

Recent occurrence of moss *Archidium alternifolium* (*Bryophyta, Archidiaceae*) in Lower Silesia (SW Poland)

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Abstract: The moss *Archidium alternifolium* (Dicks. ex Hedw.) Mitt. was recently found on the path among arable fields near the village of Słupice, Lower Silesia, Poland. The historical distribution of the species in Poland and detailed description of the new locality are given.

Keywords: terrestrial moss, new locality, threatened species, *Archidium alternifolium*, Poland

Introduction

Archidium alternifolium is widely distributed in the Northern Hemisphere (Snider 1975). It is an amphiatlantic species well known in North America and Northern and Western Europe including the Azores and Canary Islands. The easternmost data is from the Gulf of Finland.

In Poland it is considered as a rare species (Żarnowiec et al. 2004). According to literature notes and herbarium specimens the moss *Archidium alternifolium* (Dicks. ex Hedw.) Mitt. is known in several historical localities in Poland (c.f. Hryniewiecki et al 1937; Jędrzejko 1990; Karczmarz 1960, 1963, 1987; Karczmarz et al 1974; Karczmarz & Bloch 1985; Karczmarz & Kuc 1962; Koppe 1931; Kuc 1962, 1963; Limpricht 1876, 1890; Mamczarz 1970, 1977; Mickiewicz 1960; Ochyra 1982).

Study area and methods

The new locality of the species was found during the research, which was carried out in the region of the Sudetic Foreland (Lower Silesia, SW Poland). The region is dominated by the agricultural landscape typical for western Poland, where apart from large fields also relatively small fields still exist, owned by individual farmers. A mosaic of marginal (mostly linear) habitats with a varied structure is still common on this territory.

The bryophytes were studied in 70 field margins of different structure. Field margins were chosen, on two conditions: 1) their structure had to be homogenous for 500 m; these 500 m sections make up the study plots in the project, 2) the main factor of the differentiation of the plant cover of these habitats was natural succession with incidental human impact.

Due to the ecological features of bryophyte species (mostly ephemeral) growing in midfield islets and on the verges of roads, the bryological survey was carried out during October, November and December 2007. All ecological data: frequency, fertility, habitat and substrate descriptions were noted.

The bryological nomenclature follows Ochyra et al (2003). Plant associations follow Matuszkiewicz (2007), categories of threat by Żarnowiec et al (2004). Geographical names are given after Kondracki (2001).

Description of the new locality

Archidium alternifolium was found on bare soil in the phytocoenoses of the *Lolio-Polygonetum arenastri* Br-Bl. 1930 em. Lohm. 1975 association, near the village of Słupice on 20 Dec. 2007

(Sudetic Foreland, Lower Silesia, SW Poland, ATMOS square grid Eb7790, UTM N50.49.02,442; E16.44.10,080). The specimen possessed well developed capsules (Fig.2a-c.). The population overgrew an area of about 1 square centimetre. It is housed in the SOSN herbarium, Sosnowiec, Poland and duplicate in the OP herbarium, Opava, Czech Republic.

Notation to the identification and field searching

Archidium alternifolium is a very small ephemeral plant 2-20mm high including its sterile innovations. This species forms dense and short yellow-green turfs, which can often be overlooked or confused with sterile *Ceratodon purpureus* at first sight. The immersed capsule is very fragile and can often be lost. Moreover it is a species growing among grasses and other vascular plants which makes *Archidium alternifolium* difficult to perceive during field searching. The time of the field survey is of utmost importance because of unstable substrata such as wet soil, mud and sand around temporary pools, along ditches, roadsides and in fields which can easily be damaged or converted by agricultural methods. With regard to substrata, habitat features and capsule maturation the best time to collect this species is late fall to early spring.

Discussion

The terrestrial moss *Archidium alternifolium* is considered as an amphiatlantic species. Its occurrence is known in North America, Northern and Western Europe (Snider 1975). With respect its Atlantic range towards Central Europe the number of localities declined e.g. in the Czech Republic is recently known on one locality only: Southern Bohemia, in nature reserve Velký and Malý Tisý near the village of Lomnice nad Lužnicí, leg. J. Kučera 9.11.2001 (CBFS herb.). According to Kučera & Váňa (2003) in the Czech Republic it is considered as DD category, because the assessment of the risk is difficult due to the ephemeral nature of occurrence. The distribution in Poland is known from 11 historical localities. The results of the bryological survey in the region of the Sudetic Foreland (Lower Silesia, SW Poland), representative for agricultural landscape, carried out by the authors provided a new record of the taxa for Lower Silesia and for Poland.

In respect of ecological features (unstable substrata, habitat, the very small size of the plant, time of occurrence, capsule maturation) and ephemeral nature of the moss it placed it, most probably, as an overlooked and confused species. It is of great importance to the discovery of new localities of the species to draw bryologists' attention to the necessity of attempting investigations in agricultural landscape which can usually appear as a worthless habitat for bryophytes.

