

## Checklist and country status of European bryophytes – towards a new Red List for Europe



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## Preface

The Board of the ECCB (European Committee for the Conservation of Bryophytes) met in Zurich 2011 and agreed that the Red Data Book of European Bryophytes (published in 1995) needed to be updated and replaced, because since its publication, there has been an improvement in our knowledge of the bryophytes of Europe, especially concerning taxonomy and distribution. Later on, in April 2012, the 8th conference on Bryophyte Conservation was held in the Hungarian Natural History Museum, Budapest, with 70 participants from 34 countries. The conference decided to prepare a new Red Data Book of European Bryophytes with a new Red List. ECCB established a Main Workgroup and Regional Workgroups (NW-, SW-, N-, Central-, SE-Europe and Russia).

The main tasks for the new Red Data Book of European Bryophytes project are: to collate and update existing information for European countries on the basis of country Red Lists and checklists; to list candidate species for the Red Data Book; to establish methodologies and protocols for data collection, species distribution mapping and threat assessments, and to produce and publish a Red Data Book.

The first two tasks have now been completed. A comprehensive table, listing the occurrence and Red List status of each species, in each European country, has been prepared. ECCB contacts from almost all European countries have been involved in the work. The 1st Workshop meeting of the new Red Data Book of European Bryophytes project was held in Ekenäs, Sweden, in 2013. A shortlist of candidate species for IUCN threat assessment was established by eliminating those species known with certainty to be of Least Concern. Of 1980 bryophyte taxa known to occur in Europe, 242 liverworts and 693 mosses were selected for further consideration.

This report is a summation of these results and gives a methodological overview of how IUCN criteria could be applied to European bryophytes. The work was financially supported by the Irish National Parks and Wildlife Service (NPWS) and the Swedish ArtDatabanken (SLU). The report was compiled by Nick Hodgetts and edited by Neil Lockhart, Tomas Hallingbäck and Edwin Wymer. This work would not have been possible without the generous help of ECCB country representatives, who have contributed with current information regarding checklists, Red Lists and bryophyte conservation generally in each European country. This report is also available in PDF format, and the checklists as downloadable Excel files, on the ECCB website (<http://eccbbryo.nhmus.hu/>).

I hope that this report will be useful for all bryologists, especially those interested in the conservation of bryophytes. I would like to thank all of you who have worked and contributed to this, so please enjoy this report as the first results of your efforts.

*Dr Beáta Papp* Chair of ECCB (European Committee for Conservation of Bryophytes)

## Executive Summary

This report describes the background to the project to revise the Red List for bryophytes in Europe. Since the launch of the pilot study at the European Committee for the Conservation of Bryophytes (ECCB) conference in Budapest 2012, steady progress has been made towards updating a checklist of liverworts, hornworts and mosses for all of Europe. With assistance from the network of Regional Co-ordinators and Country Contacts, the presence of taxa recorded for each country/territory, with local Red List status, is presented in this report. This checklist will also be published on the ECCB website <http://eccbbryo.nhmus.hu/node/4>.

A workshop meeting held in Ekenäs, Sweden in March 2013 produced an initial list of 'candidate species' from the checklist. These species can proceed forward for IUCN threat assessment. This was achieved by identifying and then excluding those taxa considered with certainty to be Least Concern. With the elimination of these Least Concern taxa, there are currently 242 liverwort and hornwort taxa, and 693 moss taxa, which are candidates for Red List assessment.

This report also reviews and refines IUCN categories and criteria that could be used in the Red List assessments. Examples of a possible format for data sheets for Red List species are presented. References to country checklists and Red Lists and an updated list of ECCB Country Contacts are also provided.

## Acknowledgements

I would like to thank all the members of the ECCB and other bryologists Europe-wide, too numerous to mention individually, who helped me produce this report by generously providing information. I would particularly like to thank the ECCB Board for constructive discussions and helpful advice, and Tomas Hallingbäck of the Swedish ArtDatabanken and Neil Lockhart of the Irish National Parks and Wildlife Service for providing funding for this pilot project.

*Nick Hodgetts*

## Introduction

Red Lists are needed to underpin conservation action with the best scientific data available. The International Union for the Conservation of Nature (IUCN) produces a global Red List to highlight the most threatened organisms on the planet, but Red Lists are also produced regionally and on a country basis. Bryophytes, although individually small, are collectively a key part of vegetation communities and biodiversity. Like other organisms, bryophytes are under increasing threat of decline and ultimately extinction from anthropogenic pressures, and nowhere more so than in Europe, one of the most developed and densely-inhabited parts of the globe. New information is needed at a European level to inform the conservation of bryophytes and their habitats, and a Red List is a key element of this.

The Global Strategy for Plant Conservation (Secretariat of the Convention on Biological Diversity 2003; [http://intranet.iucn.org/webfiles/doc/SSC/SSCwebsite/Plants/global\\_strategy.pdf](http://intranet.iucn.org/webfiles/doc/SSC/SSCwebsite/Plants/global_strategy.pdf)) lists as one of its objectives “understanding and documenting plant diversity”, with a sub-objective to “monitor the status and trends in global plant diversity and its conservation, and threats to plant diversity, and identify plant species, plant communities, and associated habitats and ecosystems, at risk, including consideration of Red Lists”. This proposal for a new European bryophyte Red List therefore clearly links in with the Strategy.

The European Committee for the Conservation of Bryophytes (ECCB) was inaugurated in 1990 to address the conservation of bryophytes in Europe. It is composed of a network of bryologists Europe-wide, with members from universities, museums, conservation agencies and private individuals in partnership. It has no funding, but has a loose membership and is run principally by a Board that is re-elected at conferences, which are held every 4 years or so.

The ECCB produced the first Red List of bryophytes in Europe in 1995 (ECCB 1995), using the old IUCN categories and criteria. Since then, while there have been many positive conservation actions for bryophytes, the overall picture, both in Europe and globally, is still one of habitat loss and decline. Habitats sensitive to disturbance such as old-growth forest, fens and bogs and species-rich grassland continue to become smaller in extent and more vulnerable to pressures from the ever-increasing human population. It is now accepted by most of the scientific community that climate change is taking place, with a general warming resulting in a reduction in snow and ice. This is particularly noticeable in mountain ranges such as the Alps, where the glaciers are clearly shrinking. This is bound to have a knock-on effect on arctic-alpine plant communities, including the bryophytes. In northern Europe and Asia, areas of tundra that were once frozen in permafrost are now thawing, again with profound consequences for the flora and fauna and perhaps even the climate of Europe.

Perhaps most seriously, Europe, and the world generally, has fallen on hard times. All over Europe nature conservation is taking a back seat while governments struggle with their economic priorities, largely not acknowledging the fact that “the worldwide economy is a wholly owned subsidiary of the environment, not the other way around” (Gaylord Nelson, US Senator and founder of Earth Day). Resources for activities such as nature conservation are becoming scarcer, and increasingly conservation, particularly of less high-profile organisms such as bryophytes, is seen as a luxury that cannot be afforded. This is, of course, a mistake. Surely now, if ever, it is time to look for new economic models, to prioritise sustainability over growth, incorporating care for our environment and the species with which we share the planet into our schemes for economic prosperity.

Our knowledge of the European bryophytes is much better now than it was in 1995, with the discovery of new species, and the publication of many new checklists and country Red Lists. Furthermore, the IUCN has refined its criteria and categories and the European Red List needs to be updated to take this into account. For any Red List to be useful, it needs to use the most up-to-date information available, and it is now clear that, while ground-breaking, the 1995 Red List was based on inadequate information and is becoming increasingly outdated. In Zürich in 2011, the ECCB Board agreed that a new European Red List for bryophytes is both desirable and necessary, and that a pilot project to assess the feasibility of making a new Red List would be a good first step.

A pilot study was therefore commissioned and published (Hodgetts 2012), and presented at an ECCB conference in Budapest in 2012. This document explained the importance of bryophytes, collated existing information about regional and national Red Lists, reviewed the ECCB network of contacts, and identified gaps in the information resource. The following resolutions were made at the Budapest conference:

- It was agreed that a new Red List was both desirable and feasible.
- Any such project should be led by an ECCB Steering Group composed of Tomas Hallingbäck, Neil Lockhart (as prime movers in the pilot project) and Beáta Papp (as ECCB chair), plus whoever else they deem necessary to progress the project. Nick Hodgetts was named as secretary.
- The work should be done (under direction from the Steering Group) by a contractor with some bryological expertise, or a number of contractors with a blend of bryological and technical expertise.
- The project will use the latest IUCN categories and criteria.

- Geographical coverage will include all the area covered by the previous Red List document (ECCB 1995). [A later meeting of the Steering Group clarified this to include the Canary Islands, Madeira and the Azores, but to exclude Cabo Verde, Asiatic Turkey and Cyprus.]
- The taxonomy will be based on Hill *et al.* (2006), plus more recent additions and accepted amendments for the mosses, and the forthcoming world list of liverworts (Söderström *et al.*, in prep.) for the liverworts.
- All taxa will be considered for the Red List, but taxa that are undoubtedly Least Concern can be eliminated relatively quickly in a workshop meeting. [This was done in 2006 for the liverworts but still needed to be done for the mosses.]

A meeting of the ECCB Steering Group in Ekenäs, Sweden in March 2013 addressed the final point, by revising the liverwort list and examining the moss list. It thus produced an initial list of ‘candidate species’ to be considered for the Red List project. These are included in the tables in Appendix 6 and 7. These will also be made available as Excel spreadsheets on the ECCB website <http://eccbbryo.nhmus.hu/node/4>. These tables comprise a revised and updated checklist of mosses, liverworts and hornworts for all of Europe. Presence of taxa is recorded for each country/territory, with local Red List information included where available. There are currently 541 liverworts and hornwort taxa, of which 242 (45%) are candidates for the Red List, and 1439 mosses, of which 693 (48%) are candidates for the Red List. The final number of species included in a Europe-wide Red List will be considerably lower than this: the ‘candidate species’ are those which are thought to be sufficiently rare and/or threatened at least to be run through the IUCN Red List criteria. The remainder (‘Least Concern’) are those which the Steering Group considered to be so common and/or widespread that they did not need to be considered further for the Red List.

## IUCN categories and criteria

The IUCN system for allocating threat status was originally designed to be applied to large animals on a global scale, but more recently has been developed so that it is applicable to any organism at any geographical scale, if interpreted sensibly. The previously approved IUCN threat categories (*Extinct*, *Endangered*, *Vulnerable* and *Rare*) were replaced in 1994 by a revised system (World Conservation Union 1994) that abandoned the *Rare* category (as it was an expression of frequency rather than of threat), and introduced the category of *Critically Endangered*. The sub-Red List category of *Near Threatened* was also established, and the category of *Extinct in the Wild* was distinguished from *Extinct*. The IUCN categories and criteria for allocating species to each category were further refined over a period of several years, with version 3.1 published in 2001, with a second edition in 2012 (IUCN 2012).

To accompany the IUCN categories and criteria, a series of guidelines have been produced to assist with their interpretation and use (IUCN 2014). One of the main innovations in the guidelines is a more realistic approach to extent of occurrence, using the so-called  $\alpha$ -hull method. This is a system for establishing the range (extent of occurrence) of a taxon while excluding aberrant occurrences well outside its normal range and is explained more fully elsewhere (IUCN 2014).

The IUCN has also produced *Guidelines for Application of IUCN Red List Criteria at Regional Levels* (IUCN 2010). This established a *Regionally Extinct* category for use in regional Red Lists (as distinct from *Extinct*, which is global and final). It also introduced the possibility of changing the threat status of a taxon on the basis of its status in neighbouring territories: taxa can be downgraded (or upgraded) depending on conditions outside the region covered and whether or not the population can be rescued from extra-regional populations.

In applying the IUCN criteria, it will be necessary to choose a cut-off date to represent the threshold between old and recent records. This has not yet been decided for the European list, but a date of 1970 is suggested. This is essentially a compromise, as data sets in different territories differ widely in quality and detail.

Any Red List for the whole of Europe will inevitably be a political exercise, in that the territories are artificial (e.g. only small parts of Kazakhstan and Turkey are within Europe; Macaronesia is within Europe politically but not geographically, etc). Ideally, Red Lists should be global or at least cover discrete biogeographical areas (e.g. north-west Atlantic Europe, arctic Europe, etc). Numerous data sources will be required to draw up a European Red List, and each territory has its own way of doing things, so it will be necessary to collate large amounts of disparate data and standardise it to some extent before the IUCN criteria can be applied.

The IUCN criteria will be applied to all those taxa included as ‘candidate species’ for the Red List, as listed in the moss and liverwort tables (Appendix 6 and 7). These were determined during ‘brainstorming’ meetings of the ECCB Red List Steering Group, during which all taxa that definitely should *not* be included in any Red List, on the basis of being too frequent, not undergoing a decline, or not threatened in at least some parts of Europe, were excluded. A relatively small number of species were labelled ‘regionally threatened’, as they had declined in some areas but are still frequent and unthreatened in others. These will also be run through the IUCN Red List criteria to determine their true status over Europe as a whole.

## Application of IUCN criteria

The application of IUCN criteria proposed for the European bryophyte flora is essentially a modified version of that used in the preparation of the recently published Irish Red List for bryophytes (Lockhart *et al.* 2012). The Red List consists of taxa in the categories *Extinct* (or *Regionally Extinct*), *Critically Endangered*, *Endangered* and *Vulnerable*. For each of the main threat categories (*Critically Endangered*, *Endangered* and *Vulnerable*) there is a set of five main criteria A–E, any one of which qualifies a taxon for listing at that level of threat. The qualifying thresholds within the criteria A–E differ between threat categories.

**Criterion A** considers percentage decline, regardless of current range or abundance, and will be used very sparingly. For bryophytes, it is often difficult to decide what constitutes a mature individual, or even if an individual can be defined, and so estimates of the size of bryophyte populations are rarely available. It is also difficult to measure the rate of decline of bryophyte taxa from the available data that does exist, because records have so often been made at different times, in different areas, and there has been little systematic monitoring of populations over time. When considering population decline, the use of generation time is a useful concept for bryophytes as it enables decline over a longer time period than ten years to be used. Hallingbäck *et al.* (1998) advise using a *maximum* of 25 years for one generation (for species that are not known to reproduce sexually), with a sliding scale of 11–25 years for species that reproduce sexually only infrequently, down to 1–5 years for short-lived ephemeral colonists that reproduce frequently with small, highly mobile spores. In other words, a system of life strategies, such as that devised by During (1992), needs to be adopted in order to obtain a broad estimate of generation time.

Subcriterion A1 will not be used, as there are no taxa for which there is certainty about whether their decline is reversible, understood and ceased. However, subcriteria A2 and A3 allow inferred or suspected decline, and the inference or suspicion can be based on a decline in habitat. This can sometimes be seen only too clearly. Thus, the very specific fen habitat of *Paludella squarrosa* has clearly declined in some areas, so subcriterion A2c can be used to contribute towards its assessment. *Tomentypnum nitens*, although occurring in too many populations to qualify as *Vulnerable* under other criteria, is known to have been destroyed at many localities, so A2c might also be appropriate here. Subcriterion A3c can probably be used for some rare ruderal species, as it seems clear that their habitat will deteriorate in the future through natural succession. Subcriterion A4 will not be used, as it requires decline in both the past and the future, a level of detail too specific for bryophytes at our current state of knowledge.

**Criterion B** is used to categorise taxa that have a restricted distribution and are also declining. Extent of occurrence has in the past been used sparingly to determine threat category, but the advent of the  $\alpha$ -hull method allow it to be used more extensively. If this shows a significant reduction in extent of occurrence (i.e. range), when old records are compared with recent records (however these are defined), then clearly the concept is a useful one for determining threat category. However, bryophytes tend naturally to have very wide ranges, often with wide disjunctions between populations, so the concept of extent of occurrence may be less relevant to them than it is to many other species groups. Consequently, it is suggested that subcriteria B1a and B1b (extent of occurrence) are used only infrequently and with caution, and subcriterion B1c not at all.

Area of occupancy also presents problems of interpretation. It should be measured, according to the IUCN Guidelines, on grid squares "*which are sufficiently small*", and which are of appropriate size for the biological aspects of the taxon. This criterion is perhaps more applicable to a mobile animal holding a territory or a home range that can be measured. For a plant it is either much more difficult to determine the area needed for its survival, or the area might be tiny in comparison. For simplicity, the area of occupancy can be interpreted in terms of 10 km<sup>2</sup> squares on the UTM grid, which, while not always the finest resolution attainable with the existing data, will probably work quite well in conjunction with the Criterion B subcriteria. It certainly works well at national level (e.g. Hodgetts 2011; Lockhart *et al.* 2012). However, mapping is done on a 50 km<sup>2</sup> square basis Europe-wide, so an initial 'sift' of species for which this criterion might be appropriate on the grounds of a restricted area of occupancy can be carried out using 50 km<sup>2</sup> square distribution maps, before examining the data more closely.

The concepts of extreme fluctuation and fragmentation are listed as additional risk factors by IUCN, but these are seldom applicable to most bryophytes, as many species can fluctuate considerably as part of their natural population dynamics, and their distribution naturally appears to be fragmented. One of the few exceptions to this generalisation is found in the specialised bryophyte flora that grows in the draw-down zone of reservoirs and similar habitats. Subcriterion B2c can be used for these where their populations could be at risk and subject to extreme fluctuation if water levels are kept artificially high for too long.

**Criterion C** requires detailed data on both population size and decline, and so cannot be used because this level of information is not available for bryophytes Europe-wide.

**Criterion D** identifies very small or restricted populations and is an expression of rarity, inferring that a taxon is threatened by human activities or stochastic events simply because it is rare, without necessarily having declined. It is suggested that Criterion D should be used very sparingly for

assigning taxa to the *Critically Endangered* or *Endangered* categories, as there is usually no detailed information on population size. However, it can be used in a few cases where it can reasonably be inferred that a population consists of fewer than 50 mature individuals or fewer than 250 mature individuals (depending, of course, on the interpretation of ‘an individual’). Subcriterion D2 can be used more extensively for assigning taxa with less than 5 localities to the *Vulnerable* category.

**Criterion E** uses quantitative analyses to consider the probability of extinction in the wild. This cannot be used, as there have been no population viability analyses published on bryophytes in Europe, as far as is known.

## Red Data List categories

***Extinct* (EX).** A taxon is *Extinct* when there is no reasonable doubt that the last individual has died.

***Extinct in the Wild* (EW).** A taxon is *Extinct in the Wild* when it is known to survive only in cultivation or as a naturalised population well outside the past range.

***Regionally Extinct* (RE).** A taxon is regarded as *Regionally Extinct* in Europe if there are no recent records and all known localities have been visited and surveyed without success. Failure to refind older records may sometimes just reflect the imprecision of the original locality data, or adverse weather conditions during recent survey visits, or simply that certain taxa occur sporadically and are inherently difficult to find. It is possible therefore that some *Regionally Extinct* taxa may persist, albeit at a relatively low frequency, and might yet turn up at some future date. An effort should be made to distinguish between taxa that have probably genuinely disappeared from those that may still occur, the latter being placed in the *Data Deficient* category.

***Critically Endangered* (CR).** A taxon is *Critically Endangered* when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

***Endangered* (EN).** A taxon is *Endangered* when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.

***Vulnerable* (VU).** A taxon is *Vulnerable* when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

**Near Threatened** (NT). A taxon is *Near Threatened* when it has been evaluated against the criteria but does not qualify for *Critically Endangered*, *Endangered* or *Vulnerable* now, but is close to qualifying for or is likely to qualify for a threatened category in the near future. This is rather subjective and how it might work across Europe has yet to be discussed.

**Data Deficient** (DD). A taxon is *Data Deficient* when there is inadequate information to make a direct, or indirect assessment of its risk of extinction based on its distribution and/or population status.

**Least Concern** (LC). A taxon is *Least Concern* when it has been evaluated against the criteria and does not qualify for *Critically Endangered*, *Endangered*, *Vulnerable* or *Near Threatened*. Widespread and abundant taxa are included in this category. All the taxa eliminated from the ‘candidate list’ during the preliminary sorting exercises fall into this category.

**Not Evaluated** (NE). A taxon is *Not Evaluated* when it has not been assessed against the criteria.

## IUCN criteria and categories interpreted for European bryophytes

Fulfilling *any one* of these criteria leads to the application of a threat category at the appropriate level.

**Criterion A. Rapid decline.** A2c can be used for a small number of taxa, on the basis of a decline in habitat quality; A3c can be used for a small number of taxa, on the basis of a predicted decline and loss of habitat. > 80% decline (CR); > 50% decline (EN); > 30% decline (VU).

**Criterion B. Small range; fragmented, declining or fluctuating.** This criterion can only be used for a small number of taxa, such as specialist reservoir species, as both fragmentation and extreme fluctuation are common natural features of bryophyte populations.

1. Extent of occurrence (estimated using  $\alpha$ -hull method, where  $\alpha = 2$ ): < 100 km<sup>2</sup> (CR); < 5000 km<sup>2</sup> (EN); < 20,000 km<sup>2</sup> (VU) AND both a and b:
  - a. single location (CR); 5 locations or fewer (EN); 10 locations or fewer (VU).
  - b. continuing decline observed, inferred or projected, in any of the following:
    - (i) extent of occurrence
    - (ii) area of occupancy
    - (iii) area, extent and/or quality of habitat
    - (iv) number of locations or subpopulations
    - (v) number of mature individuals

2. Area of occupancy: < 10 km<sup>2</sup>, using 1 hectad (CR); < 500 km<sup>2</sup>, using 5 hectads (EN); < 2000 km<sup>2</sup>, using 20 hectads (VU) AND at least two of a–c:

a. single location (CR); 5 locations or fewer (EN); 10 locations or fewer (VU).

b. continuing decline observed, inferred or projected, in any of the following:

(i) extent of occurrence

(ii) area of occupancy

(iii) area, extent and/or quality of habitat

(iv) number of locations or subpopulations

(v) number of mature individuals

c. extreme fluctuations in any of the following (but only used for reservoir species):

(i) extent of occurrence

(ii) area of occupancy

(iii) number of locations or subpopulations

(iv) number of mature individuals

**Criterion D/D1. Very small population.** Used very sparingly, and only if there is no reasonable doubt: < 50 individuals estimated (CR); < 250 individuals estimated (EN); < 1000 individuals estimated (VU).

**Criterion D2. Very small range.** Can be used extensively to assign taxa to VU: 5 or fewer locations.

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## Appendix 1. European bryophyte checklists and Red Lists

These references cover Europe as a whole, European regions and individual European countries or territories. Only the most recent and relevant references are included; there are many older works that have been superseded. For a more complete list of references for liverworts, see Söderström *et al.* 2008.

### Europe

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## Macedonia

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- Sabovljević, M. & Natcheva, R. 2006. Check list of the liverworts and hornworts of South-Eastern Europe. *Phytologia Balcanica* 12 (2): 169–180
- Sabovljević, M., Natcheva, R., Dihoru, G., Tsakiri, E., Dragičević, S., Erdağ, A. & Papp, B. 2008. Check-list of the mosses of SE Europe. *Phytologia Balcanica* 14 (2): 207–244.

## Malta

- Frahm, J.-P. & Lüth, M. 2008. The bryophyte flora of the Maltese Islands. *Archive for Bryology* 29: 1–10.

## Moldova

- Ignatov, M.S., Afonina, O.M., Ignatova, E.A. et al. 2006. Check-list of mosses of East Europe and North Asia. *Arctoa* 15: 1–130.

## Monaco

- No list known, although there are some liverworts mentioned by Söderström et al. (2002, 2007).

## Montenegro

- Dragičević, S. & Veljić, M. 2006. *Pregled mahovina Crne Gore* [Survey of Bryophyta of Montenegro]. Prirodnački Muzej Crne Gore [Natural History Museum of Montenegro], Podgorica, 99 pp.
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- Ros, R.M., Mazimpaka, V., Abou-Salama, U., Aleffi, M., Blockeel, T.L., Brugués, M., Cano, M.J., Cros, R.M., Dia, M.G., Dirkse, G.M., El Saadawi, W., Erdağ, A., Ganeva, A., González-Mancebo, J.M., Herrnstadt, I., Khalil, K., Kürschner, H., Lanfranco, E., Losada-Lima, A., Refai, M.S., Rodríguez-Núñez, S., Sabovljević, M., Sérgio, C., Shabbara, H., Sim-Sim, M. & Söderström, L. 2007. Hepatics and Anthocerotes of the Mediterranean, an annotated checklist, *Cryptogamie, Bryologie* 28 (4): 351–437.
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Sabovljević, M. & Natcheva, R. 2006. Check list of the liverworts and hornworts of South-Eastern Europe. *Phytologia Balcanica* 12 (2): 169–180

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Sabovljević, M. & Stevanovic, V. 1999. Moss conspectus of the Federal Republic of Yugoslavia. *Flora Mediterranea* 9: 65–95. (Data separated for Serbia and Montenegro)

## Netherlands

- Siebel, H.N., During, H.J. & van Melick, H.M.H. 2005. Veranderingen in de Standaardlijst van de Nederlandse blad-, lever- en hauwmossen [Checklist of Dutch bryophytes and liverworts]/ *Buxbaumiella* 73: 26–54.
- Siebel, H.N., Bijlsma, R.J. & Bal, D. 2006. *Toelichting op de Rode Lijst Mossen*. Ministry of Agriculture, Nature and food quality, report DK2006/034. (see also [www.verspreidingsatlas.nl/soortenlijst.aspx?groep=B](http://www.verspreidingsatlas.nl/soortenlijst.aspx?groep=B) (accessed 9 June 2011))

## Norway

### Mainland

Direktoratet for naturforvalting (DN). 1999. *Nasjonal rødliste for truete arter 1998* [Norwegian Red List 1998]. DN-rapport 1999–3: 1–161. See also [www.nhm.uio.no/botanisk/mose/red.htm](http://www.nhm.uio.no/botanisk/mose/red.htm) (accessed 9 June 2011)

Hassel, K., Blom, H.H., Flatberg, K.I., Halvorsen, R. & Johnsen, J.I. 2010. Moser. Anthocerophyta, Marchantiophyta, Bryophyta. In: Kålås, J.A., Viken, Å., Henriksen, S. and Skjelseth, S. (eds.) 2010. *The 2010 Norwegian Red List for Species*. Norwegian Biodiversity Information Centre. (See also [www.artsdatabanken.no](http://www.artsdatabanken.no) and <http://www.biodiversity.no/Article.aspx?m=279&amid=12279>.)

Up-to-date checklist available at the home pages of The Norwegian Biodiversity Information Center <http://www2.artsdatabanken.no/artsnavn/Contentpages/Sok.aspx>.

### Svalbard

Frisvoll, A.A. & Blom, H.H. 1997. *Trua moser i Noreg med Svalbard. Førebelse ark.* NTNU, Vit.- mus., Bot. Notat 1997–3: 1–170.

Frisvoll, A.A. & Elvebakk, A. 1996. Part 2. Bryophytes. In: Elvebakk, A & Prestrud, P. (eds.) A catalogue of Svalbard plants, fungi, algae and cyanobacteria, pp. 57–172. Oslo, Norwegian Polar Institute.

## Poland

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Ochyra, R. 1992. *Czerwona lista mchów zagroonych Polsce* (Red list of threatened mosses in Poland). Kraków, Polish Academy of Sciences, pp. 79–85.

Ochyra, R., Zarnowiec, J. & Bednarek-Ochyra, H. 2003. *Census Catalogue of Polish mosses*. Kraków, Polish Academy of Sciences, W. Szafer Institute of Botany.

Szwejkowski, J. 1992. *Czerwona lista wątrobowców zagroonych w Polsce* [List of threatened liverworts in Poland]. In: Zarzycki K., Wojewoda W. & Heinrich Z. (eds.), *List of threatened plants in Poland (2<sup>nd</sup> ed.)*. Kraków, W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków, pp. 75–78.

Szwejkowski, J. 2006. *An annotated checklist of Polish liverworts and hornworts*. Kraków, Polish Academy of Sciences, W. Szafer Institute of Botany.

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## Portugal

### Mainland

Sérgio, C., Casas, C., Brugués, M. & Cros, R.M. 1994. *Lista Vermelha dos Briófitos da Península Ibérica* [Red List of Bryophytes of the Iberian Peninsula]. Lisboa, ICN, 45 pp.

Sérgio, C. & Carvalho, S. 2003. Annotated catalogue of Portuguese bryophytes. *Portugaliae Acta Biologica* 21: 5–230. (Sérgio, pers. comm. 13.6.11)

Sérgio, C., Brugués, M., Cros, R.M. Casas, C. & Garcia, C. 2006. The 2006 Red List and an updated checklist of bryophytes of the Iberian Peninsula (Portugal, Spain and Andorra). *Lindbergia* 31: 109–125.

Sérgio, C., Garcia, C.A., Sim-Sim, M., Vieira, C., Hespanhol, H. & Stow, S. 2013. *Atlas e Livro Vermelho dos Briófitos Ameaçados de Portugal*. Lisboa, Universidade de Lisboa – Museu Nacional de História Natural e da Ciência.

#### Azores

Gabriel, R., Sjögren, E., Schumacker, R., Sérgio, C., Frahm, J.-P. & Sousal, E. 2005. 4.1. Lista dos Briófitos (Bryophyta) [List of Bryophytes (Bryophyta)]. In: *Lista de espécies terrestres dos Açores* [List of terrestrial species from the Azores].

