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The Bryophyte Flora of Sis Mountain (Giresun-Trabzon, Turkey)

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Abstract

As a result of bryological explorations in the Sis Mountain (Giresun and Trabzon provinces) in Turkey, a total of 327 bryophyte taxa were determined from 141 different localities. Of these, 54 taxa are liverworts and 273 taxa are mosses. Among them, *Pohlia camptotrachela* is reported for the second time from Turkey.

Key Words: Biodiversity, Bryophyte, Flora, Sis Mountain, Turkey

Sis Dağı (Giresun-Trabzon, Turkey) Briyofit Florası

Öz

Trabzon ve Giresun illeri arasındaki Sis Dağı'nda yapılan arazi çalışmaları sonucunda, 141 farklı lokaliteden toplanan örneklerden 54 Ciğerotu ve 273 Yapraklı karayosunu olmak üzere toplam 327 briyofit taksonu tespit edilmiştir. Bunlar arasından *Pohlia camptotrachela* Türkiye'den ikinci kez rapor edilmiştir.

Anahtar Kelimeler: Biyoçeşitlilik, Briyofit, Flora, Sis Dağı, Türkiye.

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1. Introduction

Sis Mountain is located between Trabzon and Giresun provinces in East Black Sea Region. Study area is situated in the Euro-Siberian floristic region (Akman, 1999). It is surrounded by Şalpaزاری district (Trabzon) in the east, Çanakçı district (Giresun) in the South and West, Görele and Eynesil districts (Giresun) in the north (Figure 1).

Research area has an eastern Black Sea oceanic rainfall regime, and no dry season. The mean annual maximum temperature is 14.8°C (in August) and mean minimum temperature is -6.6°C (in February). While mean precipitation per year is 1134.9 mm, the highest precipitations occur in October and November and the lowest in March and April (Akman, 1999; TSMS, 2017).

Important and considerable investigations have thus far been carried out in Trabzon province (Gökler, 1998; Papp, 2004; Townsend, 2005; Lara et al., 2010; Batan and Özdemir, 2011; Kirmacı et al., 2012; Batan et al., 2013; Kirmacı and Kürschner, 2013; Batan & Özdemir, 2013; Özdemir & Batan, 2017a), and a few papers were also noted from Giresun province (Özdemir and Baydar, 1997; Özdemir, 1999; Özdemir, 2001a, b; Özdemir and Koz, 2005; Özdemir and Koz, 2006; Özdemir and Koz, 2007; Özdemir and Batan, 2008; Özdemir, 2008; Kirmacı and Kürschner, 2013; Özdemir and Batan, 2017b). Any detailed bryofloristic studies have not noted from the Sis Mountain so far. Eastern Black sea region is the most studied area for bryophytes in Turkey. This study provide a contribution to the bryophyte flora Sis Mountain and Turkey.

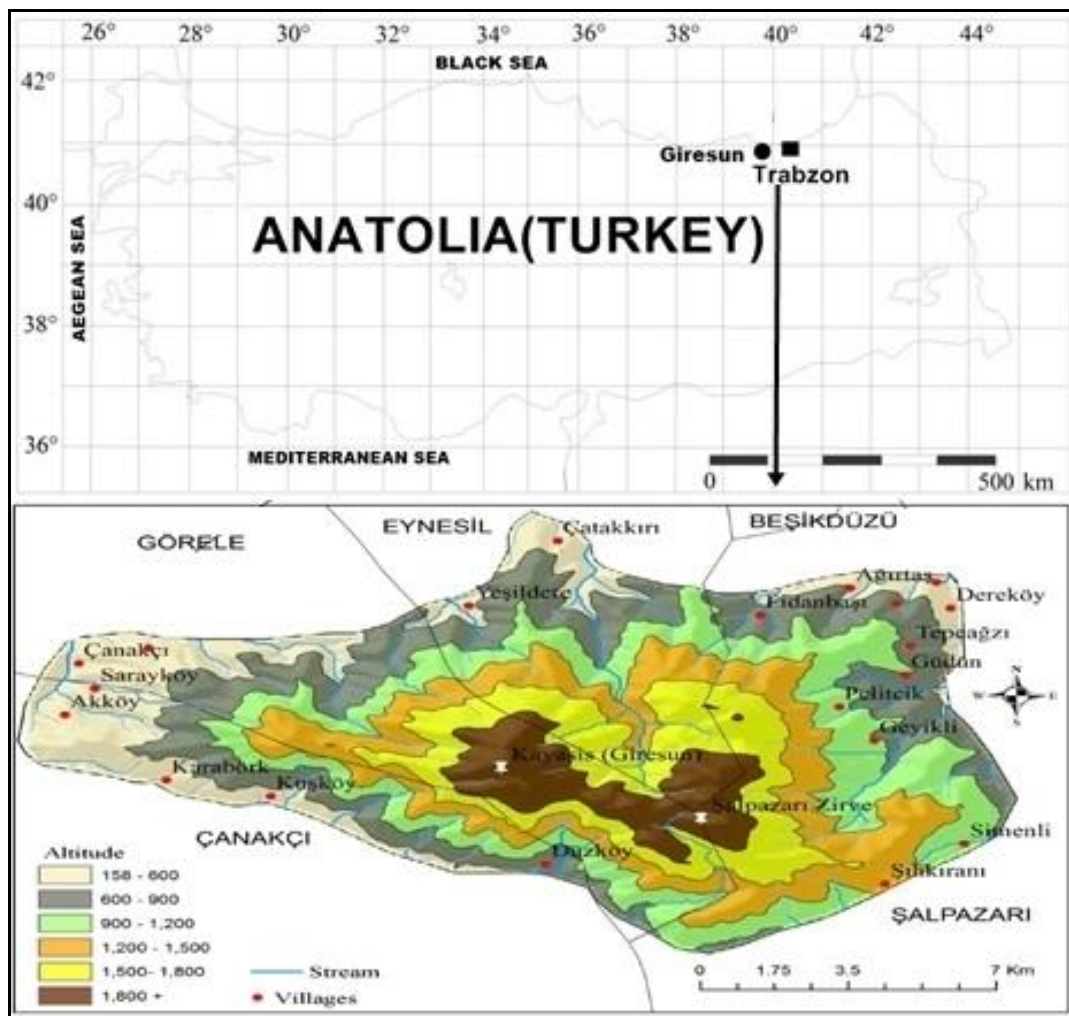


Figure 1. Map of the Study area

Materials and methods

The bryophyte samples were collected in 141 different localities (Table 1) between 09 April 2016 and 03 September 2017 from Sis mountain in

Turkey (Fig. 1). The bryophyte samples were examined with Carl Zeiss Stemi 2000-C stereomicroscope and Carl Zeiss Axio İmager A2 light microscope. Identifications were determined

by consulting various floras and keys (Crum and Anderson, 1981; Ireland, 1982; Nyholm, 1986, 1989, 1993, 1998; Lewinsky, 1993; Blom, 1996; Smith, 1996, 2004; Paton, 1999; Pedrotti, 2001, 2006; Greven, 2003; Heyn and Herrstadt, 2004; Frey et al., 2006; Guerra et al., 2006; Brugués et al., 2007; Kürschner and Frey, 2011). The status of taxa for Turkey were evaluated by reviewing the related literature (Uyar and Çetin, 2004; Kürschner and Erdağ, 2005; Özenoglu-Kiremit and Keçeli, 2009; Kürschner and Frey, 2011; Ros et al., 2013).

For each taxa, localities and substrate were given in the floristic list. The taxon recorded from Turkey for the second time is indicated with (*) in the bryofloristic list. Also, Taxa for new Giresun province is indicated with (#), for Trabzon with (##) and for both of them with (###) in the bryofloristic list. Also new for A4 square is indicated with (+) in the bryofloristic list

Nomenclature of the species follows Ros et al. (2007) for liverworts and Ros et al. (2013), Plášek et al. (2015) and Lara et al. (2016) for mosses. The situation of bryophyte taxa was appraised by reviewing related literature for the Trabzon and Giresun Provinces (Özdemir and Batan, 2017a,b). The status of bryophyte taxa was evaluated by reviewing related literature for the A4 square (Abay et al., 2016; Özdemir and Batan, 2017a, b). Bryophyte samples are deposited in the private herbarium of ERATA at the Biology Department, Faculty of Science, Karadeniz Technical University (Trabzon), Turkey.

Abbreviations in the floristic list: Station no: (1, 2, 3, ...), (S): on soil, (R): on rock, (SM): submerged, (DTT): on dead tree trunk, (TB): on tree body, (WS): on wet soil, (WR): on wet rock and (NS): near stream and name "Erata" with number means the herbarium number.

Table 1. The stations of collected specimens.

N.	Date	Locality	Altitude(m)
1	9.4.2016	Trabzon: Between Şalpazarı and Görele İnişdibi-1 40°56'25.5"N/ 39°08'1.03"E	990-1050 m
2	9.4.2016	Trabzon: Between Şalpazarı and Görele İnişdibi-2 40°54'52.02"N/ 39°07'35,0"E	1000-1100 m
3	9.4.2016	Trabzon: Şalpazarı İnişdibi-1. 40°55'27.06"N/ 39°07'56"E	1140-1190 m
4	9.4.2016	Trabzon: Şalpazarı, Upper part of Fidanbaşı village near the road. 40°56'04.9"N/ 39°08'19.1"E	850-900 m
5	9.4.2016	Trabzon: Şalpazarı, Upper part of Ağırtaş village-1. 40°55'56,0"N/ 39°09'01.2"E	750-800 m
6	13.4.2016	Trabzon: Şalpazarı, opposite Fidanbaşı village rocky area. 40°54'57.09"N/ 39°09'07.07"E	1284-1300 m
7	13.4.2016	Trabzon: Şalpazarı, Upper part of Ağırtaş village-2. 40°55'13.09"N/ 39°09'20,0"E	1122-1200 m
8	13.4.2016	Trabzon: Şalpazarı, Between Fidanbaşı and Ağırtaş village. 40°56'35.01"N/ 39°10'11.08"E	370 m
9	18.4.2016	Trabzon: Şalpazarı, Kireçhane high plateau. 40°51'15.04"N/ 39°09'28.01"E	1525-1600 m
10	18.4.2016	Trabzon: Şalpazarı, Upper part of Şih kıranı village. 40°50'50.02"N/ 39°10'25.09"E	1405-1450 m
11	18.4.2016	Trabzon: Şalpazarı, Between Şih Kıranı and Geyikli 40°51'52.5"N/ 39°11'40.02"E	1198-1260 m
12	27.4.2016	Trabzon: Şalpazarı, Between Şih Kıranı and Acısu 40°52'07,0"N/ 39°11'40.2"E	1050 m
13	27.4.2016	Trabzon: Şalpazarı, Acısu village. 40°52'09,0"N/ 39°11'56,9"E	800 m
14	10.5.2016	Giresun: Görele, Sakarboğazı. 40°52'29.5"N/ 39°06'29.2"E	1900 m
15	10.5.2016	Giresun: Görele, Dokuzoluk high plateau. 40°52'49.7"N/ 39°06'11.8"E	1952-2000 m
16	25.5.2016	Giresun: Görele, Kayasis peak. 40°52'44.4"N/ 39°05'44.3"E	2142 m
17	25.5.2016	Trabzon: Şalpazarı, Simenli Village, upper part of Acısu village. 40°51'59.1"N/ 39°11'37.3"E	800-850 m

