

## **New bryophyte records to some countries of the South-Eastern Europe**

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**Abstract** – Investigation on the bryophyte flora of SE Europe has intensified during the past decade. However, in view of many new species recorded in this region lately, it can be assumed that a lot of work still needs to be done to reach the level of knowledge of the bryophyte flora within western European countries. In this paper the novelties recorded for some SE European countries are presented: two new records for Slovenia (*Bryum neodamense* and *Fossombronina foveolata*), three for Serbia (*Oxymitra incrassata*, *Riccia ciliifera* and *R. nigrella*) and one for Bosnia-Herzegovina (*Sphagnum teres*).

**Bryophytes / flora / mosses / liverworts / new records / SE Europe**

**Résumé** – Les recherches sur la flore bryophytique dans le Sud- Est de l'Europe se sont intensifiées durant la dernière décennie. Pourtant, selon le nombre de nouvelles espèces enregistrées dans cette région, on peut déduire que beaucoup de travail reste à faire pour atteindre le niveau de connaissance de la bryoflore des pays de l'Europe occidentale. Dans ce travail, les nouveautés enregistrées dans certains des pays de l'Europe sud-orientale sont présentées : deux nouveaux reports pour la Slovénie (*Bryum neodamense* et *Fossombronina foveolata*), trois pour la Serbie (*Oxymitra incrassata*, *Riccia ciliifera* et *R. nigrella*) et un pour la Bosnie-Herzegovina (*Sphagnum teres*).

**Bryophytes / flore / mousses / hépatiques / nouveaux reports / SE Europe**

### **INTRODUCTION**

It is generally accepted that the bryophyte flora of the SE Europe is rather poorly known compared to other European regions. Very few professional or amateur bryologists have been active within the region. During the past decade the situations has slightly changed. There are more local people interested in bryophytes and the interest of foreign researchers has increased. This has resulted

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in many bryophyte novelties recorded for the region of SE Europe and individual territories within it.

For example, Sabovljević & Stevanović (1999) listed 423 mosses and Sabovljević (2000) listed 78 hepatic species for Serbia. Some years later, the check-lists of Sabovljević *et al.* (2008a) and Sabovljević & Natcheva (2006) listed 555 mosses and 118 hepatics respectively in Serbia. Similarly, the number of species per country has increased, but unevenly, depending on the intensity of research in the individual territories. Although the check-lists for the SE Europe (Sabovljević & Natcheva, 2006, partly updated for Mediterranean countries by Ros *et al.* (2007); Sabovljević *et al.*, 2008a) are quite recent, further new records have been added subsequently and updates of the lists are needed in the light of newly published papers (e. g. Blockeel *et al.*, 2007, 2008, 2009a, b, c; Erzberger *et al.*, 2008; Hajakova *et al.*, 2007; Özdemir & Uyar, 2008; Papp & Erzberger, 2007a, b; Papp *et al.*, 2008; Sabovljević *et al.*, 2008b; Kirmaci *et al.*, 2009)

## MATERIAL AND METHODS

New records for three countries in SE Europe (Bosnia-Herzegovina, Serbia and Slovenia) were made during the study of bryophyte collections from the Balkans deposited in Budapest Natural History Museum (BP). The collections were made by various botanists and deposited in the bryophyte herbarium, named or not, and separate or mixed with other mosses, and they had not been previously published. Therefore, these newly verified old records were not considered for the relevant regions in the recent regional and national checklists. Nomenclature follows Grolle & Long (2000) for hepatics and Hill *et al.* (2006) for mosses.

## RESULTS AND DISCUSSION

Three mosses and 3 liverworts species new to national bryophyte floras are listed.

***Bryum neodamense*** Itzigs. (BP 41271)

**Slovenia:** *Sphagnum* mire at Ljubljana opposite to Udik. *J. Bredler*, 1884, *rev.* J. Podpera, *conf.* B. Papp. Endangered subarctic element (Düll, 1985) included in the rare (R) category in the Red Data Book of European Bryophytes (ECCB 1995). In SE Europe it is known from Bulgaria, Croatia, Romania and Serbia (Sabovljević *et al.*, 2008).

***Fossombronia foveolata*** Lindb. (BP 27882/H).

**Slovenia:** Schischka forest at Ljubljana, on mud among *Carex. C. Loitlesberger*, 09 and 10.1917. In SE Europe this northern subatlantic species was known only from Greece (Sabovljević & Natcheva, 2006).

