

## The genus *Rhodobryum* (Musci: Bryaceae) in Maine

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*Rhodobryum* is a genus of robust mosses with a strongly rosulate habit, subterranean stolons, a costa in cross-section that either lacks or has only a small cluster of dorsal stereids, and is usually polysetous. There has been considerable debate about whether or not the taxon should be recognized as a subgenus of *Bryum* or as a distinct genus. *Bryum* is a large, complex genus that displays a considerable amount of homoplasy. There are *Bryum* species with rosulate habits (some exhibiting polysety) and a few species that are larger than many *Rhodobryum* species. The subterranean stolons characteristically found in *Rhodobryum* are not encountered in *Bryum*, but they can be difficult to demonstrate and are not present in all collections of *Rhodobryum*. Furthermore, the morphological distinctions between *Rhodobryum* stolons and the stems of *Bryum* species that are strongly verticillate are not so clearly marked. The most distinctive character in *Rhodobryum* is found in its costa. In nearly all species the costa lacks dorsal stereids. Indeed, this character in combination with those noted above is adequate to separate this taxon at the generic level from *Bryum*. Unfortunately, in preserving the spelling of *Rhodobryum* (Isoviita & Koponen 1984) the genus has been conserved with *R. roseum* rather than *R. leucocanthum* Hampe (= *R. aubertii* (Schwaegr.) Thér.) as the type species: *R. roseum* has dorsal stereids in its costa, while *R. leucocanthum* does not. Iwatsuki & Koponen (1972) make a quantitative distinction between the dorsal stereids in *R. roseum* (and *R. ontariense*) and those in a typical *Bryum*-type of costa, but their own figures (Fig. 2 d,k,o,p, Fig. 4 k) as well as those of Mohamed (1984) are not convincingly different.

*Rhodobryum* (Schimp.) Limpr., Laubm. Deutschl. 2: 444. 1892,  
*nom.cons*

*Bryum* subg. *Rhodobryum* Schimp., Syn. Musc. Eur. 381. 1860.

Plants large to robust, dark-green to yellowish-green in loose tufts; erect stems rosulate from subterranean stolons, often verticillate, rhizoids reddish-brown, papillose, densely clothing the stem. Lower leaves erect,

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small and distantly spaced, upper leaves enlarged and densely clustered, oblong-ovate to obovate-oblong, broadly acute to shortly acuminate, margins strongly to weakly bordered, narrowly recurved at base or up to  $\frac{2}{3}$  the leaf length, single or double toothed above; costa strong, percurrent to excurrent, in cross-section with 2-4 ventral rows of enlarged, hyaline cells, a small central strand, dorsal stereids absent or present as a small bundle; upper cells large and broad, rhombic to rhomboidal, lower cells elongate-rectangular. Setae terminal, 1-5 per perichaetium, smooth. Capsules cylindrical to oblong-pyriform, inclined to pendent; annulus well-developed, revoluble; operculum conic-apiculate. Peristome perfect; exostome densely and finely papillose below, papillose above, strongly trabeculate at back; endostome lightly papillose, basal membrane to  $\frac{1}{2}$ -- $\frac{2}{3}$  of exostome teeth length, segments well developed, broadly perforate, cilia 2-3, appendiculate or nodose. Spores smooth to lightly papillose.

*Rhodobryum ontariense* (Kindb.) Kindb., Eur. N. Amer. Bryin. 2: 346. 1897.

*Bryum ontariense* Kindb., Ottawa Naturalist 2: 155. 1889.

Plants robust, dark-green to light-green, in dense tufts to 2--5 cm high; rhizoids reddish-brown, papillose, densely developed on stems and stolons, also arising from basal leaf cells. Leaves 9--13 x 4--5 mm, distinctly rosulate, erect, stiff, variously twisted and contorted with non-undulating margins dry, spreading wet, obovate-oblong, cuspidate, not or weakly decurrent at base; indistinctly bordered by 1-2 rows of somewhat longer and narrower, weakly differentiated cells, margins recurved in lower  $\frac{2}{3}$ , plane above, sharply serrate in upper half, the teeth single; costa shortly excurrent, in cross-section at base with well defined cluster of dorsal stereids; upper cells rhomboidal to rhomboidal-hexagonal, thin-walled, 50--110 x 20--30  $\mu$ m, basal cells long-rectangular, 140--230 x 40--50  $\mu$ m, alar cells shorter and broader, otherwise weakly differentiated. Dioicous. Setae 1--5 per perichaetium, 40--55 mm long, dark-red. Capsules 5--7 mm long, cylindrical to oblong-pyriform, weakly striate when dry, inclined to pendent, neck short; opercula 1--1.3 mm long, conic; peristome perfect; exostome teeth red-yellow, densely and finely papillose below, papillose above, trabeculate at back; endostome yellowish-hyaline, lightly papillose, basal membrane to  $\frac{1}{2}$ -- $\frac{2}{3}$  of exostome teeth length, segments well developed, broadly perforate, cilia 2-3, appendiculate. Spores 16--22  $\mu$ m, lightly papillose.



