CAREX BRYSONII AND CAREX GODFREYI, NEW SPECIES OF CAREX SECTION GRISEAE (CYPERACEAE) FROM THE SOUTHEASTERN UNITED STATES

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The sedges constituting Carex section Griseae (L. H. Bailey) Kükenthal belong to subgenus Carex and possess glabrous leaf and bract blades, long-sheathing lower bracts, staminate terminal spikes, and glabrous perigynia with numerous (usually 40 or more) impressed nerves. Section Griseae [including sect. Oligocarpae (Carey) Mackenzie] contains 18 taxa, all endemic to eastern North America. The group is most diverse in the southeastern United States, the region inhabited by three of the section’s four recently described species (Bryson et al. 1987; Kral et al. 1987; Bridges & Orzell 1989; Naczi 1989). The Southeast continues to yield new species of sect. Griseae; here I describe two new species from this area. Recognition of these taxa as new species results from ongoing research on the systematics of Carex sect. Griseae and exploration of localities and habitats in the Southeast with previously poorly known sedge floras.


Herba perennis, dense caespitosa. Rhizomata brevia, 0.2–1.0 mm longa inter surculos vel ramos rhizomatum, internodis 0.2–1.0 mm longis, 2.4–2.7 mm crassis. Bases surculorum stramineae vel cinnamomeae. Culmi fertiles 26–63 cm alti, 0.5–0.8 mm lati in medio, sparsim antorrose scaberuli vel laeves. Folia 3–5; laminae 3.3–24 cm longae, 2.4–5.3 (–5.8) mm latae, lamina latissima (3.4–) 3.7–5.3 (–5.8) mm lata, glaucescentes, paginis abaxialibus laevibus vel papillatis; vaginae scabrae. Surculi vegetativi 8.7–56 cm alti; pseudoculmi 4.1–19 cm alti. Inflorescentia 6.4–54 cm longae; spicae separatae vel 2–4 superae imbricatae; spicae infimae remotae. Spicæ (3–) 4–5 (–6), erectae; spica terminalis (1.2–) 1.8–4.6 cm longa, 1.4–2.6 mm lata, omnino mascula, in pedunculo erecto 6.6–29 (–42) mm longa portata, spicas superas laterales vix vel multo superans; spica infima 0.9–2.8 cm longa, 3.8–4.7 mm lata, omnino feminea vel raro androgyna, in pedunculo erecto (0.9–) 2.3–13.2 cm longo portata; spicæ laterales 0.6–2.6 cm longæ, 3.8–6.8 mm latae, omnino femineæ vel raro androgynæ, in pedunculis erectis 0.3–4.9 cm longis portatae; flores feminei spicarum lateraliun (2–) 3–8 spiraliiter imbricati, internodio inter flores infimos (2.6–) 4.5–7.3 (–9.3) mm longo. Squamae femineæ (3.5–) 4.1–6.1 mm longæ, 1.3–2.0 mm latae, aristatae; corpus (2.0–) 2.5–3.2 (–3.8) mm longum, late ovatum vel ovatum, integrimarginatum; arista (0.1–) 1.2–3.6 mm
longa. Perigynia (3.7–) 4.0–4.7 (–5.1) mm longa, 1.5–1.7 (–1.8) mm lata. (2.2–) 2.5–3.1 plo longiora quam latiora, ascendentia, obtuse trigona, glabra, ellipsoidae vel anguste ellipsoidae vel obovoidea vel anguste obovoidea, in basim angustum subacutam gradatim contracta, in rostrum laeve plus minusve ecurvata integrum (0.5–) 0.6–1.0 longum abrupte contracta; ncrvi 49–58 impressi. Achenia (2.5–) 2.7–3.5 mm longa, 1.4–1.6 mm lata, late obovoidea-ellipsoidae vel obovoidea-ellipsoidae, in stipitem 0.3–0.5 (–0.6) mm longum abrupte contracta, arce inclusa perigyniis; corpus 2.1–2.7 mm longum.

