

30. SPLACHNOBRYACEAE A. Koponen

William D. Reese†

Plants acrocarpous. **Stems** mostly simple; in section showing a few layers of large cells with slightly thickened walls surrounding a few layers of cells with thinner walls, both layers chlorophyllose and with yellowish walls; at the center a field of thin-walled cells with a central strand undifferentiated to present and distinct, the medial cells of the stem sometimes disintegrating and leaving a void; axillary hairs 2–3-celled, proximal cell(s) short, with faintly yellowish walls, distal cell much larger. **Leaves** oblong to obovate-spatulate, rarely bordered with elongate cells; costa single, sometimes with short lateral spurs or forked, in cross section showing 0–2 guide cells and 1–5 substereid cells; medial cells of leaves oblong, smooth or occasionally distinctly mammillose on one or both surfaces. **Specialized asexual reproduction** by gemmae on axillary rhizoids and by rhizoid tubers. **Sexual condition** dioicous; perigonia terminal, becoming lateral by innovations, antheridia sometimes solitary in leaf axils proximal to the perigonial; perichaetia absent, archegonia clustered at stem tip, becoming solitary in leaf axils by elongation of stem apex, paraphyses absent. **Seta** single, short, smooth. **Capsule** exserted, erect, symmetric; annulus of several rows of thick-walled isodiametric to horizontally elongate cells; operculum conic-apiculate; peristome a single circle of 16 teeth. **Calyptra** elongate, narrowly conic-cylindric, split from base on one side about half its length. **Spores** spheric, yellowish.

Genus 1, species ca. 23 (1 in the flora): tropical and subtropical regions of the world.

Splachnobryum has been regarded as the sole genus of the family Splachnobryaceae (A. Koponen 1981). Previously the genus was placed in the Pottiaceae or in the Splachnaceae. The axillary archegonia, absence of paraphyses, single circle of peristome teeth (considered to represent the endostome by Koponen), and the peculiar axillary hairs (mucilage hairs in the sense of Koponen) help define the family. The latter are sometimes difficult to demonstrate; they are helpful in identification of sterile specimens. Somewhat similar axillary hairs also occur in the Pottiaceae, in *Globulinella globifera* (G. E. L. Hampe) W. C. Steere, except that in the latter the terminal cell is clavate and symmetric instead of swollen and asymmetric

SELECTED REFERENCES Breen, R. S. and R. A. Pursell. 1959. The genus *Splachnobryum* in the United States, Mexico, Central America and the Caribbean. Rev. Bryol. Lichénol. 38: 280–289. Koponen, A. 1981. Splachnobryaceae, a new moss family. Ann. Bot. Fenn. 18: 123–132.

1. SPLACHNOBRYUM Müller Hal., Verh. K. K. Zool.-Bot. Ges. Wien 19: 503. 1869
 • [Genera *Splachnum* and *Bryum*, alluding to resemblances]

Plants gregarious to tufted, mostly small and soft. **Stems** erect. **Leaves** with margins plane to recurved, mostly crenulate distally, sometimes entire, apex rounded; costa short to elongate, ending at midleaf to percurrent or shortly excurrent; distal cells of leaf in ascending rows diverging from costa. **Sexual condition** antheridia ripening asynchronously within each perigonium, surrounded by a few short broad bracts, or the bracts not much differentiated from vegetative leaves; perichaetial leaves not differentiated. **Capsule** short-cylindric to obpyriform, with scanty phaneropore stomata at base; peristome set deep inside capsule mouth, the teeth wide-spreading when dry, connivent over the mouth of the capsule when moist. **Calyptra** scarcely cucullate.

R. S. Breen and R. A. Pursell (1959), after reviewing specimens of *Splachnobryum* from the United States, Mexico, Central America, and the West Indies, recognized only *S. obtusum*. They placed many names into the synonymy of *S. obtusum*, although apparently without examining the types of all the names they synonymized. The species of *Splachnobryum* commonly grow on basic substrates in moist situations; they are sometimes tufa-forming mosses. Although archeogonia are often present in specimens, antheridia and sporophytes are uncommon. Identification to the species level usually must be made with sterile specimens, which generally lack well-defined taxonomic characters. As a consequence, much herbarium material must be considered to be only tentatively identified to species. This especially applies to the populations in the flora area, which is marginal to the main world range of the genus and where the plants are always sterile. In part due to the absence of reliable and repeatable means to sort specimens from the flora area, they are here all assigned to a single species, *S. obtusum*.

