

MOSESSES OF SURROUNDINGS OF ALAKURTTII SETTLEMENT AND KUTSA NATURE RESERVE (MURMANSK PROVINCE, NORTH-WEST RUSSIA)

МХИ ОКРЕСТНОСТЕЙ ПОСЕЛКА АЛАКУРТТИ И ПРИРОДНОГО ЗАКАЗНИКА КУТСА (МУРМАНСКАЯ ОБЛАСТЬ, СЕВЕРО-ЗАПАД РОССИИ)

TATJANA P. DRUGOVA¹, OLGA A. BELKINA¹ & ALEXEY YU. LIKHACHEV¹

ТАТЬЯНА П. ДРУГОВА, ОЛЬГА А. БЕЛКИНА¹, АЛЕКСЕЙ Ю. ЛИХАЧЕВ¹

Abstract

The list of mosses of surroundings of Alakurtti Settlement and Kutsa Nature Reserve was compiled and contain 337 species. The list is based on identification of moss collection made in expedition in 1986 and includes also literature records and herbarium collections from KPABG. Data on habitats and substrates are provided. 37 rare in Murmansk Province mosses were found on investigated area.

Резюме

Приводится список мхов окрестностей поселка Алакуртти и природного заказника Кутса. Он основан на определении коллекции мхов, собранной во время экспедиции 1986 года и включает литературные данные и данные гербария (КРАБГ). Список насчитывает 337 видов и содержит информацию о местообитаниях и субстратах. На изученной территории отмечено 37 редких в Мурманской области видов.

KEYWORDS: southwest of Murmansk Province, mosses, check-list

INTRODUCTION

Kutsa Nature Reserve is situated in the southwest of Murmansk Province, on the border with Finland and Karelia. It was established in 1994 for conservation of an undisturbed, natural communities such as mountain tundra, primeval forests, mires and lakes, as habitats of rare species (<http://www.kola-nature.org/kutsa>). Its area is 520 km².

The area of the Kutsa was investigated in terms of moss diversity by F. Nylander in 1842, by E. af Hällström in 1900s, by H. Lindberg in 1913, and by V. Persola in 1917 (Ulvinen, 1996). The main role in its exploration belongs to R. Tuomikoski, who conducted a lot of studies in the region (Tuomikoski, 1939). Important collections were also made in 1939 by A.V. Auer (1942). Some more information occurs in publications of V.F. Brotherus (1923) and T. Ulvinen (1996). Later the study in the area were continued by R.N. Schljakov and N.A. Konstantinova (Schljakov & Konstantinova, 1982; Konstantinova *et al.*, 1993). Belkina and Likhachev collected here 400 specimens in 1986 (deposited in KPABG). Their identification provided a new data for the area presented here, combined with published data for the area and involving herbarium data from KPABG, which remained unpublished.

STUDY AREA

Climate of Kutsa area is sharply continental (Yakovlev, 1961). The relief is formed by low mountains and hills, alternated with river valleys and boggy depressions. The highest mountains in the area are Voita (409.4 m), Voyanvara (562 m), Sallatunturi (604 m), and Vuosnattunturi (526 m). The territory is characterized by strongly dissected relief, abundance of calcareous rock outcrops, numerous lakes, rivers with rapids, main of them being Sallajoki, Kuolajoki, Kutsajoki and Tuntsajoki (two latter falling into Tumcha River). River banks are sandy, gravelly or rocky, while floodplains and lake shores are often paludified. Mires are represented by hillock and hummock-ridge (aapa) mires, rich fens and raised bogs, both open and forested. Sedge fens often occupy river and lake valleys. Spring fens are also widely distributed.

The study area is situated within northern taiga zone. Forests are mainly coniferous and consist of *Pinus sylvestris* L. and *Picea obovata* Ledeb. Pine is most common tree in the area, it grows also on rock outcrops, hills tops, mire edges in association with dwarf shrubs and lichens. Spruce forests with *Hylocomium splendens*, *Dicranum spp.* and *Rhytidiadelphus triquetrus* are also frequent (*e.g.*, in valleys of Kutsajoki and Tumcha Rivers). Mesic herbal spruce forests with *Betula pubescens* Ehrh., *B.*

¹ – Polar-Alpine Botanical Garden-Institute of Kola Sci. Center of RAS, Kirovsk-6, Murmansk Province 184256 Russia; e-mails: darktanya@mail.ru, belkina_07@list.ru, likhachev12@mail.ru