Perennial herb, densely caespitose. Rhizomes short, 0.2–1.0 mm long between shoots or branches of the rhizomes, with internodes 0.2–1.0 mm long, 2.4–2.7 mm thick, covered with cataphylls 2–3.5 mm long. Shoot bases not surrounded by bases of old leaves, stramineous to cinnamon. Fertile culms 26–63 cm tall, 0.5–0.8 mm wide at mid-height, trigonous, erect to spreading, elongating slightly in fruit, sparsely antrorsely scaberulous-angled or smooth. Cataphylls scabrous, stramineous to cinnamon, multicostate. Leaves 3–5, arising in basal 0.01–0.2 (–0.6) of fertile culms, the longest 0.3–0.5 times as long as fertile culms; blades 3.3–24 cm long, 2.4–5.3 (–5.8) mm wide, the widest (3.4–) 3.7–5.3 (–5.8) mm wide, glaucescent, flat to barely plicate, margins antrorsely scaberulous or smooth, adaxial surface smooth or sparsely antrorsely scaberulous on main veins, abaxial surface smooth or papillate, papillae especially on leaves produced during previous season; leaf sheaths 2.1–10.4 cm long, tight, scabrous, glaucescent with bases stramineous to cinnamon; adaxial face of sheaths with hyaline and glabrous or apically sparsely scabrous band, hyaline band with apex slightly concave to slightly convex; ligules 1.2–4.7 mm long, lingulate with apex obtuse. Vegetative shoots 8.7–56 cm tall, 0.65–1.2 times as tall as culms; leaves 3–6, similar to those of fertile culms except blades 1.0–46 cm long; pseudoculms 4.1–19 cm tall, 1.9–3.2 mm wide. 0.28–0.39 of vegetative shoot height. Inflorescences 6.4–54 cm long, 0.22–0.86 of culm height, with spikes separate or upper 2–4 spikes overlapping; the uppermost lateral spikes 1.5–3.4 cm distant; the lowest spikes separate, (2.2–) 6.6–26 cm distant; lowest bract blade 5.6–22.9 cm long, sheath 0.6–7.4 cm long, adaxial face of sheath with glabrous and hyaline band usually occupying full length of sheath, hyaline band with apex slightly convex and elongated 0.3–2.3 mm above sheath apex, sheath scabrous abaxially, ligule 0.7–3.4 mm long; bract blade of uppermost lateral spike (0.7–) 2.0–6.3 (–8.2) cm long and overlapping but not exceeding terminal spike, sheath 1.3–2.6 mm long and glabrous or sparsely scabrous abaxially; uppermost bract subtending terminal spike and scale-like, sheathless, body 3.9–5.0 mm long, awn 0–7.9 mm long. Spikes (3–) 4–5 (–6), simple, single at nodes, erect; terminal spike (1.2–) 1.8–4.6 cm long, the longest (2.5–) 3.0–4.6 cm long, 1.4–2.6 mm wide, entirely staminiate, 13–116-flowered, on erect peduncle 6.6–29 (–42) mm long, barely to much exceeding upper lateral spikes; lowest spike 0.9–2.8 cm long, 3.8–4.7 mm wide, entirely pistillate and (2–) 3–6-flowered or rarely androgynous with 4–5 pistillate and 1–3 staminate flowers, the flowers spirally imbricate, the internode between the lowest flowers (2.6–) 4.5–7.3 (–9.3) mm long, on erect peduncle (0.9–) 2.3–13.2 cm long; lateral spikes 0.6–2.6 cm long, 3.8–6.8 mm wide, entirely pistillate and (2–) 4–8-flowered or rarely androgy nous with 4–8 pistillate and 1–8 staminate flowers, on erect peduncles 0.3–4.9 cm long. Staminate scales 3.8–4.3 mm long, 1.3–1.6 mm wide, narrowly oblong-ovate to oblong-ovate, obtuse to acute, awnless, center green and 1-nerved, margins hyaline and whitish to pale stramineous. Pistillate scales (3.5–) 4.1–6.1 mm long, 1.3–2.0 mm wide; body (2.0–) 2.5–3.2 (–3.8) mm long, broadly ovate to ovate with midrib prolonged
FIG. 1. Scanning electron micrographs of leaf surfaces and pistillate scale margins of Carex brysonii and C. hitchcockiana. a–b, abaxial surfaces of overwintered leaves: a. C. brysonii (Bryson 4385), b. C. hitchcockiana (Naczi 1945). c–d, adaxial surfaces of overwintered leaves: c. C. brysonii (Bryson 4385), d. C. hitchcockiana (Naczi 1945). e–f, margins of pistillate scale bodies, near apex of body: e. C. brysonii (Naczi 2874), f. C. hitchcockiana (Naczi 1945). Scale: bars in a–d = 0.01 mm; bars in e–f = 0.1 mm.
as antorsely scaberulous awn (0.1–) 1.2–3.6 mm long, center green and 1–3-nerved, margins entire, hyaline, whitish. Anthers 3, 2.9–3.4 mm long. Styles jointed with achenes, withering; stigmas 3, 2.4–3.3 mm long. Perigynia (3.7–) 4.0–4.7 (~5.1) mm long, 1.5–1.7 (~1.8) mm wide, (2.2–) 2.5–3.1 times as long as wide, ascending, obtusely trigonous with faces flat to slightly convex, with many fine and deeply impressed nerves on each face, the total number of nerves 49–58, glabrous, green to red-brown, fusiform, ellipsoid or narrowly ellipsoid to obovoid or narrowly obovoid, gradually tapered to narrow and subacute base, abruptly contracted to beak; beak (0.5–) 0.6–1.0 mm long, 0.12–0.22 of perigynium length, smooth, slightly incurved, entire. Achenes (2.5–) 2.7–3.5 mm long, 1.4–1.6 mm wide, tightly enveloped by perigynia, broadly obovoid-ellipsoid to obovoid-ellipsoid, obtusely trigonous with faces slightly concave to flat, brown, basally abruptly contracted to stipe, apically abruptly contracted to beak; stipe 0.3–0.5 (~0.6) mm long, straight; body 2.1–2.7 mm long, 0.49–0.60 times as long as perigynium, with widest point 0.9–1.2 mm from body apex; beak 0.2 mm long, bent 30–70° from vertical.

