



NEW DISTRIBUTIONAL DATA ON BRYOPHYTES OF POLAND, 4

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1. *Campylopus introflexus* (Hedw.) Brid.

Authors: P. GÓRSKI, T. KAPUSTYŃSKI

ATMOS Bb–14: NW Poland, West Pomerania (Pomorze Zachodnie), Koszalin Coastland (Pobrzeże Koszalińskie), Białogard Plain (Równina Białogardzka), West Pomerania Province, Koszalin County, Świeszyno commune, near the south-western shore of Jezioro Czarne Lake, ca 1 km east of the village of Strzekęcino, 54.09741°N, 16.17715°E, forest section 76 of the Manowo Forest Inspectorate, on dried peat in a *Vaccinio uliginosi-Pinetum* association, *leg.*, *det.* P. Górski, T. Kapustyński, 2.05.2015 (POZNB); ATMOS Bb–16: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Polanów commune, 54.09259°N, 16.45360°E, ca 3 km south-west of the village of Osetno, between forest sections 278 and 290 of the Manowo Forest Inspectorate, sandy soil at

the edge of a *Leucobryo-Pinetum* association, *leg.*, *det.* P. Górski, T. Kapustyński, 2.05.2015 (POZNB).

Campylopus introflexus is a neophytic moss in the bryoflora of Poland (OCHYRA 1983), regarded as an aggressive invader in Europe (MIKULÁŠKOVÁ et al. 2012). It is known from numerous localities, mostly in western Poland (FUDALI et al. 2009). Still, there are new ones that have been found (PIWOWARSKI 2013, 2015a, GÓRSKI 2014, STANIASZEK-KIK 2014a, SMOCZYK 2015).

2. *Calypogeia neesiana* (C. Massal. et Carestia) Müll. Frib.

Authors: P. GÓRSKI, T. KAPUSTYŃSKI

ATMOS Bb–14: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Świeszyno commune, 54.07524°N, 16.20565°E, ca 2.8 km east of the village of Niedalino, ca 600 m north from the western

shore of Jezioro Hajka Lake, forest section 193c of the Manowo Forest Inspectorate, raised peat bog with high proportion of *Pinus sylvestris*, leg. P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB). *Calypogeia neesiana* is a common species in the whole area of the country (SZWEYKOWSKI 2006). This liverwort is frequent in mountain areas and some lowland regions (e.g. north-eastern Poland). In West Pomerania, where it was found, it had been recorded earlier in many localities, mostly by German botanists (SZWEYKOWSKI 1958 and the references cited therein). Most recent records of *C. neesiana* from this area have been published by GÓRSKI (2010, 2013) and WILHELM et al. (2015).

3. *Cephaloziella elachista* (J.B. Jack ex Gottsche et Rabenh.) Schiffn.

Authors: P. GÓRSKI, T. KAPUSTYŃSKI, M. SMO CZYK

ATMOS Bb-14: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Świeszyno commune, 54.07378°N, 16.20470°E, ca 2.7 km east of the village of Niedalino, ca 500 m north from the western shore of Jezioro Hajka Lake, forest section 193c of the Manowo Forest Inspectorate, poor fen, *Rhynchosporium albae cladopodiellatosum fluitantis*, leg. P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB); ATMOS Bb-14: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Świeszyno commune, 54.07524°N, 16.20565°E, ca 2.8 km east of the village of Niedalino, ca 600 m north from the western shore of Jezioro Hajka Lake, forest section 193c of the Manowo Forest Inspectorate, raised peat bog with high proportion of *Pinus sylvestris*, leg. P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB); ATMOS Da-04: W Poland, Lubuskie Lakeland (Pojezierze Lubuskie), Torzym Plain (Równina Torzymaska), 2 km south-west of the village of Gajec, forest section 106d of the Rzepin Forest Inspectorate, 52.33333°N, 14.74944°E, decaying pine stump in the peat bog (in a *Sphagnetum magellanici* association), scattered patches growing with *Fuscocephaloziopsis* (= *Cephalozia*) *connivens* and *Aulacomnium androgynum*, leg. M. Smoczyk, 12.04.2015, det. P. Górski (herb. M. Smoczyk); 1.8 km south-west of the village of Gajec, forest section 105d of the Rzepin Forest Inspectorate, 52.33278°N, 14.75556°E, on a decaying pine log at the edge of a drained bog, growing with *Calypogeia sphagnicola*, leg. M. Smoczyk, 12.04.2015, det. P. Górski (herb. M. Smoczyk).