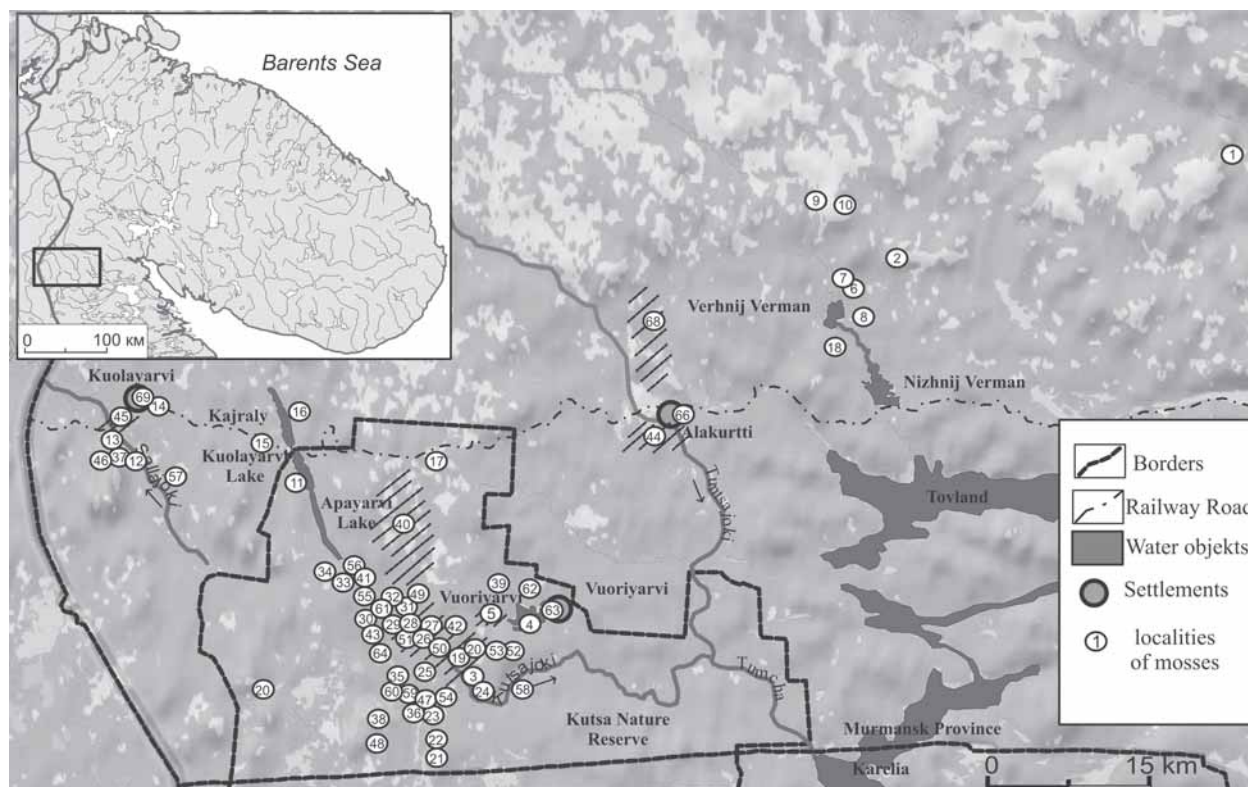


Fig. 1. Localities of mosses: **1** – foot of Gremyashka Mountain, south-eastern slopes; **2** – 27 km east-north-east from Alakurtii Settlement, west top of Kamennye Gory Mountain, south-western slope; **3** – left bank of Nivayarvi Lake near the east extremity, rock outcrops; **4** – surroundings of Vuoriyarvi Lake, Vuorijoki; **5** – southwest from Alakurtii Settlement, Pyhyakuru Gorge; **6** – left bank of Verhniy Verman River; forest road between Verhniy Verman River and Verhniy Verman Lake; **7** – banks of Verhniy Verman Lake; **8** – eastern part of Verhniy Verman Lake, river with stony bed; **9** – north of Verhniy Verman River headwaters, 3 km west from Voyanvara Mountain top, bottom and northwest slopes; **10** – western slope of Voyanvara Mountain; **11** – western and southwestern banks of Kuolayarvi Lake; **12** – left bank of Sallayoki River, 1 km from Sallayarvi Lake; Sallayoki River estuary near the falling in Sallayarvi Lake; **13** – western bank of Sallayarvi Lake in the middle part; **14** – 2 km east from Kuolayarvi Settlement banks of Kuolayoki River, Kolsanoya Stream valley, small swamp between Kuolayarvi Settlement and railway station; **15** – stream west from Yanisvarra Mountain near Kayralyi Railway Station; **16** – eastern banks of Kuolayarvi Lake; **17** – Kutsansuo Swamp, 2 km southwest from Kutsa Railway Station; **18** – surroundings of Vojta River, 2 km south-west from Verhniy Verman Lake, west-southwest slope of 365,2 Mountain; **19** – left bank of Kutsajoki River; **20** – Vuosnatunturi; **21** – Valiyarvi; **22** – Paayarvi; **23** – Riekinlammit, Riekinkallio; **24** – Janiskengas; **25** – Raiyarvi; **26** – Hirveakkallio; **27** – Ruskeakuru; **28** – Kunnusojya, Kunnuslampi; **29** – Kursukuru; **30** – Kursuyarvi; **31** – Pyuhayarvi; **32** – Pyuhyalampi; **33** – Peravaantamanjanka; **34** – Tuoruskuru; **35** – Yurhyamya; **36** – Niluttiiyarvi; **37** – Sallatunturi Mountain; **38** – Yulmoiva; **39** – Saarilampi; **40** – Ontonjoki; **41** – Montikaisenlampi; **42** – basin of Kutsajoki River west from Vuoriyarvi Lake; **43** – Kursuojya; **44** – Ahkiojya Stream valley; **45** – Ahma-aapa Swamp; **46** – Rohmojva; **47** – Yurhyamyayarvi; **48** – Painotunturi; **49** – Matkaojya; **50** – Nivayarvi; **51** – Raiojya; **52** – Tammakko-oja; **53** – Tammakkolampi; **54** – Javarusyarvi, Javarusjoki; **55** – Sentsojya; **56** – Lantinkioja, Lantinkilampi; **57** – Sallajoki; **58** – Kutsajoki; **59** – Auhtiiyarvi; **60** – Sulasalmi; **61** – Saukkokallio; **62** – Yla – Janisyarvi; **63** – Vuoriyarvi Settlement, **64** – Lintuyarvi; **65** – Kutsa; **66** – Alakurtii; **67** – Tumcha River; **68** – Kutujoki; **69** – Kuolayarvi Settlement.

pendula Roth. and *Populus tremula* L. are present in small depressions and on slopes of gorges (Pyhyakuru and Ruskeakuru). Paludified spruce herbal forests with well developed shrub layer occur in valleys on peaty soils (spruce forests with *Equisetum* and *Sphagnum* along Ontonjoki River). Birch forests occasionally grow in valleys of rivers and streams. Some paludified banks of rivers and lakes are occupied by willow shrubs.

ANNOTATED LIST OF MOSSES

The list comprises 337 species with data on localities (Fig. 1), habitats and substrates. Specimens determined

by authors of this paper are marked with asterisk at the number of corresponding locality, while the data for not marked places are from literature and CRIS, the Cryptogamic Russian Information System database (<http://kpagb.ru/cris/?q=node/16>). Habitat information is given according to our field observation, label data of samples in KPABG, and literature records. Collector numbers are cited in brackets (all numbers for rare species and selected ones for common mosses). Species marked with asterisk before their names are those from the Red Data Book of Murmansk Province (Konstantinova *et al.*, 2014).

Label data are incorporated in CRIS. The nomenclature follows Ignatov *et al.* (2006). More information of literature records is given in Supplementary materials.

