

SPECIES FACT SHEET

Common Name: Ryszard's racomitrium moss

Scientific Name: *Codriophorus ryszardii*

Recent synonyms: *Racomitrium ryszardii*. All reports of *Racomitrium aquaticum* (= *Codriophorus aquaticus*) from North America refer to *Codriophorus ryszardii*.

Division: Bryophyta

Class: Bryopsida

Order: Grimmiales

Family: Grimmiaceae

Taxonomic Note: All North American records for *Codriophorus aquaticus* (= *Racomitrium aquaticum*) have been renamed *Codriophorus ryszardii* (= *Racomitrium ryszardii*), and *C. aquaticus* has been restricted to the Old World (Benarek-Ochyra 2000; Ochyra and Benarek-Ochyra 2004a). Nomenclature used in this species fact sheet follows the conspectus for the Racomitroideae proposed for use in the Bryophyte Flora of North America (Ochyra and Benarek-Ochyra 2004b).

Technical Description: Plants trailing or to erect, 1-10 cm long, branched irregularly. Leaves green, yellow-green to blackish below, linear-lanceolate, straight or curved at shoot tips, imbricate when dry, 2-4 mm long, 0.4-1 mm wide, tapered to a rounded, roughened tip; margins entire, recurved, lacking row of large thin-walled cells at base; costa forming prominent keel at back of leaf, extending nearly to leaf tip and never forming an awn; leaf cells multipapillose, the cell walls sinuose-wavy. Setae 4-8 mm long, twisted clockwise when dry. Capsules 2-3 mm long, cylindrical. Peristome teeth 0.6-0.8 mm long. **Distinctive characters:** (1) Leaf cells multipapillose, (2) leaves imbricate, strongly keeled and consistently awnless, (3) leaves bright green to yellow-green, (4) peristome 1 mm long, (5) moist shaded rock substrate. **Similar species:** *Codriophorus varius* (= *Racomitrium varium*) is very similar, but (1) usually at least some of its leaves have distinct awns, (2) its peristome teeth are an astonishing 1-1.7 mm long, forming a tepee-shaped cone that is frequently broken, and (3) its habitat on rocks, logs and soil is usually drier than that of *C. ryszardii*. *Bucklandiella heterosticha* (= *Racomitrium heterostichum*) and most of its segregates (*B. brevipes*, *B. obesa*, *B. occidentalis*, *B. pacifica*, *B. sudetica*) often lack awns, but are distinguished from *R. aquaticum* by (1) a dirty, olive-green coloration, (2) smooth leaf cells, (3) presence of bistratose regions in the leaf blade or margin, and (4) dry habitats. *Dryptodon patens* has (1) prominent "fins" on the back of the costa, visible with a hand lens, (2) only slightly

sinuous cell walls, and (3) a seta twisted counterclockwise when dry.

Other descriptions and illustrations: Bednarek-Ochyra 2000: 247. Because of long-standing confusion with *Codriophorus aquaticus* that is now excluded from North America, descriptions and illustrations given in earlier references cited below may in part be based on *C. aquaticus* and not North American plants, and should be used with caution.

Life History: Details for this species not documented. Protonema inconspicuous, forming buds and shoots in usual fashion of moss growth and development. Most bryophytes in splash zone habitats are limited to vegetative reproduction, but tend to occur in large monotypic mats that produce many viable fragments for regeneration. Fruiting in summer and fall.

Range, Distribution, and Abundance: Endemic to northwestern North America, from Alaska to Oregon.

Documented on: National Forests: Mt. Hood, Siuslaw, Willamette. BLM Districts: Salem.

Rare, probably undercollected. There is little information available about its abundance because of long-time confusion with *Codriophorus aquaticus*.

Habitat Associations: Forming mats on shaded, moist rocks and cliffs along shady streams or in forests, often in the splash zone, but never aquatic. Known sites in Oregon and Washington have elevations of 1000-6000 feet. Associated species may include *Scouleria aquatica*, *Codriophorus acicularis* and *Scleropodium obtusifolium*. Forest types are primarily *Pseudotsuga menziesii*, *Tsuga heterophylla*, and *Picea sitchensis* associations.

Threats: Upstream activities that cause siltation could be detrimental to *Codriophorus ryszardii*. Recreational gold dredging, boating, and canyoning (canyoneering) can also damage mosses in splash zones by abrasion or removal of moss. Presumably, its streamside habitat will become more and more degraded with ongoing development and population pressures worldwide.

Conservation Considerations: Riparian buffers should adequately protect most populations. Lawton (1971) considered *C. ryszardii* (as *Racomitrium aquaticum*) to be rare. It has been confused with *Bucklandiella pacifica* (= *Racomitrium pacificum*), so its distribution in the region is unclear. The identity of collections in smaller herbaria should be verified and annotated, to clarify the distribution of this species. Consider searching known localities to reconfirm presence of populations, and survey suitable habitat for new populations.

