Cryptogamie, Bryologie, 2005, 26 (3): 341-343

Analyse d'ouvrage

HEYN C. Clara and HERRNSTADT Ilana — **Flora Palestina: the bryophyte flora of Israel and adjacent regions, Bryopsida (mosses) by I. Herrnstadt and C.C. Heyn, Anthocerotopsida (hornworts) and Marchantiopsida (liverworts) by H. Bischler and S. Jovet-Ast.** Jerusalem, the Israel Academy of Sciences and Humanities, 2004, i-xi + 719 p., 246 fig., 248 cartes, 24 pl. (editor: Albert Einstein square, P.O. Box 4040, Jerusalem 91040, Israel, tami@academy.ac.il, ISBN 965-208-004-4 and 965-208-152-3, prix : 240 N.I.S.).

This flora concerns Israel proper, the Golan heights and Mount Hermon. The territories are characterized by climates of the Mediterranean type. The altitude ranges from - 400 m in the Dead Sea area to 2000 m at Mount Hermon.

Part I. Bryopsida by I. Herrnstadt and C.C. Heyn

The 210 species (+ 10 infraspecific taxa) of mosses considered are distributed in 64 genera and 20 families. Pottiaceae (with 24 genera and 86 species) is the largest family. *Bryum* (19 species) and *Tortula* (17 species) are the richest genera. The Pleurocarpous mosses (with 7 genera and 29 species for the most important family Brachytheciaceae) are less numerous than the Acrocarpous ones. An introduction to part I (the columella does not belong to the gametophyte, cf. p. 15) and a brief description of the local orders are followed by a key to families. On the whole, the key works rather well. However, the Ephemeraceae should be placed together with *Pleuridium* in 5 "Plants ephemeral" (p. 22).

Taxonomic treatment. The general plan is: (1) description of the family (main features, affinities, subdivision into subfamilies and genera according to the concepts of different authorities). (2) key to genera. (3) description of the genus: the delimitation of genera is often conservative, but there exists anyway no consensus about this. For example, *Didymodon*, *Hydrogonium* and *Pseudocrossidium* are included in *Barbula*, *Syntrichia* and *Rhynchostegium riparioides* in *Tortula* and *Eurhynchium*, respectively, whereas *Astomum* is kept distinct from *Weissia*, *Trichostomopsis* from *Didymodon*, and *Leptodictyum* from *Amblystegium*. (4) species description, habitat and local distribution (with square grid maps), general distribution, notes including the differentiation from the related species, taxonomy and remarks on the difficulties met by the authors with some specimens collected in Israel (sterility, records based on wrong identifications). Each species is illustrated. The drawings are large, each one filling a full page with the whole plant, leaf (areolation, cross section), details of the sporophyte when available. Unfortunately, no scale bars are given directly on the plates, as it is done in part II for the liverworts, but the authors just specify the magnification in the legends. The citations of the nomenclatural authors do not differ much from what is found in the lists of Corley *et al*. (1981) and Corley & Crundwell (1991), but B.S.G. is sometimes used instead of B. & S.

The treatment is in many cases quite useful. However, the features used in some keys or descriptions as well as the illustrations are sometimes inadequate to distinguish species, or even to identify a species. Moreover, important recent revisions of genera, sections or of groups of species are ignored. ***Fissidens*** (pp. 25-45): the taxonomic treatment of the *Fissidens bryioides* complex remains confusing. In particular, the distinction between *F. pusillus* (Wilson) Milde (not a synonym of *F. minutulus* auct.) and *F. viridulus* (Sw.) Wahlenb. is artificial. ***Ditrichum*** (pp. 46-48): *Ditrichum heteromallum* (Hedw.) E. Britton and *D. subu-*