- Abietinella abietina* – mountain tundra, meadows, stones, fine-earth. 37, 42, 65.
- **Amblyodon dealbatus* – banks of lakes. 30 (Tuomikoski, 1939).
- Amblystegium serpens* – banks of lakes, screes, stones, soil, decaying wood. 4, 5*, 11*, 26, 29.
- Amphidium lapponicum* – forests, mountain forests, cracks in rock outcrops, soil, decaying wood. 5*, 5 (Schljakov & Konstantinova, 1982), 65 (Tuomikoski, 1939).
- A. mougeotii* – banks of streams, screes, rocks, stones, fine-earth, soil. 5*, 5, 24, 26, 27, 34, 45, 49.
- Andreaea rupestris* – mountain tundra, banks of streams, screes, stones, rocks, soil. 5*, 9*, 10*, 11*, 65.
- **Anoetangium aestivum* – banks of streams, rocks. 24 (Tuomikoski, 1939).
- **Anomobryum julaceum* – rocks. 26 (Tuomikoski, 1939).
- **Anomodon longifolius* – west from Vuoriyarvi Lake, spruce herbal forest in stream valley, rotten birch trunk [KPABG 9458]. 5, 23, 24, 29, 34, 42, 45, 49, 65.
- **A. viticulosus* – west ending of Pyuhakuru Gorge, wet scree, rocks [KPABG 9459, 9460]. 5*, 5, 26, 29, 34 (Tuomikoski, 1939), 45 (Konstantinova *et al.*, 1993).
- Arichum tenellum* – roadsides. 45 (Konstantinova *et al.*, 1993).
- Aulacomnium palustre* – rock outcrops, wet and paludified forests, mires, beds and banks of streams, banks of lakes, soil, decaying wood and plants, tree trunks and roots, hummocks, fine-earth, sand. 1*, 2*, 3*, 4*, 6*, 7*, 11*, 12*, 14*, 65.
- A. turgidum* – screes, rock outcrops, stones. 5*, 5, 23, 26.
- Barbula convoluta* – meadows, trails, old fireplaces, rocks, stones, humus, soil. 5, 61, 45, 65, Tuhkamuotka.
- **Bartramia halleriana* – west ending of Pyuhakuru Gorge, mountain forests, screes, shady rocks, stones [KPABG 9441, 9442, 9443]. Rock outcrops. 5*, 5 (Auer, 1942; Shlyakov & Konstantinova, 1982; Tuomikoski, 1939), 23 (Auer, 1942; Tuomikoski, 1939), 24 (Ulvinen, 1996), 26 (Auer, 1942; Konstantinova *et al.*, 1993; Tuomikoski, 1939), 34 (Tuomikoski, 1939).
- B. ithyphylla* – mountain forests, rock outcrops, rock caves and cracks, soil, stones, fine-earth. 5*, 5, 26, 30, 31, 49, 58.
- B. pomiformis* – wet screes, rocks, stones, soil, fine-earth. 5*, 5, 9*, 18*, 58, 66.
- Blindia acuta* – wet screes, rocks, stones, fine-earth. 5*, 5, 24, 26, 28, 29, 30, 33, 34.
- Brachytheciastrum velutinum* – mountain forests, banks of streams, decaying wood, stones, soil. 5*, 5, 34, 66.
- Brachythecium erythrorrhizon* – 5, 22, 23, 29, 32, 35, 45, 61, 65.
- B. mildeanum* – forests, banks of rivers and lakes. 5, 43, 50, 58.
- B. rivulare* – spring sloping fens, banks of streams, soil, decaying wood. 6*, 11*, 65 (Tuomikoski, 1939).
- B. salebrosum* – forests, mountain forests, mires, banks of streams and lakes, meadows, soil, fine-earth, stones, decaying wood and plants. 3*, 5*, 5, 6*, 9*, 11*, 13*, 14*, 47 – 38, 23, 26, 29, 36.
- B. turgidum* – forests on the banks of streams, soil. 5, 11*, 21, 27, 28, 29, 30, 30 – 31.
- B. udum* – spring fens. 11, 43, 50, 66.
- Breidleria pratensis* – banks of lakes, soil. 4*, 5 (Ulvinen, 1996).
- Bryoerythrophyllum recurvirostrum* – forests on the banks of lakes, soil, bark of trees, decaying wood. 5, 11*, 21 – 22, 26, 29, 34, 45, 49.
- Bryum amblyodon* – rock outcrops. 67 (Schljakov & Konstantinova, 1982).
- B. archangelicum* – rock outcrops, cracks in rocks with sand. 5 (Konstantinova *et al.*, 1993), 40 (Schljakov & Konstantinova, 1982).
- B. argenteum* – ornitogenic habitats on rock outcrops. 26 (Tuomikoski, 1939).
- B. bimum* – banks of rivers, soil, stones, covered with soil. 6*.
- B. caespiticium* – riverbeds, stones. 44, 66, 67 (KPABG).
- B. capillare* – banks of rivers, soil. 6*, 24, 42.
- B. creberrimum* – screes, stones. 5*.
- B. elegans* – mountain forests, decaying wood, stones. 5*, 4, 66 (KPABG)
- B. imbricatum* – rock outcrops with soil. 5*, 5 (Konstantinova *et al.*, 1993), 26 (Ulvinen, 1996).
- B. neodamense* – 5 (Ulvinen, 1996).
- B. lonchocaulon* – rocks, covered with soil. 3*, 5 (Konstantinova *et al.*, 1993).
- B. longisetum* – riverbeds, stones. 67 (Schljakov & Konstantinova, 1982).
- B. moravicum* – mountain forests, dry stones, rocks. 5, 42 (KPABG).
- B. pallens* – spring fens. 44, 66, 67 (KPABG).
- B. pallescens* – spring fens, meadows. 5, 44, 66.
- B. pseudotriquetrum* – willow shrubs, forests, banks of streams, rivers and lakes, pebble banks, beds of rivers, meadows, ditches, screes, soil, fine-earth, rocks, stones, bases and roots of trees, decaying wood and plants, hummocks, silt, sand, dung. 3*, 4*, 5*, 5, 6*, 7*, 8*, 9*, 11*, 12*, 14*, 15*, 16*, 58, 66, 67.
- B. rutilans* – 34 (Ulvinen, 1996).
- B. weigelii* – spring fens, banks of streams, willow shrubs, meadows, decaying wood and plants, soil. 5, 9*, 11*, 12*, 44, 67.
- Bucklandiella microcarpa* – mountain forests, mountain tundra, screes, rocks, stones. 5*, 5, 9*, 10*, 37.
- B. sudetica* – mountain forests, stones, covered with soil, decaying plants. 1*.
- **Buxbaumia aphylla* – banks of lakes, trails, roads in forests, soil. 31, 5 – 31 (Tuomikoski, 1939), 45 (Konstantinova *et al.*, 1993).
- Calliergon cordifolium* – willow shrubs, wet forests, meadows, banks and beds of streams, banks of lakes, mires, wet screes, ditches, soil, fine-earth, decaying plants and wood, hummocks, stones, roots of trees. 3*, 5*, 6*, 9*, 11*, 12*, 13*, 14*, 16*, 65.
- C. giganteum* – banks of rivers, streams and lakes, meadows, puddles, in water, soil, silt, decaying wood. 9*, 11*, 13*, 14*, 16*, 44, 65.
- C. megalophyllum* – banks of lakes, sand bar. 7*.
- C. richardsonii* – banks of streams, wet screes, flarks, in water, silt, decaying wood. 5*, 5, 6*, 11*, 23, 27.
- Calliergonella cuspidata* – banks and beds of streams, rocks, decaying wood and plants, soil, silt, in water. 5, 11*, 43, 58.
- C. lindbergii* – wet herbal forests, banks of rivers, streams and lakes, pebble banks, stones, soil, hummocks, decaying wood. 3*, 4, 4*, 11*, 12*, 13*, 65, 66, 67, 68.
- Campyliadelphus chrysophyllus* – mountain forests, forests on the banks of lakes, stones, bark of trees. 11*, 24, 26, 42.