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Revised by Candace Fallon, February 2011
(Revision only adds Attachment 1, Photos)

References

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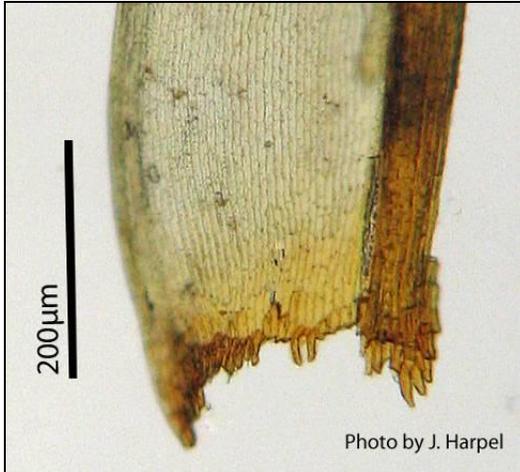
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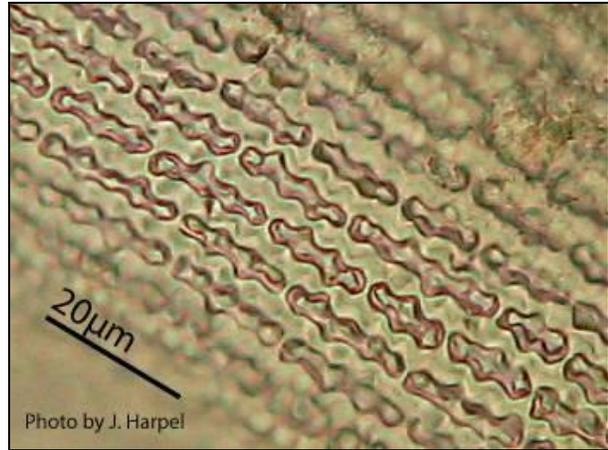
Washington Natural Heritage Program. 2005. Working list of rare mosses.
<http://www.dnr.wa.gov/nhp/refdesk/lists/mosses.html>

Attachment 1 – Photos

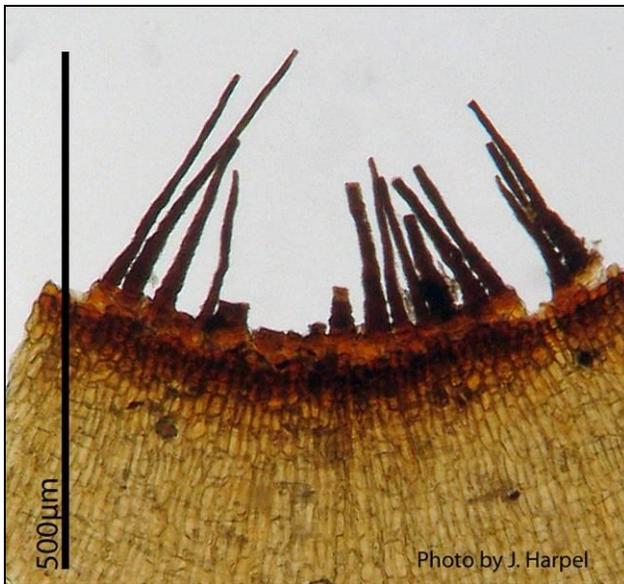
All photos by J. Harpel, under contract with the Oregon/Washington Bureau of Land Management.



