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NEW DISTRIBUTIONAL DATA ON BRYOPHYTES OF POLAND, 18

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Abstract. This work presents a list of new localities for *Alleniella complanata, Cephaloziella divaricata, Diplophyllum albicans, D. obtusifolium, Hedwigia ciliata, Homalia trichomanoides, Metzgeria violacea, Nowellia curvifolia, Odontoschisma denudatum, Orthotrichum patens, Porella platyphylla, Pseudephemerum nitidum, Pulvigera lyellii, Ricciocarpos natans,* and *Scapania nemorea* in Poland.

Keywords: rare species, mosses, liverworts, Tatra Mts, Central Poland

1. ***Alleniella complanata*** (Hedw.) S. Olsson, Enroth & D. Quandt [= Neckera complanata (Hedw.) Huebener]

Author: M. Staniaszek-Kik

ATMOS Dd-77: Central Poland, Łódzkie Hills (Wzniesienia Łódzkie), Łódź Province, Łódź East county, Wiączyń Forest, Brzeziny Forest Inspectorate, forest section 164b, 51.78996°N, 19.64663°E, on bark of *Acer platanoides* in subcontinental oak-hornbeam *Tilio cordatae-Carpinetum*, *det*. M. Staniaszek-Kik, 13.10.2023.

Alleniella complanata is a relatively large epiphytic-epilitic moss species. Its localities are scattered throughout the country, but a significant portion is concentrated in southern Poland (Ochyra et al. 1988b). This moss is found on shaded rocks, especially limestone, and in lowlands, it most commonly inhabits the bark of deciduous trees (Stebel & Żarnowiec 2014). *Alleniella complanata* in Poland is under partial protection. Its localities associated with tree bark have diagnostic value as they indicate an appropriate state of forest preservation (Stebel & Żarnowiec 2014). *Alleniella complanata* is very rare in the Łódź voivodeship and is known from only four locations: the Dębowiec reserve (Urbanek 1966, Klama et al. 2005, Urbański & Górski 2010), the Węże reserve (Fojcik 1999), the Jeleń reserve (Fudali & Wolski 2015), and the vicinity of the Bugaj village (Domaniewo Forest; Urbanek-Rutowicz 1969). Most of its localities are protected within reserve boundaries. The site found in the Wiączyń Forest includes a very small population growing on the trunk of a common maple. The population size and its location within a managed forest do not ensure the long-term survival of this site.

2. ***Cephaloziella divaricata*** (Sm.) Schiffn.

Author: P. Górski

ATMOS Ge-60: S Poland, High Tatra Mts (Tatry Wysokie), MGRS 34UDV3347, Mt Rysy, subpeak area from

the southwest side, 49.17957°N, 20.08789°E, rock shelves with *Poa laxa* and *Thamnolia vermicularis*, alt. 2476 m a.s.l., *leg*. P. Górski, H. Górska 1540/2023, 28.09.2023, *det*. P. Górski (POZNB 4910).

Cephaloziella divaricata has several localities in the High Tatras on the Polish side (Szweykowski 1960, Cykowska 2008, Górski & Váňa 2014). This location represents the maximum altitude for this plant in the Polish Tatras. It is worth noting that it has also been recorded on the highest peak of the Tatras and the entire Carpathian range - Gerlachovský štít (Slovakia, alt. 2655 m a.s.l., *leg*. P. Górski, 2013, Górski & Váňa 2014).

3. ***Diplophyllum albicans*** (L.) Dumort.

Author: P. Górski

ATMOS Bb-28: NW Poland, West Pomerania (Pomorze Zachodnie), West Pomeranian Lakeland (Pojezierze Zachodniopomorskie), on the northern shore of Jezioro Bobięcińskie Wielkie Lake, 54.03028°N, 16.79667°E, slope in beech forest *Luzulo pilosae-Fagetum*, *leg., det*. P. Górski, 10.05.2010 (KRAM B-275514, POZNB).

Diplophyllum albicans is a species known mainly from northwestern Poland (e.g. Szweykowski & Koźlicka 1966, 1969) and mountain regions (the Carpathians and the Sudetes; Szweykowski 2006). Outside mountainous and submontane areas, in the lowlands, it is much less frequently recorded.

4. ***Diplophyllum obtusifolium*** (Hook.) Dumort.

Author: P. Górski

ATMOS Ec-66: SW Poland, Silesian Lowland (Nizina Śląska), Opole Plain (Równina Opolska), Opole Voivodeship, Kluczbork County, Kluczbork commune, near th village of Zameczek, slope in beech forest *Luzulo pilosae-Fagetum*, *leg., det*. P. Górski, 15.05.2004 (POZNB).