- Campyloidium calcareum* – forests on the banks of rivers, screes, stones, fine-earth. 5*, 29, 58.
- C. sommerfeltii* – banks of rivers, streams, and lakes, wet screes, soil, fine-earth, stones, on *Fomitopsis* sp., decaying wood, roots of trees. 3*, 5*, 5, 6*, 7*, 11*, 16*, 58, 65.
- Campylium protensum* – forests on the banks of rivers, banks of lakes and streams, mires, soil, hummocks, decaying wood and plants, bases and roots of trees. 4*, 6*, 7*, 11*, 15*, 57.
- C. stellatum* – forests on the banks of streams, banks of streams, rivers and lakes, ditches with water, peat, decaying wood and plants, soil, bases of trees, wet calcareous rocks, sand. 1*, 3*, 4*, 7*, 11*, 15*, 16*, 65.
- **Campylophyllum halleri* – calcareous rocks. 5, 30 (Tuomikoski, 1939), 45 (Konstantinova *et al.*, 1993).
- Catoscopium nigratum* – banks of rivers, lakes and streams, mires, calcareous soil and stones, wet rocks. 11, 23, 25 – 43, 30, 32, 33, 40, 41, 45, 65.
- Ceratodon purpureus* – mountain forests, banks of rivers, streams and lakes, willow shrubs, trails, soil, stones, rocks, fine-earth, decaying wood, tree bases, turf, dung. 3*, 4*, 5*, 6*, 9*, 65.
- Cinclidium stygium* – banks and beds of streams, banks of lakes, soil, decaying wood, stones. 7*, 15*, 16*, 65.
- C. subrotundum* – mires. 5, 11, 24, 45.
- Cirriphyllum piliferum* – forests on the banks of rivers, forests, soil. 5, 6*, 20, 26, 30 – 32, 36, 43, 45, 51.
- Climacium dendroides* – banks of rivers and lakes, wet screes, fine-earth, rocks, soil, stones, silt, decaying plants, hummocks, tree bases. 4, 4*, 5*, 6*, 7*, 12*, 16*, 65, 66, 67.
- Cnestrum alpestre* – mountain forests, rock outcrops, cracks in rocks and stones, fine-earth. 5, 5*, 24, 26, 34, 45.
- **C. glaucescens* – rocks. 24, 32 (Mogensen & Steere, 1979).
- C. schisti* – mountain forests, calcareous rock outcrops, cracks in rocks, fine-earth. 5, 5*, 22, 58, 22 – 23, 23, 26, 27, 29, 31, 45.
- Conostomum tetragonum* – mountain forests, rock outcrops, cracks in rocks. 5, 9*, 45.
- Codriophorus fascicularis* – stones. 5 (Tuomikoski, 1939).
- **Coscinodon cribrosus* – rock outcrops, on rock ledge. 37 (KPABG)
- Cratoneuron filicinum* – banks and beds of streams and rivers, spring fens, wet calcareous rocks and stones, decaying wood. 5, 20, 24, 26, 27 – 50, 30, 32, 34, 40, 41, 43, 45, 55.
- Cynodontium strumiferum* – mountain forests, rock outcrops, cracks and cavities in stones and rocks, fine-earth, soil, turf. 5*, 9*, 65, 66.
- C. tenellum* – forests, mountain forests, rock outcrops, cracks in rocks and stones, fine-earth, soil, turf. 1*, 5*, 9*, 42, 65, 66.
- Cyrtomnium hymenophylloides* – calcareous rocks. 5, 24, 26, 27, 28, 29, 31, 40.
- Dichelyma falcatum* – river banks, wet screes, stones, fine-earth. 5, 5*, 14*, 54, 67.
- Dichodontium pellucidum* – banks and beds of rivers and streams, banks of lakes, rocks, stones, fine-earth. 5, 26, 29, 34, 40, 50, 55, 58.
- Dicranella cerviculata* – 65 (Tuomikoski, 1939).
- D. crispa* – 65 (Konstantinova *et al.*, 1993).
- D. grevilleana* – mires, surrounded by forests, banks of streams, soil, gravel, decaying wood. 12*, 33, 41, 65.
- D. humilis* – rock ledges, soil. 26 (Tuomikoski, 1939).
- D. schreberiana* – banks of streams, soil. 11*.
- D. subulata* – forests on the banks of streams, decaying wood, soil. 16*, 65 (Tuomikoski, 1939).
- Dicranum acutifolium* – mountain forests, soil. 5*, 23, 26, 31, 45, 65.
- D. angustum* – banks of lakes, wet scree, fine earth. 5*, 25, 25 – 43, 33, 34, 45, 56.
- D. bonjeanii* – forests, mires, surrounded by forests, forests on the banks of streams, decaying wood and plants, hummocks, soil. 2*, 14*, 16*, 39 – 50, 25 – 43, 28, 29, 56, 66.
- D. brevifolium* – forests, mountain forests, dolomite rock outcrops, stones, decaying wood. 5, 26, 27, 42.
- D. drummondii* – forests, mountain tundra, paths, soil. 10*, 18*, 65.
- D. elongatum* – rocks. 5, 23, 26, 29, 30, 31, 37, 46.
- D. flexicaule* – banks of streams, forests, mountain forests, mires, surrounded by forests, decaying wood, stones, fine-earth, soil. 11*, 12*, 13*, 14*, 42.
- D. fragilifolium* – forests on the banks of streams, decaying wood, tree trunks, stones. 11*, 16*, 24 – 50, 25, 27, 31, 32, 41, 56.
- D. fuscescens* – mountain forests, forests on the banks of streams, mires, decaying wood, soil. 5*, 10*, 12*, 16*, 65.
- D. majus* – forests, forests on the banks of streams, banks of lakes, soil, stones, bases of trees, decaying wood and plants, turfs. 2*, 4*, 6*, 11*, 42, 65.
- D. montanum* – forests, banks of streams and lakes, soil-covered rock outcrops, decaying wood, soil, bark of trees, stones. 4*, 5, 6*, 9*, 11*, 27, 30, 32, 34.
- D. polysetum* – mountain forests, banks of streams, mires, soil, decaying wood, hummocks. 5*, 12*, 65.
- D. scoparium* – forests, mountain forests, mountain tundra, banks of lakes, rivers and streams, rock outcrops, soil, stones, decaying wood and plants, tree trunks, turfs. 2*, 4*, 5*, 6*, 10*, 11*, 12*, 65.
- D. spadiceum* – forests, wet scree, mountain tundra, rocks, soil, fine-earth, roots and trunks of trees, decaying wood. 5*, 6*, 9*, 10*, 11*.
- D. spurium* – mountain forests, rocks. 37 (Tuomikoski, 1939), 40 (Schljakov & Konstantinova, 1982).
- D. undulatum* – forests, mountain tundra, mires, soil, decaying wood and plants, hummocks. 1*, 10*, 12*, 17*, 65.
- **Didymodon icmadophilus* – rocks. 26 (Tuomikoski, 1939).
- D. rigidulus* – 26, 49 (Tuomikoski, 1939).
- Diphyscium foliosum* – rocks. 26, 37 (Tuomikoski, 1939).
- **Discelium nudum* – soil. 11 (Konstantinova *et al.*, 1993).
- Distichium capillaceum* – banks and beds of rivers and streams, banks of lakes, screes, calcareous rocks, stones, fine-earth, soil. 4*, 5*, 5, 15*, 42, 65.
- D. inclinatum* – calcareous rocks, fine earth, soil. 5 (Tuomikoski, 1939), 40 (Schljakov & Konstantinova, 1982).
- **Ditrichum cylindricum* – rocks, soil. 26 (Tuomikoski, 1939), 45 (Konstantinova *et al.*, 1993).
- D. flexicaule* – banks of streams and lakes, screes, stones, niches and cracks in rocks, soil, fine-earth, peat. 5*, 65 (Tuomikoski, 1939), 42 (KPABG).
- D. heteromallum* – 5 (Konstantinova *et al.*, 1993).
- D. zonatum* – rocks. 5 (Tuomikoski, 1939).
- Drepanium recurvatum* – banks of rivers, lakes and streams, calcareous rocks. 26, 28, 29, 30, 31, 32, 40, 45, 61, 65.
- Drepanocladus aduncus* – banks of rivers and streams, screes, rocks, covered with mosses, soil, stones, decaying wood and plants. 5, 5*, 6*, 14*, 27.