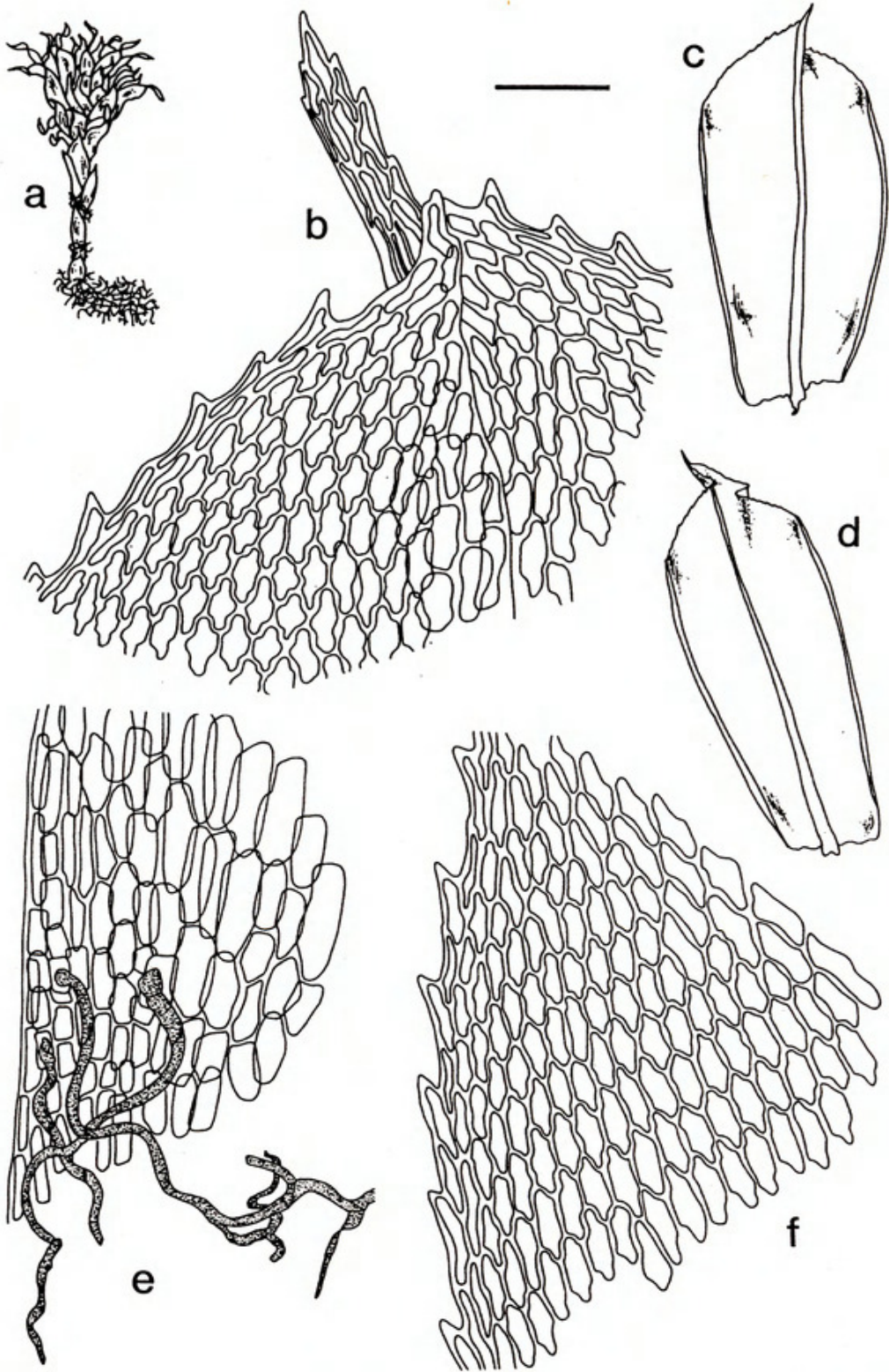


Figure 1. *Rhodobryum ontariense*. a. Habit. b. Leaf apex. c. & d. Leaves. e. Basal leaf cells in alar region with rhizoids from basal leaf cells. f. Median leaf margin and cells. Scale in mm: = 0.1 (b,e,f); = 2.0 (c,d); = 8.5 (a). All figures drawn from Allen 9336 (MO).

On boulders, rock outcrops (limestone and granitic), stumps, or humus in woods. In Maine known from Androscoggin (*Parlin* MAINE), Cumberland (*Lowe* MAINE), Hancock (*Merrill* MAINE), Kennebec (*Soule* MAINE), Penobscot (*Merrill 119* MO), Oxford (*J.A. Allen* MO), and Somerset (*Allen 9336* MO) Counties.

*Rhodobryum ontariense* is one of the prettiest mosses in the Maine flora. It is a robust species, dark-green in color, often occurs in large, thick mats, and has upper leaves clustered in rosettes. The species has weakly bordered, sharply serrate leaves with margins narrowly recurved in the lower 2/3 of the leaf. Ochi (1981, 1994) and Crum & Anderson (1981) considered *R. ontariense* to be the same as *R. roseum*. The differences between *R. roseum* and *R. ontariense* have been given in detail by Iwatsuki and Koponen (1972). The few collections from Maine belong to *R. ontariense* as judged by their lack of subapical branching, large number of comal leaves that are erect and twisted when dry, strongly revolute leaf margins with large, sharply serrate teeth, and shortly excurrent costae that have the stereid band extending to the epidermis.

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