

*Equisetum* L. HORSETAIL

*Equisetum telmateia* Ehrh. subsp. *braunii* (J. Milde) R. L. Hauke, GIANT HORSETAIL.

Perennial herb, drought-deciduous, rhizomatous, fibrous-rooted,  $\pm$  ascending, with sterile shoots to 200 cm tall and ivory-colored fertile shoots 30–65 cm tall; shoots without foliage, stems jointed, dimorphic, sterile shoot with thin, whorled lateral shoots, fertile shoots unbranched; rhizomes creeping, axis ca. 5 mm diameter, blackish. **Sterile shoot:** emergent in earliest spring, typically senescent during winter; **main stem** cylindrical with 14–28 ridges and shallow furrows, to 8 mm diameter with basal diameter 5–7 mm, light green or deep purple especially at nodes, the ridges flat-topped, internodes typically 50–60 mm long; internodes hollow; **leaves (microphylls)** of main stem whorled and fused above node sheathing stem, as many as ridges,  $< 19 \times 1-1.5(-2)$  mm, flat, lobes acuminate, 4–6 mm long, when young red-brown with yellowish margins or purple, 1-veined; **lateral branches**  $\pm$  = ridge number, developing precociously (sylleptic), whorled at bases of leaf sheath, radiating,  $\pm$  same length for each node, 30–150+ mm long; **stems** of lateral branches distinctly 4-ridged or 5-ridged,  $< 1$  mm diameter, dark green, the ridge 2-ribbed, minutely serrate with abrasive projections; **leaves (microphylls)** of lateral branches as many as ridges, whorled and fused above node,  $\pm 5$  mm long, keeled, 1-veined, lobes narrowly acuminate,  $<$  sheath, yellow-green or paler on margins and sometimes with small brownish markings. **Fertile shoot:** lacking chlorophyll, emergent typically before sterile shoot on same rhizome, disappearing after spores discharged; **main stem** cylindrical with shallow furrows, to 12 mm diameter at inflated, subterminal internodes, basal diameter 5–7 mm, ridges absent, the internodes smooth with ca. 28 flat veins, ivory aging dark brown, typically 50–65 mm long, subterranean ones blackish and shorter; **leaves** of main stem as many as veins, whorled and fused above node sheathing stem, flat, 1-veined, 20–30 (base) or 40–50 (upper cauline)  $\times 1-1.5(-2)$  mm, lobes acute to acuminate, 5–16 mm long, each lobe of 2–5 fused leaves, brown or upper ones ivory aging brown; **lateral branches** absent but often having bumps or spots where branches or nodal roots might form. **Cone (strobilus):** terminal, fusiform-ellipsoid, 55–80  $\times$  15–19 mm fully expanded, tannish, of whorled, stalked, peltate scales (sporangiophores), whorls 20–30, distinctive at base, scale surface polygonal, typically 5-sided or 6-sided, each peltate scale bearing 8 inward-pointing sporangia on concealed surface. **Sporangia:** sausage-shaped,  $\pm 1.5$  mm long, when immature green aging gray then ivory. **Spores:** spheric, light gray, before released wrapped with strap having 4 ends (elaters). Sporulation February–March.

Native. Perennial herb occasionally found in seepage areas of riparian woodland along shaded canyon bottoms, e.g., Rustic Canyon, in mulched soil that remains moist most of the year. *Equisetum telmateia*, so-called giant horsetail, first produces nongreen fertile shoots, and, shortly after, ridged (ribbed) photosynthetic sterile shoots emerge in late winter and early spring after the first warm days. Some sterile shoots persist throughout fall and winter months before senescing, thereby living about twelve months.

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