

A new synonym in *Leptotheca* Schwaegr. (Musci; Rhizogoniaceae)

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Abstract: *Leptotheca hamiltonii* Crum was originally described from a collection made in Peru, and is known only from this collection. The holotype specimen of *L. hamiltonii*, as well as one isotype specimen, both have morphological traits consistent with those shown in the holotype and twelve additional specimens of *Leptotheca boliviana* Herzog. It is concluded that *L. hamiltonii* is a new synonym of *L. boliviana*.

The original description of *Leptotheca hamiltonii* by Crum (1987) was made from a single collection made by A. C. Hamilton & P. M. Holligan during the Cambridge University Botanical Expedition to Peru in 1965. According to Crum (1987), "this new species from Peru is quite large as compared with the others, and it is particularly distinctive because of its growth in dense clods compacted by a heavy growth of reddish tomentum in the lower half or more." Crum added that "in most respects the species is like *L. costaricensis* Card. & Thér. ... however, that species is considerably smaller and less tomentose, and its leaves are narrower and more slender-pointed, with the costa strongly toothed at the back and on the awns. Its upper leaves have cells less markedly elongate, and its brood filaments are more distinctively papillose. *Leptotheca boliviana* Herz. differs in much the same ways, but its leaves are erect-incurved when dry, and its brood filaments are shorter and elongate-clavate." Beyond the comparisons of these two species with *L. hamiltonii*, Crum (1987) did not elaborate why *L. costaricensis* (described

in Theriot, 1921) and *L. boliviana* should be regarded as distinct species. Earlier, Churchill and Buck (1982) and more recently, Churchill and Linares (1995) treated *L. costaricensis* as a synonym of *L. boliviana*.

I examined type specimens of both *L. hamiltonii* and *L. boliviana* as well as twelve additional specimens of *L. boliviana* and in this paper conclude that there are no traits that distinguish these species. The name *L. boliviana* was validly published by Herzog (1916) before the publication of the name *L. hamiltonii*; therefore *L. boliviana* has priority over the name *L. hamiltonii*. Accordingly, I propose that *L. hamiltonii* should be treated as a synonym of *L. boliviana*.

Leptotheca boliviana Herzog, Bibliotheca Botanica 87:12. 1916. Type: Bolivia, between San Mateo and Sunchal, ca. 1800m, an Baumfarnen im Bergwald, *Herzog 4427* (holotype, JE!; isotypes, according to Churchill and Buck (1982), in B, NY and PC).

L. hamiltonii Crum, Contributions from the

University of Michigan Herbarium 16:135-140. 1987, *syn. nov.* Type: Peru, Dept. San Martin, Distr. Pataz, Rio Apisoncho valley, ca. 30 km E of Parchoy, in subalpine forest on damp, shaded, rotting branch, August 1 - September 15, 1965, A. C. Hamilton & P. M. Holligan 42 (holotype, MICH!; isotype, MO!).

Specimens of *Leptotheca boliviana* examined (all in MO): COLOMBIA: S. P. Churchill & J. D. Lynch 19472, B. R. Ramirez & M. S. Gonzalez 9058. COSTA RICA: M. R. Crosby 75-50, M. R. & C. A. Crosby 6160, C. B. McQueen 5066. ECUADOR: W. C. Steere 8369. HONDURAS: B. Allen 12737, 12714. JAMAICA: M. R. Crosby 3409, D. H. Vitt 35062. PANAMA: M. R. Crosby 4067, G. McPherson 9375B. Additional details for these specimens and distribution maps are available in the MOST moss data base web site (URL: <http://mobot.mobot.org/Pick/Search/most.html>), hosted by the Missouri Botanical Garden. Illustrations and descriptions of *L. boliviana* are included in Churchill & Buck (1982), Churchill and Linares (1995) and Herzog (1916).

In a comparison of the type specimens of *L. hamiltonii* to these specimens of *L. boliviana*, I found that the distinctive traits that Crum (1987; reported above) attributed to *L. hamiltonii* are within the range of variation shown in *L. boliviana*. In 5 of 12 specimens of *L. boliviana*, plants are similar in size to those found in the type specimens of *L. hamiltonii*. The development of tomentum varies considerably among specimens of *L. boliviana*, but the bases of stems are densely tomentose in some specimens, just as the stems in *L. hamiltonii*. In a sample of 30 brood filaments in the holotype of *L. hamiltonii*, and 30 brood filaments from 6 specimens of *L. boliviana*, the mean number of cells per disarticulated brood filament (that is, excluding the stem cells) was 11.2 in *L. boliviana* and 10.2 in *L. hamiltonii*. The difference does not appear to be significant, and contradicts the assertion by Crum that the brood filaments are shorter in *L. boliviana*. In addition, among specimens of *L. boliviana*, I found that the range of variation shown in leaf shape, leaf orientation, teeth of the costa, and papillosity of the brood filaments includes the character states in *L. hamiltonii* that

were reported by Crum (1987) and that I observed. Altogether, these observations support the conclusion that *L. hamiltonii* should be treated as a synonym of *L. boliviana*.

Our knowledge appears to be growing in regards to the distribution of *L. boliviana*. A distribution map of *L. boliviana* is included in Churchill & Buck (1982), which documents occurrences in Jamaica, Costa Rica, Panama, Colombia and Venezuela, south to Ecuador, Peru and Bolivia. The collections from Honduras by B. Allen that I examined appear to represent an extension of the distribution reported for the species. Recently, Crum (1994) postulated that *L. boliviana* might also occur in Guatemala and Mexico.

The description of the habitat where the type collection of *L. hamiltonii* was made is consistent with the habitat descriptions on specimens of *L. boliviana* that were examined. The habitat is montane, in mesic forest, generally corticolous, with a preference for tree-fern trunks. Churchill & Buck (1982) reported a similar habitat range for *L. boliviana*.

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