**Additional Specimens Examined, Alabama.** Lawrence Co.: [ca. 19 km (11.6 mi) N of Double Springs], Bankhead National Forest, W side of Borden Creek, T8S, R8W, Sect. 32, Bryson 11619 (MICH, US, VDB, etb). Winston Co.: type locality, Bryson 4385 (DOV, IBE, MICH, MO, NLU, PH, UNA, VDB, etb), Naczi 2874 (GH, MICH, NY, UNA, US, VDB, etb); Bankhead National Forest, SE of Sipsey River Recreation Area, W side of river, [T9S, R8W], Sect. 10, Bryson 2536 (MICH, etb); Bankhead National Forest, SE by ca. 1 mi from Sipsey River Recreation Area, T9S, R8W, Sect. 9, Bryson 4381 (BRIT/SMU, LSU, MICH, MO, MSC, NLU, PH, TAES, UARK, VDB, VSC, etb).
Table 1. Morphologic characters distinguishing Carex brysonii from C. hitchcockiana.

<table>
<thead>
<tr>
<th>Character</th>
<th>Carex brysonii</th>
<th>Carex hitchcockiana</th>
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<tbody>
<tr>
<td>leaf color</td>
<td>glaucous</td>
<td>deep green</td>
</tr>
<tr>
<td>abaxial surface of overwintered leaves</td>
<td>usually papillate</td>
<td>smooth or sparsely scabrous on midrib</td>
</tr>
<tr>
<td>hyaline band of lowest bract sheath, length relative to sheath</td>
<td>usually as long as sheath</td>
<td>much shorter than sheath</td>
</tr>
<tr>
<td>bract blade of uppermost lateral spike, length relative to terminal spike</td>
<td>shorter than or equalling terminal spike</td>
<td>usually much exceeding terminal spike</td>
</tr>
<tr>
<td>longest terminal spike, length (mm)</td>
<td>(25–) 30–46</td>
<td></td>
</tr>
<tr>
<td>pistillate scale margins</td>
<td>entire</td>
<td></td>
</tr>
<tr>
<td>perigynium, length (mm)</td>
<td>(3.7–) 4.0–4.7 (–5.1)</td>
<td></td>
</tr>
<tr>
<td>perigynium, width (mm)</td>
<td>1.5–1.7 (–1.8)</td>
<td>1.9–2.2 (–2.3)</td>
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Morphologically, Carex brysonii is most similar to Carex hitchcockiana Dewey. These two are the only taxa in sect. Griseae to have scabrous leaf and bract sheaths. In addition, Carex brysonii and Carex hitchcockiana share brown shoot bases, relatively wide leaves [the widest leaf blade per plant (3.0–) 3.5–5.3 (–6.5) mm wide], perigynia tightly enveloping the achenes, and perigynia with excurred beaks. Numerous morphologic characters distinguish the two species (Table 1). The abaxial surfaces of the leaf blades of Carex brysonii are smooth or papillate. Leaves produced during the previous season (overwintered leaves) are most often papillate, whereas leaves produced early in the current season are usually smooth. Thus, only some of the leaves per specimen are papillate, but every specimen I have examined bears at least a few papillate leaves. The papillae, which are minute (barely visible with 10× magnification), densely cover the leaf surface (Fig. 1a). In contrast, the abaxial surfaces of the leaf blades of Carex hitchcockiana are smooth or sparsely scabrous on the midribs (Fig. 1b). The leaf blades of Carex brysonii bear a thin covering of wax, both abaxially (Fig. 1a) and adaxially (Fig 1c). This wax, which may be worn off old leaves, causes the leaves to be glaucous. Carex hitchcockiana lacks this wax covering on both surfaces of its deep green leaves (Figs. 1b, d). In Carex brysonii, the hyaline band of the lowest bract sheath usually occupies the full length of the sheath and is elongated above the sheath apex only 0.3–2.3 mm (Fig. 2a). Carex hitchcockiana, on the other hand, has the hyaline band of the lowest bract sheath confined to the upper portion of the sheath and elongated above the sheath apex (0.6–) 1.0–5.6 (–6.6) mm (Fig. 2a). The bract blade of the uppermost lateral spike overlaps but does not exceed the terminal spike in Carex brysonii, but usually much exceeds it in Carex hitchcockiana. In addition, the terminal spikes of Carex brysonii are longer than those of Carex hitchcockiana. The pistillate scale bodies of Carex brysonii have entire margins (Fig. 1e), whereas those of Carex hitchcockiana are denticulate (Fig. 1f). Furthermore, the perigynia of Carex brysonii are shorter and narrower than the perigynia of Carex hitchcockiana (Fig. 2b).

