

*Schoenoplectiella* segregated from *Schoenoplectus* on the basis of morphological characters and molecular data. Doing so makes *Schoenoplectus* and *Schoenoplectiella* monophyletic.

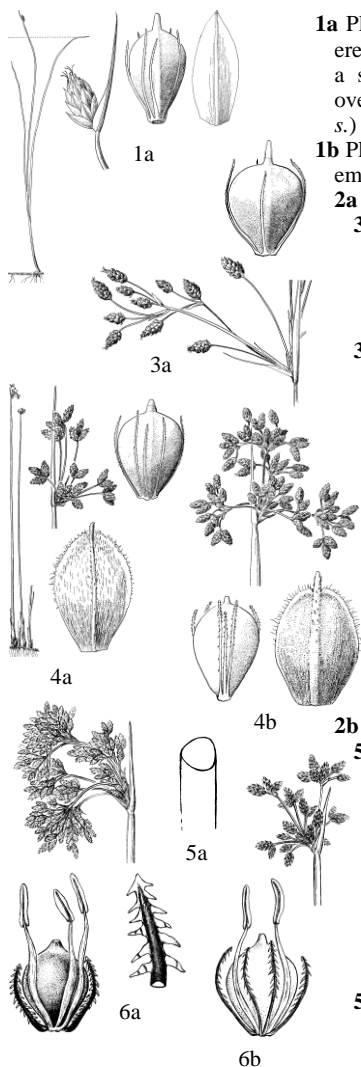
### References:

Hayasaka, E. 2012. Delineation of *Schoenoplectiella* Lye (Cyperaceae), a genus newly segregated from *Schoenoplectus* (Rchb.) Palla. Japanese Journal of Botany. 87: 169–186.

Larridon et al., 2021. A new classification of Cyperaceae (Poales) supported by phylogenomic data. Journal of Systematics and Evolution. 59(4): 852-895.

### *Schoenoplectus* (Rchb.) Palla Bulrush; Naked-st Bulrush; Club-rush

Spikelets 1–∞ in capitate to umbelliform or paniculiform infls subtended by gen 1(5) erect (to spreading) infl bract(s), the infl apparently lateral; scales spirally arranged, scarios, with or without an excurrent awn-tip; fls ♀, borne singly in axils of scales; perianth of 0–6(–8) often scab bristles, these < to slightly > achene, sometimes ± reduced; stamens 3, filaments flattened, persistent, not scab; style bifid or trifid, deciduous; achene lenticular or ± trigonous, commonly with a short, slender, stylar apiculus, but without apical tubercle; ann or per herbs with triangular or terete, solid sts, sometimes spongy with internal air chambers; lvs mostly basal, with closed sheath and obsolete, reduced or elongate bl, ligs glab, sts nodeless. (Gr *schoinos*, for reed or rush, and *plectos*, for twisted or woven, referring to many historical uses of sts). (*Scirpus* in part). See also *Schoenoplectiella*.



**1a** Pls submerged aquatic; underwater lvs elongate, filiform and limp, floating; sts erect and emergent a few cm (never floating); scales white or pale brown; infl always a solitary spikelet; acidic lakes, pools in peatlands, up to 1 m deep, easily overlooked; se AK to CA on both sides Cas, e to MT, also e N Am; water b. (*Sci. s.*)

1 *S. subterminalis* (Torr.) Soják

**1b** Pls terrestrial or emergent aquatic; lvs, if present, never filiform and limp; sts gen emergent much of their length; scales red-brown to dark brown; infl 1–∞ spikelets

**2a** Sts round in cross-section; infl br

**3a** Achenes trigonous, stigmas 3; scab perianth bristles gen 2–4(5), gen 2 shorter and 2 longer; scale surface glab (although awn and margins may be scab); spikelets mostly solitary; emergent in lakes; seldom seen in our area, c WA to CA, mostly e Cas, e to MT, MA, and TX; slender b. (*Sci. h.*)

2 *S. heterochaetus* (Chase) Soják

**3b** Achenes all or mostly planoconvex or biconvex, stigmas all or mostly 2; scab perianth bristles (4–)6(–8), gen = in length; scale surface puberulent esp on midrib; spikelets solitary or clustered