Gabriel, R., Sjögren, E., Schumacker, R., Sérgio, C., Aranda, S.C., Claro, D., Homem, N. & Martins, B. 2010. List of bryophytes (Anthocerotophyta, Marchantiophyta, Bryophyta). In: PAV. Borges, A. Costa, R. Cunha, R. Gabriel, V. Gonçalves, A.F. Martins, I. Melo, M. Parente, P. Raposeiro, P. Rodrigues, R.S. Santos, L. Silva, P. Vieira & V. Vieira (eds.) *A list of the terrestrial and marine fungi, flora and fauna from the Azores*. pp. 99–115, Príncipia, Cascais. (Gabriel, pers. comm. 15.6.11)

Gabriel, R., Homem, N., Couto, A., Aranda, S.C. & Borges, P.A.V. (submitted). Azorean Bryophytes: a preliminary review of rarity patterns. *Açoreana* (Gabriel, pers. comm. 15.6.11)

#### Madeira

Sérgio, C., Schumacker, R., Fontinha, S. & Sim-Sim, M. 1992. Evaluation of the status of the bryophyte flora of Madeira with reference to endemic and threatened European species. *Biological Conservation* 59: 223–231.

Sérgio, C., Sim-Sim, M. & Carvalho, M. 2006. Annotated catalogue of Madeiran bryophytes. *Bol. Mus. Munic. Funchal* 10: 5–164.

Sérgio, C., Sim-Sim, M., Fontinha, S. & Figueira, R. 2008. 5.1 Lista dos briófitos (Bryophyta) (List of bryophytes (Bryophyta)). In: Borges, P.A.V. et al. Listagem dos fungos, flora e fauna terrestres dos arquipélagos da Madeira e Selvagens (A list of the terrestrial fungi, flora and fauna of Madeira and Selvagens archipelagos). Funchal, Direcção Regional do Ambiente do Governo Regional da Madeira. (Sérgio, pers. comm. 13.6.11)

Sim-Sim, M., Luis, L., Garcia, C., Fontinha, S., Lobo, C., Martins, S. & Stech, M. 2008. New data on the status of threatened bryophytes of Madeira Island. *Journal of Bryology* 30: 226–228.

#### Romania

Sabovljević, M. & Natcheva, R. 2006. Check list of the liverworts and hornworts of South-Eastern Europe. *Phytologia Balcanica* 12 (2): 169–180

Sabovljević, M., Natcheva, R., Dihoru, G., Tsakiri, E., Dragičević, S., Erdağ, A. & Papp, B. 2008. Check-list of the mosses of SE Europe. *Phytologia Balcanica* 14 (2): 207–244.

Ştefănuț, S. 2008. *The hornwort and liverwort atlas of Romania*. Bucharest, Edit. Ars Docendi, 510 pp. (see also [www.ibiol.ro/bucegia/hepatice/redlist.htm](http://www.ibiol.ro/bucegia/hepatice/redlist.htm) (accessed 9 June 2011))

Ştefănuț S. & Goia, I. 2012. Checklist and Red List of Bryophytes of Romania. *Nova Hedwigia* 95 (1–2): 59–104.

#### Russia

Ignatov, M.S., Afonina, O.M., Ignatova, E.A. et al. 2006. Check-list of mosses of East Europe and North Asia. *Arctoa* 15: 1–130.

Konstantinova, N.A. & Bakalin, V.A. 2009. Checklist of liverworts (Marchantiophyta) of Russia. *Arctoa* 18: 1–64.

Bardonov, L.V. & Ignatov, M.C. 2005. Bryophytes. In: *Red Data Book of the Russian Federation*. (see also [http://en.wikipedia.org/wiki/Red\\_Data\\_Book\\_of\\_the\\_Russian\\_Federation](http://en.wikipedia.org/wiki/Red_Data_Book_of_the_Russian_Federation))

#### Bashkortostan

Baisheva, E.Z. 2002. Bryophyta. In: *Red Data Book of the Bashkortostan Republic. Vol. 2. Bryophytes, algae, lichens and fungi*. Ufa, Tabigat: 17–44.

#### Dagestan

Konstantinova, N.A. 2011. Contribution to the hepatic flora of the Republic of Dagestan (Eastern Caucasus, Russia). *Arctoa* 20: 175–182.

Radzhi, A.D. 1998. Bryophytes. In: *Red book of Dagestan. Rare and endangered species of animal and plants*. Makhachkala, Dagestanskoe Knizhnoe Izd.: 191–194.

#### Kabardino-Balkar

Shkhagapsoev, S.H. 2000. Bryophytes. In: *Red book of Kabardino-Balkar Republic*. Nalchik, Ael'-Fa]: 298.

*Karelia*

Maksimov, A.I., Potemkin, A.D. & Maksimova, T.A. 2007. Bryophytes. In: Ivanter, E.V. & Kuznetsov, O.L. (eds.). *Red Data Book of the Republic of Karelia*. Ministerstvo sel'skogo, rybnogo khozyaijstva i ekologii Respubliki Karelia, Karel'skij nauchnyij tsentr Rossijskoj akademii hauk, Petrozavodskij gosudarstvennyij universitet. Petrozavodsk, "Karelia":79–98. This is also a checklist.

*Komi*

Taskaeva, A.I. 1998. *Krasnaja kniga Respubliki Komi*. Moskva, Syktyvkar: Izdatelstvo DIK.

*Krasnodar*

Konstantinova, N.A., Akatova, T.V., Ignatova, E.A. & Ignatov, M.S. 2008. Bryophyta. In: *Red Data Book of the Krasnodar Province. (Plants and fungi)*. 2d ed. Krasnodar, Dizain byuro No. 1: 450–477.

*Kursk Province*

Popova, N.N. 2001. Bryophyta . In: *Red Data Book of Kursk Province. Vol. 2. Rare and endangered plants and fungi*. Tula, Centralno-Czernozemnyj Gos. Prir. Biospher. Zapovednik & al.: 21–45.

*Lipetsk*

Popova, N.N & Abramova, L.I. 2005. Bryophytes. In: Novikov, V.S. (ed.). *Red Data Book of Lipetsk Province. Vol. 1. Plants, Fungi, Lichens*. Moscow, KMK: 15–70.

*Moscow (City)*

Ignatov, M.S. 2001. Bryophyta. In: *Red Data Book of Moscow City*. Moscow Government: 543–567.

*Moscow (Region)*

Ignatov, M.S. 1998. Bryophytes. In: Zubakin, V.A. & Tikhomirov, V.N. (eds.). *Red Data Book of Moscow Province*. Moscow, Argus & Russki Univ.

Ignatov, M.S. 2008. Bryophytes. In: Varlygina, T.I., Zubakin, V.A. & Sobolev, N.A. (eds.). *Red Data Book of Moscow Province. 2d edition*. Moscow.

*Murmansk*

Konstantinova, N.A., Belkina, O.A. & Likhachev, A.Y. 2003. Bryophytes - In: Konstantinova, N.A., Koryakin, A.S. & Makarova, O.A. (eds.). *Red Data book of the Murmansk Province*. Murmansk, Murmanskoe Knizhnoe Izdatelstvo.

*Nenetsky*

Afonina, O.M. & Konstantinova, N.A. (no date) Bryophytes. In: Matveeva, N.V. (ed.) *Red Data Book of Nenetsky Autonomous District. Official edition*. Naryan-Mar: 108–125

*Ryazan*

Volosnova, L.P. et al. 2003. Bryophyta. In: *Red book of Ryazan Province*. Ryazan, Uzoroch'e: 27–36.

*St. Petersburg*

Andreeva, E.N., Afonina, O.M., Kuzmina, E.O. & Kurbaova, L.E. 2004. Bryophyta. In: *Red Data Book of St.-Petersburg*. St.-Petersburg: 325–342.

Tzvelev, N.N. 2000. *Red Data Book of nature of the Leningrad region. Vol. 2 - Plants and Fungi*. St. Petersburg, 671 pp.

*St. Petersburg, Karelia & Murmansk*

Kotiranta, H., Uotila, P., Sulkava, S. & Peltonen, S.-L. (eds.) 1998. *Red Data Book of East Fennoscandia*. Helsinki, Ministr. Envir., 351 pp.

*Tver'*

Zykov, I.V., Notov, A.A. & Spirina, U.N. 2002. Bryophyta. – Divisio Bryophytes. In: *Red Data Book of the Tver' Province*. Tver', Veche Tveri & ANTEK: 10–35.

Several other provinces also have checklists (Lars Söderström, pers. comm., May 2012).

**San Marino**

Zodda, G. 1930. In: Pampanini, R. (ed.). *Flora della Repubblica di San Marino*. San Marino pp. 1–68.

## Serbia

- Sabovljević, M. 2000. Checklist of hepatics of the Federal Republic of Yugoslavia. *Lindbergia* 25: 37–42. (Data separated for Serbia and Montenegro)
- Sabovljević, M. & Stevanović, V. 1999. Moss conspectus of the Federal Republic of Yugoslavia. *Flora Mediterranea* 9: 65–95. (Data separated for Serbia and Montenegro)
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- Ros, R.M., Mazimpaka, V., Abou-Salama, U., Aleffi, M., Blockeel, T.L., Brugués, M., Cano, M.J., Cros, R.M., Dia, M.G., Dirkse, G.M., El Saadawi, W., Erdağ, A., Ganeva, A., González-Mancebo, J.M., Herrnstadt, I., Khalil, K., Kürschner, H., Lanfranco, E., Losada-Lima, A., Refai, M.S., Rodríguez-Nuñez, S., Sabovljević, M., Sérgio, C., Shabbara, H., Sim-Sim, M. & Söderström, L. 2007. Hepatics and Anthocerotes of the Mediterranean, an annotated checklist, *Cryptogamie, Bryologie* 28 (4): 351–437.
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- Sabovljević, M., Natcheva, R., Dihoru, G., Tsakiri, E., Dragičević, S., Erdağ, A. & Papp, B. 2008. Check-list of the mosses of SE Europe. *Phytologia Balcanica* 14 (2): 207–244.

## Slovakia

- Kubinská, A., Janovicová, K. & Peciar, V. 1993. The checklist of bryophytes in Slovakia. *Biológia, Bratislava* 48: 99–143.
- Kubinská, A., Janovicová, K. & Peciar, V. 1996. The list of extinct, missing and threatened bryophytes (Bryophyta) of Slovakia (1st version). *Biológia, Bratislava* 51: 373–380.
- Kubinská, A. & Janovicová, K. 1998. Bryophytes, pp. 297–332. In: Marhold, K. & Hindák, F. (eds). *Checklist of non-vascular and vascular plants of Slovakia*. Veda, Bratislava (see also <http://ibot.sav.sk/checklist/index.php?lang=en>).
- Kubinská, A., Janovicová, K. & Soltes, R. 2001: Red list of bryophytes of Slovakia (December 2001). In: Baláz, D., et al. (eds.), Cerveny zoznam rastlín a zivocichov Slovenska. *Ochr. Prír.* 20 (Suppl.): 48–81.
- Kubinská, A., Janovicová, K. & Soltes, R. 2001. Updated checklist of liverworts, hornworts and mosses of Slovakia. *Bryonora, Praha* 28: 4–10.

## Slovenia

- Martinčič, A. 1992. Rdeči seznam ogroženih listnatih mahov (Musci) v Sloveniji. *Varstvo Narave* 18: 1–190. (Red List; mosses only)
- Martinčič, A. 2003. Seznam listnatih mahov (Bryopsida) Slovenije [Survey of mosses of Slovenia]. *Hacquetia* 2 (1): 91–166.

## Spain

### Mainland

- Garielleti, R. & Albertos, B. 2012. *Atlas y Libro Rojo de los Briófitos Amenazados de España*. Ministerio de Agricultura, Alimentación y Medio Ambiente, Madrid. 287 pp.
- Sérgio, C., Casas, C., Brugués, M. & Cros, R.M. 1994. *Lista Vermelha dos Briófitos da Península Ibérica* [Red List of Bryophytes of the Iberian Peninsula]. Lisboa, ICN, 45 pp.
- Sérgio, C., Brugués, M., Cros, R.M., Casas, C. & Garcia, C. 2006. The 2006 Red List and an updated checklist of bryophytes of the Iberian Peninsula (Portugal, Spain and Andorra). *Lindbergia* 31: 109–125. (see also <http://pagines.uab.cat/briología/en/content/bryophyte-lists>)

### Baleares

- Cros, R.M., Saez, L. & Brugués, M. 2008. The bryophytes of the Balearic Islands: an annotated checklist. *Journal of Bryology* 30: 74–95. (see also <http://pagines.uab.cat/briología/en/content/bryophyte-lists>)

### Canary Isles

Dirkse, G.M., Bouman, A.C. & Losada-Lima, A. 1993. Bryophytes of the Canary Islands, an annotated checklist. *Cryptogamie Bryologie Lichenologie* 14 (1): 1–47.

Dirkse, G.M. & Losada-Lima, A. 2011. Additions and amendments to the moss flora of the Canary Islands. *Cryptogamie, Bryologie* 32 (1): 37–41.

González-Mancebo, J.M., Romaguera, F., Ros, R.M., Patiño, J. & Werner, O. 2008. Bryophyte flora of the Canary Islands: an updated compilation of the species list with an analysis of island distribution patterns in the context of the Macaronesian Region. *Cryptogamie, Bryologie* 29 (4): 315–357.

### Sweden

Gärdenfors, U. (ed.) 2010. *Rödlistade arter i Sverige 2005* [The 2010 Red List of Swedish species]. Uppsala, ArtDatabanken, 590 pp. (See also <http://www.artfakta.se>, accessed 6.6.14)

Hallingbäck, T., Hedenäs, L. & Weibull, H. 2006. Ny checklista för Sveriges mossor [Checklist of bryophytes recorded from Sweden]. *Svensk Botanisk Tidskrift* 100 (2): 96–148. (See also [http://www.sbf.c.se/MV/Moss\\_checklista\\_2006.pdf](http://www.sbf.c.se/MV/Moss_checklista_2006.pdf), accessed 6.6.14)

### Switzerland

Schnyder, N., Bergamini, A., Hofman, H., Müller, N., Schubiger-Bossard, C. & Urmi, E. 2004. *Rote Liste der gefährdeten Moose der Schweiz*. Bern, Hrsg. BUWAL, FUB & NISM. BUWAL-reihe: Vollzug umwelt, 99 pp.

Anon. 2011. *National inventory of Swiss bryophytes*. Zürich, Institut für Systematische Botanik. Webpage. [www.nism.uzh.ch/index.php?content=einleitung&lang=en](http://www.nism.uzh.ch/index.php?content=einleitung&lang=en) (accessed 9 June 2011)

### Turkey (mostly in Asia – small part in Europe)

Kürschner, H. & Erdağ, A. 2005. Bryophytes of Turkey: an annotated reference list of the species with synonyms from the recent literature and an annotated list of Turkish bryological literature. *Turkish Journal of Botany* 29: 95–154.

Sabovljević, M. & Natcheva, R. 2006. Check list of the liverworts and hornworts of South-Eastern Europe. *Phytologia Balcanica* 12 (2): 169–180

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Uyar, G. & Çetin, B. 2004. A new check-list of the mosses of Turkey. *Journal of Bryology* 26: 203–220.

### Ukraine

Ignatov, M.S., Afonina, O.M., Ignatova, E.A. et al. 2006. Check-list of mosses of East Europe and North Asia. *Arctoa* 15: 1–130.

Sheljag-Sosonka, J.R. (ed.) 1996. *Kniga Ukrayni. Roslinnij svit*. Kiev, Vidavnictvo "Ukrains'ka Enciklopedija" imeni M.P. Bazana.

Váňa, J. & Virchenko, V.M. 1993. A list of Anthocerotes and Hepaticas of Ukraine. *Ukrainins'kyj Botaničnyj Žurnal* 50: 89–93.

### United Kingdom

Hill, M.O., Blackstock, T.H., Long, D.G. & Rothero, G.P. 2008. *A checklist and census catalogue of British and Irish bryophytes updated 2008*. Middlewich, British Bryological Society.

*Great Britain (incl. England, Scotland, Wales & Isle of Man)*

Church, J.M., Hodgetts, N.G., Preston, C.D. & Stewart, N.F. 2001. *British Red Data Books. Mosses and liverworts*. Peterborough, JNCC, 168 pp.

Hodgetts, N.G. 2011. A revised Red List of bryophytes in Britain. *Field Bryology* 103: 40–49.

### Northern Ireland

See Ireland

*Channel Islands*

Hill, M.O., Blackstock, T.H., Long, D.G. & Rothero, G.P. 2008. *A checklist and census catalogue of British and Irish bryophytes updated 2008*. Middlewich, British Bryological Society.

*Gibraltar*

No list known, although there are some liverworts mentioned by Söderström *et al.* (2002, 2007).

**Vatican**

No list known, although there are some liverworts mentioned by Söderström *et al.* (2002, 2007).

## Appendix 2. European bryological societies and journals

### Societies

British Bryological Society

Area covered: Britain and Ireland

Website: <http://rbg-web2.rbge.org.uk/bbs/bbs.htm>

Journals/Newsletters: *Journal of Bryology; Field Bryology*

Bryological Association of South-Eastern Europe

Area covered: SE Europe, principally the Balkans

Website: - (only old address found)

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Journals/Newsletters: -

Bryologisch-lichenologische Arbeitsgemeinschaft für Mitteleuropa (BLAM) (The Bryological and Lichenological Working Group of Central Europe)

Area covered: Central Europe

Website: [http://www.blam-hp.eu/home\\_en.html](http://www.blam-hp.eu/home_en.html)

Journals/Newsletters: *Herzogia*

Czech Botanical Society – Bryological/Lichenological Section

Area covered: Czech Republic

Website: <http://botanika.bf.jcu.cz/BLS/english/index.html>

Journals/Newsletters: *Bryonora*

Dutch Bryological and Lichenological Society (BLWG)

Area covered: Netherlands

Website: <http://www.blwg.nl/>

Journals/Newsletters: *Lindbergia* (with Nordic Bryological Society); *Buxbaumiella*

Finnish Bryological Society

Area covered: Finland

Website: <http://pro.tsv.fi/sammalseura/cd.html>

Journals/newsletters: *Bryobrothera; Bryobrotherella*

Mossornas Vänner

Area covered: Sweden, Finland, Denmark, Norway & Iceland

Website: <http://www.sbf.c.se/MV/>

Journals/Newsletters: *Myrinia*

Nordic Bryological Society

Area covered: Denmark, Finland, Iceland, Norway, & Sweden

Website: <http://www.sbf.c.se/NBS/Root.htm>

Journals/Newsletters: *Lindbergia* (with Dutch Bryological and Lichenological Society)

Spanish Bryological Society (Sociedad Española de Briología)

Area covered: Spain

Website: <http://www.uam.es/informacion/asociaciones/SEB/>

Journals/Newsletters: *Boletín de la Sociedad Española de Briología*

Swiss Association of Bryology and Lichenology

Area covered: Switzerland

Website: [http://www.bryolich.ch/english/index\\_engl.html](http://www.bryolich.ch/english/index_engl.html)

Journals/Newsletters: *Meylania*

**Other Journals or newsletters**

*Arctoa*

Area covered: principally Russia

Website: <http://www.arctoa.ru/en/>

*Cryptogamie, Bryologie*

Area covered: international, but based in France

Website: [http://www.cryptogamie.com/pagint\\_en/editeur/revue\\_bryo.php#](http://www.cryptogamie.com/pagint_en/editeur/revue_bryo.php#)

*Limprichtia*

Area covered: western and central Europe.

Website: [http://www.jan-peter-frahm.de/Limprichtia/Limprichtia\\_vols.htm](http://www.jan-peter-frahm.de/Limprichtia/Limprichtia_vols.htm)

*Muscillanea*

Area covered: Belgium

Website: -

Contact: Herman Stieberaere, Nationale Plantentuin van Belgie, Domein de Bouchout, B-1860 Meise, Belgium.

*Nov. System Plant non Vasc*

Website: -

*Nowellia Bryologica*

Area covered: Belgium

Website: <http://users.skynet.be/fb062663/nowellia.htm>

*Phytologia Balconica*

Area covered: the Balkans; mainly vascular plants but occasional bryological papers.

Website: <http://www.bio.bas.bg/~phytolbalcan/>

## Appendix 3. Floras

There are many bryophyte Floras covering various geographical areas in Europe. The more relevant and modern ones, or the latest known for a territory, are presented here. Only major Floras are listed, not Floras of small subdivisions of countries, and not publications dealing only with a small taxonomic group of plants.

Atherton, I., Bosanquet, S. & Lawley, M. (eds.) 2010. *Mosses and liverworts of Britain and Ireland. A field guide.* Plymouth, British Bryological Society.

Casas, C., Brugués, M., Cros, R.M. & Sérgio, C. 2006. *Handbook of the mosses of the Iberian Peninsula and the Balearic Islands.* Barcelona, Institut d'Estudis Catalans.

Casas, C., Brugués, M., Cros, R.M., Sérgio, C. & Infante, M. 2009. *Handbook of liverworts and hornworts of the Iberian Peninsula and the Balearic Islands.* Barcelona, Institut d'Estudis Catalans.

Cortini Pedrotti, C. 2001. *Flora dei Muscha d'Italia, Parte 1: Sphagnopsida, Andreaeopsida, Bryopsida.* Casalini Libri.

Cortini Pedrotti, C. 2005. *Flora dei Muscha d'Italia, Parte 2: Bryopsida.* Antonio Delfino.

Frey, W., Frahm, J.-P., Fischer, E. & Lobin, W. 2006. *The liverworts, mosses and ferns of Europe.* English edition revised and edited by T.L. Blockeel. Colchester, Harley Books.

Grims, F. 1999. *Die Laubmose Österreichs.* Verlag der Österreichischen Akademie der Wissenschaften.

Guerra, J. (ed.) 2007–2012. *Flora Briofitica Ibérica.* Vols. 1–6. Sociedad Espanola de Briología.

Hallingbäck, T., Lonnell, N. & Weibull, H. 2006. *Encyclopedia of the Swedish Flora and Fauna: Bladmossor: Sköldmossor–Blåmossor. Bryophyta: Buxbaumia–Leucobryum.* Uppsala, ArtDatabanken (Swedish Threatened Species Unit).

Hallingbäck, T., Lonnell, N. & Weibull, H. 2008. *Encyclopedia of the Swedish Flora and Fauna: Bladmossor: Kompaktmossor–Kapmossor. Bryophyta: Anoectangium–Orthodontium.* Uppsala, ArtDatabanken (Swedish Threatened Species Unit).

Hedenäs, L. 1992. *Flora of Madeiran pleurocarpous mosses (Isobryales, Hypnobryales, Hookeriales).* Gebrüder Borntraeger Verlag.

Ignatov, M.S. & Ignatova, E.A. 2003. *Moss Flora of the middle part of European Russia, Vol. 2: Fontinalaceae–Amblystegiaceae.* KMK Scientific Press.

Johannsson, B. 1996–... *Icelandic bryophytes (various).* Icelandic Museum of Natural History.

Jukoniene, I. 2003. *Mosses of Lithuania.* Institute of Botany.

Lewinsky, J. 1987. The vegetation and bryophyte flora of the Faroe Islands (Denmark): excursion guide....?

Nyholm, E. 1993. *Illustrated Flora of Nordic mosses. Fasc. 3.* Oikos editorial office.

Paton, J.A. 1999. *The liverwort flora of the British Isles.* Colchester, Harley Books.

Smith, A.J.E. 1990. *The liverworts of Britain and Ireland.* Cambridge, Cambridge University Press.

Smith, A.J.E. 2004. *The moss flora of Britain and Ireland. Second edition (2006 reprint).* Cambridge, Cambridge University Press.

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## Appendix 5. Data sheet examples for potential Red List species

Three examples have been prepared to show possible formats for data sheets in a new Red List.

### *Acaulon fontiquerianum* Casas & Sérgio    Fontqueri's pygmy-moss

Family: Pottiaceae

Order: Pottiales

Subclass: Bryidae

Class: Bryopsida

Division: Bryophyta

Kingdom: Plantae

**Status in Europe:** Near Threatened

**Criteria:** -



Photo: C. Aedo

#### Description

Tiny acrocarpous moss, 1.5–2(–3) mm, not triquetrous, greenish-yellow to yellowish-brown, with 5–6(–8) ovate to ovate-lanceolate leaves, not or only very slightly keeled, with nerve excurrent in an arista 80–300(–400) µm long; margins plane. Leaf cells smooth (*A. dertosense* and *A. casasianum* papillose). Nerve in section with 2–5 large, prominent cells on ventral side (*A. muticum* and *A. mediterraneum* without differentiated cells on ventral side). Sporophytes immersed in concave perichaetial leaves.

This species was described in 1990 from Spain and Portugal (Casas & Sérgio 1990) and has subsequently been found elsewhere in the region (Lo Giudice 1995, Sérgio *et al.* 1993, etc).

### Ecology and biology

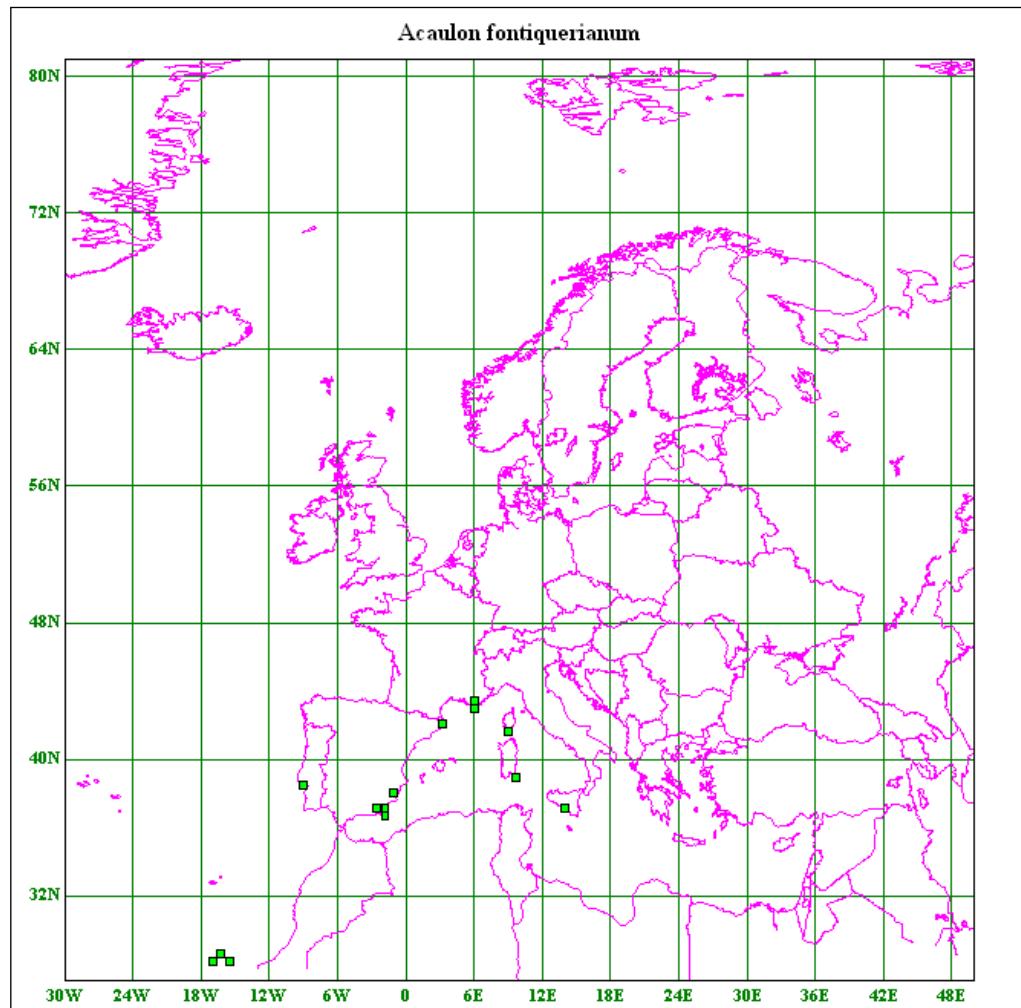
An annual ephemeral species of dry exposed soils, with a slight preference for acidic substrates. Often on banks, roadsides, or at the edges of xerophytic scrub communities.

Altitudinal range: 90–1550 m

Autoicous.

### European distribution

This species is known only from scattered sites in the western Mediterranean and the Canary Islands. It is considered Vulnerable in Spain and Portugal and Endangered in Sardinia, but has no official status in mainland France, Corsica, Sicily or the Canary Islands. It is likely to have more sites than indicated on the distribution map, but such a small plant is very easily overlooked.



## World distribution

As far as is known, *A. fontiquerianum* is a European endemic, although it is not improbable that it may be found in North Africa.

## Threats

The fragility of the habitat, and its vulnerability to afforestation and fragmentation.

## Conservation

This plant has no legal protection at present. It is recommended that activities such as forestry, road-widening etc. should not take place without first assessing the impact on known populations, and that habitat is not destroyed for agriculture and livestock. While undoubtedly rare and with a narrow range and ecological tolerance, there is no evidence that this species has declined.

## Designated sites

None known.

## References

- Casas, C. & Sérgio, C. 1990. *Acaulon fontiquerianum* sp. nov. de la Peninsula Ibérica. *Cryptogamie, Bryologie, Lichenologie* 11: 57–61.
- Lo Giudice, R. 1995. *Acaulon fontiquerianum* Casas & Sérgio (Pottiaceae, Bryophytina), new to the bryoflora of Italy. *Flora Mediterranea* 5: 69–72.
- Sérgio, C., Hébrard, J.P. & Casas, C. 1993. *Acaulon fontiquerianum* Casas & Sérgio (Musci, Pottiaceae) nouveau pour la bryoflore du Portugal, de France et de Corse. *Orsis* 8: 11–19.

***Tayloria rudolphiana* (Garov.) Bruch & Schimp. Rudolph's gland-moss**

syn. *Tayloria delavayi* (Besch.) Besch.

Family: Splachnaceae

Order: Funariales

Subclass: Bryidae

Class: Bryopsida

Division: Bryophyta

Kingdom: Plantae

**Status in Europe:** Endangered    **Criteria:** B1a; B2a, bi, bii, biii, biv



Photo: Michael Lüth

### Description

Robust acrocarp 4 cm high or more; leaves with a longly excurrent nerve ending in a reddish point; seta reddish, robust; capsule erect, ellipsoid, with sterile basal portion pyriform and narrower than the spore-bearing upper portion; calyptra large, extending below capsule.