In size and shape, the perigynia of Carex brysonii are almost identical to those of Carex asynchrona Naczi. Many other characters differentiate these two species, though. Unlike Carex brysonii, Carex asynchrona possesses pale green leaf blades that lack papillae and are relatively narrow [the widest blade per plant only 2.5–4.0 mm wide versus (3.4–) 3.7–5.3 (–5.8) mm wide for Carex brysonii], smooth leaf and bract sheaths,
relatively short terminal spikes [the longest spike per plant only 17–27 (–35) mm long versus (25–) 30–46 mm], and quite crowded upper spikes [only 0.7–1.5 (–2.2) cm between the uppermost lateral spikes versus 1.5–3.4 cm].

Carex brysonii grows in shaded, moist, sandy loam on slopes above streams in forests dominated by Acer saccharum Marsh., Carpinus caroliniana Walt., Fagus grandifolia Ehrh., Liriodendron tulipifera L., Magnolia macrophylla Michx., Pinus sp., and Tsuga canadensis (L.) Carr. Carex communis L. H. Bailey, C. oligocarpa Willd., and C. picta Steud. associate closely with C. brysonii. I have seen only 6 collections of C. brysonii, despite examining specimens of sect. Griseae from over 60 herbaria. Apparently first collected in 1979 (Bryson 2536) and known only from along a short portion of the Sipsey Fork of the Black Warrior River and an immediately confluent portion of Borden Creek, C. brysonii appears to be a narrow endemic to gorges of the upper Sipsey Fork drainage. At least one other vascular plant taxon is endemic to these gorges, Thelypteris pilosa var. alabamensis Crawford (Norquist 1991). The upper Sipsey Fork drainage, in the Cumberland Plateau (Appalachian Plateaus) physiographic province, is also noteworthy for harboring the southernmost populations known of several species of Carex of eastern North American mesic forests: C. careyana Dewey, C. gracilima Schwein., C. laxiflora L.am. var. laxiflora, and C. pedunculata Willd. (Bryson 1980; Kral 1981; Naczi & Bryson 1990), but not “C. hitchcockiana” as noted by Naczi and Bryson (1990: 51), which is C. brysonii. Occurring farther south than C. hitchcockiana, C. brysonii is disjunct approximately 100 kilometers (60 miles) from the nearest known population of C. hitchcockiana [Alabama. Madison Co.: NE of Monte Sano Mt., between Monte Sano State Park and Hwy 72, Bryson 2046 (FLAS, ctb)].

In appreciation for the many ways he has assisted me in my studies of Carex, I name this species for Dr. Charles T. Bryson, avid student of the genus, discoverer of the species, and friend. Charles’s insistence that I see C. brysonii in the field induced me to visit what is now the type locality, carefully examine the plant, and consequently comprehend its uniqueness.


Herba perennis, dense vel laxe caespitosa. Rhizomata brevia vel longa, 0.2–38 mm longa inter surculos vel ramos rhizomatum, internodiis 0.2–12.4 mm longis, 1.2–2.0 mm crassis. Bases surculorum atrovinosae usque ad (3.4–) 4.0–7.3 cm. Culmi fertiles 7.8–65 (–85) cm alti, 0.4–0.9 mm lati in medio, laeves. Folia 2–4; laminae 1.4–34 cm longae, 1.1–4.0 (–5.3) mm latae, lamina latissima 2.4–4.0 (–5.3) mm lata, virides, paginis abaxialibus laevis; vaginae glabracae. Surculi vegetativi 23–63 cm alti; pseudoculmi 3.3–12.9 cm alti. Inflorescentiae 3.8–58 cm longae; spicae 2–4 superae imbricatae; spicae infimae remotae. Spicae (3–) 4–5 (–6), crectae; spica terminalis 0.7–3.7 (–4.6) cm longa, 1.0–2.9 mm lata, omnino mascula, in pedunculo erecto 1.6–22 (–51) mm longo portata, spicas superas laterales vix superans; spica infima 0.5–1.9 cm longa, 4.6–7.0 mm lata, omnino feminea, in pedunculo erecto vel arcuato 2.9–13.3 (–18.1) cm longo portata; spicae laterales 0.7–2.6 cm longae, 4.6–9.2 mm latae, omnino feminea vel raro androgynae, in pedunculis erectis 0.1–4.9 cm longis portatae; flores feminei spicarum lateraliun
3–19 spiraliter imbricati, internodio inter flores infimos 1.8–3.3 (–6.2) mm longo. Squamae feminineae 2.1–5.3 mm longae, 1.2–2.4 mm latae, aristatae; corpus 1.7–2.8 mm longum, late ovatum vel ovatum, integrimarginatum; arista (0–) 0.2–3.3 mm longa. Perigynia (4.0–) 4.3–5.0 (–5.6) mm longa, 1.5–1.9 (–2.1) mm lata, 2.4–2.9 (–3.2) mm longa quam latiora, ascendentia, obtuse trigona, nervata, glabra, elliptoidea vel anguste elliptoidea vel obovoidea vel anguste obovoidea, in basim latam truncatam gradatim contracta, in apicem subacutum rectum vel vix excurvatum gradatim contracta, erostrata vel rostro minuto laevi recto integro usque ad 0.2 mm longo instructa; nervi 52–64 impressi. Achenia (3.0–) 3.1–3.5 (–3.7) mm longa, 1.5–1.8 mm lata, late obovoidea vel obovoidea, in stipitem 0.6–0.8 (–0.9) mm longum abrupte contracta, laxe inclusa perigyniis; corpus 2.0–2.4 (–2.6) mm longum.