***Oxymitra incrassata*** (Brotero) Sergio *et* Sim-Sim (BP 29454/H) (mixed with *R. nigrella*)

**Serbia:** Bács-Bodrog County (serb. Bačka). Saline grassland of Bátka at Senta. *J. Guelmino*, 11.1972, This sub-Mediterranean species has been recorded from

several SE-European countries, Albania, Bulgaria, Croatia, Greece, Montenegro and Romania (Sabovljević & Natcheva, 2006).

***Riccia ciliifera*** Link ex Lindenb. (BP 29457/H)

**Serbia:** Bács-Bodrog County (serb. Bačka). Saline grassland of Bátka at Senta. *J. Guelmino*, 11.1972. This sub-Mediterranean, sub-Atlantic species has been reported from almost all SE-European countries except Montenegro, Serbia, Slovenia and the European part of Turkey (Sabovljević & Natcheva, 2006).

***Riccia nigrella*** DC. (BP 29454/H) (mixed with *O. incrassata*)

**Serbia:** Bács-Bodrog County (serb. Bačka). Saline grassland of Bátka at Senta. *J. Guelmino*, 11.1972. This Atlantic, Mediterranean species is also known from almost all SE-European countries except Macedonia, Romania, Serbia, Slovenia (Sabovljević & Natcheva, 2006).

***Sphagnum teres*** (Schimp.) Aongstr. (9045/S)

**Bosnia-Herzegovina:** Mt. Vranica, wet place in a spruce forest at lake Suho jezero. *A. Rusinska*, 10.06.1979. According to the checklist of the mosses of South-Eastern Europe (Sabovljević *et al.*, 2008), it had been reported from several Balkan countries (Bulgaria, Greece, Macedonia, Romania, Serbia and Slovenia), but not in Bosnia-Herzegovina.

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## REFERENCES

- BLOCKEEL T. L., BAKALIN V. A., CZERNYADJEVA I. V., ECKSTEIN J., ERZBERGER P., FREY W., FUERTES E., GILANI S. A., HEDENÁS L., HUGONNOT V., KÜRSCHNER H., LÜTH M., MURAD W., PRADA C., SCHNYDER N., SCHRÖDER N., SHAH J., SHINWARI Z. K., SCÚCS P. & TOWNSEND C. C., 2007 – New national and regional bryophyte records 16. *Journal of bryology* 29(3): 198-204.
- BLOCKEEL T. L., ABAY G., BAKALIN V. A., BEDNAREK-OCHYRA H., OCHYRA R., CETIN B., CYKOWSKA B., FUERTES E., HESPANHOL H., HOLYOAK D. T., HRADILEK Z., KECELI T., KÜRSCHNER H., LARRAIN J., LONG D. G., PAROLLY G., PIATEK J., PIATEK M., RAMS S., ROS R. M., SENECA A., SERGIO C., SOLDAN Z., STEFANUT S., UYAR G., VANA J. & YAYINTAS O. T., 2008 – New national and regional bryophyte records 19. *Journal of bryology* 30(3): 231-237.
- BLOCKEEL T. L., BAKALIN V. A., BEDNAREK-OCHYRA H., OCHYRA R., BUCK W. R., CHOI S., CYKOWSKA B., ERDAĞ A., ERZBERGER P., KIRMACI M., KÜRSCHNER H., LÉBOUVIER M., PAPP B., SABOVLJEVIĆ M., SABOVLJEVIĆ A., SCHRÖDER W., SINGH S. M., SUN B.-Y., TOWNSEND C. C., VAÑA J. & YAYINTAŞ Ö. T., 2009a – New national and regional bryophyte records 20. *Journal of bryology* 31(1): 54-62.
- BLOCKEEL T. L., BEDNAREK-OCHYRA H., OCHYRA R., CYKOWSKA B., ESQUIVEL M. G., LÉBOUVIER M., LUIS L., MARTINS S., MÜLLER F., NÉMETH CS., PAPP B., PLAŠEK V., PÓCS T., SABOVLJEVIĆ M., SÉRGIO C., SIM-SIM M., STECH M., VANA J. & YAYINTAŞ O.T., 2009b – New national and regional bryophyte records 21. *Journal of bryology* 31(2): 132-139.
- BLOCKEEL T. L., BATOS C. J. P., BEDNAREK-OCHYRA H., OCHYRA R., DUKIN M. V., FOVET L., GARCIA C., HEDENÁS L., HUGONNOT V., KIRMACI M., KOPONEN T., LÉBOUVIER M., MARTINS A., MÜLLER F., SABOVLJEVIĆ M., LAKUSIĆ D., SCHÄFER-VERWIMP A., SERGIO C., SURINA B. & YAYINTAŞ O.T., 2009c – New national and regional bryophyte records 22. *Journal of bryology* 31(3): 201-210.
- DÜLL R., 1985 – Distribution of the European and Macaronesian mosses (*Bryophytina*) II. *Bryologische Beiträge* 5: 110-232.