Localities of *Cephaloziella elachista* are known from central and northern Poland (SZWEYKOWSKI 2006). It seems to be a rare, poor fen species. However, in West Pomerania and western Poland, it is probably more frequent than the published data indicate and overlooked in the field. Since year 2000, *C. elachista*

has been recorded by GÓRSKI (2013) and GÓRSKI & GĄBKA (2015a).

4. *Cephaloziella spinigera* (Lindb.) Warnst.

Author: P. GÓRSKI

ATMOS Ge-50: S Poland, High Tatra Mts, MGRS 34UDV3057, Wielka Pańszczycka Młaka, 49.26841°N, 20.04428°E, alt. 1260 m above sea level (a.s.l.), leg., det. P. Górski, 3.08.2015, c. per., c. spor. (POZNB).

There are 15 localities of *Cephaloziella spinigera* in the Tatra Mts (GÓRSKI & VÁŇA 2014). Most of them are situated in Poland, above the upper forest limit, in habitats referred to as *Polytrichum-Sphagnum* hummocks (CYKOWSKA 2011, CYKOWSKA-MARZENCKA 2013, GÓRSKI & PAWLIKOWSKI 2014). The presented locality is located in the montane belt, where previously two localities have been found: at Toporowy Staw Wyżni Lake (the Western Tatra Mts, Poland, LILIEFELDÓWNA 1914) and Štrbské pleso Lake (the High Tatra Mts, Slovakia, DUDA & VÁŇA 1974).

5. *Fossombronina foveolata* Lindb.

Authors: P. GÓRSKI, T. KAPUSTYŃSKI

ATMOS Bb-14: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Świeszyno commune, 54.07273°N, 16.19713°E, ca 2.2 km east of the village of Niedalino, ca 400 m north from the western shore of Jezioro Hajka Lake, forest section 194 of the Manowo Forest Inspectorate, on wet, bare peat, leg. P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB).

Fossombronina foveolata is a rare liverwort endangered of extinction in Poland (category E, KLAMA 2006). Most of the localities known from the second half of the nineteenth century and first half of the twentieth century are localised in the western part of Poland (SZWEYKOWSKI 1967, 2006). Since 2000, *F. foveolata* has been recorded from Dolne Łużyce (western Poland, ROSADZIŃSKI & RUSIŃSKA 2010), West Pomerania (north-western Poland, GÓRSKI 2015), and one station from central Poland (STANIASZEK-KIK 2014b).

6. *Frullania tamarisci* (L.) Dumort.

Authors: T. KAPUSTYŃSKI, P. GÓRSKI

ATMOS Bb-05: NW Poland, West Pomerania, Koszalin Coastland, Słupsk Plain (Równina Słupska), West Pomerania Province, Koszalin County, Koszalin commune, Karnieszewice Forest Inspectorate, Chelmoniewo Forestry, forest section 398c, Promotional Forest Complex "Łasy Środkowopomorskie", 54.20063°N, 16.30833°E, on bark of *Alnus glutinosa* in patches of a *Carici elongatae-Alnetum* association, leg., det. T. Kapustyński, 25.02.2015, conf. P. Górski (POZNB).

Frullania tamarisci is a rare liverwort endangered of extinction in Poland (category E, KLAMA 2006). Localities of the plant have been found in northern Poland (mostly West Pomerania) and in the southern part, in lower mountain areas of the Sudety Mts and Western Carpathians (SZWEYKOWSKI & KOZŁICKA 1977). In the lowlands, *F. tamarisci* is very rare and has been recognised as extinct (SZWEYKOWSKI 2006). Unexpectedly, in recent years, it has been found twice in West Pomerania. One locality was recorded by J. Koopman in the vicinity of Koszalin in 2012 (see GÓRSKI 2013); the other was noticed on Wolin island in 2014 (leg. S. Rosadziński, WILHELM et al. 2015). On that island, *F. tamarisci* had been recorded earlier almost 65 years ago (CZUBIŃSKI & URBAŃSKI 1951, SZWEYKOWSKI & KOZŁICKA 1966).