18	8.6.2016	Trabzon: Şalpaazarı, Geyikli village, Irsakköy-1. 40°52'52.3"N/ 39°11'30.4"E	915-950 m
19	8.6.2016	Trabzon: Şalpaazarı, Geyikli village, Yumurcaktaş.-1. 40°52'48.9"N/ 39°11'10.8"E	930 m
20	8.6.2016	Trabzon: Şalpaazarı, Geyikli village, Yumurcaktaş.-2 40°53'04.9"N/ 39°11'12.9"E	980 m
21	13.6.2016	Trabzon: Şalpaazarı, Geyikli village, Yumurcaktaş.-3. 40°53'11.8"N/ 39°11'26.4"E	880 m
22	13.6.2016	Trabzon: Şalpaazarı, Between Geyikli and Doğancı village. 40°53'19.3"N/ 39°11'51.4"E	693-700 m
23	22.6.2016	Trabzon: Şalpaazarı, Geyikli village, Irsakköy-2 40°52'38.7"N/ 39°11'27.3"E	977-1000 m
24	22.6.2016	Trabzon: Şalpaazarı, Geyikli village, Kelebezu. 40°52'44.6"N/ 39°11'08.4"E	1010 m
25	22.6.2016	Trabzon: Şalpaazarı, Geyikli village, Soğukmar. 40°52'28.9"N/ 39°11'14.8"E	1146 m
26	2.7.2016	Trabzon: Şalpaazarı, Geyikli village, Karaağaç -1. 40°53'24.4"N/ 39°11'35.1"E	790-824 m
27	2.7.2016	Trabzon: Şalpaazarı, Geyikli village, Karaağaç -2. 40°53'28.9"N/ 39°11'13.0"E	890-924 m
28	2.7.2016	Trabzon: Şalpaazarı, Geyikli village, Karaağaç -3. 40°53'39.9"N/ 39°11'11.0"E	848 m
29	2.7.2016	Trabzon: Şalpaazarı, Geyikli village, Belen.-1. 40°52'30.5"N/ 39°10'34.0"E	1240 m
30	13.7.2016	Trabzon: Şalpaazarı, Geyikli village, Belen-2. 40°51'53.3"N/ 39°10'40.4"E	1399 m
31	13.7.2016	Trabzon: Şalpaazarı, Geyikli village, Belen-3. 40°53'07.5" N/ 39°10'55.8"E	1100-1135 m
32	25.7.2016	Trabzon: Şalpaazarı, Geyikli village, Karaağaçlı bridge. 40°54'02.5"N/ 39°11'04.4"E	610 m
33	25.7.2016	Trabzon: Şalpaazarı, Geyikli village, Gültepe.-1. 40°53'43.5"N/ 39°10'37.5"E	780-800 m
34	25.7.2016	Trabzon: Şalpaazarı, Geyikli village, Yeşilyurt. 40°53'30.4"N/ 39°10'19.3"E	900-932 m
35	6.8.2016	Trabzon: Şalpaazarı, Geyikli village, Avuzbaşı-1. 40°52'44.9"K/ 39°10'16.1"D	889 m
36	6.8.2016	Trabzon: Şalpaazarı, Geyikli village, Avuzbaşı-2. 40°52'20.3"N/ 39°09'51.7"E	1007 m
37	6.8.2016	Trabzon: Şalpaazarı, Geyikli village, Gücükkeriş. 40°52'24.6"N/ 39°09'40.6"E	1118 m
38	6.8.2016	Trabzon: Şalpaazarı, Geyikli village, Ademmez. 40°52'46.8"N/ 39°10'05.0"E	983 m
39	12.8.2016	Trabzon: Şalpaazarı, Geyikli village, uzunevi. 40°53'13.8"N/ 39°10'08.1"E	950 m
40	12.8.2016	Trabzon: Şalpaazarı, Between Şih Kıranı and Gökçeköy village. 40°50'50.2"N/ 39°11'13.9"E	1000-1014 m
41	12.8.2016	Trabzon: Şalpaazarı, Şih Kıranı village, upper part of Kovanlık. 40°50'35.2"N/ 39°09'48.3"E	929 m
42	12.8.2016	Trabzon: Şalpaazarı, Enter the Çanakçı road, Muratboğa. 40°50'01.3"N/ 39°09'00.2"E	890 m
43	12.8.2016	Giresun: Görele, Eynesil high plateau. 40°51'57.6"N/ 39°07'21.0"E	1821 m
44	13.8.2016	Trabzon: Şalpaazarı, Sis mountain peak, Şalpaazarı side. 40°52'23.9"N/ 39°08'05.8"E	2025 m
45	13.8.2016	Trabzon: Şalpaazarı, Upper part of Kireçhane. 40°51'25.9"N/ 39°09'13.7"E	1609-1709 m
46	13.8.2016	Giresun: Görele, İnşidibi, Görele side-3.	1145 m

		40°55'18.3"N/ 39°07'25.8"E	
47	18.8.2016	Giresun: Görele, Upper part of İnişdibi, Görele side-4. 40°54'54.8"N/ 39°07'32.3"E	1300-1380 m
48	18.8.2016	Giresun: Görele, Upper part of İnişdibi, Görele side-5. 40°54'42.2"N/ 39°07'26.7"E	1452 m
49	18.8.2016	Giresun: Görele, Çamanlı high plateau. 40°54'07.4"N/ 39°07'39.8"E	1664 m
50	18.8.2016	Giresun: Görele, Örümcek high plateau. 40°52'49.7"N/ 39°07'51.8"E	1913-1950 m
51	23.8.2016	Giresun: Görele, Kayasis-1. 40°53'10.9"N/ 39°05'42.2"E	2088 m
52	23.8.2016	Giresun: Görele, Kayasis-2. 40°52'43.7"N/ 39°06'18.0"E	1950 m
53	23.8.2016	Giresun: Görele, Kayasis-3. 40°52'30.0"N/ 39°06'29.4"E	1900 m
54	27.8.2016	Giresun: Görele, Erkeksu high plateau. 40°53'45.9"N/ 39°08'18.0"E	1737 m
55	27.8.2016	Trabzon: Şalpaزاری, Geyikli village, Ademmez stream. 40°52'23.9"N/ 39°08'12.2"E	1030 m
56	27.8.2016	Trabzon: Şalpaزاری, Geyikli village, Gabalak-1. 40°53'12.6"N/ 39°09'35.6"E	1222-1250 m
57	28.8.2016	Trabzon: Şalpaزاری, Geyikli village, Gabalak-2. 40°53'23.9"N/ 39°09'27.8"E	1234 m
58	28.8.2016	Trabzon: Şalpaزاری, Geyikli village, Gabalak-3. 40°53'08.2"N/ 39°09'23.2"E	1325 m
59	28.8.2016	Trabzon: Şalpaزاری, Geyikli village, upper part of Gabalak. 40°53'30.0"N/ 39°09'20.4"E	1370 m
60	1.9.2016	Trabzon: Şalpaزاری, Pelitçukur high plateau. 40°53'34.8"N/ 39°08'40.0"E	1712 m
61	1.9.2016	Trabzon: Şalpaزاری, Geyikli village, Gültepe-2. 40°53'37.0"N/ 39°10'14.9"E	864 m
62	1.9.2016	Trabzon: Şalpaزاری, Geyikli village, Gültepe-3. 40°53'32.9"N/ 39°09'46.5"E	1048 m
63	1.9.2016	Trabzon: Şalpaزاری, Geyikli village, Gültepe-4. 40°54'09.2"N/ 39°10'46.0"E	869 m
64	3.8.2016	Trabzon: Şalpaزاری, Enter the Güdün village. 40°54'28.1"N/ 39°11'08.4"E	532 m
65	3.8.2016	Trabzon: Şalpaزاری, between Güdün and Pelitçik village. 40°54'32.2"N/ 39°10'35.7"E	663 m
66	6.9.2016	Trabzon: Şalpaزاری, Pelitçik village-1. 40°54'16.5"N/ 39°10'34"E	704 m
67	6.9.2016	Trabzon: Şalpaزاری, between Pelitçik and Geyikli village. 40°53'54.7"N/ 39°09'43.9"E	970 m
68	6.9.2016	Trabzon: Şalpaزاری, Pelitçik village-2. 40°54'21.1"N/ 39°09'30.6"E	1083-1090 m
69	6.9.2016	Trabzon: Şalpaزاری, Pelitçik village-3. 40°54'17.0"N/ 39°09'22.2"E	1140 m
70	6.9.2016	Trabzon: Şalpaزاری, Pelitçik village-4. 40°54'05.2"N/ 39°09'29.7"E	1201 m
71	10.9.2016	Trabzon: Şalpaزاری, Pelitçik village-5. 40°53'60.1"N/ 39°09'15"E	1300 m
72	10.9.2016	Trabzon: Şalpaزاری, Pelitçik village-6. 40°53'45.0"N/ 39°10'12.7"E	1410-1433 m
73	10.9.2016	Trabzon: Şalpaزاری, Güdün village-1. 40°54'45.0"N/ 39°10'13.2"E	669 m
74	10.9.2016	Trabzon: Şalpaزاری, Güdün village-2. 40°55'09.2"N/ 39°10'03.9"E	994 m

75	11.3.2017	Trabzon: Şalpaazarı, Dereköy village-1. 40°55'01.2"N/ 39°11'21.9"E	449 m
76	11.3.2017	Trabzon: Şalpaazarı, Dereköy village-2. 40°54'57.2"N/ 39°11'15.6"E	530 m
77	11.3.2017	Trabzon: Şalpaazarı, Dereköy village-3. 40°55'27.8"N/ 39°11'12.2"E	488 m
78	12.3.2017	Trabzon: Şalpaazarı, Dereköy village-4. 40°55'46.4"N/ 39°11'26.6"E	404 m
79	12.3.2017	Trabzon: Şalpaazarı, Kabasakal Köyü-1. 40°55'46.6"N/ 39°10'37.9"E	811 m
80	12.3.2017	Trabzon: Şalpaazarı, Tepebaşı village-1. 40°55'15.3"N/ 39°10'37.6"E	756 m
81	12.3.2017	Trabzon: Şalpaazarı, Tepebaşı village-2. 40°54'59.2"N/ 39°10'52.1"E	769 m
82	26.3.2017	Trabzon: Şalpaazarı, Tepebaşı village-3. 40°55'14.7"N/ 39°10'53.9"E	689 m
83	26.3.2017	Trabzon: Şalpaazarı, Tepebaşı village-4. 40°55'01.9"N/ 39°10'39.1"E	838 m
84	26.3.2017	Trabzon: Şalpaazarı, Kabasakal village-2. 40°56'01.9"N/ 39°10'47.0"E	747 m
85	7.4.2017	Trabzon: Şalpaazarı, Kabasakal village-3. 40°56'19.0"N/ 39°10'04.5"E	458 m
86	7.4.2017	Trabzon: Şalpaazarı, Kabasakal village-4. 40°56'03.1"N/ 39°09'53.8"E	573 m
87	7.4.2017	Trabzon: Şalpaazarı, Kabasakal village, Güney -1. 40°56'02.7"N/ 39°10'02.1"E	669 m
88	7.4.2017	Trabzon: Şalpaazarı, Kabasakal village, Güney-2. 40°55'51.6"N/ 39°10'23.8"E	774 m
89	7.4.2017	Trabzon: Şalpaazarı, Kabasakal village, Güney-3. 40°55'54.6"N/ 39°10'13.5"E	860-885 m
90	8.4.2017	Trabzon: Şalpaazarı, Şalpaazarı district centre. 40°56'27.9"N/ 39°10'58.0"E	371 m
91	8.4.2017	Trabzon: Şalpaazarı, Ağırtaş village-1. 40°56'15.0"N/ 39°09'52.0"E	585 m
92	8.4.2017	Trabzon: Şalpaazarı, Ağırtaş village-2. 40°56'23.7"N/ 39°09'43.4"E	622 m
93	8.4.2017	Trabzon: Şalpaazarı, Ağırtaş village-3. 40°56'07.6"N/ 39°09'29.1"E	791 m
94	17.4.2017	Trabzon: Şalpaazarı, Ağırtaş village, Şahin hill-1. 40°55'32.2"N/ 39°09'17.5"E	1003 m
95	17.4.2017	Trabzon: Şalpaazarı, Ağırtaş village-4. 40°55'54.9"N/ 39°09'32.3"E	760 m
96	17.4.2017	Trabzon: Şalpaazarı, Between Ağırtaş and Kabasakal village. 40°55'37.2"N/ 39°09'35.2"E	799 m
97	30.4.2017	Trabzon: Şalpaazarı, Ağırtaş village, Şahin hill-2 40°55'16.2"N/ 39°09'25.0"E	1095 m
98	30.4.2017	Trabzon: Şalpaazarı, Ağırtaş village, Şahin hill-3. 40°55'14.9"N/ 39°09'16.4"E	1064 m
99	30.4.2017	Trabzon: Şalpaazarı, Enter the Fidanbaşı village. 40°56'11.5"N/ 39°08'47.0"E	549 m
100	30.4.2017	Trabzon: Şalpaazarı, Fidanbaşı village Düz. 40°55'43.9"N/ 39°08'44.7"E	766 m
101	6.5.2017	Trabzon: Şalpaazarı, Fidanbaşı village, upper part of Düz. 40°55'25.1"N/ 39°08'50.0"E	902 m
102	6.5.2017	Trabzon: Şalpaazarı, Fidanbaşı village, near the mosque. 40°55'50.1"N/ 39°08'27.0"E	770 m
103	6.5.2017	Trabzon: Şalpaazarı, Between Fidanbaşı and Çetrik village.	676 m

