Cryptogamie, Bryologie, 2011, 32 (2): 139-143

Pohlia oerstediana (Müll. Hal.) A. J. Shaw (Bryaceae, Bryopsida), an addition to the moss flora of Asia

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(Received 2 July 2010, accepted 25 October 2010)

Abstract – *Pohlia laticuspis* (Broth.) P. C. Chen *ex* Redf. *et* B. C. Tan, a species described from China, is conspecific with the neotropical *P. oerstediana* (Müll. Hal.) A. J. Shaw. The original material of *Webera paupera* Müll. Hal. *ex* Paris, an undescribed species from the Himalayan region of India, also represents this species. The previous known geographical range of *P. oerstediana* is thus remarkably extended to Asia and the species is established as an eastern Asian – northern Latin American disjunct. A map of its global distribution is presented.

Asia / *Bryum* / distribution / Neotropics / *Pohlia* / taxonomy / *Webera*

Pohlia is a large genus comprising some 97 species which are distributed all over the world (Suárez, 2008). About thirty species have been reported from China (Redfearn *et al.*, 1996). Of these, 25 species and one variety are presently considered to occur in this country (Zhang *et al*., 2007). As part of the project "Systematics and phylogeny of the neotropical species of the genus *Pohlia*" some Asian collections were examined and treated as an outgroup, including the type material from China of *P. laticuspis* (Broth.) P. C. Chen *ex* Redf. *et* B. C. Tan and the original material of *Webera paupera* Paris from India.

Pohlia laticuspis was described by Brotherus (1929) as *Webera laticuspis* and later Redfearn & Tan (1995) transferred it to *Pohlia*. Various authors have presented different opinions regarding the affinities of this species. According to Brotherus (1929) it is similar to *P. longicollis* Hedw., from which it differs in leaf shape and laxer leaf areolation. Zhang *et al*. (2007) compared *P. laticuspis* to *P. cruda* (Hedw.) Lindb., from which it is distinct by having stronger serration in the leaf apex and projecting cells at the back of the costa. Finally, Shaw (1982) found *P. laticuspis* to be very similar to the neotropical *P. oerstediana* (Müll. Hal.) A. J. Shaw. Detailed examination of the type material of *P. laticuspis* confirmed this suggestion and we found also that this species is inseparable from *P. oerstediana*. Accordingly, these species must be considered conspecific, the latter name having priority. Both species share the secund ovate-leaves with gradually acuminate to bluntly acute apices and leaf margins that are plane throughout or narrowly reflexed and serrate distally (Fig. 1).

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Previously, *Pohlia laticuspis* was considered to be a species endemic to China where it occurs at several sites in Yunnan and Xizang (Zhang *et al*., 2007). However, we have studied a specimen determined as *Bryum* (*Senodictyon*) *pauperum* from Dauli Ganga valley in India. This is a *nomen nudum* which was used by Karl Müller of Halle for the specimen collected by F. Duthie No. 6360 in the Himalayan region. This name was published by Paris (1898) as *Webera paupera* and *Bryum pauperum* was placed in its synonymy. Examination of this plant revealed that it also belongs to *P. oerstediana*. Accordingly, the following new synonymy is proposed.

***Pohlia oerstediana* (Müll. Hal.) A. J. Shaw**, *Contr. Univ. Michigan Herb*. 15: 238. 1982.

Pohlia laticuspis (Broth.) P. C. Chen *ex* Redf. *et* B. C. Tan, *Trop. Bryol.* 10: 67. 1995. ≡ *Webera laticuspis* Broth. *in* Hand.-Mazz., *Symb. Sin.* 4: 51. 1929 ["laticuspes"], ***syn. nov.*** **Type citation**: NW-Y.: Granitfelsen in Walde der ktp. St. in birm. Mons. unter dem Doker-la an der Tibetischen Grenze, 28°15', 3750 m, c. sp. 16. IX. 1915 (8020). **Lectotype** (*selected here*): Prov. Yünnan bor.-occid.: Ad confines Tibeticas sub jugo Doker-la, 28°15', in regionis frigide temperatae, saxis in silva, substr. granitico, 3750 m, 16. IX. 1915, *Handel-Mazzetti* (Diar. Nr. 1491) *8020* – H!

Webera paupera Müll. Hal. *ex* Paris, *Ind. Bryol.* 1357. 1898, *nom. nud*.; *Bryum pauperum* Müll. Hal. *ex* Paris, *Ind. Bryol. Suppl.* 90. 1900, *nom. nud.*, ***syn. nov.*** **Original material**: "NW Himalaya, Dhauli valley, 12000 ft., 5 Aug 1886, *F. Duthie 6360*" – H!

Plants robust, green or yellowish green, glossy, in pure tufts. Stems 10-30 mm long, erect, simple or branched by innovations. Leaves erect when dry, erect-spreading when wet, secund, ovate-lanceolate to lanceolate, gradually acuminate to bluntly acute at apex; margins plane or recurved above the middle, serrate towards leaf apex; costae often ending below leaf apex; median leaf cells linear-rhomboidal, 60-100 μm × 6-10 μm; apical cells slightly shorter or as long as the median cells; basal cells short-rectangular. Paroicous. Perichaetial leaves narrowly lanceolate. Setae 1 (-2) per perichaetium, 10-25 mm long; capsules elongate-ovoid to ellipsoid-pyriform; peristome double; basal membrane ca. one third the length of the teeth; cilia 2, rudimentary or absent. Spores dark brown, 17-25 μm in diameter, densely papillose.

