

Ceratophyllum demersum L., COMMON HORNWORT. Aquatic perennial herb, submersed, clonal via fragmentation, lacking rhizomes but stems sometimes buried in muck, lacking roots, in range comparatively unbranched with scattered branches (0 or 1 per node), in undisturbed habitats principal axes often > 100 cm long; monoecious; shoots flexible with finely dissected cauline leaves, at growing tips foliage appearing ovoid in outline, glabrous. **Stems:** cylindric, 0.2?–0.6? mm diameter, green to nongreen with purplish red streaks, flexible, internodes to 45 mm long. **Leaves:** whorled with of (5–)7–11 leaves per node, in range 1–2-forked producing 2–4 capillary to linear lobes, having each pair of lobes equal (\pm dichotomous), first whorl on each branch with ca. 5 leaves mostly lacking forks, without sheath, lacking stipules; blade of unforked leaf linear (1-forked), to 7 mm long, entire, blunt at tip with 1 or 2 ascending points 0.1 mm long (mucilaginous appendages), often nongreen to purplish red; blade of forked leaf 10–30 mm long, first fork initially close to stem but basal portion elongating to 4 mm long, lobes > basal portion and diverging at each fork ca. 35°, basal portion colorless to purplish red, next segment often somewhat compressed, lobes at maturity green but sometimes nongreen when very young, minutely toothed with scattered teeth mostly on 1 margin, each tooth with an expanded multicellular, green base (denticle) and an ascending, 1-celled, colorless point at tip, the point 0.1 mm long, long-tapered to 1-celled tip, 1-veined at least to first fork, obscuring veined or veinless in lobes, lacking stomates. **Inflorescence:** flowers solitary (not observed in range), unisexual, submersed, appearing axillary, 2 and opposite per node (staminate), 1 per node (pistillate), or rarely staminate flower and pistillate flower at same node, usually staminate flowers above pistillate flowers, sessile, bracteate, glabrous; bracts = diminutive crown of 10+, erect, whorled bracts surrounding flower becoming spreading, some bracts developing 2(–4) spines behind the tip. **Staminate flower:** symmetric to asymmetric; ca. 0.4 mm across; **perianth** absent; **stamens** \pm 10–15, free (fused at base), somewhat whorled and helical (various patterns but only outer stamens ever whorled, subsessile; anthers basifixed, ca. 0.4 mm long, with 2 widely separated, sharply point, minute horns on top; **pistil** absent. **Pistillate flower:** \pm 0.3 mm across; **perianth** absent; **stamens** absent; **pistil** 1, ca. 2 mm long; ovary superior, spheroid, \pm 0.3 mm, glabrous, 1-chambered with 1 ovule; style gradually tapered to tip, with stigmatic slit mostly below midpoint on 1 side, initially with a mucilaginous appendage soon abscising. **Fruit:** achene, spinescent, 1-seeded, fruit body 3.5–6 \times 2–4 \times 1–2.5 mm, brown, terminal spine (beak) short-hooked at tip, to 14 mm long, mostly with 2 spreading basal spines mostly curved (straight) and lacking a specific hook at tip, short–12 mm long.

Naturalized or native. A fully submersed aquatic perennial herb, popular in freshwater aquaria, first collected in range in August 2010 from shallow water along shoreline of northern Lake Sherwood (SMM). *Ceratophyllum demersum* could have been brought in by waterfowl, or introduced by humans, e.g., via dumping a freshwater aquarium. Hornwort is the easiest submersed aquatic plant to identify because it has several-forked, whorled leaves; where whorls of leaves conspicuously overlap at a growing tip, it resembles an animal's tail, hence the alternative common name coontail. On margins of the slender leaf lobes are small teeth (sometimes termed denticles). A single pistillate flower appears axillary to only one leaf per node, and it is minute, whereas elsewhere on the same plant or clone staminate flowers are produced in an opposite pair at a node, each with a dense cluster of anthers. A hook formed at the tip of the fruit (beak = persistent

style) can catch into bird feathers and therefore permit this plant to disperse to any freshwater standing body, and *C. demersum* is one of the world's most widely dispersed species.

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