Perennial herb, densely to loosely caespitose. Rhizomes short to long, 0.2–38 mm long between shoots or branches of the rhizomes, with internodes 0.2–12.4 mm long, 1.2–2.0 mm thick, covered with cataphylls 2–15 mm long. Shoot bases not surrounded by bases of old leaves, dark purple-red to (3.4–) 4.0–7.3 cm high. Fertile culms 7.8–65 (–85) cm tall, 0.4–0.9 mm wide at mid-height, trigonous, erect to spreading, elongating in fruit, smooth. Cataphylls glabrous, red-brown to purple-red, multicostate. Leaves 2–4, arising in basal 0.01–0.3 of fertile culms, the longest 0.1–0.6 times as long as fertile culms; blades 1.4–34 cm long, 1.1–4.0 (–5.3) mm wide, the widest 2.4–4.0 (–5.3) mm wide, green, flat to barely plicate, margins antorsely scaberulous, adaxial surface smooth or sparsely antorsely scaberulous on main veins, abaxial surface smooth; leaf sheaths 3.1–9.2 cm long, loose, glabrous, green with bases tinged with purple-red; adaxial face of sheaths with hyaline and glabrous band, hyaline band with apex slightly concave or truncate; ligules 1.8–4.2 (–10.9) mm long, lingulate with apex obtuse or inverted V-shaped with apex acute. Vegetative shoots 23–63 cm tall, 0.6–1.5 times as tall as culms; leaves 4–7, similar to those of fertile culms except blades 5.7–48.5 cm long; pseudo-culms 3.3–12.9 cm tall, 1.0–3.8 mm wide, 0.16–0.27 of vegetative shoot height. Inflorescences 3.8–58 cm long, 0.094–0.94 of culm height, with the upper 2–4 spikes overlapping; the uppermost lateral spikes 0.3–8.5 (–19.5) cm distant; the lowest spikes separate, 7.8–31 cm distant; lowest bract blade 8.8–34.4 cm long, sheath 1.1–6.9 cm long, adaxial face of sheath with glabrous and hyaline band occupying full length of sheath or confined to upper portion of sheath, hyaline band with apex slightly concave to slightly convex and elongated 0.1–0.6 (–1.1) mm above sheath apex, sheath glabrous abaxially, ligule 0.9–3.9 (–6.6) mm long; bract blade of uppermost lateral spike 0.6–7.5 (–12.4) cm long and slightly exceeding terminal spike or rarely much exceeding terminal spike, sheath 1.4–7.1 mm long and glabrous; uppermost bract subtending terminal spike and scalelike, sheathless, body 3.4–5.1 mm long, awn 0.8–4.9 mm long. Spikes (3–) 4–5 (–6), simple, single at nodes, erect; terminal spike 0.7–3.7 (–4.6) cm long, the longest 1.2–3.7 (–4.6) cm long, 1.0–2.9 mm wide, entirely staminate, 11–94-flowered, on erect peduncle 1.6–22 (–51) mm long, usually barely exceeding upper lateral spikes; lowest spike 0.5–1.9 cm long, 4.6–7.0 mm wide, entirely pistillate, 3–10-flowered, the flowers spirally imbricate, the internode between the lowest flowers 1.8–3.3 (–6.2) mm long, on erect or arched peduncle 2.9–13.3 (–18.1) cm long; lateral spikes 0.7–2.6 cm long, 4.6–9.2 mm wide, entirely pistillate and 4–19-flowered or rarely androgynous with 3–17 pistillate and 2–16 staminate flowers, on erect peduncles 0.1–4.9 cm long. Staminate scales 3.3–4.8 mm long, 1.1–1.6 mm wide, narrowly oblong to oblong or oblong-ovate, acute to acuminate, awnless, center green and 1-nerved,
margins hyaline and whitish to stramineous or whitish with red-brown speckles. Pistillate scales 2.1–5.3 mm long, 1.2–2.4 mm wide; body 1.7–2.8 mm long, broadly ovate to ovate with midrib prolonged as antrorse scaberulous awn (0–) 0.2–3.3 mm long, center green and 1–3-nerved, margins entire, hyaline, whitish and usually with red-brown speckles. Anthers 3, 2.0–2.8 mm long. Styles jointed with achenes, withering; stigmas 3, 1.8–2.7 mm long. Perigynia (4.0–) 4.3–5.0 (–5.6) mm long, 1.5–1.9 (–2.1) mm wide, 2.4–2.9 (–3.2) times as long as wide, ascending, obtusely trigonous with faces flat to slightly convex or rugose, with many fine and deeply impressed nerves on each face, the total number of nerves 52–64, glabrous, green to red-brown, ellipsoid or narrowly ellipsoid to obovoid or narrowly obovoid, very gradually tapered to broad and truncate base, gradually tapered to subacute and straight or slightly excurved apex, beakless or with minute beak; beaks 0.0–0.2 mm long, 0–0.03 of perigynium length, straight, entire. Achenes (3.0–) 3.1–3.5 (–3.7) mm long, 1.5–1.8 mm wide, loosely enveloped by perigynia, broadly obovoid to obovoid, obtusely trigonous with faces slightly concave to flat, brown, basally abruptly contracted to stipe, apically abruptly contracted to beak; stipe 0.6–0.8 (–0.9) mm long, straight; body 2.0–2.4 (–2.6) mm long, 0.43–0.53 times as long as perigynium, with widest point 0.7–1.1 (–1.2) mm from body apex; beak 0.3–0.6 mm long, usually vertical, but occasionally bent 10–30° from vertical.

