

night-flowering catchfly

Silene noctiflora L.

white cockle

Silene latifolia ssp. *alba* L.

bladder campion

Silene vulgaris (Moench) Garcke

red catchfly

Silene dioica (L.) Clairville

Introduction

Four *Silene* species have been introduced to Alaska. These species share similar biological and ecological attributes. We treat the description, legal listings, and distribution and abundance separately, but combine the discussion of ecological impacts, biology and invasive potential, and control methods.

Invasiveness Rank: 42 The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

night-flowering catchfly

Synonyms: *Elisanthe noctiflora* (Linnaeus) Ruprecht, *Melandrium noctiflorum* (L.) Fries

Other common names: nightflowering silene, sticky cockle

Family: Caryophyllaceae

Description

Night-flowering catchfly is an annual forb that grows from 30 ½ to 91 cm tall with one to three woody stems and a slender taproot. Stems and leaves are covered in sticky hairs. Stems are swollen at the nodes. Leaves are opposite and reduced in size upwards. Basal leaves are stalked, oblanceolate, and 4 to 17 ¾ cm long. Stem leaves are sessile, conspicuously veined, elliptic to lanceolate, 2 ½ to 7 ½ cm long, and up to 4 cm wide. Flowers are fragrant and are arranged in terminal clusters. They open at night. Each flower consists of five petals, ten stamens, and three styles. Petals are deeply notched, white to pink, and 19 to 38 mm long. Capsules have ten distinct green veins and three compartments that open at maturity with six backwards-curling teeth. Seeds are kidney-shaped, grey, and about 1 mm long (Douglas and MacKinnon 1998, Royer and Dickinson 1999).

Similar species: Night-flowering catchfly is often confused with white cockle (*Silene latifolia* ssp. *alba*). Night-flowering catchfly has flowers with both stamens and styles in the same flower, whereas white cockle has

white cockle

Synonyms: *Lychnis alba* P. Mill., *L. xloveae* B. Boivin, *L. pratensis* Rafinesque, *L. vespertina* Sibthorp, *Melandrium album* (P. Mill.) Garcke, *M. dioicum* (Linnaeus) Cosson & Germain ssp. *alba* (Miller) D. Löve, *Silene alba* (P. Mill.) Krause, *S. latifolia* Poiret ssp. *alba* (Miller) Greuter & Burdet, *S. pratensis* (Rafn) Godr. & Gren.

Other common names: bladder campion, evening lychnis, white campion

Family: Caryophyllaceae

Description

White cockle is a short-lived perennial or biennial forb that is covered in coarse, sticky hairs and grows from 46 to 106 ¾ cm tall. Leaves are opposite, linear, 19 mm wide, and 2 ½ to 10 cm long. Lower leaves are stalked, and upper leaves are sessile. Male and female flowers grow on separate plants. Flowers are fragrant, 2 ½ cm in diameter, and composed of five deeply notched, white petals. Male flowers have ten stamens, and female flowers have four or five styles. The male calyx has ten prominent veins, and the female calyx has 20 prominent veins. Fruits are 12 ½ to 19 mm long, ovate capsules that open at maturity with ten backwards-curling teeth. Seeds are kidney-shaped, grey to brown, and about 1.5 mm long (Douglas and MacKinnon 1998, Royer and Dickinson 1999, Whitson et al. 2000).

male and female flowers on separate plants. Unlike night-flowering catchfly, white cockle has 20-veined calyxes on the female flowers.



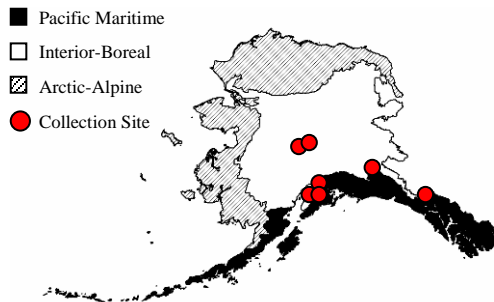
Flowers and foliage of *Silene noctiflora* L. Photo by H. Price.

Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states (MN)
- Federal noxious weed
- Listed noxious in Canada or other countries (AB, BC, MB, SK)

Distribution and Abundance

Night-flowering catchfly has been documented from the Pacific Maritime and Interior-Boreal ecogeographic regions of Alaska (AKEPIC 2010).



Distribution of night-flowering catchfly in Alaska



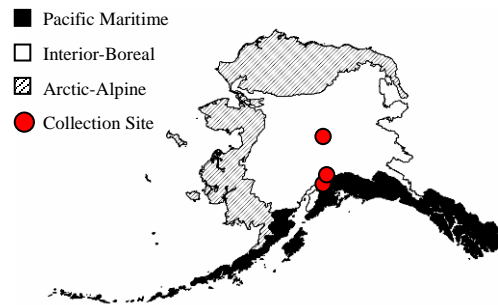
Flowers of *Silene latifolia* ssp. *alba* L. Photo by Ohio State Weed Lab Archive

Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states (WA)
- Federal noxious weed
- Listed noxious in Canada or other countries (AB, SK)

Distribution and Abundance

White cockle has been documented from the Pacific Maritime and Interior-Boreal ecogeographic regions of Alaska (AKEPIC 2010).