### Ecology and biology

As with other members of the Splachnaceae, *T. rudolphiana* prefers nitrogen-rich organic substrates. However, its ecology is unique in that it is usually epiphytic, generally growing on the remains of bird droppings on *Acer pseudoplanatus*, and more rarely *Acer campestre*, *Fagus sylvatica* and *Pinus sylvestris*. It

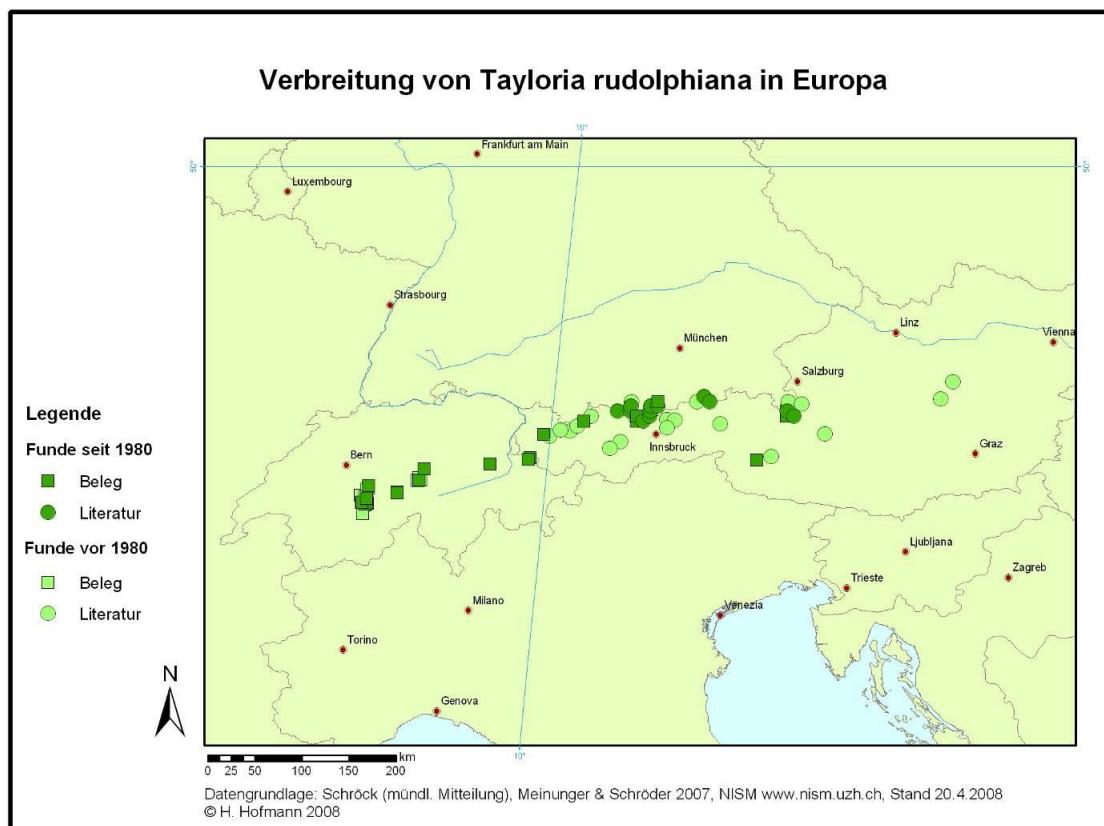
is rarely reported from other substrates, such as dead wood, bones and rock. It is probably restricted to areas with a high humidity (Kiebacher *et al.* 2012). Subalpine.

Altitudinal range: 850–1700 m (3800–4400 m in China).

Autoicous, spores presumably dispersed by flies (Kiebacher *et al.* 2012). It has developed brood-cells in culture (Martinez & Price 2011) but these have not yet been observed in the wild.

### European distribution

Confined in Europe to a narrow band running across Germany (Endangered), Austria ('seriously threatened with extinction') and Switzerland (Vulnerable).



### World distribution

Outside Europe only in China (Yunnan).

### Threats

Threats not known in detail, but it is probably vulnerable to inappropriate forest management practices such as the felling of old trees.

## Conservation

This plant is listed on Appendix 1 of the Bern Convention and protected under the EU Habitats Directive. It is also 'priority 1' on the Swiss National Priority Species list. There is a statutory obligation to designate SACs for the best populations of this plant in EC countries. Old forest where it grows should be protected in sufficiently large areas to guarantee the survival of populations of birds yielding the substratum for the moss. Research into the unusual ecology of this species is necessary to determine its requirements in detail.

## Designated sites

????

## References

- Hallingbäck, T. & Hodgetts, N.G. (eds.) 2000. *Mosses, liverworts and hornworts. Status survey and conservation Action Plan for bryophytes*. Gland, IUCN.
- Kiebacher, T., Bürgi, M., Scheidegger, C. & Bergamini, A. 2012. *Bryophyte diversity of sycamore pastures in the northern Alps with a special emphasis on Tayloria rudolphiana*. Swiss Federal Research Institute WSL, Birmensdorf; unpublished.
- Martinez, K. & Price, M. 2011. Brood cells in the rare epiphytic moss *Tayloria rudolphiana* (Garov.) Bruch & Schimp. (Splachnaceae). *Cryptogamie, Bryologie* 32: 1–10.

***Thamnobryum angustifolium* (Holt) Nieuwl. Derbyshire feather-moss**

syn. *Porotrichum angustifolium* Dixon; *Thamnium angustifolium* Holt

Family: Neckeraceae

Order: Hypnales

Subclass: Bryidae

Class: Bryopsida

Division: Bryophyta

Kingdom: Plantae

**Status in Europe:** Endangered

**Criterion:** D



Photo: Des Callaghan

### Description

A medium-sized, dark green, dendroid pleurocarp with shoots up to 4 cm long, often encrusted with calcareous material below. It can be distinguished from the common *Thamnobryum alopecurum* by the structure of the branch leaves, which are narrower, very strongly toothed, parallel-sided and have a broad and poorly-defined costa (Furness & Gilbert 1980; Hodgetts & Blockeel 1992; Holt 1886). The leaves of *T. cataractarum* are less strongly toothed but have an even broader costa.

*T. angustifolium* was discovered in Derbyshire by G.A. Holt in 1883, where it still occurs, although the plants are now apparently smaller than the early collections. The Cumbria site was discovered in 2008. There has been much discussion about the nature of this species. Furness & Gilbert (1980) showed that it maintains its characters distinct from *T. alopecurum* in cultivation. Hodgetts & Blockeel (1992) considered that it is more closely related to *T. cataractarum* and the Madeiran *T. fernandesii* than to *T. alopecurum*. However, more recent molecular work by Olsson *et al.* (2009) suggests that, while *T.*

*angustifolium* is undoubtedly a distinct entity, colonies of this plant (and of other narrowly endemic *Thamnobryum* species) may originate from the surrounding populations of *T. alopecurum*. In this case, the two populations of *T. angustifolium* are independently derived from local *T. alopecurum*, and have evolved convergently in response to the rheophilous habitat.

### Ecology and biology

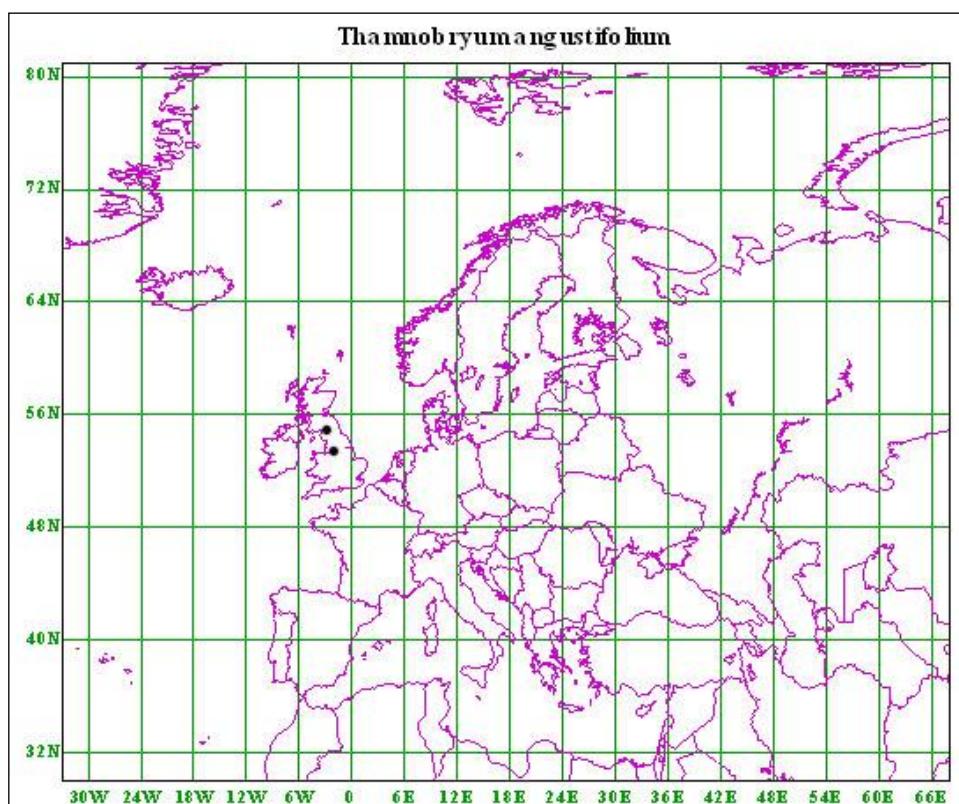
In the Derbyshire Dales, where it has been known for many years, it grows on a shaded limestone rock in a calcareous spring emerging from a cave in a wooded ravine, where it is inundated by water in winter but dry in summer. It is surrounded by a dense sward of *T. alopecurum*. At its more recently-discovered site in Cumbria, it grows on the vertical sides of sandstone slabs on the bank of the River Eden, where it is submerged in fast-flowing water for most of the year.

Altitudinal range: 50–244 m.

Dioicous, only male plants known.

### European distribution

Endemic to England, where it occurs at two sites, one in Derbyshire, the other in Cumbria. Oceanic temperate (Hill *et al.* 2007). A specimen supposedly from Ireland is of doubtful provenance and a record from Madeira is erroneous.



## World distribution

See above.

## Threats

*T. angustifolium* is at risk because of the extremely restricted extent of the population. Collecting by botanists is a significant threat, as the plant is conspicuous, the population very small and at least one of the sites well-known. The size of old herbarium specimens suggests that the shoots are now smaller than they used to be, perhaps because of over-collecting. Reduction in water flow, due perhaps to lowering of the water table or climatic changes, is also a potential threat. The overall extent of the Derbyshire population was reduced during 1996 and 1997 by drought, when the water flow from the cave was much diminished from the norm. However, it was flowing well again in late 1997 and regular monitoring is now underway to determine whether the plant is recovering. Initial observations suggest that it is doing so, with fresh green shoots appearing from areas that had appeared dead following the drought. Irresponsible activities relating to caving may be a significant threat to this species. For example, large areas of rock are sometimes excavated in order to make small caves more accessible, and there is known to be an interest among cavers in finding the source of the stream that emerges at the *Thamnobryum* site. There are fewer obvious threats at the Cumbria site, although over-zealous riverbank management and pollution are both potential threats.

## Conservation

A notice has been placed at the entrance to the cave alerting cavers to the proximity of a rare plant and Natural England is monitoring the situation carefully. Water pollution may also be a potential threat. *T. angustifolium* is a prime candidate for taking into cultivation as an insurance against disappearance from its only known site. A Biodiversity Action Plan has been written for this species, and it is included on a list of the world's most threatened bryophytes (Hallingbäck & Hodgetts 2000). It also receives legal protection under the Wildlife & Countryside Act 1981, and is a candidate for *ex situ* conservation at Kew Gardens.

## Designated sites

Derbyshire Dales NNR

Peak District National Park

Peak District Dales SAC

Cressbrook Dale SSSI

River Eden and Tributaries SSSI

## References

- Furness, S.B. & Gilbert, O.L. 1980. The status of *Thamnobryum angustifolium* (Holt) Crundw. *Journal of Bryology* 11: 139–144.
- Hallingbäck, T. & Hodgetts, N.G. (eds.) 2000. *Mosses, liverworts and hornworts. Status survey and conservation Action Plan for bryophytes*. Gland, IUCN.
- Hodgetts, N.G. & Blockeel, T.L. 1992. *Thamnobryum cataractarum*, a new species from Yorkshire, with observations on *T. angustifolium* and *T. fernandesii*. *Journal of Bryology* 17: 251–262.
- Hill, M.O., Preston, C.D., Bosanquet, S.D.S. & Roy, D.B. 2007. *BRYOATT. Attributes of British and Irish mosses, liverworts and hornworts*. Abbots Ripton, NERC Centre for Ecology and Hydrology & Countryside Council for Wales.
- Holt, G.A. 1886. A British moss new to science. *Journal of Botany* 24: 65.
- Olsson, S., Rumsey, F., Grundmann, M., Russell, S., Enroth, J. & Quandt, D. 2009. The origin of the British and Macaronesian endemic *Thamnobryum* species (Neckeraceae). *Journal of Bryology* 31: 1–10.

## Appendix 6. Checklist and country status of European liverworts and hornworts

This table is based upon a working list supplied by Nick Hodgetts (October 2013) and a revision supplied on 26/07/2014. Nomenclature is based on information from the Early Land Plants Today project (Lars Söderström pers. comm. 2011), which is currently finalising a World Checklist of Liverworts and Hornworts. The subdivision of Russia is based on the system used by Söderström *et al.* 2007. Occurrence and Threat data are based on the latest available checklists and Red Lists from each country/territory, backed up with information from the network of ECCB Country Contacts. Most countries that have a Red List use IUCN threat categories to assign a threat status to each taxon. However, where countries use their own system of threat categories, the symbols are explained in the Legend (see below). Only published records are included in the table. Where no checklist exists for a country/territory, information has been compiled from miscellaneous published sources and revised by the local ECCB contact(s).

### Legend

Status values italicised in red with a darker background fill have an associated 'Status note' (see below)

#### Common categories

- Occurrence of species confirmed - either Least Concern or no information about status
- Occurrence of infraspecific taxon confirmed
- At least some reports of the species presumably refer to this infraspecific taxon, although not positively confirmed in any source
- ? Some doubt about occurrence
- Taxon recorded in some literature but later rejected
- RE Regionally Extinct
- CR Critically Endangered
- EN Endangered
- VU Vulnerable
- NT Near Threatened
- DD Data Deficient
- DD\* Data Deficient but recently recorded
- NE Not Evaluated
- y** **Include in candidate list? - y = yes**

#### Country-specific categories

##### Germany

- |   |  |
|---|--|
| 0 | Ausgestorben oder verschollen (Regionally Extinct) |
| 1 | Vom Aussterben bedroht (Critically Endangered)     |
| 2 | Stark gefährdet (Endangered)                       |
| 3 | Gefährdet (Vulnerable)                             |
| G | Gefährdung anzunehmen (Risk assumed)               |
| R | Extrem selten (Extremely rare)                     |
| V | Zurückgehend (Near Threatened)                     |
| D | Daten ungenugend (Data deficient)                  |

##### Poland

- |    |               |
|----|---------------|
| Ex | Extinct       |
| E  | Endangered    |
| V  | Vulnerable    |
| R  | Rare          |
| I  | Indeterminate |

##### Latvia

- |   |   |
|---|---|
| 0 | Extinct   |
| 1 | Endangered                                      |
| 2 | Vulnerable                                      |
| 3 | Rare  |
| 4 | Little known or insufficiently explored species |

##### Ukraine

- |   |      |
|---|------|
| R | Rare |
|---|------|

- Species confirmed; LC/status unknown
  - Infraspecific taxon confirmed
  - Unconfirmed infraspecific taxon
  - ? Some doubt about occurrence
  - Literature record but later rejected

Red/*italic* status values with a darker fill

**Red/italic status values with a darker fill indicate note present**

Taxon	Ind	De	Fa	Fir	Ice	No	Sv	Sw	Ch	Gi	Gr	Ire	No	An	Az	Ba	Ca	Co	Cy	Fra	Ita	Ma	Me	Po	Sa	Sic	Sp	Va	
<i>Acanthocoleus aberrans</i>	y																												
<i>Acrobolbus wilsonii</i>	y																• VU	VU										?	
<i>Adelanthus lindenbergsianus</i>	y																EN VU												
<i>Anastrepta orcadensis</i>						•			VU					•	•						• EN						EN		
<i>Anastrophylleum alpinum</i>	y																NT												
<i>Anastrophylleum assimile</i>	y																			●	EN								
<i>Anastrophylleum donnianum</i>	y			•			VU		-																				
<i>Anastrophylleum joergensenii</i>	y																NT												
<i>Anastrophylleum michauxii</i>	y				VU					NT											-	EN							
<i>Aneura maxima</i>	y				VU					?											•								
<i>Aneura mirabilis</i>	y				EN					•				VU													DD		
<i>Aneura pinguis</i>			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	VU	•		•	NT	•			DD	•	•	
<i>Aneura pseudopinguis</i>	y																											DD*	
<i>Anthelia julacea</i>			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•	EN						-	
<i>Anthelia juratzkana</i>			•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	NT	•			•	NT				•		
<i>Anthoceros agrestis</i>	y	•	•	•	•	-	•	•						VU	VU			•			•	VU	•		RE	DD	•	-	
<i>Anthoceros caucasicus</i>	y																				•	•	CR	•			CR		
<i>Anthoceros neesii</i>	y																												
<i>Anthoceros punctatus</i>	y	-	-	-	-	-	-	-	•					•	•	•	•	•	•	•	•	NT	•		•	CR	•	•	
<i>Apomarsupella revoluta</i>	y	-	-	-	•				DD					-							•	EN							
<i>Arnellia fennica</i>	y		VU		NT	•	NT														•	DD							
<i>Asterella africana</i>	y																		•	NT	•			DD	DD	•	EN		
<i>Asterella lindenbergsiana</i>														CR	•	•					•	VU						-	
<i>Asterella saccata</i>	y																				•	VU							
<i>Asterella tenella</i>																													-
<i>Barbilophozia barbata</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	CR	CR	•		•	NT		•		•	•	•	
<i>Barbilophozia hatcheri</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•		•	DD	•	•	
<i>Barbilophozia lycopodioides</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•					•	
<i>Barbilophozia rubescens</i>	y		DD	DD	-	•																							
<i>Barbilophozia sudetica</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•					•	
<i>Bazzania azorica</i>	y																		•										
<i>Bazzania flaccida</i>	y																				•	VU						•	
<i>Bazzania pearsonii</i>	y																VU										VU		
<i>Bazzania tricrenata</i>			•	NT		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT					•		
<i>Bazzania trilobata</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•		•		•	•		
<i>Bazzania trilobata</i> var. <i>depauperata</i>																													
<i>Bazzania trilobata</i> var. <i>trilobata</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Biantheridion undulifolium</i>	y		RE	CR	RE	VU																							
<i>Blasia pusilla</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•		VU	-	•	VU		
<i>Blepharostoma trichophyllum</i>																													
<i>Blepharostoma trichophyllum</i> subsp. <i>brevirete</i>																					■	CR							
<i>Blepharostoma trichophyllum</i> subsp. <i>trichophyllum</i>			■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	NT						■		
<i>Bucegia romonica</i>	y																												
<i>Calycularia laxa</i>	y																												
<i>Calypogeia arguta</i>		•	-	•						NT	•			•	•	•	•	•	•	•	•	NT	•		•	CR	•	•	
<i>Calypogeia azorica</i>	y																												
<i>Calypogeia azurea</i>		•	•	-	-	•				NT				•	•	•	•	•	•	•	•	NT	-		•	DD	•	•	
<i>Calypogeia fissa</i>		•	•	NT	•	•				•				•	•	•	•	•	•	•	•	NT	•		•	NT	•	•	
<i>Calypogeia fissa</i> subsp. <i>fissa</i>		■	□	□	□	■				■				■	■	■	□	□	□	□	□	■	□		□	□	□	□	
<i>Calypogeia fissa</i> subsp. <i>neogaea</i>																													
<i>Calypogeia integrifistula</i>		•	•	-	•					•				•	EN	EN	VU	•			●	NT	-			EN			
<i>Calypogeia muelleriana</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•		•		•	•		
<i>Calypogeia neesiana</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT				CR	VU			
<i>Calypogeia sphagnicola</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	DD	●	VU	•	•	-	•		
<i>Calypogeia suecica</i>		-	VU	•	VU					•	RE	RE		•	DD						•	NT		EN		EN			
<i>Cephalozia affinis</i>	y		DD	•	NT																								
<i>Cephalozia ambigua</i>			•	•	•	•	•	•	•	•	DD											•	NT			VU			
<i>Cephalozia bicuspidata</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•	•	•	CR	•	•		
<i>Cephalozia bicuspidata</i> subsp. <i>bicuspidata</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	NT	□	■	□	□	□	□		
<i>Cephalozia bicuspidata</i> subsp. <i>lammersiana</i>		■	■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Cephalozia catenulata</i>		•	EN	-	•	-	NT				•	•	•	•	•	•	•	•	•	•	•	●	NT	•			DD*		
<i>Cephalozia connivens</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	DD	•	•	•	NT	•		DD		•		
<i>Cephalozia crassifolia</i>	y										EN																	VU	
<i>Cephalozia laciniulata</i>	y		RE																										
<i>Cephalozia leucantha</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	DD							
<i>Cephalozia loitlesbergeri</i>		•	•	•	•	•	•	•	•	•	VU	VU									●	CR			VU				
<i>Cephalozia lunulifolia</i>		•	•	•	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•		•				
<i>Cephalozia macounii</i>	y		CR	-	CR																								
<i>Cephalozia macrostachya</i>	y	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	CR			-	-			
<i>Cephalozia macrostachya</i> var. <i>macrostachya</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
<i>Cephalozia macrostachya</i> var. <i>spiniflora</i>	y		□	□	□	■				■	DD										■								
<i>Cephalozia pleniceps</i>		•	•	•	•	•	•	•	•	•	VU	VU	•							●	CR	?					VU		



- Species confirmed; LC/status unknown
  - Infraspecific taxon confirmed
  - Unconfirmed infraspecific taxon
  - ? Some doubt about occurrence
  - Literature record but later rejected

Red/italic status values with a darker fill

**Red/italic status values with a darker fill indicate note present**

Taxon	Ind	De	Fa	Fir	Ice	No	Sv	Sw	Ch	Gi	Gr	Ire	No	An	Az	Ba	Ca	Co	Cy	Fra	Ita	Ma	Me	Po	Sa	Sic	Sp	Va	
<i>Cephaloziella arctogena</i>	y					• DD	•														NT	•	•	•		DD	•	•	
<i>Cephaloziella aspericaulis</i>	y																				VU								
<i>Cephaloziella baumgartneri</i>																													
<i>Cephaloziella calyculata</i>																					EN	•	•	•	•	•	NT	•	•
<i>Cephaloziella dentata</i>	y	•				•	•			DD		CR					•	DD	-	•	VU	•		-	NT	•	-		
<i>Cephaloziella divaricata</i>						•	•	•	•	•	-	•				•	•	•	•	•	•	NT	•		•	•	•		
<i>Cephaloziella divaricata</i> var. <i>divaricata</i>						■	□	□	■	□	-	■	□			■	■	■	□	□	■	■	■	■	□	□	□		
<i>Cephaloziella divaricata</i> var. <i>scabra</i>						■	■	■	■	□		-	■			?	■	■	■	■	■	■	■	■	□	-			
<i>Cephaloziella elachista</i>		•	•	?	•											NT DD					■	-		DD		?			
<i>Cephaloziella elegans</i>		-	DD	•	•															-	•	DD				DD			
<i>Cephaloziella granatensis</i>	y																					•							
<i>Cephaloziella grimsulana</i>						•	-	•												■	CR		VU		DD				
<i>Cephaloziella hampeana</i>		•	•	•	•	•	•	•	-	•		•	•	•		•	•	DD		•	NT	•		NT	•				
<i>Cephaloziella integerrima</i>		•		DD	•	•	•	•	•			VU	VU							■	•	-			CR				
<i>Cephaloziella massalongii</i>				CR	•	DD	DD					VU	VU				•			■	•	VU		VU		VU			
<i>Cephaloziella nicholsonii</i>	y																			VU	VU								
<i>Cephaloziella phyllacantha</i>	y					DD	-												■	•	VU						?		
<i>Cephaloziella polystrotosa</i>	y					•																							
<i>Cephaloziella rubella</i>		•	•	•	•	•	•	-	•	•		•	VU	VU		•	DD	•		•	NT	•		DD	•	•	DD		
<i>Cephaloziella spinigera</i>		•		•	•	•	•	•	•			NT	DD						■	•						DD			
<i>Cephaloziella stellulifera</i>		•		DD	DD	DD	DD	•				•	NT	-		•	DD	•	•	•	NT	•		•	DD	•	•		
<i>Cephaloziella turneri</i>									•			NT	VU			•	•	•	•	•	NT	•		•	DD	•	•		
<i>Cephaloziella uncinata</i>	y					•	DD													•									?
<i>Cephaloziella varians</i>		•	•	•	•	•	•	•	•										■	•	DD							?	
<i>Chileolejeunea cedercreutzii</i>	y																		•			•							
<i>Chiloscyphus pallescens</i>		•	•	•	•	•	•	-	•			•	•	•	•	•	•	•	•	•	NT	•		•	DD	•	•		
<i>Chiloscyphus pallescens</i> var. <i>fragilis</i>		■	■	■	■	■	■	■	■			□								■					□				
<i>Chiloscyphus pallescens</i> var. <i>pallescens</i>		■	■	■	■	■	■	■	■			□	□	□	□	□	□	□	□	□	■	■	□	□	□	□	□		
<i>Chiloscyphus polyanthos</i>		•	•	•	•	•	•	-	•	•		•	•	•	•	•	•	•	•	•	NT	•		•	VU	NT	•	•	
<i>Chiloscyphus polyanthos</i> var. <i>polyanthos</i>		■	■	■	■	■	■	■	■			□	□	□	□	□	□	□	□	■	■	□	□	□	■	■	■		
<i>Chiloscyphus polyanthos</i> var. <i>rivularis</i>		□	■	■	■	■	■	■	■			-	□				■										-		
<i>Cladopodiella fluitans</i>		•	•	•	•	•	•	•	•			•	•	•	•	•	-	-	•	VU	-		•		VU				
<i>Cladopodiella francisci</i>	y	•	•	•	•	•	•	•	•			•	VU	VU		•		•	DD	•					VU				
<i>Clevea hyalina</i>				VU	•	•	•	•	•			VU			•				•	CR				•					
<i>Clevea spathysii</i>	y																		•	•	•	•	•	•	CR	-	•	•	
<i>Cololejeunea azorica</i>	y																			•									
<i>Cololejeunea calcarea</i>		•	•	CR	•	•	NT					•	•	•	•	-	•	•	•	NT	-			•	CR	•			
<i>Cololejeunea madeirensis</i>	y																			•	-								
<i>Cololejeunea microscopica</i>	y	•																VU		•	•							EN	
<i>Cololejeunea minutissima</i>												•	•	•	•		•	•	-	•	NT	•		•		•	•		
<i>Cololejeunea rossettiana</i>												•	•	•	•		•	-	•	•	NT	•		•	CR	•	•		
<i>Cololejeunea schaeferi</i>	y																		•										
<i>Cololejeunea sintenisii</i>	y																		•	EN									
<i>Colura calyptrifolia</i>	y			•								•	•	•	•		•	VU		•	•	•							
<i>Conocephalum conicum</i>	?	?	EN	?	•	•	•	•	•			•	•	•	?	?	•	EN	■	•	NT	?		•	NT	•	•	•	
<i>Conocephalum salebrosum</i>	•		VU	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	DD	•		•					
<i>Corsinia coriandrina</i>																				•	•								
<i>Crossocalyx hellerianus</i>	y	•	NT	•	NT							•	RE	EN							•	CR							CR
<i>Cryptocolea imbricata</i>	y											•	DD																
<i>Cyathodium foetidissimum</i>	y																												
<i>Diplophyllum albicans</i>		•	•	•	•	•	•	•	•			•	•	•	•	•	-	NT	•	•	NT	•		•	CR	•	•		
<i>Diplophyllum obtusatum</i>	y																												
<i>Diplophyllum obtusifolium</i>		•	•	•	•	•	•	•	•			•	NT	NT	•					•	NT			•					
<i>Diplophyllum taxifolium</i>													•	•	•					•	NT			•					
<i>Douinia ovata</i>		•	CR	•	•	•						•	NT	NT	•		•		•	■	•	-		•					
<i>Drepanolejeunea hamatifolia</i>																			•	•	•	•	•	•	•	•	•		
<i>Dumontiera hirsuta</i>																		VU	NT	NT	•	VU	•	CR	•	•	•		
<i>Endogemma caespiticia</i>		•	•	•	•	•	•	•	•			VU																-	
<i>Eremnotus myriocarpus</i>	y		EN	•	•	•	-	•				•	NT	NT						•	CR								
<i>Exormotheca pustulosa</i>																			•	•				DD	•	NT	•	NT	
<i>Exormotheca welwitschii</i>	y																			•									- NT
<i>Fossmbronia angulosa</i>												•	•	•	-		•	•	•	•	NT	•		•		•	•	•	
<i>Fossmbronia caespitiformis</i>												•	•	DD		•	•	•	•	•	•	•	•	•	•	•	•	•	
<i>Fossmbronia caespitiformis</i> subsp. <i>caespitiformis</i>												■	■	■	■	■	■	■	■	■	NT	■	□	■	■	■	■		
<i>Fossmbronia caespitiformis</i> subsp. <i>multipira</i>												■	■	■	■	■	■	■	■	■	CR	■	□	■	■	■	■		
<i>Fossmbronia echinata</i>	y																•	? DD	•	•	•	NT	•	•	•	DD	DD		
<i>Fossmbronia fimbriata</i>	y																	• DD											
<i>Fossmbronia fleischeri</i>	y																												
<i>Fossmbronia foveolata</i>				•		•	•	•	•			•	•	•	•					•	DD			CR					
<i>Fossmbronia incurva</i>	y		•		RE		VU	•				•	•	•	•														
<i>Fossmbronia maritima</i>	y																•	NT	NT	•			CR		DD				
<i>Fossmbronia mittenii</i>																		RE					■	•					