**FIG. 3.** Perigynia and achenes of members of the Carex grisea complex. a, front view of perigynia of (left to right) C. amphibia (Naczi 2557), C. corrugata (Naczi 1033), C. godfreyi (Naczi 2376), and C. grisea (Naczi 1854). b, front view of achenes (retaining portions of perigynium bases adherent to achene stipes) of (left to right) C. amphibia (Naczi 2557), C. corrugata (Naczi 1033), C. godfreyi (Naczi 2376), and C. grisea (Naczi 1854). Scale bars = 1 mm.

**Representative Specimens. Florida. Bay Co.; 1 mi N of Bennett, in bottoms of Moccasin Creek, McDaniel 7378 (BRIT/SMU, FLAS, FSU, TENN, UNA, VDB, etb). Citrus Co.; Chassahowitzka, along Chassahowitzka River just W of county park, Naczi 2791 (MICH, ctb). Clay Co.; ca. 1 mi N of Green Cove Springs, Magnolia Springs, 0.4 mi N of rte. 17, Naczi 2374 (MICH, ctb), Naczi 2771 (MICH, ctb); Magnolia, 17 Mar 1883, J. D. Smith s.n. (NY, US). Columbia Co.; Ichetucknee Springs, Godfrey 62661 & Hout (FSU, NCU); 3 mi W of Lula, McDaniel 6088 (NY, FLAS, FSU), Dixie Co.; ca. 1 mi N of Jena, near the Steinhatchee River, Godfrey 74658 (FLAS, FSU, MO, NCU, VDB); ca. 2.5 mi NE of Jena, 2.6 mi SW of jet. of rtes. 358 & 98, SE of rte. 358, Naczi 2376 (MICH, ctb), Naczi 2796 (MICH, ctb). Duval Co.; near Jacksonville, Curtiss 3267 (FLAS), Curtiss 4682 (F, FSU, MO, NY, US); ca. 2 mi W of Bayard along W side of Julington Creek, S of Old St. Augustine Rd., Naczi 2773 (MICH, ctb), Gadsden Co.; near River Junction, Curtiss 6401 (BH, CU, DOV, GH, ILI, MIN, MO, NY, US, WARM); near Chattahoochee, E side of Florida State Hospital Pond, Gholson 9655 & Cameron (FLAS, FSU). Hillsborough Co.; Hillsborough River State Park, Bright 456 (FLAS, PH), Bright 457 (CM), Lakela 25693 & R. W. Long (BRIT/SMU, FLAS, OKLA, USF). Jackson Co.; near Marianna, Florida Caverns State Park, Gholson 9606 (FSU), Godfrey 53180 (DUKE, FSU, GH); W of Malone, along Couriers Creek, Godfrey 74825 (FSU); ca. 1 mi N of Marianna, N of rte. 167 along W side of Chipola River, Naczi 2106 (MICH, ctb). Jefferson Co.;
Wacissa Springs, Godfrey 53492 (DUKE, FSU, GH), Godfrey 60798 (FSU), Godfrey 60800 (NY), Godfrey 74806 (FSU, VDB); E of Newport, 1 mi W of Auclla River, by rte. 98, Godfrey 75769 (FSU); E of Newport, 0.4 mi W of Auclla River, by rte. 98, Bryson 7920 (MICH, ctb), Ghoslon 11299 (FLAS, ctb), Godfrey 81821 & Ghoslon (FSU). Godfrey 82028 & Naczi (FLAS, FSU), McNeillus 90-125 (WARM), Naczi 1109 & Godfrey (FSU, MICH, ctb), Naczi 2098 (FLAS, FSU, MICH, US, VSC, ctb). Leon Co.: near Horne Springs, between springs and St. Marks River, Godfrey 82007 (FLAS, FSU, VDB); ca. 0.5 mi S of Ochlockonee, Harper 14 (BH, ILL, NY, US); ca. 1 mi W of Bloxham, E side of Ochlockonee River just S of rte. 20, Naczi 2100 (MICH). Levy Co.: 2 mi S of Otter Creek, Godfrey 74739 (FLAS, FSU); just E of Rosewood, 15 mi E of Cedar Key, Kral 57328 (VDB). Liberty Co.: 8 mi E of Hosford, McDaniel 5913 (FSU). Marion Co.: E of Silver Springs, Orzell & Bridges 13296 (MICH). Martin Co.: Stuart and vicinity, Jan–Feb 1917, Atwood s.n. (CU). Nassau Co.: 1.8 mi N of Callahan along W side of rte. 1, Naczi 2370 (FLAS, FSU, MICH, ctb), Naczi 2371 (FLAS, FSU, MICH, VDB, VSC, ctb). Pasco Co.: E of Land o’ Lakes, Cypress Creek Wellfield, Crewz 1563 (UNA, USF), 9 Apr 1979, T. F. Rockow s.n. (USF). St. Johns Co.: ca. 3 mi SE of Orangedale, S of