In Poland *Archidium alternifolium* is considered to be a rare species, but through the lack of actual distribution it should be evaluated according to IUCN criteria. Moreover one should check the particular herbarium collections because there may exist many of unpublished data. In consideration of the actual distribution of *Archidium alternifolium*, it is reasonable to assume that the number of localities will increase during field studies concerning the vegetation of individual communes.

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References

Jędrzejko K. (1990): Mchy Górnośląskiego Okręgu Przemysłowego i Leśnego Pasa Ochronnego wobec antropopresji. Zakład Narodowy im. Ossolińskich, Wydawnictwo Polskiej Akademii Nauk, Wrocław –

- Warszawa – Kraków.
- Karczmarsz K. (1960): Mchy okolic Lublina. *Fragmenta Floristica et Geobotanica*, 6(4): 573-592.
- (1963): Mchy zebrane na Pojezierzu Łęczyńsko Włodawskim. *Fragmenta Floristica et Geobotanica*, 9(1): 117-150.
- (1987): Flora mszaków Beskidu Niskiego. – *Annales UMCS*, 42:111-135.
- Karczmarsz K. & Bloch M. (1985): Mszaki Kotliny Sandomierskiej. *Fragmenta Floristica et Geobotanica*, 29: 73-107.
- Karczmarsz K. & Kuc M. (1962): Mchy wschodniej części Wyżyny Lubelskiej. *Fragmenta Floristica et Geobotanica*, 8(4): 483-507.
- Karczmarsz K., Mickiewicz J., Ochyra R. (1974): Musci Europaei Orientalis Exsiccati, Fasciculus III, Nr 101-150, p. 2.
- Kondracki J. (2003): Geografia regionalna Polski. Wydawnictwo Naukowe PWN, Warszawa.
- Koppe F. (1931): Dritter Beitrag zur Moosflora der Grenzmark Posen-Westpreussen. *Abh. und Berichte der Naturwissensch. Abt. der Grenzmark. Gessel. Zur Erforschung und Pflege d. Heimat*, Nr. 17, p. 63. (non vidi).
- Kuc M. (1962): Mchy zachodniej części Wyżyny Lubelskiej. – *Fragmenta Floristica et Geobotanica*, 8(1): 23-55.
- (1963): Materiały briologiczne z Roztocza. – *Fragmenta Floristica et Geobotanica*, 9(1): 97-116.
- Kučera J. & Váňa J. (2003): Check- and Red List of bryophytes of the Czech Republic (2003). – *Preslia*, Praha, 75: 193–222.
- Limpricht K.G. (1876): Laubmoose. *In: Cohn F. (ed.), Kryptogamen-Flora von Schlesien*. 1. Breslau, J.U. Kern's Verlag (Max Müller).
- (1890): Die Laubmoose. *In: Rabenhorst, "Kryptogamen-Flora von Deutschland, Oesterreich und der Schweiz*.
- Mamczarz H. (1970): Zbiorowiska mszaków w potokach okolic Łącka w Beskidzie Sudeckim. – *Annales UMCS, Sectio C*, 25: 105-136.
- (1977): Brioflora i zbiorowiska mszaków Beskidu Sadeckiego cz. I. *Monographiae Botanicae* 54, pp. 159.
- Matuszkiewicz W. (2007): Przewodnik do oznaczania zbiorowisk roślinnych Polski. Wyd. Naukowe PWN, Warszawa.
- Mickiewicz J. (1960): Materiały do flory mszaków Podlasia. Uroczysko Sterdyń w powiecie Sokołów Podlaski. – *Fragmenta Floristica et Geobotanica*, 6(3): 407-425.
- Ochyra R. (1982): Mchy Skalic Nowotarskich i Spiskich (Pieniński Pas Skalkowy). – *Fragmenta Floristica et Geobotanica*, 28(3): 419-489.
- Ochyra R., Żarnowiec J., Bednarek-Ochyra H. (2003): *Census Catalogue of Polish Mosses*. Institute of Botany, Polish Academy of Science, Kraków.
- Snider J.A. (1975): A revision of the genus *Archidium* (Musci). – *Journ. Hattori. Bot. Lab.* No. 39: 105-201. Nichinan, Miyazaki, Japan.
- Stefanowicz-Owczarska K. (1937): Materiały do flory mchów liściastych okolic Warszawy *In: Hryniewiecki B., Stefanowicz-Owczarska K., Rejment I., Lublinerówna K.* 1937. Mszaki okolic Warszawy. *Planta Polonica*. Warszawskie Towarzystwo Naukowe, vol. IV, p. 36.
- Szafran B. (1957): Mchy. *In: Czubiński Z., Kochman H., Krzemieniowska J., Motyka J., Skirgiełło A., Starmach K., Rejment-Grochowska I., Szafran B., Flora Polska*. Rośliny zarodnikowe Polski i ziem ościennych. 1. Warszawa, PWN.
- Żarnowiec J., Stebel A., Ochyra R. (2004): Threatened moss species in the Polish Carpathians in the light of a new Red-List of Mosses in Poland. - *In: Stebel, A. & Ochyra, R. [eds]: Bryological studies in the Western Carpathians*. Sorus, Poznań.

