

*Foeniculum* Miller FENNEL

*Foeniculum vulgare* Miller. Perennial herb, feathery, taprooted, rosetted, several–many-stemmed at base (many-stemmed sometimes = 2 or more plants growing together), forming ascending lateral branches terminating in inflorescences, erect, 70– > 250 cm tall, often only reproductive above midplant; shoots with finely dissected basal leaves and cauline leaves, glabrous, glaucous, strongly aromatic. **Stems:** cylindrical (in  $\times$ -section to elliptic), to 25 mm diameter, slightly zigzagged, striped with dark green alternating with light yellowish green stripes of support tissue, conspicuously blue-gray glaucous, with minute white dots (stomates), pale to light green at nodes; solid, pith white. **Leaves:** helically alternate, finely dissected appearing odd-2–4-pinnately compound with primary and secondary leaflets opposite and widely spaced and minor leaflets and lobes alternate, petiolate, without stipules; petiole 70–140(–230) mm long, U-shaped and sheathlike for  $\pm$  entire length to the lowest leaf lobes or changing to cylindrical for 10–70 mm beyond boatlike sheath, flaring upward, nearly fully sheathing at node, thin-membranous on sheath margins, light green and parallel-veined; blade ovate to broadly triangular-ovate in outline, 80–550 mm long (basal and lower cauline leaves) from the largest leaves decreasing upward to 80 mm long (the uppermost cauline leaves), distinctively 3-dimensional; the largest pair of primary leaflets often fused and whitish across upper side of rachis, axes of primary to minor leaflets and lobes channeled; ultimate segments  $\pm$  cylindrical with shallow channel,  $5\text{--}40 \times < 0.5$  mm, gradually tapered to short point at tip, 1-veined with paler line visible on lower side. **Inflorescence:** compound umbel, terminal on each branch, in an ascending, 3-dimensional, cymelike arrays, array with regularly unequally forked axes (wider axis = peduncle), having a sheathing bract subtending the narrower axis at each fork, compound umbels of canopy 50–120 mm across,  $\pm$  flat-topped, many-flowered, with 8–19(–30) umbellets, umbellet (2–)14–27-flowered, bracteate, glabrous, conspicuously glaucous; principal axes diverging with acute forks, axis internodes slightly curved, striped and aging low-ridged; bract at base of peduncle = a sheathlike petiole lacking a blade,  $\pm$  oblong, 15–25+ mm long; peduncle erect, cylindrical to low-ridged, 20–50 mm long increasing to  $2\times$  in fruit, striped and glaucous like axes; **involucre** absent; primary rays spreading to ascending, unequal, at anthesis cylindrical and 7–35 mm long increasing to 50 mm and low-ridged in fruit, with central rays often much shorter; involucre absent; pedicel cylindrical, at anthesis 0–2 mm long increasing  $2\times$  in fruit. **Flower:** bisexual, radial, 2.3–3 mm across (when stamens spreading to 5 mm across); **sepals** absent; **petals** 5, spreading, equal, ovate appearing broadly heart-shaped in outline,  $0.7\text{--}1 \times < 1.1$  mm, lemon yellow to vivid yellow, acuminate at tip with tip permanently incurved, with midridge on upper (inner) surface from base almost to tip, the tip  $\pm$  tongue-shaped and blunt to slightly 2-lobed,  $\pm 0.5$  mm long and wide; **stamens** 5, free, spreading and extending beyond petals; filaments unequal, 1.5–2.1 mm long, brilliant greenish yellow to yellow, gradually tapered to tip; anthers versatile, dithecal, broadly heart-shaped,  $0.5\text{--}0.6 \times 0.6\text{--}0.7$  mm, white or light yellow, blunt at tip, longitudinally and sideways dehiscent; pollen yellow; **pistil** 1; ovary inferior with domelike, nectar-producing platform (stylopodium, styler tissue) on top, vase-shaped slightly compressed side-to-side,  $\pm 0.5$  mm long (if smaller on central flowers then aborted and flower functionally staminate), gray-green, faintly 10-ribbed, glabrous, conspicuously glaucous, stylopodium kidney-shaped to  $\pm$  pillowlike, covering

each half of ovary, greenish to greenish yellow, 2-chambered, each chamber with 1 ovule; styles 2, projecting from upper edge of the concave inner side erect later spreading or recurved, < 0.6 mm long; stigmas terminal, minute. **Fruit:** schizocarp, of 2 dry, 1-seeded halves (mericarps), before splitting roundish, ca.  $3.5\text{--}5 \times 4\text{--}5 \times 1$ , mericarps  $\pm$  ellipsoid but flat on common face, 3.5–5 mm long, before drying brown conspicuously blue-green and glaucous with 5 tan ribs, with faint netlike texture on flat face. January–December.

Naturalized. A tall perennial herb common throughout the range, especially in waste areas and along roads but also even in lightly disturbed habitats along trails and wetlands in native areas. *Foeniculum vulgare* is an invasive species that persists by means of well-developed perennial roots, and it is controlled only by cutting the many shoots near the ground before they produce mature fruits and then painting the cut stems with herbicide. Fennel has very large, feathery leaves that smell like licorice, and this apiad has small yellow flowers on flat-topped compound umbels. The entire canopy is reproductive, forming a very distinctive, three-dimensional, unequally forked array, each which can produce thousands of mericarps. This species is unusual in lacking bracts and bractlets subtending rays and petioles, respectively, but it forms a persistent bract at each fork of the reproductive canopy. *Foeniculum* flowers mostly from midspring through summer, when they are visited by many insects, but especially plants that have been damaged can be found flowering during the other months.

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