Pohlia oerstediana is distinguished from *P. cruda* and *P. longicollis* by its robust size, and secund leaves that are coarsely serrate near the apex. The whitish colour and glossy sheen of *P. oerstediana* have been a source of its confusion with *P. cruda*, principally in the Neotropics, but the latter is a smaller plant with straight leaves which are less coarsely serrate above and with a red costa. *Pohlia elongata* is also distinct from *P. oerstediana* in having shorter and thick-walled laminal cells.

Previously, *Pohlia oerstediana* has been considered as a neotropical endemic species widely distributed but scattered at high elevations in the Central American isthmus (Shaw, 1982). It is known to occur at several sites in southern Mexico including the states of México, Puebla, Oaxaca and Veracruz (Shaw, 1994) and then it recurs in south-western Guatemala and in the central montane regions of Costa Rica (Allen, 2002). The discovery of *Pohlia oerstediana* in China and India represents a new addition to the moss flora of Asia and at the same time it is a major range extension of this species which is now established as an eastern

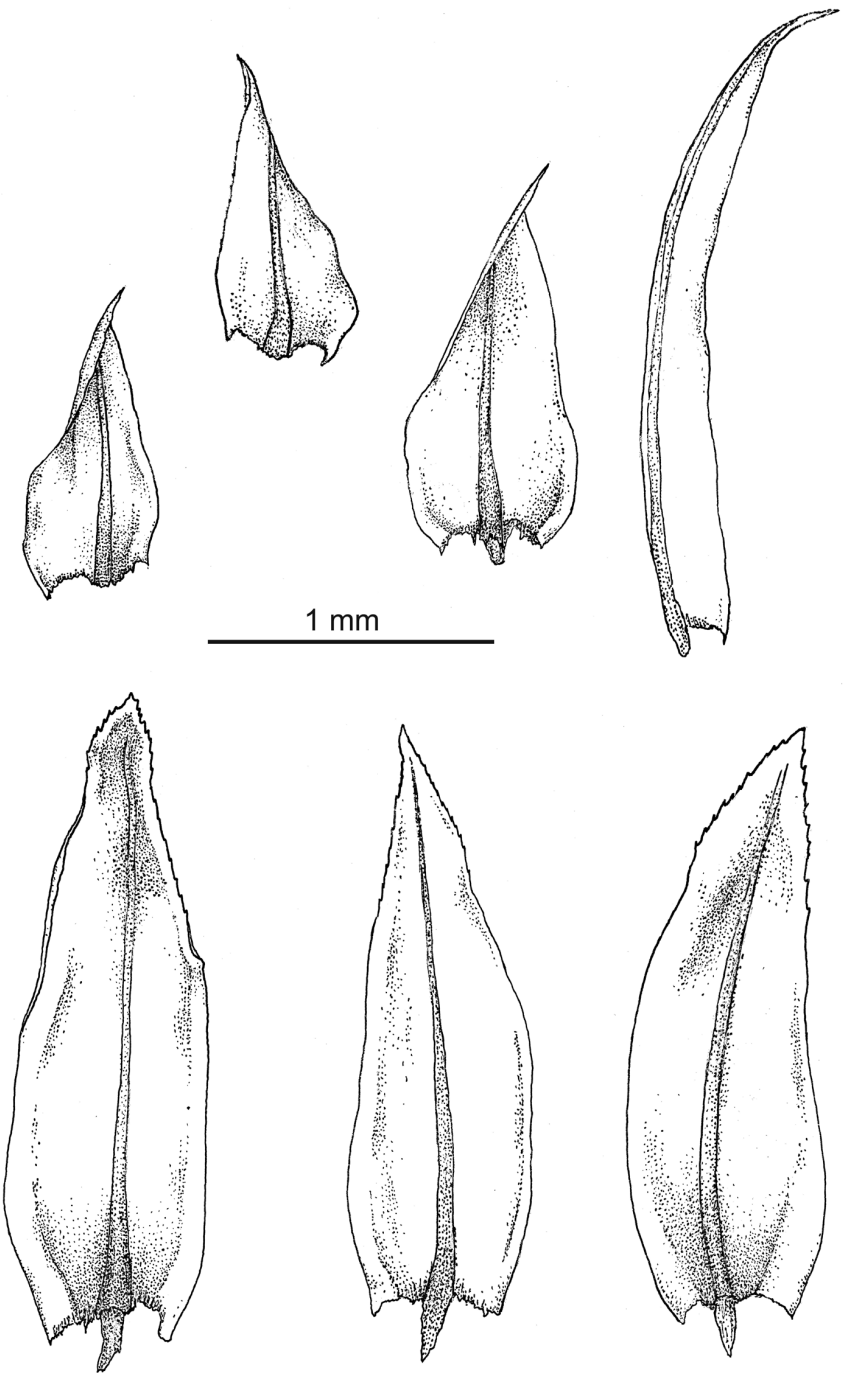

Fig. 1. Leaves of *Pohlia oerstediana*. (From *Handel-Mazzetti 8020*, lectotype of *Webera laticusopis*, H).

