire or shallowly three-lobed; showy bracts red or yellowish, entire or cleft; calyx 1.5 to 2.5 cm long, subequally cleft above and below; corolla 2 to 3.5 cm long, the galea more than half as long as the corolla-tube (Moss 1983).

Seed: Reticulated in honeycomb pattern (Moss 1983).

Habitat and Distribution

Open woods and meadows (Moss 1983).

Wet to dry meadows, grassy slopes, fens, tidal marches, clearings, roadsides, thickets and open forests (E-Flora BC 2013).

Seral Stage: Early.

Soil: Wet to moist, well-drained soils (Lady Bird Johnson Wildflower Center 2013).

Distribution: Throughout Alberta. Southern Alaska, British Columbia to Manitoba, south to California, New Mexico (Moss 1983).

Phenology

Flowers from June to August (Lady Bird Johnson Wildflower Center 2013).

Pollination

Castilleja genus is generally pollinated by hummingbirds and is self-pollinating (Lady Bird Johnson Wildflower Center 2013).

Seed Dispersal

Castilleja seeds are carried short distances by wind, but are usually just dropped to the base of the plant (Caplow 2004).

Genetics

$2n=24, 48, 72, 96, 120$ (Moss 1983).

Symbiosis

Roots grow until they touch the roots of other plants, frequently grasses, then penetrate the roots of these host plants obtaining a portion of their nutrients (Lady Bird Johnson Wildflower Center 2013).

Seed Processing

Collection: Care should be taken to avoid pulling up the plants by the fragile roots when removing the

seed head. The tops can be cut to prevent damage to the delicate plant (Lady Bird Johnson Wildflower Center 2013).

Harvest Dates: Late July and late August (Lady Bird Johnson Wildflower Center 2013).

Cleaning: Air-dry fruits; crush material or remove large chaff and crush remaining material; sieve to remove seeds from chaff using appropriate size screens; small chaff and dust can be removed by winnowing; if capsules are intact merely open capsules and empty seeds, sieve or winnow to remove chaff (Hong et al. 1998).

Storage: Store dry in sealed containers (light weight seeds are easily blown away).

Storage Behaviour: Orthodox (Hong et al. 1998).

Longevity: No literature found.

Propagation

Natural Regeneration: Emerges from seed.

Germination: Cold stratification of 30 days is likely sufficient to break dormancy and seedlings will emerge well when sown (based on work with *C. raupii*).

Pre-treatment: Cold stratification may be required (Smreciu et al. 2006).

Direct Seeding: Some success has been reported with similar species (*C. raupii*) directly sown in north-eastern Alberta. Sow with another herbaceous perennial for best results (Lady Bird Johnson Wildflower Center 2013).

Seeding Rate: 200 seeds/m² was sufficient to establish *C. raupii* in north-eastern Alberta, but a higher rate is recommended.

Aboriginal/Food Uses

Medicinal: Flower heads can be dried and mixed with wild chamomile flowers to make a tea for headache treatment (Marles et al. 2000).

Other: An attractive ornamental (Marles et al. 2000).

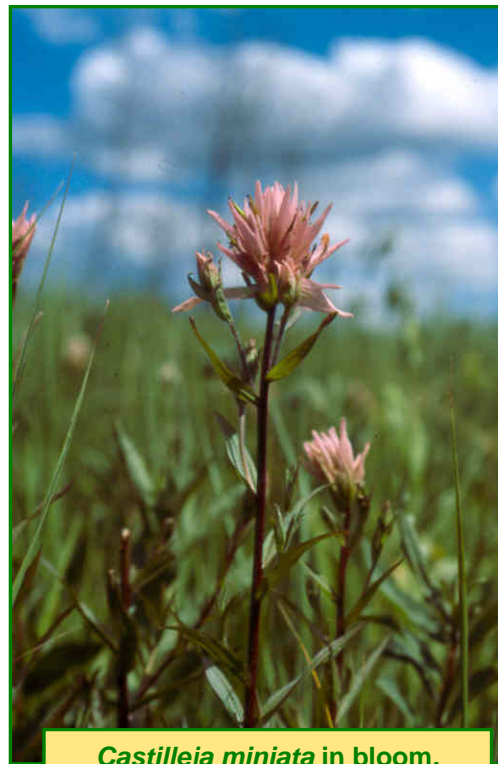
Wildlife/Forage Usage

Livestock: Poor to fair forage value although fairly palatable (Tannas 2004).

Grazing Response: Although an increaser. *Castilleja* is rarely aggressive due to the taproot growth habit and reliance on associated vegetation (Tannas 2004).

Reclamation Potential

An early seral species with few germination requirements, it is expected that *Castilleja miniata* would be an excellent addition to pioneering seed mixes.



***Castilleja miniata* in bloom.**

Commercial Resources

Availability: Seeds and plants are commercially available in Alberta (ANPC 2010).

Uses: Often used as an ornamental in horticultural gardens (Lady Bird Johnson Wildflower Center 2013).

Notes

C. miniata is listed as 88% intact (less occurrences than expected) in the Alberta oil sands region (Alberta Biodiversity Monitoring Institute 2014).

Photo Credits

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Line Diagram: John Maywood, used by permission of Bruce Peel Special Collections, University of Alberta.

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