

# *Takakia ceratophyllum* (Mitt.) Grolle

Status: **Vulnerable (VU)** B1,2cd

Class: Musci

Order: Takakiales

Family: Takakiaceae

**Description and Biology:** *Takakia ceratophyllum* is a tiny, mat-forming plant with underground stems and numerous, simple, erect shoots measuring about 5 mm long, and covered with tri- to quadrifid, cylindrical, leafy appendaged. Rhizoids are completely lacking. Glandular hairs are abundant on the underground stems and the lower portion of erect stems. The sporophyte consists of a well developed seta and a multistratose capsule that has a calyptra and a columella, but lacks a peristome. At maturity, it dehisces along a single, spiral line around the capsule. The genus includes a second species, *T. lepidozioides* Hatt. & Inoue. It differs from *T. ceratophyllum* in having the leafy appendage mostly 2-forked to the base, and with thin-walled glandular hairs. *Takakia lepidozioides* is presently known only from female plants.

**Distribution and Habitat:** *Takakia ceratophyllum* is known at present from two widely disjunctive places in the world: Eastern Himalayas (Tibet, Nepal, Sikkim) and the Aleutian Islands. The species grow primarily on misty cliffs near waterfalls, dampish, sheltered rock faces and crevices, and very wet ground or bank with late snow cover in subalpine elevations or at high latitudes. Locally, populations can form luxuriant greenish cover in suitable habitat.

**History and Outlook:** *Takakia ceratophyllum* was first described as a liverwort in 1861 based on a collection from Sikkim. It was until 1967 that a second locality on the Amchitka Island was discovered. In recent years, a few more localities in East Nepal and Tibet were disclosed. In 1990, Dr. D. K. Smith collected for the first time specimens with male plants and sporophytes from the central Aleutian Island. Before the discovery of the male plant and the sporophyte, *Takakia* was accepted as a primitive liverwort related to *Haplomitrium*. Its systematic position as a moss taxon in the division Bryophyta has become controversial in the light of new finding. The genus, as represented by *T. ceratophyllum*, appears to possess an unique combination of characters of mosses and liverworts. It probably represents an early offshoot of evolution before the common ancestor of bryophyte diverged into mosses and liverworts. Although the present habitats of *Takakia* are far from human settlements, threats from the expansion of human activities, especially detrimental land use practices, pose a serious challenge to the survival of *Takakia*. It is alarming that several of central Aleutian Islands have been closed off to public for military use. *Takakia ceratophyllum* needs full protection not only because of its patchy distribution in the world, but also of its intriguing, systematic position in the evolution of bryophytes. Its habitats are threatened by human activities

## References:

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- Smith, D.K. 1990. Sporophyte of *Takakia* discovered. *Bryological Times* 57/58: 1.
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