

*Cucurbita* L. GOURD, SQUASH

*Cucurbita foetidissima* Kunth., BUFFALO GOURD, CALABAZILLA. Perennial herb, geophytic, trailing, tuberous-rooted, tendril-bearing, several-many-stemmed at base, prostrate and climbing on herbs, with unbranched shoots radiating 100–500 cm from root crown; monoecious; shoots robust with large, gray-green (often green while expanding), steeply ascending leaves oriented in 2 ranks and somewhat cupped upward, conspicuously scabrous, densely short-hirsute, the larger hairs rigid, multicellular, and broad-based but < 0.75 mm long, hairs hardened by calcium deposits at base, foul-smelling; tendril 1 per node, arising to 1 side of petiole base or sometimes also slightly below petiole base, 3–8-branched at top of stalk, the stalk 20–65 mm long, the principal branches  $\leq$  stalk, occasionally 2-forked, the ultimate branches strongly coiled and sometimes compressed side-to-side, pubescent; root system with 1 crown, the principal branches 25–100 mm thick, fleshy with abundant starch and suds-generating compounds, finer portions of principal branches tapping deep moisture. **Stems:** conspicuously ridged, to 15 mm diameter, tough, the ridges 5 or more, irregular and rounded, flexible, striped pale green, covered with short, erect, rigid hairs and scattered broad-based hairs. **Leaves:** helically alternate, simple, petiolate, without stipules; petiole  $\pm$  cylindric, 35–135 mm long, ascending or sometimes sharply upturned at base, tough, striped with 11–13 tough, pale green bundles alternating with narrower darker green strips, pubescent like stem; blade triangular to triangular-ovate and sometimes weakly lobed below midpoint, fully expanded 90–250  $\times$  70–175 mm, truncate to  $\pm$  cordate at base, shallowly toothed on margins (= endings of principal veins), acute at tip often aging obtuse, palmately veined at base with 3 or 5 principal veins and all veins strongly raised on lower side, scabrous and densely stiff-hairy, upper surface with hairs mostly < 0.3 mm long and widely scattered, the longer hairs with wider bases, lower surface with larger hairs (0.5–0.7 mm long) along principal veins, when very young, near leaf base with extrafloral nectaries = peglike projections from scattered vein junctions becoming truncated producing a viscous, sweet liquid (from phloem). **Inflorescence:** flowers solitary, axillary and ascending, unisexual, staminate flowers in a population often more common than pistillate flowers, lacking bracts, pubescent; pedicel ascending, petiolelike, of staminate flower at anthesis 10–20 mm long and abscising at base, of pistillate flower increasing 2 $\times$  in fruit, flexible. **Staminate flower:** radial, 90–120 mm across, densely hairy; hypanthium deeply cup-shaped, 15–25  $\times$  20–25 mm; **sepals** (4–)5–6, arising from hypanthium, free or barely united, narrowly triangular, 9–25 mm long (if 6, one commonly diminutive), green, flaring at base, parallel-veined with several veins raised on outer (lower) surface; **corolla** 5(–6)-lobed, arising from hypanthium, bell-shaped, 55–70 mm long, orange-yellow inside, green-veined with orange-yellow lobe margins on outside; tube 30–40 mm wide, conspicuously green-veined with  $\pm$  5 raised veins per lobe, densely hirsute, inner surface orange-yellow and densely pubescent with orange-yellow club-shaped hairs having bulging cell outlines; lobes spreading, ovate, 25–33  $\times$  27–34, < tube,  $\pm$  wavy and papillate on margins, obtuse with a green point at tip; **stamens** typically 4, fused at expanded bases; filaments erect, appressed, 10–12 mm long, 2.2 mm thick at base of anther, whitish to pale green, club-shaped to capitate-hairy; anthers fused along connectives, basifixed, dithecal, 20–24 mm long (= 2 $\times$  filament length), light yellow, longitudinally and outwardly dehiscent, each portion long, linear and twice-folded lengthwise; pollen pale to light yellow or white; **nectary** ringlike