rte. 16 along E side of Trout Creek, Naczi 2778 (FLAS, FSU, MICH, VDB, VSC, ctb). Taylor Co.: rte. 98/19/27A at Steinhatchee River, Ghoslon 6077 & Godfrey (FLAS); ca. 5.5 mi W of Hampton Springs along N side of rte. 98, Naczi 2382 (MICH). Wakulla Co.: along the Wakulla River at Upper Bridge, Godfrey 53000 (FSU, GA, GH, NY, USF, VDB); vicinity of St. Marks, Godfrey 60666 (FSU), Godfrey 60668 (FSU, GH, NY); Newport, along the St. Marks River, Godfrey 61744 (FSU). Godfrey 63258 (FLAS, FSU, LL, NCU, US, USF); bottoms of St. Marks River near north edge of county, Harper 60 (GH, MIN, NY); ca. 0.7 mi N of Newport, just S of Newport Spring, Naczi 2384 (FLAS, FSU, MICH, ctb). Washington Co.: N edge of Vernon, above Holmes Creek under hwy. 79 bridge. Anderson 12629 (FSU, MICH).—GEORGIA. Calhoun Co.: 3 mi W of Leary, near Ichawaynochaw Creek, Thorne 7995 & Muenscher (CU, GA). Early Co.: 4 mi E of Blakely, along Dry Creek, Thorne 2948, Muenscher, & J. S. Smith (CU, GA, GEO, GH). Lee Co.: near Arma, along Fowltown Creek, Thorne 9025 & Muenscher (CU, GEO).—NORTH CAROLINA. Jones Co.: 5 mi NE of Pollocksville, bank of Island Creek near co. rd. 1004, Sears C179 (NLU). New Hanover Co.: Wilmington, Delgado, Churchill 132 (GH).—SOUTH CAROLINA. Allendale Co.: Savannah River Operations Area of Atomic Energy Commission, 6 May 1952, Batson & Kelley s.n. (USCH).

Carex godfreyi belongs to a complex of four species, including C. amphibola Steud., C. corrugata Fern., and C. grisea Wahlenb. The characters that define the C. grisea complex are purple-red shoot bases (rarely brown in C. amphibola and C. grisea), loose leaf and bract sheaths, perigynia loosely enveloping the achenes, perigynia relatively long [(3.6–) 3.9–5.3 (–5.6) mm long], and perigynium length/achene body length ratio relatively high [(1.7–) 2.0–2.4 (–2.6)]. Carex godfreyi differs from all the other members of the C. grisea complex in several ways (Table 2). First, it is the only member of the complex that is loosely caespitose. Second, the purple-red coloration of the leaf sheaths and cataphylls extends higher from the shoot bases in C. godfreyi than in the three other species. Third, the leaf blades of C. godfreyi are narrower than those of the others. Finally, C. godfreyi has the longest achene stipes of any member of the complex (Fig. 3b). Within the C. grisea complex, C. godfreyi is morphologically most similar to C. amphibola. Both species possess relatively narrow perigynia with relatively high length/width ratios (Table 2, Fig. 3a).

Carex godfreyi inhabits wet hammocks, swamps, and floodplains dominated by deciduous trees. It grows in shaded, wet, calcareous mucks or sandy loams, often with Acer rubrum L., Asclepias perennis Walt., Carex bromoides Wildl., C. leptalea Wahlenb., Carpinus caroliniana, Platanthera flava (L.) Lindl., Raphido-phyllum hystrix (Pursh) Wendl. & Drude, Rhynchospora miliacea (Lam.) Gray, Ruellia carolitensis (Gmel.) Steud., Sabal minor (Jacq.) Pers., S. palmetto Schult. & Schult., and Samolus parviflorus Raf. Carex godfreyi occurs on the Coastal Plain from southeastern North Carolina south to central peninsular Florida and west to southwestern Georgia and nearby portions of the panhandle of Florida.
Table 2. Morphologic characters distinguishing *Carex godfreyi* from the rest of the members of the *Carex grisea* complex.

