

**Vascular Plants of Williamson County**  
*Quercus macrocarpa* – BUR OAK [Fagaceae]

*Quercus macrocarpa* Michx., BUR OAK. Tree, winter-deciduous, 1-trunked, in range to 25 m tall; shoots tomentose, young foliage velveteen; bark fissured, dark gray. **Stems:** with broad lobe descending from each leaf, glabrate initially with scattered short stellate hairs and inconspicuous glandular hairs; twigs with projecting leaf bases descending from leaves with shield-shaped leaf scars and sets of bud scale scars; periderm gray, lacking hairs or with scattered short stellate hairs; principal buds ovoid, the large buds 4.5–6.5 × 4–4.5 mm, bud scale grayish with appressed stiff hairs and ciliate margins. **Leaves:** helically alternate, deeply to shallowly pinnately-lobed with 2–5 principal lobes on each margin and several with rounded, deep sinuses especially from midblade, petiolate, with stipules; stipules 2, attached to node, oblong or somewhat spatulate to linear, 4.5–11.5 × 0.5–1.8 mm, light green aging reddish brown, outer (lower) surface densely pubescent, margins of upper portion appearing long-ciliate, early-deciduous; petiole somewhat flattened on upper side and flared to pulvinuslike at base, 8–30 mm long, initially stellate-hairy and with scattered, short-stalked glandular hairs; blade obovate to fiddle-shaped in outline, < 70–290 × < 65–190 mm, tapered or broadly tapered to somewhat subcordate at base and often slightly asymmetric, lateral lobes and sinuses rounded and broad, the deepest sinuses at midblade, pinnately veined with principal veins slightly raised on upper surface and principal and minor veins raised on lower surface, upper surface with scattered short hairs 1–5-branched at base and with short-stalked glandular hairs having spheroid to ellipsoid colorless or crimson heads, aging glabrescent to glabrate, lower surface densely stellate-hairy. **Staminate inflorescence:** catkin, 3–5 arising from winter bud, each axillary to inner bud scale, scales ovate to obovate, to 4.5 mm long, red-brown, densely strigose-hairy with upward-pointing hairs, ciliate on margins; catkins in dense cluster, pendent, mostly 55–80 × 5–6 mm, 15–50+-flowered (4–)6–7 flowers/10 mm, flowers alternate and unevenly spaced, sessile to subsessile; peduncle to 22 × 0.7 mm, pale green, with short stellate hairs and scattered minute glandular hairs; rachis greenish aging whitish, pubescent like peduncle; bractlet subtending flower absent. **Staminate flower:** ± radial, 3–4 mm across; **sepals** (3–)6–8, fused only at base, forming as a cup-shaped perianth appearing as a half-sheathing structure cupping anthers, sepals linear-oblongate to obovate 0.7–1.3 × 0.3–0.6 mm, greenish aging colorless or tinged pale brown with reddish along open margins, short-hairy on lower surface; lobes irregular; **petals** absent; **stamens** (3)5–9, free; filaments spreading to ascending, 0.7–1.1 mm long, white, glabrous; anthers dorsifixed, dithecal, 1–1.7 mm long, light yellowish green with green connective, glabrous, longitudinally dehiscent; pollen pale yellow; **pistil** absent. **Pistillate inflorescence:** typically 3 flowers in a short-stalked spike, axillary at ends of leafy spring shoots, each flower subtended by an involucre (cupule) of many bracts and bract primordial; peduncle to at anthesis to 3 mm long, densely short-tomentose; rachis absent (1-flowered) or very short and stout (2+-flowered); **involucre** of helically alternate, appressed bracts and appressed to ovary, cup-shaped, at anthesis ca. 1.5 mm long, densely short-tomentose. **Pistillate flower:** radial, 1.5–2 mm across, with cupule ca. 1.5 mm long; **perianth (calyx)** 4–6-lobed, green; lobes unequal, the largest semicircular and 0.7–1.3 mm wide, short-tomentose on outer (lower) surface; **petals** inconspicuous, hairs often with reddish bases

and colorless above; **stamens** absent; **pistil** 1, to 2.5 mm long; ovary inferior, inversely conic, 1-or chambered with 3 ovules; stigmas 2–3, spreading, wedgelike to tonguelike, flaring and when broad channeled, thick and fleshy, ca.  $1 \times 0.35\text{--}0.9$  mm, green. **Fruit:** acorn (glans), maturing and deciduous in late summer, nut retained within involucre; involucre covering most of fruit except domed nut top, deep-hemispheroid to turban-shaped, in range  $25\text{--}35 \times 35\text{--}55$  mm, woodlike and 6–8 mm thick, the overlapping, helically alternate scales tightly appressed and fused, stiff, keeled and broadly triangular, mostly 5–7 mm across, gray short-tomentose, approaching top fringed with fiberlike bristles (awns) 5–10 mm long including touching nut; nut somewhat loose within involucre, broadly ovoid,  $19\text{--}34 \times 18.5\text{--}32.5$  mm, length = width, light brown, subtruncate slightly depressed at top having a short point in center, matlike puberulent above midpoint, scar 21–26 mm, inner surface glabrous, nut wall 1.5–2.3 mm thick.

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