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Taxon	Inc	Den	Fae	Fin	Icef	Noe	Sva	Swi	Cha	Gif	Gre	Irel	Nor	And	Aze	Bal	Car	Cor	Cyp	Fra	Ital	Ma	Ma	Mo	Por	San	Sar	Sici	Spa	Vat	
<i>Lepidozia cupressina</i> subsp. <i>cupressina</i>	y	□				■				□	□	□							□												
<i>Lepidozia cupressina</i> subsp. <i>pinnata</i>	y					-			-						■	?			■										-		
<i>Lepidozia pearsonii</i>						●			-	●	●	●		●																	
<i>Lepidozia reptans</i>	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	NT	●		●			●				
<i>Lepidozia stuhlmannii</i>	y															●															
<i>Leptoscyphus cuneifolius</i>							CR	-		●	●	●		●																	
<i>Leptoscyphus porphyrius</i>	y														●																
<i>Liochlaena lanceolata</i>	●	NT	-	●		●			CR		●			DD	●		●	NT	●									DD			
<i>Liochlaena subulata</i>	y	-	-	-		●															●										
<i>Lophocolea bidentata</i>	●	●	VU	●	●		●	●		●	●	●		●	-	●	●	●	●	●	NT	●			●		●	●			
<i>Lophocolea bispinosa</i>	y													●	NE																
<i>Lophocolea brookwoodiana</i>														NE																	
<i>Lophocolea coadunata</i>	●	●	●	●	●		●	?		?	?	?		●	-	●	-					●		?	-	-	-	-			
<i>Lophocolea fragrans</i>							NT		●	●	●	●		●		●	●	●	●	●	●	●	EN	●	VU						
<i>Lophocolea heterophylla</i>	●	●	●	●	●		●	●		●	●	●		●	●	●	●	●	●	●	●	●	NT	●		●	●	●			
<i>Lophocolea minor</i>	●	●	●	●	●		●																●	NT	●			●	●		
<i>Lophocolea semiteres</i>										●	NE																				
<i>Lophozia ascendens</i>		VU	●	VU										●			●	VU										EN			
<i>Lophozia ciliata</i>	y	NT	●	●																											
<i>Lophozia groenlandica</i>	y	●	-	EN	●	-																									
<i>Lophozia guttulata</i>	y	-	●	NT	-	●	-	NT		RE	-	-	●	●			●	NT	-		●										
<i>Lophozia lantratoviae</i>	y																														
<i>Lophozia savicziae</i>	y	VU	●	●	●																										
<i>Lophozia schusterana</i>	y																														
<i>Lophozia silvatica</i>	●	●	●	●	●	●		●	●	●	●	●									●	CR		?	●						
<i>Lophozia silvicoloides</i>	y								●																						
<i>Lophozia ventricosa</i>	●	●	●	●	●	●		●	●	●	●	●		●	-	●	●	●	●	●	●	NT	●	?	●	●					
<i>Lophozia wenzelii</i>	y	●	●	●	●	●	●	●	●	DD	DD	●										●	NT	●	VU						
<i>Lophoziopsis excisa</i>	●	●	●	●	●	●		●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	NT	●	●	●	●			
<i>Lophoziopsis excisa</i> var. <i>elegans</i>			■																												
<i>Lophoziopsis excisa</i> var. <i>excisa</i>	■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□		
<i>Lophoziopsis longidens</i>	●	●	●	●	●	●		●	●	●	●	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Lophoziopsis longidens</i> subsp. <i>arctica</i>									?	■																					
<i>Lophoziopsis longidens</i> subsp. <i>longidens</i>	■	■	■	■	■	■	■	■	■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Lophoziopsis pellucida</i>	y						EN	●	EN																				?		
<i>Lophoziopsis polaris</i>		NT		EN	●	NT																									
<i>Lophoziopsis polaris</i> var. <i>polaris</i>		□		□	□	■	□																								
<i>Lophoziopsis polaris</i> var. <i>sphagnorum</i>						■																									
<i>Lophoziopsis propagulifera</i>	●		●	-	●	●																									
<i>Lophoziopsis rubrigemina</i>	y		●																												
<i>Lunularia cruciata</i>	●	●	●	●	●	●		●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Mannia androgyna</i>																								●	EN	●		●	EN	●	●
<i>Mannia californica</i>																															
<i>Mannia controversa</i>	y																														
<i>Mannia fragrans</i>	y	EN	CR	●																										●	CR
<i>Mannia gracilis</i>		●	●	●	●	●		●						NT	-	-													VU		
<i>Mannia pilosa</i>		VU	●	-	●																										
<i>Mannia sibirica</i>	y	CR	CR																												
<i>Mannia triandra</i>	y		?																												
<i>Marchantia paleacea</i>	y																													●	●
<i>Marchantia polymorpha</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Marchantia polymorpha</i> subsp. <i>montivagans</i>	■	□	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Marchantia polymorpha</i> subsp. <i>polymorpha</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Marchantia polymorpha</i> subsp. <i>ruderalis</i>	■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Marchesinia mackaii</i>	y		-							●	●	●		●	●	●	●	●	●	●	●	VU	●								
<i>Marsupella andreaeoides</i>	y		●	DD																											
<i>Marsupella apiculata</i>		NT	●	●	●	●		VU																							
<i>Marsupella aquatica</i>		●	NT	●	●	●		●	●	●	●	●		●		-	●														
<i>Marsupella arctica</i>	y			●	DD		VU																								
<i>Marsupella bockii</i>		●	●	●	●	●	VU																								
<i>Marsupella condensata</i>			NT	●	●	●	●	NT																							
<i>Marsupella emarginata</i>				●	●	●	●	●																							
<i>Marsupella funcikii</i>				●	●	RE	●	●	DD	●			NT	NT	●	●	VU	●													
<i>Marsupella profunda</i>	y						VU																								
<i>Marsupella sparsifolia</i>	y	●	NT	●	●	●	●	VU		DD	●																				
<i>Marsupella sphacelata</i>		VU	-	●	●	●		●	VU	VU	●	●																			
<i>Marsupella spiniloba</i>	y			●	DD																										
<i>Marsupella sprucei</i>			●	EN	●	●	●	●	VU	VU	●																		CR		
<i>Marsupella stableri</i>																															
<i>Mastigophora woodsi</i>																															
<i>Mesoptchia badensis</i>																															
<i>Mesoptchia bantriensis</i>		-	●	NT	●	●	-	●		●	NT	NT	●															?	●	●	



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#### Taxon

	Include in candidate list?																												
	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Balearic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City
<i>Plagiochila longispina</i>	y																												
<i>Plagiochila maderensis</i>	y																												
<i>Plagiochila papillifolia</i>	y																												
<i>Plagiochila poreloides</i>																													
<i>Plagiochila poreloides</i> var. <i>norvegica</i>	y																												
<i>Plagiochila poreloides</i> var. <i>poreloides</i>																													
<i>Plagiochila poreloides</i> var. <i>subarctica</i>																													
<i>Plagiochila punctata</i>	y																												
<i>Plagiochila retrorsa</i>	y																												
<i>Plagiochila spinulosa</i>	y																												
<i>Plagiochila stricta</i>	y																												
<i>Plagiochila virginica</i>	y																												
<i>Pleurocladula albescens</i>																													
<i>Pleurocladula albescens</i> var. <i>albescens</i>																													
<i>Pleurocladula albescens</i> var. <i>islandica</i>																													
<i>Pleurozia purpurea</i>																													
<i>Porella arboris-vitae</i>																													
<i>Porella baueri</i>	y																												
<i>Porella canariensis</i>	y																												
<i>Porella cordaeana</i>																													
<i>Porella inaequalis</i>	y																												
<i>Porella obtusata</i>																													
<i>Porella pinnata</i>	y																												
<i>Porella platyphylla</i>																													
<i>Prasanthus suecicus</i>																													
<i>Preissia quadrata</i>																													
<i>Preissia quadrata</i> subsp. <i>hyperborea</i>																													
<i>Preissia quadrata</i> subsp. <i>quadrata</i>																													
<i>Protolophozia elongata</i>	y																												
<i>Protolophozia herzogiana</i>	y																												
<i>Pseudotmarsupidium decipiens</i>	y																												
<i>Pseudotritomaria heterophylla</i>	y																												
<i>Ptilidium ciliare</i>																													
<i>Ptilidium pulcherrimum</i>																													
<i>Radula aquilegia</i>	y																												
<i>Radula carringtonii</i>	y																												
<i>Radula complanata</i>																													
<i>Radula holtii</i>	y																												
<i>Radula jonesii</i>	y																												
<i>Radula lindenberiana</i>																													
<i>Radula nudicaulis</i>	y																												
<i>Radula visianica</i>	y																												
<i>Radula voluta</i>	y																												
<i>Radula wichurae</i>	y																												
<i>Reboulia hemisphaerica</i>																													
<i>Reboulia hemisphaerica</i> subsp. <i>australis</i>																													
<i>Reboulia hemisphaerica</i> subsp. <i>dioica</i>																													
<i>Reboulia hemisphaerica</i> subsp. <i>hemisphaerica</i>																													
<i>Reboulia hemisphaerica</i> subsp. <i>paradoxa</i>																													
<i>Riccardia chamedryfolia</i>																													
<i>Riccardia incurvata</i>																													
<i>Riccardia latifrons</i>																													
<i>Riccardia latifrons</i> subsp. <i>arctica</i>																													
<i>Riccardia latifrons</i> subsp. <i>latifrons</i>																													
<i>Riccardia multifida</i>																													
<i>Riccardia palmata</i>																													
<i>Riccia atlantica</i>	y																												
<i>Riccia atrimarginata</i>	y																												
<i>Riccia beyrichiana</i>																													
<i>Riccia bicarinata</i>	y																												
<i>Riccia bifurca</i>																													
<i>Riccia breidleri</i>	y																												
<i>Riccia bulbosa</i>																													
<i>Riccia canaliculata</i>	y																												
<i>Riccia cavernosa</i>																													
<i>Riccia ciliata</i>																													
<i>Riccia ciliifera</i>																													
<i>Riccia crinita</i>	y																												
<i>Riccia crozalsii</i>																													
<i>Riccia crustata</i>	y																												
<i>Riccia crystallina</i>	y																												
<i>Riccia duplex</i>	y																												



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Taxon	Ind	De	Fa	Fir	Ice	No	Sv	Sw	Ch	Gi	Gr	Ire	No	An	Az	Ba	Ca	Co	Cy	Fra	Ita	Ma	Mc	Po	Sa	Sa	Sic	Sp	Va
<i>Scapania nemoreana</i>		•		NT	-	•	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	
<i>Scapania nimbosaa</i>	y				EN																								
<i>Scapania obcordata</i>				EN	•	•	•	•	•																				
<i>Scapania obscura</i>	y			EN	•	•	•	•	•																				
<i>Scapania ornithopodoides</i>	y			•		•	•	•	•																				
<i>Scapania paludicola</i>		•		•	•	•	•	•	•	•	•	•										•	NT					DD	
<i>Scapania paludicola</i> var. <i>paludicola</i>	■		□	□	□	■	□	■														■	■				□		
<i>Scapania paludicola</i> var. <i>rotundiloba</i>																													
<i>Scapania paludosaa</i>				•	NT	•	•	•	•	•	•	•							•		•	NT					DD		
<i>Scapania parvifolia</i>							•	•	•																				
<i>Scapania praetervisa</i>				NT	•	•	•	•	•	VU			DD								•	CR	-			DD			
<i>Scapania scandica</i>		•	•	•	•	•	•	•	-	•	•	•	DD	•				•	•	NT			DD			DD			
<i>Scapania scandica</i> var. <i>argutedentata</i>			□	□	□																								
<i>Scapania scandica</i> var. <i>grandiretis</i>			■	□	□	■	■	■	-	■	■	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
<i>Scapania scapanioides</i>	y																											EN	
<i>Scapania simmonsii</i>	y		-			•																							
<i>Scapania sphaerifera</i>	y		-																										
<i>Scapania spitsbergensis</i>	y		EN	EN	•	NT																							
<i>Scapania subalpina</i>		•	•	•	•	•	•	•	•	•	•	•	DD	DD				•	•	NT	•		NT		•	CR			
<i>Scapania tundrae</i>	y			EN	•	•																							
<i>Scapania uliginosa</i>		•	NT	•	•	•	•	•	•	•	•	•	-						•	NT				DD					
<i>Scapania umbrosa</i>		•	•	•	•	•	•	•	•	•	•	•	•	EN	-			•	•	NT	•	-			VU				
<i>Scapania undulata</i>		•	•	•	•	•	•	-	•	•	•	•	DD	•	•	•	•	•	•	NT	•		•	DD	•	•	•		
<i>Scapania undulata</i> var. <i>minor</i>																			■										
<i>Scapania undulata</i> var. <i>undulata</i>		□	□	□	□	□	-	□	■	■	■	■	■	■	■	■	■	□	□	■	■	■	□	□	□	□	□		
<i>Scapania verrucosa</i>	y		-																	•	VU						RE		
<i>Scapania zemliae</i>	y																												
<i>Schistochilopsis grandiretis</i>	y	•	EN	•	•	•	•	•	•											•	DD								
<i>Schistochilopsis hyperarctica</i>	y		EN	•																									
<i>Schistochilopsis incisa</i>		•	•	•	•	•	•	•	-	•	•	•	•	•	•	•	•	•	•	NT					VU				
<i>Schistochilopsis incisa</i> var. <i>incisa</i>		□	■	■	■	■	-	□	■	■	■	■	□	□	□	□	□	■	■	■						□			
<i>Schistochilopsis incisa</i> var. <i>inermis</i>			■																										
<i>Schistochilopsis opacifolia</i>		•	•	•	•	•	•	•	•	•	•	•	VU	NT				•	CR								VU		
<i>Schizophyllum sphenoloboides</i>	y		EN		•	DD																							
<i>Schljakovia kunzeana</i>		•	•	•	•	•	•	•	•	•	•	•	NT	RE	NT			•	CR								VU		
<i>Schljakovianthus quadrilobus</i>	y		•	•	•	•	•	•	•	•	•	•	NT					•	CR								-		
<i>Solenostoma callithrix</i>	y																	•	DD		•								
<i>Solenostoma caucasicum</i>	y																												
<i>Solenostoma confertissimum</i>	y		DD	•	•	•	•	•	•	•	•	•	EN					•	CR							EN			
<i>Solenostoma gracillimum</i>		•	•	•	•	•	-	•	•	•	•	•	DD	•	•	NT	•	•	•	•	•	•	•	•	•	•	CR		
<i>Solenostoma handelii</i>	y																												
<i>Solenostoma hyalinum</i>		•	?	•	•	•	•	•	•	•	•	•	VU	•	•	•	NT	?	•	•	•	•	•	•	•	•			
<i>Solenostoma obovatum</i>			•	NT	•	•	-	•	•	•	•	•		•	•	•	NT	•	•	•	•	•	•	•	•				
<i>Solenostoma paroicum</i>	y	•											•	NT	NT			•											
<i>Solenostoma pusillum</i>	y	•	•	•	-	•	-	•	•	•	•	•															-		
<i>Solenostoma sphaerocarpum</i>		•	•	•	•	•	•	•	•	•	•	•	•	NT	NT	•	-	•	NT	•	•	?	•	•	•				
<i>Solenostoma subellipticum</i>		•	-	•	•	•	•	•	•	•	•	•	•	NT	NT			•	NT							DD*			
<i>Southbya nigrella</i>										VU			•	VU	•	•	•	NT	•	•	•	•	•	•	•	•			
<i>Southbya topacea</i>										VU	CR		•	•	•	•	•	•	NT	•	•	•	•	•	•	•			
<i>Sphaerocarpos michelii</i>							•		•				VU	•	•	•	•	NT	•	•	•	•	•	•	•				
<i>Sphaerocarpos stipitatus</i>	y																		CR								-		
<i>Sphaerocarpos texanus</i>	y							•										•	CR		•	?	•	•	•				
<i>Sphenolobopsis pearsonii</i>																		NT	NT										
<i>Sphenolobus minutus</i>		•	?	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	NT	•								
<i>Sphenolobus saxicola</i>	y	?	•	•	•	•	•	•	•	•	•	•	NT							-	DD								
<i>Syzygiella autumnalis</i>		•	VU	-	•	•	•	•	•	•	•	•	-					•	CR	-					VU				
<i>Syzygiella rubricaulis</i>	y																	•											
<i>Targionia hypophylla</i>			-	•	•	•	•	RE	RE				•	•	•	•	•	NT	•	•	•	DD	•	•	•				
<i>Targionia lorbeeriana</i>																			CR	•	?	•	-	•	•	•			
<i>Telaranea azorica</i>	y																	•	EN										
<i>Telaranea europaea</i>	y									EN	NT		•	VU				•		•	VU				VU				
<i>Telaranea murphyae</i>	y									VU																	-		
<i>Telaranea nematodes</i>										-	-																		
<i>Telaranea sejuncta</i>																													
<i>Tetralophozia filiformis</i>	y																											EN	
<i>Tetralophozia setiformis</i>																												-	
<i>Trichocolea tomentella</i>																		•	•	•	•	•	•	•	•	•			
<i>Tricholepidozia tetracyclota</i>																		NE	-										
<i>Trilophozia quinquefolia</i>																		•	•	•	•	•	NT	•	•				
<i>Tritomaria exsecta</i>																		•	VU	•	•	•	NT	•	•				
<i>Tritomaria exsectiformis</i>																		•	•	•	•	•	NT	•	•				



• Species confirmed; LC/status unknown  
 ■ Infraspecific taxon confirmed  
 □ Unconfirmed infraspecific taxon  
 ? Some doubt about occurrence  
 - Literature record but later rejected  
 Red/italic status values with a darker fill indicate note present

Taxon	Include in candidate list?																													
	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Balearic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City	
<i>Tritomaria exsectiformis</i> subsp. <i>arctica</i>	■	□	■	■	□	■	■	□	□	□	□	□	-	-	-	-	-	■	■	-	□	-	-	-	-	-	-			
<i>Tritomaria exsectiformis</i> subsp. <i>exsectiformis</i>	■	■	■	■	■	■	■	■	■	■	■	■	DD	-	-	-	-	■	■	-	□	-	-	-	-	-	DD	-		
<i>Tritomaria scitula</i>	●	●	●	●	●	●	●	●	●	●	●	●	-	-	-	-	-	●	NT	-	-	-	-	-	-	-	-	-		
<i>Tylimanthus anisodontus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<i>Tylimanthus laxus</i>	y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Status notes** (Status values italicised in red with a darker background fill)

Taxon	Country	Note
<i>Anastrophyllo assimile</i>	FRANCE	• (at risk)
<i>Aneura maxima</i>	SLOVAKIA	• (DD suggested)
<i>Barbilophozia hatcheri</i>	MONTENEGRO	Low risk
<i>Barbilophozia hatcheri</i>	SERBIA	Low risk
<i>Calypogeia integrifistipula</i>	FRANCE	• (at risk)
<i>Calypogeia sphagnicola</i>	FRANCE	• (at risk)
<i>Cephalozia catenulata</i>	FRANCE	• (at risk)
<i>Cephalozia catenulata</i>	SPAIN	DD-vanished
<i>Cephalozia lotlesbergeri</i>	FRANCE	• (at risk)
<i>Cephalozia pleniceps</i>	FRANCE	• (at risk)
<i>Cephaloziella calyculata</i>	FRANCE	• (at risk)
<i>Cephaloziella calyculata</i>	SERBIA	Low risk
<i>Cephaloziella elachista</i>	FRANCE	• (at risk)
<i>Cephaloziella grimsulana</i>	FRANCE	• (at risk)
<i>Cephaloziella integerrima</i>	FRANCE	• (at risk)
<i>Cephaloziella massalongi</i>	FRANCE	• (at risk)
<i>Cephaloziella phyllacantha</i>	FRANCE	• (at risk)
<i>Cephaloziella spinigera</i>	FRANCE	• (at risk)
<i>Cephaloziella varians</i>	FRANCE	• (at risk)
<i>Clevea spathysii</i>	UKRAINE	Rare
<i>Cololejeunea rossettiana</i>	MONTENEGRO	Low risk
<i>Cololejeunea rossettiana</i>	UKRAINE	Rare
<i>Conocephalum conicum</i>	BELARUS	s.l.?
<i>Conocephalum conicum</i>	CORSICA	s.l.?
<i>Conocephalum conicum</i>	CRETE	s.l.?
<i>Conocephalum conicum</i>	DENMARK	s.l.?
<i>Conocephalum conicum</i>	ESTONIA	s.l.?
<i>Conocephalum conicum</i>	LATVIA	s.l.?
<i>Conocephalum conicum</i>	LITHUANIA	s.l.?
<i>Conocephalum conicum</i>	MACEDONIA	s.l.?
<i>Conocephalum conicum</i>	RUSSIA NW	s.l.?
<i>Conocephalum conicum</i>	SARDINIA	s.l.?
<i>Conocephalum conicum</i>	SERBIA	s.l.?
<i>Conocephalum conicum</i>	SICILY	s.l.?
<i>Douinia ovata</i>	FRANCE	• (at risk)
<i>Drepanolejeunea hamatifolia</i>	FRANCE	• (at risk)
<i>Dumortiera hirsuta</i>	FRANCE	• (at risk)
<i>Eremonotus myriocarpus</i>	FRANCE	• (at risk)
<i>Exormotheca pustulosa</i>	FRANCE	• (at risk)
<i>Fossumbronia foveolata</i>	SWITZERLAND	RE (but refound since)
<i>Fossumbronia maritima</i>	TURKEY	Included on basis of information received (Mesud Kirmaci via Papp, March 2014), but seems unlikely
<i>Fossumbronia mittenii</i>	FRANCE	• (at risk)
<i>Gymnomitrion brevissimum</i>	FRANCE	• (at risk)
<i>Gymnomitrion commutatum</i>	FRANCE	• (at risk)
<i>Gymnomitrion obtusum</i>	FRANCE	• (at risk)
<i>Harpalejeunea molleri</i>	FRANCE	• (at risk)
<i>Harpanthus flotovianus</i>	FRANCE	• (at risk)
<i>Hygrobiella laxifolia</i>	FRANCE	• (at risk)
<i>Jungermannia borealis</i>	FRANCE	• (at risk)
<i>Jungermannia polaris</i>	FRANCE	• (at risk)
<i>Kurzia sylvatica</i>	FRANCE	• (at risk)
<i>Kurzia trichoclados</i>	FRANCE	• (at risk)
<i>Lejeunea patens</i>	FRANCE	• (at risk)
<i>Lepidozia cupressina</i>	FRANCE	• (at risk)
<i>Lophozolea fragrans</i>	FRANCE	• (at risk)
<i>Lophozia ascendens</i>	FRANCE	• (at risk)
<i>Lophozia guttulata</i>	AUSTRIA	VU according to Christian Schröck, as <i>L. longiflora</i>

TAXON	COUNTRY	NOTE
<i>Lophozia propagulifera</i> (= <i>Lophozia propagulifera</i> )	SWITZERLAND	? (name not known to NS)
<i>Mannia controversa</i>	FRANCE	• (at risk)
<i>Mannia triandra</i>	SERBIA	Low risk
<i>Marsupella boeckii</i>	FRANCE	• (at risk)
<i>Marsupella condensata</i>	FRANCE	• (at risk)
<i>Mesoptychia gillmanii</i>	FRANCE	• (at risk)
<i>Moerckia blyttii</i>	FRANCE	• (at risk)
<i>Moerckia florotoviana</i>	FRANCE	• (at risk)
<i>Moerckia florotoviana</i>	GERMANY	s.l.
<i>Moerckia hibernica</i>	ANDORRA	s.l.?
<i>Moerckia hibernica</i>	FINLAND	VU (s.l. or s.s.?)
<i>Moerckia hibernica</i>	LATVIA	s.l.?
<i>Moerckia hibernica</i>	SLOVAKIA	s.l.?
<i>Mylia taylorii</i>	FRANCE	• (at risk)
<i>Nardia insecta</i>	FRANCE	• (at risk)
<i>Neoorthocaulis floerkei</i>	FRANCE	• (at risk)
<i>Neoorthocaulis floerkei</i>	SERBIA	Low risk
<i>Odontoschisma elongatum</i>	FRANCE	• (at risk)
<i>Oleolophozia perssonii</i>	FRANCE	• (at risk)
<i>Orthocaulis atlanticus</i>	FRANCE	• (at risk)
<i>Oxymitra incrassata</i>	FRANCE	• (at risk)
<i>Peltolepis quadrata</i>	FRANCE	• (at risk)
<i>Plagiochasma rupestre</i>	FRANCE	• (at risk)
<i>Plagiochila bifaria</i>	FRANCE	• (at risk)
<i>Plagiochila exigua</i>	FRANCE	• (at risk)
<i>Plagiochila spinulosa</i>	ANDORRA	DD-vanished
<i>Pleurocladula albescens</i>	FRANCE	• (at risk)
<i>Pleurocladula albescens</i>	UKRAINE	Rare
<i>Prasanthus suecicus</i>	FRANCE	• (at risk)
<i>Radula lindenbergiana</i>	FRANCE	• (at risk)
<i>Radula visianica</i>	ITALY	after Köckinger only an aberrant form of male <i>R. lindenbergiana</i> (N. Schnyder, 13.2.14). Ref?
<i>Riccardia incurvata</i>	FRANCE	• (at risk)
<i>Riccia cavernosa</i>	ROMANIA	DD (now confirmed)
<i>Riccia lamellosa</i>	FRANCE	• (at risk)
<i>Riccia macrocarpa</i>	FRANCE	• (at risk)
<i>Riccia papillosa</i>	FRANCE	• (at risk)
<i>Riccia trabutiana</i>	FRANCE	• (at risk)
<i>Sauteria alpina</i>	FRANCE	• (at risk)
<i>Scapania crassiretis</i>	BULGARIA	There is one record by Duell (1999), det. Duda (comm. Natcheva March 2014)
<i>Scapania helvetica</i>	UKRAINE	Rare
<i>Scapania paludicola</i>	FRANCE	• (at risk)
<i>Scapania paludosa</i>	FRANCE	• (at risk)
<i>Scapania parvifolia</i>	BULGARIA	There is one record by Duell (1999), det. Duda (comm. Natcheva March 2014)
<i>Schljakovia kunzeana</i>	FRANCE	• (at risk)
<i>Solenostoma subellipticum</i>	SPAIN	DD-vanished
<i>Sphenolobus minutus</i>	SERBIA	Low risk
<i>Telaranea europaea</i>	FRANCE	• (at risk)
<i>Tritomaria scitula</i>	FRANCE	• (at risk)

## Appendix 7. Checklist and country status of European mosses

This table is based upon a working list supplied by Nick Hodgetts (October 2013) and a revision supplied on 26/07/2014. Nomenclature is based on the current European moss checklist (Hill *et al.* 2006), updated with additions and nomenclatural changes from more recent literature. A list of taxa and references for nomenclatural changes from Hill *et al.* 2006 is provided. The subdivisions of Russia are based on the system used by Ignatov *et al.* 2006. Occurrence and Threat data are based on the latest available checklists from each country/territory, backed up with information from the network of ECCB Country Contacts. Most countries that have a Red List use IUCN threat categories to assign a threat status to each taxon. However, where countries use their own system of threat categories, the symbols are explained in the Legend (see below). Only published records are included in the table. Where no checklist exists for a country/territory, information has been compiled from miscellaneous published sources and revised by the local ECCB contact(s).