<table>
<thead>
<tr>
<th>Character</th>
<th><em>C. godfreyi</em></th>
<th><em>C. amplithola</em></th>
<th><em>C. corrugata</em></th>
<th><em>C. grisea</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Habit</td>
<td>densely to loosely caespitose</td>
<td>densely caespitose</td>
<td>densely caespitose</td>
<td>densely caespitose</td>
</tr>
<tr>
<td>purple-red coloration at plant base, height (mm)</td>
<td>(3−) 40−73</td>
<td>(0−) 10−24</td>
<td>(4−) 13−36 (−39)</td>
<td>0−32</td>
</tr>
<tr>
<td>widest leaf per plant, width (mm)</td>
<td>2.4−4.0 (−5.3)</td>
<td>4.4−6.8</td>
<td>3.3−5.6 (−8.0)</td>
<td>(4.8−) 5.0−6.8 (−9.1)</td>
</tr>
<tr>
<td>perigynium, width (mm)</td>
<td>1.5−1.9 (−2.1)</td>
<td>1.5−1.9 (−2.2)</td>
<td>(1.7−) 1.8−2.3 (−2.4)</td>
<td>(1.8−) 2.0−2.6</td>
</tr>
<tr>
<td>perigynium, length/width</td>
<td>2.4−2.9 (−3.2)</td>
<td>(2.2−) 2.5−3.1</td>
<td>1.8−2.3 (−2.5)</td>
<td>1.8−2.4 (−2.6)</td>
</tr>
<tr>
<td>achene stipe, length (mm)</td>
<td>0.6−0.8 (−0.9)</td>
<td>(0.3−) 0.4−0.6</td>
<td>(0.3−) 0.4−0.6</td>
<td>(0.2−) 0.3−0.4 (−0.5)</td>
</tr>
</tbody>
</table>

The populations of *C. godfreyi* are relatively few and often widely discontinuous, presumably due to the species’ requirement for a specialized habitat. Only two collections are known from North Carolina, one from South Carolina, and a few from Georgia. *Carex godfreyi* is moderately frequent only in Florida.

The geographic range of *C. godfreyi* only partially overlaps the collective range of the other members of the *Carex grisea* complex. *C. godfreyi* occurring farther south. In fact, only *C. godfreyi* and *C. corrugata* are sympatric, from southeastern North Carolina to northern Florida. Though *C. godfreyi* and *C. corrugata* have been collected within a few kilometers of each other at a few localities (in Jones and New Hanover counties, North Carolina, and Gadsden and Leon counties, Florida), apparently they never have been encountered at the same site. Syntopy of *C. godfreyi* and *C. corrugata* is unlikely because of the preference of *C. godfreyi* for mucks and sandy loams and *C. corrugata* for clays.

I name this species for Dr. Robert K. Godfrey in recognition of his many botanical contributions and in gratitude for his assistance with my field work, especially for showing me the first plants I saw of this species. Through tireless collecting (including many of the specimens of *C. godfreyi*), training many students, and publishing numerous works on the vascular plants of the Southeast, Dr. Godfrey has exponentially increased our understanding of the flora of the region, particularly the area inhabited by *C. godfreyi*.

**ACKNOWLEDGMENTS**

I thank David Bay, Charles T. Bryson, and Anton A. Reznicek for assistance with various aspects of this paper; Charles T. Bryson, Angus K. Gholson, Jr., and Robert K. Godfrey for help with field work; Loran C. Anderson, Edwin L. Bridges, Charles T. Bryson, Angus K. Gholson, Jr., and Steve L. Orzell for sending me some of their collections for my study; and Anton A. Reznicek for reviewing the manuscript. I also thank the curators of ACAD. BH, BRIT/SMU, CAN, CITA, CLEMS, CM, CU, DAO, DOV, DUKE, DUR, F, FARM, FLAS, FSU, GA, GEO, GH, ILL, ILL, LSU, MICH, MIN, MSC, MO, MT, NCU, NEBC, NLU, NY, OCLA, OKL, OKLA, OS, PAC, PENN, PH, QFA, SB, SBSC, SIU, TENN, TEX, TRT, UARK, UNA, UNB, US, USAM, USCH,
USF, VDB, VSC, WARM, WVA, ctb (Charles T. Bryson personal herbarium) for loans of specimens or assistance during my visits. National Science Foundation Doctoral Dissertation Improvement Grant BSR-9001260 and Block Grants from the Horace H. Rackham School of Graduate Studies of the University of Michigan provided financial support for this research.

LITERATURE CITED