The presented locality is also localised in the vicinity of Koszalin, like the one from 2012. In a straight line, the two localities are 14.5 km away from each other. The former locality of *F. tamarisci* is scanty and limited to a single tree (oak), whereas the presented one is very rich, with the liverwort growing on many alder trees, forming compact turfs. It is worth noting that previous bryological studies carried out in the same area have shown the presence of a large population of another rare epiphyte – *Metzgeria violacea* (GÓRSKI 2013). In mountain areas in southern Poland, *F. tamarisci* has more localities, mostly on calcareous rocks (ZUBEL & STEBEL 2008, GÓRSKI & VÁÑA 2014). Nevertheless, the disappearance of this plant has been observed there, as well (SZWEYKOWSKI & BUCZKOWSKA 1996, SZWEYKOWSKI 2006). Recently, it has been recorded in the Tatra and Gorce Mts (GÓRSKI & VÁÑA 2014, STEBEL & PACIOREK 2015).

7. *Fuscocephaloziopsis macrostachya* (Kaal.) Váňa et L. Söderstr. (= *Cephalozia macrostachya* Kaal.)

Authors: P. GÓRSKI, T. KAPUSTYŃSKI

ATMOS Bb–06: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Polanów commune, 54.14030°N, 16.48744°E, ca 2.5 km west of the village of Naclaw, forest section 111d of the Manowo Forest Inspectorate, poor fen, in a clump of *Polytrichum strictum* and in moist depressions along with *Rhynchospora alba*, leg. P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB); ATMOS Bb–16: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Polanów commune, 54.09275°N, 16.45204°E, 54.09293°N, 16.45139°E, 54.09325°N, 16.45085°E, ca 3.2 km south-west of the village of Osetno, forest section 278h of the Manowo Forest Inspectorate, poor fen, *Rhynchosporium albae cladopodiellatosum fluitantis*, leg. P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB).

The distribution centre of *Fuscocephaloziopsis macrostachya* in Poland is situated in the northern part of the country (SZWEYKOWSKI 2006). Until late '60s of the twentieth century, about 45 localities of the plant were known from that area (SZWEYKOWSKI 1958 and the references cited therein). Other localities of *F. macrostachya* have been noticed in West Pomerania: SZWEYKOWSKI & KOZŁICKA (1969, four localities), GÓRSKI (2013, nine localities), and GÓRSKI & GĄBKA (2015c, one locality). Other data sources are phytosociological studies (e.g. HERBICHOWA 1979). SZWEYKOWSKI (2006) has stated that this species is actually more frequent than it would appear from the published data. It seems that it may have much more localities in West Pomerania.

8. *Helodium blandowii* (F. Weber & D. Mohr) Warnst.

Author: P. GÓRSKI

ATMOS Cb–23: NW Poland, West Pomerania, Drawaska Plain (Równina Drawaska), West Pomerania Province, Wałcz County, Człopa commune, 53.09215°N, 16.03488°E, 53.09233°N, 16.03463°E, 2 km west of the village of Załom, Człopa Forest Inspectorate, Jeleni Róg forestry, forest section 224l, rich fen in the valley of the Cieszynka River (between Dubie and Załom Lakes), leg., det. P. Górski, 1.08.2008 (POZG).

Helodium blandowii is a rare glacial relict endangered of extinction in Poland (category V, ŻARNOWIEC et al. 2004). The species is restricted to minerotrophic fens, especially in northern and north-western Poland (OCHYRA et al. 1988). Recently, the species was reported from the central and north-eastern parts of the country (PAWLIKOWSKI 2014, 2015, WOŁKOWYCKI & PAWLIKOWSKI 2015).

8. *Helodium blandowii* (F. Weber & D. Mohr) Warnst.

