

***Rhabdoweisia crenulata* (Mitt.) H. Jameson new to Italy**

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Abstract – *Rhabdoweisia crenulata* (Mitt.) H. Jameson, found in Piedmont and in Lombardy, is here reported for the first time from Italy. A site description, together with notes on its distribution and ecology, are given.

***Rhabdoweisia* / Dicranaceae / Italy / distribution / ecology**

Résumé – *Rhabdoweisia crenulata* (Mitt.) H. Jameson, récolté au Piedmont et en Lombardie est ici signalé pour la première fois en Italie. Les sites sont décrits, son écologie et sa distribution sont précisées.

***Rhabdoweisia* / Dicranaceae / Italie/ distribution / écologie**

INTRODUCTION

The genus *Rhabdoweisia* has been traditionally attributed to the large family of the *Dicranaceae* in the subfamily of the *Rhabdoweisioideae* (Corley *et al.*, 1981). The recent Flora of the Mosses of Italy also maintains this classification and the genus is included in this subfamily, together with *Oreas* (Cortini Pedrotti, 2001a). Recent studies have nevertheless modified this systematic arrangement. Buck & Goffinet (2000) have raised *Rhabdoweisioideae* to the rank of family. However, Ochyra has recently presented a nomenclatural history about the subfamilies of *Dicranaceae*. He has replaced *Rhabdoweisioideae* with *Onchophoroideae* because this name has priority over the former (Ochyra, 2002). According to this arrangement, the subfamily also includes the genera *Cynodontium*, *Dichodontium*, *Dicranoweisia*, *Oncophorus*, *Oreas* and *Oreoweisia*.

In Europe three species occur in this genus: *Rhabdoweisia fugax* (Hedw.) Bruch, Schimp. & W. Gümbel, *R. crispata* (With.) Lindb. and *R. crenulata* (Mitt.) H. Jameson (Corley *et al.*, 1981, Corley & Crundwell, 1991). Only *R. fugax* and *R. crispata* have been recorded in Italy (Cortini Pedrotti, 2001a, 2001b). *Rhabdoweisia fugax* is present in Piedmont, Aosta Valley, Lombardy, Trentino-

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Alto Adige, Tuscany, Lazio, Sicily and Sardinia. In contrast *R. crispata* exhibits a narrower range and has only been reported from Piedmont, Lombardy and Trentino-Alto Adige (Cortini Pedrotti, 2001b).

SITE DESCRIPTION (Fig. 1)

In July 1999, during bryological research commissioned by “Alta Valle Pesio e Tanaro” Natural Park, some specimens of *Rhabdoweisia crenulata* were collected in the Cavallo Valley, an area located on the right slope of the Pesio Valley (UTM 32LR4939), in the locality of Baus DI’Ula (Chiusa Pesio, Cuneo, 1500 m a.s.l., Piedmont).

In the Pesio Valley the climate belongs to the sub-oceanic type. The area is characterized by short cold winter, long mild spring and autumn, and fresh summer with a short temperature range (mean annual temperature *ca* 6°C). The precipitations are particularly abundant and uniform, especially in spring and autumn (mean annual precipitations *ca* 1376 mm) (Biancotti *et al.*, 1998).

Small tufts of few square centimetres occur in this locality. The species grows at the base of a damp rocky face (quartzite conglomerate) 4-5 m tall. The site is located in a beech (*Fagus sylvatica* L.) wood mixed with *Abies alba* Miller and isolated trees of *Picea abies* (L.) Karsten subsp. *abies*. The herbaceous plants are mainly *Prenanthes purpurea* L., *Athyrium filix-femina* (L.) Roth, *Festuca*