		40°56'14.4"N/ 39°08'19.9"E	
104	6.5.2017	Trabzon: Şalpaزاری, Upper part of Fidanbaşı village. 40°55'36.6"N/ 39°08'06.7"E	965 m
105	7.5.2017	Trabzon: Şalpaزاری, Ağırtaş village, Şahin hill-4. 40°55'04.7"N/ 39°09'15.3"E	1128 m
106	7.5.2017	Trabzon: Şalpaزاری, Ağırtaş village, Şahin hill-5. 40°54'53.6"N/ 39°09'18.6"E	1269 m
107	7.5.2017	Trabzon: Şalpaزاری, Ağırtaş village, Şahin hill-6. 40°54'53.1"N/ 39°08'49.9"E	1310-1350 m
108	16.5.2017	Trabzon: Şalpaزاری, Geyikli village, Avuzbaşı-3 40°52'02.3"N/ 39°09'54.3"E	1114 m
109	16.5.2017	Giresun: Çanakçı, Road the Çanakçı, upper part of Çağlayan. 40°49'41.04"N/ 39°08'05.8"E,	888-920 m
110	16.5.2017	Giresun: Çanakçı, Road the Çanakçı, upper part of Düzköy village. 40°50'04.7"N/ 39°07'16.9"E	770-800 m
111	16.5.2017	Giresun: Çanakçı, Düzköy village. 40°51'27.4"N/ 39°06'12.9"E	780-800 m
112	17.5.2017	Giresun: Çanakçı, Deregözü village. 40°52'65.4"N/ 39°03'23.8"E	440-460 m
113	17.5.2017	Giresun: Çanakçı, Kuşköy village. 40°52'53.9"N/ 39°02'28.8"E	800-820 m
114	17.5.2017	Giresun: Çanakçı, Karabörk. 40°52'42.0"N/ 39°01'38.4"E	400-450 m
115	22.5.2017	Giresun: Çanakçı, Akköy village 40°54'01.04"N/ 39°00'47.62"E	300 m
116	22.5.2017	Giresun: Çanakçı, Sarayköy village. 40°54'24.85"N/ 39°01'15.88"E	344-310 m
117	22.5.2017	Giresun: Çanakçı, Yeşilköy village. 40°55'22.7"N/ 39°01'44.7"E	275-375 m
118	23.5.2017	Giresun: Görele, Beyazıt village-1. 40°56'38.1"N/ 39°07'35.8"E	605-630 m
119	23.5.2017	Giresun: Görele, Beyazıt village-2. 40°56'18.1"N/ 39°07'04.2"E	515-600 m
120	23.5.2017	Giresun: Görele, Çatakkırı village. 40°55'56.5"N/39°06'35.5"E	520-600 m
121	23.5.2017	Giresun: Görele, Çatakkırı village, Kilise hill. 40°56'42.8"N/ 39°05'53.2"E	730-783 m
122	3.6.2017	Trabzon: Şalpaزاری, Hanyanı, Kalpakkaya. 40°51'42.1"N/ 39°08'35.6"E	1800-1818 m
123	3.6.2017	Trabzon: Şalpaزاری, Hanyanı, Sandık lake. 40°51'26.8"N/ 39°08'10.8"E	1700-1752 m
124	3.6.2017	Giresun: Görele, Kayasis-4. 40°52'58.0"N/ 39°06'17.5"E	1845-1880 m.
125	3.6.2017	Giresun: Görele, Between Ambarlı and Yeşildere-1. 40°54'13.9"N/ 39°05'00.9"E	490 m
126	15.6.2017	Giresun: Görele, Between Ambarlı and Yeşildere -2. 40°54'14.3"N/ 39°05'31.9"E	1600-1615 m
127	15.6.2017	Giresun: Görele, Between Ambarlı and Yeşildere-3. 40°54'02.7"N/ 39°05'30.3"E	1700-1722 m
128	15.6.2017	Giresun: Görele, Ambarlı high plateau. 40°53'43.5"N/ 39°05'21.0"E	1800-1812 m
129	20.6.2017	Giresun: Görele, Bakıralanı high plateau. 40°52'27.4"N/ 39°06'52.7"E	1900-1916 m
130	20.6.2017	Trabzon: Şalpaزاری, Süleymanu. 40°53'37.1"N/ 39°11'32.8"E	635 m
131	20.6.2017	Trabzon: Şalpaزاری, Lower part of Geyikli village. 40°54'10.1"N/ 39°11'10.8"E	545 m

132	3.7.2017	Trabzon: Şalpaazarı, Lower part of Dereköy village, near the road. 40°55'19.5"N/ 39°11'23.9"E	381 m
133	3.6.2017	Trabzon: Şalpaazarı, Lower part of Güdün village, road the near. 40°54'31.8"N/ 39°11'09.3"E	519 m
134	3.7.2017	Trabzon: Şalpaazarı, Upper part of Şahin hill-1. 40°54'25.4"N/ 39°08'46.1"E	1487 m
135	16.7.2017	Trabzon: Şalpaazarı, Upper part of Şahin hill -2. 40°54'30.4"N/ 39°08'08.6"E	1539 m
136	16.7.2017	Giresun: Görele, Kurtini high plateau. 40°53'29.5"N/ 39°06'05.0"E	1790 m
137	5.8.2017	Giresun: Görele, Lower part-1 of Bakıralan high plateau. 40°53'00.8"N/ 39°06'30.7"E	1700 m
138	5.8.2017	Giresun: Görele, Lower part-2 of Bakıralan high plateau. 40°52'43.1"N/ 39°06'41.8"E	1744 m
139	3.9.2017	Giresun: Şalpaazarı, Güdün village-3. 40°54'51.4"N/ 39°10'05.3"E	767 m
140	3.9.2017	Giresun: Görele, Örumcek high plateau-2. 40°52'30.7"N/ 39°07'55.2"E	1890-1914 m
141	3.9.2017	Trabzon: Şalpaazarı, Sis mountain peak-2, Şalpaazarı side. 40°52'07.2"N/ 39°07'54.1"E	1920 m

3. Results and Discussion

3.1. Results

As a result of the study, 54 liverwort taxa (belonging to 22 families and 30 genera), 273 moss taxa (belonging to 39 families and 106 genera) and a total of 327 bryophyte taxa (belonging to 61 families and 136 genera) were determined. The largest numbers of liverwort species were found in the family Scapaniaceae (12), Lophocoleaceae (5), Lepidoziaceae (4), Jungermanniaceae (4), Calypogeiaceae (3), Plagiochilaceae (3), Porellaceae (3). Following is the family, Pelliaceae, Radulaceae, Frullaniaceae, Metzgeriaceae, Cephaloziellaceae, each having two taxa. Finally, the others family, Ptilidiaceae, Trichocoleaceae, Cephalozieaceae, Arnelliaceae, Marchantiaceae, Blasiaceae, Jubulaceae, Lejeuneaceae, Aneuraceae and Conocephaleaceae were represented by one taxon. In case of mosses, they are represented by 106 genera and 273 taxa. The family Brachytheciaceae, having 30 mosses taxa, is the richest one, and followed by Pottiaceae (27), Grimmiaceae (27), Bryaceae (20), Hypnaceae (18), Amblystegiaceae (15), Mniaceae (12), Dicranaceae (12), Orthotrichaceae (11), Leucobryaceae (8), Bartramiaceae (8), Hylocomiaceae (7), Polytrichaceae (7), Rhabdoweisiaceae (7), Fissidentaceae (6), Thuidiaceae (6), Plagiotheciaceae (5), Mielichhoferiaceae (5), Sphagnaceae (4), Leskeaceae (4), Neckeraceae (4), Anomodontaceae (3), Encalyptaceae (3), and Cinclidiaceae (3). On the other hand, families of Leucodontaceae, Ditrichaceae, Hedwigiaceae, Pterygynandraceae and Entodonaceae have got two taxa. Finally only one taxon was found in the families of

Tetraphidaceae, Aulacomniaceae, Climaciaceae, Diphysciaceae, Fontinalaceae, Funariaceae, Hookeriaceae, Lembophyllaceae, Pylaisiadelphaceae, Rhytidiaceae, Scorpidiaceae.

Bryofloristic list

Liverworts (Marchantiophyta)

Blasiaceae H. Klinggr.

##*Blasia pusilla* L. – Loc.:97; WS; Erata 1.

Conocephaleaceae Müll. Frib. Ex Grolle

Conocephalum conicum (L.) Dumort. – Loc.:2, 3, 4, 5, 6, 8, 13, 17, 19, 22, 23, 24, 26, 27, 32, 34, 36, 38, 46, 48, 50, 54, 57, 58, 61, 62, 63, 64, 65, 66, 67, 68, 69, 71, 72, 73, 74, 75, 79, 80, 81, 82, 83, 84, 85, 88, 89, 90, 91, 92, 96, 100, 103, 107, 108, 109, 110, 111, 112, 114, 115, 116, 117, 118, 119, 120, 131, 134, 137, 139, 141; WR; Erata 2.

Marchantiaceae Lindl.

Marchantia polymorpha L. – Loc.:22, 64, 68, 75, 82, 92, 96, 97, 113, 119, 133; WS, WR; Erata 3.

Pelliaceae H. Klinggr.

Pellia endiviifolia (Dicks.) Dumort. – Loc.:1, 8, 47, 50, 60, 61, 65, 69, 96, 105, 111, 123, 124, 129; WS; Erata 4.

P. epiphylla (L.) Corda – Loc.: 2, 6, 15, 23, 27, 32, 41, 46, 48, 52, 60, 64, 68, 71, 76, 79, 83, 85, 87, 88, 92, 100, 109, 110, 113, 114, 118, 119, 124, 125, 129, 137, 140; WS; Erata 5.

Jungermanniaceae Rchb.

+*Mylia taylorii* (Hook.) Gray. – Loc.: 54; WS; Erata 6.

#*Jungermannia atrovirens* Dumort. – Loc.: 14, 35, 47, 50, 60, 114, 120, 136, 137; S, R; Erata 7.

+*J. gracillima* Sm. – Loc.: 35, 47, 50; WS, NS; Erata 8.

+*J. sphaerocarpa* Hook. – Loc.: 15, 140. WS, WR; Erata 9.

Calypogeiaceae Arnell

Calypogeia arguta Nees et Mont. – Loc.: 1; S,R; Erata 10.

#*Calypogeia fissa* (L.) Raddi– Loc.: 10, 23, 39, 50. WS; Erata 11.

##*Calypogeia muelleriana* (Schiffn.) Müll. Frib. – Loc.: 1, 10, 136; WS; Erata 12.

Cephalozieaceae Mig.

###*Cephalozia bicuspidata* (L.) Dumort. – Loc.: 58, 111; WS; Erata 13.

Cephalozieaceae Douin

+*Cephalozia dentata* (Raddi.) Steph. – Loc.: 42, 105; S; Erata 14.

C. divericata (Sm.) Schiffn. – Loc.: 59; WS; Erata 15.

Lophocoleaceae Vanden Berghen

Chiloscyphus pallescens (Ehrh. ex Hoffm.) Dumort. – Loc.: 17, 24. WS, NS; Erata 16.

#*C. polyanthos* (L.) Corda– Loc.: 8, 39, 40, 48, 50, 60, 64, 72, 77, 84, 99, 108, 112, 122, 124, 131, 137; WS, NS; Erata 17.

Lophocolea bidentata (L.) Dumort– Loc.: 97, 104, 105, 115, 117; R; Erata 18.

L. heterophylla (Schrad.) Dumort. – Loc.: 46 56, 66, 78, 86, 88, 97, 105, 119, 120, 124; TB; Erata 19.

L. minor Nees. – Loc.: 12, 24; TB; Erata 20.

Scapaniaceae Mig.