Distribution of white cockle in Alaska

bladder campion

Synonyms: *Behen vulgaris* Moench, Meth. Pl. 709. 1794, *Cucubalus behen* Linnaeus (1753), *C. latifolius* Miller, *C. venosus* Gilibert, *Oberna commutate* (Guss.) S. Ikonnikov, *Silene cucubalis* Wibel, *S. inflata* Smith, *S. inflata* var. *vulgaris* Turczaninow, *S. latifolia* (P. Mill.) Britten & Rendle, non Poir., *S. latifolia* (Miller) Britten & Rendle var. *pubescens* (de Candolle) Farwell, *S. venosa* (Gilibert) Ascherson, *S. wallichiana* Klotzsch.
Other common names: bladder silene, cowbell, maiden's tears, rattleweed
Family: Caryophyllaceae

Description

Bladder campion is a hairless, perennial forb that grows up to 91 cm tall from a woody rootstock. Stems are branched from the base, smooth, and swollen at the nodes. Leaves are sessile, smooth, ovate or lanceolate, glaucous, pale green, 31 ½ to 82 mm long, and 12 ½ to 31 ½ mm wide. Flowers are 12 ½ mm in diameter and are borne in terminal clusters of five to 30. They are composed of 5 united and deeply notched petals, 10 stamens, and 3 styles. Calyxes are initially slender but develop into greatly inflated, often purplish, papery, sac-like structures that surround the bulbous fruits. Fruits open at the toothed tops of the calyxes. Seeds are numerous, small, and grayish (Douglas and MacKinnon 1998, Royer and Dickinson 1999, Whitson et al. 2000).
Similar species: Bladder campion can be confused with white cockle and night-flowering catchfly. Unlike bladder campion, white cockle is hairy and has male and female flowers on different plants. Night-flowering catchfly can be distinguished from bladder campion by the presence of sticky hairs (Douglas and MacKinnon 1998).



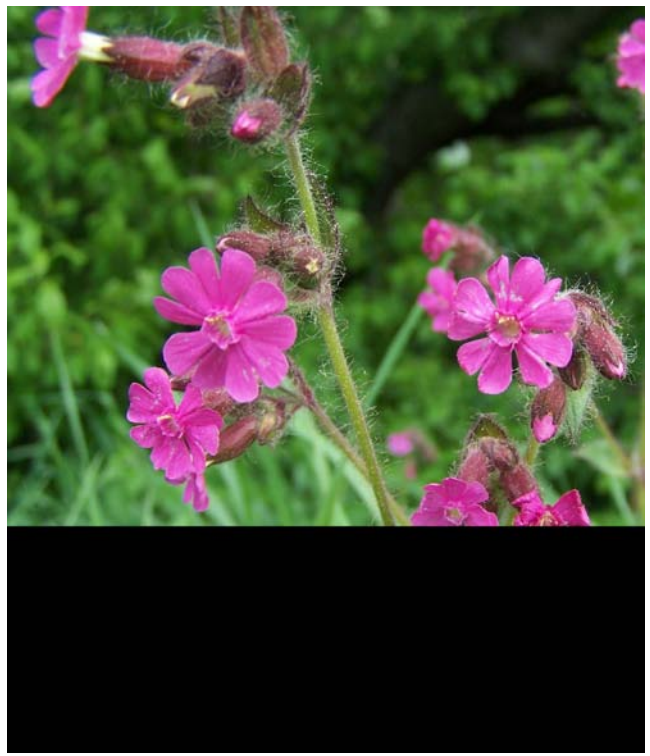
Flowers of *Silene vulgaris* (Moench) Garcke. Photo by M. Lemmer.

red catchfly

Synonyms: *Lychnis dioica* L., *L. rubra* (Weigel) Patze, E. H. F. Meyer & Elkan, *Melandrium dioicum* (L.) Cross. & Germ., *M. dioicum* ssp. *rubrum* (Wieg.) D. Löve, *M. rubrum* (Weigel) Garcke
Other common names: red campion
Family: Caryophyllaceae

Description

Red catchfly is a biennial or perennial herb that grows 61 to 91 cm tall from fibrous roots. Stems are erect, several, branched, and covered in glandular hairs above. Leaves are hairy. Basal leaves have narrow to winged stalks and are ovate to elliptic. Stem leaves are sessile, opposite, broadly elliptic, 4 to 10 cm long, and 2 ½ to 4 cm wide. Flowers are unisexual, red to purple, five-petaled, and arranged in clusters. Petals are deeply notched. Fruits are egg-shaped capsules with five toothed valves. Seeds are black (Douglas and MacKinnon 1998).