- ECCB, 1995 — *Red Data Book of European Bryophytes*. Trondheim, European Committee for Conservation of Bryophytes, 291 p.
- ERZBERGER P., PAPP B. & DRAGIĆEVIĆ S., 2008 — Notes on some newly recorded bryophytes from Montenegro. *Journal of bryology* 30(2): 170-173.
- GROLLE R. & LONG D.G., 2000 — An annotated check-list of the Hepaticae and Anthocerotae of Europe and Macaronesia. *Journal of bryology* 22: 103-140.
- HÁJKOVÁ P., PLÁŠEK V. & HÁJEK M., 2007 — A contribution to the Bulgarian bryoflora. *Phytologia Balcanica* 13(2): 141-145.
- HILL M.O., BELL N., BRUGGEMANN-NANNENGA M. A., BRUGUES M., CANO M.J., ENROTH J., FLATBERG K.I., FRAHM J.-P., GALLEGO M.T., GARILLETI R., GUERRA J., HEDENÅS L., HOLYOAK D.T., HYVÖNEN J., IGNATOV M.S., LARA F., MAZIMPAKA V., MUNOZ J. & SÖDERSTRÖM L., 2006 — An annotated checklist of the mosses of Europe and Macaronesia. *Journal of bryology* 28: 198-267.
- KIRMACI M., ERDAG A. & CETIN M., 2009 — Two new records to the bryophyte flora of Turkey: *Crossidium crassinerve* (De Not.) Jur. and *C. laxifilamentosum* Frey et Kürschner (Pottiaceae, Bryophyta). *Cryptogamie, Bryologie* 30(3): 383-388
- ÖZDEMİR T. & UYAR G., 2008 — *Campylopus flexuosus* (Hedw.) Brid. (Dicranaceae, Bryopsida), a new record in Turkey. *Cryptogamie, Bryologie* 29(4): 401-404.
- PAPP B. & ERZBERGER P., 2007a — Contribution of the bryophyte flora of Western Stara Planina Mts (E. Serbia). *Studia botanica Hungarica* 38: 95-123.
- PAPP B. & ERZBERGER P., 2007b — Contribution to the bryophyte flora of Montenegro. *Studia botanica Hungarica* 38: 79-94.
- PAPP B., ERZBERGER P. & DRAGIĆEVIĆ S., 2008 — Contribution to the bryophyte flora of the Orjen Mts., Montenegro. *Studia botanica Hungarica* 39: 101-112.
- ROS R. M., MAZIMPAKA V., ABOU-SALMA U., ALEFFI M., BLOCKEEL T. L., BRUGUES M., CANO M. J., CROS R. M., DIA M. G., DIRKSE G. M., EL SAADAWI W., ERDAĞ A., GANEVA A., GONZÁLEZ-MANCEBO J. M., HERRNSTADT I., KHALIL K., KÜRSCHNER H., LANFRANCO E., LOSADALIMA A., REFAI M. S., RODRIGUEZ-NUNEZ S., SABOVLJEVIĆ M., SÉRGIO C., SHABBARA H. M., SIM-SIM M. & SÖDERSTRÖM L., 2007 — Hepatics and Anthocerotae of the Mediterranean, an annotated checklist. *Cryptogamie, Bryologie* 28(4): 351-437.
- SABOVLJEVIĆ M & NATCHEVA R., 2006 — Check list of the liverworts and hornworts of South-Eastern Europe. *Phytologia Balcanica* 12(2): 169-180.
- SABOVLJEVIĆ M. & STEVANOVIĆ V., 1999 — Moss Conspectus of Federal Republic of Yugoslavia. *Flora Mediterranea* 9: 65-95.
- SABOVLJEVIĆ M., 2000 — Checklist of hepatics of the Federal Republic of Yugoslavia, *Lindbergia* 25: 37-42
- SABOVLJEVIĆ M., NATCHEVA R., TSAKIRI E., DIHORU G., DRAGIĆEVIĆ S., ERDAĞ A. & PAPP B., 2008a — Check-list of the mosses of South-Eastern Europe. *Phytologia Balcanica* 14(2): 207-244.
- SABOVLJEVIĆ M., TSAKIRI E. & SABOVLJEVIĆ A., 2008b — Towards the bryophyte flora of Greece, studies in Chalkidiki area (North Greece). *Cryptogamie, Bryologie* 29(2): 143-155.