

PEDICULARIS

DESCRIPTION

BOTANICAL NAMES:

Pedicularis bracteosa, *P. densiflora*,
P. groenlandica, *P. oederi*, *P. racemosa*, *P. spp.*

COMMON NAMES:

Pedicularis, lousewort, bracted lousewort,
ram's horn pedicularis, elephant's head,
betony, wood betony, Indian warrior,
parrot's beak, sickletop, cobra's head

FAMILY NAME:

Orobanchaceae (formerly Scrophulariaceae)

PARTS USED: The aerial portions, including foliage and flowers.

BOTANICAL DESCRIPTION AND HABITAT: *Pedicularis* is a semi-parasitic, perennial herb that grows throughout the circumboreal temperate zones and South America.



It is a highly diverse genus, with as many as 352 species in China alone.¹ Some species grow in shaded forested areas; others grow in mountain meadows or bogs, or along streams. Many *Pedicularis* species are used interchangeably; this document refers to the most common species growing throughout western North America.

Pedicularis bracteosa grows up to one meter tall, with fern-like leaves (1–7 cm long) that are finely divided, deeply dentate, with short or non-existent petioles on the flowering stems.² The yellow, red, or purple corollas (13–21 mm long) are bilaterally symmetrical, with a fused tube featuring a hooded upper lip, and a lower lip consisting of three smaller lobes.² The flowers grow in dense, elongated terminal spikes (5–18 cm long) with several hairy, leafy bracts.³ The sepals are fused with five teeth, and four stamens are attached to the petal tube. *P. bracteosa* thrives in moist meadows, open forests, and mountain clearings in subalpine to alpine elevations.



Pedicularis densiflora reaches 15–60 cm in height. The plant has lush, deep green, fern-like leaves (50–28 cm long) that are finely divided, pinnate, dentate, primarily growing basally, with smaller leaves alternating upward along the stem.⁴ The striking dense spikes (4–12 cm long) bear crimson flowers. Each flower has four stamens and a fused, hooded corolla (23–36 mm long) with a prominent lower three-lobed petal one-fourth the size of the upper petal and surrounded by hairy bracts.⁴ *P. densiflora* grows in shaded deciduous or evergreen forests in lower elevations.

Pedicularis groenlandica grows 20–70 cm tall.⁵ It has reddish-purple, mostly basal, fern-like leaves (3–25 cm long) pinnately divided into oblong, toothed segments.⁵ The leaves ascending the stem are progressively smaller.⁵ The ornate pale pink to purple flowers grow in dense terminal spikes (1–30 cm long); each flower resembles an elephant's head.⁵ The corolla reaches 8–15 mm long.⁵ The upper petal is elongated and curved upward (forming the head and trunk); the lower three-lobed petal flares out, resembling elephant ears. The sepals (3–6 mm long) are fused into a tube with five teeth.⁵ This species is pollinated by bumblebees. *P. groenlandica* grows in moist mountain meadows and bogs, and along streams in middle to high elevations.



Pedicularis langsdorffii



Pedicularis canadensis

Pedicularis oederi has a stout, woody stemmed base with thick, hairy stems (5–25 cm). The thick, dark green stalked leaves (1.5–7 cm long) are very finely, pinnately lobed, and have up to 30 pairs of segments per leaf, with sharp teeth growing mainly at the base. There are only one to two alternating leaves ascending the stem that become progressively smaller than the basal leaves.⁶ The bilaterally symmetrical, vibrant yellow flowers are beakless, with a brownish tip featuring two red spots. The flowers grow in dense spikes, (5–10 cm long). They have leaf-like bracts and four stamens grouped into two pairs. Each stamen bears long hairs protruding from the filament.⁶ *P. oederi* grows on high elevation rocky slopes and cliffs.