Flowers of *Silene dioica* (L.) Clairville. Photo by O. Jerzy.

Legal Listings

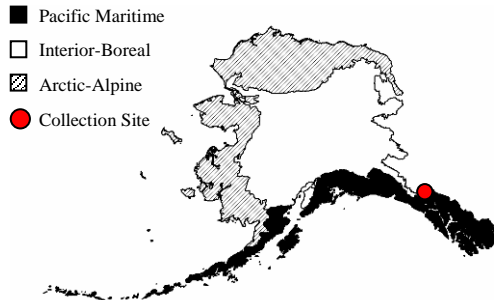
- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states
- Federal noxious weed
- Listed noxious in Canada or other countries

Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states
- Federal noxious weed
- Listed noxious in Canada or other countries (SK)

Distribution and Abundance

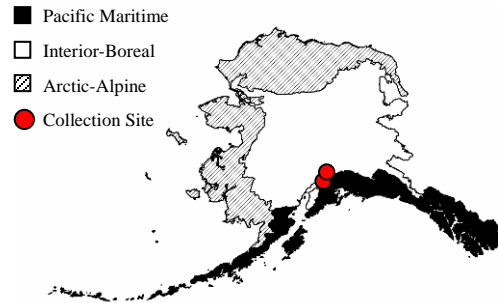
Bladder campion has been documented from the Pacific Maritime ecogeographic region of Alaska (AKEPIC 2010).



Distribution of bladder campion in Alaska

Distribution and Abundance

Red catchfly has been documented from the Pacific Maritime and Interior-Boreal ecogeographic regions of Alaska (AKEPIC 2010).



Distribution of red catchfly in Alaska

Ecological Impact

Impact on community composition, structure, and interactions: These *Silene* taxa compete for moisture, nutrients, and sunlight in pastures and crowd native plants. They are unpalatable to grazing animals. *Silene* species are alternate hosts for numerous viruses (Royer and Dickinson 1999). Hybrids of red catchfly and white cockle have been collected in Canada (Douglas and MacKinnon 1998). Plants are pollinated by moths, bees, and butterflies (Kay et al. 1984).

Impact on ecosystem processes: These *Silene* taxa occupy disturbed ground and likely hinder colonization by native species. These weeds can decrease soil moisture and nutrient availability (Royer and Dickinson 1999).

Biology and Invasive Potential

Reproductive potential: These *Silene* taxa reproduce primarily by seeds. Night-flowering catchfly is capable of producing up to 2,600 seeds per plant, over 82% of which remain viable after 5 years. White cockle can produce over 24,000 seeds per plant (Royer and Dickinson 1999). Red catchfly produced more than 4,500 seeds per plant in an experimental garden in Britain (Kay et al. 1984). White campion and bladder campion are able to reproduce vegetatively by root and stem fragments (Whitson et al. 2000).

Role of disturbance in establishment: These *Silene* taxa can colonize open ground. Buried seeds remain viable

and germinate readily after soil disturbances (Guide to Weeds in British Columbia 2002).

Potential for long-distance dispersal: Most seeds fall to the ground near the parent plant and are not dispersed long distances (Guide to Weeds in British Columbia 2002).

Potential to be spread by human activity: Seeds of these *Silene* taxa are very similar to seeds of crop clovers, and they are difficult to separate. Consequently, seed impurities have been a major source of dispersal. Seeds are capable of germination after passing through the digestive tracts of domesticated animals (McNeill 1980, Royer and Dickinson 1999, Whitson et al. 2000).

Germination requirements: Some seeds germinate in autumn, but most remain dormant over the winter. Seeds germinate readily at a relatively high temperature, 20°C. Some populations may require light for germination (Thompson 1975, McNeill 1980, Guide to weeds in British Columbia 2002).

Growth requirements: These *Silene* taxa typically grow on sand or gravel, but they can also be found on loam (McNeill 1980).

Congeneric weeds: A number of other *Silene* species are serious agricultural weeds (Royer and Dickinson 1999, Whitson et al. 2000).

Distribution and Abundance

These *Silene* taxa are important weeds of pastures, grain fields, and gardens. They also grow in roadsides,

railroad tracks, and waste places (McNeill 1980, Royer and Dickinson 1999, Gubanov et al. 2003)

Native and current distribution: These *Silene* taxa were introduced to North America from Europe and Asia. They currently grow throughout Canada and the United States (Royer and Dickinson 1999).

Management

Mowing or burning is unlikely to effectively control *Silene* taxa because of their large seed banks. Cultivation usually intensifies infestations by facilitating the spread of *Silene* taxa. Herbicides provide limited control; many *Silene* taxa are resistant or somewhat resistant to common herbicides. No biological control agents are available (McNeill 1980, Guide to weeds in British Columbia 2002).

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