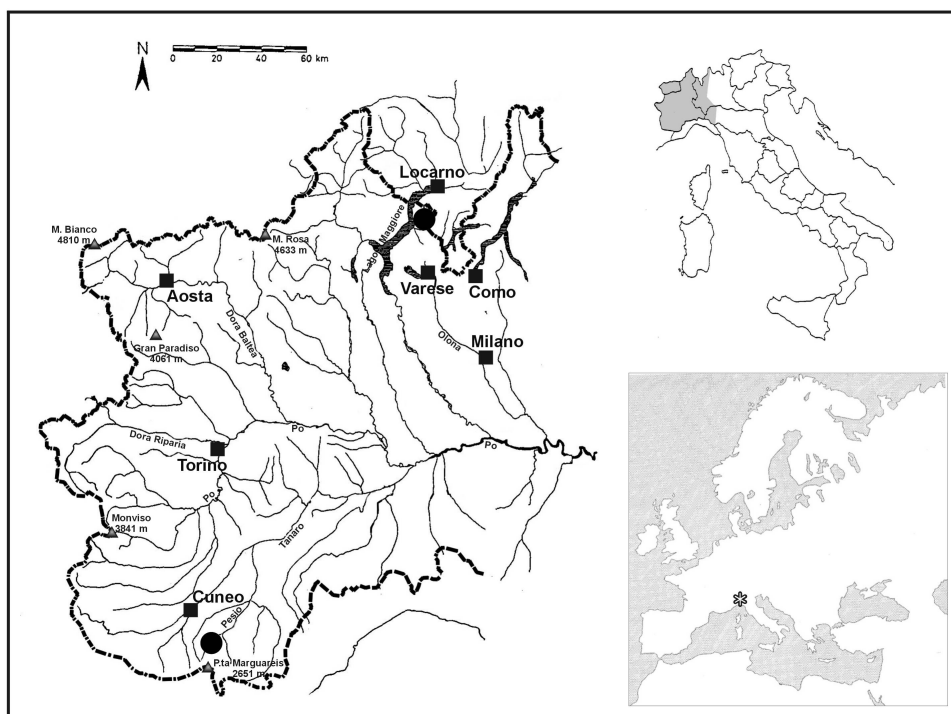


Fig. 1. Study area and localities (as black circle in the map) of *Rhabdoweisia*.

flavescens Bellardi, *Deschampsia flexuosa* (L.) Trin., *Gymnocarpium dryopteris* (L.) Newman and *Gentiana burseri* Lapeyr. subsp. *villarsii* (Griseb.) Rouy.

In Pesio Valley the following bryophytes were growing with *Rhabdoweisia crenulata*: *Anastrophyllum minutum* (Schreb.) R.M. Schust., *Bazzania tricrenata* (Wahlenb.) Lindb., *Diplophyllum albicans* (L.) Dumort., *Scapania nemorea* (L.) Grolle, *S. undulata* (L.) Dumort., *Tritomaria quinquedentata* (Huds.) H. Buch, *Dicranodontium asperulum* (Mitt.) Broth., *Isothecium alopecuroides* (Dubois.) Isov., *Plagiothecium laetum* Bruch, Schimp. & W. Gümbel, *Pohlia cruda* (Hedw.) Lindb., *Tortella tortuosa* (Hedw.) Limpr.

In August 2001 during bryological studies in Veddasca Valley, specimens of *R. crenulata* were collected on the northern slopes of Mount Lema. The site is located at an altitude of 1,500 m a.s.l. in the commune of Curiglia-Monteviasco (Varese, Lombardy), a few hundred meters from the Italy-Swiss border (UTM 32TMR8699). The valley is subject to a sub-oceanic climate of western Insubria, with abundant precipitations (annual mean rainfall *ca* 1,900 mm) and temperatures not too cool (annual mean *ca* 7°C).

The discovery was made in a shrubby area with the following species: *Acer pseudoplatanus* L., *Alnus viridis* (Chaix) DC., *Rhododendron ferrugineum* L. and *Sorbus aucuparia* L. The site is an ancient pasture formerly occupied by a beech wood. Nowadays the area is reforested with *Picea abies* (L.) Karsten subsp. *abies*, an introduced species with a scarce recruitment. *Calamagrostis arundinacea* (L.) Roth is the prevailing species in the herbaceous layer, but other plants occur such as *Agrostis agrostiflora* (G. Beck) Rauschert, *Athyrium filix-femina* (L.) Roth, *Calamagrostis villosa* (Chaix) J.F. Gmelin, *Dryopteris expansa* (C. Presl.) Fraser-Jenkins & Jermy, *Luzula nivea* (L.) DC., *L. sieberi* Tausch, *Oxalis acetosella* L., *Phegopteris connectilis* (Michx.) Watt, *Vaccinium myrtillus* L., and on boulders *Primula hirsuta* All. and *Viola biflora* L.