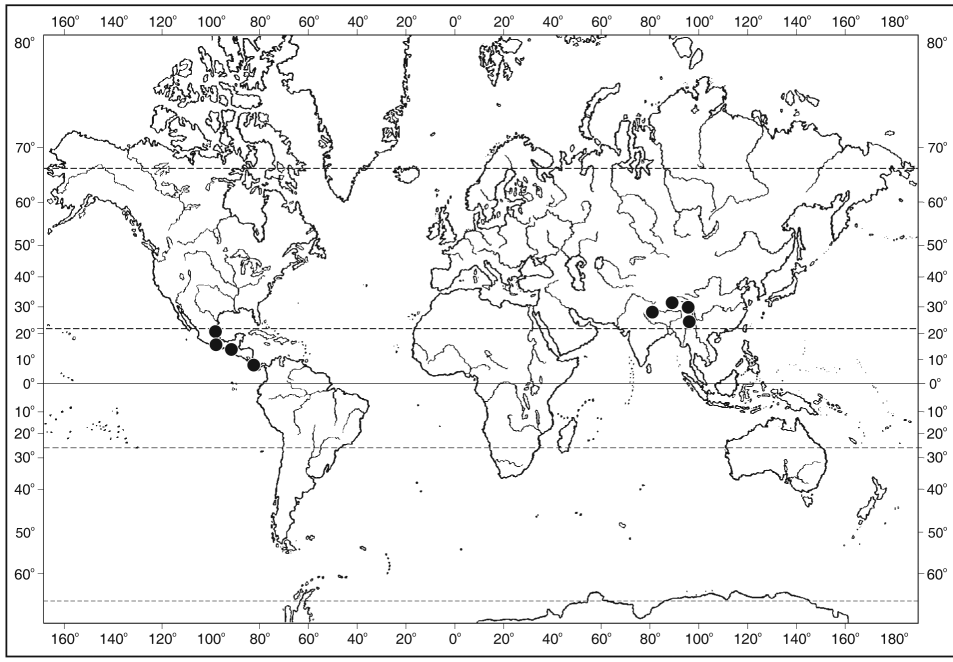

Fig. 2. Map of the global distribution of *Pohlia oerstediana*.

Asian – northern Latin American disjunct (Fig. 2). The relationships between the floras of eastern North America and northern Latin America is a rare but otherwise well documented phenomenon (Matsuda, 1953; Sharp, 1953, 1972, 1974). This apparently infrequent distribution pattern is represented occasionally by some moss taxa, including *Aongstroemia orientalis* Mitt., *Symblepharis vaginata* (Hook.) Wijk *et* Margad., *Grimmia ochyriana* J. Muñoz, and *Trachypodopsis serrulata* (P. Beauv.) M. Fleisch. var. *crispatula* (Hook.) Zanten, and now *Pohlia oerstediana* joins this group of taxa.

Selected specimens examined:

NORTH AMERICA. MEXICO. State of México, 4120 m, 29 Jul 1947, *Patrick 286* (MO, as *P. cruda*).

CENTRAL AMERICA. COSTA RICA: Alajuela, vicinity of the crater of Volcán Poás, along trail from the parking area to Lagoon, ericaceous shrub vegetation, 32 km NW of N of city center of San José, 2500 m, 10°11'N, 84°14'W, 24 Mar 1973, on rotting log, *M. & C. Crosby 6282* (MO). **GUATEMALA:** on logs and tree trunks, 3200 m, east of Totonicapan, 15 Feb 1945, *A. Sharp 2617* (MO, NY).

ASIA. CHINA: north-western Yunnan, ad confines Tibeticas sub jugo Doker-la, 28°15', in regionis frigide temperatae, saxis in silva, substr. granitico, 3750 m, 16 Sep 1915, *Handel-Mazzetti 8020* (H, type of *P. laticuspis*), Lijiang City, on trunk under *Rhododendron-Abies* forest, 3850 m, 2 Jun 1963, *W. Su-Gong 163a* (HKAS), Gongshan County, on *Rhododendron* sp. in *Abies* forest, 3650 m, May 2009, *Z. Ao-Luo 51F* (HKAS), Xizang (Tibet), Zuogong County, on soil, 3500 m, 5 Oct 1982, *Z. Da-Cheng 7508* (HKAS). **INDIA:** NW Himalaya, Uttarakhand State, Pithoragarh District, Dauli Ganga valley, 3660 m, 5 Aug 1886, *F. Duthie 6360* (H, as *B. pauperum*).

Acknowledgments. The authors thank the curators at H, HKAS, MO and NY for kindly allowing them to study the herbarium specimens and to Rod Seppelt, Kingston, Tasmania, for his comment on the manuscript and improving the English. This research was supported by CIUNT and Myndel Botanica Foundation.

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