**4a** Scale awns, some or all, gen contorted (often broken), 0.5–2 mm; scales gen dull, midrib not strongly contrasting, surface with ∞ shiny red streaks, often puberulent; achenes 2.2–2.7 mm, including beak, completely hidden by scales; lakes, marshes, sloughs in water to 1.5 m deep; common, AK to CA, Mex, e to Atl; hardstem b., tule (*Sci. a.*, *Sch. a. var. occidentalis*)

3 *S. acutus* (Muhl. ex Bigelow) Á. Löve & D. Löve

**4b** Scale awns gen straight (or bent), 0.2–0.8 mm; scales ± shiny, often with contrasting green midrib, surface glab, shiny red streaks and puberulence gen restricted to region of midrib; achenes gen 1.6–2.1(–2.4) mm, including beak, barely covered by scales; lakes, marshes, sloughs, peatlands, ditches, in water to 1 m deep; common, AK to Mex, e to Atl; C and S Am; softstem b., tule (*Sci. validus*)

4 *S. tabernaemontani* (C.C. Gmel.) Palla

**2b** Sts 3-angled, triangular in cross-section, at least distally; infl sessile or br

**5a** Sts weakly triangular distally, often rounded below

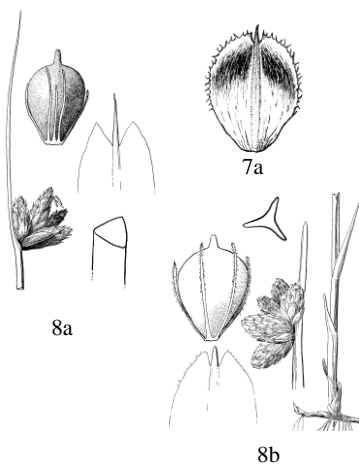
**6a** Infl a br pan, spikelets ∞; perianth bristles dark red-brown, 2–4, flattened or trigonous, with dense ± spreading blunt-tipped hairs; dune lakes; coastal Lane Co, OR, to CA, where more common, e to FL; C and S Am; CA b., tule (*Sci. c.*)

5 *S. californicus* (C.A. Mey.) Soják

**6b** Infl a sessile cluster or ± umbellate, spikelets 1–30; perianth bristles brown, 4–6, sparsely retrorsely scab with sharp-tipped hairs; freshwater intertidal; lower CR of WA and OR; Kukenthal's b. (*Sci. ×k.*, *Sch. tabernaemontani* × *triqueter*); gen found near parents

6 *S. ×kukenthalianus* (Junge) D.H. Kent

**5b** Sts distinctly 3-angled throughout



**7a** Scales blunt or truncate at apex, awn 0.3–0.6 mm; distal lf sheath with bl, lower sheaths all bladeless; spikelets sessile or in umbellate clusters; freshwater intertidal; Eurasian intro; lower CR, WA and OR; triangular c. (*Scir. t.*)

7 **S. triqueter** (L.) Palla

**7b** Scales notched at apex, awn 0.2–2.5 mm; distal lf sheath with bl, some lower sheaths with bls; spikelets sessile

**8a** Fresh st surfaces ± flat; notch at apex of scale gen 0.5–1 mm, awn 0.5–2.5 mm; distal lf bl gen much > sheath; marshes, shores, peatlands, tolerant of alkali, emergent from water up to 0.7 m deep; AK to CA, Mex, and S Am, e to Atl; Europe; common three-square (*Scir. p.*, *Scir. americanus* misapplied)

8 **S. pungens** (Vahl) Palla

**8b** Fresh st surfaces concave; notch at apex of scale gen 0.1–0.4 mm, awn 0.2–0.6 mm; distal lf bl gen < sheath; marshes, shores, peatlands, tolerant of alkali; BC to CA, Mex, C and S Am, e to Atl; American or Olney's three-square (*Scir. a.*, *Scir. olneyi*)

9 **S. americanus** (Pers.) Volkart ex Schinz & R. Keller