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Notes on some Icelandic bryophyte species

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ABSTRACT: Several annotations are given to a recently published list of Icelandic bryophyte species. Notes are made on the distribution of several bryophyte species in Iceland. Occurrence in Iceland of species belonging to the recently revised *Bryum bicolor* group, *B. capillare* group, "*B. erythrocarpum*" group and *Racomitrium canescens* group are discussed. First find in Iceland of *Anastrophyllum minutum* (Schreb.) Schust. var. *grandis* (Lindb.) Schust., *Cladopodiella francisci* (Hook.) Joerg., *Grimmia sessitana* De Not., *Homalia trichomanoides* (Hedw.) Brid., *Jungermannia caespiticia* Lindenb., *J. confertissima* Nees, *Lophozia bicrenata* (Hoffm.) Dum., *L. longidens* (Lindb.) Mac., *Oxystegus tenuirostris* (Hook. & Tayl.) A.J.E. Sm., *Philonotis marchica* (Hedw.) Brid., *Tayloria acuminata* Hornsch. and *Tritomaria polita* (Nees) Joerg. ssp. *polymorpha* Schust. are recorded. Rediscovery of *Isopterygium elegans* (Brid.) Lindb. in Iceland is reported. *Bryoxiphium norvegicum* (Brid.) Mitt is recorded with sporophytes from Iceland. The taxonomic position of *Bartramia ithyphylla* Brid. var. *breviseta* (Lindb.) Kindb. and *Polytrichum sexangulare* Brid. var. *vulcanicum* C. Jens. is briefly discussed. *Bryum violaceum* Crundw. & Nyh. and *Cirriphyllum cirrosum* (Schwaegr.) Grout are added to the Icelandic bryophyte flora. *Bryum schleicheri* Lam. & DC. is withdrawn from the Icelandic flora.

The author published in 1983 a list of Icelandic bryophyte species (JÓHANNSSON 1983). This list was mainly based on specimens in ICEL and collections of bryophytes in other Museums in Iceland. During the last decade there has been considerable activity in bryophyte collecting, mainly in connection with a mapping project in accordance with the grid-system proposed by KRISTINSSON & JÓHANNSSON (1970). I would like to mention here the botanists H. Hallgrímsson and H. Kristinsson, and the geologist H. Jóhannesson, who have been a great help in this work. Much collected material is still waiting to be worked out and some areas are still very badly investigated. The distribution patterns of the bryophyte species in Iceland are gradually becoming clearer, and it is hoped that there will not elapse a very long time before the distribution maps will appear.

The list of JÓHANNSSON (1983) is without annotations and therefore no explanations are given as to why species new to Iceland are included or why other species are omitted. Hopefully this article will compensate for some of these deficiencies. A few additions are made to the Icelandic flora as well as notes on the distribution of several species, especially those which have recently been found in Iceland or have recently been described.

The square numbers used in brackets in the article refer to the grid-system of KRISTINSSON & JÓHANNSSON (1970). The ICEL numbers refer to the numbers in the Icelandic bryophyte collection in Icelandic Museum of Natural History in Reykjavik.

ANASTROPHYLLUM MINUTUM (Schreb.) Schust.

In addition to var. *minutum*, *A. minutum* var. *grandis* (Lindb.) Schust. has been found in Iceland (e.g. ICEL *13247*, *24546*).

ATRICHUM ANGUSTATUM (Brid.) B. & S.

This species has only been found on warm ground by hot springs. It was collected in 1975 by Á. Einarsson in the Landmannalaugar area (ICEL *13500*, square 4961) and in 1981 by H. Kristinsson in the Askja area (ICEL *20661*, square 6049). It has not been found with sporophytes.

BARTRAMIA ITHYPHYLLA Brid.

Some authors consider *B. ithyphylla* Brid. var. *breviseta* (Lindb.) Kindb. to deserve specific rank as *B. breviseta* Lindb. FRISVOLL (1978) stressed as distinguishing characters "the reduced peristome, the rather symmetrical and erect capsules and the short setae" (FRISVOLL 1978, p. 126). Frisvoll had difficulties in distinguishing between sterile *B. ithyphylla* and *B. breviseta* and admitted that he found it "difficult or impossible to discriminate between them in the sterile state" (FRISVOLL 1978, p. 126). WATSON (1964) stressed the short setae and "perfectly erect capsules immersed among the shoot tips and ill-developed peristom" (WATSON 1964, p. 200). Watson also found the spores of *B. breviseta* to be smoother than those of *B. ithyphylla*.

B. ithyphylla var. *breviseta* is in Iceland a coastal form, found along the west, north and east coasts. I do not find any constant differences between it and the usual form, neither in ornamentation, papillosity and size of the spores, nor in development of the peristome.