Authors: Ł. KOZUB, I. DEMBICZ

ATMOS Ee–48: Central Poland, Iłża Foothills region (Przedgórze Iłżeckie), Masovia Province, the valley of the Iłżanka River near the village of Kolonia Siedzice, 51.14756°N, 21.2182°E, sedge-brown moss fen vegetation overgrowing with alder, forming two hummocks among others formed by *Aulacomnium palustre* and *Climacium dendroides*, lawn dominated by *Calliergonella cuspidata*, leg., det. I. Dembicz, Ł. Kozub, 7.08.2015 (POZG); ATMOS Gd–37: S Poland, Carpathian Mts, Orawa basin (Kotlina Orawsko-Nowotarska), Małopolska Province, valley of the Czarna Orawa River near the village of Murowanica, 49.46024°N, 19.65054°E, sedge-brown moss fen vegetation dominated by *Carex diandra* developing at the edge of the valley, few clumps on hummocks among *Aulacomnium palustre* and *Tomentypnum nitens*, leg., det. I. Dem-

bicz, Ł. Kozub, 7.06.2015 (POZG); ATMOS Bc-40: NW Poland, South Pomeranian Lakeland (Pojezierze Południowopomorskie), Charzykowy Plain (Równina Charzykowska), Pomerania Province, Człuchów County, Koczała commune, Żukowo mire, ca 3 km south of Płocicz village, 53.83145°N, 17.08641°E, edge of a tall sedge-moss spring fen, on a *Carex appropinquata* tussock, *not. I.* Dembicz, Ł. Kozub, 2.08.2012; ATMOS Bc-15: N Poland, Tuchola Forest (Bory Tucholskie), Pomerania Province, Kościerzyna County, Lipusz commune, between Wyrówno and Schodno Lakes, 54.05632°N, 17.83933°E, acidified sedge-moss spring fen with *C. appropinquata* near the Wda River, few clumps among *Sphagnum teres* and *A. palustre*, *leg., det. I.* Dembicz, Ł. Kozub, 7.06.2014 (POZG).

Helodium blandowii is regarded as one of the glacial relicts of Polish moss flora with subarctic-boreal distribution (OCHYRA et al. 1988). The species occurs exclusively within minerotrophic fen vegetation and its shrubby and even forested faces. The species is considered vulnerable in Poland (category V, ŻARNOWIEC et al. 2004), and, while it is fairly common in the postglacial landscape of northern Poland, it is becoming increasingly rare toward the southern portion (OCHYRA et al. 1988, WOLSKI et al. 2013). Until now, it has not been reported from the Polish Carpathian Mts, but it is known from a few localities in Slovakia close to the locality presented above (ŠOLTĚS et al. 2004).

9. *Hypnum imponens* Hedw.

Authors: S. ROSADZIŃSKI, M. STANIASZEK-KIK

ATMOS Ad-74: W Poland, Lower Lusatia (Dolne Łużyce), Zasięcka basin (Kotlina Zasięcka), Lubuskie Province, Żary County, Brody commune, 3.85 km north-west of Gręzawa village, 51.734°N, 14.818°E, in patches of a *Vaccinio uliginosi-Betuletum pubescentis* plant association, on acidic *Sphagnum* peat, small population in the form of a small turf among *Sphagnum palustre*, *S. fimbriatum*, and *Aulacomnium palustre*, *leg., det. S.* Rosadziński, 18.09.2012 (POZG); ATMOS Ea-28: SW Poland, Lower Silesia (Dolny Śląsk), Lower Silesia Province, Dolnośląskie Forest (Bory Dolnośląskie), Bolesławiec County, Osiecznica commune, 51.31241°N, 15.44888°E, on a decaying stump in an oak forest, *leg. K.* Szczepańska, 9.07.2008, *det. M.* Staniaszek-Kik (LOD).