Diplophyllum obtusifolium occurs fairly frequently in northwestern Poland and in the mountainous regions in the south of the country (Szweykowski 2006). Lowland localities are mainly situated in the western part of Poland (Szweykowski 1971). In the region where the newly reported locality is situated, the species was also documented by Koła (1969).

5. ***Hedwigia ciliata*** (Hedw.) P. Beauv.

Author: M. Staniaszek-Kik

ATMOS Dd-77: Central Poland, Łódzkie Hills (Wzniesienia Łódzkie), Łódź Province, Łódź East county, Wiączyń Forest, Brzeziny Forest Inspectorate, forest section 167f, 51.77897°N, 19.64335°E, on a big erratic boulder in the subcontinental oak-hornbeam *Tilio cordatae-Carpinetum*, *leg., det*. M. Staniaszek-Kik, 25.09.2023 (LOD 16770).

Hedwigia ciliata in Poland occurs in numerous localities, mainly in the south and in the northern part of the country (West Pomerania, Masurian Lakeland, and Wielkopolska Region; Bednarek-Ochyra 1998, Ochyra et al. 1988a). It readily colonizes erratic boulders, stones, or exposed rocks in old quarries, but in recent years, it has also been found in epiphytic habitats (Stebel et al. 2021). In the Łódź voivodeship *H. ciliata* is a very rare moss. The station documented in the Wiączyń Forest is the fifth in the voivodeship. Previously, it has been recorded on trees in the locations of Kołacinek (Mroga Dolna commune) and Cisów (Rokiciny commune; Stebel et al. 2021), as well as on erratic boulders in the Parowy Janinowskie reserve (*leg*. M. Staniaszek-Kik, 2011, LOD 14836) and in the Słostowice Forest in the Gomunice commune (*leg*. Filipiak, 1983, LOD 4942).

6. ***Homalia trichomanoides*** (Hedw.) Brid

Author: M. Staniaszek-Kik

ATMOS Dd-77: Central Poland, Łódzkie Hills (Wzniesienia Łódzkie), Łódź Province, Łódź East county, Wiączyń Forest, Brzeziny Forest Inspectorate, forest section 164b, 51.78996°N, 19.64663°E, on the *Acer platanoides* bark in the subcontinental oak-hornbeam *Tilio cordatae-Carpinetum*, *det*. M. Staniaszek-Kik, 13.10.2023; forest section 164b, 51.78957701°N, 19.65209941°E, on the *Carpinus betulus* bark in *Tilio-Carpinetum*, *det*. M. Staniaszek-Kik, 13.10.2023; forest section 186c, 51.76989°N, 19.65217°E, on the *Carpinus betulus* bark in *Tilio-Carpinetum*, *det*. M. Staniaszek-Kik, N. Salanevich, 15.07.2023.

Homalia trichomanoides is a plagiotropic moss from the Neckeraceae family. It is a circumpolar boreo-temperate species, occurring in most European countries, Eastern India, northern Asia, and North America (He 1997). In Poland, it is found throughout the country but in scattered locations. *Homalia trichomanoides* is an epiphytic-epilitic species and typically grows on the bases of the tree trunks of deciduous trees and rocks. Its presence is particularly associated with old forest complexes, indicating a suitable state of forest preservation (Stebel & Żarnowiec 2014). In the Łódź voivodeship, it is a very rare species and has been documented in the reserve – Dębowiec (Urbanek 1965, 1966, Klama et al. 2005, Urbański & Górski 2010), Molenda (Dobrowolska & Staniaszek-Kik 2020) and Spała (LOD 5091, *leg*. Urbanek, 1961, LOD 12681, *leg*. Staniaszek-Kik, 2007) as well as on the Bełchatów Upland in a degraded floodplain forest (Staniaszek-Kik et al. 2018) and in the Bukowa Góra Forest near the village of Rączki in the Kluczewsko commune (LOD 5094, *leg*. Ucińska, 1967). New occurrences of this moss were recorded on three trees in the Wiączyń Forest. The species was noted on the bases of the tree trunks of old hornbeams and common maples. All three populations

were small and located in two different forest section at the extreme edges of the forest complex.

7. ***Metzgeria violacea*** (Ach. *ex* F. Weber & D. Mohr) Dumort.

Authors: B. Czołczyński, P. Górski

ATMOS Ac-48: East Pomerania (Pomorze Wschodnie), Kashubian Coast (Pobrzeże Kaszubskie), Darżlubie Forest (Puszcza Darżlubska), Puck county, between Darżlubie and Leśniewo, 54.690997°N, 18.281454°E, on the beech bark, *Luzulo pilosae-Fagetum*, *det*. B. Czołczyński, 18.02.2024, *conf*. P. Górski (KRAM B-275532).