###*Barbilophozia barbata* (Schmidel ex Schreb.) Loeske– Loc.: 1, 2, 3, 9, 13, 15, 35, 52, 55, 67, 69, 94, 97, 101, 119, 141; S, R; Erata 21.

###*B. hatcheri* (A. Evans) Loeske– Loc.: 3, 140; R; Erata 22.

#*Diplophyllum albicans* (L.) Dumort. – Loc.: 2, 10, 17, 18, 40, 69, 109, 111, 125; S, DTT; Erata 23.

#*D. taxifolium* (Wahlenb) Dumort. – Loc.: 2, 3, 14, 15, 35, 51, 52, 53, 72, 119, 124, 129; WS, R; Erata 24.

+*Gymnocolea inflata* (Huds.) Dumort. – Loc.: 14, 52, 53; WS, WR; Erata 25.

#*Lophozia incisa* (Schrad.) Dumort. – Loc.: 125; WS; Erata 26.

+*L. longidens* (Lindb.) Macoun – Loc.: 114; WR; Erata 27.

###*L. ventricosa* (Dicks.) Dumort. – Loc.: 3, 4; WS, TB; Erata 28.

#*Scapania compacta* (Roth) Dumort. – Loc.: 138; S, R; Erata 29.

###*S. irrigua* (Ness) Ness– Loc.: 13, 39, 50, 52, 60, 69; WS, WR; Erata 30.

#*S. nemorea* (L.) Grolle – Loc.: 2, 13, 35, 110, 114, 115, 117, 119, 120; WS, WR; Erata 31.

S. undulata (L.) Dumort. – Loc.: 2, 14, 15, 50, 119, 141; WR, NS; Erata 32.

Arnelliaceae Nakai

+*Southbya tophacea* (Spruce) Spruce– Loc.: 56, 134; S, R; Erata 33.

Plagiochilaceae Müll. Frib.

Pedinophyllum interruptum (Nees) – Loc.: 1, 57; WS, WR; Erata 34.

#*Plagiochila asplenioides* (L. emend. Taylor) Dumort. – Loc.: 2, 13, 17, 20, 23, 32, 34, 35, 45, 48, 49, 54, 56, 58, 64, 67, 69, 72, 93, 98, 110, 114, 119, 120, 123, 124, 125, 127, 131, 133, 134, 140; S, R, DTT; Erata 35.

P. porelloides (Torrey ex Nees) Lindenb– Loc.: 1, 2, 6, 8, 9, 10, 12, 13, 18, 19, 24, 27, 32, 33, 38, 39, 46, 48, 49, 64, 65, 66, 67, 68, 69, 74, 75, 82, 86, 98, 99, 101, 105, 107, 108, 109, 110, 112, 114, 118, 119, 124, 125, 130, 133, 135, 136, 138; S, R; Erata 36.

Trichocoleaceae Nakai

Trichocolea tomentalla (Ehrh.) Dumort. – Loc.: 67, 105; NR, WS; Erata 37.

Lepidoziaceae Limpr.

##*Lepidozia reptans* (L.) Dumort. – Loc.: 10; WR; Erata 38.

#*Bazzania flaccida* (Dumort.) Grolle– Loc.: 2, 109; R, TB; ERata 39.

#*B. tricrenata* (Wahlenb) Lindb. – Loc.: 2, 109, 125; R, TB; Erata 40.

B. trilobata (L.) S. F. Gray. – Loc.: 114; R, TB; Erata 41.

Ptilidiaceae H. Klinggr.

Ptilidium pulcherrimum (Weber) Vain. – Loc.: 3, 10, 45; WR; Erata 42.

Porellaceae Cavers

#*Porella arboris-vitae* (With.) Grolle– Loc.: 110; R; Erata 43.

Porella cordaeana (Huebener) Moore– Loc.: 20, 21, 25, 26, 93, 102, 123, 131; R; Erata 44.

#*P. platyphylla* (L.) Pfeiff. – Loc.: 9, 11, 33, 38, 57, 73, 94, 112, 122, 124, 132; R; Erata 45.

Radulaceae Müll. Frib.

#*Radula complanata* (L.) Dumort. – Loc.: 2, 12, 13, 17, 19, 28, 29, 30, 37, 47, 54, 70, 76, 97, 110, 119, 120, 125, 127, 131, 139, 141; R; Erata 46.

#*R. lindenberiana* Gottsche ex C. Hartm. – Loc.: 1, 3, 4, 9, 10, 13, 40, 48, 52, 56, 59, 61, 73, 74, 79, 80, 84, 86, 91, 96, 104, 107, 109, 112, 113, 119, 120, 122, 125; R; Erata 47.

Frullaniaceae Lorch

#*Frullania dilatata* (L.) Dumort. – Loc.: 13, 17, 76, 78, 82, 88, 107, 120, 121; TB; Erata 48.

F. tamarisci (L.) Dumort. – Loc.: 1, 24, 74, 84, 98, 102, 109, 110, 111, 114, 115, 116, 117, 119, 120; R; Erata 49.

Jubulaceae H. Klinggr.

#*Jubula hutchinsiae* (Hook.) Dumort. subsp. *caucasica* Konstant. & Vilnet – Loc.: 2, 109; NS, WR; Erata 50.

Lejeuneaceae Casares-Gil

Lejeunea cavifolia (Ehrh.) Lindb. – Loc.: 2, 60, 114, 123; R, TB; Erata 51.

Aneuraceae H. Klinggr.

+*Riccardia multifida* (L.) Gray. – Loc.: 125, 140; NS, WR; Erata 52.

Metzgeriaceae H. Klinggr.

#*Metzgeria conjugata* Lindb. – Loc.: 2, 97, 24, 109, 110, 111, 114, 116, 117, 119, 120; R, TB; Erata 53.

M. furcata (L.) Dumort. – Loc.: 2, 12, 26, 33, 61, 62, 65, 80, 84, 85, 86, 88, 109, 110, 112, 114, 115, 116, 117, 118, 119, 130, 132; R, TB; Erata 54.

Mosses (Bryophyta)

Sphagnaceae Dumort.

Sphagnum centrale C.E.O. Jensen – Loc.: 124, 129; NS, WS; Erata 55.

#*S. fuscum* (Schimp.) H. Klinggr. – Loc.: 136. NS, WS; Erata 56.

#*S. inundatum* Russow – Loc.: 52. WS; Erata 57.

#*S. subsecundum* Nees – Loc.: 136.; NS, WS; Erata 58.

Tetraphidaceae Schimp.

#*Tetraphis pellucida* Hedw. – Loc.: 18, 39, 40, 48, 125; DTT; Erata 59.

Polytrichaceae Schwagr.

Atrichum undulatum (Hedw.) P. Beauv. – Loc.: 2, 4, 10, 12, 13, 17, 18, 22, 23, 25, 26, 27, 31, 34, 37, 39, 40, 42, 43, 46, 47, 55, 57, 59, 60, 61, 63, 67, 68, 69, 71, 72, 73, 74, 80, 83, 84, 85, 87, 88, 89, 92, 96, 97, 98, 99, 103, 104, 105, 106, 107, 109, 110, 111, 112, 113, 114, 115, 116, 117, 119, 120, 121, 126, 131; WS; Erata 60.

Pogonatum aloides (Hedw.) P. Beauv. – Loc.: 6, 10, 17, 23, 27, 37, 47, 52, 111, 137; S; Erata 61.

P. urnigerum (Hedw.) P. Beauv. – Loc.: 1, 2, 3, 6, 7, 35, 39, 40, 45, 49, 52, 54, 56, 57, 58, 59, 62, 67, 68, 69, 93, 94, 97, 98, 101, 104, 106, 107, 114, 115, 116, 117, 119, 122, 125, 126, 128, 129, 134, 135, 140; S, R; Erata 62.

Polytrichum commune Hedw. – Loc.: 1, 2, 3, 4, 6, 10, 13, 14, 17, 18, 19, 22, 25, 29, 30, 31, 35, 37, 39, 42, 49, 50, 52, 61, 109, 111, 114, 127; S; Erata 63.

P. formosum Hedw. – Loc.: 1, 2, 4, 6, 14, 15, 35, 43, 45, 46, 48, 49, 50, 53, 55, 56, 69, 70, 72, 74, 98, 102, 107, 109, 111, 120, 126, 127, 136, 137; S; Erata 64.

P. juniperinum Hedw. – Loc.: 4, 17, 18, 38, 39, 42, 44, 49, 52, 72, 123, 124, 125, 129, 135; S; Erata 65.

#*P. piliferum* Hedw. – Loc.: 3, 9, 10, 15, 16, 42, 51, 52, 111; S; Erata 66.

Diphysciaceae M. Fleisch.

##*Diphyscium foliosum* (Hedw.) D. Mohr. – Loc.: 1; S; Erata 67.

Encalyptaceae Schimp.

##*Encalypta ciliata* Hedw. – Loc.: 122, R; Erata 68.

E. streptocarpa Hedw. – Loc.: 13, 24, 34, 75, 79, 92, 102, 110, 112, 113, 118, 130; R; Erata 69.

E. vulgaris Hedw. – Loc.: 44; S; Erata 70.

Funariaceae Schwagr.

Funaria hygrometrica Hedw. – Loc.: 4, 46, 68, 83, 100, 104, 132; S; Erata 71.

Grimmiaceae Arn.

#*Grimmia anodon* Bruch & Schimp. – Loc.: 14, 16, 51, 76; R; Erata 72.

#*G. dissimulata* E. Maier – Loc.: 1, 9, 14, 16, 20, 23, 25, 31, 61, 102, 110, 111, 114, 120, 122, 132, 136, 138, 140; R; Erata 73.

G. donniana Sm. – Loc.: 65; R; Erata 74.

G. elongata Kaulf. – Loc.: 15, 51, 72, 106, 107, 114, 116, 117, 125; R; Erata 75.

G. hartmannii Schimp. – Loc.: 2, 3, 5, 9, 13, 16, 20, 26, 35, 49, 57, 59, 94, 109, 113, 119, 122, 129, 139, 140; R; Erata 76.

###*G. lisae* De Not. – Loc.: 2, 9, 10, 33, 44, 52, 110, 119; R; Erata 77.

###*G. longirostris* Hook. – Loc.: 57, 110; R; Erata 78.

###*G. montana* Bruch & Schimp. – Loc.: 44, 50; R; Erata 79.

###*G. muehlenbeckii* Schimp. – Loc.: 1, 54, 56, 62, 67, 69, 70, 89, 93, 94, 101, 105, 108, 123, 125, 130, 137; R; Erata 80.

G. ovalis (Hedw.) Lindb. – Loc.: 9, 16, 26, 55, 57, 59, 78, 80, 122, 123, 130, 141; R; Erata 81.

G. pulvinata (Hedw.) Sm. – Loc.: 9, 44, 90; R; Erata 82.

###*Racomitrium aciculare* (Hedw.) Brid. – Loc.: 1, 3, 36, 37, 60, 67, 69, 71, 110, 140, 141; S; Erata 83.

#*R. affine* (F. Weber & D. Mohr) Lindb. – Loc.: 14, 17, 31, 47, 51, 53, 69, 128, 137; R; Erata 84.

R. aquaticum (Brid. ex Schrad.) Brid. – Loc.: 1, 3, 6, 15, 69, 107, 109, 111, 114, 115, 116, 117, 123, 126, 127, 138; R; Erata 85.

R. canescens (Hedw.) Brid. – Loc.: 3, 6, 10, 17, 22, 35, 43, 44, 45, 49, 50, 52, 54, 106, 111, 114, 122, 127, 129, 135, 136, 140, 141; R; Erata 86.

###*R. elongatum* Ehrh. ex Frisvoll – Loc.: 1, 6, 22, 25, 49, 59, 107, 111, 122, 138; R; Erata 87.

#*R. ericoides* (Brid.) – Loc.: 14, 15, 16, 45, 47, 53, 56, 57, 60, 128, 129, 137; R; Erata 88.

R. heterostichum (Hedw.) Brid. – Loc.: 6, 10, 14, 49, 52, 57, 69, 98, 106, 114, 124, 127, 128, 129; R; Erata 89.

###*R. macounii* subsp. *alpinum* (E. Lawton) Frisvoll – Loc.: 57; R; Erata 90.