Specimens with symmetrical and erect, immersed capsules are very striking. Such specimens may have somewhat reduced peristom. Tufts of such plants may be found growing in a meters distance or less from tufts of the usual form with long setae and asymmetrical capsules, especially on steep slopes by the sea or where there are overhanging rocks on the seashore. In such cases it is however obvious that the form with long setae is growing in more sheltered places than the other one. I have never seen plants of both forms growing side by side.

In some places *Bartramia ithyphylla* var. *breviseta* is abundant

on slopes by the sea. Some plants are then with more or less immersed and erect capsules. Others have barely exserted capsules, which are more or less asymmetrical and cernuous and others with still longer setae and quite normal capsules, until it seems very difficult or impossible to tell whether the specimens should be named var. *ithyphylla* or var. *breviseta* (e.g. ICEL *13960*, *20160*, *23979*). The variation in length of the seta seems to be continuous in such localities and the same must be said about the form of the capsule. In other localities the variation may be very similar, except that the form with the shortest setae are lacking. In still other localities, especially on islands, only specimens with very short setae are found.

An erect symmetrical capsule is not a constant character of *B. ithyphylla* var. *breviseta*, specimens with asymmetrical cernuous capsules must also be included. The form of the capsule cannot, in my opinion, be used as a distinguishing character between *B. ithyphylla* and *B. breviseta*.

Many collections of *B. ithyphylla* s.lat., especially from the coast of NW-Iceland, have even shorter setae than some plants from continuous tufts of *B. ithyphylla* var. *breviseta*, but would be determined as *B. ithyphylla* var. *ithyphylla* without hesitation. In *B. ithyphylla* s. lat. I have not been able to find any distinct gap in the variation of the length of the setae.

Having seen the variation of *B. ithyphylla* Brid. in the coastal areas I find it very hard to believe that *B. breviseta* Lindb. is a species.

BRACHYTHECIUM ALBICANS (Hedw.) B.,S.& G.

Several specimens in ICEL have been determined as *B. albicans* var. *groenlandicum* C. Jens. (*B. groenlandicum* (C.Jens.) Schljak.), and at least many of them easily key out as such according to the flora of NYHOLM (1965). Provisionally I prefer to treat all those specimens as *B. albicans* in a wide sense mainly for two reasons. Firstly, I am not familiar with *B. groenlandicum* and I am not certain that the Icelandic mountain forms are identical with that taxon. Secondly, *B. albicans* s. lat. is so variable and occurs in so different forms, that it seems difficult to divide it satisfactorily in two entities.

BRACHYTHECIUM PLUMOSUM (Hedw.) B.,S.& G.

This species was first correctly recorded from Iceland by H. Persson, when he pointed out that *B. longipilum* Hesselbo was a synonym of *B. plumosum* (PERSSON 1946). The species has now been found to be distributed over the southern lowland areas from Snæfellsnes in the West to Seyðisfjörður in the East.

BRYOXIPHIUM NORVEGICUM (Brid.) Mitt.

To my knowledge *B. norvegicum* with sporophytes has not been reported before from Iceland. A collection made by H. Kristinsson 1979 in Þórsmörk, S-Iceland (ICEL *17320*) is with numerous ripe capsules.

BRYUM BICOLOR complex

Specimens from the Westman Islands (e.g. ICEL *21569*) collected 1972 by S. Magnússon and specimens from NW-Iceland (square 3840) collected 1983 by the author (ICEL *23798*) belong to *B. bicolor* Dicks. Some specimens from the Westman Islands are very different in the longly excurrent nerve and in the narrow, hardly concave, tapering leaves. I believe they must be referred to *B. dunense* A.J.E.Sm. & H.Whiteh. (see SMITH & WHITEHOUSE 1978). Among these specimens are ICEL *10373*, recorded as *B. bicolor* by S. MAGNÚSSON (1974).

BRYUM CAPILLARE group

Of this group (see SYED 1973 and SMITH 1978) four species have been found in Iceland, i.e. *B. capillare* Hedw., *B. elegans* Brid., *B. flaccidum* Brid. and *B. stirtonii* Schimp. So far *B. capillare* seems to have a rather southern distribution. *B. elegans* and *B. flaccidum* seem to be widely distributed lowland species. The distribution pattern of *B. stirtonii* seems to be different from the other ones. Its main distribution is in the highlands and in the northern part of the country, although it reaches the southern lowland areas.

"BRYUM ERYTHROCARPUM" complex

The main habitat for species of this complex is warm, clayey soil by hot springs. The species already found in such localities are *B. klinggraeffii* Schimp., *B. sauteri* B., S. & G., *B. subapiculatum* Hampe, *B. tenuisetum* Limpr. and *B. violaceum* Crundw. & Nyh. Their distribution in Iceland is still insufficiently known. So far *B. klinggraeffii* and *B. tenuisetum* seem to be the ones most widely distributed. *B. violaceum* was recognized too recently to be included in the list of JÓHANNSSON (1983). For further information on this group see CRUNDWELL & NYHOLM (1964).

