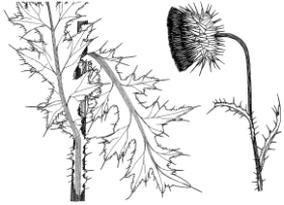


Key revised to add *Carduus crispus* and *C. cinereus*. Revised March 18, 2021.

Gaskin, J.F., E. Coombs, D.G. Kelch, D.J. Keil, M. Porter, and A. Susanna. 2019. *Carduus cinereus* (Asteraceae) – new to North America. *Madroño*, 66(4): 142–147.

Carduus L. Plumeless Thistle; Thistle

Heads discoid, solitary or 2–20 in dense clusters or corymbiform arrays; fls ♀, fertile; invol cylindric to spheric, phyllaries ∞, unequal, 7–10-seriate, spiny-tipped, calyculi none; recep flat, pitted, bristly-scaly, epaleate; corollas white, pink to purple, slender-tubular, throat expanded-camp, lobes linear; anthers short-tailed, tip oblong; style with ± hairy ring below brs, brs ± linear, tips truncate; achenes ± compressed, ovoid, glab; pappus of barbed bristles or bristly-scales, free or ± fused at base (falling in ring or clusters), persistent or deciduous; ann, bien, or per herbs; sts ± spiny-winged; lvs basal and cauline, alt, sessile or petiolate, toothed to 1–2-pinnatifid, ± spiny-tipped. (Old name for thistle). Similar in appearance to *Cirsium*. Our spp. all weedy and noxious.



1a

1a Phyllaries 2–7 mm wide at midlength, gen widest above base; heads 2–7 cm wide, hemispheric, gen nodding, often solitary and long-pedunculate; corolla purple; pls chiefly bien (occ ann), 0.4–2 m; wastelots, fields, roadsides, and disturbed rangelands; Eurasian intro; BC s, chiefly e Cas, to CA, e across most of N Am to Atl; in our area most common in w MT; musk t., nodding t. **1 C. nutans L.**

1b Phyllaries 1–3 mm wide, widest at base; heads 0.7–2.5 cm wide, hemispheric to cylindric, gen erect, sessile or pedunculate; corolla white, pink, or purple; pls ann or bien, 0.1–2 m

2a Invol hemispheric; phyllaries 1–1.5 mm wide; achenes 2.5–4 mm; lvs ± glab or sparsely to densely tomentose on lower surface; pls ann or bien

3a Heads 18–25 mm long including the corollas; corolla 13–20 mm; phyllaries 14–20 mm; lower lf surface ± glab except for long, curled, septate hairs along veins; disturbed sites, rangelands, fields, roadsides; Eurasian intro; occ e Cas, s BC to CA, e to Atl; spiny p. t.; ours subsp. **acanthoides** **2 C. acanthoides L.**

3b Heads 12–17 mm long including the corollas; corolla 11–16 mm; phyllaries 12–17 mm; lower lf surface sparsely to densely tomentose with fine, non-septate hairs, often also with curled, septate hairs along veins; pastures, fields, roadsides; uncommon Eurasian intro; reported from Wallowa Co, OR, and e N Am; curled p. t. **3 C. crispus Huds.**

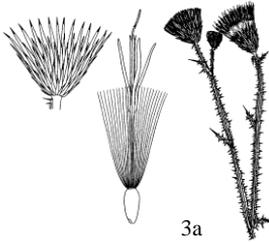
2b Invol cylindric to narrowly ellipsoid or camp; phyllaries 2–3 mm wide; achenes 4–6 mm; lvs usually densely tomentose on lower surface; pls ann

4a Heads in tight clusters of 5–20, peduncles < 5 mm; phyllaries glab or sparsely tomentose, margins of all phyllaries thin and papery, inner phyllaries with a prominently thin and membranous tip 3–5 mm; fields, roadsides, wastelots; uncommon Eurasian intro; sw WA, sw OR, CA, and NY; slender-fl'd t., winged p. t. (*C. pycnocephalus* var. *t.*) **4 C. tenuiflorus Curtis**

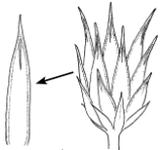
4b Heads in tight clusters of 2–5 or born singly, peduncles 0–4 cm; phyllaries persistently tomentose, margins of outer and middle phyllaries thick and cartilaginous, or occasionally thin and papery, inner phyllaries with narrow papery margins; tip not prominently membranous

5a Heads borne singly or in loose clusters, most peduncles 1–4 cm; phyllary margins ± scarios; disturbed rangelands; Eurasian intro; vic of HC in ne OR and adj ID; Turkish or hairy p. t. (*C. pycnocephalus* var. *c.*) **5 C. cinereus M. Bieb.**

5b Heads in tight clusters of 2–5, peduncles mostly < 0.5(–1) cm; phyllary margins not scarios; wastelots, fields, roadsides, disturbed rangelands; Eurasian intro; Wi Va to CA, also in HC, and in scattered locations of e US; Italian or compact-headed p. t. (*C. p.* var. *p.*) **6 C. pycnocephalus L.**



3a



4a



5b