

CANADA THISTLE

[*Cirsium arvense* (L.) Scop.; *Carduus arvensis* (L.) Robson; *Cirsium setosum* (Willd.) Bess. ex Bieb.]
CIAR4



Habit: Herbaceous, clonal perennial up to 2 m (6 ½ ft) tall with a deep, creeping root system^{16,11,9} that initially grows horizontally but eventually turns downward and grows 1 m (3 ft) or more; plants may be connected up to 12 m (39 ft) apart³.

Reproduction: By seed^{11,9}, root suckering^{11,9,16,13}, detached root fragments¹³, and, less likely, stem segments⁶; imperfectly dioecious (11-15% in native range are hermaphrodites); seed set for selfed hermaphrodites low compared to out-crossed individuals¹³; progeny sex ratio biased towards females, but males abundant in the field¹⁵.

Leaves: Alternate; oblong to lanceolate; glabrous to short-woolly on both surfaces (more so beneath) with spiny margin; most cauline leaves sessile, slightly decurrent with the stem^{10,9}; shape varies, wavy-pinnatifid lobing or merely toothed¹⁰.

Stems: Essentially glabrous¹⁰, grooved²², and very leafy^{9,10}.

Flowers: Heads discoid; ovoid-cylindric; clustered^{10,9} in an open, branched inflorescence; involucre (leafy, weakly spine-tipped bracts enclosing multiple flowers) 2 cm (¾ in) high or less²⁰; pinkish-purplish, occasionally white; plumose pappus¹⁰; female flower pappus surpasses corollas, but male corollas surpass their pappus¹¹; female flowers insect pollinated mostly within 50 m (164 ft) of male plants; receptive for about 3 days, longer with low pollen amounts¹⁵; 14-16 hours of light needed to flower; may flower within one growing season; June-October^{9,6}.

CANADA THISTLE



Cirsium arvense (L.) Scop.

Fruits/Seeds: Achene (2.5-4 mm, $\frac{1}{16}$ - $\frac{1}{8}$ in) abortion rate high; larger achenes produced when pollen is limiting¹⁵; may produce 50 seeds per head¹³ and 5,300 seeds per plant; younger seeds germinate best in high light; most seed germinates the first year (seed bank unlikely)⁶; 2-year old stored seed has a 90% germination rate; 5-year old seed does not germinate⁴; cold stratification required²; long-distance wind dispersal possible but rare; pappus separates from achene early¹⁸; August-October⁶.

Habitat: Native to Europe, Western Asia, Northern Africa¹; likely introduced to U.S. in the 1600's in contaminated hay or seed; U.S. distribution primarily above 37° N latitude; growth limited by temperatures greater than 30°C (86°F); open areas, roadsides, streambanks, clearcuts, forest openings, and wet grasslands¹⁸; seedlings under 20% or less full sunlight do not survive; root grows 5-10 cm (2-4 in) before shoot emerges⁶.

Comments: Small patches have high extinction rates⁷; genetic diversity high compared to other clonal species²¹; population growth more likely via new clone establishment than growth of existing clones¹²; not competitive against perennial nonnative grasses^{8,1}; allelopathic properties demonstrated⁶; seed predation and herbivory by native and nonnative insects high but with minimal impacts^{6,5}; biological control unlikely due to many native congeners¹⁹; negative impacts on native thistles by released exotic weevils documented¹⁷; rust fungus, *Puccinia punctiformis*, may be specific to this thistle¹⁴.

Similar Native Species: Swamp thistle (*C. muticum*), biennial with larger flowering heads; spring thistle (*C. carolinianum*), biennial with fewer, narrower cauline leaves and fewer flowers¹¹.