

WHITE COCKLE

Silene latifolia Poir. ssp. *alba*
(P. Mill.) Greuter & Burdet

Family: Caryophyllaceae (Pink).

Other Scientific Names: *Lychnis alba*, *Silene latifolia*, *Silene alba*.

Other Common Names: White campion.

Legal Status: Regional Noxious: Peace River.



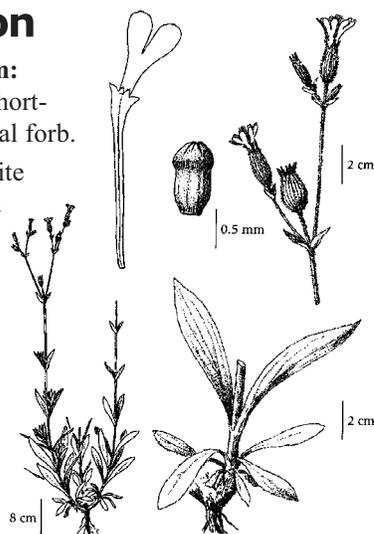
Identification

Growth form:
Biennial or short-lived perennial forb.

Flower: The showy white flowers are fragrant and are arranged in open, spreading clusters with a few to many flowers. The flowers have 5 notched petals that are longer than the calyx. The sepals are fused together to form a sticky, tubular calyx surrounding the flower. The plant has either male or female flowers. In male plants the calyx is 15–22 mm long with 10 veins. In female plants the calyx is 20–30 mm long, has 20 veins, and becomes inflated as fruit ripen. Plants flower from June to September (Frankton and Mulligan 1970).

Seeds/Fruit: The capsules are egg-shaped, up to 20 mm long with 10 teeth at the tip. The tiny, kidney-shaped seeds are bluish brown and are covered with warts.

Leaves: Basal leaves are lance-shaped, stalked, and 2–10 cm long. The stem leaves are opposite, lance-shaped, and occur in 5–10 pairs. The lower pairs are stalked and often larger than the basal leaves, but they



become smaller and eventually without stalks higher on the stem (Douglas et al. 1998).

Stems: The thick, almost woody base is branched with a few non-flowering shoots and several erect flowering shoots (McNeill 1977). The hairy stems grow 0.3–2.0 m tall and have swollen nodes.

Roots: Initially a taproot, 5–40 cm deep, then thick, fleshy lateral roots develop and spread outward (McNeill 1977).

Seedling: Seedlings are yellowish green. The first pair of leaves is lance-shaped, and the second pair has finely toothed margins (Royer and Dickinson 1999).

Similar Species

Exotics: White cockle may be confused with night-flowering catchfly (*Silene noctiflora*) and red cockle (*Silene dioica*). Catchfly is an annual, produces male and female flowers on a single plant, and has sticky hairs on its upper part. White cockle produces separate male and female flowers, but catchfly has both sexes in the same flower. Red cockle, which is rare in BC, has deep pink to red flowers.

Natives: A number of *Silene* are native to BC, and several of them are rare. Although all *Silene* have a tubular flower and inflated calyx, most native species have male and female flowers on the same plant.

Impacts

Agricultural: Mostly a problem in grain fields, alfalfa and clover crops, and pastures. White cockle seeds can contaminate clover and forage seed.

Ecological: Occupies open sites such as roadsides and disturbed places. It can rapidly colonize disturbed sites and compete with native vegetation because of its high

rate of seed production. It is adapted to unshaded sites on well-drained, unsaturated soils. The seeds require a long growing season for ripening, and its seedlings do not tolerate high temperatures (McNeill 1977).

Human: No information available.

Habitat and Ecology

General requirements: Grows in cultivated crops (especially legume and grains), hayfields, fields, disturbed areas, railroads, and roadsides at low- to mid-elevations in BC on dry, well-aerated soils.

Distribution: Present in all agricultural reporting regions in the province and considered a major concern in the Peace River region. It is found across all of southern Canada, especially in Ontario and Quebec, but less commonly in the Maritimes. It occurs throughout the northern US (McNeill 1977).

Historical: Introduced from Europe.

Life cycle: Plants can germinate, flower, and set seed in a single season, but plants from later-germinating seed overwinter as leaf rosettes on a well-developed root. In spring, the erect stems emerge and the basal leaves wither. Over-wintered plants flower earliest, the most rapid

flowering and seed-set occurring during the longest days.

Mode of reproduction: Mostly from seed but root and stem fragments can establish.

Seed production: A single plant can produce over 25,000 seeds/year (NS Department of Agriculture and Fisheries 2001).

Seed bank: Some populations may require after an after-ripening period. Seeds require light for germination, and deeply buried seeds have poor emergence. Buried seeds remain viable, however, and germinate well when brought to the surface.

Dispersal: Most seeds fall around the parent plant. White cockle seeds are similar to other clovers, so seed impurities have been a source of dispersal.

Hybridization: Hybridizes with red campion (*Silene dioica*).

Management

Biocontrol: None.

Mechanical: Over-wintering rosettes can be killed with seed-bed preparation that buries the root-crowns or leaves them exposed to desiccate at the soil surface. Seeds are not adversely affected by cultivation. During the growing season, tillage may spread the weed through regeneration of plant fragments. Mowing can reduce seed production, but to be effective many passes over the long flowering season may be required.

Fire: Fire is unlikely to affect populations of this plant because of its large seed bank.

Herbicides: White cockle is resistant to several common herbicides, including 2,4-D, 2,4-DB, MCPA, and MCPB (McNeill 1977). Spring and early autumn applications of dicamba provide some management (NS Department of Agriculture and Fisheries 2001). Consult the most recent edition of BC Ministry of Agriculture, Food and Fisheries Crop Production Guides for specific recommendations. **Before applying herbicides, read the label for full use and precautionary instructions.**

Cultural/Preventive: Avoid using contaminated seed. New infestations should be promptly eradicated before seed-set by hand-pulling, tilling, or herbicides.

Integrated Management Summary

White cockle is difficult to manage because of its prolific seed production, long flowering season, and resistance to herbicides. Prevention is the best approach, but once white cockle does appear, it is necessary to prevent seed production through tillage, mowing, or herbicides. Management practices that encourage competitive crop plants or perennial native plant communities will help prevent invasion. Seed disturbed areas to perennial grasses and forbs to provide ground cover and competition against this plant.

References

- Douglas, G. W., D. Meidinger, and J. Pojar. 1998. *Illustrated Flora of British Columbia*. Vol. 2: *Dicotyledons (Balsaminaceae through Cuscutaceae)*. Province of British Columbia.
- Frankton, C., and G. A. Mulligan. 1970. *Weeds of Canada*. Publication 948. Ottawa: Canada Department of Agriculture.
- McNeill, J. 1977. The biology of Canadian weeds. 25. *Silene alba* (Miller) E.H.L. Krause. *Canadian Journal*

of Plant Science 57: 1103–1114.

NS Department of Agriculture and Fisheries. 2001. Nova Scotia Noxious Weeds—White Cockle. <http://www.gov.ns.ca/nsaf/rir/weeds/white.htm> [June 2001].

Royer, F., and R. Dickinson. 1999. *Weeds of Canada and the Northern United States*. Edmonton: University of Alberta Press.

