

## Bryological Notes

### *Didymodon australasiae* var. *umbrosus* in the Czech Republic, with a review of recent records from Central Europe

In March 1997 my colleague B. Buryová collected a moss which was not known to her, at Ratotín near Prague (Czech Republic). I determined that it belonged to the genus *Didymodon* Hedw. sect. *Asteriscium* (C. Müll.) Zander (= *Trichostomopsis* Card.), but as I knew members of this section only from the literature, I sent the specimen to Dr R. M. Ros, who confirmed the identification as *D. australasiae* (Hook. & Grev.) Zander. Two varieties of this species are distinguished, var. *australasiae* and var. *umbrosus* (C. Müll.) Zander. The Czech specimen belongs to the latter variety. *D. australasiae* is a new species for the Czech bryoflora and probably an introduced taxon. *D. australasiae* var. *umbrosus* is believed to be native in North, Central and South America. The first record of the species in Europe was made in 1958 (Söderström, 1992 sec. Müller, in press), and it is known from the British Isles, Spain and Turkey.

The plant grew on wet calcareous soil, shaded by shrubs, and on nearby limestone rocks in small patches not exceeding 1 m<sup>2</sup> in total. The site was affected by dust from a cement factory in Radotín. Companions of *D.*

*australasiae* at the locality were *Bryum bicolor* Dicks., *B. radiculosum* Brid. and *Didymodon rigidulus* Hedw.

It is of great interest that the discovery of *D. australasiae* in the Czech Republic is not an isolated case but extends recent discoveries of the species in Germany. Although the spread of the species in Central Europe has been modest compared to that of *Orthodontium lineare* Schwaegr., it bears a resemblance with the case of *Bryoerythrophyllum ferruginascens* (Stirt.) Giac., which has now been reported three times in the Czech Republic (first seen 1906, when the species was misidentified for *Didymodon luridus* Hornsch. in Spreng.), and many times from Germany. The first report of *D. australasiae* in Central Europe was by Dr F. Müller, who discovered the species in 1995 in the greenhouses of the botanical garden at Dresden (Sachsen, Germany). The occurrence of *D. australasiae* outside the greenhouses in this garden was first noticed in October 1996 (Müller l. c.). The plants from Dresden are identical with those from Radotín. Another specimen was sent to me by Dr L. Meinunger and Mrs W. Schröder, having been

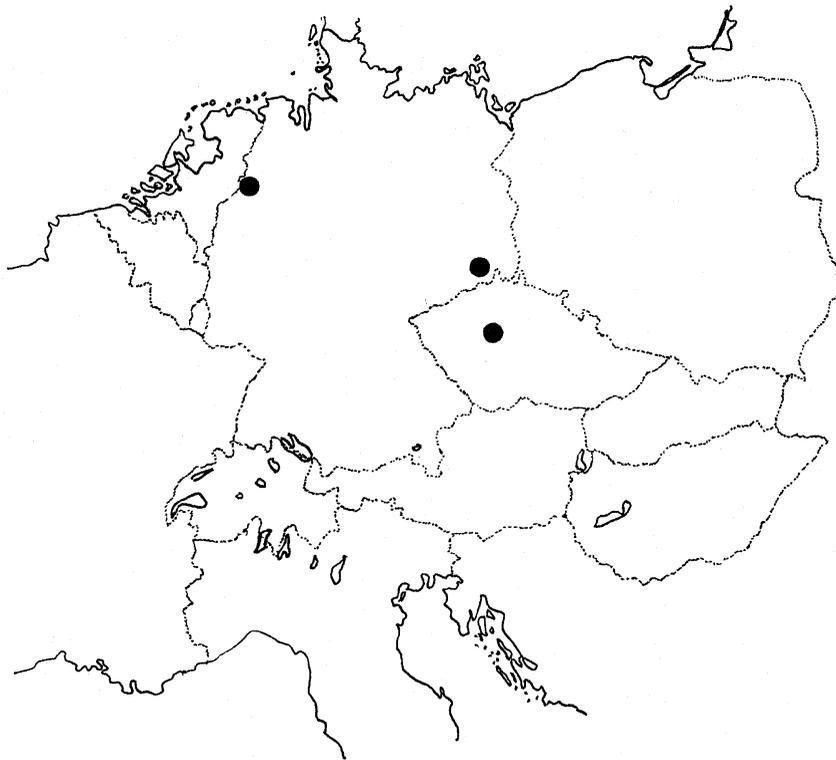


Figure 1 Records of *Didymodon australasiae* var. *umbrosus* in Central Europe.

collected by Mrs Schröder south of Ahaus (Nordrhein – Westfalen, Germany) in September 1997. A map summarizing the presently known records of *D. australasiae* var. *umbrosus* from Central Europe is presented in Fig. 1.