- D. polygamus* – banks of lakes, tree trunks, decaying wood, soil, hummocks. 4*, 13*, 16*.
- D. sendtneri* – banks of lakes, soil, in water. 20, 21, 23, 35 (Tuomikoski, 1939).
- D. sordidus* – 21, 23 (Tuomikoski, 1939).
- Encalypta affinis* – 5, 21, 22, 23, 26, 29, 31, 32, 45, 61, 65.
- E. alpina* – rocks. 5 (Tuomikoski, 1939).
- E. brevicolla* – mountain forests, wet screes, rocks, stones, fine-earth, turfs. 5, 5*, 23, 24, 26, 31, 34, 40.
- E. ciliata* – mountain forests, wet screes, calcareous rocks, fine-earth, soil, turfs. 5*, 21, 24, 26, 29, 30, 31, 32, 34, 40, 45, 49.
- **E. mutica* – calcareous rocks. 29 (Tuomikoski, 1939).
- **E. procera* – south-west exposed rocks, lateral surface of rock, on soil [KPABG 6878]; bottom of the gorge, west ending, wet scree overgrown with mosses, niche with soil in lateral surface of stone [KPABG 9402]. 5 (Konstantinova *et al.*, 1993; Tuomikoski, 1939), 26, 31, 34 (Tuomikoski, 1939), 29 (Ulvinen, 1996).
- E. rhamnoides* – mountain forests, calcareous rock outcrops, cracks in rocks, fine-earth, soil. 5, 5*, 26, 27, 29, 30, 31, 34, 45, 65.
- **E. streptocarpa* – shady calcareous rocks; western ending of Pyuhakuru Gorge, mountain forest, slope with south-eastern exposure, crack in boulder [KPABG 9405]; Ontonyoki: surroundings of Alakurtti Settlement, right bank of Tumcha River, right bank of Ontonyoki River, vertical rock with north-western exposure among birch-spruce forest, on mosses [KPABG 8352], Pyuhakuru: on rock [KPABG 9404]. 5 (Schljakov & Konstantinova, 1982), 5*, 40, 66 (KPABG), 45 (Konstantinova *et al.*, 1993), 65 (Tuomikoski, 1939).
- Eurhynchiastrum pulchellum* – mountain forests, rock outcrops, wet screes, stones, fine-earth, rocks, turfs. 5, 5*, 40, 65.
- Fissidens adianthoides* – banks of rivers, soil. 42, 45, 50, 65.
- **F. bryoides* – rock outcrops, cracks in dolomite rocks; bottom of the gorge, west ending, wet scree overgrown with mosses, niche in rock, soil, soil-covered stone and soil [KPABG 6875, 9398, 14840, 17683]. 5, 5*, 45, 50 (Konstantinova *et al.*, 1993), 26 (Auer, 1942; Konstantinova *et al.*, 1993).
- F. osmundoides* – forests, forests on the banks of streams, banks of lakes, soil, bases of trees, decaying wood, turfs. 4*, 7* 11*, 14*, 15*, 16*, 65.
- F. taxifolius* – forests on the banks of lakes, decaying wood, soil. 16*.
- F. viridulus* – open slopes of mountains, cracks in rocks. 26 (Tuomikoski, 1939).
- Fontinalis antipyretica* – banks and beds of rivers and streams, decaying plants, stones, hummocks. 12*, 14*, 65.
- F. dalecarlica* – 65 (Tuomikoski, 1939).
- Funaria hygrometrica* – old fireplaces. 65 (Tuomikoski, 1939).
- Grimmia donniana* – rocks. 5*.
- **G. elatior* – wet rocks. 24 (Tuomikoski, 1939; Ulvinen, 1996).
- G. incurva* – mountain forests, stones, rocks. 9*, 37 (Schljakov & Konstantinova, 1982).
- G. longirostris* – screes, stones. 5*, 65 (Tuomikoski, 1939).
- G. torquata* – mountain forests, screes, stones, rocks, fine-earth. 5, 5*, 9*, 23, 24, 26, 31, 34, 45, 50, 65.
- **Gymnostomum aeruginosum* – calcareous or dolomite rocks. 5, 23, 24, 26, 27, 29, 31.
- G. boreale* – 29 (Ulvinen, 1996).
- **Hamatocaulis vernicosus* – wet shady habitats. 5, 25 (Ulvinen, 1996), 45 (Tuomikoski, 1939).
- Hedwigia ciliata* – wet screes, rock outcrops, stones. 3*, 5, 5*, 42, 65.
- Helodium blandowii* – forests, willow mires, banks of streams and lakes, river meadows, decaying wood and plants, soil, sand. 5, 4, 4*, 12*, 16*, 57, 65, 67.
- **Herzogiella turfacea* – northern part of Vuoriarvi Lake, eastern bank, stream in birch-spruce forest, decaying wood of stump [KPABG 8603]. 4.
- Heterocladium dimorphum* – mountain forests, rocks. 5*.
- **Homalia trichomanoides* – Pyuhakuru Gorge, mountain forests, caves in rocks, screes, rocks, niches in stones, fine-earth [KPABG 9402, 9459, 13783, 13784, 13786, 14071, 14079, 14951, 15001, 15450, 16356, 16375]; left bank of Kutsajoki River lower Pyuhuyarvi Lake, rock outcrops, in cave of rock [KPABG 9449]. 5, 5*, 58.
- **Homalothecium sericeum* – rocks. 5 (Tuomikoski, 1939).
- Hgrohyphnella ochracea* – banks of rivers and streams, stones, fine-earth. 5, 11*, 29, 67.
- Hgrohyphnum luridum* – banks and beds of rivers, rocky shoals, rocks, stones. 5, 14*, 27, 33, 34, 43, 45, 54.
- Hylocomiastrum pyrenaicum* – forests, mountain forests, edges of mires, banks of streams, soil. 5, 11*, 12*, 15*, 20, 23, 25, 26, 38, 43, 45, 51, 65.
- H. umbratum* – forests on the banks of streams, decaying plants, soil. 2*, 37, 38, 45, 65.
- Hylocomium splendens* – forests, mountain forests, banks of rivers and streams, mountain tundra, screes, soil, fine-earth, decaying wood, roots of trees, soil-covered rocks and stones. 2*, 5*, 6*, 10*, 11*, 65, 67.
- Hymenoloma crispulum* – mountain forests, banks of lakes and rivers, rock outcrops, stones, fine-earth, soil, decaying plants. 3*, 5, 5*, 27, 29, 33, 34.
- Hymenostylium recurvirostrum* – calcareous and dolomite rocks. 24, 26, 29, 31, 34, 58.
- Hypnum cupressiforme* – rocks. 24, 26, 32, 61, 45, 65.
- Isopterygiopsis pulchella* – mountain forests, screes, banks of streams, shaded habitats between rocks and stones, soil, decaying wood, tree trunks, turfs, roots of trees. 5, 5*, 9*, 11*, 23, 26, 28, 29, 31.
- Isothecium myosuroides* – 5 (Tuomikoski, 1939).
- Kiaeria glacialis* – forests on the banks of streams, decaying wood. 18*.
- Leptobryum pyriforme* – forests, banks of rivers, lakes and streams, habitats with disturbed soil layer, mires, soil, rocks, roots of trees, tree bases, sand, decaying wood. 4*, 5*, 6*, 11*, 16*, 26, 27, 29, 31, 49, 51.
- Leptodictyum riparium* – forests, banks and beds of rivers and streams, banks of lakes, decaying wood, soil, stones. 2*, 4*, 12*, 32.
- Lescuraea incurvata* – 20 (Konstantinova *et al.*, 1993).
- **L. patens* – base of the rock [KPABG 15694]. 5 (Konstantinova *et al.*, 1993).
- L. radicata* – rocks, decaying wood. 20 (Tuomikoski, 1939), 42 (Schljakov & Konstantinova, 1982).
- L. saxicola* – banks of streams, rocks. 20, 24, 34.
- **Leskea polycarpa* – rocks. 5 (Ulvinen, 1993).
- Leucodon sciuroides* – rocks. 5, 21, 23, 26, 27, 31, 32, 59, 61.
- Loeskypnum badium* – mires, flarks, in water, hummocks. 13*, 25*, 65, 67.
- Meesia triquetra* – banks of lakes, soil, hummocks. 4*, 57 (Tuomikoski, 1939).
- M. uliginosa* – banks of lakes and streams, soil, decaying wood, wet calcareous rocks. 4*, 7*, 11*, 65.
- Mnium blyttii* – forests on the banks of rivers, mountain forests, rocks, fine-earth, soil, decaying plants. 5*, 5, 40, 58.