### Legend

Status values italicised in red with a darker background fill have an associated 'Status note' (see below)

#### Common categories

•	Occurrence of species confirmed - either Least Concern or no information about status
■	Occurrence of infraspecific taxon confirmed
□	At least some reports of the species presumably refer to this infraspecific taxon, although not positively confirmed in any source
?	Some doubt about occurrence
-	Taxon recorded in some literature but later rejected
RE	Regionally Extinct
CR	Critically Endangered
EN	Endangered
VU	Vulnerable
NT	Near Threatened
DD	Data Deficient
DD*	Data Deficient but recently recorded
NE	Not Evaluated
<b>y</b>	<b>Include in candidate list? - y = yes</b>

#### Country-specific categories

##### Netherlands

EB	Ernstig bedreigd (Highly Endangered)
BE	Bedreigd (Endangered)
KW	Kwetsbaar (Vulnerable)
GE	Gevoulig (Susceptible)

##### Belgium

Mn	Menacées (Threatened)
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##### Germany

0	Ausgestorben oder verschollen (Regionally Extinct)
1	Vom Aussterben bedroht (Critically Endangered)
2	Stark gefährdet (Endangered)
3	Gefährdet (Vulnerable)
G	Gefährdung anzunehmen (Risk assumed)
R	Extrem selten (Extremely rare)
V	Zurückgehend (Near Threatened)
D	Daten ungenugend (Data deficient)
nb	Nicht bewertet (subspecies/variety not evaluated because too little knowledge about this taxon)
nm	Not mentioned (the name does not occur in the Red List at all - mostly varieties not recognised in Germany)

##### Poland

Ex	Extinct
E	Endangered
V	Vulnerable
R	Rare
I	Indeterminate

**Austria**

0	Vollständig vernichtet (Completely destroyed - i.e. Extinct)
1	Von vollständiger vernichtung bedroht (Seriously threatened with extinction)
2	Stark gefährdet (Highly endangered)
3	Gefährdet (Endangered)
4	Gefährdung anzunehmen (Risk assumed)

**Latvia**

0	Extinct
1	Endangered
2	Vulnerable
3	Rare
4	Little known or insufficiently explored species

**Lithuania**

0	Extinct
1	Critically Endangered
2	Endangered
3	Vulnerable
4	Rare

**Belarus**

0	Extinct
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**Ukraine**

R	Rare
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- Species confirmed; LC/status unknown
  - Infraspecific taxon confirmed
  - Unconfirmed infraspecific taxon
  - ? Some doubt about occurrence
    - Literature record but later rejected

Red/italic status values with a darker fill indicate note present



● Species confirmed; LC/status unknown

■ Infraspecific taxon confirmed

□ Unconfirmed infraspecific taxon

? Some doubt about occurrence

- Literature record but later rejected

Red/italic status values with a darker fill indicate note present

#### Taxon

	Include in candidate list?																																
	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Balearic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City				
<i>Aschisma cuyнетii</i>	y																										VU						
<i>Atractyllocarpus alpinus</i>	y									EN											●	●											
<i>Atrichum androgynum</i>	y																																
<i>Atrichum angustatum</i>	y	●	●	●	●		CR		CR	RE	RE		●	VU	●		●	●	●	●	●	●	●	●	●	●	DD	●					
<i>Atrichum crispum</i>																																	
<i>Atrichum flavisetum</i>																																	
<i>Atrichum tenellum</i>	●	●	●	●	●	●	●	●	●	●	●	NT	NT	●				●	●								DD						
<i>Atrichum undulatum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	●		●	●	●	●	●	●	●	●	●	●	NT	●				
<i>Aulacomnium androgynum</i>	●	●	●	●	●	●	●	●	●	●	●	VU	VU		NT	●	?	●	●	●							●	●					
<i>Aulacomnium palustre</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
<i>Aulacomnium turgidum</i>	●	●	●	●	●	●	●	●	●	●	●																●	●					
<i>Barbula amplexifolia</i>	y																			●													
<i>Barbula bicolor</i>	y																				●	●											
<i>Barbula bolleana</i>																DD	●		●	●	●	●	●	●	●	●	●	●	●				
<i>Barbula consanguinea</i>	y																	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Barbula convoluta</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
<i>Barbula convoluta</i> var. <i>convoluta</i>	□	■																□	■	□	□	■	□	■	■	■	■	■	■				
<i>Barbula convoluta</i> var. <i>sardoa</i>																												NT	■				
<i>Barbula crocea</i>															CR				●	●								VU					
<i>Barbula enderesii</i>	y																												DD				
<i>Barbula unguiculata</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
<i>Bartramia breviseta</i>	y											●	DD															DD					
<i>Bartramia halleriana</i>																●	RE	RE		●	●	●						DD	●				
<i>Bartramia ithyphylla</i>	●	●	●	●	●	●	●	●	●	●	●	VU	VU	●														●	NT	●			
<i>Bartramia laevigphaera</i>	y																																
<i>Bartramia pomiformis</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
<i>Bartramia rosamrosiae</i>																●	CR		●	●	●	●	●	●	●	●	●	●	●				
<i>Bartramia subulata</i>	y																																
<i>Blindia acuta</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
<i>Blindia caespiticia</i>	y															CR			●	●	●	●	●	●	●	●	●	●	●				
<i>Brachydontium trichodes</i>	y															DD	●	EN	EN		●	●	●	●	●	●	●	●	EN	EN			
<i>Brachymenium commutatum</i>																													-				
<i>Brachymenium notarissii</i>	y																	●	●														
<i>Brachymenium paradoxum</i>	y																																
<i>Brachymenium philonotula</i>	y																																
<i>Brachytheciastrum collinum</i>	y															VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Brachytheciastrum dieckei</i>	y																			?	●												
<i>Brachytheciastrum fendleri</i>	y																				●	●											
<i>Brachytheciastrum olympicum</i>																													●	-			
<i>Brachytheciastrum trachypodium</i>	y															NT	●	●	●	VU													
<i>Brachytheciastrum vanekii</i>	y																																
<i>Brachytheciastrum velutinum</i>																●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Brachytheciastrum velutinum</i> var. <i>salicinum</i>																				●									DD	●			
<i>Brachytheciastrum velutinum</i> var. <i>vagans</i>																																	
<i>Brachytheciastrum velutinum</i> var. <i>velutinum</i>																																	
<i>Brachythecium albicans</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Brachythecium buchananii</i>	y																																
<i>Brachythecium campestre</i>																NT	DD	●											DD	●	●	●	
<i>Brachythecium capillaceum</i>	y																														●	CR	
<i>Brachythecium cirrosum</i>																RE	●	●	●	VU	VU	●											
<i>Brachythecium coruscum</i>																VU	DD	●	●														
<i>Brachythecium erythrorrhizoides</i>																				DD													
<i>Brachythecium erythrorrhizoides</i> subsp. <i>asiaticum</i>																																	
<i>Brachythecium erythrorrhizoides</i> subsp. <i>erythrorrhizoides</i>																																	
<i>Brachythecium geheebei</i>	y																■	□	□	□													
<i>Brachythecium glareosum</i>																●	EN																
<i>Brachythecium laetum</i>	y															DD*																	EN
<i>Brachythecium mildeanum</i>																●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU		
<i>Brachythecium mildeanum</i> var. <i>mildeanum</i>																□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□		
<i>Brachythecium mildeanum</i> var. <i>udum</i>																■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Brachythecium rivulare</i>																●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Brachythecium rutabulum</i>																●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Brachythecium rutabulum</i> var. <i>atlanticum</i>																																	



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<i>Didymodon bistratosus</i>	y																							DD		VU						
<i>Didymodon brachyphyllus</i>	y			●															●													
<i>Didymodon cordatus</i>	y									EN		●							●	●						DD	●					
<i>Didymodon eckeliae</i>	y																									●	EN					
<i>Didymodon erosus</i>	y																	●	●						●	VU						
<i>Didymodon fallax</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
<i>Didymodon ferrugineus</i>		●	●	NT	●	●	●			●	●	●							●	●					●	●						
<i>Didymodon giganteus</i>																				●	●											
<i>Didymodon glaucus</i>	y				VU	CR				CR									●	DD												
<i>Didymodon icmadophilus</i>	y			●	VU	DD				NT RE									●	●												
<i>Didymodon insulanus</i>			RE	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
<i>Didymodon johansentii</i>	y					●												●	●													
<i>Didymodon lamyanus</i>																				?												
<i>Didymodon luridus</i>		●					RE	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
<i>Didymodon maschalogenus</i>	y		VU																													
<i>Didymodon maximus</i>	y									NT																						
<i>Didymodon nicholsonii</i>											●	●	●					●	DD	●	●			●								
<i>Didymodon rigidulus</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
<i>Didymodon sicculus</i>																	DD*	●	●	●	●	●	●	●	●	●						
<i>Didymodon sinuosus</i>		●				EN	●		●	●	●	●						●	●	●	●	●	●	●	●	●						
<i>Didymodon spadiceus</i>		●			VU					●	●	●	●					●	●	●	●	●	●	●	●	NT	●					
<i>Didymodon subandreaeoides</i>	y																			●												
<i>Didymodon tomaculosus</i>	y										●	VU																				
<i>Didymodon tophaceus</i>		●	●	VU	●	DD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
<i>Didymodon umbrosus</i>	y										●	VU						●	DD								●	DD	●			
<i>Didymodon validus</i>	y					●					●	VU																				
<i>Didymodon vinealis</i>		●	●	●	●	VU	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
<i>Diphyscium foliosum</i>		●	●	NT	●	●	●	●		●	●	●	●				●	DD	●	●	●	●	●	●	●	●	●					
<i>Disclerium nudum</i>	y	●	●	●	NT	●	●	●		●	●	NT NT														RE						
<i>Distichium capillaceum</i>		●	●	●	●	●	●	●		●	●	●	●					●	●	●	●	●	●	●	●	●	NT	●				
<i>Distichium hagenii</i>	y			RE	EN	●	VU																									
<i>Distichium inclinatum</i>		●	NT	●	●	●	●	●		●	●	●	●							●	●				●	VU						
<i>Distichophyllum carinatum</i>	y																															
<i>Ditrichum cornubicum</i>	y																EN CR															
<i>Ditrichum flexicaule</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD DD	●	●	●	●	●	●	●	●	DD	●	NT	●		
<i>Ditrichum gracile</i>			EN	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Ditrichum heteromallum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Ditrichum lineare</i>			NE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	CR CR	●	●	●	●	●	●	●	●	●	●	EN			
<i>Ditrichum pallidum</i>		●				RE												●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Ditrichum plumbicola</i>	y																●	EN														
<i>Ditrichum punctulatum</i>	y																		DD	VU								●	VU			
<i>Ditrichum pusillum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD DD	VU	●	●	●	●	●	●	●	●	●	●		
<i>Ditrichum subulatum</i>																		●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Ditrichum zonatum</i>	y		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	EN EN	●	●	●	●	●	●	●	●	●	●	-			
<i>Drepanocladus aduncus</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD	●	●	
<i>Drepanocladus angustifolius</i>			VU	●	NT	●	●																									
<i>Drepanocladus arcticus</i>	y																	●	●													
<i>Drepanocladus brevifolius</i>	y																	●														
<i>Drepanocladus longifolius</i>	y	●	●	●	EN	●																										
<i>Drepanocladus lycopodioides</i>	y	●	VU	●	EN	●	●											NT NT NT										●	DD			
<i>Drepanocladus polygamus</i>	y	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	
<i>Drepanocladus sendtneri</i>	y	●	●	EN	EN	●	●											●	NT NT										DD			
<i>Drepanocladus sordidus</i>	y	●	●	●	VU	●																										
<i>Drepanocladus trifarius</i>	y	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU														
<i>Drepanocladus turgescens</i>	y	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU														
<i>Echinodium renaudii</i>	y																		●													
<i>Echinodium setigerum</i>	y																															
<i>Echinodium spinosum</i>	y																		CR													
<i>Encalypta affinis</i>	y																													VU		
<i>Encalypta affinis</i> subsp. <i>affinis</i>		■	□	□	□															■	□									□		
<i>Encalypta affinis</i> subsp. <i>macounii</i>		EN																														
<i>Encalypta alpina</i>		NT	●	●	●	●	●											●	VU													
<i>Encalypta brevicolla</i>		●	●	●	●	●	●											RE														
<i>Encalypta brevipes</i>	y																CR	●	●	DD												
<i>Encalypta ciliata</i>	y																															



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<i>Encalypta procera</i>	y		NT	●	●	●	●			● CR	CR	●												●	●	●			
<i>Encalypta rhaftocarpa</i>		●	●	●	●	●	●	●		●	CR	CR	●				●	●											
<i>Encalypta rhaftocarpa</i> var. <i>leptodon</i>		■	DD				■										■	DD							■	DD			
<i>Encalypta rhaftocarpa</i> var. <i>rhaftocarpa</i>		□	■	□	□	□	■			□	□	□	□				■	■						■	■	□			
<i>Encalypta spathulata</i>	y		EN	EN						●		●					●	●								●			
<i>Encalypta streptocarpa</i>		●	●	●	●	●	●			●	●	●	?			● VU	●		●	●				● DD	● NT	●			
<i>Encalypta vulgaris</i>		●	●	VU	●					● NT	●			●	●	●	●	●	●	●			● DD	●	●	●			
<i>Entodon challengerii</i>	y																												
<i>Entodon cladorrhizans</i>	y																									VU			
<i>Entodon concinnus</i>		●	●		●	●	●	●		●	●	●	●				●	●						?	DD	●	●		
<i>Entodon schleicheri</i>	y																												
<i>Entosthodon abramovae</i>	y																												
<i>Entosthodon attenuatus</i>		●	●	●						●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●		
<i>Entosthodon commutatus</i>	y															NT		●							DD				
<i>Entosthodon convexus</i>																	●	●	●	●	●	●	●	●	●	●			
<i>Entosthodon dagestanicus</i>	y																												
<i>Entosthodon duriae</i>	y																● DD	●	●	●	●	●	●	●	●	●	NT		
<i>Entosthodon fascicularis</i>	y	●	RE		NT	●		●	NT	NT		?		DD				DD*	●						●	●	●		
<i>Entosthodon handelii</i>	y																												
<i>Entosthodon hungaricus</i>	y																DD								●	NT			
<i>Entosthodon kroonkirk</i>	y																●								DD				
<i>Entosthodon mouretii</i>	y																●								DD	VU			
<i>Entosthodon muhlenbergii</i>	y		CR	NT		●	RE		VU	?						●	●	●	●	●	●	●	●	●	●	●			
<i>Entosthodon obtusus</i>		●	●		●	●	VU	●		●	●	●				●	●	●	●	●	●	●	●	●	●	●			
<i>Entosthodon pulchellus</i>	y									NT	EN						●	●	●	●	●	●	●	●	●	●			
<i>Entosthodon schimperi</i>	y																●	●						DD	VU				
<i>Entosthodon stenophyllus</i>	y																							DD	● CR				
<i>Ephemerum cohaerens</i>	y		RE		DD		●	NT	NT							●	●	●	●	●	●	●	●	●	●	●			
<i>Ephemerum crassinervium</i>	y																■	■						■	■	■			
<i>Ephemerum crassinervium</i> subsp. <i>rutheanum</i>																									DD				
<i>Ephemerum crassinervium</i> subsp. <i>sessile</i>	y		■		■		■	■	■	■	■	■				■	■	■	■	■	■	■	■	■	■	■			
<i>Ephemerum minutissimum</i>					●		●			●	●	●					●	DD						●	●	●			
<i>Ephemerum recurvifolium</i>	y		RE		DD		●																		●	●			
<i>Ephemerum serratum</i>		●	●	●	VU	●		●	●	●						●	●	●	●	●	●	●	●	●	●	●			
<i>Ephemerum spinulosum</i>	y									● EN	EN															CR			
<i>Epipterygium tozeri</i>																													
<i>Eucladium verticillatum</i>		●		VU		●	●	●		●	●	●				●	●	●	●	●	●	●	●	●	●	●			
<i>Eucladium verticillatum</i> var. <i>angustifolium</i>																													
<i>Eucladium verticillatum</i> var. <i>verticillatum</i>		□	□	□	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
<i>Eurhynchiastrium pulchellum</i>		●	●	●	●	●	●	●	●	●	●	●	●	EN	RE	●		●	●	●	●	●	●	●	●	●			
<i>Eurhynchiastrium pulchellum</i> var. <i>diversifolium</i>														■				■	■	■	■	■	■	■	■	DD			
<i>Eurhynchiastrium pulchellum</i> var. <i>praecox</i>														■				■	DD						DD				
<i>Eurhynchiastrium pulchellum</i> var. <i>pulchellum</i>		□	□	□	□	□	□	■								■	□							□	■	■			
<i>Eurhynchium angustirete</i>		●	●	●	●	●	●	●	●	●	●	●	●					●	●	●	●	●	●	●	●	VU			
<i>Eurhynchium striatum</i>		●	VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Exsertotheca baetica</i>	y																									VU			
<i>Exsertotheca crispa</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NT	●	
<i>Exsertotheca intermedia</i>																	●	●							-				
<i>Fabronia ciliaris</i>	y																	●	●	●	●	●	●	●	●	●	DD		
<i>Fabronia pusilla</i>	y																	●	●	●	●	●	●	●	●	●	●		
<i>Fissidens adianthoides</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	DD	DD	●						●	DD		
<i>Fissidens arcticus</i>	y																												
<i>Fissidens arnoldii</i>	y																												
<i>Fissidens asplenoides</i>	y													EN		●	DD												
<i>Fissidens azoricus</i>	y														●														
<i>Fissidens bryoides</i>		●	DD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Fissidens bryoides</i> var. <i>bryoides</i>		□	□	□	□	■	■	■	■	■	■	■	■	-	■	□	■	■	■	■	■	■	■	■	■	■	■		
<i>Fissidens bryoides</i> var. <i>caespitans</i>		■												■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Fissidens celticus</i>																													
<i>Fissidens coacervatus</i>	y																●	VU											
<i>Fissidens crassipes</i>														CR	EN	●	●	●	?	●	●	●	●	●	●	●	●		
<i>Fissidens crassipes</i> subsp. <i>crassipes</i>														□	■	□	□	□	?	●	●	●	●	●	●	●	●		
<i>Fissidens crassipes</i> subsp. <i>warnstorffii</i>	y																?	●	■	■	■	■	■	■	■	NT			
<i>Fissidens crispus</i>																●	●	DD											
<i>Fissidens curvatus</i>	y															EN	RE	●	●	●	●	●	●	●	●	●			
<i>Fissidens dubius</i>		●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Fissidens exilis</i>		●	NT	NT	●	●	●	●	VU	VU				DD		●	●</												



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<i>Kiaeria riparia</i>	y	DD*	•	VU	NT																																	
<i>Kiaeria starkei</i>		•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•										
<i>Kindbergia praelonga</i>		•	•	VU	•	•	•	•	•	•	•	•	•	•	•	•	•	•	?	•	•	•	DD	•	DD	•	•	•										
<i>Leptobarbula berica</i>											DD															DD	•											
<i>Leptobryum pyriforme</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	VU	•	•	•	•	•	•	•	•	•	DD	•										
<i>Leptodictyum riparium</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	VU	•	•	•	•	•	•	•	•	•	•	•	•	•									
<i>Leptodon corsicus</i>																			•																			
<i>Leptodon longisetus</i>	y																	•																				
<i>Leptodon smithii</i>																•	EN	•	•	•	•	•	•	•	•	•	•	•	•	•								
<i>Leptodontium flexifolium</i>	y	•			EN						•	NT	NT						•	•	•	•	EN		EN													
<i>Leptodontium gemmascens</i>	y	•										NT								•																		
<i>Leptodontium proliferum</i>												•																										
<i>Leptodontium styriacum</i>	y																			DD																		
<i>Leptophasium leptophyllum</i>											•						•	•	•	•	•	•	•	•	•	•	•	•	•									
<i>Leptothecla gaudichaudii</i>											•	•	•																									
<i>Lescurea incurvata</i>			NT	•	•	•	•	•		VU		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•										
<i>Lescurea mutabilis</i>																		DD		•	•	•				DD	•											
<i>Lescurea patens</i>		•	RE	•	•	•	DD			•		•													DD	•												
<i>Lescurea plicata</i>			RE	•	•	•	•	•		NT									•	•	•	•			DD	•												
<i>Lescurea radicosa</i>		•	•	•	•	•	•	•											•								•											
<i>Lescurea saviana</i>																			•																			
<i>Lescurea saxicola</i>		•	•	•	•	•	•	RE		•									•	•	•	•				•	•	•	•									
<i>Lescurea secunda</i>	y																																					
<i>Leskea polycarpa</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	DD		•	•					DD	DD	DD	DD	•									
<i>Leucobryum albidum</i>	y																	•	DD		•																	
<i>Leucobryum glaucum</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	VU	•	•	•	•	•	•	•	•	•	RE	•											
<i>Leucobryum juniperoides</i>		•			DD					•	•	•	•	•	•	DD		•	•	•	•	•	•	•	•	•	•	•	•									
<i>Leucodon canariensis</i>	y															?	NT		•																			
<i>Leucodon flagellaris</i>	y																																					
<i>Leucodon immersus</i>	y																																					
<i>Leucodon pendulus</i>	y																																					
<i>Leucodon sciuroides</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	DD	•	•	•	•								
<i>Leucodon sciuroides</i> var. <i>morense</i>		■														■		■	■	■	■	■	■	■	■	■	■	■	■	■	■							
<i>Leucodon sciuroides</i> var. <i>sciuroides</i>		□	■	□	□	□	■	■	■	■	■	■	■	■	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□								
<i>Leucodon treleasei</i>	y															?	VU		•																			
<i>Lindbergia dagestanica</i>	y																																					
<i>Lindbergia grandiretis</i>	y																																					
<i>Loeskeobryum brevirostre</i>		•	•													•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							
<i>Loeskypnum badium</i>			•	•	•	•	•	•	•																													
<i>Meesia hexasticha</i>	y	EN	EN	EN	VU																																	
<i>Meesia longiseta</i>	y	•	EN	VU	NT																							DD										
<i>Meesia triquetra</i>	y	•	•	•	•	•	•	•	•		RE																					CR						
<i>Meesia uliginosa</i>	y	•	•	•	•	•	•	•	•		EN																					CR						
<i>Microbryum curvicollum</i>		•			CR	NT			•	RE						•			•	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD					
<i>Microbryum davallianum</i>		•	CR	VU	•	•	•	•	•	•	•	•	•	•	•	DD	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							
<i>Microbryum floraeum</i>	y	•	RE	VU	NT				•																								DD	VU				
<i>Microbryum fosbergii</i>	y																																					
<i>Microbryum longipes</i>	y																																					
<i>Microbryum rectum</i>		•							•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•						
<i>Microbryum starkeanum</i>									RE	•	•	RE	RE				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
<i>Microcampylus laevigatus</i>	y																		VU																			
<i>Microeurhynchium pumilum</i>		•		EN	CR	•				•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•	•	•	•	•	•	•	•						
<i>Micromitrium tenerum</i>	y										RE		EN																					DD	EN			
<i>Mielichhoferia elongata</i>	y		CR	•	•	VU				VU																							VU					
<i>Mielichhoferia mielichhoferiana</i>	y		CR	•	EN				RE																													
<i>Mnium blyttii</i>				NT	•	•	•	•	•																													
<i>Mnium heterophyllum</i>	y																																					
<i>Mnium hornum</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•						
<i>Mnium lycopodioides</i>			•	•	•	•	•	•	•	VU																												
<i>Mnium marginatum</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	?								
<i>Mnium marginatum</i> var. <i>dioicum</i>																																						
<i>Mnium marginatum</i> var. <i>marginatum</i>		□	□	■	□	□	□	□	■							■	■	■	■	□	□	□	■	■	■	■	□	□	□	□	□							
<i>Mnium spinosum</i>									NT	•	•	•	•	•	•	NT		•																				
<i>Mnium spinulosum</i>																																						
<i>Mnium stellare</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT							
<i>Mnium thomsonii</i>			•	•	•	•	•	•	•	•	NT	NT	•					</td																				



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Red/italic status values with a darker fill indicate note present

Austria	Belgium	Czech Republic	Germany	Liechtenstein	Luxembourg	Netherlands	Poland	Slovakia	Switzerland	Albania	Bosnia-Herzegovina	Bulgaria	Crete	Croatia	Greece	Hungary	Kosovo	Macedonia	Montenegro	Romania	Serbia	Slovenia	Turkey	Arctic Russia	Belarus	Caucasus (in Europe)	Central Russia	Crimea	Estonia	Kaliningrad	Kazakhstan (in Europe)	Lithuania	Middle and South Urals	Moldova	NE Russia	NW Russia	SE Russia	Sub-polar & North Urals	Ukraine
•	EN	V	•				•	•	•	•	•	•					EN			•			EN	1	•	•	•	•	•	•	•	•							
4																		VU	•	•	•	•	•	•	3	•	•	•	•	•	•	•	•						
•	R	•					•	VU	NT	•								DD	•	•	•	•	•	•															
2	CR	2	CR		CR	CR	•	•	•	•	•	•	•	•	•	•	•	CR	•																				
4																																							
1	VU	1			E	EN	CR			•	VU		•	•	EN		•	VU	VU	VU	•		•	NT	•	•	•	•	•	2	2								
3	•	RE	2	•	EB	E	EN	VU	•	•	EN		•	•	DD		•	DD	VU	DD	•		•			•	•	•	•	•	•								
0	•	?	3	•	RE	VU	•	•	•	•	•	•	•	•	•	DD	•	•	EN	•	•	•			VU														
0	RE	1			R	CR	DD*	VU			DD						CR	DD			•	•	•	•	NT	•	•	•	•	•	•								
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•	•	•	VU	•	•	•	•	•	•	•	•	•	•									
•	•	•	•	•	•	•	•	NT	•	•	•	-	•	•	•	•	VU	•	•	•	•	•	•	•	RE	•	•	•	•	•	•								
4	RE	0	I	VU	VU		-										EN																						
□	■	nm	□	□	□												□		■	□	□	□	□	□	□	□	□	□	□	□	□								
4		VU																																					
4	R		CR	VU																																			
•	D				VU	CR																																	
•	•	•	•	•	EN		•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•																
•	Mn	RE	V	•												DD	•	VU	•	•	•	•	•	•					?	•	?	R							
4	D				DD	EN												CR	DD	•																			
	R																	DD*	DD*																				
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•									
3	CR	R			CR	EN	DD*	•										VU																					
•	R		EN	GE																																			
•	•	•	•	nb	•	VU	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
4	D	V	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□								
2	RE	D	VU		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
					</td																																		

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#### Taxon

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	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Balearic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City		
<i>Pohlia wahlenbergii</i> var. <i>wahlenbergii</i>	□	□	■	□	□	□	■			■	■	■	□		□	□		□		□	■	■	■	■	■	■					
<i>Polytrichastrum alpinum</i>	●	●	●	●	●	●	●			●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●					
<i>Polytrichastrum sexangulare</i>	●	●	●	●	●	●	●			●		●													VU						
<i>Polytrichastrum sphaerothecum</i>	y		●																												
<i>Polytrichum commune</i>	●	●	●	●	●	●	●			●	●	●	●	●	VU	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Polytrichum commune</i> var. <i>commune</i>	□	□	■	□	□	□	■	■	■	■	■	■	□	■	□	□	□	□	□	□	■	□	□	□	□	□					
<i>Polytrichum commune</i> var. <i>perigoniale</i>	■									■	■	■	DD		■	■	■	■	■	■	■	■	■	■	■	■					
<i>Polytrichum formosum</i>	●	●	●	●	●	●	●			●	●	●	●	●	VU	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Polytrichum hyperboreum</i>	●	●	●	●	●	●	●																								
<i>Polytrichum jensentii</i>	●		●	●	●	●	●																								
<i>Polytrichum juniperinum</i>	●	●	●	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
<i>Polytrichum longisetum</i>	●	●	●	●	●	●	●			●	●	●	●	●				●	●	●	●	●	●	●	●	CR					
<i>Polytrichum pallidisetum</i>	y	DD	DD	DD														●	●												
<i>Polytrichum piliferum</i>	●	●	●	●	●	●	●			●	●	●	●	●				●	●	●	●	●	●	●	●	NT					
<i>Polytrichum strictum</i>	●	●	●	●	●	●	●			●	●	●	●	●				●	●	●	●	●	●	●	●	●					
<i>Polytrichum swartzii</i>	●	●	●	●	●	●	●													DD											
<i>Pottia caespitosa</i>	y									●				●				●	●	●	●	●	●	●	●	DD	●	DD DD			
<i>Pseudodiplophyllum nitidum</i>	●	●	●	●	●	●	●			●	●	●	●	●				●	●	?	●					●					
<i>Pseudoamblystegium subtile</i>	●	NT	●	●	●	●	●											●	●							●	●				
<i>Pseudobryum cinclidioides</i>	y	●	●	●	●	●	●			●								●	DD												
<i>Pseudocamptium radicale</i>	y	●	NT	EN	●	●	●			NT								●	●												
<i>Pseudocrossidium hornschuchianum</i>	●		VU	●	●	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Pseudocrossidium obtusulum</i>	y			NT							●															●	●				
<i>Pseudocrossidium replicatum</i>	y																		●												
<i>Pseudocrossidium revolutum</i>	●			EN	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Pseudoleskeella artariae</i>	y																			●											
<i>Pseudoleskeella catenulata</i>				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Pseudoleskeella nervosa</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Pseudoleskeella papillosa</i>	y	NT	EN	NT																											
<i>Pseudoleskeella rupestris</i>	y	NT	●	●	●	●	●			NT									●							DD					
<i>Pseudoleskeella tectorum</i>		●	●	●	●	●	●												●	●								●			
<i>Pseudorhyynchostegiella duriæi</i>	y																	●	●	●	●	●	●	●	●	VU	●	EN			
<i>Pseudoscleropodium purum</i>	●	●	NT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NT	●	?	●	●	●	●	●	●	●	DD			
<i>Pseudosymbblepharis bombayensis</i>	y																		●	●	●	●	●	●	●	●					
<i>Pseudotaxiphyllum elegans</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	EN	●	●	●	●	●	●	●	●	●	●			
<i>Pseudotaxiphyllum laetevirens</i>	y														●				●	●	●	●	●	●	●	●	●	VU			
<i>Psilotum cavifolium</i>				CR	●	VU	●	NT																							
<i>Psilotum laevigatum</i>				CR	●	VU	●	●																							
<i>Pterigynandrum filiforme</i>	●	●	●	●	●	●	●	●	●	●	RE	RE	●	VU	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Pterigynandrum filiforme</i> var. <i>filiforme</i>	□	□	■	□	□	□	■			■	□	□	□		□	□	■	■	□	□							DD	DD	■		
<i>Pterigynandrum filiforme</i> var. <i>majus</i>		■								■								■	■	■											
<i>Pterygoneurum compactum</i>																															
<i>Pterygoneurum crossidioides</i>																															
<i>Pterygoneurum kozlovi</i>	y																														
<i>Pterygoneurum lamellatum</i>	y										RE	RE	RE						●	●											
<i>Pterygoneurum ovatum</i>	●	NT	EN	●						●	RE	●	●					●	●	●	●	●	●	●	●	●	●	●	●		
<i>Pterygoneurum papillosum</i>	y																														
<i>Pterygoneurum sampianum</i>	y																	●													
<i>Pterygoneurum squamosum</i>																															
<i>Pterygoneurum subsessile</i>																		●			DD							●	●		
<i>Ptilium crista-castrensis</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	EN		
<i>Ptychomitrium incurvum</i>	y																			●	DD									RE	
<i>Ptychomitrium nigrescens</i>	y																	●	●	●	●	●	●	●	●	●	●	●	●	●	CR
<i>Ptychomitrium polyphyllum</i>	●	●	●	●	●	●	●	●	●	●	RE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Ptychostomum archangelicum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Ptychostomum arcticum</i>	y	●	●	●	●	●	●	●	●	●	VU								●	●	●							RE			
<i>Ptychostomum boreale</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Ptychostomum bornholmense</i>	y	●		DD	DD					●	NT	NT						●													
<i>Ptychostomum capillare</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Ptychostomum cernuum</i>	y	●	●	NT	DD	DD				RE	EN	EN						●	●	●	●	●	●	●	●	●	●	VU			
<i>Ptychostomum compactum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Ptychostomum compactum</i> var. <i>compactum</i>	</																														