BRYUM NEODAMENSE C. Muell. var. *OVATUM* (J. Lange & C. Jens.) Lindb. & H. Arn.

There is one record from Iceland (HESSELBO 1918). The specimens (ICEL *19855*) belong in my opinion to *B. pseudotriquetrum* (Hedw.) Gaertn. et al. The leaves on lower part of the stems are typical for *B. pseudotriquetrum*, but the younger stems bear more obtuse and somewhat cucullate leaves. Other species of *Bryum* may show the same variation, e.g. *B. weigelii*. Such forms of *B. weigelii* may even be mistaken for *B. cryophilum* if the lower leaves are not checked (ICEL *15023*).

BRYUM SCHLEICHERI Lam. & DC.

The listing of this species by JÓHANNSSON (1983) was mainly based on specimens collected 1974 by the author in a mountain stream at Lýsuhóll in W-Iceland (ICEL *19854*). These specimens are robust, turgid and yellowish. The relatively broad leaves are not red at the base and lack the typical decurrent base of *B. pseudotriquetrum*. The leaf-cells are thin-walled and broad. On the whole the Lýsuhóll specimens are very similar to specimens of *B. schleicheri* from Jutland in Denmark (coll. & det. C. JENSEN 1906). Although

the specimens from Lýsuhóll were considered to be the most reliable ones, I had seen similar specimens from two other localities. None of these specimens have sporophytes. It was therefore after some hesitation that the species was listed as Icelandic by JÓHANNSSON (1983).

In the summer of 1983 H. Hallgrimsson collected very similar specimens near Húsavík in N-Iceland (ICEL *24362*). The specimens from Húsavík were determined as *B. pseudotriquetrum* (Hedw.) Gaertn. et al. by Hallgrimsson, and I quite agree with him. These specimens have several well developed sporophytes. Thus it seems that the specimens from Lýsuhóll also represent a form of *B. pseudotriquetrum*. *B. schleicheri* should therefore be withdrawn from the Icelandic flora. After this experience I agree with MÅRTENSSON (1956, p. 183) when he wrote on *B. schleicheri*: "I would prefer to be able to establish its occurrence with fruiting specimens". His caution seems to be warranted.

BRYUM ULIGINOSUM (Brid.) B.& S.

HESSELBO (1918) records this species from three localities in Iceland. As Hesselbo mentioned, the specimens have synoecious inflorescences and the outer peristome teeth are horizontally papillose-striate. I have seen the specimens from Haukadalsheiði (ICEL *8036*) and Svinadalur (ICEL *16372*). They are in my opinion much closer to *B. purpurascens* (R.Brown) B.,S.& G. than *B. uliginosum*. The only other record of this species from Iceland known to me is that of JÓHANNSSON & KRISTINSSON (1972) and JÓHANNSSON, KRISTINSSON & PÁLSSON (1974) from Thjórsárver. The specimens of this collection also belong to *B. purpurascens*. The author therefore (JÓHANNSSON 1983) excluded the species from the Icelandic flora.

CHILOSCYPHUS Corda

Three taxa are known from Iceland, *C. pallescens* (Hoffm.) Dum., *C. polyanthos* (L.) Corda and *C. fragilis* (Roth) Schiffn. They have been combined in a different ways by different authors. S. ARNELL (1956) and STEERE & INOUE (1978) treat *fragilis* as a variety of *polyanthos*. On the other hand SCHUSTER (1980) and DUELL (1983) treat *fragilis* as a variety of *pallescens*. GRADSTEIN (1977) treats *pallescens* as a variety of *polyanthos*. Because of the confusingly different recent interpretations the author provisionally follows Gradstein and thus listed the three taxa as one species, *C. polyanthos* (JÓHANNSSON 1983).

CINCLIDIUM SUBROTUNDUM Lindb.

There are few collections of this species in ICEL from NW- and N-Iceland and from the western part of the central highland.

CIRRIPHYLLUM CIRROSUM (Schwaegr.) Grout

This species is recorded from Iceland by HESSELBO (1918). JÓHANNSSON (1969) found the specimens to belong to *C. piliferum* (Hedw.) Grout. The species is therefore excluded from the Icelandic flora by JÓHANNSSON (1983). Recently good specimens of

it have been found in material collected 1979 by the author in NW-Iceland (ICEL *24679*, square 2443).

CLADOPODIELLA FRANCISCI (Hook.) Joerg.

Found by the author in 1979 in the thermal area at Landmannalaugar (ICEL *16694*, square 4961).