latum Hampe were found sterile in Israel. The identification of such specimens is hazardous. *D. subulatum* is acidophilous, but no information is given about the type of substratum on which the only Israeli specimen was collected. ***Weissia brachycarpa*** (Nees & Hornsch.) Jur. (pp. 64-65): "spore ca 20 µm in diameter"; the spores of this species are often > 20 µm. ***Weissia triumphans*** (De Not.) M.O. Hill (pp. 74-76): as only sterile specimens are available, the identification is not sure. ***Anectangium handelii*** Schiffn. (pp. 124-126): the plant described and illustrated here cannot be synonymous with *Molendoa sendtneriana* (B., S.G.) Limpr. ***Tortula rigescens*** Broth & Geh.: the species has been found in France by Boudier (1992 - *Cryptogamie, Bryologie-Lichénologie* 13 (1): 1-6); it is therefore not endemic of SW Asia (cf. p. 15). ***Desmatodon guepinii*** B.S.G. (p. 201, fig. 73): unfortunately, the peristome is not illustrated in detail. ***Crossidium aberrans*** Holz. & E.B. Bartram (pp. 212-214): the description states "leaves without hair point" and then further "costa excurrent in a smooth hair point"; general distribution: add France (Pierrot, 1986 and Hébrard, 2003) to Italy and Spain. ***Pottia*** (pp. 228-244): *Pottia mutica* Venturi is an ill defined taxon which should be better included in *P. davalliana* (Sm.) C.E.O. Jensen or *P. commutata* Limpr.; *Pottia lanceolata* (Hedw.) Müll. Hal. (p. 231, fig. 85g): the peristome does not agree well with the species. ***Acaulon longifolium*** Herrnst. & Heyn (pp. 264-266): the species is described as dioicous; because of the structure of the adaxial part of the nerve and the spore ornamentation, it shares affinities with *Acaulon fontiquerianum* Casas & Sergio which is autoicous; no comments are given here about this, and the original description of Casas & Sergio (1990, *Cryptogamie, Bryologie-Lichénologie* 11 (1): 57-62) is ignored. ***Schistidium*** (pp. 280-282): Blom's revision (1996) which represents an important progress in the understanding of the *S. apocarpum* complex is ignored. Consequently, the fig. 108 is not very informative. It corresponds probably to a mixture of species among those recognized by Blom. ***Grimmia trichophylla*** Grev. (pp. 298-300): the authors did not consider the recent studies published about the complex of *G. trichophylla*. ***Racomitrium heterostichum*** (Hedw.) Brid. (pp. 300-301): Frisvoll's revision of *Racomitrium* section *Laevifolia* (1988) is ignored. Because of the lack of leaf cross section at different levels, it is difficult to decide whether the moss depicted on fig. 117 is *R. heterostichum* or another taxon (*R. affine* (F. Weber & D. Mohr) Lindb.?). ***Encalypta rhaptocarpa*** Schwägr. (pp. 304-306): the affinities with *E. trachymitra* Rip. are not discussed. ***Pyramidula tetragona*** (Brid.) Brid. (pp. 314-315): after a study of the type specimens, Brugues *et al.* (1998, *Journal of Bryology* 20 (2): 502-504) concluded that *P. tetragona* and *P. algeriensis* Chadeau & Douin are conspecific. ***Entosthodon*** (pp. 326-341): *E. fascicularis* (Hedw.) Müll. Hal. differs from all other local species in the isodiametric or very shortly rectangular exothecium cells; this character is not found in the key. In addition, the authors do not mention the colour of rhizoids which is a useful character to distinguish *E. attenuatus* (Dicks.) Bryhn and *E. durieui* Mont. **Key to *Bryum*** (p. 358): 9 - Plants synoicous or autoicous (instead of dioicous, in the key) opposed to 9 - Plants dioicous. ***Bryum subapiculatum*** Hampe (p. 476): the species is acidophilous; however, the authors confirm its presence on limestone in Israel. ***Bryum muehlenbeckii*** B.S.G. (pp. 380-381): the description and illustration do not allow to distinguish what the authors name *B. muehlenbeckii* from *B. gemmiparum*; the local material used might correspond to specimens of the latter that have lost or not yet produced bulbils; *B. muehlenbeckii* occurs on siliceous substrata and, in the Mediterranean basin, its distribution is restricted to high altitudes. ***Bryum kunzei*** Hornsch. (p. 392): in the *Illustrated flora of nordic mosses* fasc. 3 (1993), Nyholm included this taxon of low value in *B. caespiticium*, which is more convenient than regarding it as a depauperate form of *B. capillare* Hedw.