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<i>Ptychostomum pseudotriquetrum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Ptychostomum pseudotriquetrum</i> var. <i>bimum</i>	■		■		■	■	■		■	■	■	■				■	■	■	■	■	■	■	■	■	■	■	■	■			
<i>Ptychostomum pseudotriquetrum</i> var. <i>pseudotriquetrum</i>	■	□	■	□	□	□	■		■	■	■	□	□	■	□	□	□	■	■	■	■	■	■	■	■	■	■	■			
<i>Ptychostomum rubens</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Ptychostomum torquescens</i>	●						RE		●	VU	VU		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Ptychostomum zieri</i>		●	NT	●	●	●	●			●	NT	NT			●	●	●	●	●	●	●	●	●	●	●	●	●	VU			
<i>Pylaisia polyantha</i>	●	●	●	●	●	●	●	●	●	●	●	●			EN		●	●		●	●	●	●	●	●	●	●	●	●		
<i>Pylaisia selwynii</i>	y																								●	●	VU				
<i>Pyramidula tetragona</i>	y		RE	●	RE										VU		●	●		VU											
<i>Racomitrium aciculare</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Racomitrium affine</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	?	●	●	DD	●	●	●	●	●	●	●	●	●			
<i>Racomitrium aquaticum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	EN	●	●	●	●	●	●	●	●	●	●	●	●	●	DD		
<i>Racomitrium canescens</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	VU	●								●	NT	●				
<i>Racomitrium canescens</i> subsp. <i>canescens</i>	□	□	■	□	■	□	□	■	□	□	□	□	□	□																	
<i>Racomitrium canescens</i> subsp. <i>latifolium</i>	●	■	■	■	■	■	■																								
<i>Racomitrium ellipticum</i>															●	●	●	●	●	●	●	●	●	●	●	●	●	●	CR		
<i>Racomitrium elongatum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	VU	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Racomitrium ericoides</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●											●	●	●				
<i>Racomitrium fasciculare</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	EN	?								●			
<i>Racomitrium hespericum</i>																															
<i>Racomitrium heterostichum</i>																															
<i>Racomitrium himalayanum</i>	y														VU																
<i>Racomitrium lamprocarpum</i>	y																								●		DD				
<i>Racomitrium lanuginosum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●												●	NT	●			
<i>Racomitrium lusitanicum</i>	y																								VU						
<i>Racomitrium macounii</i>			RE	●	●	●	●	●	●	●	●	●	●	●	VU	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Racomitrium macounii</i> subsp. <i>alpinum</i>		■	□	■	■	■	■	■	■	■	■	■	■	■															■		
<i>Racomitrium macounii</i> subsp. <i>macounii</i>																													VU		
<i>Racomitrium microcarpon</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	DD		
<i>Racomitrium nitale</i>	y																														
<i>Racomitrium obtusum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Racomitrium paeschii</i>	y																														
<i>Racomitrium sudeticum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●															VU		
<i>Rhabdoweisia crenulata</i>	y														VU																
<i>Rhabdoweisia crispata</i>	y	●	VU	●	●	●	●	●	●	●	●	●	●	●	NT	NT	DD											VU			
<i>Rhabdoweisia fugax</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	VU	●	●	●	●	●	●	●	●	●	●	●	●	VU		
<i>Rhaphidium purpuratum</i>	y																														
<i>Rhizomnium andrewsianum</i>	y		CR	●	EN	●	●	NT																							
<i>Rhizomnium gracile</i>	y		CR																												
<i>Rhizomnium magnifolium</i>			●	●	●	●	●	●	●	●	●	●	●	●																	
<i>Rhizomnium pseudopunctatum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NT	NT														
<i>Rhizomnium punctatum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●																	
<i>Rhodobryum ontariense</i>															EN																
<i>Rhodobryum roseum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NT	NT														
<i>Rhynchostegiella bourgaeana</i>	y																	VU													
<i>Rhynchostegiella curviseta</i>															●	●	RE	RE													
<i>Rhynchostegiella litorea</i>															NT			●	●	NT	●	●	●	●	●	●	●	●			
<i>Rhynchostegiella macilenta</i>	y																		NT												
<i>Rhynchostegiella tenella</i>	●														DD	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Rhynchostegiella tenella</i> var. <i>meridionalis</i>																															
<i>Rhynchostegiella tenella</i> var. <i>tenella</i>		□	○	■	□	□	□	□	□	□	□	□	□	□		□	□	□	□	□	□	□	□	□	□	□	□				
<i>Rhynchostegiella teneriffae</i>	y														CR	EN	●	●	●	●	●	●	●	●	●	●	●	●	DD		
<i>Rhynchostegiella tenuicaulis</i>	y																													DD	
<i>Rhynchostegiella trichophylla</i>	y																														
<i>Rhynchostegium alopecuroides</i>															VU		●	NT	NT												
<i>Rhynchostegium arcticum</i>	y																														
<i>Rhynchostegium confertum</i>	●														●	NT	●	EN	●	●	●	●	●	●	●	●	●	●	●		
<i>Rhynchostegium confusum</i>	y																														DD
<i>Rhynchostegium megapolitanum</i>	●	DD*													EN	●	●	NT	NT		●	VU	●	●	●	●	●	●	●		
<i>Rhynchostegium murale</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●					DD												
<i>Rhynchostegium riparioides</i>	●	●	NT</td																												



● Species confirmed; LC/status unknown

■ Infraspecific taxon confirmed

□ Unconfirmed infraspecific taxon

? Some doubt about occurrence

- Literature record but later rejected

Red/italic status values with a darker fill indicate note present

#### Taxon

	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Baleic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City
<i>Sanionia uncinata</i>	●	●	●	●	●	●	●			●	●	●		DD	●			●	●	●		●	●	●	●	●	●	●	
<i>Sarmentypnum exannulatum</i>	●		●	●	●	●	●			●	●	●			●				●	●				●		●	●		
<i>Sarmentypnum sarmentosum</i>		●	●	●	●	●	●			●	●	●															EN		
<i>Schistidium abrupticostatum</i>	y																												
<i>Schistidium agassizii</i>			●	●	●	●	●			●	VU	?			●		●	●	●	●	?	DD	●						
<i>Schistidium apocarpum</i>	●		●	●	●	●	●			●	●	●		●	VU	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Schistidium atrofuscum</i>		●	●	●	●	●	●	VU						●		●	●	●	●	●						●	●		
<i>Schistidium boreale</i>			●	●	●	●	●																						
<i>Schistidium brunnescens</i>	●																												
<i>Schistidium brunnescens</i> subsp. <i>brunnescens</i>	□																												
<i>Schistidium brunnescens</i> subsp. <i>griseum</i>																													
<i>Schistidium brynnii</i>	y							VU																					
<i>Schistidium canadense</i>	y																												
<i>Schistidium confertum</i>			●	●	●	●	●	VU		DD	DD	DD	●		●	DD	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium confusum</i>			●	●	●	●	●	●																					
<i>Schistidium crassipilum</i>	●	NT	●	●	●	●	●			●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium crenatum</i>		●	●	●	●	●	●																						
<i>Schistidium dupretii</i>		●	●	●	●	●	●	VU																				DD	
<i>Schistidium echinatum</i>	y																												
<i>Schistidium elegantulum</i>	●	VU	●	●	●	●	●	●	●	DD	DD	DD	●		●	DD	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium elegantulum</i> subsp. <i>elegantulum</i>	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
<i>Schistidium elegantulum</i> subsp. <i>wilsonii</i>																													
<i>Schistidium flaccidum</i>		●	●	●	●	●	●	VU								●	●	●	●	●	●	●	●	●	●	●	●	●	●
<i>Schistidium flexipile</i>		NT	●	●	●	●	●	VU																					
<i>Schistidium frigidum</i>		●	●	●	●	●	●	●	NT	●	DD																		
<i>Schistidium frigidum</i> var. <i>frigidum</i>		■	□	□	□	■	■	■	■	■	□	□	■																
<i>Schistidium frigidum</i> var. <i>havaasii</i>																													
<i>Schistidium frisvollianum</i>	y		●	●	●	●	●	●	●	DD																			
<i>Schistidium grande</i>	y																												
<i>Schistidium grandirete</i>	y		●	●	●	●	●	●	●	DD																			
<i>Schistidium helveticum</i>	y		EN	DD	DD	DD	DD	DD	DD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Schistidium holmenianum</i>	y																												
<i>Schistidium lancifolium</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium maritimum</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium maritimum</i> subsp. <i>maritimum</i>	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
<i>Schistidium maritimum</i> subsp. <i>piliferum</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<i>Schistidium obscurum</i>	y																												
<i>Schistidium occidentale</i>	y																											CR	
<i>Schistidium papillosum</i>	y	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD	
<i>Schistidium platyphyllum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	VU	VU	?		●	●	●	●	●	●	●	DD
<i>Schistidium poeltii</i>		VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium pruinosum</i>	y	DD*	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD	
<i>Schistidium pulchrum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium recurvum</i>	y	NT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium rivulare</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD	
<i>Schistidium robustum</i>		●	●	●	●	●	●	●	●	●	VU							●	●	●	●	●	●	●	●	●	●		
<i>Schistidium scandicum</i>	y	DD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium sibiricum</i>	y																												
<i>Schistidium sinensiopcarpum</i>	y																												
<i>Schistidium sordidum</i>	y	VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium spinosum</i>	y	VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium strictum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium subflaccidum</i>	y	VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD	
<i>Schistidium subfuligineum</i>	y	EN	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium submuticum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium submuticum</i> subsp. <i>arcticum</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<i>Schistidium submuticum</i> subsp. <i>submuticum</i>		■	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<i>Schistidium succulentum</i>	y																												
<i>Schistidium tenerum</i>	y	VU	●	●	NT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium trichodon</i>	y	NT	●	●	●	●	●	●	●	●	VU	VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<i>Schistidium trichodon</i> var. <i>nutans</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<i>Schistidium trichodon</i> var. <i>trichodon</i>		■																											



● Species confirmed; LC/status unknown

■ Infraspecific taxon confirmed

□ Unconfirmed infraspecific taxon

? Some doubt about occurrence

- Literature record but later rejected

Red/italic status values with a darker fill indicate note present

#### Taxon

	Include in candidate list?																												
	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Balearic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City
<i>Sciuro-hypnum oedipodium</i>	y	●																●	●								?		
<i>Sciuro-hypnum ornellananum</i>	y																	●	DD								?		
<i>Sciuro-hypnum plumosum</i>		●	●	●	●	●	●	●	●	●	●	●	●	VU	●	?	●	●	●							●			
<i>Sciuro-hypnum populeum</i>		●	●	●	●	●	●	●	●	●	●	●	●				●	?	●	●		-	●	DD	●				
<i>Sciuro-hypnum reflexum</i>		●	●	●	●	●	●	●	NT		-				●	●		●	●						●	●			
<i>Sciuro-hypnum starkei</i>		●	●	●	●	●	●	●	EN									●	●				●	●	VU				
<i>Sciuro-hypnum tromsoense</i>	y		NT	●	●													●	●										
<i>Scleropodium cespitans</i>	y							●	●	NT	NT			VU	●		●	●		DD	●	●	DD	●	●	DD	●		
<i>Scleropodium touretii</i>		●						●	●	●	EN	EN		●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Scopelophila cataractae</i>	y									VU	VU															VU			
<i>Scopelophila ligulata</i>	y													●	CR			●	EN										
<i>Scorpidium cossomii</i>		●	●	●	●	●	●	●	●	●	●	●	●						●	●							●		
<i>Scorpidium revolvens</i>		●	●	●	●	●	●	●	●	●	●	●	●						●	●				●		DD			
<i>Scorpidium scorioides</i>	y	●	●	●	●	●	●	●	●	●	●	●	●						●	●						EN			
<i>Scorpiurium circinatum</i>							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD	●		
<i>Scorpiurium deflexifolium</i>														●	EN	●		●	●	●	●	●	●	●	●	●	●		
<i>Scorpiurium sendtneri</i>	y																	●	●	●		DD	●	●	DD	●			
<i>Seligeria acutifolia</i>			VU	NT			●	●	●									●	●			●	●	●					
<i>Seligeria austriaca</i>	y																												
<i>Seligeria brevifolia</i>	y		VU	●	●	●	●	●	VU																				
<i>Seligeria calcarea</i>	y	●	RE				EN		●	VU								●	●							VU			
<i>Seligeria calycina</i>	y								●	DD								●								DD			
<i>Seligeria campylopoda</i>	y		VU	EN	VU		NT											●	●										
<i>Seligeria carniolica</i>	y		CR	EN	CR																								
<i>Seligeria diversifolia</i>	y		NT	●	●	●	VU											●	DD										
<i>Seligeria donniana</i>			NT	●	●	●		●	●	●								●	●							●			
<i>Seligeria galinæ</i>	y																												
<i>Seligeria irrigata</i>	y																			●									
<i>Seligeria oelandica</i>	y		VU	●	VU					VU	VU	VU																	
<i>Seligeria patula</i>	y		VU	EN	DD	NT	?											●								CR			
<i>Seligeria polaris</i>	y		●	●																									
<i>Seligeria pusilla</i>		RE	VU	●				●	●	●	●	●	●	●				●	●	●		●	●	●	●	●			
<i>Seligeria recurvata</i>		RE	●	●				●	●	●	●	●	●	●				●	●			●	●	●					
<i>Seligeria subimmersa</i>	y		VU	EN	VU																								
<i>Seligeria trifaria</i>	y								DD	?								●	●							VU			
<i>Seligeria tristichoides</i>	y		VU	●	●	VU																							
<i>Sematophyllum adnatum</i>	y																												
<i>Sematophyllum demissum</i>	y									VU	NT							●	●	●							●		
<i>Sematophyllum substrumulosum</i>									NT	VU								●	●	●	●					NT			
<i>Serpoleksia confervoides</i>								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NT		
<i>Sphagnum affine</i>		●	●	EN	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NT		
<i>Sphagnum affine</i> var. <i>affine</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Sphagnum affine</i> var. <i>flagellare</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
<i>Sphagnum angermanicum</i>	y							●	●	NT																			
<i>Sphagnum angustifolium</i>								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Sphagnum annulatum</i>								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Sphagnum aongstroemii</i>								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Sphagnum arcticum</i>	y								●																				
<i>Sphagnum auriculatum</i>								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Sphagnum austini</i>									●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Sphagnum balticum</i>										●																			
<i>Sphagnum capillifolium</i>										●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Sphagnum centrale</i>	y									●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	EN		
<i>Sphagnum compactum</i>										●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Sphagnum contortum</i>									●	●	NT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU			
<i>Sphagnum cuspidatum</i>									●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Sphagnum fallax</i>									●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Sphagnum fimbriatum</i>										●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Sphagnum fimbriatum</i> subsp. <i>concinnum</i>										■																			
<i>Sphagnum fimbriatum</i> subsp. <i>fimbriatum</i>		□	■	■	□	■	■	■	■	□	□	□	□	□				□	□							□			
<i>Sphagnum flexuosum</i>		●	●	●	●	●	●	●	●	●	●	●	●	VU				●	●							●			
<i>Sphagnum fuscum</i>	y	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	CR			
<i>Sphagnum girgensohni</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Sphagnum inundatum</i>		●	●	NT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	?			
<i>Sphagnum jensenii</i>								●	●	●	●	●	●													●	?		
<i>Sphagnum lenense</i>	y</																												



• Species confirmed; LC/status unknown

■ Infraspecific taxon confirmed

□ Unconfirmed infraspecific taxon

? Some doubt about occurrence

- Literature record but later rejected

Red/italic status values with a darker fill indicate note present

#### Taxon

	Include in candidate list?																															
	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Balearic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City			
<i>Sphagnum molle</i>	●	●	EN																													
<i>Sphagnum nitidulum</i>			Y																?													
<i>Sphagnum obtusum</i>		●	●	●	●	●	●			RE									●	●												
<i>Sphagnum olafii</i>		Y				●																										
<i>Sphagnum palustre</i>		●	●	●	●	●	●	●	●	●	●	●	●	●					?	●	●				●		●					
<i>Sphagnum papillosum</i>		●	●	●	●	●	●	●	●		●	●	●	●						●	●						●					
<i>Sphagnum platyphyllum</i>		●	●	●	●	●	●	●	●	●	NT	NT							●	●							●					
<i>Sphagnum pulchrum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●						●												
<i>Sphagnum pylaesii</i>		Y																	●													
<i>Sphagnum quinquefarium</i>		●	●	●	●	●	●	●	●	●	●	●	●	●					●	●							●					
<i>Sphagnum recurvum</i>		Y																	●													
<i>Sphagnum riparium</i>		Y	●	●	●	●	●	●	●	●	●	●	●	●					●	●												
<i>Sphagnum rubellum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●					●	●						●						
<i>Sphagnum rubiginosum</i>		Y																														
<i>Sphagnum russowii</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
<i>Sphagnum skyense</i>		Y																	NT DD													
<i>Sphagnum squarrosum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU	VU						
<i>Sphagnum strictum</i>		Y	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	DD DD													
<i>Sphagnum subfulvum</i>		Y		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●														
<i>Sphagnum subfulvum</i> subsp. <i>purpureum</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
<i>Sphagnum subfulvum</i> subsp. <i>subfulvum</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
<i>Sphagnum subnitens</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Sphagnum subnitens</i> subsp. <i>ferrugineum</i>		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
<i>Sphagnum subnitens</i> subsp. <i>subnitens</i>		□	□	■	■	□	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
<i>Sphagnum subsecundum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NT DD*	●	●	●	●	●	●	●	●	●	DD ●			
<i>Sphagnum tenellum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	?			
<i>Sphagnum teres</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	NT NT	●	●	●	●	●	●	●	●	●	●			
<i>Sphagnum troendelagicum</i>		Y																	EN													
<i>Sphagnum tundrae</i>		Y																	●	VU VU	●											
<i>Sphagnum warnstorffii</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU VU	●	●								VU			
<i>Sphagnum wulfianum</i>			EN		●																											
<i>Splachnobryum obtusum</i>		Y																		●												
<i>Splachnum ampullaceum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU				
<i>Splachnum luteum</i>			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●														
<i>Splachnum melanocaulon</i>		Y			EN	EN	EN	NT																								
<i>Splachnum pensylvanicum</i>		Y																														
<i>Splachnum rubrum</i>																																
<i>Splachnum sphaericum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Splachnum vasculosum</i>		Y	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	VU		●	●	DD ?									
<i>Stegonia latifolia</i>		Y			VU	●	●	●	●	●	●	●	●	●	●	●	●	●	NT	●	●	●	●	●	●	●	●	●	VU			
<i>Straminergon stramineum</i>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Syntrichia bogotensis</i>		Y																														
<i>Syntrichia calcicola</i>		●																										●	NT	●		
<i>Syntrichia caninervis</i>		Y																														
<i>Syntrichia caninervis</i> var. <i>abranchesii</i>		Y																														RE
<i>Syntrichia caninervis</i> var. <i>astrakhanica</i>																																
<i>Syntrichia caninervis</i> var. <i>caninervis</i>																																
<i>Syntrichia caninervis</i> var. <i>gypsophila</i>																																
<i>Syntrichia echinata</i>		Y																														
<i>Syntrichia fragilis</i>		Y																														VU
<i>Syntrichia glabra</i>		Y																														
<i>Syntrichia handelii</i>		Y																														EN
<i>Syntrichia laevipila</i>		●		VU	EN	●																										
<i>Syntrichia latifolia</i>		●		EN	●																										●	●
<i>Syntrichia minor</i>		Y																		DD	●									VU		
<i>Syntrichia montana</i>					VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Syntrichia montana</i> var. <i>calva</i>																																
<i>Syntrichia montana</i> var. <i>montana</i>																																
<i>Syntrichia norvegica</i>																			EN	●												
<i>Syntrichia papillosa</i>		●																		DD	●											
<i>Syntrichia papilloissima</i>																																
<i>Syntrichia princeps</i>																																

Austria	Belgium	Czech Republic	Germany	Liechtenstein	Luxembourg	Netherlands	Poland	Slovakia	Switzerland	Albania	Bosnia-Herzegovina	Bulgaria	Crete	Croatia	Greece	Hungary	Kosovo	Macedonia	Montenegro	Romania	Serbia	Slovenia	Turkey	Arctic Russia	Belarus	Caucasus (in Europe)	Central Russia	Crimea	Estonia	Kaliningrad	Kazakhstan (in Europe)	Latvia	Lithuania	Middle and South Urals	Moldova	NE Russia	NW Russia	SE Russia	Sub-polar & North Urals	Ukraine
1	•	RE	2		KW	V	DD	VU										•	DD	VU				VU			VU	2	1	2	2	2	2	2	2	2				
2	•	NT	2							•	CR		DD	•	EN			EN	VU		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
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3	•	3	•	•	I	VU	NT	•	•								CR	VU	VU																					
3	Mn	CR	2	CR	RE	R	CR	•	•					•	VU	•	•	NT	VU	VU	•	•	•	•	•	•	•	2	•	•	•	•	•							
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•	•	•	3	•	GE	•	•	•	•	•	•	•	•	•	•	VU	•	•	•	•	•	•	VU	•	•	•	•	•	•	•	•	•								
2	Mn	•	V	BE	•	VU	DD*	CR	CR								•	CR	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•						
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3	•	•	2	CR	•	•	•	•	•	•	•	•	•	RE	•	•	•	VU	VU	•	•	•	•	•	•	•	•	•	•	•	•	•	•							
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3	•	NT	•	•	•	R	EN	DD	•	CR	•	•	NT	•	•	VU	•	•	•	?	•	?	1	•	•	•	•	•	•	•	•	•	•	•						
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3	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
3	?	nb	•	CR	•	•	EN	DD	•	•	•	•	•	•	•	•	EN	•	DD	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•					
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  - Infraspecific taxon confirmed
  - Unconfirmed infraspecific taxon
  - ? Some doubt about occurrence
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Red/*italic* status values with a darker fill indicate note present

Austria	Belgium	Czech Republic	Germany	Liechtenstein	Luxembourg	Netherlands	Poland	Slovakia	Switzerland	Albania	Bosnia-Herzegovina	Bulgaria	Crete	Croatia	Greece	Hungary	Kosovo	Macedonia	Montenegro	Romania	Serbia	Slovenia	Turkey	Arctic Russia	Belarus	Caucasus (in Europe)	Central Russia	Crimea	Estonia	Kaliningrad	Kazakhstan (in Europe)	Latvia	Lithuania	Middle and South Urals	Moldova	NE Russia	NW Russia	SE Russia	Sub-polar & North Urals	Ukraine
0	0		I	VU														CR																						
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4				RE	VU														EN																					
3	R		I	EN	VU		DD*											VU	DD		•	•																		
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4	RE	VU	2	GE	R	EN	VU											VU	EN	EN	•		DD																	
3	0						CR																																	
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•	•	•	•	V	•	•	EB	•	•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
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•	RE	2		•	NT	•	•	•	•	•	•	•	•	•	•	•	•	EN	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
•	•	EN	3	•		•	•	•	•	DD	•	•	•	•	•	•	•	EN	•	VU	•	•	•	•	•	•	NT	•	1	•	•	•								
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					VU	•	•	•	•										EN																					
DD	•					•	•	•	•																															
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3	Mn	NT	2	•	CR	EB	V	•	•	•	•	EN		EN				EN	•	•	EN	NT	•	•	•	•	•	•	•	•	•	•								
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•	?	3	RE	V	•	•	•	VU										•	•	•	•	•	•	•	•	•	•	•	2	3	•	•	•							
D					VU	DD*	•	CR	•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•							
•	•	•	•	•	•	NT	GE	•	•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•	3	•	•	•	•	•	•								
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	CR	■																					
■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□									
•	R	GE		•	DD*	•	•	•	•	•	•	•	•	•	•	•	•	VU																						
RE					VU	•	•	CR	•	•	•	•	•	•	•	•	•	EN	•	•	•	•	•	•	•															
nm					VU	•	•	CR	•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•	VU														
3	•	NT	3	GE	R	NT	VU	•	•	•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•						
?					■	■	■	■	■	■	■	■	■	■	■	■	■	■	□																					
□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□								
•	•	•	•	nb	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	DD	•	•	•	•	•								
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
D																																								
■	■	D	NT		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
DD*																																								

● Species confirmed; LC/status unknown

■ Infraspecific taxon confirmed

□ Unconfirmed infraspecific taxon

? Some doubt about occurrence

- Literature record but later rejected

Red/italic status values with a darker fill indicate note present

#### Taxon

	Include in candidate list?																												
	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Balearic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City
<i>Tortula ampliretis</i>	y														•														
<i>Tortula atrovirens</i>										•	•	NT NT		•	•	•	•	•	•	•					•	•	•	•	
<i>Tortula bogosica</i>	y														•	•													
<i>Tortula bolanderi</i>	y														•			•	•	•	•	•	•	•	•	DD	DD		
<i>Tortula brevissima</i>	y														DD	•		•	•	•	•	•	•	•	•	•	•	•	
<i>Tortula canescens</i>										•	DD			•	•	•	•	•	•	•	•	•	•	DD	•	•	•	•	
<i>Tortula caucasica</i>									•	NT	•	•	•	•	•	VU VU		•	•	•	•	•	•	•	•	•	•	•	
<i>Tortula cernua</i>	y									CR	•	DD	•	CR	EN				•	•									
<i>Tortula cuneifolia</i>	y										•	EN	CR CR		•	•	•	•	•	•	•	•	•	•	•	•	•	•	
<i>Tortula freibergii</i>	y										•							•	•	EN	VU		•	EN					
<i>Tortula guepini</i>	y																			DD			VU						
<i>Tortula hoppeana</i>										•	•	•	•	•	•		•		•	•	•				•	•	•	•	
<i>Tortula inermis</i>															DD		•	?	•	•	•	•	•	•	•	•	•	•	
<i>Tortula israelis</i>	y																	•	DD	•	•	•	•	•	•	•	•		
<i>Tortula laureri</i>	y									EN	•									DD									
<i>Tortula leucostoma</i>	y									DD	•	VU		EN					•	•									
<i>Tortula lindbergii</i>									•	EN	•		•	CR		•	?	•	•	•	•	•	•	•	•	•	•	•	
<i>Tortula lingulata</i>	y																												
<i>Tortula marginata</i>											•	•	NT NT		•	•	•	•	•	•	•	•	•	•	•	•	•	•	
<i>Tortula mucronifolia</i>										EN	•	•	•	DD						•	•						•		
<i>Tortula muralis</i>										•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	
<i>Tortula muralis</i> subsp. <i>muralis</i>										■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■		
<i>Tortula muralis</i> subsp. <i>obtusifolia</i>										■	CR					■	■	■	■	■	■	■	■	■	■	■	■		
<i>Tortula pallida</i>	y																•	DD	•	•	•	•	•	•	DD	•	•	•	
<i>Tortula probryoides</i>									•	NT		•	RE RE		•	DD		•	•					•	DD	•	•		
<i>Tortula randii</i>	y									DD	EN																		
<i>Tortula revolvens</i>	y															•	•	NT		•			DD	•	•	•	•		
<i>Tortula rhodonia</i>	y																		?										
<i>Tortula schimperi</i>											?		DD	•			•	•	•					•	DD	•	•		
<i>Tortula solmsii</i>	y												VU			•	•	•	•	•	VU	VU	VU	•	RE				
<i>Tortula subulata</i>										•	•	•	•	•		•	•	•	•	•	•	•	•	DD	•	•	•	•	
<i>Tortula systyla</i>	y								RE	NT	•	NT							DD										
<i>Tortula truncata</i>									•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	
<i>Tortula ucrainica</i>	y																												
<i>Tortula vahliana</i>	y												VU RE		•	•	•	•	•	?	DD*	•	•	•	DD	•	DD	•	
<i>Tortula viridifolia</i>	y										•	•	•	•		•	DD		•	•				DD	•	•	VU		
<i>Tortula vlassovii</i>	y																										VU		
<i>Tortula wilsonii</i>	y	■	•								•	VU	RE		•	•	•	•	•	•	•	•	•	•	•	•	•		
<i>Trachycystis ussuriensis</i>	y																												
<i>Trematodon ambiguus</i>	y	•	•	•	•	•	•	•	•	RE					■	•	•									VU			
<i>Trematodon brevicollis</i>	y								CR	•	•	VU																	
<i>Trematodon laetevirens</i>	y								EN	EN	VU																		
<i>Trematodon longicollis</i>	y																												
<i>Trematodon personorum</i>	y																												
<i>Trichodon cylindricus</i>		•	•	•	•	•	•	•	•	•	•	•	•	-		VU	•	•	•	•	•	•	•	•	•	•	VU		
<i>Trichostomum arcticum</i>	y										•	•	EN													DD	•	•	•
<i>Trichostomum brachydontium</i>		•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•		
<i>Trichostomum crispulum</i>		•							DD	•	•	•	•		•	•	•	•	•	•	•	•	•	•	DD	•	•	•	
<i>Triquetrella arapilensis</i>	y																												
<i>Ulota bruchii</i>		•	•	•	•	•	•	•	•	•	•	•	•	•				•	•	•	•	•	•	•	•	•	•		
<i>Ulota calvescens</i>	y																			VU			VU			VU			
<i>Ulota coarctata</i>	y	•								VU			•	EN					•	•							VU		
<i>Ulota crispa</i>		•							NT	•	•	•	•		•	•	•	•	DD	•	•	•	•	•	•	•	•	•	
<i>Ulota curvifolia</i>	y								•	•	•	•	•																
<i>Ulota drummondii</i>	y	•							RE	•	•	•	•		•	DD DD				•									
<i>Ulota hutchinsiae</i>	y	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	DD			
<i>Ulota macrospora</i>	y																												
<i>Ulota phyllantha</i>		•	•	•	•	•	•	•	•	•	•	•	•	•				•									RE		
<i>Ulota rehmannii</i>	y																		■										
<i>Vesicularia reimersiana</i>	y																												
<i>Voitia hyperborea</i>	y																												
<i>Voitia nivalis</i>	y																												
<i>Warnstorfia fluitans</i>		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	DD	•	•	•	DD	DD	DD	DD			
<i>Warnstorfia procera</i>	y		•																										
<i>Warnstorfia pseudostraminea</i>	y		•							DD	•	•								•	DD								
<i>Warnstorfia trichophylla</i>	y		•																										
<i>Warnstorfia tundrae</i>		•	•	•	•	•																							

