

## A NEW *CAREX* SECT. *OLIGOCARPAE* (CYPERACEAE) FROM WESTERN ARKANSAS AND EASTERN OKLAHOMA

In late April of 1977, during fieldwork along the summit of Rich Mountain, the highest range of the Ouachita trend in western Arkansas, the senior author discovered on the dry, oak-pine slopes of the southwestern-facing side numerous clones of a *Carex* similar to *C. hitchcockiana* Dewey but distinct in habit, indument, and foliar character. On being informed of this plant, Arkansas botanists such as R. Davis and J. Rettig and caricologist C. T. Bryson conducted productive searches for it, not only in the original locality but elsewhere on Rich Mountain (including Oklahoma) and southward. We are aware now of an abundance of it, often in association with *C. hitchcockiana* and *C. oligocarpa* Schk. of sect. *Oligocarpha* over a substantial range of arenaceous oak-hickory-pine uplands in Arkansas (Howard, Polk, Scott counties) as well as in LeFlore County, Oklahoma. This habitat system is so well represented in the Interior Highlands physiographic province, particularly the Ouachitas, that a sedge thought to be rare and local may indeed be widespread and locally abundant within that physiography, as has now been shown in the case of *C. latebracteata* Waterf. (Kral, 1983). The new *Carex* is named after the mountain complex where it first was found.

***Carex ouachitana*** Kral, Manhart & Bryson, sp. nov. TYPE: United States. Arkansas: Polk Co.: sandy rocky woods at summit of Rich Mountain, just W of Queen Wilhelmina Park Headquarters, 26 Apr. 1977, *R. Kral 59803* (holotype, MO; isotypes, BM, CTB, GA, GH, MICH, MO, US, VDB). Figure 1.

Spec. nova e sectione *Oligocarpha*. Planta perennis, 30–80 cm longa, glabra, laxe cespitosa, valde squamate rhizomatosa, foliis principalibus culmo longioribus vel paulo brevioribus. Rhizoma repens vel ascendens, plus minus lignescens, 2–4 mm crassum, in cataphyllis gradatim transiens. Cataphylla oblonga, 1–5 cm longa, acuta vel acuminata, fuscopurpurea, carinata. Culmi dimorphi, lateralibus sterilibus foliosissimis. Folia principalia 30–70 cm longa. Laminae compressae, 3–