Metzgeria violacea is a rare and endangered epiphyte in Poland (category CR; Klama & Górski 2018). Until the end of the 20th century a few localities were reported in northwestern Poland (Koppe & Koppe 1940, Szweykowski & Koźlicka 1966, Szweykowski 1968) and in the south of the country (Szweykowski 1959, Tobolewski & Glanc 1960, Mickiewicz 1965, Mamczarz 1975, Szweykowski & Buczkowska 1996). After 2000, *M. violacea* was observed at four sites: in the Pogórze Dynowskie Foothills (Armata 2009), Western Pomerania (Górski 2013), and the Tatra Mountains (Górski & Váňa 2014). The new locality is situated in a forested ravine, on a young beech tree (approximately 20 cm in diameter), near a stream.

8. ***Nowellia curvifolia*** (Dicks.) Mitt.

Authors: P. Górski, T. Kapustyński

ATMOS Bb-06: NW Poland, West Pomerania (Pomorze Zachodnie), Koszalin Coastland (Pobrzeże Koszalińskie), Koszalin County, Sianów commune, forest section of 110a of the Manowo Forest Inspectorate, 54.15633°N, 16.40245°E, decaying log in *Vaccinio uliginosi-Betuletum pubescentis*, *leg*. T. Kapustyński, 10.05.2023, *det*. P. Górski (KRAM B-275501).

Nowellia curvifolia is currently a fairly common epixylic species. Nearly 20 years ago, it was considered a threatened species (category V; Klama 2006). According to Szweykowski (2006), it is a rare plant in the western part of the country. The present locality comes from the West Pomerania, where many sites of this liverwort species are now known (e.g. Górski 2010, 2013, Górski & Gąbka in Górski et al. 2015, Górski & Kapustyński in Górski et al. 2015, Wilhelm et al. 2015, Smoczyk in Górski et al. 2016b, Górski et al. 2018).

9. ***Odontoschisma denudatum*** (Mart.) Dumort.

Authors: P. Górski, T. Kapustyński

ATMOS Bb-05: NW Poland, West Pomerania (Pomorze Zachodnie), Koszalin Coastland (Pobrzeże Koszalińskie), Koszalin County, Manowo commune, forest section of 130f of the Manowo Forest Inspectorate, 54.14867°N, 16.38786°E, decaying log by the bank of the Unieść River, *leg*., *det*. T. Kapustyński, 22.05.2023, *rev*. P. Górski (KRAM B-275506, POZNB); ATMOS Bb-06: NW Poland, West Pomerania (Pomorze Zachodnie), Koszalin Coastland (Pobrzeże Koszalińskie), Koszalin County, Sianów commune, forest section of 110a of the Manowo Forest Inspectorate, 54.15633°N, 16.40245°E, decaying log in *Vaccinio uliginosi-Betuletum pubescentis*, *leg*. T. Kapustyński, 10.05.2023, *det*. P. Górski (KRAM B-275502, POZNB).

10. ***Orthotrichum patens*** Bruch ex Brid.

Author: M. Staniaszek-Kik

ATMOS Dd-77: Central Poland, Łódzkie Hills (Wzniesienia Łódzkie), Łódź Province, Łódź East county, Wiączyń Forest; Brzeziny Forest Inspectorate, forest section 159d, 51.79035°N, 19.64485°E, on the *Acer psudoplatanus* bark in the subcontinental oak-hornbeam *Tilio cordatae-Carpinetum*, *leg*., *det*. M. Staniaszek-Kik, 13.10.2023 (LOD 16777).

Orthotrichum patens is a rare epiphytic moss. In the current Red-list it is treated as a rare species in Poland (category R; Żarnowiec et al. 2004). In the last decade, there were reports across Europe indicating an increase in records of epiphytic species, including *O. patens* (Blockeel & Fisk 2018, Stebel et al. 2020). The occurrence documented in the Wiączyń Forest is the first record of this species in the Łódź voivodeship.

11. ***Porella platyphylla*** (L.) Pfeiff.

Authors: P. Górski, T. Kapustyński

ATMOS Bb-25: NW Poland, West Pomerania (Pomorze Zachodnie), Koszalin Coastland (Pobrzeże Koszalińskie), Tychowo Forest Inspectorate, Koszalin County, Bobolice commune, Wojęcino, heritage forest park, 53.9782°N, 16.3931°E, on the bark of a beech tree, *leg*., *det*. T. Kapustyński, 12.05.2022, *rev*. P. Górski (KRAM B-275511); ATMOS Bb-55: NW Poland, West Pomerania (Pomorze Zachodnie), West Pomeranian Lakeland (Pojezierze Zachodniopomorskie), Drawsko Lakeland (Pojezierze Drawskie), Szczecinek County, Barwice commune, near the village of Gwiazdowo, 53.681035°N, 16.290155°E, on a fallen ash tree, *leg*., *det*. T. Kapustyński, 8.07.2023, *rev*. P. Górski (KRAM B-275512); ATMOS: Cc-16, NW Poland, Toruń-Eberswalde Valley (Pradolina Toruńsko-Eberswaldzka), Toruń Basin (Kotlina Toruńska), Bydgoszcz town, Jeździecka Street, oak-hornbeam forest with a significant participation of pine, *leg*., *det*. M. Książek, 15.01.2021, *rev*. P. Górski (KRAM B-275510).