- **M. hornum* – banks of streams, soil. 67 (Schljakov & Konstantinova, 1982).
- M. lycopodioides* – mountain forests, banks of streams, rock caves, soil, fine-earth, decaying plants. 5*, 5, 11*, 29.
- M. marginatum* – banks of rivers, mountain forests, rock caves, calcareous rocks, soil, decaying plants, fine-earth. 5*, 5, 26, 29, 55, 58.
- M. spinosum* – mountain forests, mountain tundra, rocks, soil, decaying plants, stones, fine-earth. 5*, 5, 20, 24.
- M. stellare* – forests, mountain forests, banks of streams, soil, decaying wood and plants, stones, soil-covered roots of trees and stones. 5*, 5, 11*, 23, 36, 42.
- M. thomsonii* – wet screes, calcareous rocks, stones, fine-earth. 5*, 5, 24, 26, 28, 30, 31, 34, 45, 58.
- **Myrinia pulvinata* – bottom of the Pyuhyakuru Gorge, west ending, wet scree overgrown with mosses, vertical surface of stone [KPABG 9450, 16454]. 5 (Konstantinova *et al.*, 1993; Ulvinen, 1993, 1996).
- Myurella julacea* – rocks. 5, 21 – 59, 23, 24, 26, 27, 28, 29, 31, 32, 34, 40, 45, 61.
- M. tenerrima* – 5, 23, 24, 26, 27, 29, 31, 45.
- **Neckera complanata* – calcareous rock outcrops, cracks in rocks [B32-21-86]; Ontonyoki River valley below the bridge, north-west exposed rocks [KPABG 9446]. 5*, 5, 21, 21 – 59, 26, 28, 29, 34, 40, 45.
- **N. pennata* – south-eastern bank of Vuoriyarvi Lake, dry rock outcrops, south-western exposure, niche between rocks [KPABG 6840]; western ending of Pyuhakuru Gorge, mountain forest, slope with south-eastern exposure, niche of stone [KPABG 9448, 16455]; wet scree overgrown with mosses [KPABG 16454, 16456, 16457]. 4*, 5*, 5, 23, 24, 26, 28, 30, 34.
- Niphotrichum canescens* – banks of rivers, bare soil, fine-earth. 32 (Tuomikoski, 1939).
- Ochyraea alpestris* – banks and beds of rivers and streams, stones, rocks, sand. 5, 8*, 11*, 15*, 16*, 24, 26, 29, 34, 37, 67.
- O. duriuscula* – bottom of the gorge, banks of rivers and streams, stones. 5, 9*, 14*, 27.
- **O. cochlearifolia* – stream with a steady flow and sandy bed, horizontal surface of stone submerged in water [B 89-6-86]. 11*.
- O. norvegica* – stones. 5, 26 (Tuomikoski, 1939).
- Oncophorus virens* – wet screes, banks of lakes, soil, fine-earth, stones. 5*, 16*, 65 (Tuomikoski, 1939).
- O. wahlenbergii* – bottom of slopes, banks of streams and lakes, snow-bed meadows, mires, pits, decaying wood, stones, soil, silt, turfs, hummocks, on *Fomes* sp. 5, 7*, 11*, 12*, 15*, 16*, 17*, 20, 24, 29, 31, 37.
- Orthothecium strictum* – 22, 23, 26, 27, 29, 34.
- Orthotrichum alpestre* – mountain forests, niche of stone, calcareous rocks, fine-earth. 5, 5*, 21 – 59, 23, 26, 31, 34, 45, 50.
- O. obtusifolium* – banks of rivers, rocks, bark of *Populus tremula* L. 4, 5, 23, 26, 30, 5 – 31, 45, 50, 56.
- O. pallens* – 5 (Ulvinen, 1996).
- O. pylaisii* – 23, 35 (Tuomikoski, 1939).
- O. rupestre* – 22, 23, 49 (Tuomikoski, 1939).
- O. speciosum* – 5 (Konstantinova *et al.*, 1993; Ulvinen, 1996), 45 (Konstantinova *et al.*, 1993).
- Paludella squarrosa* – forests on the banks of streams, paludified banks of lakes, mires, soil, flarks. 12*, 16*, 65.
- Palustriella commutata* – mires, rocks and stones in streams and rivers. 5, 27 – 50, 30, 30 – 32, 31, 32, 34, 40, 41, 43, 45, 48, 65.
- P. decipiens* – spring fens, stones and rocks on the banks and in water of rivers and streams. 20, 30, 32, 41, 43, 51, Top-sakkaojya.
- P. falcata* – beds of streams, stones. 17*.
- Paraleucobryum longifolium* – banks of rivers, forests, mountain forests, stones, rocks, turfs, soil, fine-earth. 5*, 9*, 65, 66, 67.
- Philonotis caespitosa* – banks and bed of rivers and streams, banks of lakes, soil, decaying plants. 2*, 4, 11, 14*, 16*, 37, 67.
- P. calcarea* – banks of rivers and streams, herbal meadows, decaying wood, soil. 4, 9*, 30, 40, 45, 48, 65.
- P. fontana* – forests, mountain forests, banks and beds of rivers and streams, banks of lakes, mires, decaying wood and plants, soil, hummocks, stones. 2*, 4*, 9*, 11*, 14*, 16*, 44, 65.
- P. seriata* – spring sloping fens, soil. 44 (KPABG).
- P. tomentella* – banks of rivers, stones. 5, 14*, 24, 26.
- Plagiobryum zierii* – rocks. 5, 24, 26.
- Plagiomnium curvatulum* – banks of rivers and lakes, soil. 5, 4*, 26, 29, 34, 40, 58.
- P. cuspidatum* – forests, banks of rivers, decaying wood, soil. 5, 42, 53, 66, 68.
- P. elatum* – forests on the banks of rivers and lakes, soil. 11*, 58.
- P. ellipticum* – forests, banks and beds of streams, meadows, banks of rivers and lakes, decaying plants and wood, stones, soil, roots of trees. 1*, 2*, 4, 4*, 5, 5*, 6*, 9*, 11*, 13*, 14*, 15*, 42, 65, 68.
- Plagiopus oederianus* – mountain forests, wet shady calcareous rock outcrops, cracks and niches in rocks, fine-earth. 5, 5*, 26, 40.
- Plagiothecium cavifolium* – rocks. 5, 26, 29, 34.
- P. curvifolium* – banks of lakes, mountain tundra, soil. 10*, 11*.
- P. denticulatum* – forests, mountain forests, banks of rivers, lakes and streams, soil, decaying wood and plants, stones, rocks, bases and roots of trees, turfs. 2*, 5*, 6*, 9*, 11*, 14*, 16*, 29, 67.
- P. laetum* – forests, mountain forests, screes, banks and beds of streams, ditches, soil, rocks, decaying wood and plants, roots of trees, turfs. 1*, 2*, 5*, 6*, 9*, 42, 65.
- P. nemorale* – wet scree, soil. 5*.
- Platydictya jungermannioides* – mires, wet shady calcareous rocks and stones, peat, sand, decaying wood. 5, 26, 29, 30, 34, 40, 45.
- Platygyrium repens* – 5 (Ulvinen, 1996).
- Pleurozium schreberi* – forests, mountain forests, mountain tundra, banks of streams, cracks in rocks, stones, soil, decaying wood and plants, bases of trees, fine-earth, turfs, hummocks. 1*, 2*, 5*, 10*, 11*, 12*, 16*, 65.
- Pogonatum dentatum* – 35 (Ulvinen, 1996).
- P. urnigerum* – rock outcrops, cracks in rocks, soil. 5, 5*, 65.
- Pohlia andalusica* – trails, soil. 5 – 31 (Tuomikoski, 1939).
- P. andrewsii* – banks of rivers, in ditch with decaying plants. 6*.
- P. bulbifera* – banks of lakes, sand with decaying plants. 16*, 37 (Brotherus, 1923).
- P. cruda* – forests, mountain forests, forests on the banks of streams, banks of rivers and lakes, willow shrubs, ditches, screes, rocks, soil, fine-earth, stones, bases and roots of trees, decaying wood, turfs, peat. 4*, 5, 5*, 6*, 9*, 11*, 14*, 15*, 16*, 42, 65.