Austria	Belgium	Czech Republic	Germany	Liechtenstein	Luxembourg	Netherlands	Poland	Slovakia	Switzerland	Albania	Bosnia-Herzegovina	Bulgaria	Crete	Croatia	Greece	Hungary	Kosovo	Macedonia	Montenegro	Romania	Serbia	Slovenia	Turkey	Arctic Russia	Belarus	Caucasus (in Europe)	Central Russia	Crimea	Estonia	Kalinigrad	Kazakhstan (in Europe)	Latvia	Lithuania	Middle and South Urals	Moldova	NE Russia	NW Russia	SE Russia	Sub-polar & North Urals	Ukraine						
2	•	CR	3					VU		DD*	•	•	•	DD		•	•	VU	•	EN	•			•									•													
										G		VU					•	EN															•													
0	RE	G	VU							CR	•	•	EN	•	•			•	NT	•	•										•															
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2	RE	RE	1					R	CR						DD		CR	DD			•	•	•	•	•	•	•	•	•	•	•	•														
RE	R							DD	VU	•	•	•	•			•	•	VU	•			DD									•															
		D																																												
•	EN	•	•																																											
•	CR	3	CR					CR	EN	•	•	•	•	•	•	•	DD	•	•	DD	•	VU	•																							
4		2						RE										VU																												
4		2	•					NT	VU								•															•														
3	•	•	V	•	BE	•	•	VU	•	•	•	•	•	•	•	•	•	•	•	•	•	•	?	•	•	•	•	CR	•	3	•	•														
	CR	R			VU	KW			DD	•	•	•	•	•	•	•		DD	DD		•		3	3	NT	3	3	3	•	•	•															
•	•	CR	3	•	•	•	•	VU	•	DD							EN	?	EN	•	•	•	•	•	•	•	•	•	•	•	•	•	•													
•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•														
4		3			■	VU	CR	DD	■	■	■	■	■	■	■	■	■	EN	■	■	EN	■	■	■	■	■	■	■	■	■	■	■														
3	•	•	•	•	•	•	•	BE	•	NT	CR		EN	•	•	•	•	•	•	•	NT	•	NT	•		•	VU	•	RE	3	•	•	•	•	•	•	•	R								
	R				VU			DD									?	•																												
•	•	DD	D	•	•	•	•	DD*									•	•	•	•	NT	•	DD										•													
•	•	•	•	•	•	•	•	KW	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•													
4		2						CR																																						
•	2	RE		•				DD*	•	•								•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•											
nb		R																•	CR	•																										
nm																		CR																												
2	Mn	CR	2		GE	R	VU	CR			DD*	CR	VU					•	•	•	•	NT	•	3	•	•	•																			
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																	•																													
3	•	DD	V	•	EN			DD	•	•	•	VU	•	•	•	•	•	•	•	•	•	•	•	•	•	VU	•	•	•	•	•	•	•	•	•											
•	•	•	•	•	•	•	•	BE	•	VU	•	•	•	•	•	•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•	•	•												
•	•	•	•	•	•	•	•	V	VU	•	•	DD*	•	VU		DD*	DD	VU	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•											
1	Mn	CR	3	•	EN	GE	E	VU	CR	•	•	DD			NT	•	•	•	•	•	VU	•	VU	•	•	•	•	•	•	•	•	•	•	•												
•	•	•	•	•	•	•	•	V	NT	•	•	EN	•	•	NT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•													
4	nb				DD																																									
RE	0	•	GE	E	CR	DD																																								
•	RE	EN	1	•	E	CR	VU	•	EN	•	RE			NT	•	•		•		VU		VU	DD*																							
3		3	CR		CR																																									
Mn	•	•	•	E																																										
0	•	R			Ex	RE																																								
2			RE																																											
3	•	•	V	EN	•	•	•	NT	DD	•	NT	?				•	•	•	EN	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•										
0	•	EN	D					VU								CR	RE		•																											
DD	nb		E																																											
•	•	•	V	•	•	KW	•	DD	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
3	•	•	3	•	EN			VU	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

● Species confirmed; LC/status unknown

■ Infraspecific taxon confirmed

□ Unconfirmed infraspecific taxon

? Some doubt about occurrence

- Literature record but later rejected

Red/italic status values with a darker fill indicate note present

Taxon

	Include in candidate list?																														
	Denmark	Faeroe Islands	Finland	Iceland	Norway	Svalbard	Sweden	Channel Islands	Gibraltar	Great Britain	Ireland	Northern Ireland	Andorra	Azores	Balearic Islands	Canary Islands	Corsica	Cyprus	France	Italy	Madeira	Malta	Monaco	Portugal	San Marino	Sardinia	Sicily	Spain	Vatican City		
<i>Weissia controversa</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
<i>Weissia controversa</i> var. <i>controversa</i>	□	■	□	□	□	■	■	■	■	■	■	■	■	■	□	■	■	■	■	■	■	■	■	■	■	■	■	■			
<i>Weissia controversa</i> var. <i>crispata</i>	■								■	■	DD			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
<i>Weissia controversa</i> var. <i>densifolia</i>								■	●												■							DD			
<i>Weissia levieri</i>	y									EN			●			●	DD		●												
<i>Weissia longifolia</i>	●	VU	VU	●				●	VU	VU			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Weissia multicapsularis</i>	y									CR									●		●										
<i>Weissia personii</i>	y			NT	VU	●		●	●	●																			VU		
<i>Weissia rostellata</i>	y	●		EN	VU			●	NT	NT																					
<i>Weissia rutilans</i>	y	●	●	●	●	VU	●	●	VU	VU			●			●	●	●	●	●								DD	VU		
<i>Weissia squarrosa</i>	y	●	RE	EN	NT			NT								●	●												DD		
<i>Weissia sterilis</i>	y								NT																						
<i>Weissia wimmeriana</i>					●	●		●		●			●	●	●	●	●	●	●	●	?	●	●	●	●	VU					
<i>Zygodon catarinoi</i>	y																	●										DD		●	
<i>Zygodon conoideus</i>	y	●	EN	●	●	NT	●	●	●	●	●	●	●	●	●	●	●	DD	●	●	VU						DD				
<i>Zygodon conoideus</i> var. <i>conoideus</i>	□	■	□	■	■	■	■	■	■	■	■	■	■	■	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□		
<i>Zygodon conoideus</i> var. <i>lingulatus</i>								■																							
<i>Zygodon dentatus</i>	y				EN															●											
<i>Zygodon forsteri</i>	y							EN											●	●	●	VU	DD	●	●						
<i>Zygodon gracilis</i>	y							EN											●	EN											
<i>Zygodon rupestris</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
<i>Zygodon sibiricus</i>	y								?																						
<i>Zygodon stirtonii</i>	y		DD*	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	CR		
<i>Zygodon viridissimus</i>	●	●	VU	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			

Austria	Belgium	Czech Republic	Germany	Liechtenstein	Luxembourg	Netherlands	Poland	Slovakia	Switzerland	Albania	Bosnia-Herzegovina	Bulgaria	Crete	Croatia	Greece	Hungary	Kosovo	Macedonia	Montenegro	Romania	Serbia	Slovenia	Turkey	Arctic Russia	Belarus	Caucasus (in Europe)	Central Russia	Crimea	Estonia	Kaliningrad	Kazakhstan (in Europe)	Latvia	Lithuania	Middle and South Urals	Moldova	NE Russia	NW Russia	SE Russia	Sub-polar & North Urals	Ukraine
• • • nb	•	•	•	KW	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
■ □ ■ □ □ □ KW	■ □ ■ □ □ □	■ □ □ □ □ □	VU	KW	■	DD	•	NT	DD*	•	•	•	•	•	•	•	•	•	CR	•	DD	•	•	•	•	•	•	•	•	•										
■ V	VU	KW	■	DD	•	NT	DD*	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•										
■ D																																								
• • • V	•	•	•	NT	NT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•										
0 DD •	VU	KW	R	VU															EN	•	DD	•																		
2 EN V	NT	R	DD CR	•	•	•	•	NT	•	•	•	•	•	•	•	•	•	•	CR	•	•																			
1 VU 2	•	EN RE	R	EN VU															CR VU DD			NT	3	•																
?																																								
• VU D •	I	DD •	•	VU	•													•	CR	•		•																		
Mn	•	VU	•	VU														?																						
□ nm	□	□	□	□																																				
3 NT • • CR • E CR NT	0	DD	DD	DD	•	•	CR	EN	EN	CR																														
4 R	E	CR	VU	NE																																				
2 NT • • • • E VU •	DD*	•	•	VU	•	•	DD	•	•	•	•	•	•	•	•	•	•	•	3	3	3	3	3	3	3	3	3	3	3	3										
• V EN	DD*	NE	NE	NE	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?										
• EN V	•	•	E CR	•	•	?	•	•	?	•	•	•	•	•	•	•	•	•	NT	•	•	•	•	•	•	•	•	•	•	•										

**Status notes** (Status values italicised in red with a darker background fill)

Taxon	Country	Note
<i>Acaulon fontquierianum</i>	SICILY	• (at risk)
<i>Acaulon muticum</i>	MONTENEGRO	CR (one old record)
<i>Acaulon muticum</i>	SICILY	• (at risk)
<i>Acaulon triquetrum</i>	SPAIN	• (healthy population - Belén Albertos, 11.2.14)
<i>Alleniella besseri</i>	SICILY	• (at risk)
<i>Aloina aloides</i>	AUSTRIA	DD (probably no correct reports)
<i>Aloina ambigua</i>	ALBANIA	• (old, no voucher)
<i>Aloina bifrons</i>	FRANCE	• (at risk)
<i>Aloina obliquifolia</i>	AUSTRIA	NE (formerly = <i>A. rigida</i> )
<i>Aloina obliquifolia</i>	FRANCE	• (at risk)
<i>Amphidium mougeotii</i>	SICILY	• (at risk)
<i>Anacamptodon splachnoides</i>	FRANCE	• (at risk)
<i>Anacamptodon splachnoides</i>	SWITZERLAND	RE (but refound in 2010 in one site)
<i>Anacolia webbii</i>	SICILY	• (at risk)
<i>Andreaea alpestris</i>	FRANCE	• (at risk)
<i>Anomobryum bavaricum</i>	FRANCE	• (at risk)
<i>Anomodon longifolius</i>	ALBANIA	• (old, no voucher)
<i>Antitrichia californica</i>	FRANCE	• (at risk)
<i>Antitrichia californica</i>	SICILY	• (at risk)
<i>Archidium alternifolium</i>	AUSTRIA	0 (recently refound)
<i>Atrichum angustatum</i>	BELGIUM	RE?
<i>Atrichum flavisetum</i>	GB	• (NE)
<i>Atrichum flavisetum</i>	SWEDEN	• (but not recognised in Se)
<i>Aulacomnium androgynum</i>	SICILY	• (at risk)
<i>Aulacomnium palustre</i>	SICILY	• (at risk)
<i>Barbula bolleana</i>	FRANCE	• (at risk)
<i>Barbula bolleana</i>	SWITZERLAND	VU (erroneously recorded)
<i>Brachydontium trichodes</i>	SPNU_RUSSIA	deleted
<i>Brachytheciastrum collinum</i>	SICILY	• (at risk)
<i>Brachythecium campestre</i>	FRANCE	• (at risk)
<i>Brachythecium campestre</i>	SICILY	• (at risk)
<i>Brachythecium cirrosum</i>	SICILY	• (at risk)
<i>Brachythecium erythrorrhizon</i>	FRANCE	• (at risk)
<i>Brachythecium erythrorrhizon</i>	SPAIN	• (one locality - Belén Albertos, 11.2.14) (status???)
<i>Brachythecium tommasinii</i>	SICILY	• (at risk)
<i>Brachythecium turgidum</i>	FRANCE	• (at risk)
<i>Breidleria pratensis</i>	FRANCE	• (at risk)
<i>Breutelia chrysocoma</i>	FRANCE	• (at risk)
<i>Bryoerythrophyllum ferruginascens</i>	FRANCE	• (at risk)
<i>Bryum cellulare</i>	SICILY	• (at risk)
<i>Bryum elegans</i>	BULGARIA	VU (as <i>B. stirtonii</i> )
<i>Bryum elegans</i>	SICILY	• (at risk)
<i>Bryum funkii</i>	SICILY	• (at risk)
<i>Bryum intermedium</i>	FINLAND	• ('subsp. <i>nitidulum</i> ' regarded as EN)
<i>Bryum intermedium</i>	SICILY	• (at risk)
<i>Bryum klinggraeffii</i>	SICILY	• (at risk)
<i>Bryum kunzei</i>	AUSTRIA	• (doubtful taxon, although type from Austria)
<i>Bryum marratii</i>	LATVIA	• (probably disappeared)
<i>Bryum radiculosum</i>	ALBANIA	• (old, no voucher)
<i>Bryum schleicheri</i>	SICILY	• (at risk)
<i>Bryum subapiculatum</i>	SICILY	• (at risk)
<i>Bryum tenuisetum</i>	SICILY	• (at risk)
<i>Bryum turbinatum</i>	LATVIA	• (probably disappeared)
<i>Bryum versicolor</i>	FRANCE	• (at risk)
<i>Bryum warneum</i>	LATVIA	• (probably disappeared)
<i>Callicladium haldanianum</i>	FRANCE	• (at risk)
<i>Callicladium haldanianum</i>	MONTENEGRO	EN (old data)
<i>Calliergon megalophyllum</i>	FRANCE	• (at risk)
<i>Calliergon richardsonii</i>	FRANCE	• (at risk)
<i>Calliergon richardsonii</i>	LATVIA	• (v. rare)

Taxon	Country	Note
<i>Calymperves erosum</i>	SICILY	• (at risk)
<i>Campyliadelphus elodes</i>	LATVIA	• (v. rare)
<i>Campylium sommerfeltii</i>	ALBANIA	? (old, no voucher)
<i>Campylium protensum</i>	AUSTRIA	• (not recognised as valid taxon in Austria)
<i>Campylopus flexuosus</i>	MONTENEGRO	VU (one, old data)
<i>Campylopus fragilis</i>	MONTENEGRO	VU (one, old data)
<i>Campylopus orstedianus</i>	SICILY	• (at risk)
<i>Campylopus pyriformis</i>	SICILY	• (at risk)
<i>Campylopus pyriformis</i>	SLOVENIA	RE (if correctly reported)
<i>Campylostelium pitardii</i>	SICILY	• (at risk)
<i>Ceratodon purpureus</i> subsp. <i>stenocarpus</i>	FRANCE	• (at risk)
<i>Cheilotrichia chloropus</i>	FRANCE	• (at risk)
<i>Cinclidotus aquaticus</i>	SICILY	• (at risk)
<i>Cinclidotus danubicus</i>	ITALY	• (declined - Belén Albertos, 11.2.14)
<i>Cnestrum alpestre</i>	FRANCE	• (at risk)
<i>Conostomum tetragonum</i>	FRANCE	• (at risk)
<i>Cratoneuron curvicaule</i>	SICILY	• (at risk)
<i>Cryptothecia heteromalla</i>	SICILY	• (at risk)
<i>Cynodontium bruntonii</i>	SICILY	• (at risk)
<i>Cynodontium tenellum</i>	FRANCE	• (at risk)
<i>Cynodontium tenellum</i>	LATVIA	• (v. rare)
<i>Cyrtomnium hymenophylloides</i>	FRANCE	• (at risk)
<i>Dendrocryptothecia lamyana</i>	SWITZERLAND	DD (erroneously recorded)
<i>Dialytrichia mucronata</i>	AUSTRIA	DD (probably wrongly reported)
<i>Dialytrichia mucronata</i>	IRELAND	VU New to Ireland since Red List 2010
<i>Dichelyma falcatum</i>	FRANCE	• (at risk)
<i>Dichodontium pellucidum</i>	SICILY	• (at risk)
<i>Dicranella cerviculata</i>	FRANCE	• (at risk)
<i>Dicranella revilleana</i>	FRANCE	• (at risk)
<i>Dicranella humilis</i>	SICILY	• (at risk)
<i>Dicranella rufescens</i>	SICILY	• (at risk)
<i>Dicranella schreberiana</i>	SICILY	• (at risk)
<i>Dicranodontium denudatum</i>	LATVIA	• (v. rare)
<i>Dicranodontium uncinatum</i>	SLOVENIA	Listed in Ros <i>et al.</i> 2013 but subsequently deleted by Martincic (pers. comm. via B. Papp, 7.3.14).
<i>Dicranoweisia cirrata</i>	ALBANIA	• (old, no voucher)
<i>Dicranoweisia cirrata</i>	SICILY	• (at risk)
<i>Dicranum acutifolium</i>	AUSTRIA	NE (previously included in <i>D. brevifolium</i> )
<i>Dicranum bonjeanii</i>	SICILY	• (at risk; if record correct)
<i>Dicranum dispersum</i>	FRANCE	• (at risk)
<i>Dicranum majus</i>	FRANCE	• (at risk)
<i>Dicranum polysetum</i>	ALBANIA	• (old, no voucher)
<i>Dicranum scottianum</i>	FRANCE	• (at risk)
<i>Didymodon bistratosus</i>	FRANCE	• (at risk)
<i>Didymodon erosus</i>	FRANCE	• (at risk)
<i>Didymodon johansenii</i>	FRANCE	• (at risk)
<i>Didymodon sicculus</i>	FRANCE	• (at risk)
<i>Didymodon validus</i>	SWEDEN	• (but not recognised in Se)
<i>Diphyscium foliosum</i>	SICILY	• (at risk)
<i>Distichium inclinatum</i>	SICILY	• (at risk)
<i>Distichophyllum carinatum</i>	SWITZERLAND	RE (but refound at one site in 2005)
<i>Ditrichum flexicaule</i>	DENMARK	• (should this be <i>gracile</i> ?)
<i>Ditrichum flexicaule</i>	ESTONIA	• (should this be <i>gracile</i> ?)
<i>Ditrichum flexicaule</i>	FAEROE ISLANDS	• (should this be <i>gracile</i> ?)
<i>Ditrichum flexicaule</i>	LATVIA	• ( <i>D. gracile</i> not published from Latvia)
<i>Ditrichum flexicaule</i>	NL	KW ( <i>gracile</i> ?)
<i>Ditrichum pallidum</i>	SICILY	• (at risk)
<i>Ditrichum pusillum</i>	SICILY	• (at risk)
<i>Ditrichum subulatum</i>	FRANCE	• (at risk)
<i>Drepanocladus aduncus</i>	SICILY	• (at risk)
<i>Drepanocladus polygamus</i>	SICILY	• (at risk)
<i>Drepanocladus sordidus</i>	LATVIA	• (v. rare)
<i>Drepanocladus turgescens</i>	MONTENEGRO	VU (one, old data)

Taxon	Country	Note
<i>Encalypta ciliata</i>	IRELAND	CR (EN) - Second record for Ireland in 2011, status would now be EN
<i>Encalypta intermedia</i>	AUSTRIA	DD (doubtfully present)
<i>Encalypta rhaftocarpa</i>	ALBANIA	● (old, no voucher)
<i>Encalypta rhaftocarpa</i>	SICILY	● (at risk)
<i>Encalypta rhaftocarpa</i> var. <i>leptodon</i>	AUSTRIA	■ (but not recognised as valid taxon in Austria)
<i>Entodon cladorrhizans</i>	AUSTRIA	DD (doubtfully present)
<i>Entodon concinnum</i>	SICILY	● (at risk)
<i>Entosthodon fascicularis</i>	LATVIA	● (v. rare)
<i>Entosthodon hungaricus</i>	SICILY	● (at risk)
<i>Entosthodon muhlenbergii</i>	AUSTRIA	0 (recently refound)
<i>Entosthodon muhlenbergii</i>	IRELAND	RE (CR) - refound in 2012, status would now be CR
<i>Entosthodon pulchellus</i>	IRELAND	EN New to Ireland since Red List 2010
<i>Ephemerum crassinervium</i>	MONTENEGRO	VU (one, old data)
<i>Ephemerum crassinervium</i> subsp. <i>rutheanum</i>	FRANCE	■ (at risk)
<i>Ephemerum crassinervium</i> subsp. <i>rutheanum</i>	ITALY	?■ 'serratum' var. <i>rutheanum'</i>
<i>Ephemerum crassinervium</i> subsp. <i>sessile</i>	SICILY	■ (at risk)
<i>Ephemerum minutissimum</i>	LATVIA	3? (E. Eur checklist says this sp.)
<i>Ephemerum recurvifolium</i>	MONTENEGRO	VU (one, old data)
<i>Ephemerum recurvifolium</i>	SICILY	● (at risk)
<i>Ephemerum serratum</i>	LATVIA	3? (Latvian Red List says this species)
<i>Ephemerum serratum</i>	MONTENEGRO	VU (one, old data)
<i>Eucladium verticillatum</i> var. <i>angustifolium</i>	AUSTRIA	■ (not recognised as valid taxon in Austria)
<i>Fissidens bryoides</i> var. <i>caespitans</i>	SICILY	■ (at risk)
<i>Fissidens crispus</i>	SICILY	● (at risk)
<i>Fissidens exilis</i>	FRANCE	● (at risk)
<i>Fissidens fontanii</i>	SICILY	● (at risk)
<i>Fissidens gracilifolius</i>	SICILY	● (at risk)
<i>Fissidens ovatifolius</i>	SICILY	● (at risk)
<i>Fontinalis squamosa</i>	SLOVENIA	RE (if correctly reported)
<i>Funaria microstoma</i>	MONTENEGRO	VU (one, old data)
<i>Funaria microstoma</i>	SICILY	● (at risk)
<i>Funariella curviseta</i>	FRANCE	● (at risk)
<i>Funariella curviseta</i>	MONTENEGRO	VU (one, old data)
<i>Gigaspermum mouretii</i>	SICILY	● (at risk)
<i>Grimmia anomala</i>	FRANCE	● (at risk)
<i>Grimmia donniana</i>	SICILY	● (at risk)
<i>Grimmia elatior</i>	SICILY	● (at risk)
<i>Grimmia hartmanii</i>	LATVIA	● (v. rare)
<i>Grimmia longirostris</i>	SICILY	● (at risk)
<i>Grimmia mollis</i>	FRANCE	● (at risk)
<i>Grimmia montana</i>	SICILY	● (at risk)
<i>Grimmia ovalis</i>	LATVIA	● (probably disappeared)
<i>Grimmia ramondii</i>	LATVIA	● (v. rare)
<i>Grimmia ramondii</i>	SICILY	● (at risk)
<i>Grimmia tergestina</i>	SICILY	● (at risk)
<i>Grimmia torquata</i>	SICILY	● (at risk)
<i>Gymnostomum aeruginosum</i>	LATVIA	● (v. rare)
<i>Gymnostomum aeruginosum</i> var. <i>obscurum</i>	AUSTRIA	■ (doubtful taxon in Austria)
<i>Gymnostomum calcareum</i>	LATVIA	● (v. rare)
<i>Gymnostomum lanceolatum</i>	AUSTRIA	● (doubtful taxon)
<i>Helodium blandowii</i>	FRANCE	● (at risk)
<i>Herzogiella striatella</i>	FRANCE	● (at risk)
<i>Heterocladium wulfsbergii</i>	IRELAND	NT(●)
<i>Homalia lusitanica</i>	SICILY	● (at risk)
<i>Homalothecium lutescens</i> var. <i>fallax</i>	AUSTRIA	■ (if recognised, the dominant var. in Austria)
<i>Hygroamblystegium humile</i>	LATVIA	● (v. rare)
<i>Hygrohypnum eugyrium</i>	FRANCE	● (at risk)
<i>Hygrohypnum luridum</i>	SICILY	● (at risk)
<i>Hygrohypnum ochraceum</i>	ITALY	● (declined - Belen Albertos, 11.2.14)
<i>Hygrohypnum polare</i>	FRANCE	● (at risk)
<i>Hygrohypnum polare</i>	ITALY	● (declined - Belén Albertos, 11.2.14)
<i>Hylocomium splendens</i>	SICILY	● (at risk)

Taxon	Country	Note
<i>Hymenoloma crispulum</i>	SICILY	● (at risk)
<i>Hymenoloma mulahaceni</i>	SPAIN	● (not been evaluated but only one locality and clearly CR - Belén Albertos 11.2.14)
<i>Hymenostylium gracillimum</i>	FRANCE	● (at risk)
<i>Hypnum cupressiforme</i> var. <i>filiforme</i>	AUSTRIA	■ (taxon probably without any value)
<i>Hypnum imponens</i>	FRANCE	● (at risk)
<i>Hypnum jutlandicum</i>	LATVIA	● (v. rare)
<i>Hypnum jutlandicum</i>	SICILY	● (at risk)
<i>Hypnum pallescens</i>	AUSTRIA	● (should be divided into 2 spp.)
<i>Hypnum pallescens</i>	FRANCE	● (at risk)
<i>Hypnum uncinulatum</i>	FRANCE	● (at risk)
<i>Hypnum vaucherii</i>	SICILY	● (at risk)
<i>Hypopterygium tamarisci</i>	IRELAND	● LC, if the same as <i>immigrans</i>
<i>Isopterygiopsis pulchella</i>	LATVIA	● (v. rare)
<i>Isopterygiopsis pulchella</i>	SICILY	● (at risk)
<i>Kiaeria blyttii</i>	LATVIA	● (v. rare)
<i>Leptodon smithii</i>	GERMANY	0 (but refound)
<i>Leptodontium flexifolium</i>	FRANCE	● (at risk)
<i>Leptodontium flexifolium</i>	SWITZERLAND	VU (erroneously recorded)
<i>Lescuraea radicosa</i>	SICILY	● (at risk)
<i>Lescuraea saxicola</i>	SICILY	● (at risk)
<i>Meesia hexasticha</i>	LATVIA	● (probably disappeared)
<i>Meesia longiseta</i>	SLOVENIA	RE (if correctly reported)
<i>Meesia uliginosa</i>	LATVIA	● (probably disappeared)
<i>Meesia uliginosa</i>	MONTENEGRO	VU (two, old)
<i>Microbryum davallianum</i>	LATVIA	● (probably disappeared)
<i>Microbryum longipes</i>	PORTUGAL	VU (if correctly reported)
<i>Microbryum starkeanum</i>	AUSTRIA	0 (recently refound)
<i>Mielichhoferia elongata</i>	SICILY	● (at risk)
<i>Mielichhoferia mielichhoferiana</i>	SICILY	● (at risk)
<i>Mnium stellare</i>	SICILY	● (at risk)
<i>Molendoa hornschuchiana</i>	MONTENEGRO	CR (one, old data)
<i>Myurella julacea</i>	ALBANIA	● (1960, no voucher)
<i>Myurella tenerrima</i>	FRANCE	● (at risk)
<i>Neckera menziesii</i>	PORTUGAL	● (RE)
<i>Nyholmiella obtusifolia</i>	SICILY	● (at risk)
<i>Oncophorus wahlenbergii</i>	LATVIA	● (v. rare)
<i>Oreas martiana</i>	SLOVAKIA	Newly recorded. CR suggested.
<i>Orthodontium lineare</i>	SWITZERLAND	● (not yet found in Ch)
<i>Orthodontium pellucens</i>	FRANCE	● (at risk)
<i>Orthothecium intricatum</i>	SICILY	● (at risk)
<i>Orthotrichum alpestre</i>	SICILY	● (at risk)
<i>Orthotrichum moravicum</i>	SLOVAKIA	● (DD suggested)
<i>Orthotrichum pallens</i>	SICILY	● (at risk)
<i>Orthotrichum pulchellum</i>	SICILY	● (at risk)
<i>Orthotrichum rivulare</i>	SWITZERLAND	DD (erroneously recorded)
<i>Orthotrichum scanicum</i>	AUSTRIA	0 (recently refound)
<i>Orthotrichum scanicum</i>	SICILY	● (at risk)
<i>Orthotrichum schimperi</i>	AUSTRIA	NE (but not hitherto recognised as a taxon)
<i>Orthotrichum schimperi</i>	FINLAND	● (but not separated from <i>O. pumilum</i> )
<i>Orthotrichum schimperi</i>	GERMANY	not accepted
<i>Oxystegus tenuirostris</i>	LATVIA	● (v. rare)
<i>Oxystegus tenuirostris</i>	SICILY	● (at risk)
<i>Palustriella pluristratosa</i>	AUSTRIA	● (recently found but without taxonomic value)
<i>Palustriella pluristratosa</i>	FRANCE	● (at risk)
<i>Pelekium minutulum</i>	AUSTRIA	DD (doubtfully recorded)
<i>Philonotis caespitosa</i>	SICILY	● (at risk)
<i>Philonotis rigida</i>	FRANCE	● (at risk)
<i>Plagiomnium elatum</i>	SICILY	● (at risk)
<i>Plagiomnium medium</i>	SICILY	● (at risk)
<i>Plagiopus oederianus</i> var. <i>alpinus</i>	AUSTRIA	■ (dubious taxon)
<i>Plagiothecium cavifolium</i>	SICILY	● (at risk)
<i>Plagiothecium latebricola</i>	SWITZERLAND	● (erroneously recorded)