#*R. macounii* Kindb. subsp. *macounii* – Loc.: 136, 137; R; Erata 91.

#*R. sudeticum* (Funck) Bruch & Schimp. – Loc.: 15, 93, 138, 140, 141; R; Erata 92.

Schistidium apocarpum (Hedw.) Bruch & Schimp. – Loc.: 2, 3, 8, 10, 11, 12, 13, 18, 19, 22, 23, 24, 29, 30, 31, 32, 37, 39, 41, 42, 43, 46, 49, 50, 55, 56, 60, 62, 65, 67, 70, 71, 74, 75, 77, 78, 79, 83, 84, 86, 87, 90, 91, 95, 96, 97, 98, 99, 101, 104, 105, 106, 107, 109, 110, 112, 114, 115, 116, 117, 119, 121, 122, 130, 135; R; Erata 93.

###*S. confertum* (Funck) Bruch & Schimp. – Loc.: 9, 55, 83, 102, 130; R; Erata 94.

###*S. crassipilum* H.H.Blom – Loc.: 12, 26, 29, 38, 41, 58, 64, 65, 75, 76, 93, 95, 100, 103, 122, 129, 130; R; Erata 95.

S. elegantulum H.H.Blom – Loc.: 9, 11, 12, 58, 90, 94, 100; R; Erata 96.

#*S. papillosum* Culm. – Loc.: 1, 3, 6, 8, 10, 11, 24, 27, 44, 46, 49, 55, 72, 93, 94, 108, 111, 115, 116, 121; R; Erata 97.

S. trichodon (Brid.) Poelt – Loc.: 9, 20, 75, 93, 99, 110, 117, 119; R; Erata 98.

Rhabdoweisiaceae Limpr.

###*Dichodontium palustre* (Dicks.) M. Stech – Loc.: 43, 45, 48, 49, 50, 60, 64, 67, 101, 102, 124, 136, 137, 140; S; Erata 99.

#*D. pellucidum* (Hedw.) Schimp. – Loc.: 2, 4, 6, 8, 24, 27, 28, 29, 30, 31, 34, 36, 38, 39, 46, 48, 49, 58, 61, 66, 68, 73, 79, 84, 86, 87, 88, 90, 92, 96, 97, 99, 105, 106, 109, 110, 113, 114, 115, 116, 117, 118, 119, 121, 131, 136, 137, 139; S; Erata 100.

Dicranoweisia cirrata (Hedw.) Lindb. – Loc.: 1, 44, 90, 114; S; Erata 101.

#*Cynodontium polycarpon* (Hedw.) Schimp. – Loc.: 3, 18, 42, 50; R; Erata 102.

###*C. jenneri* (Schimp.) Stirt. – Loc.: 10, 35; R; Erata 103.

###*Hymenoloma compactum* (Schwägr.) Ochyra – Loc.: 1; S; Erata 104.

H. crispulum (Hedw.) Ochyra – Loc.: 16, 44, 46, 51, 127, 141; S; Erata 105.

Ditrichaceae Limpr.

#*Ceratodon purpureus* (Hedw.) Brid. – Loc.: 2, 4, 6, 9, 10, 14, 15, 20, 22, 36, 42, 43, 45, 53, 56, 57, 58, 59, 60, 93, 104, 106, 107, 111, 122, 126, 129, 135, 141; S, R; Erata 106.

+*Pleurozium acuminatum* Lindb. – Loc.: 111; S; Erata 107.

Dicranaceae Schimp.

Dicranella heteromalla (Hedw.) Schimp. – Loc.: 10, 15, 17, 37, 39, 40, 47, 48, 51, 52, 54, 68, 76, 106, 107, 118, 134, 137; S; Erata 108.

#*D. rufescens* (Dicks.) Schimp. – Loc.: 1, 40, 43, 47, 50, 134; NS, WS; Erata 109.

D. varia (Hedw.) Schimp. – Loc.: 51; WS; Erata 110.

#*Dicranum bonjeanii* De Not. – Loc.: 25, 127; WS; Erata 111.

+*D. brevifolium* (Lindb.) Lindb. – Loc.: 16, 44; S, R; Erata 112.

#*D. fulvum* Hook. – Loc.: 51, 52, 140; S; Erata 113.

D. majus Turner. – Loc.: 69, 137; S; Erata 114.

D. polysetum Sw. ex anon. – Loc.: 14; S; Erata 115.

#*D. scoparium* Hedw. – Loc.: 1, 2, 3, 5, 6, 10, 13, 14, 15, 17, 18, 19, 20, 26, 32, 35, 36, 39, 40, 41, 44, 45, 48, 50, 51, 53, 54, 56, 58, 59, 60, 69, 71, 78, 97, 98, 105, 106, 107, 109, 110, 111, 114, 120, 122, 123, 124, 125, 127, 128, 132, 134, 136, 137, 138; R, DTT; Erata 116.

###*D. spadiceum* J.E.Zetterst. – Loc.: 141; R; Erata 117.

+*Kiaeria starkei* (F. Weber & D. Mohr) I. Hagen – Loc.: 2, 10, 115, 116, 117, 119; S; Erata 118.

###*Paraleucobryum nerve* (Thed.) Loeske – Loc.: 58; S, R; Erata 119.

P. longifolium (Ehrh. ex Hedw.) Loeske – Loc.: 42; S; Erata 120.

Leucobryaceae Schimp.

###*Dicranodontium asperulum* (Mitt.) Broth – Loc.: 72; S; Erata 121.

#*D. denudatum* (Brid.) E. Britton – Loc.: 125; DTT; Erata 122.

###*Campylopus brevipilus* Bruch & Schimp. – Loc.: 107, 125, 136; WS; Erata 123.

###*C. flexuosus* (Hedw.) Brid. – Loc.: 10, 15, 18, 40, 46, 52, 111, 122, 125, 129, 135, 138; WS, WR; Erata 124.

C. fragilis (Brid.) Bruch & Schimp – Loc.: 1; WS; Erata 125.

###*C. pyriformis* (Schultz) Brid. – Loc.: 3, 14, 25, 40, 44, 69, 109, 111, 112, 114, 122, 124, 128; S; Erata 126.

Leucobryum glaucum (Hedw.) Ångstr – Loc.: 3, 41, 61, 111, 114, 134; DTT; Erata 127.

#*L. juniperoideum* (Brid.) Müll. Hal. – Loc.: 1, 2, 3, 6, 10, 14, 25, 31, 40, 41, 69, 108, 109, 110, 111, 114, 120, 135; WS, DTT; Erata 128.

Fissidentaceae Schimp.

Fissidens adianthoides Hedw. – Loc.: 2, 10, 12, 17, 19, 27, 41, 83, 109, 110, 112, 114, 115, 116, 117, 119, 120; WS; Erata 129.

F. bryoides Hedw. – Loc.: 11, 23; WR; Erata 130.

F. dubius P. Beauv. – Loc.: 1, 36, 41, 69, 70, 71, 97, 125, 134, 127; WS, WR; Erata 131.

###*F. osmundoides* Hedw. – Loc.: 23, 27, 31, 37, 38, 109, 119; WS; Erata 132.

#*F. taxifolius* Hedw. ssp. *taxifolius* – Loc.: 1; WS; Erata 133.

+*F. taxifolius* subsp. *pallidicaulis* (Mitt.) Mönk. – Loc.: 1, 11, 17, 18, 32, 35, 40, 42, 61, 69, 72, 75, 83, 84, 90, 96, 97, 110, 112, 113, 118, 120, 121, 130, 139; WS; Erata 134.

Pottiaceae Schimp.

Anoetangium aestivum (Hedw.) Mitt. – Loc.: 1, 2, 3, 5, 9, 12, 13, 18, 21, 24, 31, 34, 35, 37, 56, 67, 69, 70, 71, 72, 74, 97, 98, 105, 108, 109, 110, 112,

114, 115, 116, 117, 118, 119, 120, 122, 125; WS; Erata 135.
Barbula convoluta Hedw. – Loc.: 9, 10, 14, 26, 41, 64, 96; S; Erata 136.
B. unguiculata Hedw. – Loc.: 4, 9, 11, 12, 20, 21, 23, 24, 25, 26, 27, 31, 32, 33, 34, 36, 37, 38, 41, 48, 61, 62, 63, 73, 74, 75, 76, 77, 78, 82, 83, 84, 89, 91, 92, 95, 96, 100, 102, 103, 112, 113, 115, 116, 117, 121, 130, 132, 133; S; Erata 137.
 ###*Bryoerythrophyllum ferruginascens* (Stirt.) Giacom. – Loc.: 82, 83, 110; WS, WR; Erata 138.
B. recurvirostrum (Hedw.) P.C. Chen – Loc.: 9, 34; R; Erata 139.
Didymodon acutus (Brid.) K.Saito– Loc.: 95; S; Erata 140.
D. ferrugineus (Schimp. ex Besch.) M.O.Hill – Loc.: 5, 8, 19, 34, 35, 59, 91, 92, 106, 119, 131; S, R; Erata 141.
 ##*D. glaucus* Ryan – Loc.: 55, 91; S, R; Erata 142.
D. insularis (De Not.) M.O. Hill – Loc.: 100; S; Erata 143.
 ##*D. nicholsonii* Culm. – Loc.: 23, 99, 141; S; Erata 144.
D. rigidulus Hedw. – Loc.: 9, 29, 30, 62, 75, 78, 94, 130; R; Erata 145.
D. tophaceus (Brid.) Lisa– Loc.: 32, 110; R; Erata 146.
D. vinealis (Brid.) R.H.Zander– Loc.: 9, 13, 23, 26, 34, 39, 40, 85, 132; R; Erata 147.
Gymnostomum aeruginosum Sm. – Loc.: 36, 41, 111, 119; WS; Erata 148.
G. calcareum Nees & Hornsch – Loc. 36, 73, 77, 133; S; Erata 149.
 ##*Syntrichia montana* Nees– Loc.: 9, 24, 26, 38, 122; S; Erata 150.
S. ruralis (Hedw.) F. Weber & D. Mohr – Loc.: 43; R; Erata 151.
Tortella fragilis (Hook. & Wilson) Limpr. – Loc.: 2, 17, 39, 70, 71, 106; S, R; Erata 152.
T. squarrosa (Brid.) Limpr. – Loc.: 8, 64, 78, 132; S, R; Erata 153.
T. tortuosa (Hedw.) Limpr. – Loc.: 1, 5, 9, 10, 12, 17, 19, 20, 25, 34, 41, 42, 44, 48, 49, 50, 54, 56, 59, 60, 64, 65, 70, 71, 72, 79, 94, 97, 98, 99, 106, 107, 109, 110, 112, 114, 115, 117, 118, 120, 121, 122, 123, 126, 130, 139, 141; S, R; Erata 154.
 #*Tortula canescens* Mont. – Loc.: 95; S; Erata 155.
 ###*T. marginata* (Bruch & Schimp.) Spruce – Loc.: 17, 80, 88, 91, 100, 104, 121, 122; S; Erata 156.
T. muralis Hedw.– Loc.: 90; S; Erata 157.
 ##*T. subulata* Hedw. – Loc.: 2, 4, 9, 12, 13, 17, 18, 22, 23, 27, 29, 30, 59, 62, 94, 95, 96, 101, 122; S; Erata 158.
Trichostomum brachydontium Bruch – Loc.: 64; S; Erata 159.