DIDYMODON FALLAX (Hedw.) Zander

This is a variable species in Iceland as elsewhere. A few specimens from southern Iceland seem to be referable to *D. fallax* var. *reflexus* (Brid.) Zander (*D. ferrugineus* (Besch.) M.Hill). Although NYHOLM (1956) and SMITH (1978) consider *D. ferrugineus* to be distinct, I find it difficult to decide whether some of these specimens should be named var. *fallax* or var. *reflexus* and therefore I prefer to use the varietal status here. Icelandic specimens belonging to this complex, including those referred to *D. tophaceus*, need a further study.

DIDYMODON MAMILLOSUS (Crundw.) M.Hill

The species is listed by JÓHANNSSON (1983). The author had previously referred two collections in ICEL to this species. These are: Specimens collected by E.W. Jones in 1934 in Grímsey, N-Iceland, determined by W.E. Nicholson as *Barbula tophacea* (JONES 1946) and specimens collected by J.P. Frahm in 1973 at Hrossaborg, N-Iceland, determined by F. Koppe as *Barbula lurida* (FRAHM 1975). Specimens from both localities have axillary gemmae and quadrate cells on the ventral side of the nerve. Thus the previous determinations are hardly acceptable. Of the European and North-American species known to me these specimens seem to be closest to *D. mamillosus*, *D. nicholsonii* and *D. rigidulus*. *D. rigidulus* is rather common in the southwestern part of the country but has not been found elsewhere. The previously mentioned specimens are distinctly different from all specimens of *D. rigidulus* I have seen. In my opinion they do not belong to this species.

The third collection which possibly belongs to the same taxon was made by H. Hallgrímsson in 1983 at Tjörnes, N-Iceland (ICEL *24242*, square 5737). These specimens are more luxuriant than the others and seem to differ considerably from the description of *D. mamillosus* (CRUNDWELL 1976). They have i.e. rather distinctly papillose leaf-cells, more obtuse, sometimes cucullate leaf apex and more recurved leaf margin.

It is obvious that this matter needs a careful reconsideration and further discussions must wait until it has been satisfactorily settled.

DIDYMODON VINEALIS (Brid.) Zander

D. vinealis var. *flaccidus* (B.& S.) Zander (*D. insulanus* (De Not.) M.Hill) is more common than var. *vinealis*. *D. vinealis* var. *vinealis* is the more common form in NW-Iceland and at least in some areas in N-Iceland, but rare elsewhere. Specimens are usually

easily named but in some instances I have difficulties with the determination. Therefore I provisionally use the varietal status for *D. insulanus*, as is done e.g. by NYHOLM (1956).

DIPLOPHYLLUM TAXIFOLIUM (Wahlenb.) Dum.

D. obtusifolium is recorded by HESSELBO (1918) but the specimens have been found to belong to this species. It is known from scattered localities in the northern part of the country.

DITRICHUM LINEARE (Sw.) Lindb.

This species grows mainly by warm springs. It has not been found with sporophytes. Thus the determination may be considered to be unreliable, but I am reasonably satisfied with it and the specimens fit very well with specimens of *D. lineare* from Canada.

DREPANOCLADUS BADIUS (Hartm.) G.Roth

This species is recorded from Iceland by MEYLAN (1940). There are recently collected specimens in ICEL from a few localities in NW- and N-Iceland.

DREPANOCLADUS FLUITANS (Hedw.) Warnst.

Both var. *fluitans* and var. *falcatus* (C.Jens.) Roth (*D. schulzei* Roth) are known from Iceland. Both taxa seem to be rare.

ENCALYPTA BREVIPES Schljak.

This species is recorded from Iceland by HORTON (1980). The record was based on specimens collected by ANDREWS in 1914 near Hafnarfjörður. Recent collections of the species in Iceland are all from the south-western part of the country, from Hafnarfjörður in the West to Hvolsvöllur in the East.

ENCALYPTA STREPTOCARPA Hedw.

Although this species is listed by JÓHANNSSON (1983) there is no definite proof that it occurs in Iceland. To this species have been referred a few specimens which do not show any of the characters supposed to separate sterile specimens of *E. procera* Bruch from *E. streptocarpa*. It may be questioned whether sterile specimens lacking these criteria, e.g. hairpoint, revolute leaf margin and well developed central strand, necessarily belong to *E. streptocarpa* and not to *E. procera*. *E. procera* is known from practically all areas, where specimens referred to *E. streptocarpa* have been found. All the *E. streptocarpa* specimens are from lowland areas. *E. procera* has been found in suitable localities in almost the whole country. It is especially found in the mountains but it is also found in the lowlands, even in the lowland areas in S-Iceland.

GRIMMIA PULVINATA (Hedw.) Sm.

This species was recorded from Iceland by JÓHANNSSON (1962). The specimens certainly belong to this species. On the other hand

this species does not grow now in the collecting locality. It is possible that it is now extinct, but I find it more likely that there has been a confusion of labels. The specimens were collected in 1959 when the author also collected mosses in Germany. Because it is at least a possibility that the specimens are from Germany, the species is excluded from the Icelandic flora by JÓHANNSSON (1983), and must be so unless it will be refound.