and 3(–4)-lobed,  $\pm$  8 mm across, ca. 1.3 mm thick at lobes, thinner and concave in center, light yellowish; **pistil** absent. **Pistillate flower:** hypanthium saucerlike and 5-sided, 15–22 mm across, 2.5–3 mm thick, with club-shaped hairs on upper surface between corolla and stamens, hairs with convex cell outlines, becoming larger with broad bases approaching tip; **sepals** (4–)5–6, arising from hypanthium, free or barely united, at anthesis wide-spreading, narrowly triangular, 9–25 mm long, often  $>$  staminate sepals, green, flaring at base, parallel-veined with several veins raised on outer (lower) surface; **corolla** 5(–6)-lobed, arising from hypanthium, broadly bell-shaped, 55–70 mm long, internally orange-yellow, externally green parallel-veined with orange-yellow lobe margins; tube, 30–40 mm wide, nearly truncate at base, conspicuously green-veined with  $\pm$  5 raised veins per lobe, densely hirsute, inner surface orange-yellow and densely pubescent with club-shaped, orange-yellow hairs having bulging cell outlines; lobes spreading, ovate,  $25\text{--}33 \times 27\text{--}34$ ,  $\pm$  wavy and papillate on margin, obtuse with a green point at tip, persistent on developing fruit but abscising before fruit matures; **stamens** (3–)4, fused at base forming a cup around nectary, sterile; cup 3–4 mm tall, tips sometimes hooded and 2-toothed at tip; filaments 10–12 mm long but recurved and length  $2\times$  height; anthers absent; **nectary** ringlike and 3–4-lobed, encircling style base, yellowish, glabrous; **pistil** 1; ovary conspicuously inferior (even in small bud), spheric, at anthesis 20–25 mm, dark green with pale green to whitish longitudinal stripes, rough-hairy to  $\pm$  short-hirsute and capitate-glandular, 3-chambered with many ovules attached to outer wall; style 15–20 mm long, 4.5–6.5 mm thick, whitish, narrower at base,  $\pm$  glabrous below and hirsute above, 3-branched, the branches ascending, 2.5–5 mm long, hirsute and capitate-glandular, dividing into 2 stigmas; stigmas 6, spreading, slightly twisted and recurved at tip,  $10\text{--}12 \times 4.5\text{--}5$  mm, yellow, densely papillate-glandular, sticky. **Fruit:** pepo (= indehiscent berry with hard, breakable outer shell), many-seeded, spheric,  $65\text{--}75 \times 70\text{--}85$  mm, dark green with 5 major alternating with 5 minor, whitish longitudinal stripes (meridians), turning bright yellow at maturity and bleaching to tan when dry,  $\pm$  glabrate; pulp white, eventually becoming dry; seeds on stringy funiculi. **Seed:** compressed-ovoid,  $7\text{--}10 \times 5.2\text{--}5.7 \times 1.5\text{--}1.8$  mm, yellowish tan or yellowish ochre, flat to slightly convex on 1 or 2 surfaces or dimpled on 1 surface with a small concavity on other surface. Mid-June–late August.

Native. A geophytic perennial herb occasionally observed in widely scattered colonies throughout the range. The full-sun, summer-active *Cucurbita foetidissima* is tendrilar but grows along the ground grasping herbs in its path and never climbs like its winter- and spring-active cousin *Marah macrocarpus*. Buffalo gourd, like cultivated squashes and pumpkins (*Cucurbita*), requires warm soil to initiate vegetative growth. It draws upon deep soil moisture to grow vigorously during summer drought and thereby provide much water for its high transpiration rates (preventing its broad leaves from overheating), large flowers, and fleshy developing fruits. In this monoecious species, it is easy to distinguish the pistillate flowers by having the spheric inferior ovary (beneath the calyx). Many insects visit the flowers, which are pollinated mainly by beetles and bees. When roots or fruits are thrown into water, suds form from the triterpenes produced in the cells, so neither is palatable, but the seeds can be eaten, especially when lightly roasted.

B. A. Prigge & A. C. Gibson