In Veddasca Valley *R. crenulata* grows as a small tuft of about 1 dm², on a damp shaded face *ca* 2 m tall. The moss was collected on gneiss with *Diplophyllum albicans* (L.) Dumort., *Andreaea rupestris* Hedw., *Dicranodontium denudatum* (Brid.) E. Britton, *Oxystegus tenuirostris* (Hook. & Taylor) A.J.E. Sm., *Polytrichum alpinum* Hedw., *Racomitrium aquaticum* (Schrad.) Brid. and *Rhabdoweisia fugax* (Hedw.) Bruch, Schimp. & W. Gümbel.

CONCLUDING REMARKS

In both Italian localities (Fig. 1), *Rhabdoweisia crenulata*, grows in very damp shaded habitats, particularly where a drip occurs, on acidic substrata at the upper limit of the mountain belt. The climatic conditions are mainly of sub-oceanic type.

Rhabdoweisia crenulata is an oceanic species distributed in the British Isles, in the Scandinavian Peninsula, Western and Central Europe, Himalayas, China, Taiwan, North America and Hawai (Nyholm, 1986; Frahm & Frey, 1983; Smith, 1978; Crum & Anderson, 1981). These floras underline its disjunct distribution and overall rarity. Nevertheless *R. crenulata* is not present in the European Red List (E.C.C.B., 1995).

It seldom grows in tall dense tufts up to 3 cm in rock crevices in shaded, North facing habitats on very damp acidic substrata, usually in ravines or near

waterfalls (Dierssen, 2001; Nyholm, 1986; Frey *et al.*, 1995). This particular ecology is confirmed by its phytosociological role: *Rhabdoweisia crenulata* is characteristic of the alliance *Diplophyllion albicantis* Philippi 1956 (Dierssen, 2001).

In the last years the bryological studies from the Italian Western-Central Alps resulted in reporting interesting and new species for Italy (Aleffi *et al.*, 1995; Aleffi & Schumacker, 1995, 1997; Miserere *et al.*, 1996; Miserere & Buffa, 1997; Brusa & Zavagno, 1998; Buffa *et al.*, 1998; Brusa, 1999, 2000, 2001; Schumacker *et al.* 1999a, 1999b; Blookeel *et al.*, 1999). In Veddasca Valley an alien species such as *Pohlia flexuosa* Hook. has been recently recorded as new for the Italian moss flora (Brusa, unpublished data). The find of *R. crenulata* confirms the importance and the diversity of the bryological flora of these sites. More bryological research and conservation projects are needed in the study areas. It is necessary to pay particular attention to rocky habitats. About *R. crenulata* more bryological research are necessary for evaluating its distribution in Italy.

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REFERENCES

- ALEFFI M., CORTINI PEDROTTI C., SCHUMACKER R. & SOLDÁN Z., 1995 — Some species new to the Italian Bryological Flora. *Giornale Botanico Italiano* 129 (2): 65.
- ALEFFI M. & SCHUMACKER R., 1995 — Check-list and red list of the liverworts (Marchantiophyta) and hornworts (Anthocerotophyta) of Italy. *Flora Mediteranea* 5: 73-161.
- ALEFFI M. & SCHUMACKER R., 1997 — The new check-list and red list of liverworts (Marchantiophyta) and hornworts (Anthocerotophyta) of Italy: methods, purposes, problems and perspectives. *Webbia* 51: 405-419.
- BIANCOTTI A., BELLARDONE G., BOVO S., CAGNAZZI B., GIACOMELLI L., & MARCHISIO C., 1998 — *Distribuzione regionale di piogge e temperature. Regione Piemonte*, Collana Studi Climatologici in Piemonte, Vol. 1. Regione Piemonte, Università degli Studi di Torino. Torino, 80 p.
- BLOOKEEL T., PORLEY R. & ROTHERO G., 1999 — Summer Field Meeting, Italian Alps 1997. *Bulletin of the British Bryological Society* 72: 17-24.
- BRUSA G. & ZAVAGNO F., 1998 — La flora briologica della Valganna (VA): note su distribuzione ed ecologia. *Bollettino della Società Ticinese Scienze Naturali* 86: 29-44.
- BRUSA G., 1999 — Two Italian sites of interesting *Grimmiaceae* near the Lake of Lugano (Italian-Swiss border). *Journal of Bryology* 21: 73-74.
- BRUSA G., 2000 — The *Sphagnum* flora of the prealpine province of Varese, northern Italy. *Cryptogamie, Bryologie* 21: 257-265.
- BRUSA G., 2001 — New sites for the rare moss *Pseudoleskea artariae* Thér. in Italy. *Cryptogamie, Bryologie* 22: 145-148.
- BUCK W.R. & GOFFINET B., 2000 — *Morphology and Classification of Mosses*. In: Shaw A.J. & Goffinet B. (Eds.), *Bryophyte Biology*. Cambridge University Press, pp. 71-123.
- BUFFA G., MISERERE L. & DAL VESCO G., 1998 — *Scorpidium turgescens* and *Splachnum sphaericum* rediscovered in Italy. *Journal of Bryology* 20(1): 243-245.