GRIMMIA SESSITANA De Not.

Specimens from nunataks in Vatnajökull, Esjufjöll, have been determined as this species by the author (ICEL *15001* and *15002*, square 6258, collected by K. Egilsson 1972). The specimens have well developed sporophytes. Related *Grimmia* species have in my opinion been much misidentified in the past. I want especially to mention *G. alpestris* (Web. & Mohr) Hornsch. As I understand that species I have only seen it from the extreme northern areas in Iceland. *G. montana* B. & S. is on the other hand locally rather frequent in the lowland areas but rare in the mountains. *G. affinis* Hornsch. is a widely distributed species, and in some places even common. *G. ovalis* (Hedw.) Lindb. is very rare in Iceland.

HEDWIGIA CILIATA (Hedw.) P. Beauv.

HESSELBO (1918) recorded this species only from one locality. It is now known from scattered localities along the southeastern, southern and western coast. It is frequently found with sporophytes.

HOMALIA TRICHOMANOIDES (Hedw.) Brid.

This species was found in 1981 by the author in two localities in S-Iceland (ICEL *19189* and *19203*, squares 4161 and 4463).

HYPNUM JUTLANDICUM Holmen & Warncke

The specimens recorded by HESSELBO (1918) as *H. imponens* belong to *H. jutlandicum*. It is rather common in SW-Iceland and has also been found in scattered localities in S-, SE-, W- and NW-Iceland.

ISOPTERYGIUM ELEGANS (Brid.) Lindb.

This species was found by HESSELBO 1912 on warm ground in S-Iceland (HESSELBO 1918). JÓHANNSSON (1983) listed the species as only found before 1950. Recently it has been rediscovered in W-Iceland. It was collected 1983 (ICEL *24340*, square 2750) by H. Jóhannesson growing in a cave in hyaloclastitic rocks.

JUNGERMANNIA CAESPITICIA Lindenb.

In the summer of 1980 the author collected this species with gemmae and perianths around the hot springs at Deildartunga in W-Iceland (ICEL *18278*, square 3853).

JUNGERMANNIA CONFERTISSIMA Nees

This species has been found by the author with perianths in the central highland (ICEL *8336*, square 5054) and in South-Iceland

(ICEL *6074*, *8340* and *13120*, squares 6261, 4565 and 4764).

JUNGERMANNIA HYALINA Lyell

Found by the author in 1973 in S-Iceland on moist sandy soil along a river (ICEL *18808*, square 5366) and in 1981 at an outlet from a warm spring in W-Iceland (ICEL *23708*, square 3953).

LOPHOCOLEA BIDENTATA (L.) Dum.

Conventionally a distinction is made between the autoecious part as *L. cuspidata* (Nees) Limpr. and the dioecious part as *L. bidentata* (L.) Dum. I am using these names here in the old conventional way. The more common taxon in Iceland seems to be *L. bidentata*. Collections of definitely autoecious specimens are very few. Otherwise there seems not to be any major difference between the distribution patterns of the two taxa. Autoecious inflorescences have only been found on specimens which according to leaf lobes and branching gave reason to believe they might belong to *L. cuspidata*. Thus, the criteria given by SCHUSTER (1980) and STEEL (1978) seem to work reasonably well.

LOPHOZIA BICRENATA (Hoffm.) Dum.

Found by the author in 1965 in S-Iceland (ICEL *14160*, square 4561) and in 1969 in NW-Iceland (ICEL *5857*, square 3438).

LOPHOZIA GILLMANII (Aust.) Schust.

This species is confirmed by fertile paroecious specimens in ICEL from most parts of the country.

LOPHOZIA LONGIDENS (Lindb.) Mac.

Found by the author in 1981 in a birch scrub in Aðaldalur, N-Iceland (ICEL *22910*, square 5739).

MARCHANTIA L.

By far the commonest taxon is *M. alpestris* (Nees) Burgeff. Other taxa known from Iceland are *M. polymorpha* L. and *M. aquatica* (Nees) Burgeff, but both are rare. *M. aquatica* is commonly treated as a variety of *M. polymorpha*, but habitus, habitat and distribution of these two taxa in Iceland are quite different.

MEESIA ULIGINOSA Hedw.

Forms with acute leaves are often found, especially in the central highland. All specimens in ICEL previously named *M. hexasticha* are such acute-leaved forms of *M. uliginosa*.

NARDIA INSECTA Lindb.

Nardia insecta has been recorded from Iceland by HESSELBO (1918, as *Alicularia geoscypha* var. *insecta*) and by JONES (1946). I have not seen these specimens.