- P. drummondii* – forests, banks and beds of streams, banks of rivers and lakes, decaying wood and plants, sand. 2*, 6*, 11*, 12*, 16*.
- P. filum* – banks of rivers, paludified meadows, soil. 66, 68 (Schljakov & Konstantinova, 1982).
- P. lescuriana* – 37 (Tuomikoski, 1939).
- P. longicollis* – rock outcrops, turfs. 5, 9*, 23, 26, 3, 45, 58.
- P. nutans* – forests, mountain forests, mountain tundra, mires, banks of streams and rivers, sandy shoals, screes, soil, stones, fine-earth, rocks, decaying wood, bases of trees, sand, turfs. 5*, 6*, 7*, 9*, 10*, 11*, 12*, 14*, 37, 65.
- P. prolifera* – forests, forests on the banks of streams, banks of lakes and rivers, rock outcrops, decaying plants, bases of trees, stones, soil, sand. 2*, 4*, 5 – 31, 6*, 9*, 16*, 23, 26, 28, 37 – 46, 49.
- P. wahlenbergii* – forests, flood plains of rivers, soil. 5, 12*, 20, 26, 29, 38 – 47, 67.
- Polytrichastrum alpinum* – forests on the banks of streams, screes, rocks, soil, fine-earth, stones, peat, turfs. 5*, 9*, 11*, 37, 65.
- Polytrichum commune* – forests, mountain forests, mountain tundra, rock outcrops, flood plains of rivers, banks of streams, mires, soil, stones, flarks, hummocks. 5*, 9*, 10*, 11*, 12*, 14*, 16*, 65.
- P. jensenii* – mires, soil. 17*.
- P. juniperinum* – forests, mountain forests, mountain tundra, soil, decaying plants. 1*, 5*, 6*, 10*, 65.
- P. piliferum* – mountain forests, mountain tundra, caves and cracks in rocks, fine-earth, soil. 5*, 10*, 65.
- P. strictum* – forests, mountain tundra, mires, screes, soil, hummocks, turfs. 1*, 9*, 10*, 12*, 14*, 65.
- P. swartzii* – wet forests, banks of rivers, soil, hummocks. 11, 12*, 57, 67.
- Pseudobryum cinclidioides* – forests, willow shrubs, banks of lakes rivers and streams, flood plains, screes, meadows, mires, ditches, soil, decaying wood and plants, soil-covered stones, fine-earth, turfs, flarks, hummocks. 1*, 5*, 6*, 9*, 11*, 12*, 13*, 14*, 16*, 18*, 65, 68.
- Pseudocalliergon angustifolium* – ponds. 27 (Ulvinen, 1996).
- P. trifarium* – mire near the left bank of Verhnij Verman River, in flark on silt [B 73-10-86]. 5, 6*, 25 – 43, 32, 33, 39 – 50, 69.
- Pseudoleskeella nervosa* – forests, rock outcrops, trunk of trees. 5, 5*, 24, 26, 29, 34, 42, 45.
- P. papillosa* – mountain forests, stones, rocks, fine-earth. 4*, 5, 5*, 24, 27, 50.
- P. tectorum* – rocks. 5, 23, 27, 29, 30, 34, 45.
- Pterigynandrum filiforme* – forests, mountain forests, rocks, stones, turfs, fine-earth, decaying wood, turfs. 3*, 5, 5*, 42, 45, 65.
- Ptilium crista-castrensis* – forests, mountain forests, rocks, soil, fine-earth, decaying wood, turfs. 1*, 5, 5*, 12*, 65, 44.
- Pylaisia polyantha* – wet screes, rocks, fine-earth, stones. 5, 5*, 42, 45.
- Racomitrium lanuginosum* – wet rocks, fine-earth. 5, 26.
- Rhizomnium magnifolium* – forests, banks of streams and lakes, decaying wood, soil. 2*, 5, 5*, 14*, 23, 42, 51, 54.
- R. pseudopunctatum* – forests, banks of rivers and streams, flood plains, meadows, stones, decaying wood and plants, soil. 1*, 4, 6*, 9*, 11*, 12*, 13*, 14*, 18*, 65, 68.
- R. punctatum* – forests, banks of rivers and lakes, banks and beds of streams, decaying wood and plants, soil, bases of trees. 2*, 4, 4*, 6*, 11*, 16*, 37, 40.
- Rhodobryum roseum* – banks of rivers, wet meadows, soil, decaying plants. 5, 6*, 20, 23, 38 – 47, 43, 51, 66.
- Rhynchostegium riparioides* – banks and beds of rivers and streams, in water, soil, stones, hummocks. 11*, 12*, 16*, 43, 50, 34, Kuolayarvi, Laskukuru.
- Rhytidiadelphus squarrosus* – banks of rivers and lakes, pebble banks, willow shrubs, soil, decaying plants. 4*, 13*, 14*, 45, 65.
- R. subpinnatus* – banks of rivers, ditches, soil. 6*, 24, 29, 38 – 47, 65. *Rhytidiadelphus triquetrus* – forests, banks of lakes, rivers and streams, wet screes, soil, stones, decaying wood and plants, tree trunks, turfs. 5*, 11*, 42, 65.
- Rhytidium rugosum* – rock outcrops, fine-earth. 5*, 21, 21 – 22, 22, 23, 24, 26, 27, 32, 34, 36, 50.
- Saelania glaucescens* – mountain forests, wet screes, rocks, stones, fine-earth, soil, turfs. 5, 5*, 23, 24, 26, 27, 28, 29, 30, 34.
- Santonita uncinata* – forests, mountain forests, mires, willow shrubs, banks and beds of rivers and streams, banks of lakes, rock outcrops, screes, ditches, sandy shoals, decaying plants and wood, roots, bases and bark of trees, stones, soil, fine-earth, turfs, sand. 2*, 3*, 4*, 5*, 6*, 7*, 9*, 11*, 12*, 13*, 14*, 15*, 16*, 65, 67.
- Schistidium agassizii* – banks and beds of rivers, banks of lakes, wet and partly submerged stones and rocks. 8*, 14*, 24, 43, 45, 51, 65.
- S. apocarpum* – calcareous rock outcrops, stones. 3*, 65 (Tuomikoski, 1939).
- S. boreale* – 29 (Ulvinen, 1996).
- S. confertum* – rocks. 5 [KPABG 14936].
- S. papillosum* – banks of lakes, stones, rocks, soil. 3*, 4*.
- S. rivulare* – banks of lakes, rock outcrops, stones, soil. 3*, 4*, 20, 50, 54.
- Sciuro-hypnum latifolium* – banks of streams, wet soil and stones. 5, 11*, 20, 38, 40.
- S. curtum* (= *S. oedipodium* auct.) – forests, banks of rivers, mountain tundra, decaying plants, soil. 5, 6*, 10*, 13*, 14*, 31, 36, 45, 65.
- S. plumosum* – 5, 34, 45.
- S. populeum* – banks of rivers, stones, rocks. 3*, 5, 19*, 31, 49.
- S. reflexum* – forests, mountain forests, banks of streams and lakes, wet meadows, soil, stones, decaying wood and plants. 2*, 4*, 5, 5*, 6*, 18*, 20, 37, 68.
- S. starkei* – forests, mountain forests, meadows, soil, stones, roots of trees, decaying wood and plants, turfs. 1*, 5, 5*, 6*, 9*, 20, 27, 31.
- Scorpidium cossonii* – forests on the banks of streams, soil. 14*.
- S. revolvens* – forests, banks of streams and lakes, mires, ditches, turfs, wet stones, decaying wood and plants, soil, silt, sand. 6*, 11*, 15*, 16*, 65.
- S. scorpioides* – mires, flarks, silt. 6*, 7*, 65.
- **Seligeria diversifolia* – shady calcareous rocks. 5, 26, 27, 29, 30, 45.
- **S. tristichoides* – shady calcareous rocks. 29 (Tuomikoski, 1939).
- Serpoleskea subtilis* – wet screes, stones. 5 (Schljakov & Konstantinova, 1982)
- Sphagnum angustifolium* – wet forests, mires, forests on the banks of streams, peat, soil, hummocks. 1*, 12*, 16*, 67, 69.
- S. annulatum* – mires, banks of lakes, soil. 14, 16*, 17*, 67.
- **S. auriculatum* – mire, on silty soil between stems of *Eriophorum* sp. [B 73-1-86]; paludified bank of lake, in pit on soil [B 74-1-86]. 6*, 7*.

