

## Vascular Plants of Williamson County

*Juncus acuminatus* – KNOTLEAF RUSH, SHARP-FRUITED RUSH [Juncaceae]

*Juncus acuminatus* Michx., KNOTLEAF RUSH, SHARP-FRUITED RUSH. Perennial herb, clonal, with perennating structure (rhizomatous but not obviously so), fibrous-rooted, not rosetted, cespitose, many-stemmed from belowground, shoot eventually with a lateral branch from each cauline node punching through sheath of the primary leaf, in range < 45 cm tall; shoot with 1–3 bladeless leaves (cataphylls), 1–2 basal leaves with green blades, and to 2 cauline leaves (within inflorescence cauline leaves = bracts), glabrous; “rhizome” suberect, cylindrical with solid internodes, to 3.5 mm diameter, white; adventitious roots on vertical rhizome and from bases of axillary shoots arising belowground or submersed.

**Stems (culms):** cylindrical, 2–3.5 mm diameter, tough, green, where exposed having vertical rows of sunken stomates; internodes solid. **Leaves:** alternate distichous, simple with sheath, with 2 upward-pointing, membranous, stipulelike lobes (auricles) at top mostly appressed to internode; cataphyll = open sheath with narrow membranous margins nearly to acute tip, to 20 mm long, often reddish aging gray; sheath open, to 100 mm long, in range green, smooth; auricles rounded, 1–2+ mm long, aging papery; blade ascending, somewhat tubular with the hollow central partitioned by thin  $\perp$  “walls” (septate), channeled or somewhat flat on upper side, mostly 30–225  $\times$  3  $\times$  2 mm (cauline leaves), the uppermost cauline leaf subtending peduncle projecting to above midpoint of inflorescence, dark green, entire, long-tapered at tip, parallel-veined. **Inflorescence:** panicle of flowers in “heads” in each fork, terminal, open, becoming more compound with expansion, eventually with 4–5 orders of branching and inflorescence > vegetative plant, each headlike cluster with > 2 flowers gradually adding new flowers in a helically alternate sequence, often 5+-flowered with the oldest flower forming fruit and the youngest flower much shorter before anthesis, flowers nonshowy, bracteate, glabrous; panicle mostly concealed by sheath of subtending cauline leaf, white and smooth cylindrical at base changing to greenish midpoint and green with sunken stomates where exposed, bract subtending the lowest branch of inflorescence ascending, mostly with sheath < blade and before anthesis > emerging inflorescence, later appearing within expanded inflorescence; primary branches in a set arising helically alternate and radiating above bract node closely spaced (comparatively short internodes) and unequal in length and compoundness, the first internode on primary branch variable in length but relatively long, at the end of the first internode having a shorter, leaflike bract below another set of radiating branches (secondary branches) having a relatively long first internode, third-order branchlets mostly < 5 divergent and unequal forming a leader and lesser branches; for branch or branchlet with bract + prophyll, the bract on 3-order branches to 10 mm long decreasing upward, = an open sheath with membranous margins, diminutive auricles, with or without a short, slender blade above auricles, the prophyll the same length, = a closed sheath to midpoint and notched at the top with 2 membranous, acute lobes, 2-veined, greenish but with a panel of membranous tissue from base to sheath sinus; internodes of branches and branchlets cylindrical, of varying lengths, green, glabrous; bractlet subtending pedicel slender acuminate-ovate, ca. 2.5  $\times$  0.7 mm, 1-veined, aging scarious with reddish midvein extending into tip slender; pedicel short. **Flower:** bisexual, radial, < 1 mm across, essentially closed; **tepals** 6 in 2 differentiated whorls, erect, of outer whorl cupped

acuminate-lanceolate and ca.  $2.5 \times 0.8$  mm (flattened), bases overlapped, covering edges of ovary, of inner whorl flat acuminate-triangular, ca.  $2.5 \times 0.5$  mm, green with membranous margins appressed to face of ovary, tepals 3-veined, tips of outer whorl often reddish, persistent; **stamens** 3, free, opposite cupped outer tepals, included; filaments ca. 1 mm long, colorless; anthers basifixed, dithecal,  $\pm$  linear,  $\pm 0.5$  mm long, yellowish, longitudinally dehiscent; pollen pale yellow; **pistil** 1; ovary superior, ellipsoid 3-angled, ca.  $1 \times 0.3$  mm, greenish, glabrous, 1-chambered with many ovules; style 3-branched, basal portion short, the stigmatic branches included, ca. 0.4 mm long, initially colorless aging reddish. **Fruit:** capsule, loculicidal, dehiscent by 3 valves, many-seeded, lanceoloid 3-sided,  $3\text{--}3.8 \times$  ca. 0.75 mm,  $>$  perianth  $<$  1 mm, drying tan, valves flat, immature fruit exerted  $<$  1 mm from tips of tepals, acute at top with the persistent 3-branched style. **Seed:** ellipsoid with blunt points,  $0.3\text{--}0.4 \times 0.2$  mm, pale brown but 1 point darker (purple) beneath the surface, longitudinally ribbed on surface, not tailed.

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