Hypnum imponens has a holarctic geographical range in Europe (DÜLL 1984) and represents a north-suboceanic type of range (DÜLL 1984, DIERSSEN 2001). In Poland, *H. imponens* is a very rare species (SZAFRAN 1961), spread throughout the lowlands and mountains. Numerous positions of this species are located in the Białowieża Primeval Forest (LISOWSKI 1958, ŻARNOWIEC 1997), where they occur in almost all forestry communities of this area as epigeic and epixylic mosses. In Pomerania, *H. imponens* occurs rare-

ly (DIETZOW 1938, SZAFRAN 1961, FUDALI 1997), and many of its sites were not confirmed during bryological research by RUSIŃSKA (1981). Within the Zasięcka basin near Budziechów village, *H. imponens* was found in humid heaths by WARNSTORF (1906); however, this locality was not confirmed recently and is probably extinct due to anthropogenic transformation. In the southern Poland, *H. imponens* was detected in Gorceński National Park and in the Beskid Sądecki Mts (LISOWSKI & KORNAŚ 1966, MAMCZARZ 1970, STEBEL 2006). In the Świętokrzyskie Mts, it was found in a *Juncetum squarrosii* community (CZUBIŃSKI & LISOWSKI 1964). In the Stołowe Mts, the species was detected in two locations on rocks (SZMAJDA 1979). In western Europe, *H. imponens* is used by some authors as a diagnostic species for *Ericetum tetralicis* association (ZICKERMANN 1996).

10. *Hypnum pratense* W.D.J. Koch ex Spruce

Authors: I. DEMBICZ, Ł. KOZUB

ATMOS Ac-85: N Poland, Pomerania region, Kashubian Lakeland (Pojezierze Kaszubskie), Pomerania Province, Kartuzy County, Sierakowice commune, close to the mouth of the Bukowina River of Kamieńskie Lake, 54.39937°N, 17.85465°E, fen meadow, scattered within a dense moss layer formed predominantly by *Caliergonella cuspidata*, *Climacium dendroides*, and *Rhytidiadelphus squarrosus*, *leg., det. I.* Dembicz, Ł. Kozub, 6.06.2014 (POZG); ATMOS Gd-37: S Poland, Carpathian Mts, Orawa basin, Małopolska Province, valley of the Czarna Orawa River near the village of Murowanica, 49.46024°N, 19.65054°E, sedge-brown moss fen vegetation dominated by *Carex diandra* developing at the edge of the valley, *leg., det. I.* Dembicz, Ł. Kozub, 7.06.2015 (POZG).

Hypnum pratense is regarded to represent a boreal-subcontinental element (DÜLL 1985) in Polish moss flora. Its known localities are scattered throughout the country (SZAFRAN 1961). Recently, it has been regarded as disappearing and placed on the Polish red list as endangered (category E, ŻARNOWIEC et al. 2004). However, new localities have been reported recently, especially from the mountainous areas (STEBEL & ŻARNOWIEC 2010, STEBEL 2011, STEBEL & VONČINA 2011, RUSIŃSKA et al. 2015). *Hypnum pratense* grows mostly on moderately rich fens and fen meadows (HÁJEK et al. 2002) but also on shores of streams and near springs.

11. *Kurzia pauciflora* (Dicks.) Grolle

Authors: P. GÓRSKI, T. KAPUSTYŃSKI

ATMOS Bb-06: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Polanów commune, 54.13986°N, 16.48810°E, ca 2.5 km west of the village of Naclaw, forest section 111d of the Manowo Forest Inspectorate, poor fen, together with *Odon-*

toschisma fluitans and *Fuscocephaloziopsis macrostachya*, leg., P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB).

Kurzia pauciflora is a widespread liverwort in northern Poland (SZWEYKOWSKI 2006). In West Pomerania, where these data were collected, it was noted by SZWEYKOWSKI (1958 and the references cited therein), SZWEYKOWSKI & KOZŁICKA (1966, 1969), and GÓRSKI (2013).

12. *Leskeella nervosa* (Brid.) Loeske

Author: A. RUSIŃSKA

ATMOS Db-08: W Poland, Wielkopolska region, Wielkopolska Province, Poznań, Gołęcińska Street, ruins of destroyed Prussian fort VIa (former Stockhausen), 52.43676°N, 16.88165°E, sheltered concrete plate, inclination 45°, southern exposure, leg., det. A. Rusińska 4466, 23.11.1996 (POZG).

