

perennial cornflower

Centaurea montana L.

Synonyms: *Centaurea montana* var. *alba* hort.

Other common names: bluet, mountain bluet, mountain cornflower, mountain knapweed

Family: Asteraceae

Invasiveness Rank: 46 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.

Description

Perennial cornflower is a rhizomatous, perennial herb that grows from 25 to 80 cm tall. Stems are single to several, erect, simple or sparsely branched, narrow-winged, and thinly hairy. Leaves are thinly hairy, ovate to lanceolate, entire, and 10 to 30 cm long. Lower leaves are petiolated, whereas upper leaves are sessile. Flower heads are borne alone or in small groups. Involucres are 20 to 25 mm long and 12 to 15 mm wide. Involucral bracts are ovate to lanceolate and glabrous with brown or black, tattered margins. Flower heads have 35 to 60 florets, of which 10 to 20 are sterile. Sterile florets are marginal, 2.5 to 4.5 cm long, and usually blue but sometimes white, purple, or pink. Disc florets are 16 to 20 mm long and purple with dark purple anthers. Seeds are 5 to 6 mm long and covered with soft hairs. Each seed has a pappus of short bristles that are 0.5 to 1.5 mm long (Keil and Ochsmann 2006, Klinkenberg 2010, NatureGate 2010).



Flower head and involucral bracts of *Centaurea montana* L.

Similar species: Spotted knapweed (*Centaurea stoebe*) and garden cornflower (*C. cyanus*) are non-native species that could be confused with perennial cornflower. Unlike perennial cornflower, spotted knapweed has deeply lobed leaves, grayish foliage, and pink or purple florets. Spotted knapweed has smaller involucres (10 to 13 mm long) and thinner leaves than

perennial cornflower. Garden cornflower can be distinguished from perennial cornflower by the presence of leaves that are 3 to 10 cm long, involucres that are 12 to 16 mm long, 25 to 35 florets per flower head, ray-shaped sterile florets that are 2 to 2.5 cm long, and fertile florets that are 10 to 15 mm long. Unlike perennial cornflower, garden cornflower is an annual plant and lacks rhizomes (Keil and Ochsmann 2006).



Centaurea montana L. infestation along a trail in Anchorage, Alaska.

Ecological Impact

Impact on community composition, structure, and interactions: Perennial cornflower can spread vegetatively from rhizomes to form clumps or thick stands (Cortés-Burns and Flagstad 2009, NatureGate 2010), likely changing the densities of forb layers in disturbed areas and limiting the population sizes of native species. Perennial cornflower is attractive to bees (Plants for a Future 2010), and its presence may alter native plant-pollinator interactions. No significant diseases or insect pests are associated with perennial cornflower (Kahtz 2008).

Impact on ecosystem processes: The impacts of perennial cornflower on ecosystem processes have not been documented.

Biology and Invasive Potential

Reproductive potential: Perennial cornflower can reproduce by seeds and rhizomes (Keil and Ochsmann

2006, NatureGate 2010). No information is available on the amount of seeds produced by each plant or the amount of time seeds remain viable in the soil.

Role of disturbance in establishment: Perennial cornflower appears to require bare soil or disturbed ground to establish (AKEPIC 2010). This species can germinate and grow under canopies, and it can germinate in vegetated, disturbed areas, although it does not disperse well (Rapp pers. obs.). When it escapes, it usually grows in mesic roadsides and waste places (Klinkenberg 2010). All documented escaped populations of perennial cornflower in Alaska are associated with disturbed areas. This species grows most commonly on imported fill; 94% of recorded populations in Alaska are associated with fill importation (the remaining populations are associated with trampling disturbance) (AKEPIC 2010). Perennial cornflower has not been documented invading natural areas (Schlaepfer et al. 2010).

Potential for long-distance dispersal: The effects of wind and other factors on seed dispersal have not been documented; however, the achenes are relatively large and the pappus bristles are only 0.5 to 1.5 mm long (Keil and Ochsmann 2006). They are therefore unlikely to aid significantly in long distance dispersal.

Potential to be spread by human activity: Perennial cornflower is widely cultivated as a garden ornamental (Keil and Ochsmann 2006, NatureGate 2010). It has escaped from gardens in Anchorage and Southeast Alaska (Cortés-Burns and Flagstad 2009, AKEPIC 2010). This species can be transported in imported fill and on construction equipment (Rapp pers. obs.).

Germination requirements: Information on the germination requirements of perennial cornflower is not available.

Growth requirements: Perennial cornflower grows well on well-drained, moist soils with little shade. It can tolerate partial shade (Oregon State University 2006).

Congeneric weeds: Spotted knapweed (*Centaurea stoebe*) is an invasive species in Alaska with an invasiveness rank of 86. It is listed as a noxious weed in 16 states. *C. diffusa*, *C. iberica*, *C. jacea*, *C. macrocephala*, *C. melitensis*, *C. nigra*, *C. nigrescens*, *C. solstitialis*, *C. sulphurea*, and *C. virgata* are listed as noxious weeds by various states in the U.S. (AKEPIC 2010, Invaders 2010, USDA 2010).

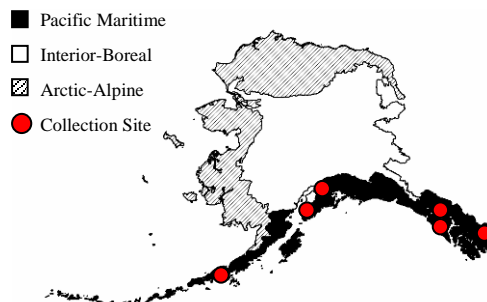
Legal Listings

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

Distribution and Abundance

Perennial cornflower is cultivated as an ornamental in Europe and North America. In North America, escaped populations grow in mesic roadsides, disturbed areas, woodlands, and sagebrush scrub (Keil and Ochsmann 2006, Klinkenberg 2010).

Native and current distribution: Perennial cornflower is native to the mountains of Europe. It has escaped cultivation in Australia and North America, where it grows in 13 states of the U.S. (Blood 2003, Keil and Ochsmann 2006, USDA 2010). This species has been documented from arctic Norway (Elven 2007, Norwegian Species Observation Service 2010). It has been found in the Pacific Maritime ecogeographic region in Alaska (AKEPIC 2010, UAM 2010).



Distribution of perennial cornflower in Alaska

Management

Small populations of perennial cornflower can sometimes be controlled by digging or hand-pulling. Rhizomes must be removed to ensure that they do not form new plants. Controlled areas should be revisited several times during the growing season to ensure that no new plants have sprouted and no flowers have been produced. Manual control efforts may need to be repeated for multiple years (Cortés-Burns and Flagstad 2009, AKEPIC 2010). No chemical or biological control methods for this species have been documented.

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