#*Weissia controversa* Hedw. – Loc.: 1, 10, 12, 18, 23, 31, 37, 56, 59, 74, 92, 94, 96, 110, 114; S; Erata 160.
W. rutilans (Hedw.) Lindb. – Loc.: 5, 41, 63, 64; S; Erata 161.
Orthotrichaceae Arn.
 ###*Lewinskya acuminata* (H.Philib.) F.Lara, Garilleti & Goffinet – Loc.: 11, 94, 96, 100; R, TB; Erata 162.
L. affinis (Schrad. ex Brid.) F.Lara, Garilleti & Goffinet – Loc.: 44; R, TB; Erata 163.
L. rupestris (Schleich. Ex Schwägr.) F.Lara, Garilleti & Goffinet– Loc.: 21, 44, 132; R, TB; Erata 164.
L. speciosa (Nees) F.Lara, Garilleti & Goffinet – Loc.: 4, 70, 76, 78, 83, 88, 89, 90, 97; TB; Erata 165.
 ##*L. striata* (Hedw.) F.Lara, Garilleti & Goffinet – Loc.: 78, 93, 95, 104; TB; Erata 166.
Nyholmia obtusifolia (Brid.) Holmen & E.Warncke – Loc.: 38; TB; Erata 167.
 #*Orthotrichum pallens* Bruch ex Brid. – Loc.: 24, 29, 30, 33, 73, 104, 123; R, TB; Erata 168.
 ###*O. pulchellum* Brunt. – Loc.: 4, 12, 38, 84, 89, 121; TB; Erata 169.
 ##*O. pumilum* Sw. ex anon. – Loc.: 91; TB; Erata 170.
 ##*Pulvigerella lyellii* (Hook. & Taylor) Plášek, Sawicki & Ochyra – Loc.: 22, 27; TB; Erata 171.
Ulota crispa (Hedw.) Brid. – Loc.: 1, 4, 11, 13, 25, 27, 32, 33, 34, 35, 37, 40, 46, 47, 57, 62, 68, 65, 70, 72, 73, 76, 79, 84, 86, 92, 93, 94, 96, 97, 99, 102, 104, 119, 120, 121, 131, 139; TB; Erata 172.
Hedwigiaceae Schimp.
Hedwigia ciliata (Hedw.) P.Beauv. var. *ciliata*– Loc.: 9, 21, 24, 26, 33, 35, 37, 51, 55, 56, 62, 75, 102, 111, 114, 115, 116, 117, 119, 122, 132, 133; S, R; Erata 173.
 ##*H. ciliata* var. *leucophaea* Bruch & Schimp. – Loc.: 9, 20, 21, 35, 36, 38, 44, 55, 56, 57, 78, 93, 101, 102, 107, 108, 115, 116, 117, 122; R; Erata 174.
Aulacomniaceae Schimp.
 #*Aulacomnium palustre* (Hedw.) Schwägr. – Loc.: 129; DTT; Erata 175.
Bartramiaceae Schwagr.
 #*Bartramia halleriana* Hedw. – Loc.: 19, 69, 72, 107, 124, 137; WR; Erata 176.
 ###*Philonotis caespitosa* Jur. – Loc.: 2, 4, 6, 48, 50, 62, 64, 68, 70, 71, 73, 80, 83, 91, 95, 96, 102, 103, 106, 109, 113, 118, 119, 122, 124, 126, 129, 135; WS; Erata 177.
 #*P. calcarea* (Bruch & Schimp.) Schimp. – Loc.: 124; Erata 178.
P. capillaris Lindb. – Loc.: 4, 40, 83, 123, 139; S; Erata 179.
P. fontana (Hedw.) Brid. – Loc.: 1, 2, 3, 6, 9, 14, 15, 43, 45, 46, 49, 52, 53, 54, 58, 60, 64, 69, 71,

72, 79, 105, 110, 111, 113, 124, 129, 134, 135, 136, 137, 138, 140, 141; S, R, NS; Erata 180.
#P. marchica (Hedw.) Brid. – Loc.: 6, 23, 55, 75, 82, 112; WS; ERATA 181.
##P. seriata Mitt. – Loc.: 48, 135; WS; Erata 182.
P. tomentella Molendo – Loc.: 48, 65, 71, 77, 94, 96, 127, 132, 134; S, R, NS; Erata 183.
Bryaceae Schwagr.
Bryum argenteum Hedw. – Loc.: 4, 9, 38, 49, 57, 59, 62, 64, 74, 76; S, R; Erata 184.
B. dichotomum Hedw. – Loc.: 58, 60, 71, 90; S; Erata 186.
##B. elegans Nees – Loc.: 10, 49, 122; S; Erata 174.
###B. gemmilucens R.Wilczek&Demaret– Loc.: 4, 16, 20, 101; S, R; Erata 187.
##B. gemmiparum De Not. – Loc.: 77, 96, 119; WS; Erata 188.
##B. klinggraeffii Schimp. – Loc.: 105; S; Erata 189.
#B. pallescens Schleich. ex Schwägr. – Loc.: 50, 109; S; Erata 190.
#B. schleicheri DC. – Loc.: 48, 49, 50, 58, 106, 123, 124, 134, 138, 141; WS, NS; Erata 191.
Imbricbryum alpinum (Huds. ex With.) N. Pedersen– Loc.: 9, 10, 42, 46, 58, 87, 100, 103, 122, 123, 136; S; Erata 192.
I. mildeanum (Jur.) J.R. Spence– Loc.: 3, 6, 8, 9, 10, 20, 21, 29, 30, 31, 35, 36, 40, 47, 49, 55, 56, 62, 64, 70, 73, 74, 106, 107, 141; S; Erata 193.
Ptychostomum archangelicum (Bruch & Schimp.) J.R. Spence – Loc.: 4, 9, 15, 37; S; Erata 194.
#P. capillare (Hedw.) Holyoak & N. Pedersen– Loc.: 2, 4, 8, 9, 12, 13, 17, 18, 22, 24, 27, 32, 35, 38, 43, 49, 56, 57, 58, 59, 62, 63, 70, 71, 74, 75, 77, 78, 79, 82, 83, 84, 87, 90, 91, 92, 93, 94, 95, 96, 99, 100, 101, 102, 104, 107, 110, 112, 115, 116, 117, 118, 121, 135, 138; S, R; Erata 195.
P. donianum (Grev.) Holyoak & N. Pedersen – Loc.: 64; WR; Erata 196.
#P. imbricatulum (Müll. Hal.) Holyoak & N. Pedersen – Loc.: 12, 27, 55, 62, 64, 96, 100, 131, 138; S, R; Erata 197.
P. moravicum (Podp.) Ros & Mazimpaka– Loc.: 4, 5, 9, 10, 12, 15, 17, 18, 20, 22, 24, 27, 26, 29, 30, 31, 38, 49, 50, 59, 77, 83, 87, 88, 94, 97, 102, 107, 109, 119, 122, 126, 135; S, TB; Erata 198.
P. pallens (Sw.) J.R. Spence – Loc.: 1, 12, 14, 46, 122; NS, S; Erata 199.
P. pseudotriquetrum (Hedw.) J.R. Spence & H.P. Ramsay var. *pseudotriquetrum* – Loc.: 2, 6, 9, 10, 15, 20, 36, 41, 46, 49, 52, 54, 59, 60, 62, 63, 67, 69, 70, 71, 72, 75, 83, 87, 90, 96, 98, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 119, 122, 123, 124, 125, 126, 129, 134, 135, 136, 137, 138, 141; NS, WS; Erata 200.
P. pseudotriquetrum var. *bimum* (Schreb.) Holyoak & N. Pedersen– Loc.: 45, 46, 48, 69, 71,

108, 115, 116, 117, 125, 134, 135, 138; NS, WS; Erata 201.
#Rhodobryum ontariense (Kindb.) Kindb. – Loc.: 47; S; Erata 202.
R. roseum (Hedw.) Limpr. – Loc.: 2, 6, 45, 54, 60, 69, 71, 72, 81, 91, 108, 135; S; Erata 203.
Mielichhoferiaceae Schimp.
***Pohlia camptotrachela* (Renauld & Cardot) Broth. – Loc.: 60; S; Erata 204.
#P. cruda (Hedw.) Lindb. – Loc.: 8, 24, 65, 120; WS; Erata 205.
###P. longicolla (Hedw.) Lindb. – Loc.: 14, 31, 137; WS; Erata 206.
###P. nutans (Hedw.) Lindb. – Loc.: 3, 8, 10, 14, 31, 48, 49, 53, 59, 112, 126, 128; WS; Erata 207.
#P. wahlenbergii (F.Weber & D.Mohr) A.L.Andrews – Loc.: 11, 53, 67, 83, 90, 97, 105, 126, 131; WS; Erata 208.
Mniaceae Schwagr.
###Mnium lycopodioides Schwägr. – Loc.:82, 111, 120, 139; WS; Erata 209.
M. spinosum (Voit) Schwägr. – Loc.: 45, 127; WS; ERata 210.
M. spinulosum Bruch & Schimp. – Loc.: 29, 32, 87, 88, 92, 131; WS; Erata 211.
M. stellare Hedw. – Loc.: 5, 8, 75, 76, 77, 78, 80, 95, 119; S, R; Erata 212.
###M. thomsonii Schimp. – Loc.: 2, 80, 100, 103, 105, 108, 109, 110, 115, 116, 117, 119; S; Erata 213.
Plagiomnium affine (Blandow ex Funck) T.J.Kop. – Loc.: 27, 35, 45, 47, 88; WS; Erata 214.
P. cuspidatum (Hedw.) T.J.Kop. – Loc.: 4, 13, 18, 26, 37, 38, 89, 91, 111, 119, 120; S, R; Erata 215.
P. elatum (Bruch & Schimp.) T.J. Kop. – Loc.: 2, 3, 6, 18, 23, 29, 30, 47, 49, 65, 67, 75, 82, 87, 97, 112, 114; WS; Erata 216.
P. ellipticum (Brid.) T.J.Kop. – Loc.: 2, 5, 17, 29, 30, 32, 45, 49, 55, 56, 58, 62, 64, 68, 73, 77, 81, 84, 85, 86, 88, 90, 94, 96, 98, 99, 100, 101, 110, 114, 115, 116, 117, 118, 119, 120, 123, 130, 133, 138, 139, 140; WS; Erata 217.
#P. medium (Bruch & Schimp.) T.J.Kop. – Loc.: 1, 11, 45, 57, 59, 65, 73, 81, 84, 94, 102, 104, 108, 118, 125, 132, 133; WS; Erata 218.
P. rostratum (Schrad.) T.J.Kop. – Loc.: 57, 58, 62, 80, 96, 97, 105, 112, 118, 139; WS; Erata 219.
P. undulatum (Hedw.) T.J.Kop. – Loc.: 2, 5, 7, 8, 11, 13, 15, 17, 19, 23, 24, 25, 26, 28, 33, 34, 35, 36, 38, 39, 45, 48, 56, 61, 63, 64, 66, 67, 68, 69, 73, 75, 76, 77, 79, 81, 82, 83, 86, 88, 89, 92, 93, 94, 95, 97, 98, 99, 100, 102, 103, 105, 108, 110, 112, 114, 115, 116, 117, 118, 119, 120, 131, 132, 133; S, R; Erata 220.
Cinclidaceae Kindb.
##Rhizomnium magnifolium (Horik.) T.J.Kop. – Loc.: 17, 57, 79, 80, 86; WS; Erata 221.

+*R. pseudopunctatum* (Bruch & Schimp.) T.J. Kop. – Loc.: 15, 134, 136, 141; WS; Erata 222.

R. punctatum (Bruch & Schimp.) T.J.Kop. – Loc.: 2, 6, 10, 19, 45, 49, 54, 60, 66, 67, 70, 71, 72, 82, 83, 105, 108, 109, 110, 114, 119, 122, 124, 126, 127, 130, 134, 136, 137, 138; WS; Erata 223.

Hookeriaceae Schimp.

#*Hookeria acutifolia* W. J. Hooker & Greville. – Loc.: 2, 71, 108, 110, 125, 127; WS, NS; Erata 224.

Thuidiaceae Schimp.

Abietinella abietina (Hedw.) M.Fleisch. var. *abietina* – Loc.: 1, 10, 26, 42, 75, 106, 107, 111, 122; S; Erata 225.

#*A. abietina* var. *hystricosa* (Mitt.) Sakurai. – Loc.: 16, 20, 38, 43, 49, 50, 54, 57, 59, 63, 65, 66, 78, 93, 94, 95; S; Erata 226.

#*Thuidium assimile* (Mitt.) A.Jaeger. – Loc.: 1, 2, 3, 5, 7, 10, 11, 17, 18, 25, 29, 30, 31, 33, 35, 36, 37, 47, 55, 57, 60, 75, 78, 83, 87, 89, 90, 92, 94, 95, 99, 100, 103, 104, 114, 115, 116, 117, 119, 121, 126, 130, 132, 133; WS; Erata 227.

T. delicatulum (Hedw.) Schimp. – Loc.: 2, 13, 22, 25, 26, 34, 40, 46, 61, 69, 74, 86, 111, 121; WS; Erata 228.

###*T. recognitum* (Hedw.) Lindb. – Loc.: 1, 2, 71, 75, 110, 111, 115, 117, 120; WS; Erata 229.