This boreal-montane (DÜLL 1985) moss is common in all ranges of the Polish Carpathians: the Tatra Mts (LISOWSKI 1959), Bieszczady Mts (LISOWSKI 1956, ŻARNOWIEC & STEBEL 2014), Beskidy Mts (STEBEL 2006), and Pieniny Mts (OCHYRA 1984) as well as in the Sudety Mts (BERDOWSKI 1974, WILCZYŃSKA 1974, SZMAJDA 1979). It is also frequent in uplands (KUC 1964, FOJCIK 2011). *Leskeella nervosa* grows on the bark of deciduous trees, especially sycamore maples, ashes, and beeches (MICKIEWICZ 1965), and on limestone. This species is, however, very rare in the Polish lowlands, where it has been reported from Mazowsze (STEFANOWICZ-OWCZARSKA 1937, REJMENT-GROCHOWSKA 1964) and the Północnopodlaska Lowland (BLOCH 1974). Sparse localities are also known from West and East Pomerania; the species has been found in the vicinity of Kwidzyn, Elbląg, Ostróda, Pasłęk, and Iława (DIETZOW 1938) but has never been collected in Wielkopolska. The locality from Poznań is new for this region.

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

Authors: P. GÓRSKI, T. KAPUSTYŃSKI

ATMOS Bb-16: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Polanów commune, 54.10160°N, 16.46379°E, ca 2.3 km west of the village of Osetno, forest section 255 of the Manowo Forest Inspectorate, *Vaccinio uliginosi-Pinetum*, decaying pine log, leg., det. P. Górski, T. Kapustyński, 2.05.2015 (POZNB).

Nowellia curvifolia is a lignicolous species associated with coniferous wood. Its centre of occurrence in Poland is in the north-eastern part of the country, where it is a frequent species (SZWEYKOWSKI 1969, 2006). In central Poland and mountainous areas, it is rare (SZWEYKOWSKI 1969, 2006, GÓRSKI & VÁŇA 2014). According to SZWEYKOWSKI (2006), *N. curvifolia* is rare or absent in western parts of the country. Recent observations (GÓRSKI 2010, 2013, GÓRSKI & GAŁKA 2015c,

WILHELM et al. 2015) indicate that *N. curvifolia* is no longer a rare species in West Pomerania (north-western Poland). Recently, there are also new data on the occurrence of this plant in central and southern Poland (STEBEL et al. 2013, CYKOWSKA-MARZENCKA 2014, GÓRSKI & VÁŇA 2014, FUDALI et al. 2015, PIWOWARSKI 2015b).

14. *Odontoschisma fluitans* (Nees) L. Söderstr. et Váňa (= *Cladopodiella fluitans* (Nees) H. Buch)

Author: P. GÓRSKI

ATMOS Ge-50: S Poland, High Tatra Mts, MGRS 34UDV3057, Wielka Pańszczycka Młaka, northern part of the peat-bog, 49.26866°N, 20.04472°E, alt. 1260 m a.s.l., leg., det. P. Górski, 3.08.2015, c. per., c. spor. (POZNB).

Odontoschisma fluitans is a very rare liverwort in the Tatra Mts found so far in two localities only: Toporowy Staw Wyżni Lake (the Western Tatra Mts, Poland, LILIEFELDÓWNA 1914) and Trojrohé pleso Lake (the High Tatra Mts, Slovakia, GÓRSKI & VÁŇA 2014). In the former locality, the population of this species is still very rich and was confirmed in 2011 (GÓRSKI & VÁŇA 2014) and 2015 (P. Górski, observation). The presented third locality of *O. fluitans* in the Tatra Mts is localised in the northern part of a peat-bog, referred to as Wielka Pańszczycka Młaka. The population is very rich; there are individuals producing perianths and sporophytes.

15. *Odontoschisma fluitans* (Nees) L. Söderstr. et Váňa (= *Cladopodiella fluitans* (Nees) H. Buch)