1. *Splachnobryum obtusum* (Bridel) Müller Hal., Verh. K. K. Zool.-Bot. Ges. Wien 19: 504. 1869 [F]



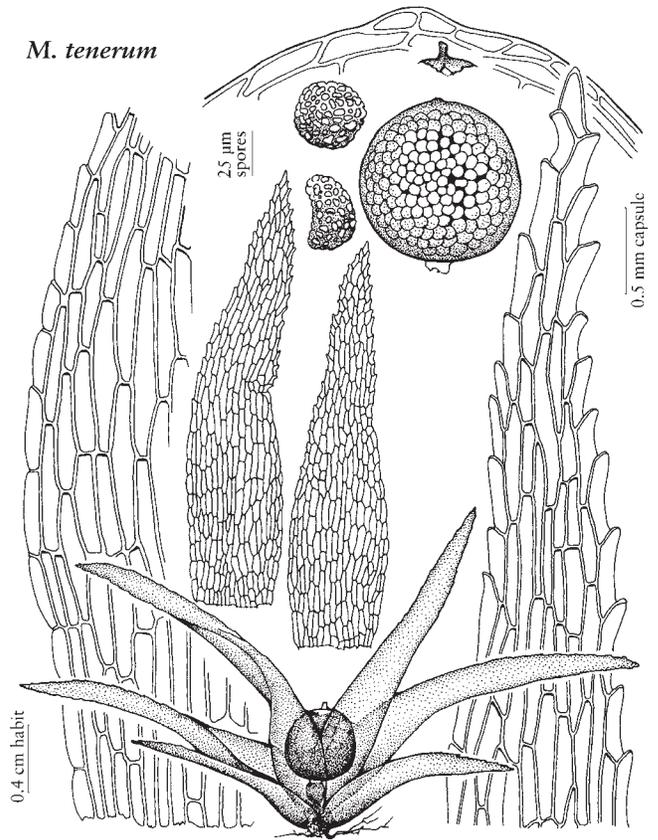
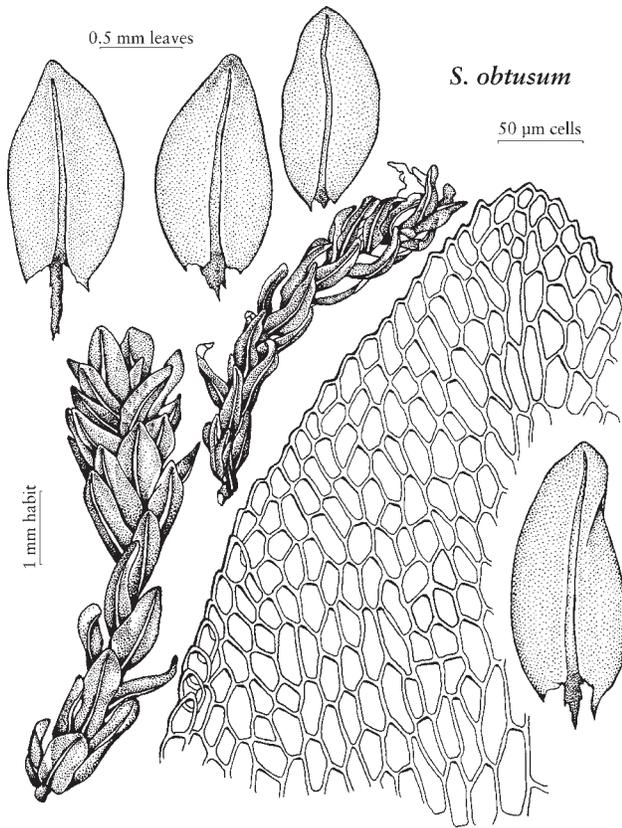
Weissia obtusa Bridel, Muscol. Recent., suppl. 1: 118. 1806;
Splachnobryum bernoullii Müller Hal.

Plants gregarious, small, dull, often encrusted with soil. **Stems** to 1 cm but mostly much shorter, distal cell of axillary hairs swollen, somewhat asymmetric, colorless, often encrusted. **Leaves** soft, commonly shriveled when dry, rarely uncontracted or nearly so, 0.6–0.8 mm, oblong to obovate or spatulate, sometimes decurrent from costa and margins, margins plane, or a little recurved

proximally; costa weak to strong, $\frac{1}{2}$ leaf length to nearly percurrent, sometimes spurred or forked, or both, distally. **Specialized asexual reproduction** by gemmae on axillary rhizoids, rare; rhizoid tubers inconspicuous, of several bulging cells in linear arrangement.

Not producing sporophytes in the flora area. Exposed sites on damp or periodically wet limestone, marl, calcareous soil, mortar-work; low to moderate elevations (0–1000 m); Ariz., Fla., La., Okla., Tex.; Mexico; West Indies; Central America; South America; Africa; Pacific Islands (Hawaii).

Splachnobryum obtusum is almost entirely restricted to base-rich substrates in the flora area and probably elsewhere in its broad range. It is an obscure moss, difficult to find in the field because of its small size, drab



SPLACHNOBRYUM • MICROMITRIUM

aspect, and absence of field characters. Most specimens from the flora area are tiny, poorly developed plants with short stems and small leaves. In the flora area, underdeveloped specimens of various other mosses, mostly Bryaceae and Pottiaceae, are sometimes misidentified as *Splachnobryum*. Under the microscope the leaf shape, crenulate distal leaf margin, and distal leaf cells in ascending rows diverging from the costa, are helpful for identification. The oddly shaped axillary hairs

also are helpful, but often difficult to demonstrate. The leaves of many specimens of this moss are difficult to rehydrate after drying. Plants with archegonia are common in at least some of the material seen. Rhizoid tubers, as reported by T. Arts (1996) for African specimens of *S. obtusum*, are present in at least some of the specimens from the flora area, including the New Orleans material.