Pedicularis racemosa is a perennial growing 15–50 cm tall. It has a woody stem base with clusters of lanceolate to narrow, oblong, undivided dentate leaves. The lanceolate leaves (2–10 cm long) alternate along the stem, progressively decreasing in size as they near the flowering heads (1–5 cm long).⁷ The corollas (10–16 mm long) are bilaterally symmetrical, ranging in color from white, to pinkish-purple, to scarlet.⁷ Emerging from a fused tube, the upper lobe is strongly arched, tapering into the shape of a sickle or ram's horn. The downward curving beak reaches a prominent three-lobed lower platform. The sepals (4.5–8 mm) are fused; the four stamens are fused to the petals.⁷ *P. racemosa* grows in dry meadows, open coniferous forests, or rocky slopes in middle to subalpine elevations.



Pedicularis verticillata

THE NAME: The genus name *Pedicularis* means “of lice.” The epithet *bracteosa* refers to the leafy bracts surrounding the flowering heads. The epithet *densiflora* describes the dense terminal clusters of flowers. *P. groenlandica* (“Greenland”) was first described in 1795 by Swedish natural history professor, Anders Jahan Retzius (1742 – 1821). Retzius did not discover the specimen; it was originally harvested by an unnamed collector in Greenland during the 1700s.⁸ The epithet *oederi* was named after Georg Christian von Oeder (1728 – 1791), a botany professor in Copenhagen, and the first editor of *Flora Danica*.⁹ *Racemosa* refers to the floral clusters that grow as racemes.

Betony derives from an old Gallic word meaning “medicinal plant.”⁹ *Pedicularis* and *Stachys betonica* are commonly termed wood betony or betony; however, they have different medicinal properties. Lousewort, a common name applied to many *Pedicularis* species, dates to the 17th century. Cattle grazing in fields where pedicularis grew abundantly became infested with lice.⁹

The following common names correspond with the Latin binomials: bracted lousewort, wood betony, cobra’s head, and fernleaf (*Pedicularis bracteosa*); Indian warrior (*Pedicularis densiflora*); elephant’s head and lousewort (*P. groenlandica*); Oeder’s lousewort (*P. oederi*); and horn pedicularis, sickletop lousewort, or parrot’s beak (*P. racemosa*). The common name pedicularis refers to any medicinal species within the genus.

HISTORICAL USES: Infusions of lousewort roots were consumed by numerous tribes in North America to alleviate stomach pain, ulcers, sore throats, and coughs, as a blood tonic, and to reduce blood in stools.¹⁰ A tea prepared from the stems and leaves was consumed as an expectorant and antitussive.¹⁰ *P. canadensis* infusions were consumed to treat internal swelling.¹¹ The Washoe applied a poultice of lousewort to cuts, sores, and swellings; they also consumed the tea as a general tonic.¹⁰ Inuit children sucked the nectar from flowers.¹¹ The Ojibwa believed lousewort was an aphrodisiac.¹¹ The pulverized or cooked root, or finely diced herb was added to food as a love charm to reunite estranged couples.^{10,11} According to legend, a *Pedicularis densiflora* plant grows where an Indian warrior has fallen in battle.¹²

Canadian herbalist Terry Willard notes that the fresh, fleshy root can be eaten raw or cooked like carrots, and the fleshy stems were consumed as a pot herb. However, exercise caution because the safety of consumption is questionable due to the varying levels of alkaloids and the semi-parasitic nature of pedicularis.¹¹ *Note:* Review the Contraindications section before collecting, preparing, or using pedicularis. In India, the leaves of *P. pectinata* are used as a diuretic and hemostatic for blood in the sputum.¹⁰



Pedicularis groenlandica



Pedicularis pseudoversicolor

CONSTITUENTS: Pedicularis contains verbascosides, euphroside, geniposidic acid, plantarenalose, iridoids (aucubins), forsythoside B, leucosceptoside A, martynoside, iridolactone, mussaenoside, echinacoside, shanzhiside methyl ester, cistanoside D, saponins, tannins, monoterpene alkaloids (pedicularine, boschniakine, and others), and pedicularioside.^{13,14} Antioxidant phenylpropanoids have been extracted from *Pedicularis* species.¹⁰

NUTRITIONAL PROPERTIES: Unknown.