Authors: P. GÓRSKI, T. KAPUSTYŃSKI, M. SMOCZYK

ATMOS Bb-06: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Polanów commune, 54.14030°N, 16.48744°E, ca 2.5 km west of the village of Naclaw, forest section 111d of the Manowo Forest Inspectorate, poor fen, leg., P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB); ATMOS Bb-14: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Świeszyno commune, 54.07378°N, 16.20470°E, ca 2.7 km east of the village of Niedalino, ca 500 m north from the western shore of Jezioro Hajka Lake, forest section 193c of the Manowo Forest Inspectorate, poor fen, *Rhynchosporetum albae cladopodielletosum fluitantis*, leg. P. Górski, T. Kapustyński, 2.05.2015, det. P. Górski (POZNB); ATMOS Bb-16: NW Poland, West Pomerania, Koszalin Coastland, Białogard Plain, West Pomerania Province, Koszalin County, Polanów commune, 54.09275°N, 16.45204°E, ca 3.2 km south-west of the village of Osetno, forest section 278h of the Manowo Forest Inspectorate, poor fen, *Rhynchosporetum albae cladopodielletosum fluitantis*, leg. P. Górski, T.

Kapustyński, 2.05.2015, *det.* P. Górski (POZNB); ATMOS Da-04: W Poland, Lubuskie Lakeland, Torzym Plain, 2 km south-west of the village of Gajec, forest section 106d of the Rzepin Forest Inspectorate, 52.33333°N, 14.74944°E, moist depressions in the peat-bog (*Sphagnetum magellanici* association), growing on open peat with *Sphagnum cuspidatum*, *Drosera rotundifolia*, and *Lycopodiella inundata*, *leg.* M. Smoczyk, 12.04.2015, *det.* P. Górski (*herb.* M. Smoczyk).

Distribution characteristics of *O. fluitans* in Poland is presented in the works by KLAMA (1998) and GÓRSKI (2013). In northern and western Poland, where these data were collected, relatively many localities of this plant are known (SZWEYKOWSKI 1958, 1964, GÓRSKI 2013, GÓRSKI & GĄBKA 2015d). On a whole-country scale, *O. fluitans* is a species threatened with extinction (category V, KLAMA 2006).

16. *Tomentypnum nitens* (Hedw.) Loeske

Authors: M. STANIASZEK-KIK, S. ROSADZIŃSKI

ATMOS Ed-53: Central Poland, Bełchatowska Height (Wysoczyzna Bełchatowska), Łódź Province, Pajęczno County, 0.5 km east of the village of Płaszczynna, 51.06001°N 19.10313°E, on ground in alder carr *Ribeso nigri-Alnetum*, *leg.*, *det.* M. Staniaszek-Kik, S. Rosadziński, 14.07.2014 (LOD).

Tomentypnum nitens is a glacial relict, threatened in Poland (category V, ŻARNOWIEC et al. 2004). Among the five glacial relict mosses found in central Poland (STANIASZEK-KIK & WOLSKI 2009), *T. nitens* has the highest number of localities, but most of them were reported several decades ago and have not been confirmed today (CHMIELEWSKI & URABANEK 1960, URABANEK 1969, HEREŹNIAK 1971, MAMIŃSKI 1986, KUCHARSKI & PISAREK 2001, SANDERSKA et al. 2003, WOLSKI et al. 2013). The new stand of *T. nitens* occurs on soil in alder carr *Ribeso nigri-Alnetum*. It was a small population size (1 dm²) growing with *Fissidens adianthoides*, *Calliergonella cuspidata* and *Brachythecium rivulare*.

17. *Ricciocarpos natans* (L.) Corda

Author: P. GÓRSKI

ATMOS Cb-79: W Poland, Wielkopolska region, Wielkopolska Province, Oborniki County, Rogoźno commune, 1 km east of Słomowo village, 52.68237°N, 16.96909°E, Łopuchówko Forest Inspectorate, forest section 96f, in water, in alder forest *Carici elongatae-Alnetum*, *not.* P. Górski, 14.05.2015; ATMOS Dc-24: W Poland, Wielkopolska region, Dolina Środkowej Warty valley, Wielkopolska Province, Września County, Pyzdry commune, small lake near the village of Białobrzeg, *leg.*, *det.* P. Górski, 7.10.2009 (POZNB).

Ricciocarpos natans is a widespread liverwort occurring in the whole of Poland except the mountains (SZWEYKOWSKI 2006). The distribution of this species

in the country has been presented by SZWEYKOWSKI (1968) and OCHYRA & TOMASZEWICZ (1979). The new data originate from the Wielkopolska region, where the species has been found previously by PEŁECHATY & GĄBKA (2003) and GÓRSKI (2006).

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