Porella platyphylla was considered an endangered species (category E; Klama 2006) as recently as 20 years ago. In recent years, numerous records of this

species have been observed, including in anthropogenic habitats (cf. Klama in Górski et al. 2016a; Pawlikowski & Topolska in Górski et al. 2016a; Smoczyk in Górski et al. 2016; Smoczyk in Górski et al. 2017; Wierzcholska & Dyderski in Górski et al. 2017, and the literature cited therein).

12. ***Pseudephemerum nitidum*** (Hedw.) Loeske

Author: M. Staniaszek-Kik

ATMOS Dd-77: Central Poland, Łódzkie Hills (Wzniesienia Łódzkie), Łódź Province, Łódź East county, Wiączyń Forest, Brzeziny Forest Inspectorate, 51.77341°N, 19.6574°E, on a moist, clayey soil on a forest road, *leg*., *det*. M. Staniaszek-Kik, 05.10.2023 (LOD 16749).

Pseudephemerum nitidum is a moss of initial habitats. It is an ephemeral moss that forms sporophytes in the summer and autumn (Porley 2008). In Poland it is known to grow in scattered localities. (Szafran 1957). Due to its very small size (usually no higher than 5 mm) and ephemeral nature, its exact distribution is still largely unknown. The occurrence identified in the Wiączyń Forest is the first record of this species in the Łódź voivodeship. Small tufts of the moss were found on a moist forest road in ruts left by a harvester. It grew among the thaloids of *Blasia pusilla*.

13. ***Pulvigera lyellii*** (Hook. & Taylor) Plášek, Sawicki & Ochyra [= *Orthotrichum lyellii* Hook. & Taylor]

Author: M. Staniaszek-Kik

ATMOS Ed-24: Central Poland, Southern Wielkopolska Lowland, Szczerców Basin, Łódź voivodeship, Kluki municipality, Słupia village, 51.302275°N, 19.284532°E, on the trunk of *Acer platanoides* by the roadside, *leg*., *det*. M. Staniaszek-Kik, 12.10.2018 (LOD 15361).

Pulvigera lyellii forms loose tufts. The stems are covered with narrow leaves, on which reddish-brown, multicellular propagules are densely present (Szafran 1961). This moss primarily colonizes the bark of deciduous trees growing on roadsides or in loose forest communities (Żarnowiec & Stebel 2014). In Poland *P. lyellii* is partly protected (Rozporządzenie... 2014) and is also listed on the current Red-list (category R; Żarnowiec et al. 2004). The described locality from Słupia village is the third site of this species in the Łódź voivodeship. The other two documented locations come from the Lipce Reymontowskie reserve (Mickiewicz 1965) and Góry Kamieńsk (Jagodziński et al. 2009).

14. ***Ricciocarpos natans*** (L.) Corda

Author: P. Górski

ATMOS Cb-84: W Poland, Wielkopolska region, Wielkopolska Province, Międzychód County, Kwilcz commune, Poznań Lakeland, Pniewy Forest Inspectorate, not far from the village of Karolewice (near DK92), 52.51972°N, 16.21611°E, small pond in the forest, together with *Riccia fluitans*, *leg*., *det*. P. Górski, 2.09.2021 (KRAM B-275507).

15. ***Scapania nemorea*** (L.) Grolle

Authors: P. Górski, T. Kapustyński

ATMOS Bb-15: NW Poland, West Pomerania (Pomorze Zachodnie), Koszalin Coastland (Pobrzeże Koszalińskie), forest section of 446b of Manowo Forest Inspectorate (Mostowo forestry), Koszalin County, Manowo commune, 54.10225°N, 16.37744°E, on stone in a alder forest, *leg*. T. Kapustyński, 25.10.2021, *det*. P. Górski (KRAM B-275513); ATMOS Bb-16: NW Poland, West Pomerania (Pomorze Zachodnie), West Pomeranian Lakeland (Pojezierze Zachodniopomorskie), Polanów Plateau (Wysoczyzna Polanowska), Koszalin County, Polanów commune, 54.10536°N, 16.48958°E, tributary of the Mszanka River, on stone, *leg*. T. Kapustyński, 10.07.2023, *det*. P. Górski (KRAM B-275508, POZNB).

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