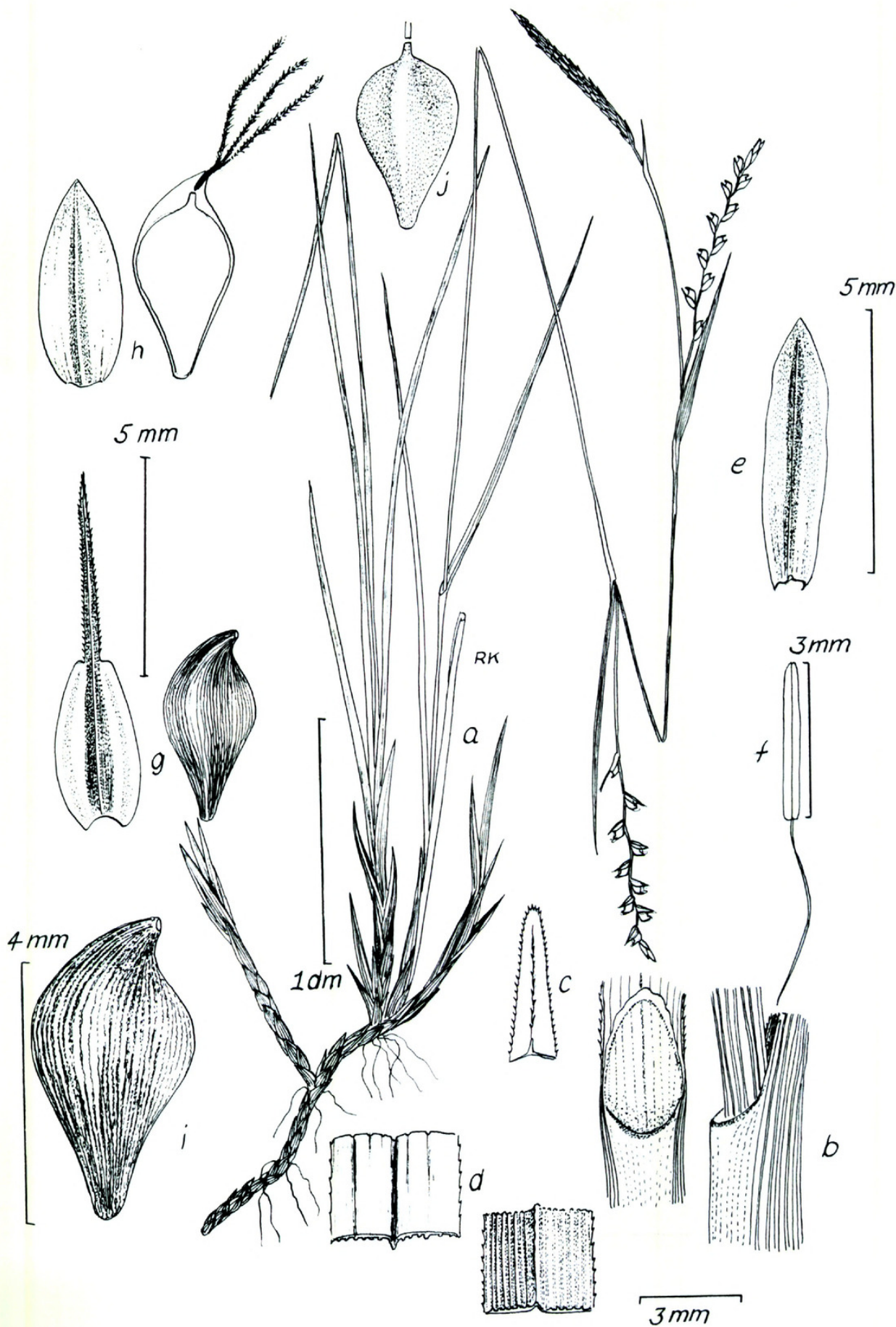
5 mm latae, scabridae, apicem versus attenuatae, scabromarginatae; pagina ad medium foliorum superna impressinervis, inferna elevatinervosa, costa media valde elevata, scabrida. Spicae 2–4, lineares; spica ultima omnino mascula, 2–4 cm longa, ca. 3 mm crassa, pedunculo 2–3-plo breviora. Spicae penultima omnino foeminae vel androgynae, peranguste lineares, pauci-vel-multiflorae, 3–6 cm longae basin versus interruptae. Bracteae spiculae masculae sine vagina, lanceolatae, 10–15 mm longae, anguste acuminatae vel cuspidatae; bracteae spiculae lateralis foliaceae, erectae, pedunculis ascendentibus vel erectis, 2–6 mm longis subtendentes, infimae laminis 10–13 cm longis et vaginis usque ad 4 cm longis. Glumae masculae oblongo-lanceolatae ca. 2.5–3.0 mm longae, acutae, carinatae, lateribus pallide brunneolis, costale virides. Glumae foeminae ovatae vel lanceolatae, naviculares, cum cuspidate 5–15 mm longae, acutae vel anguste truncatae, zona media viridi, unicastali, lateribus stramineis vel brunneolis, apicibus glumarum infernarum valde cuspidatis. Perigynium obovoideum, 4–6 mm longum, obscure trigonum, superficiebus leviter concavis vel planis, impressinervis, rostro brevi-excurvato. Achaenia arcte inclusa, stipitato-obovoidea trigona, cum erecto rostro ca. 4.5–5.0 mm longa superficie concava, pallide brunneola, minute papillosa.

Perennial 30–80 cm long, smooth, loosely cespitose, strongly scaly-rhizomatous, the principal leaves slightly longer or slightly shorter than the culms. Rhizome creeping to ascending,  $\pm$  ligneous, 2–4 mm thick, branching, the scales ovate, acute, spirally imbricate, multicostate, brown, gradually passing into cataphylls. Cataphylls oblong, 1–5 cm long, acute or acuminate, red-brown-purple, multicostate (costas often white), carinate. Culms dimorphic, spreading, slender, acutely trigonous, scabrid, the lateral ones sterile, more leafy. Principal foliage leaves longer toward culm base and approximate, 30–70 cm long. Leaf sheaths carinate, smooth; ligule erect, a narrow, horseshoe-shaped or acute scale. Blades spreading or recurved, flattened, linear, 3–5 mm wide, scabridulous, apically attenuate, triquetrous, the edges harsh, the surfaces at mid-blade above scabrellous, impressed-nerved, abaxially elevated-nerved, with midcosta strongly raised, scabrid. Spikes 2–4, narrow, the uppermost all male, nar-

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FIGURE 1. a–j. *Carex ouachitana*. —a. Habit. —b. Ventral (left) and lateral-oblique view of leaf sheath apex. —c. Leaf tip, abaxial side. —d. Axial (left) and abaxial (right) sides of midsector of leaf blade. —e. Scale of staminate flower. —f. Anther and upper part of filament. —g. Perigynium and accompanying scale, spike base. —h. Perigynium and accompanying scale, spike apex, showing stigmatic branches and outline of included fruit. —i. Detail, further enlarged, of perigynium. —j. Fruit. From *Kral 59803*.