Bryum pallescens Schleich ex Schwägr. (p. 394) and ***B. intermedium*** (Brid.) Blandow (p. 396): the diameter of mature spores is 14-22 µm (instead of 10-14 µm) for the former and 18-24 µm (instead of ca 14 µm: immature spores) for the latter. ***Amblystegium tenax*** (Hedw.) C.E.O. Jensen (pp. 452-453, fig. 176): after the description which states the presence of "2-3 rows of enlarged cell extending to basal angles" visible on fig. 176d, the Israeli material so named might correspond to forms without paraphyllia (or paraphyllia very rare) of the variable *Cratoneuron filicinum* (Hedw.) Spruce; the same kind of confusion is possible between small specimens of *Cratoneuron* and *Amblystegium varium* (Hedw.) Lindb. ***Homalothecium*** (pp. 461-463): characters such as glossy/not glossy and colour are not easy to use; the important group of alar cells in *H. aureum* (Spruce) H. Rob. is not mentioned in the key and in the description of the species. ***Brachythecium populeum*** (Hedw.) B.S.G. (p. 482): the record "Mount Carmel (?)" should not be considered because of the very low altitude. ***Scleropodium cespitans*** (Müll. Hal.) L.F. Koch (pp. 486-488): in the absence of fruiting material, the presence of this oceanic species in the local flora cannot be demonstrated; in the allied *Scleropodium touretii*, the leaf shape is variable; the var. *piliferum* De Not. might correspond to what is depicted on fig. 192. ***Rhynchostegium murale*** (Hedw.) B.S.G. (pp. 490-492): as the authors sometimes had difficulties to distinguish specimens of this species from *S. touretii*, in particular when sterile (cf. p. 492), only fruiting material of *R. murale* should have been considered; the population of the Judean Mountains "Ein Kerem" which has a dorsal projection at apex of the costa and rough setae belongs without any doubts to *S. touretii*, as the shape of the operculum is difficult to evaluate on young sporophytes. ***Eurhynchium pulchellum*** (Hedw.) Jenn. (pp. 504-507): the species is described as having larger leaves than *E. hians* (Hedw.) Sande Lac., which is generally not the case.

Part II. Anthocerotopsida and Marchantiopsida by H. Bischler and S. Jovet-Ast

The local flora is poor, since it only comprises 39 species distributed in 19 families and 22 genera. This reduced diversity is related to the environmental xericity and to the paucity of acidic soils. The Anthocerotales, Sphaerocarpales and Marchantiales reach together 77 % of the total number of species. The key to classes, orders and families is quite clear.

Taxonomic treatment. This is the best that can be done on the subject. The nomenclature follows the European list of Grolle & Long (2000). The descriptions of families, genera and species are exhaustive and very well documented. Under the heading "habitat and local distribution ", useful information is given on different topics such as the substratum type , pH, altitude and surrounding vegetation. The illustrations, due to the talents of both authors, are very informative and of excellent quality. Part II is followed by nice SEM micrographs of spores belonging to 90 and 24 species of mosses and liverworts respectively and by 8 colour plates illustrating some representatives of several bryophyte families that are present in Israel. The work ends with a very useful glossary of terms, 13 pages of references and an index of all scientific names.

In short, this flora replaces and enlarges Bilewsky's contribution (1965), which is only devoted to mosses . Despite some insufficiencies in part I, the book is of great interest for researchers working in the Mediterranean area or in SW Asia, a region still underexplored bryologically, for which only the *Moss Flora of Irak* (Agnew & Vondracek, 1975) and the *Bryophyte Flora of the Arabian Peninsula and Socotra* (Kürschner, 2000) were up to now available.

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