Recentní výskyt mechu *Archidium alternifolium* (Bryophyta, Archidiaceae) na Dolním Slezsku (JZ Polsko)

Práce přináší údaje o recentním výskytu vzácného druhu mechu *Archidium alternifolium* na území Dolního Slezska v Polsku. Nález je zajímavý zejména vzhledem k době sběru (prosinec) a typu lokality (na mezi u pole). Taková stanoviště jsou bryology často přehlížena i během vegetační sezóny. Možná i proto je ve střední Evropě lokalit, kde byl druh nalezen, pouze několik (př. v ČR pouze jediná). Popis druhu i fotografie usnadňující rozpoznání taxonu v terénu jsou součástí příspěvku.

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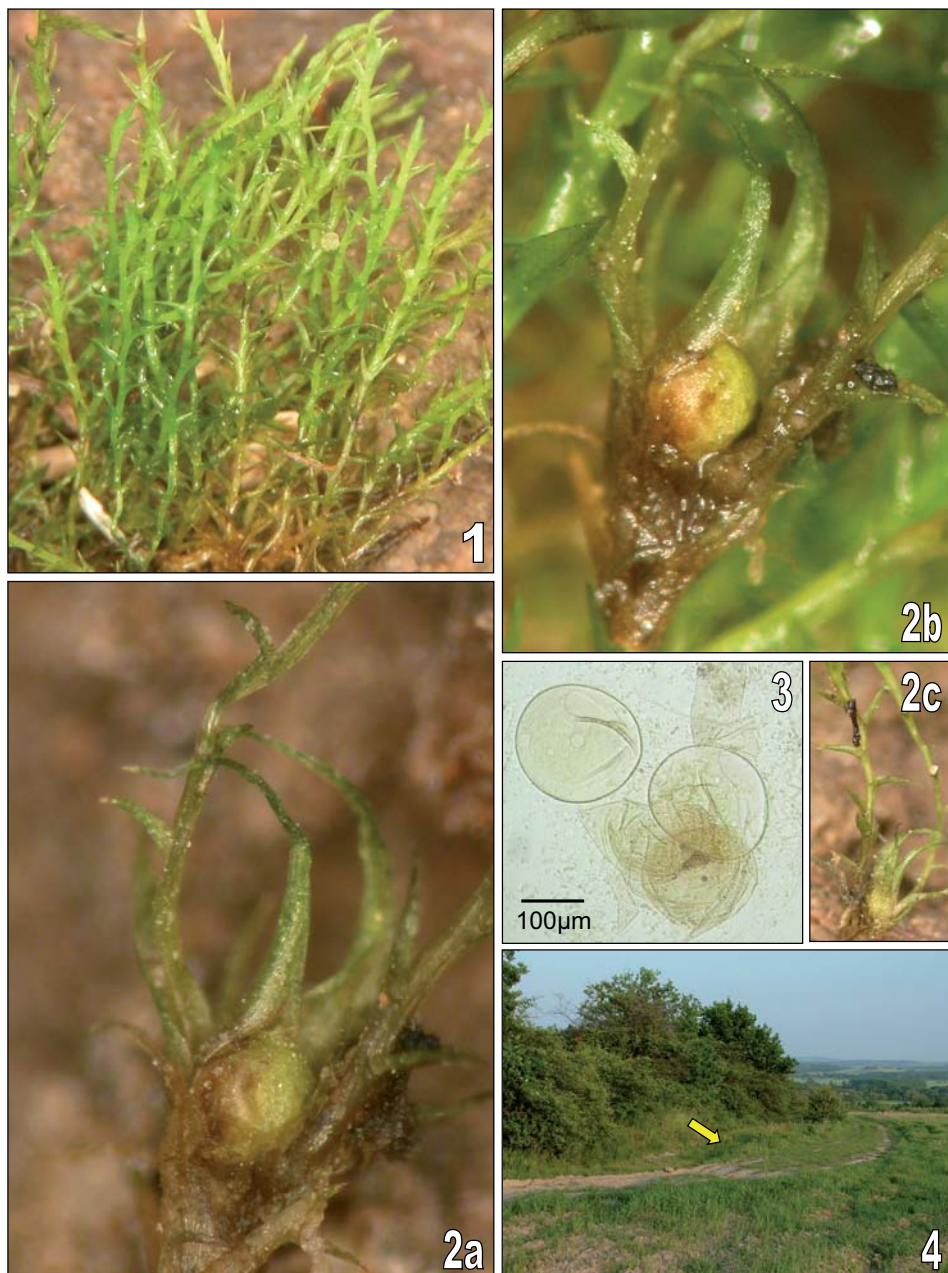


Fig.1-4: *Archidium alternifolium* **1** - plants with sterile innovations; **2 a,b,c** - plants with detail view of capsule; **3** - detail view of immature spores; **4** - Habitat of *Archidium alternifolium* in the new locality near the village of Stupice. Photos made by V. Plášek (1-3) & A. Wuczyński (4).