

## SPECIES FACT SHEET

**Common Name:** Stream ladderwort, robust rustwort (Edwards 2003)

**Scientific Name:** *Marsupella emarginata* var. *aquatica* (Lindenb.) Dum.

Division: Marchantiophyta (incorrectly called Hepatophyta in U.S. government taxon databases (e.g., ITIS 2008); see Stotler and Crandall-Stotler 2008)

Class: Jungermanniopsida

Order: Jungermanniales

Family: Gymnomitriaceae

**Taxonomic note:** Although *M. emarginata* var. *emarginata* is quite variable, the aquatic populations treated as a variety are stenotypic and differ little among themselves. It is the opinion of the writer that treating this as a species is more appropriate than as a variety; if this were accepted at species rank, the name would be *Marsupella aquatica* (Lindenb.) Schiffn. The species rank is recognized by Arnell (1981) and Schofield (2000). Schuster (1974) mentions a half dozen authors who recognized the species earlier in the twentieth century. Even if not always formally recognized, treatment as a distinct species is considered at least plausible by contemporary authors (e.g., Smith 1990, Frey, et al. 2006).

**Technical Description:** "Mostly in running water, larger than ... (*M. emarginata*) which it resembles. Sometimes to 10cm long, dark green – almost black, not redbrown. Leaves stiffer and more squarrose, channeled concave, sinus shallower, lobes wider, mostly long and acute, margin usually reflexed on both dorsal and ventral side walls of the cells incrassate, trigones large. ... Always in water." (Arnell 1981) "Leaves patent to suberect and then shoots ± terete; leaves (0.8)1.0–2.0 (2.5) mm wide, 0.8–1.6 mm long, frequently obcordate or semi-cordate, not antically decurrent or only slightly so; margins narrowly to rather broadly recurved or plane; sinus obsolete to 1/5 leaf-length, often ± lunate, the angle between the lobes 90–160°; lobes short and broad to scarcely differentiated, rounded or less often subacute, apex sometimes apiculate; leaf cells averaging (16)18–26(28)µm wide; median cells near leaf base to 75µm long." (Paton 1999)

**Distinctive Characters:** Strictly aquatic. Shoots stiffly pectinate; large, green to blackish leaves which are wider than long and with a very shallow sinus (only to 1/5 the length of the leaf), leaf lobes rounded but sometimes with a short, sharp apiculus.

**Similar species:** *Marsupella sphacelata* occurs in streambeds, and so is submerged at least part of the year. It generally has a blackish pigmentation distinct from the red brown of *M. emarginata*. The deep sinus *Marsupella sphacelata* will distinguish it readily.

**Life History:** Published studies of life history traits in this particular species have not been located. This species is perennial, visible and identifiable whenever the substrate is accessible. Because this is a plant of high elevations where snow lies late, generally above 5000'/1500 m, it is expected to have a short growing season that coincides with the absence of snow cover.

**Range, Distribution, and Abundance:** Found in northern Europe, Great Britain, and Greenland. In North America across the northern part of the continent, the sole record in Oregon being its southernmost occurrence in the west.

Oregon Natural Heritage Information Center lists the species as occurring in only Lane County.

Hong reports a single locality from Snohomish County, Washington (Hong 1982). It is quite rare in the Pacific Northwest.

BLM: Not expected on any BLM district.

USFS: Documented in Willamette National Forest. Suspected in Umpqua and Mt. Hood National Forests.

**Habitat Associations:** Restricted to streams with relatively fast moving water and rocky bottoms; in subalpine, montane situations. The Oregon locality is in the *Tsuga mertensiana* forest zone, with trees overlooking the stream wherein this species grows.

**Threats:** Any changes to stream hydrology could cause population declines. Unlike typical *M. emarginata* var. *emarginata*, this species is not likely to be desiccation tolerant.

**Conservation Considerations:** Establishment in favorable microhabitats are most likely stochastic events, not amenable to statistical prediction. Searches in apparently identical habitats to the known population have not yet yielded positive results. If additional populations are located on federal lands, monitor and manage the sites to prevent damage to the habitat.

**Conservation Rankings and Status:**

Global: G5/T3 (T= a subspecies, variety or recognized race); Oregon: S1

ORNHIC List 2

Washington: Not ranked

USFS Sensitive Species in Oregon

**Other pertinent information:**

**Surveys and Survey Protocol:**

Attention should be given to small, perennial streams in the subalpine zone. Surveys for this species could be combined with surveys for *Chiloscyphus gemmiparus*.

**Key to Identification of the Species:**

Christy and Wagner 1996; Arnell 1981.

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**Edited by:** Rob Huff

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Updated in May 2009 by Candace Fallon (Update added Attachment 1, Photos, to the Species Fact Sheet).

**ATTACHMENTS:**

**(1) Photos**

**References:**

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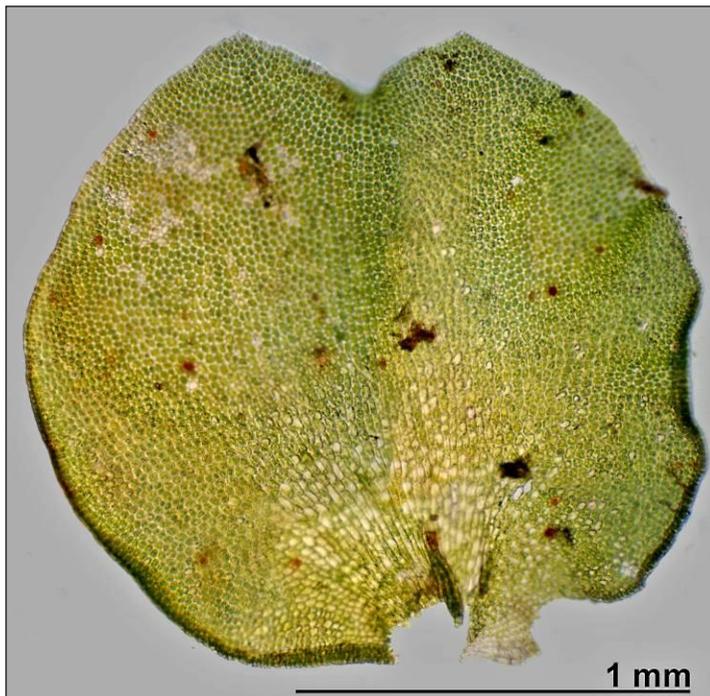
Stotler, R.E. and B. Crandall-Stotler. 2008. Correct author citations for some  
upper rank names of liverworts (*Marchantiophyta*). *Taxon* 57: 289-292.

## Attachment 1 – Photos

All photos by Dr. David Wagner, under contract with the Oregon/Washington Bureau of Land Management.



Shoot tip dorsal



Leaf



Leaf



Midleaf cells