All specimens of *D. australasiae* reported from Central Europe can be assigned to the var. *umbrosus* but only the specimen from Ahaus has typically developed stem hyalodermis and much expanded leaf bases. The specimens from Dresden and Prague are quite stunted, with hyalodermis developed only in patches, but the basal marginal cells are longly and narrowly rectangular in several rows, typical for var. *umbrosus*. For a discussion of the varietal characters and illustrations see Zander (1981, 1994) and Guerra & Ros (1987). An illustration of the plants from Dresden is provided in Müller (l. c.).

It is quite probable that the spread of *D. australasiae* will continue and bryologists in the eastern part of Central Europe should be aware of the possible occurrence of the species, especially in urban areas.

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Botany, Charles University, Prague, Czech Republic), Dr F. Müller (Technische Universität Dresden, Germany) and Dr L. Meinunger and Mrs W. Schröder (Ludwigsstadt-Ebersdorf, Germany). Special thanks are to Dr F. Müller for valuable discussion on varietal characters of the taxa.

TAXONOMIC ADDITIONS AND CHANGES: Nil.

#### REFERENCES

- Guerra J, Ros RM. 1987. Revisión de la sección *Asteriscium* (C. Müll.) Zander del género *Didymodon* Hedw. en la Península Ibérica. *Cryptogamie, Bryologie Lichénologie* 8: 47–68.
- Müller F. Ein Freilandnachweis von *Didymodon australasiae* (Hook. & Grev.) Zand. var. *umbrosus* (C. Müll.) Zand. in Deutschland. *Bryologische Mitteilungen* in press.
- Zander RH. 1981. *Didymodon* (Pottiaceae) in Mexico and California: taxonomy and nomenclature of discontinuous and nondiscontinuous taxa. *Cryptogamie, Bryologie Lichénologie* 2: 379–422.
- Zander RH. 1994. *Didymodon* Hedw. In: Sharp AJ, Crum H, Eckel Pm, eds. *The moss flora of Mexico*. Memoirs of the New York Botanical Garden No. 69. New York: New York Botanical Garden, 299–319

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## *Tetrastichium fontanum* (Mitt.) Card. new to mainland Europe

During the course of an investigation into the distribution of Macaronesian floristic elements in the Algeciras region, Cadiz province, southern Spain, *Tetrastichium fontanum* (Mitt.) Card. was discovered. This is the first time that this species, widespread in the Canary Islands, Madeira and the Azores, has been reported from the mainland of Europe.

Allorge (1934) was perhaps the first to recognize the presence of species of predominantly Macaronesian distribution in the hills of the Algeciras area, southern Spain, with his report of the tree-fern *Culcita macrocarpa* C. Presl. In the same year Richards (1934) discovered the filmy-fern *Trichomanes speciosum* Willd. Subsequently the investigations of Molesworth-Allen (1971, 1977) have revealed the presence of a wider range of pteridophytic taxa sharing similar disjunctions to Macaronesia, e.g. *Diplazium caudatum* (Cav.) Jermy, *Pteris incompleta* Cav. and *Christella dentata* (Forskål) Brownsey & Jermy. Fraser-Jenkins (1982) added *Dryopteris guanchica* Gibby & Jermy to this already impressive list

The area has been recognized for its bryophytic richness (e.g. Hodgetts, 1995), although lacking the unique assemblage demonstrated by the fern taxa. The earliest bryophytic investigations seem to have been those of Richards (1932). He first visited in the spring of 1931 and commen-

ted on the Atlantic bryophyte flora of the 'waterfall valley [= Miel Valley]', recording *Hyocomium armoricum* (Brid.) Wijk & Marg. apparently unknown elsewhere in southern Spain. Both Richards and Allorge revisited this site in April 1934, collecting *Tetrastichium virens* (Card.) Churchill (syn. *Lepidopilum virens* Card.) as *Plagiothecium argrophyllum* Geh., specimens at BM. This Macaronesian-European endemic species, common in the northern and central parts of Madeira (Hedenäs, 1992), rare in the Azores (Sjögren, 1997) and recently reported from the Canaries (Dirkse, 1985), is still known nowhere else in Mainland Europe. It was considered to have become extinct (vanished) in Spain until rediscovered on the Sierra de Luna (the range of hills above the Miel valley) by Nils Hakelier (Sérgio, Brugués & Cros., 1995). Its recent placement in *Tetrastichium* (Churchill, 1989) was supported by Hedenäs (1997).

While investigating the distribution of other Macaronesian taxa we were fortunate to be guided to a recently discovered site for *Culcita macrocarpa*, an arroyo draining into the Embalse del Guadarranque on the N.E. side of the Sierra de Montecoche, at an altitude of ca. 120m. The finder, Luis Federico Sanchez Tundidor, accompanied by Mrs Molesworth-Allen, a friend, and the authors visited this interesting site, a densely wooded, sheltered, steep-