T. tamariscinum (Hedw.) Schimp. – Loc.: 2, 3, 4, 10, 13, 20, 22, 26, 28, 31, 34, 37, 38, 39, 43, 46, 48, 49, 54, 56, 61, 68, 70, 71, 74, 77, 85, 94, 96, 97, 98, 101, 102, 105, 106, 108, 112, 115, 116, 117, 118, 120, 123, 125, 135; WS; Erata 230.

Neckeraceae Schimp.

#*Alleniella besserii* (Lobarz.) S. Olsson, Enroth & D. Quandt – Loc.: 12, 20, 26, 76, 86, 94, 110, 112; R; Erata 231.

#*Alleniella complanata* (Hedw.) S.Olsson, Enroth & D.Quandt – Loc.: 18, 19, 22, 23, 26, 34, 41, 65, 66, 67, 75, 81, 86, 109, 110, 112, 123, 130, 132, 133; R, TB; Erata 232.

#*Exsertotheca crispa* (Hedw.) S. Olsson, Enroth & D. Quandt – Loc.: 74, 109, 110, 114, 130, 133; R, TB; Erata 233.

Thamnobryum alopecurum (Hedw.) Gangulee – Loc.: 2, 17, 23, 24, 25, 26, 32, 39, 64, 66, 81, 86, 94, 98, 102, 108, 109, 110, 111, 114, 118, 119, 120, 131, 139; WS, WR; Erata 234.

Amblystegiaceae Kindb.

Amblystegium serpens (Hedw.) Schimp. – Loc.: 32, 33, 34, 63, 73, 74, 82, 89, 94, 100, 133; WS, DTT; Erata 235.

Campyliadelphus chrysophyllus (Brid.) R.S.Chopra – Loc.: 9, 12, 22, 42; WS, WR; Erata 236.

###*Campylium protensum* (Brid.) Kindb. – Loc.: 1, 9, 36, 40, 106, 129, 134; WS; Erata 237.

Cratoneuron filicinum (Hedw.) Spruce – Loc.: 9, 11, 13, 19, 24, 29, 30, 40, 55, 59, 73, 75, 77, 80, 100, 105, 110, 113, 119; WS, WR; Erata 238.

Drepanocladus aduncus (Hedw.) Warnst. – Loc.: 43; WS, NS; Erata 239.

+*D. polygamus* (Schimp.) Hedenäs – Loc.: 63; WS; Erata 240.

##*Hygroamblystegium fluviatile* (Hedw.) Loeske – Loc.: 80, 95, 133, 141; WS, NS; Erata 241.

H. tenax (Hedw.) Jenn. – Loc.: 2, 11, 33, 57, 100, 120; WS; Erata 242.

H. varium (Hedw.) Mönk. – Loc.: 2, 41, 57, 74, 75, 78, 91, 110, 131; WS; Erata 243.

###*Hygrohypnum duriusculum* (De Not.) D.W.Jamieson – Loc.: 70, 76, 83, 86, 88, 91, 104, 112, 123, 138; WS, NS; Erata 244.

###*H. luridum* (Hedw.) Jenn. – Loc.: 2, 8, 118, 130; WS, NS; Erata 245.

+*H. ochraceum* (Turner ex Wilson) Loeske – Loc.: 2, 8, 14, 52, 53, 141; WS, NS; Erata 246.

Pseudoamblystegium subtile (Hedw.) Vanderp. & Hedenäs – Loc.: 39, 97, 130, 131; TB; Erata 247.

Sanionia uncinata (Hedw.) Loeske – Loc.: 3, 9, 47, 49, 54, 126, 135, 138; DTT; Erata 248.

Serpoleskea confervoides (Brid.) Kartt. – Loc.: 1; WR; Erata 249.

Anomodontaceae Kindb.

Anomodon attenuatus (Hedw.) Huebener – Loc.: 5, 8, 11, 12, 13, 19, 22, 29, 30, 34, 35, 38, 41, 75, 76, 79, 86, 87, 88, 89, 93, 95, 100, 103, 104, 108, 109, 110, 112, 113, 118, 120, 122, 130, 131, 132; S, R; Erata 250.

A. rugelii (Müll. Hal.) Keissl. – Loc.: 12, 22, 24, 26, 31, 33, 39, 77, 114, 133, 135; S, R; Erata 251.

A. viticulosus (Hedw.) Hook. & Taylor – Loc.: 5, 11, 24, 25, 26, 61, 73, 74, 75, 76, 77, 78, 80, 81, 82, 83, 86, 91, 94, 102, 104, 110, 119, 125, 130, 132, 139; S, R; Erata 252.

Leucodontaceae Schimp.

#*Antitrichia curtispindula* (Hedw.) Brid. – Loc.: 138; R; Erata 253.

Leucodon sciuroides (Hedw.) Schwägr. – Loc.: 1, 2, 5, 8, 9, 10, 11, 12, 13, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 47, 55, 57, 59, 61, 62, 63, 65, 66, 72, 73, 74, 75, 76, 78, 79, 80, 81, 82, 83, 88, 89, 90, 91, 93, 94, 95, 99, 100, 101, 102, 104, 112, 114, 119, 121, 122, 130, 131, 132, 133; R, TB; Erata 254.

Brachytheciaceae Schimp.

#*Brachytheciastrum velutinum* (Hedw.) Ignatov & Huttunen – Loc.: 1, 8, 9, 12, 18, 27, 47, 50, 65, 79, 80, 84, 87, 89, 90, 91, 94, 106, 119; DTT; Erata 255.

Brachythecium albicans (Hedw.) Schimp. – Loc.: 5, 7, 8, 9, 11, 12, 14, 15, 16, 19, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 37, 38, 42, 43, 47, 49, 51, 57, 59, 60, 62, 63, 67, 70, 73, 74, 80, 81, 82, 84, 85,

- 88, 92, 94, 95, 96, 97, 99, 100, 101, 102, 103, 108, 119, 121, 125, 131, 132, 138; S; Erata 256.
- B. campestre* (Müll.Hal.) Schimp. – Loc.: 3, 17, 18, 28, 31, 32, 37, 38, 57, 90, 103; WS; Erata 257.
- B. glareosum* (Bruch ex Spruce) Schimp. – Loc.: 8, 24, 25, 29, 34, 78, 91, 99, 104, 139; S; Erata 258.
- B. laetum* (Brid.) Schimp. – Loc.: 1; S; Erata 259.
- B. mildeanum* (Schimp.) Schimp. Ex Milde – Loc.: 1, 3, 11, 18, 29, 30, 34, 41, 49, 63, 68, 75, 76, 82, 88, 92, 95, 99, 101, 105, 119; WS; Erata 260.
- B. rivulare* Schimp. – Loc.: 1, 2, 3, 4, 6, 7, 8, 11, 13, 23, 24, 25, 27, 28, 29, 30, 34, 35, 36, 43, 45, 46, 48, 49, 50, 52, 54, 56, 57, 58, 59, 60, 62, 65, 66, 67, 69, 70, 71, 72, 73, 75, 78, 79, 81, 85, 89, 90, 91, 92, 95, 96, 97, 98, 99, 101, 104, 105, 106, 107, 108, 109, 111, 115, 116, 117, 118, 123, 124, 125, 127, 130, 131, 132, 133, 134, 135, 137, 138, 140; WS, NS; Erata 261.
- B. rutabulum* (Hedw.) Schimp. – Loc.: 4, 5, 6, 8, 11, 13, 18, 19, 27, 28, 29, 30, 32, 33, 38, 39, 60, 62, 66, 67, 68, 77, 79, 81, 82, 83, 84, 85, 86, 87, 88, 89, 92, 94, 96, 99, 101, 102, 103, 104, 115, 116, 117, 119, 131; WS, NS; Erata 262.
- B. salebrosum* (Hoffm. ex F. Weber & D. Mohr) Schimp. – Loc.: 27, 70, 75, 84, 96, 99, 105, 107, 118, 133 S, R; Erata 263.
- Cirriphyllum piliferum* (Hedw.) Grout. – Loc.: 87, 91; S, R; Erata 264.
- #Eurhynchium angustirete* (Broth.) T.J.Kop. – Loc.: 1, 17, 18, 19, 24, 34, 41, 54, 108, 110, 125; S; Erata 265.
- E. striatum* (Hedw.) Schimp. – Loc.: 1, 8, 12, 13, 19, 23, 27, 38, 39, 54, 56, 61, 63, 64, 66, 68, 71, 75, 77, 81, 84, 85, 89, 99, 100, 102, 110, 115, 116, 117, 118, 119, 120, 125, 130, 134, 139; S, R; Erata 266.
- Homalothecium lutescens* (Hedw.) H.Rob. – Loc.: 19, 20, 78, 80, 94, 122; S, R; Erata 267.
- H. philippeanum* (Spruce) Schimp– Loc.: 9, 80, 119; S, R; Erata 268.
- H. sericeum* (Hedw.) Schimp. – Loc.: 5, 12, 25, 26, 78, 91, 109; S, R; Erata 269.
- Oxyrrhynchium hians* (Hedw.) Loeske – Loc.: 2, 4, 5, 7, 11, 18, 19, 23, 24, 25, 32, 34, 36, 37, 39, 41, 57, 61, 62, 63, 65, 66, 67, 69, 72, 73, 77, 79, 82, 83, 85, 86, 89, 90, 91, 96, 98, 100, 103, 105, 108, 118, 132, 139; S, R; Erata 270.
- #O. schleicheri* (R.Hedw.) Röhl – Loc.: 68, 100, 103, 119; S; Erata 271.
- O. speciosum* (Brid.) Warnst. – Loc.: 8, 13, 17, 19, 64, 68, 96, 110, 111, 112, 114, 119, 141; S; Erata 272.
- #Palamocladium euchloron* (Müll.Hal.) Wijk & Margad. – Loc.: 5, 13, 24, 32, 35, 64, 66, 75, 76, 77, 78, 79, 81, 82, 87, 109, 112, 115, 117, 119, 131, 132, 133; R; Erata 273.
- Plasteurhynchium striatulum* (Spruce) M. Fleisch. – Loc.: 11, 17, 23, 45, 75, 80, 86, 88, 91, 92, 109; R; Erata 274.
- Pseudoscleropodium purum* (Hedw.) M.Fleisch. – Loc.: 3, 6, 8, 12, 26, 27, 65, 69, 92, 93, 95, 97, 98, 99, 102, 115, 116, 117, 121; S, R; Erata 275.
- Rhynchostegiella tenella* (Dicks.) Limpr. – Loc.: 95, 105; S; Erata 276.
- Rhynchostegium confertum* (Dicks.) Schimp. – Loc.: 1, 13, 67, 76, 87, 95, 130; R; Erata 277.
- ##R. megapolitanum* (Blandow ex F.Weber & D.Mohr) Schimp. – Loc.: 65, 67; WS; Erata 278.
- ##R. murale* (Hedw.) Schimp. – Loc.: 17; WS; Erata 279.
- R. riparioides* (Hedw.) Cardo– Loc.: 4, 37, 41, 55, 81, 87, 111, 113, 114, 118, 119, 120; WR, NS; Erata 280.
- R. rotundifolium* (Scop. ex Brid.) Schimp. – Loc.: 18; WR; Erata 281.
- #Sciuro-hypnum flotowianum* (Sendtn.) Ignatov & Huttunen – Loc.: 1, 5, 6, 8, 9, 10, 13, 18, 22, 23, 24, 25, 27, 28, 33, 37, 38, 41, 54, 57, 65, 70, 72, 73, 74, 75, 76, 77, 79, 81, 82, 85, 89, 94, 99, 102, 103, 105, 109, 110, 114, 119, 130, 131, 135; S; Erata 282.
- S. plumosum* (Hedw.) Ignatov & Huttunen – Loc.: 3, 6, 9, 28, 34, 35, 36, 49, 68, 75, 85, 86, 100, 114, 115, 116, 117; S; Erata 283.
- S. populeum* (Hedw.) Ignatov & Huttunen – Loc.: 2, 3, 4, 5, 8, 9, 11, 13, 18, 19, 22, 23, 24, 26, 27, 28, 31, 32, 33, 34, 35, 36, 37, 38, 39, 42, 47, 52, 54, 55, 56, 61, 69, 70, 71, 72, 75, 76, 79, 80, 87, 90, 94, 96, 97, 102, 104, 113, 115, 116, 117, 118, 119, 121, 135, 141; S; Erata 284.
- Hypnaceae** Schimp.
- Calliargonella cuspidata* (Hedw.) Loeske – Loc.: 4, 8, 9, 11, 22, 25, 35, 38, 43, 49, 57, 58, 60, 62, 66, 67, 69, 71, 75, 83, 87, 92, 93, 96, 97, 100, 102, 104, 106, 107, 108, 115, 116, 117, 118, 119, 121, 130, 133; WS, NS; Erata 285.
- ##C. lindbergii* (Mitt.) Hedenäs – Loc.: 6, 7, 11, 25, 29, 30, 36, 37, 43, 46, 47, 49, 50, 54, 60, 70, 71, 83, 96, 97, 98, 103, 115, 116, 117, 121, 122, 130, 133, 134, 136, 141; WS, NS; Erata 286.
- ##Homomallium incurvatum* (Schrad. ex Brid.) Loeske – Loc.: 68; WR; Erata 287.
- ##Hyocomium armoricum* (Brid.) Wijk & Margad. – Loc.: 32; WR, NS; Erata 288.
- #Hypnum andoi* A.J.E.Sm – Loc.: 1, 3, 8, 9, 18, 20, 26, 35, 39, 40, 42, 44, 45, 49, 68, 70, 72, 78, 80, 82, 89, 93, 100, 102, 106, 111, 114, 115, 116, 117, 119, 120, 122; R, TB; Erata 289.
- #H. bambergeri* Schimp. – Loc.: 114, 116, 117, 119; R; Erata 290.
- H. callichroum* Brid. – Loc.: 1, 94, 139; WR, TB; Erata 291.
- H. cupressiforme* var. *cupressiforme* Hedw. – Loc.: 16, 17, 18, 19, 21, 26, 28, 33, 34, 36, 40, 45,