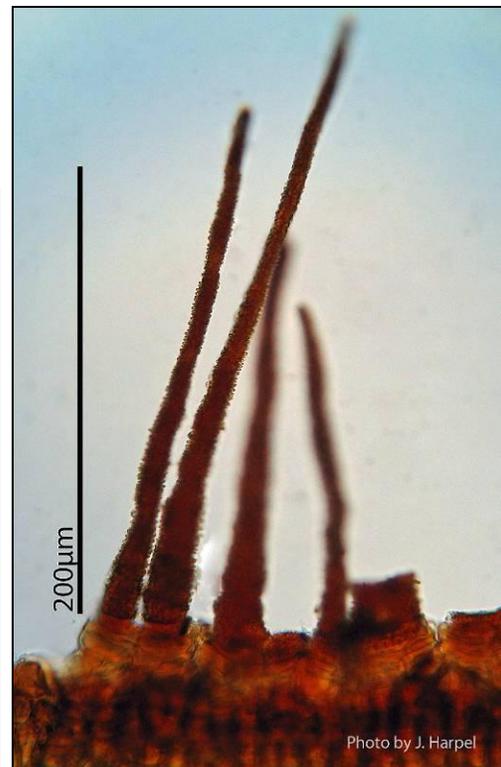
Alar and basal cells



Upper medial cells



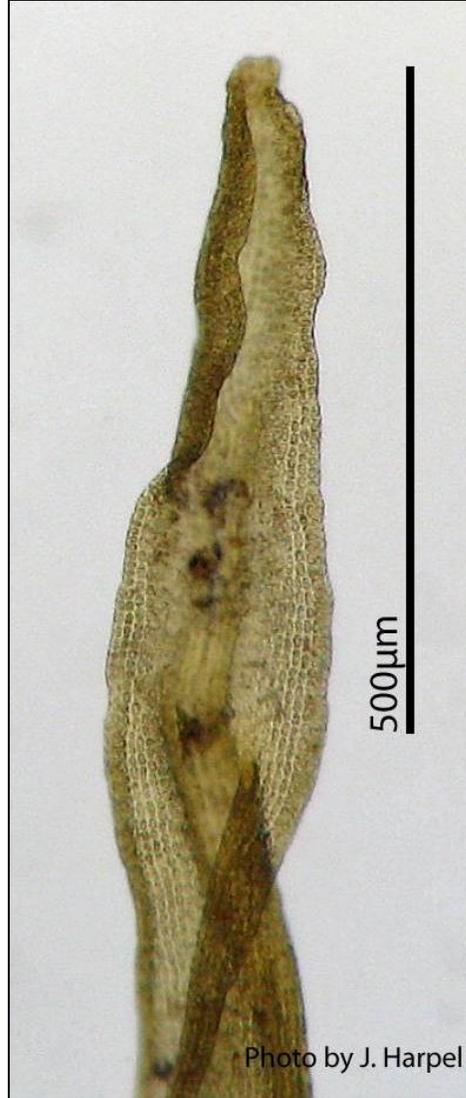
Peristome teeth



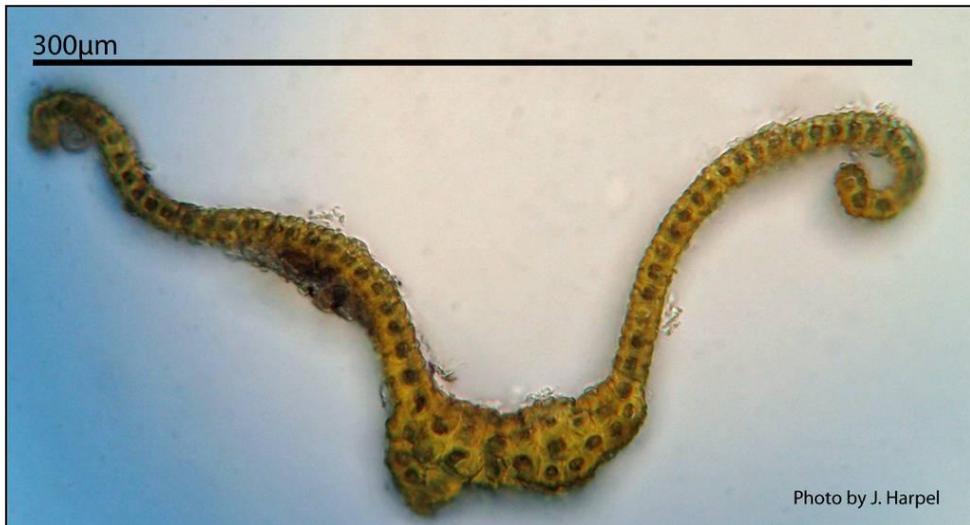
Peristome teeth close-up



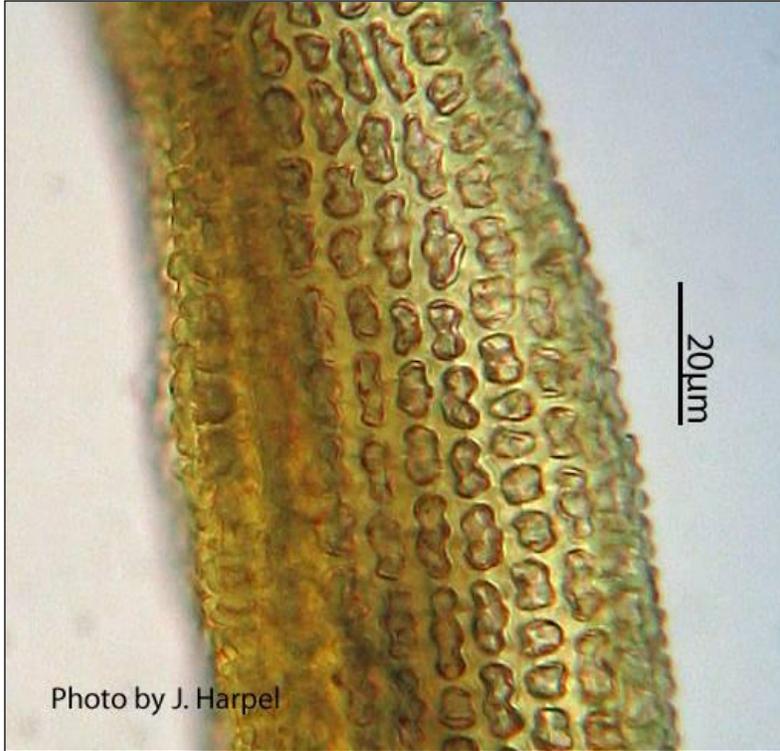
Leaf



Leaf apex



Leaf cross section



Apical cells



Capsule



Wet capsule



Whole mount wet