The species is listed by JÓHANNSSON (1983) as found in Iceland recently. This assumption was based on specimens collected by H. Jóhannesson in 1982 in W-Iceland (ICEL *22305*). Comparison with further specimens from the same region have now convinced me that these specimens represent unusually robust, erect specimens of *N. geoscyphus* (De Not.) Lindb.

OXYSTEGUS TENUIROSTRIS (Hook.& Tayl.) A.J.E. Sm.

To my knowledge it was first collected in Iceland by the author in 1982 on lava and boulders in SW-Iceland (ICEL *22068* and *22129*, squares 3559 and 3659).

PHAEOCEROS Prosk.

All specimens checked belong to *P. laevis* (L.) Prosk. ssp. *carolinianus* (Michx.) Prosk., which is commonly given the status of a species as *P. carolinianus* (Michx.) Prosk. It is considered to be the only taxon of this genus found in Iceland.

PHILONOTIS MARCHICA (Hedw.) Brid.

Specimens collected 1965 by the author on warm ground at Reykir in Fnjóskadalur, N-Iceland, have been considered to belong to this species (ICEL *19857*, square 5543). The species is listed by JÓHANNSSON (1983) but has otherwise not been reported from Iceland before. It was collected again 1982 by K. Egilsson on warm ground in Laugarvalladalur, E-Iceland (ICEL *22844*, square 6549). The specimens are sterile but with propagules in the leaf axils. It has not been found in the hot spring areas in S- and W-Iceland.

POGONATUM DENTATUM (Brid.) Brid.

This species is recorded by HESSELBO (1918) from Reykjavík. During the last decades it has been spreading rapidly from this area to the North through the lowland of W-Iceland and to a lesser extent to the East through the lowland of S-Iceland. In 1960 it had reached the Snæfellsnes peninsula in the West and now it has reached the Vestfirðir area. Towards East it has only reached the western part of the southern lowland. *P. dentatum* grows on banks of recent ditches in peat bogs and is usually with sporophytes.

POLYTRICHUM SPHAEROTHECIUM (Besch.) C. Muell.

P. sexangulare Brid. var. *vulcanicum* C. Jens. is always distinguishable from *P. sexangulare* var. *sexangulare*, almost as easily when sterile as with sporophytes. I prefer to treat it as a species, *P. sphaerothecium.* Its distribution is quite different from that of *P. sexangulare* and it has quite a different habitat. No intermediate forms between these taxa have been found in Iceland. For contradictory opinions on the relation between these taxa see discussions by PERSSON (1968) and SCHOFIELD (1966).

RACOMITRIUM CANESCENS group

For recent investigations on this group see FRISVOLL (1983a). *R. ericoides* (Brid.) Brid. is the commonest member of this group in Iceland. It is common all over the country. *R. canescens* (Hedw.)

Brid. is most common in the northern and eastern parts but is found in all parts of the country. *R. elongatum* (Ehrh.) Frisv. is, as far as its distribution is known, a lowland species. It has been found in many lowland areas although it seems to be generally rather rare. However, it may be locally common, at least in some places in SW-Iceland.

RACOMITRIUM SUDETICUM (Funck) B.& S.

Since I have never understood how to distinguish between *R. sudeticum* and *R. affine* (Web.& Mohr) Lindb. I should perhaps rather use *R. affine*, but most of the Icelandic specimens belong to what has been understood as *R. sudeticum* and therefore I use this name here.

The main problem with this variable species concerns the possible relation between it and *R. microcarpon* (Hedw.) Brid. In Iceland there are forms with long cells in upper part of the leaf. These forms might therefore be referred to *R. microcarpon*, but some specimens at least have bistratose leaf margin and branching and general habit is that of *R. sudeticum*. Similar specimens are discussed by FRISVOLL (1983b) from Svalbard.

HESSELBO (1918) records *R. microcarpon* from one locality in Iceland, Hof by Eyjafjörður. The specimens were collected by Ó. Daviðsson in 1898 (ICEL *5135*). I am inclined to believe that these specimens are correctly determined.

RADULA COMPLANATA (L.) Dum.

Both unisexual and bisexual plants occur in Iceland. Some authors, e.g. GROLLE (1983) treat the unisexual part as a species, *R. lindenbergiana* Hartm.f., others, e.g. SCHUSTER (1980) as a ssp. of *R. complanata*. As they seem to be indistinguishable when sterile I prefer to follow Schuster. The bisexual part, *R. complanata* ssp. *complanata*, is by far the more common taxon in Iceland.

RICCIA BEYRICHIANA Lehm.

HESSELBO (1918) recorded *R. bifurca* Hoffm. from Iceland but not *R. beyrichiana*. I have for a long time been of the opinion that the common *Riccia* species on warm ground is *R. beyrichiana* and not *R. bifurca*. I have found no reason to believe that there are more than one species involved. Thus I have assumed that the records of *R. bifurca* by HESSELBO (1918) and DIERSSEN (1973) would be referable to *R. beyrichiana*. PATON (1980) considered specimens from Mývatn collected by E.W. Jones in 1934 to belong to *R. bifurca*. I consider this the most reliable record of *R. bifurca* from Iceland. Further investigations are needed to settle the question whether both species occur in Iceland.