55, 57, 58, 62, 63, 65, 73, 74, 77, 79, 80, 82, 84, 90, 94, 99, 102, 108, 112, 123; S, R; Erata 292.

H. cupressiforme var. *filiforme* Brid. – Loc.: 3, 5, 6, 12, 20, 26, 29, 30, 31, 32, 33, 36, 37, 38, 41, 42, 44, 47, 57, 59, 64, 65, 69, 73, 89, 91, 93, 94, 100, 101, 102, 103, 104, 108, 111, 115, 116, 117, 121, 122, 130; S, TB; Erata 293.

H. cupressiforme var. *lacunosum* Brid. – Loc.: 4, 8, 10, 16, 20, 31, 35, 37, 39, 42, 57, 62, 63, 76, 109, 110, 111, 114; S, R; Erata 294.

###*H. cupressiforme* var. *resupinatum* (Taylor) Schimp. – Loc.: 3, 4, 9, 13, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 39, 42, 50, 55, 104, 109; S, TB; Erata 295.

##*H. imponens* Hedw. – Loc.: 57; S; 294; Erata 296.

#*H. jutlandicum* Holmen & E.Warncke – Loc.: 4, 8, 21, 22, 33, 37, 39, 42, 49, 55, 58, 59, 98, 101, 106, 107, 111, 114, 115, 117, 121, 138; S; Erata 297.

##*H. recurvatum* (Lindb. & Arnell) Kindb. – Loc.: 17, 26, 29, 30, 33, 60, 69, 84; R; Erata 298.

H. revolutum (Mitt.) Lindb. – Loc.: 1, 4, 5, 10, 12, 13, 18, 21, 22, 24, 27, 35, 36, 38, 56, 78, 93, 94, 95, 98, 99, 102, 107, 109, 110, 111, 114, 115, 116, 117, 118, 119, 120, 132, 133; R; Erata 299.

#*H. vaucheri* Lesq. – Loc.: 3, 26, 114; S; Erata 300.

+*Pseudotaxiphyllum elegans* (Brid.) Z. Iwats. – Loc.: 25, 72, 103; S; Erata 301.

#*Pyloisia polyantha* (Hedw.) Schimp. – Loc.: 1, 27, 58, 62, 99, 109; TB; Erata 302.

Climaciaceae Kindb.

Climacium dendroides (Hedw.) F. Weber & D. Mohr. – Loc.: 49, 50, 54, 60, 106, 141; WS; Erata 303.

Entodonaceae Kindb.

#*Entodon concinnus* (De Not.) Paris – Loc.: 1, 7, 8, 13, 17, 20, 21, 26, 29, 30, 31, 32, 33, 36, 37, 38, 55, 57, 60, 63, 65, 75, 78, 79, 82, 92, 93, 94, 95, 97, 98, 101, 115, 116, 117, 119, 121, 130, 132; S, R; Erata 304.

#*E. schleicheri* (Schimp.) Demet. – Loc.: 1, 12, 21, 31, 37, 61, 65, 73, 74, 91, 100, 119, 133; S, R; Erata 305.

Fontinalaceae Schimp.

##*Fontinalis antipyretica* Hedw. – Loc.: 123; SM; Erata 306.

Pterigynandraceae Schimp.

#*Heterocladium dimorphum* (Brid.) Schimp. – Loc.: 51; R; Erata 307.

#*Pterigynandrum filiforme* Hedw. – Loc.: 10, 16, 29, 30, 38, 41, 44, 47, 72, 94, 122; R, TB; Erata 308.

Plagiotheciaceae (Broth.) M.Fleisch.

Plagiothecium cavifolium (Brid.) Z. Iwats. – Loc.: 2, 4, 9, 10, 13, 15, 19, 23, 25, 34, 41, 43, 49, 57, 60, 65, 75, 82, 83, 84, 85, 86, 88, 97, 100, 102,

103, 106, 108, 110, 111, 114, 118, 119, 120, 126, 135; WS; Erata 309.

##*P. denticulatum* (Hedw.) Schimp. – Loc.: 10, 68, 70, 71, 108; WS; Erata 310.

#*P. laetum* Schimp. – Loc.: 4, 5, 35, 45, 54, 84, 86, 120, 125; WS; Erata 311.

P. nemorale (Mitt.) A.Jaeger – Loc.: 1; WS; Erata 312.

P. succulentum (Wilson) Lindb. – Loc.: 72, 105, 136, 140; WS; Erata 313.

Lembophyllaceae Broth.

Isothecium alopecuroides (Lam. ex Dubois) Isov. – Loc.: 2, 3, 5, 9, 10, 12, 13, 15, 16, 17, 19, 20, 23, 25, 26, 27, 29, 30, 31, 34, 35, 39, 40, 41, 42, 45, 49, 52, 53, 54, 56, 58, 59, 65, 68, 69, 79, 80, 82, 83, 84, 86, 91, 93, 94, 95, 97, 98, 103, 105, 107, 109, 110, 114, 119, 122, 125, 127, 128, 129, 131, 134, 135, 137, 141; S, TB; Erata 314.

Leskeaceae schimp.

###*Lescuraea mutabilis* (Brid.) Lindb. ex I. Hagen – Loc.: 3, 9, 14, 24, 35, 47, 49, 50, 51, 53, 125, 128, 129, 137; TB; Erata 315.

#*Pseudoleskea incurvata* (Hedw.) Loeske – Loc.: 9, 14, 16, 127, 137; R; Erata 316.

Pseudoleskeella nervosa (Brid.) Nyholm – Loc.: 1, 10, 11, 12, 19, 21, 23, 25, 28, 29, 30, 33, 37, 39, 47, 55, 57, 68, 79, 80, 81, 91, 95, 101, 104, 137, 138; R; Erata 317.

+*P. tectorum* (Funck ex Brid.) Kindb. ex Broth. – Loc.: 46; TB; Erata 318.

Hylocomiaceae M. Fleisch.

Ctenidium molluscum (Hedw.) Mitt. – Loc.: 1, 2, 3, 5, 6, 8, 10, 11, 13, 14, 17, 18, 19, 23, 24, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40, 41, 45, 46, 51, 52, 53, 54, 61, 65, 67, 68, 70, 71, 72, 74, 76, 77, 78, 79, 81, 83, 84, 85, 86, 87, 88, 91, 95, 96, 97, 98, 99, 100, 102, 105, 107, 108, 109, 110, 111, 112, 114, 115, 116, 117, 118, 119, 120, 121, 125, 127, 130, 133, 134, 137, 138, 140; S, R; Erata 319.

Hylocomiastrum pyrenaicum (Spruce) M. Fleisch. – Loc.: 52; R; Erata 320.

Hylocomium splendens (Hedw.) Schimp. – Loc.: 6, 15, 27, 45, 51, 58, 128, 136, 140, 141; S; Erata 321.

Pleurozium schreberi (Brid.) Mitt. – Loc.: 3, 10, 14, 15, 16, 17, 25, 44, 45, 49, 50, 53, 54, 56, 106, 107, 123, 124, 127, 128, 129, 136; S; Erata 322.

##*Rhytidadelphus squarrosus* (Hedw.) Warnst. – Loc.: 15, 35, 47, 120; S; Erata 323.

#*R. subpinnatus* (Lindb.) T.J. Kop. – Loc.: 1, 3, 7, 46, 94, 97, 101, 105, 119, 121, 127; S; Erata 324.

R. triquetrus (Hedw.) Warnst. – Loc.: 1, 3, 6, 7, 8, 27, 50, 92, 95, 97, 98, 105, 107, 124, 136, 140, 141; S; Erata 325.

Pylaisiadelphaceae Goffinet & W. R. Buck

Platygyrium repens (Brid.) Schimp. – Loc.: 1, 9, 15, 18, 34, 35, 41, 50, 61, 62, 80, 84, 86, 9, 93, 96,

99, 103, 104, 109, 111, 119, 120, 133, 135; TB; Erata 326.

Rhytidiaceae Broth.

#*Rhytidium rugosum* (Ehrh. ex Hedw.) Kindb. – Loc.: 1, 16, 17, 20, 21, 22, 26, 42, 44, 59, 74, 110, 114, 123; S; Erata 327.

3.2. Discussion

We were determined 327 taxa (species, subspecies and varieties) belonging to 61 families and 136 genera Bryophyta. Furthermore, *Pohlia camptotrachela* are recorded for the second time in Turkey.



Figure 2. *Pohlia camptotrachela*: a) Habit, b,d) Leaves, c) Upper part of leaf, e) Apex of leaf, f) Leaf margin, g-i) Bulbils.

Pohlia camptotrachela small, yellowish and not glossy. Bulbils globose, in axils of leaves. Its leaves lanceolate to acuminate, margins generally entire and denticulate at apex. Costa, extending at the apex or percurrent. Cells, elongate-hexagonal in the median of leaves, and upper part of leaves shortly vermicular (Figure 2).

Turkish specimens collected Trabzon province, Şalpazarı district, Sis Mountain Pelitliçukur high plateau, on soil, 40°53'34.8"N, 39°08'40,0"D, 1712 m, in alpine meadow and *Rhododendron* sp. shrub, 01 September 2016.

Pohlia camptotrachela has been so far known report without collection data and locality from Turkey (Çetin 1988; Uyar and Çetin, 2004; Hazer, 2010; Ros et al., 2013). For the first time, this

species is given with its locality from East Blacksea region (Turkey).

Pohlia camptotrachela is reported from Europe North to Fennoscandia; Sweden, Faroe Islands, Finland, Norway, Ireland, Bosnia Herzegovina, Spain, France, Montenegro, Portugal, Madeira, Serbia, Azores, Western North America (Smith, 2004; Uyar and Çetin, 2004; Kürschner and Frey, 2011; Ros et al., 2013; Hodgetts, 2015). The most common genera of liverworts are *Scapania* (4), *Jungermannia* (3), *Calypogeia* (3), *Lophocolea* (3), *Lophozia* (3), *Bazzania* (3) and *Porella* (3) in the study area. The most common genera of mosses are *Hypnum* (12), *Grimmia* (11), *Racomitrium* (10), *Bryum* (8), *Didymodon* (8), *Ptychostomum* (8), *Brachythecium* (8), *Philonotis* (7), *Plagiommium* (7), *Dicranum* (7), *Fissidens* (6), and *Schistidium* (6) in the study area.

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