rowly densely ellipsoid-cylindric, 2–4 cm long, ca. 3 mm thick, 2–3 times shorter than the peduncle. Spikes beneath all female, or androgynous with 1–7 male florets at the tip, narrowly linear, few-to-many-flowered, 3–6 cm long, basally interrupted, at apex with the flowers more approximate. Male spike bract without sheath, lanceolate, 10–15 mm long, narrowly acuminate or cuspidate, carinate; bracts of lateral spikes foliaceous, erect, subtending erect to ascending peduncles 2–6 cm long, the lower with blades 10–15 cm long and with closed sheaths to 4 cm long. Male scales scarious, oblong-lanceolate, ca. 2.5–3.0 mm long, acute, carinate, the sides pale brown, the costal area green. Female scales ovate to lanceolate, navicular, 5–15 mm long including the cusp, acute to narrowly truncate, the midzone green, unicostate, the sides stramineous to brown, the tips of the lower scales strongly cuspidate. Perigynia obovoid, 4–6 mm long, obscurely trigonous, the faces slightly concave to level, impressed-nerved, the beak short, excurved. Fruit tightly included, stipitate-obovoid, trigonous, 4.5–5.0 mm long including the short erect beak, the faces concave, pale brown, minutely papillate.

*Additional specimens examined.* UNITED STATES. ARKANSAS: Howard Co.: shaley wooded river bluffs, 9.6 mi. E of Wickes, 9 May 1979, *Kral 63507*; NW of AR Hwy. 4 and Cossatot River on slopes above river under mixed hardwoods, 10 May 1986, *Bryson 4332*. Polk Co.: Rich Mtn., along Ouachita Trail near Hwy. 88 N 0.3 mi. W of Rich Mtn. tower, 27 Apr. 1981, *Rettig & Davis 239*; Queen Wilhelmina State Park, Sect. 11, R32W, T1S, below and to N of visitor center and AR Hwy. 88 along trail on N-facing slope under mixed hardwood forest, rich rocky soil, 10 May 1986, *Bryson 4289*; NW of Rich Mtn. Lookout Tower, N of AR Hwy. 88, SW ¼ Sec. 8, R31W, T1S, along Ouachita Trail on N-facing slope under hardwood forest with dense herbaceous undergrowth, 10 May 1986, *Bryson 4290*; NE of AR Hwy. 246 and Cossatot River crossing NE ¼ Sec. 30, R30W, T4S under rich hardwood forest with few pines, on W-facing slope, rocky soil with thick leaf litter, 10 May 1986, *Bryson 4326*. Scott Co.: N slopes of Black Fork Mountain W of Mena, W of Cemetery, 4 May 1982, *Davis 3066*; Blackfork Mtn., W of Little Cemetery on long ridge road, rich humus, Jackfork Sandstone, T1N, R32W, Sec. 27, 3 May 1982, *Rettig et al. 501*. OKLAHOMA. LeFlore Co.: mesic N-facing slope of Rich Mountain ca. 150 yards W of the Oklahoma-Arkansas state line near Hwy. #1, 30 Aug. 1979, *Taylor 28122*; just W of State Line Historical Site S of OK Hwy. 1, rocky soil in soil islands on rock outcrops on top of Rich Mtn., open area, 10 May 1986, *Bryson 4300*; NW and below State Line Historical Site N of OK Hwy. 1 on N-facing slope under thick oak-hickory forest with few pines toward top, thick brushy and herbaceous understory, rich rocky soil in association with *Carex jamesii*, *C. oligocarpa*, *C. hitchcock-*

*iana*, *C. albursina*, 10 May 1986, *Bryson 4310*. Duplicates are to be distributed later, thus acronyms for recipients are not cited.

Staminate terminal spikes, female spike scales with harsh cusps and costae, perigynia with many impressed nerves, and short toothless beaks place this sedge squarely in sect. *Oligocarpae*, a section first designated by Carey in Gray (1848), and subsequently revised by Kukenthal (1909), Mackenzie (1931–1935) and Fernald (1950). In most modern classifications this complex comprises just *C. oligocarpa* and *C. hitchcockiana*. Both of these are densely cespitose and erizomatous; whereas *C. ouachitana* is loosely cespitose, sometimes forming colonies up to 0.5 m across in open areas and up to 1–2 m across in shaded areas, and produces strong, ligneous, imbricate-scaly rhizomes. The staminate spike is larger, with a longer peduncle, thicker, and bears more florets. The lateral spikes are frequently androgynous, while in *C. oligocarpa* and *C. hitchcockiana* they are solely carpellate. The perigynia are much like those of *C. hitchcockiana* in size and shape but differ in that the beak is shorter, broader, and more bent outward. On the other hand, the fruit beak resembles that of *C. oligocarpa* by being erect or suberect. However the members of this triad are related morphologically, it is significant that, even though they have been observed to share habitat in the same localities, no apparent naturally occurring hybrids have thus far been seen.

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—Robert Kral, Department of Biology, Vanderbilt University, Nashville, Tennessee 37235, U.S.A.; James Manhart, Division of Biological Sciences, The University of Michigan, Ann Arbor, Michigan 48109, U.S.A.; and Charles T. Bryson, Southern Weed Science Laboratory, P.O. Box 350, Stoneville, Mississippi 38776, U.S.A.



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