RICCIA CAVERNOSA Hoffm.

This species was found near a warm spring in W-Iceland 1981 (ICEL *19390*, square 3953) by the author. The record of *R. crystallina* by *HESSELBO* (1918) surely also belongs to this species.

SCAPANIA DEGENII Schiffn.

This species has been found to be widely distributed in Iceland. There are several specimens with gemmae in ICEL and some with perianths.

SPHAGNUM MAGELLANICUM Brid.

BODIL LANGE (1952) found all specimens recorded as this species by HESSELBO (1918) to be wrong. As pointed out by JÓHANNSSON (1969) the species is recorded from Iceland by ANDREWS (1917) and was collected by I. Davíðsson 1937 in the vicinity of Reykjavík.

Recent collections are from W-Iceland. It was collected by the author 1978 on boggy ground by a lake in the Hvalfjörður area (ICEL *15907*, square 3656) and in 1981 in a warm spring area in the Borgarfjörður district (ICEL *19482*, square 3853).

SPHAGNUM RUBELLUM Wils.

This species is excluded from the Icelandic flora in agreement with Bodil Lange (pers. comm.), who has made extensive studies on the Icelandic *Sphagnum* flora (LANGE 1952, 1963, 1973).

SPHAGNUM TENELLUM (Brid.) Bory

This species was collected 1965 by I. Davíðsson in the Snæfellsnes peninsula, W-Iceland (ICEL *16476*). It has since been found by Bodil Lange (unpubl. pers. comm.) and the author in some further localities in W-Iceland.

TAYLORIA ACUMINATA Hornsch.

The first and only collection of this species in Iceland was made by H. Jóhannesson in a bird cliff at Hornbjarg, NW-Iceland in 1981 (ICEL *19420*, square 3433).

TREMATODON AMBIGUUS (Hedw.) Hornsch.

The only specimens in ICEL are collected in 1909. The species is marked in the list by JÓHANNSSON (1983) in accordance with this fact. It should be noted that the species has recently been collected and recorded by DIERSSEN (1973).

TRITOMARIA POLITA (Nees) Joerg.

In addition to ssp. *polita*, which is widely distributed, ssp. *polymorpha* Schust. is known from Iceland (ICEL *6637*, square 4961, leg. B.J. 1968). This taxon has recently been given a specific status as *T. polymorpha* (Schust.) Grolle (GROLLE 1983). DAMSHOLT (1983) has convincingly demonstrated that the supposed differences between the gemmae of these two taxa do not exist. As these differences were considered to be "Perhaps most important of all" (SCHUSTER 1969, page 703) the specific status for this taxon does not seem to be justified. The Icelandic material is abundantly gemmiferous. The habitat was sandy lava. The only associated species noted was

Bartramia ithyphylla Brid. Usual habitats for ssp. *polita* are stream-banks, bogs or other very wet places.

WEISSIA RUTILANS (Hedw.) Lindb.

Found in S. and SW-Iceland (ICEL *16260*, *23476* and *24100*; squares 4259, 3658 and 4359).

REFERENCES

ANDREWS, A.L. 1917. Bryological Notes III. Further mosses new to Iceland. Torreya 17: 60-62.

ARNELL, S. 1956. Illustrated moss flora of Fennoscandia. I. Hepaticae (314 pp.). Lund.

CRUNDWELL, A.C. 1976. *Barbula mamillosa*, a new species from Scotland. J.Bryol. 9: 163-166.

CRUNDWELL, A.C. & E. NYHOLM. 1964. The European species of the *Bryum erythrocarpum* complex. Trans. Br. bryol. Soc. 4: 597-637.

DAMSHOLT, K. 1983. The Gemmae of *Tritomaria (Saccobasis) polita* (Nees) Schiffn. ssp. *polita* (Hepaticae). The Bryologist 86: 139-141.

DIERSSEN, K. 1973. Ergänzungen zur Moosflora Islands. Herzogia 3: 83-109.

DUELL, R. 1983. Distribution of the European and Macronesian liverworts (Hepaticophytina). Bryologische Beiträge 2: 1-114.

FRAHM, J.P. 1975. Beiträge zur Moosflora von Island. Herzogia 3: 171-188.

FRISVOLL, A.A. 1978. Twenty-eight bryophytes new to Svalbard. The Bryologist 81: 122-136.

FRISVOLL, A.A. 1983a. A taxonomic revision of the *Racomitrium canescens* group (Bryophyta, Grimmiales). Gunneria 41: 1-181.

FRISVOLL, A.A. 1983b. Revision of Svalbard bryophytes. II. The genus *Racomitrium*. Lindbergia 9: 41-52.