- S. balticum* – mires; hummocks. 12*.
- S. capillifolium* – mires, banks of lakes and streams, hummocks, flarks, soil. 6*, 9*, 67, 69.
- S. centrale* – wet forests, stream valleys, banks of rivers and lakes, spring fens and mires, flarks, peat, soil, hummocks. 1*, 6*, 16*, 24 – 50, 67, 69.
- S. compactum* – banks of lakes, spring fens and mires, mountain tundra, flarks, soil, fine-earth. 7*, 10*, 17*, 37, 67.
- S. contortum* – eutrophic mires. 25, 67, 69.
- S. fallax* – mires, wet forests, soil, flarks. 1*, 12*, 66.
- S. fimbriatum* – forests, hummocks. 12*.
- S. flexuosum* – banks of rivers, soil with *Carex* sp. 67 (Schljakov & Konstantinova, 1982).
- S. fuscum* – mires, forests on the banks of streams, soil, hummocks, turfs. 12*, 16*, 25, 52.
- S. girgensohnii* – rock outcrops, forests, forests on the banks of streams, mires, fine-earth, turfs, hummocks, soil, decaying plants. 1*, 5, 6*, 12*, 13*, 16*, 26, 32.
- S. inundatum* – mires, paludified banks of lakes, hummocks, decaying wood, soil. 6*, 12*, 13*.
- S. jensenii* – mires, hummocks. 12*.
- S. lindbergii* – mires, soil, flarks. 12*, 17*.
- S. magellanicum* – mires, paludified banks of lakes, hummocks, soil, peat. 4*, 16*, 63, 67, 69.
- S. majus* – mires. 67.
- S. platyphyllum* – mires, silt, soil. 6*.
- S. quinquefarium* – mountain forests, soil. 5 (Konstantinova *et al.*, 1993).
- S. riparium* – wet forests, mires, paludified banks of lakes, flarks, soil. 12*, 16*, 17*, 32.
- S. russowii* – forests, mires, banks of lakes, rivers and streams, soil, in water, decaying wood and plants. 2*, 4*, 6*, 16*.
- S. squarrosus* – wet forests, willow mires, forests on the banks of rivers and streams, banks of lakes, flood plains, meadows, puddles, ditches, soil, turfs, decaying wood, in water. 6*, 9*, 11*, 12*, 13*, Lowermost Talvilampi (Pesola, 1955).
- S. subfulvum* – mires, banks of rivers and streams, wet meadows, soil, silt, hummocks, decaying wood. 9*, 11*, 14*, 24.
- **S. subnitens* – banks of streams, soil [B 85-19-86]. 11*.
- S. subsecundum* – mires, flarks, soil, silt. 7*, 14, 14*, 24, 24–50.
- S. teres* – willow shrubs, mires, banks of rivers and lakes, forests on the banks of streams, soil, decaying wood, hummocks. 6*, 11*, 12*, 14, 14*, 16*, 67.
- S. warnstorffii* – wet forests, soil. 1*, 5, 24, 60, 25 – 50, 27.
- Splachnum ampullaceum* – streams. 51 (Tuomikoski, 1939).
- S. luteum* – herbal forests. 4, 33, 37, 43.
- S. sphaericum* – fens, dung. 4, 17*, 62.
- S. vasculosum* – 4, 25, 25–43, 32, 43.
- Stereodon callichrous* – forests on the banks of lakes, soil. 5, 11*, 21, 26, 29.
- S. hamulosus* – wet screes, fine-earth, rocks, stones. 5, 23, 26, 34.
- S. holmenii* – banks of lakes, sandy shoals, sand, soil. 7*, 11*.
- S. plicatulus* – rocks. 5 (KPABG).
- S. revolutus* – 26 (Tuomikoski, 1939), 40 (Schljakov & Konstantinova, 1982).
- **S. vaucheri* – calcareous rocks. 65 (Konstantinova *et al.*, 1993).
- Straminergon stramineum* – forests, willow shrubs, mires, banks of lakes, rivers and streams, flood plains, wet meadows, flarks, soil, sand, decaying wood and plants, bases of trees, turf, hummocks, in water. 6*, 9*, 12*, 16*, 17*, 65.
- Syntrichia norvegica* – banks of rivers, meadows, screes, rocks, between stones. 5, 20, 58.
- S. ruralis* – calcareous rock outcrops, fine-earth. 5, 23, 26, 29, 30, 34.
- Tayloria lingulata* – banks of lakes and streams, beds and banks of rivers, ditches, soil, sand, decaying wood, stones, turfs. 4, 4*, 5, 6*, 8*, 11*, 16*, 25, 27, 32, 33, 34, 41, 58.
- T. tenuis* – 5 (Auer, 1942; Konstantinova *et al.*, 1993), 45 (Konstantinova *et al.*, 1993).
- Tetraphis pellucida* – forests, banks of streams, ditches, soil, decaying wood, stones, turfs, roots of trees. 1*, 2*, 6*, 9*, 11*, 16*, 42, 44, 65.
- Tetraplodon angustatus* – 5, 5–31, 29, 31.
- T. mnioides* – 5, 5 – 31, 27, 29, 30 – 55, 32, 33, 34, 38, 50, 61.
- Thuidium recognitum* – banks of lakes and ponds. 5, 28, 32, 30 – 32, 41, 45, 50, 65.
- Timmia austriaca* – calcareous rock outcrops, fine-earth. 5, 22, 23, 24, 26, 28, 29, 30, 34, 45, 65.
- **T. bavarica* – shady calcareous rock outcrops, cracks in rocks. 5 (Tuomikoski, 1939).
- **T. comata* – shady calcareous rock outcrops, cracks in rocks. 5, 24, 26, 28, 29, 34, 58.
- Tomentypnum nitens* – forests, banks and beds of streams, banks of rivers, decaying plants, soil. 2*, 4, 11*, 65.
- Tortella fragilis* – mires, banks of rivers and lakes, mountain forests, calcareous rock outcrops, stones. 5, 24, 27, 30, 34, 42, 43–64.
- T. tortuosa* – mountain forests, calcareous rock outcrops, screes, fine-earth. 5, 32, 65.
- Ulota curvifolia* – mountain forests, fine-earth, stones, rocks. 5, 23, 37, 45, 49.
- Warnstorffia exannulata* – wet and paludified forests, willow shrubs, mires, banks and beds of rivers and streams, paludified banks of lakes, puddles, snow-bed meadows, wet screes, flarks, decaying wood and plants, roots of trees, stones, turfs, hummocks, soil, silt, sand, in water. 6*, 7*, 8*, 9*, 11*, 12*, 13*, 14, 14*, 16*, 17*, 37, 65, 67, 69.
- W. fluitans* – oligotrophic mires, forests on the banks of streams, snow-bed meadows, soil, stones, turfs. 16*, 37, 65, 67, 69.
- W. procera* – mountain forests, streambeds, fens, flarks, decaying plants, in water [KPABG 8692; B 110-11-86, B 110-12-86]. 2*, 17*.
- W. pseudostraminea* – mires, wet forests, banks of streams, soil, decaying plants [KPABG 9464, B 72-8-86, B 85-3-86, B 85-5-86]. 6*, 11*, 69 (Schljakov & Konstantinova, 1982).
- W. sarmentosa* – mires, flarks, soil, in water. 13*, 17*, 65.
- W. tundrae* – eutrophic mires, paludified banks of rivers, streams and lakes. 5, 27, 43, 67.

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