MEDICINAL PROPERTIES: Smooth and skeletal muscle antispasmodic, and mild nervine.

TEMPERATURE AND FLAVOR: Neutral and bitter.

MEDICINAL USES

Pedicularis is a skeletal muscle antispasmodic that decreases muscle rigidity.^{15,16} It can be consumed by adults or children with tight, sore muscles.^{15,16} It aids in treating tension headaches, as well as trigeminal pain and tension. Pedicularis relaxes muscle tension and spasms resulting from excessive physical activity such as hiking, gardening, and athletic training. This herb also eases muscle tension resulting from remaining stationary for long periods of

time. Some patients with multiple sclerosis have experienced a decrease in muscle spasms.

Pedicularis is very beneficial in managing chronic pain and tension. It relieves muscular guarding, especially in individuals receiving various forms of therapeutic deep tissue massage, Heller work, or Rolfing.^{15,16} Pedicularis is effective for loosening muscles before a chiropractic adjustment.¹⁵ A birthing mother can consume the herb as a relaxant with no negative effects on uterine contractions. This herb also can be consumed or applied topically following a birth in order to reduce muscle tension and pain resulting from muscle contractions. Pedicularis alleviates muscle spasms in individuals with sciatica, damage to the spinal cord or discs, chronic back pain, or muscle pain following an injury or accident. It has no known effect on nerve pain, so other nerve sedatives are needed to manage pain; however, it helps to relax the muscles. When consumed in low to moderate doses during the day, it rarely affects mental clarity or acts as a sedative. However, some individuals experience mild sedative or stupefying actions when consuming the herb in higher doses.

Pedicularis has subtle nervine effects, and acts as a sedative in some individuals. It has mild smooth muscle relaxant properties, primarily decreasing menstrual cramping. Pedicularis has little effect on digestive cramping or respiratory spasms, although it will ease skeletal muscle tension resulting from spastic coughing. It can be dried and smoked to obtain gentle euphoric and nervine effects.



Pedicularis lanata



CONTRAINDICATIONS

Excessive doses of the tea or tincture can cause excessive relaxation of the muscles, and drowsiness or incoherence. Individuals sensitive to the effects of pedicularis should exercise caution or avoid operating heavy machinery. Consume only a low to moderate dose range during pregnancy and lactation until this herb is more thoroughly researched.

According to herbalist Michael Moore, pedicularis is a semi-parasitic plant that may be able to pick up the secondary compounds of plants growing near it.¹⁵ Avoid harvesting pedicularis plants growing alongside alkaloid-containing plants such as *Senecio* (ragwort), *Lupinus* (lupine), or *Thermopsis* (mountain pea).¹⁵ Those plants contain alkaloids that can strain the liver and other organs when administered in high doses. Some species grow around oaks, and may pick up tannins. Other species grow on pine and spruce trees, and may pick up the aromatics that warm the skin and stimulate urination.¹⁵ I have harvested numerous species of *Pedicularis* growing with oaks, spruce, and pines, and have not noticed that the tinctures are strongly astringent or aromatic. However, due to the plant's potential absorption of toxic alkaloids contained in neighboring plants, take care to identify all plants surrounding pedicularis before harvesting.

PREPARATION AND DOSAGE

TINCTURE: Fresh plant [1:2–1:3, 70–95% alcohol]; recently dried plant [1:5, 50–60% alcohol]; consume 20–120 drops, up to four times daily. Apply topically as a liniment.

GLYCERITE: Fresh plant [1:2, 60% glycerin and 40% distilled water] or [1:2, 50% glycerin and 50% alcohol]; consume 20–90 drops, up to four times daily. Apply topically as a liniment.

CAPSULES: Consume 2–4 “00” capsules of recently dried, ground herb, up to three times daily.

TEA: Prepare a hot infusion; consume 4–8 ounces, up to four times daily.

TOPICAL USE: Apply a liniment, glycerite, fomentation, or poultice to the affected area. Infuse the fresh wilted herb in oil using the double boiler method, or dry the herb and prepare oil using the alcohol intermediary method.