GRADSTEIN, S.R. 1977. Lijst van de in Nederland voorkomende Levermossen. Lindbergia 4: 151-156.

GROLLE, R. 1983. Hepatics of Europe including the Azores: an annotated list of species, with synonyms from the recent literature. J. Bryol. 12: 403-459.

HESSELBO, A. 1918. The Bryophyta of Iceland. Bot. Icel. 1: 395-677.

HORTON, D.G. 1980. *Encalypta brevipes* and *E. brevicolla*: new records from North America, Iceland, Great Britain and Europe. J. Bryol. 11: 209-212.

JÓHANNSSON, B. 1962. Þrír ættbálkar mosa. Náttfr. 32: 145-154.

JÓHANNSSON, B. 1969. Athuganir á íslenzku mosaflórunni. Náttfr. 39: 49-67.

JÓHANNSSON, B. 1983. A list of Icelandic bryophyte species. Acta Nat. Isl. 30 (29 pp.).

JÓHANNSSON, B. & H. KRISTINSSON. 1972. Skýrsla um grasafræðilegar rannsóknir í Þjórsárverum sumarið 1971 (83 pp.). Orkustofnun, Reykjavík.

JÓHANNSSON, B., H. KRISTINSSON & J. PÁLSSON. 1974. Skýrsla um grasafræðirannsóknir í Þjórsárverum 1972 (153 pp.). Orkustofnun, Reykjavík.

JONES, E.W. 1946. Notes on the bryophyte flora of Grímsey and other parts of North Iceland. The Bryologist 49: 14-29.

KRISTINSSON, H. & B. JÓHANNSSON. 1970. Reitskipting Íslands fyrir rannsóknir á útbreiðslu plantna. Náttfr. 40: 58-65.

LANGE, B. 1952. A revision of the *Sphagnum* flora of Iceland. Bot. Tidsskr. 49: 192-195.

LANGE, B. 1963. Studies in the *Sphagnum* flora of Iceland and the Faeroes. Bot. Tidsskr. 59: 220-243.

LANGE, B. 1973. The *Sphagnum* flora of hot springs in Iceland. Lindbergia 2: 81-93.

MAGNÚSSON, S. 1974. Additions to the bryophyte flora of Iceland. Acta Bot. Isl. 3: 100-101.

MÅRTENSSON, O. 1956. Bryophytes of the Torneträsk Area, Northern Swedish Lappland. 2. Musci (321 pp.). Kungl. Sv. Vet. Avhandl. Nat. 14.

MEYLAN, C. 1940. Contribution à la connaissance de la flore bryologique de l'Islande. Bull. Soc. Bot. Suiss 50: 475-499.

NYHOLM, E. 1956. Illustrated moss flora of Fennoscandia II. Musci (2): 87-189. Lund.

NYHOLM, E. 1965. Illustrated moss flora of Fennoscandia II. Musci (5): 408-647. Lund.

PATON, J.A. 1980. Observations on *Riccia bifurca* Hoffm. and other species of *Riccia* L. in the British Isles. J. Bryol. 11: 1-6.

PERSSON, H. 1946. On the identity of *Brachythecium longipilum* Hesselbo. Rev. Bryol. Lichénol. 15 (3-4): 131-133.

PERSSON, H. 1968. Bryophytes from the Aleutian Islands, Alaska, collected mainly by Hansford P. Shacklette. Bot. Tidsskr. 62 (2): 369-387.

SCHOFIELD, W.B. 1966. The identity of *Polytrichum sphaerothecium* (Besch.) Broth. Misc. Bryol. Lichenol. 4(3): 33-35.

SCHUSTER, R.M. 1969. The Hepaticae and Anthocerotae of North America 2. (1062 pp.) New York.

SCHUSTER, R.M. 1980. The Hepaticae and Anthocerotae of North America 4. (1334 pp.) New York.

SMITH, A.J.E. 1978. The moss flora of Britain and Ireland. (706 pp.) Cambridge.

SMITH, A.J.E. & H.L.K. WHITEHOUSE. 1978. An account of the British species of the *Bryum bicolor* complex including *B. dunense* sp. nov. J. Bryol. 10: 29-47.

STEEL, D.P. 1978. The taxonomy of *Lophocolea bidentata* (L.) Dum. and *L. cuspidata* (Nees) Limpr. J. Bryol. 10: 49-59.

STEERE, W.C. & H. INOUE. 1978. The Hepaticae of arctic Alaska. J. Hattori Bot. Lab. 44: 251-345.

SYED, H. 1973. A taxonomic study of *Bryum capillare* Hedw. and related species. J. Bryol. 7: 265-326.

WATSON, E.V. 1964. An annotated list of the bryophytes of Jan Mayen island. Nytt Mag. Bot. 11: 151-212.

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