- CORLEY M.F.V., CRUNDWELL A.C., DÜLL R., HILL M.O. & SMITH A.J.E., 1981 — Mosses of Europe and the Azores: an annotated list of species, with synonyms from the recent literature. *Journal of Bryology* 11: 609-689.
- CORLEY M.F.V. & CRUNDWELL A.C., 1991 — Additions and amendments to the mosses of Europe and Azores. *Journal of Bryology* 16: 337-356.
- CORTINI PEDROTTI C., 2001a — *Flora dei muschi d'Italia*. Roma. Antonio Delfino Editore, 817 p.
- CORTINI PEDROTTI C., 2001b — New Check-list of the Mosses of Italy. *Flora Mediterranea* 11: 23-107.
- CRUM H.A. & ANDERSON L.E. 1981 — *Mosses of Eastern North America Vol. 1*. New York, Columbia University Press, 663 p.
- DIERSSEN K., 2001 — Distribution, ecological amplitude and phytosociological characterization of European bryophytes. *Bryophytorum Bibliotheca* 56: 1-289.
- E.C.C.B. (Eds.), 1995 — *Red Data Book of European Bryophytes*. Trondheim, European Committee for Conservation of Bryophytes, 291 p.
- FRAHM J.-P., FREY W., 1983 — Moosflora. Mit 108 Abb. Von J. Döring. - 3überarb. Aufl. Stuttgart, Ulmer, 528 p.
- FREY W., FRAHM J.-P., FISCHER E. & LOBIN W., 1995 — *Die Moos – und Farnpflanzen Europas*. Stuttgart, Jena, New York, G. Fisher, 426 p.
- MISERERE L., BUFFA G. & GEISSLER P., 1996 — Contributo alla conoscenza briologica delle zone umide del Parco Naturale Regionale del M. Avic. *Revue Valdôtaine d'Histoire Naturelle* 50: 143-161.
- MISERERE L. & BUFFA G., 1997 — Lo stato delle conoscenze briologiche dell'arco alpino occidentale italiano analizzato attraverso recenti e passati ritrovamenti di sei specie rare, minacciate o ritenute estinte. *Revue Valdôtaine d'Histoire Naturelle*, Suppl., 51: 421-430.
- NYHOLM E., 1986 — *Illustrated Flora of Nordic Mosses, fasc. 1. Fissidentaceae – Seligeriaceae*. Copenhagen and Lund, Nordic Bryological Society. 72 p.
- OCHYRA R., 2002 — Nomenclatural changes in subfamilies of Dicranaceae. *Cryptogamie, Bryologie* 23: 345-349.
- SCHUMACKER R., SOLDÁN Z., ALEFFI M. & MISERERE L., 1999a — The Bryophyte flora of the Gran Paradiso National Park (Aosta Valley and Piedmont, Italy) and its immediate surroundings: a synthesis. *Lejeunia* n.s., 160: 1-107.
- SCHUMACKER R., SOLDÁN Z. & MISERERE L., 1999b — *Haplomitrium hookeri* (Sm.) Nees (*Calobryales*, Marchantiophyta), new for Italy in Valsoera (Gran Paradiso National Park, Piedmont). *Bollettino Museo Regionale Scienze Naturali Torino* 16(1-2): 89-96.
- SMITH A.J.E., 1978 — *The Moss Flora of Britain and Ireland*. Cambridge, Cambridge University Press. 706 p.