

Vascular Plants of Williamson County

Celtis laevigata var. *reticulata* – NETLEAF HACKBERRY [Cannabaceae/Ulmaceae]

Celtis laevigata Willd. var. *reticulata* (Torrey) L. D. Benson, NETLEAF HACKBERRY. Tree to shrub, winter-deciduous, not spinescent, mostly 1-trunked, at maturity with a rounded canopy, in range to 15 m tall; monoecious but also having some bisexual flowers; shoots with only cauline leaves typically in horizontal, 2-dimensional sprays (plagiotropic), foliage tending to be some scabrous but initially soft-hairy and with fine, short-stalked glandular hairs, axes releasing watery, mucilaginous sap when injured; bark on old individuals with strongly raised cork warts and short ridges 10+ mm high, yellowish brown; dormant buds obtuse at tip, papery, scabrous having short hairs with raised bases. **Stems:** ridged aging cylindric, with 3 ridges descending from each leaf, often conspicuously zigzagged, with projecting leaf bases, initially green with stalked glandular hairs aging glabrescent, soon forming periderm with narrowly fusiform lenticels to 0.5 mm long, gray. **Leaves:** helically alternate, simple, petiolate, with stipules; stipule attached to node at base of petiole (not fused to petiole), acuminate and linear to narrowly lanceolate (oblong), 5.5–12 × 0.5–1.7 mm, with raised base and green midvein and membranous margins, aging papery and short-hairy, finely short-ciliate on margins, lower surface with stiff short hairs and stalked glandular hairs, early-abscised; petiole cylindric to midpoint and narrowly and shallowly channeled above midpoint, 4–15 mm long, flared at base, short-villous and with minute, short-stalked glandular hairs on upper side below midpoint and within channel; blade asymmetrically ovate, (30–)45–85(–145) × 13–65 mm, oblique and broadly tapered to rounded at base (often conspicuously unequal), wider on leading edge, subentire to entire on margins, acute to acuminate at tip, mostly pinnately veined with 3 palmate veins at base having principal veins somewhat sunken on upper surface and principal and minor veins raised on lower surface, forming cross veins \perp to principal veins, surfaces short-villous and with scattered, minute, stalked glandular hairs having colorless hairs, edges often with many stalked glandular hairs, lower surface with denser nonglandular hairs along principal veins and especially in vein axils (domatia). **Inflorescence:** cyme, axillary, 1-flowered (pistillate), sometimes 1 bisexual flower (at branching fork), and 2–3-flowered (staminate) arranged in horizontal row, bracteate (staminate); bract subtending staminate inflorescence = bud scale half-sheathing to sheathing, ca. 3 × 3 mm, early-deciduous when flower in small bud; leaf subtending pistillate flower persistent in fruit; pedicel cylindric, at anthesis mostly 4.5–8.5 mm long (pistillate and occasionally bisexual) increasing 2× in fruit, mostly 3.5–7.5 mm long (staminate), of central flower > laterals, not increasing before abscising from stem, green, axis with sparse, stalked glandular hairs and near base also short hairs or glabrous, pedicel of pistillate flower with abscission zone circular groove < 0.2 mm from top, pedicel in fruit with lenticels. **Staminate flower:** in bud compressed side-to-side and 3.5–4.5 mm across and at anthesis radial and 5–6 mm across (anthers); receptacle densely short-villous with colorless hairs; **calyx** (4–)5–6-lobed, fused at base, lobes widely spreading, obtuse-ovate to narrowly ovate somewhat keeled and cupped around filament, 2.5–3 × 0.7–1.4 mm, colorless with green midvein membranous aging papery, short-ciliate on margins with crooked hairs, surface with conspicuous cystoliths in upper epidermis cells; **corolla** absent; **stamens** (4–)5–6, free; filaments strongly incurved at anthesis maturing widely spreading,

tapered base-to-tip, 2.5–3.5 mm long, colorless, lacking hairs; anthers dorsifixed, dithecal, plump with 2 thick sacs, (1.6–)2–2.4 mm long, pale green aging pale yellow or pale yellow sometimes blushed reddish, longitudinally and outwardly dehiscent; pollen copious, pale cream-colored to white, wind dispersed; **pistil** vestigial in center or absent, low green dome with aborted style and stigma lobes. **Bisexual flower:** radial, ca. 5 mm across; **calyx** 5–6-lobed, lobes ascending, acute-ovate and boat-shaped cupping filament and anther, ca. 2.5 mm long, colorless with green midvein membranous aging papery; **corolla** absent; **stamens** 5(–6), free; filaments 2–2.3 mm long, fleshy, colorless, lacking hairs; anthers dorsifixed, dithecal, 2–2.3 mm long, pale yellow, longitudinally and outwardly dehiscent; pollen white; **pistil** 1; ovary superior, ovoid, at anthesis 1.3–1.5 × 1 mm, green, glabrous, 1-chambered with 1 ovule; style 1, conspicuously 2-branched, stalk stout-cylindric, ca. 0.5 mm long, green, the branches widely spreading, 3–3.5 × 0.7 mm, cream-colored strongly curved inward and grooved on lower side, conspicuously papillate base-to-tip. **Pistillate flower** (appearing bisexual): radial, 5–6 mm across (spreading stigmatic lobes); receptacle densely short-pilose with colorless hairs surrounding pistil; **calyx** 4–5-lobed, lobes ascending, acute-ovate and boat-shaped cupping filament and anther, 3–4 × 1.7 mm, colorless with green midvein membranous aging papery, short-ciliate on margins with crooked hairs, surface with conspicuous cystoliths in upper epidermis cells; **corolla** absent; **stamens** 4–5, free, producing inviable pollen; filaments widely spreading, tapered base to tip, ca. 2.5 mm long, colorless, lacking hairs; anthers dorsifixed, dithecal, ca. 1.5 mm long, pale green, longitudinally and outwardly dehiscent; pollen colorless; **pistil** 1; ovary superior, ovoid, at anthesis 1.8–2 × 1.3–1.6 mm, green, glabrous, 1-chambered with 1 ovule; style 1, conspicuously 2-branched, stalk stout-cylindric, ca. 0.7 mm long, green, the branches widely spreading, 2.2–3.5 × 0.7 mm, cream-colored, conspicuously papillate base-to-tip. **Fruit:** drupe, 1-stoned, 1-seeded, spheroid, 5.2–7 × 5.2–7 mm, at maturity orangish red to plum-colored, strongly dimpled, surface minutely pitted; pulp thin, < 0.5 mm, juicy soon drying; stone extremely hard, 4–4.5 × 4–4.5 mm, yellowish white, surface ridged and somewhat netlike.

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