

*Silybum marianum* (L.) Gaertn., MILK THISTLE. Annual or biennial herb, spinescent, taprooted, rosetted, 1-stemmed at base, erect, 10–200(–300) cm tall; shoots with basal leaves and cauline leaves, basal leaves bright green on upper surface commonly with distinctive, wide, gray to whitish areas (achlorophyllous) along principal veins, glabrous or slightly tomentose. **Stems:** ridged (lower plant) and cylindric (upper plant), to 30+ mm diameter, with ridges descending from each leaf, extremely tough, striped with alternate strips of fibers and green photosynthetic tissue, internodes not spinescent. **Leaves:** helically alternate, pinnately lobed with spinose margins, sessile with spiny, clasping bases, without stipules; blade of basal leaves oblanceolate, to 600 mm long, of midplant oblong, of upper canopy lanceolate, lobes low to moderate but sinuses never close to midrib, lobes extremely wavy with broad to acute teeth and each tooth with a terminal, light yellow, needlelike spine (= extension of midvein), the spines on lobes and teeth alternately ascending and descending and minute to 12 mm long, pinnately veined with principal veins strongly raised on lower surface, the largest veins  $\pm$  triangular on surface, upper surface with achlorophyllous patches irregular in width (1–6 mm wide) and sometimes interrupted, midrib white, downy. **Inflorescence:** heads, terminal on long stalks, solitary or in several-headed cymelike arrays on lateral branches, elevated above leaves, head discoid, with a brushlike tuft of many flowers, en masse strong purple, bracteate, spinescent; peduncle stemlike, very long with widely spaced leaflike bracts or tufts of spines (= highly reduced bracts), many-ridged, either downy becoming glabrescent or glabrous over most of length but remaining cobwebby just below involucre; **involucre** urn-shaped, 25–40 mm wide (excluding spreading, spiny phyllary tips) increasing in fruit, white-pubescent and sparsely cobwebby becoming glabrescent above, phyllaries many in ca. 8 series, outer and intermediate phyllaries composed of fused basal portions and upper, spine-tipped appendages, basal portion  $\pm$  straplike to ovate, 4–5  $\times$  3–4 mm (the outermost phyllaries), dark green but light green on margins, glabrous on outer surface, minutely ciliate on margins, increasing to 12–20  $\times$  6–8 mm (inner phyllaries), appendages of the outer 4–5 phyllaries cupped and roundish or slightly flattened (oblate), 5–8  $\times$  5.5–9 mm (excluding spines), spiny on margin with base of spines confluent and forming a cartilaginous margin, rounded or sometimes notched at tip with a short spine from a slightly pronounced midrib; appendage of the intermediate phyllaries longer and widely spreading to ascending, ovate to triangular or acuminate-triangular, 12–24  $\times$  7–10 mm, mostly upturned on margins, with an elongated, spine-tipped midvein, having fewer but longer and more rigid spines than outermost phyllaries, with 0–several spine bases confluent on margins; inner phyllaries lanceolate, spineless or with a short terminal spine, entire and membranous on margin, glabrous; receptacle domed to flat, without bractlets (paleae), between ovaries with dense tufts of silky-white, capillary bristles as long as involucre. **Disc flower:** bisexual,  $\pm$  radial; **calyx (pappus)** of many capillary bristles in several series, unequal, at anthesis 9.5–14 mm long, silky-white, with minute, ascending barbs; **corolla** 5-lobed, 20–22(–30) mm long, glabrous; tube narrowly cylindric, tapering toward base but base expanded, white; throat abruptly expanded and  $\pm$  bulbous, 1.2–1.5(–2) mm wide, whitish or lavender below and dark purple above; lobes erect, 1–2 lobes linear, 6.5–7(–10) mm long, 3–4 lobes fused  $1/4$ – $1/2$  $\times$  length; **stamens** 5, fused to corolla at base of throat, long-exserted; filaments 3 mm long, free for 0.3 mm at base then fused for 2.7 mm forming a tube surrounding style, white, glandular-pubescent; anthers fused

into cylinder surrounding style, 4.5–5 mm long, purplish becoming lavender toward tip, short arrow-shaped at base, with short tails at base and lanceolate appendages ca. 0.7 mm long at tips, longitudinally dehiscent; pollen pale tan; **pistil** 1, 22–28(–45) mm long; ovary inferior, compressed-oblong ellipsoid, 0.7–1.8 mm long, whitish, glabrous, 1-chambered with 1 ovule; style long-exserted extending 3–7 mm above anthers, white at base and lavender to purple on upper style, short 2-branched, the branches appressed, with a stigmatic line on each side 3 mm long at tip, upper style lavender to purple. **Fruits:** cypselae, obliquely attached, slightly compressed-ellipsoid or compressed-obovoid, 5.5–7 × 3.3–4 mm, glossy tan with dark brown longitudinal markings, rimmed and with ± fleshy dome at tip, the rim pale tan, the dome ca. 1–1.2 × 1.5–1.8 mm, pale tan, with scarlike pit at top; pappus of 5–7 whorls of bristles and an inner whorl of short hairs, falling together as cupped ring, the bristles many, tapered and flat, 12–20 mm long, < 0.25 mm wide at base, white, finely barbed, the hairs very fine, ca. 1.5 mm long, white. April–early July.

Naturalized. Spinescent herb, an aggressive, invasive weed of disturbed sites throughout the range, dominating now certain open habitats. *Silybum marianum* is called milk thistle because the principal veins and adjacent tissues of basal leaves are gray to white (lacking chlorophyll), thus creating an easily recognized pattern. This species of thistle has a flower in which at least one corolla lobe is longer than the other lobes.

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