Taxon	Country	Note
<i>Plagiothecium undulatum</i>	SICILY	• (at risk)
<i>Platyhypnidium grolleeanum</i>	CZECH REPUBLIC	Problematic taxon (Jiri Váňa Feb 2014)
<i>Pogonatum aloides</i>	LATVIA	• (v. rare)
<i>Pogonatum dentatum</i>	LATVIA	• (v. rare)
<i>Pogonatum nanum</i>	LATVIA	• (v. rare)
<i>Pohlia andalusica</i>	FRANCE	• (at risk)
<i>Pohlia camptotrichela</i>	LATVIA	• (v. rare)
<i>Pohlia elongata</i>	SICILY	• (at risk)
<i>Pohlia elongata</i> var. <i>acuminata</i>	AUSTRIA	■ (but not recognised as valid taxon)
<i>Pohlia filum</i>	LATVIA	• (probably disappeared)
<i>Pohlia lescuriana</i>	LATVIA	• (probably disappeared)
<i>Pohlia lutescens</i>	SICILY	• (at risk)
<i>Pohlia melanodon</i>	LATVIA	• (probably disappeared)
<i>Pohlia prolifera</i>	SICILY	• (at risk)
<i>Polytrichum commune</i> var. <i>perigoniale</i>	SICILY	■ (at risk)
<i>Polytrichum longisetum</i>	SICILY	• (at risk)
<i>Polytrichum strictum</i>	SICILY	• (at risk)
<i>Polytrichum swartzii</i>	LATVIA	• (v. rare)
<i>Pseudoamblystegium subtile</i>	ALBANIA	• (old, no voucher)
<i>Pseudoamblystegium subtile</i>	SICILY	• (at risk)
<i>Pseudoleskeella nervosa</i>	SICILY	• (at risk)
<i>Pseudotaxiphyllum elegans</i>	SICILY	• (at risk)
<i>Pterygoneurum ovatum</i>	LATVIA	• (v. rare)
<i>Ptychomitrium nigrescens</i>	SICILY	• (at risk)
<i>Ptychostomum compactum</i>	ALBANIA	• (old, no voucher)
<i>Ptychostomum creberrimum</i>	SICILY	NT (doubtful report)
<i>Ptychostomum cyclophyllum</i>	PORTUGAL	EN (if correctly reported)
<i>Ptychostomum donianum</i>	SWITZERLAND	DD (erroneously recorded)
<i>Ptychostomum pallens</i>	ALBANIA	• (old, no voucher)
<i>Ptychostomum pallens</i>	SICILY	• (at risk)
<i>Pyramidula tetragona</i>	SICILY	• (at risk)
<i>Racomitrium affine</i>	SICILY	• (at risk)
<i>Racomitrium elongatum</i>	SLOVAKIA	Newly recorded. NT suggested.
<i>Racomitrium ericoides</i>	BULGARIA	All specimens are <i>R. elongata</i>
<i>Racomitrium ericoides</i>	SICILY	• (at risk)
<i>Racomitrium microcarpon</i>	FRANCE	• (at risk)
<i>Racomitrium nivale</i>	AUSTRIA	• validly combined in <i>Racomitrium</i> in Köckinger <i>et al.</i> 2008 on p. 288 as <i>Racomitrium nivale</i> (Köckinger, Bednarek-Ochyra & Ochyra) Köckinger
<i>Racomitrium obtusum</i>	FRANCE	• (at risk)
<i>Racomitrium sudeticum</i>	SICILY	• (at risk)
<i>Rhabdoweisia crispata</i>	LATVIA	• (v. rare)
<i>Rhabdoweisia fugax</i>	LATVIA	• (v. rare)
<i>Rhabdoweisia fugax</i>	SICILY	• (at risk)
<i>Rhamphidium purpuratum</i>	PORTUGAL	RE (but refound) CR?
<i>Rhodobryum ontariense</i>	LATVIA	• (v. rare)
<i>Rhynchostegium alopecuroides</i>	ALBANIA	• (1960, no voucher)
<i>Rhynchostegium arcticum</i>	AUSTRIA	• (present - a modification of <i>R. murale</i> ?)
<i>Rhynchostegium strongylense</i>	SICILY	• (at risk)
<i>Rhytidadelphus squarrosus</i>	SICILY	• (at risk)
<i>Sanionia uncinata</i>	SICILY	• (at risk)
<i>Sarmentypnum exannulatum</i>	SICILY	• (at risk)
<i>Schistidium agassizii</i>	FRANCE	• (at risk)
<i>Schistidium apocarpum</i>	CORSICA	• s.l.
<i>Schistidium atrovfuscum</i>	FAEROE ISLANDS	• s.l.
<i>Schistidium confertum</i>	SICILY	• (at risk)
<i>Schistidium flaccidum</i>	SICILY	• (at risk)
<i>Schistidium maritimum</i>	FRANCE	• (at risk)
<i>Schistidium obscurum</i>	SWITZERLAND	• (not yet recorded in Ch)
<i>Schistidium platyphyllum</i>	SICILY	• (at risk)
<i>Schistidium rivulare</i>	SICILY	• (at risk, if correctly recorded)
<i>Sciuro-hypnum curtum</i>	BULGARIA	Deleted by Natcheva March 2014
<i>Sciuro-hypnum doorense</i>	SWITZERLAND	? (not yet recorded in Ch)

Taxon	Country	Note
<i>Sciuro-hypnum flotowianum</i>	SICILY	● (at risk)
<i>Sciuro-hypnum latifolium</i>	SLOVENIA	(Grom 1969: wrong det.; Glow. 1910: locality in Italy)
<i>Sciuro-hypnum oedipodium</i>	FRANCE	● (at risk)
<i>Sciuro-hypnum ornellanum</i>	FRANCE	● (at risk)
<i>Sciuro-hypnum reflexum</i>	SICILY	● (at risk)
<i>Sciuro-hypnum starkei</i>	LATVIA	● (v. rare)
<i>Sciuro-hypnum starkei</i>	SICILY	● (at risk)
<i>Scleropodium cespitans</i>	SICILY	● (at risk)
<i>Scleropodium touretii</i>	AUSTRIA	0 (very doubtful old report)
<i>Scorpiurium deflexifolium</i>	SICILY	● (at risk)
<i>Scorpiurium sendtneri</i>	SICILY	● (at risk)
<i>Seligeria campylopoda</i>	LATVIA	● (v. rare)
<i>Seligeria pusilla</i>	LATVIA	● (v. rare)
<i>Seligeria recurvata</i>	LATVIA	● (v. rare)
<i>Sematophyllum substrumulosum</i>	IRELAND	VU (NT?) - new records since 2010, status NT?
<i>Sematophyllum substrumulosum</i>	SICILY	● (at risk)
<i>Sphagnum affine</i>	AUSTRIA	1 (as part of <i>S. imbricatum</i> )
<i>Sphagnum affine</i>	FRANCE	● (at risk)
<i>Sphagnum affine</i>	LITHUANIA	?old record of <i>S. imbricatum</i>
<i>Sphagnum affine</i>	SLOVAKIA	?EN
<i>Sphagnum affine</i> var. <i>flagellare</i>	SWITZERLAND	■ (but NS does not know which var. occurs in Ch)
<i>Sphagnum angustifolium</i>	SLOVAKIA	?DD
<i>Sphagnum auriculatum</i>	SICILY	● (at risk)
<i>Sphagnum auriculatum</i>	SLOVAKIA	?EN
<i>Sphagnum austini</i>	AUSTRIA	1 (as part of <i>S. imbricatum</i> )
<i>Sphagnum austini</i>	SLOVAKIA	?EN
<i>Sphagnum balticum</i>	AUSTRIA	0 (old reports wrong but correctly determined material found recently)
<i>Sphagnum contortum</i>	SICILY	● (at risk)
<i>Sphagnum flexuosum</i>	MONTENEGRO	"I check all papers with <i>Sphagnum</i> spp. from Montenegro. In Dragicevic & Veljic (2006) there is data - <i>S. flexuosum</i> from Barneo jezero (Birks & Walers 1972/3). Also in the same paper, we have data for <i>S. recurvum</i> . I guess that we put <i>S. recurvum</i> as synonym of <i>S. flexuosum</i> . Why, I don't know to explain. Therefore it is necessary to delete <i>S. flexuosum</i> from the list to Montenegro and put <i>S. recurvum</i> ." (Papp, pers. comm 9.4.14). Both spp. Left blank, as <i>S. fallax</i> is recorded for Montenegro.
<i>Sphagnum inundatum</i>	AUSTRIA	3 (included in <i>S. subsecundum</i> )
<i>Sphagnum inundatum</i>	SICILY	● (at risk)
<i>Sphagnum lindbergii</i>	FRANCE	● (at risk)
<i>Sphagnum magellanicum</i>	SICILY	RE (based on herbarium specimen revision, the only report of <i>Sphagnum magellanicum</i> for Sicily is by Bottini (1919) from Madonie Mountains, without a precise locality. It has never been found again, even by Raimondo & Dia (1978), who led field research
<i>Sphagnum majus</i>	FRANCE	● (at risk)
<i>Sphagnum molle</i>	FRANCE	● (at risk)
<i>Sphagnum platyphyllum</i>	FRANCE	● (at risk)
<i>Sphagnum recurvum</i>	MONTENEGRO	See <i>S. flexuosum</i>
<i>Sphagnum riparium</i>	FRANCE	● (at risk)
<i>Sphagnum riparium</i>	SLOVAKIA	?VU
<i>Splachnum ampullaceum</i>	FRANCE	● (at risk)
<i>Splachnum ampullaceum</i>	ITALY	● (declined - Belén Albertos, 11.2.14)
<i>Splachnum sphaericum</i>	FRANCE	● (at risk)
<i>Splachnum sphaericum</i>	ITALY	● (declined - Belén Albertos, 11.2.14)
<i>Splachnum sphaericum</i>	LATVIA	● (v. rare)
<i>Syntrichia fragilis</i>	AUSTRIA	0 (recently refound)
<i>Syntrichia fragilis</i>	FRANCE	● (at risk)
<i>Syntrichia handelii</i>	SICILY	● (at risk)
<i>Syntrichia latifolia</i>	SICILY	● (at risk)
<i>Syntrichia norvegica</i>	SICILY	● (at risk)
<i>Syntrichia papillosa</i>	SICILY	● (at risk)

TAXON	COUNTRY	NOTE
<i>Syntrichia princeps</i>	IRELAND	RE (CR) - refound 2012, status would now be CR
<i>Tetraplodon mnioides</i>	FRANCE	● (at risk)
<i>Tetrodontium brownianum</i>	FINLAND	DD (= <i>T. ovatum</i> in Fi)
<i>Thamnobryum subserratum</i>	LATVIA	● Abolina <i>et al.</i> 2011
<i>Timmiella barbuloides</i>	FRANCE	● (at risk)
<i>Timmiella barbuloides</i>	SWITZERLAND	?DD (erroneously recorded)
<i>Timmiella flexiseta</i>	SICILY	● (at risk)
<i>Tomentypnum nitens</i>	PORTUGAL	VU (if correctly reported)
<i>Tortella alpicola</i>	FRANCE	● (at risk)
<i>Tortella bambgeri</i>	FRANCE	● (at risk)
<i>Tortella tortuosa</i> var. <i>fragilifolia</i>	AUSTRIA	Not recognised in Austria; could be an erroneous combination as all <i>Tortella tortuosa</i> can have fragile leaves
<i>Tortula bolanderi</i>	SICILY	● (at risk)
<i>Tortula brevissima</i>	SICILY	● (at risk)
<i>Tortula cernua</i>	LATVIA	● (v. rare)
<i>Tortula cernua</i>	SLOVAKIA	Newly recorded. CR suggested.
<i>Tortula hoppeana</i>	SICILY	● (at risk)
<i>Tortula pallida</i>	FRANCE	● (at risk)
<i>Tortula pallida</i>	SICILY	● (at risk)
<i>Tortula randii</i>	LATVIA	● (probably disappeared)
<i>Tortula revolvens</i>	SICILY	● (at risk)
<i>Tortula rhodonia</i>	SWITZERLAND	DD (probably never occurred in Ch)
<i>Tortula solmsii</i>	SICILY	● (at risk)
<i>Tortula subulata</i>	SICILY	● (at risk)
<i>Tortula wilsonii</i>	FAEROE ISLANDS	● ( <i>sic</i> )
<i>Trematodon ambiguus</i>	FRANCE	● (at risk)
<i>Trematodon ambiguus</i>	LATVIA	● (v. rare)
<i>Trematodon longicollis</i>	SICILY	● (at risk)
<i>Trichodon cylindricus</i>	SICILY	● (at risk)
<i>Ulota bruchii</i>	LATVIA	● (v. rare)
<i>Ulota coarctata</i>	LATVIA	● (v. rare)
<i>Ulota crispa</i>	ALBANIA	● (old, no voucher)
<i>Ulota crispa</i>	SICILY	● (at risk)
<i>Ulota curvifolia</i>	ALBANIA	● (old, no voucher)
<i>Ulota rehmannii</i>	FRANCE	● (at risk)
<i>Warnstorffia pseudostraminea</i>	AUSTRIA	0 (recently refound)
<i>Warnstorffia pseudostraminea</i>	SLOVENIA	RE (if correctly reported)
<i>Warnstorffia trichophylla</i>	AUSTRIA	DD (doubtful for Austria)
<i>Warnstorffia trichophylla</i>	LATVIA	● (v. rare)
<i>Warnstorffia tundrae</i>	LATVIA	● (v. rare)
<i>Weissia brachycarpa</i>	LATVIA	● (v. rare)
<i>Weissia controversa</i>	LATVIA	● (v. rare)
<i>Weissia levieri</i>	SICILY	● (at risk)
<i>Zygodon forsteri</i>	MONTENEGRO	EN (if report correct)
<i>Zygodon sibiricus</i>	NL	● (where did I receive this record from??)
<i>Zygodon sibiricus</i>	SWEDEN	● (where did I receive this record from??)

## Appendix 8. Taxon references for additions and nomenclatural changes to the European moss checklist of Hill *et al.* 2006

Genus	Specific/Subspecific epithets	Authority	References for additions and changes to Hill <i>et al.</i> 2006)
<i>Alleniella</i>	<i>besseri</i>	(Lobarz.) S.Olsson, Enroth & D.Quandt	Olsson <i>et al.</i> 2011
<i>Alleniella</i>	<i>complanata</i>	(Hedw.) S.Olsson, Enroth & D.Quandt	Olsson <i>et al.</i> 2011
<i>Andreaea</i>	<i>flexuosa</i>	R.Br. bis	[subsp. <i>luisieri</i> Sérgio & Sim-Sim]; Sérgio & Sim-Sim 2012
<i>Anomobryum</i>	<i>bavaricum</i>	(Warnst. in Hamm.) Holyoak & Köckinger	Holyoak, D.T. & Köckinger, H. 2010; Ros <i>et al.</i> 2013
<i>Atrichum</i>	<i>androgynum</i>	(Müll.Hal.) A.Jaeger	Sérgio <i>et al.</i> 2010; Ros <i>et al.</i> 2013
<i>Barbula</i>	<i>amplexifolia</i>	(Mitt.) A.Jaeger	Köckinger, H. & Kučera, J. 2007; Ros <i>et al.</i> 2013
<i>Barbula</i>	<i>consanguinea</i>	(Thwaites & Mitt.) A.Jaeger	Köckinger <i>et al.</i> 2012; Ros <i>et al.</i> 2013
<i>Bartramia</i>	<i>laevisphaera</i>	(Taylor) Müll.Hal.	Damayanti <i>et al.</i> 2012
<i>Bartramia</i>	<i>rosamrosiae</i>	Damayanti, J.Muñoz, J.-P.Frahm & D.Quandt	Damayanti <i>et al.</i> 2012
<i>Brachythecium</i>	<i>buchananii</i>	(Hook.) A.Jaeger	Ignatov & Milyutina 2010
<i>Braunia</i>	<i>imberbis</i>	(Sm.) N.Dalton & D.G. Long	Dalton <i>et al.</i> 2012; Ros <i>et al.</i> 2013
<i>Bryum</i>	<i>austriacum</i>	Köckinger, Holyoak & Suanjak	Köckinger <i>et al.</i> 2013
<i>Bryum</i>	<i>muehlenbeckii</i>	Bruch & Schimp.	[=Imbribryum alpinum]
<i>Bryum</i>	<i>sibiricum</i>	Lindb. & Arnell	Ignatov <i>et al.</i> 2010
<i>Bryum</i>	<i>versicolor</i>	A.Braun ex Bruch & Schimp.	[=Bryum dichotomum? Not included by Hill <i>et al.</i> (2006) but retained for now on the recommendation of representatives of several countries, pending further molecular work at RBGE]
<i>Campylidium</i>	<i>calcareum</i>	(Crundw. & Nyholm) Ochyra	Ochyra <i>et al.</i> 2003; Ros <i>et al.</i> 2013
<i>Campylidium</i>	<i>sommerfeltii</i>	(Myrin) Ochyra	Ochyra <i>et al.</i> 2003; Ros <i>et al.</i> 2013
<i>Campylopus</i>	<i>subporodictyon</i>	(Broth.) B.H.Allen & Ireland	Allen & Ireland 2002
<i>Clasmatodon</i>	<i>parvulus</i>	(Hampe) Sull.	Müller 2007
<i>Dalytrichia</i>	<i>saxicola</i>	(Lamy) M.J.Cano	Cano 2007; Ros <i>et al.</i> 2013
<i>Dicranum</i>	<i>septentrionale</i>	Tubanova & Ignatova	Tubanova <i>et al.</i> 2010
<i>Didymodon</i>	<i>eckeliae</i>	R.H.Zander	Puche <i>et al.</i> 2006; Ros <i>et al.</i> 2013
<i>Didymodon</i>	<i>lamyanus</i>	(Schimp.) Thér.	Considered by Afonina <i>et al.</i> (2010) to be synonymous with <i>D. brachiphyllum</i>
<i>Didymodon</i>	<i>maschalogenus</i>	(Renauld & Cardot) Broth.	Köckinger & van Melick 2007
<i>Didymodon</i>	<i>validus</i>	Limpr.	Jiménez 2006; Ros <i>et al.</i> 2013
<i>Drepanocladus</i>	<i>angustifolius</i>	(Hedenäs) Hedenäs & C.Rosborg	Hedenäs & Rosborg 2008
<i>Drepanocladus</i>	<i>brevifolius</i>	(Lindb.) Warnst.	Hedenäs & Rosborg 2008
<i>Drepanocladus</i>	<i>lycopodioides</i>	(Brid.) Warnst.	Hedenäs & Rosborg 2008; Ros <i>et al.</i> 2013
<i>Drepanocladus</i>	<i>trifarius</i>	(F.Weber & D.Mohr) Broth. ex Paris	Hedenäs & Rosborg 2008; Ros <i>et al.</i> 2013
<i>Drepanocladus</i>	<i>turgescens</i>	(T.Jensen) Broth.	Hedenäs & Rosborg 2008; Ros <i>et al.</i> 2013
<i>Encalypta</i>	<i>pilifera</i>	Funck	Fedorov 2012
<i>Entosthodon</i>	<i>abramovae</i>	Fedorov & Ignatova	Fedorov <i>et al.</i> 2010
<i>Entosthodon</i>	<i>commutatus</i>	Durieu & Mont.	Brugués & Sérgio 2010; Ros <i>et al.</i> 2013
<i>Entosthodon</i>	<i>dagestanicus</i>	Fedorov & Ignatova	Fedorov <i>et al.</i> 2010
<i>Entosthodon</i>	<i>duriæi</i>	Mont.	Ros <i>et al.</i> 2013
<i>Entosthodon</i>	<i>handelii</i>	(Schiffn.) Laz.	Ros <i>et al.</i> 2013
<i>Entosthodon</i>	<i>kroonkirk</i>	Dirkse & Brugués	Ros <i>et al.</i> 2013
<i>Entosthodon</i>	<i>stenophyllus</i>	Fedorov & Ignatova	Fedorov <i>et al.</i> 2010
<i>Ephemerum</i>	<i>crassinervium</i>	(Schwägr.) Hampe	Holyoak 2010; Ros <i>et al.</i> 2013
<i>Ephemerum</i>	<i>crassinervium</i> subsp.	(Schimp. in Ruthe) Holyoak	[= <i>E. hibernicum</i> ] Holyoak 2010; Ros <i>et al.</i> 2013
<i>Ephemerum</i>	<i>rutheanum</i>		
<i>Ephemerum</i>	<i>crassinervium</i> subsp. <i>sessile</i>	(Bruch) Holyoak	Holyoak 2010; Ros <i>et al.</i> 2013

Genus	Specific/Subspecific epithets	Authority	References for additions and changes to Hill <i>et al.</i> 2006)
<i>Exsertotheca</i>	<i>baetica</i>	González-Mancebo, O.Werner, J.Patiño & Ros	Guerra <i>et al.</i> 2010; Olsson <i>et al.</i> 2011
<i>Exsertotheca</i>	<i>crispia</i>	(Hedw.) S.Olsson, Enroth & D.Quandt	Olsson <i>et al.</i> 2011
<i>Exsertotheca</i>	<i>intermedia</i>	(Brid.) S.Olsson, Enroth & D.Quandt	Olsson <i>et al.</i> 2011
<i>Funaria</i>	<i>anomala</i>	Jur.	Ros <i>et al.</i> 2013
<i>Grimmia</i>	<i>horrida</i>	Muñoz & H.Hespanhol	Muñoz <i>et al.</i> 2009; Ros <i>et al.</i> 2013
<i>Grimmia</i>	<i>laevigata</i>	(Brid.) Brid.	Muñoz <i>et al.</i> 2009; Ros <i>et al.</i> 2013
<i>Grimmia</i>	<i>meridionalis</i>	(Müll.Hall.) E.Maier	Maier 2010; Ros <i>et al.</i> 2013
<i>Gymnostomum</i>	<i>calcareum</i> var. <i>atlanticum</i>	Sérgio	Sérgio 2006
<i>Hedeniasiastrum</i>	<i>percurrens</i>	(Hedenäs) Ignatov & Vanderp.	Aigoin <i>et al.</i> 2009; Ros <i>et al.</i> 2013
<i>Hymenoloma</i>	<i>compactum</i>	(Schleich. ex Schwägr.) Ochyra	Werner <i>et al.</i> 2013
<i>Hymenoloma</i>	<i>crispulum</i>	(Hedw.) Ochyra	Werner <i>et al.</i> 2013
<i>Hymenoloma</i>	<i>muhaceni</i>	(Höh.) Ochyra	Werner <i>et al.</i> 2013
<i>Hymenostylium</i>	<i>gracillimum</i>	(Nees & Hornsch.) Köckinger & Kučera	Köckinger & Kucera 2011
<i>Hymenostylium</i>	<i>xerophilum</i>	Köckinger & Kučera	Köckinger & Kucera 2011
<i>Hypnum</i>	<i>aemulans</i>	Breidl.	Species described from Austria omitted by Hill <i>et al.</i> (2006) but inserted into list on the advice of Harald Zechmeister, Heribert Köckinger and Christian Schröck (pers. comm. January 2013)
<i>Imbribryum</i>	<i>alpinum</i>	(Huds. ex With.) N.Pedersen	Holyoak & Pedersen 2007
<i>Imbribryum</i>	<i>mildeanum</i>	(Jur.) J.R.Spence	Holyoak & Pedersen 2007
<i>Isothecium</i>	<i>prolixum</i>	(Mitt.) M.Stech, Sim-Sim, Tangney & D.Quandt	Stech <i>et al.</i> 2008; Ros <i>et al.</i> 2013
<i>Leptodon</i>	<i>corsicus</i>	Enroth, Sotiaux, D.Quandt & Vanderp.	Sotiaux <i>et al.</i> 2009; Ros <i>et al.</i> 2013
<i>Leptodon</i>	<i>longisetus</i>	(Mont.) Enroth	Olsson <i>et al.</i> 2011; Ros <i>et al.</i> 2013
<i>Leptodontium</i>	<i>proliferum</i>	Herzog	Porley & Edwards 2010
<i>Lescuraea</i>	<i>incurvata</i>	(Hedw.) E.Lawton	Ros <i>et al.</i> 2013
<i>Lescuraea</i>	<i>patens</i>	Lindb.	Ros <i>et al.</i> 2013
<i>Lescuraea</i>	<i>plicata</i>	(Schleich. ex F.Weber & D.Mohr) Broth.	Ros <i>et al.</i> 2013
<i>Lescuraea</i>	<i>radicosa</i>	(Mitt.) Mönk.	Ros <i>et al.</i> 2013
<i>Lescuraea</i>	<i>saviana</i>	(De Not.) E.Lawton	Ros <i>et al.</i> 2013
<i>Lindbergia</i>	<i>dagestanica</i>	Ignatova & Ignatov	Ignatova <i>et al.</i> 2010
<i>Lindbergia</i>	<i>grandiretis</i>	(Lindb. ex Broth.) Ignatov & Ignatova	Ignatova <i>et al.</i> 2010
<i>Microeurhynchium</i>	<i>pumilum</i>	(Wilson) Ignatov & Vanderp.	Aigoin <i>et al.</i> 2009; Ros <i>et al.</i> 2013
<i>Nogopterium</i>	<i>gracile</i>	(Hedw.) Crosby & W.R.Buck	Crosby & Buck 2011
<i>Nyholmiella</i>	<i>gymnostoma</i>	(Bruch ex Brid.) Holmen & Warncke	Goffinet <i>et al.</i> 2004
<i>Nyholmiella</i>	<i>obtusifolia</i>	(Brid.) Holmen & Warncke	Goffinet <i>et al.</i> 2004
<i>Oncophorus</i>	<i>dendrophilus</i>	Hedd. & Blockeel	Hedderson & Blockeel 2006; Ros <i>et al.</i> 2013
<i>Orthotrichum</i>	<i>affine</i> var. <i>bohemicum</i>	Plášek & Sawicki	Plášek <i>et al.</i> 2011
<i>Orthotrichum</i>	<i>cambrense</i>	Bosanquet & F.Lara	Bosanquet & Lara 2012
<i>Orthotrichum</i>	<i>consobrinum</i>	Cardot	Lara <i>et al.</i> 2009; Ros <i>et al.</i> 2013
<i>Orthotrichum</i>	<i>dagestanicum</i>	Fedorov & Ignatova	Fedorov & Ignatova 2010
<i>Orthotrichum</i>	<i>holmenii</i>	Lewinsky-Haapasaari	Fedorov <i>et al.</i> 2010
<i>Orthotrichum</i>	<i>moravicum</i>	Plášek & Sawicki	Plášek <i>et al.</i> 2009
<i>Oxystegus</i>	<i>daldinianus</i>	(De Not.) Köckinger, O.Werner & Ros	Köckinger <i>et al.</i> 2010
<i>Oxystegus</i>	<i>minor</i>	Köckinger, O.Werner & Ros	Köckinger <i>et al.</i> 2010
<i>Oxystegus</i>	<i>recurvifolius</i>	(Taylor) R. H. Zander	Köckinger <i>et al.</i> 2010; Ros <i>et al.</i> 2013
<i>Oxystegus</i>	<i>tenuirostris</i> var. <i>holtii</i>	(Braithw.) A. J. E. Sm.	Köckinger <i>et al.</i> 2010; Ros <i>et al.</i> 2013
<i>Philonotis</i>	<i>capillaris</i>	Lindb.	Koponen & Isovita 2010; Ros <i>et al.</i> 2013
<i>Philonotis</i>	<i>falcata</i>	(Hook.) Mitt.	Ignatov <i>et al.</i> 2010

Genus	Specific/Subspecific epithets	Authority	References for additions and changes to Hill <i>et al.</i> 2006
<i>Physcomitridium</i>	<i>readeri</i>	(Müll.Hal.) G.Roth	Hooper <i>et al.</i> 2010; Ellis <i>et al.</i> 2013
<i>Pohlia</i>	<i>beringiensis</i>	A.J.Shaw	Ignatov <i>et al.</i> 2006
<i>Polytrichum</i>	<i>commune</i> var. <i>commune</i>		Included as <i>P. uliginosum</i> (Wallr.) Schriebl by Hill <i>et al.</i> 2006, but in the opinion of Hill <i>et al.</i> 2008, the taxonomy and nomenclature of <i>P. commune</i> Hedw. are still not clear, so the approach taken by the latter is retained
<i>Polytrichum</i>	<i>commune</i> var. <i>perigoniale</i>	(Michx.) Hampe	Included as <i>P. commune</i> Hedw. by Hill <i>et al.</i> 2006, but in the opinion of Hill <i>et al.</i> 2008, the taxonomy and nomenclature of <i>P. commune</i> Hedw. are still not clear, so the approach taken by the latter is retained
<i>Polytrichum</i>	<i>formosum</i>	Hedw.	Bell & Hyvönen 2010
<i>Polytrichum</i>	<i>longisetum</i>	Sw. ex Brid.	Bell & Hyvönen 2010
<i>Polytrichum</i>	<i>pallidisetum</i>	Funck	Bell & Hyvönen 2010
<i>Pottiopsis</i>	<i>caespitosa</i>	(Brid.) Blockeel & A.J.E.Sm.	This taxon includes <i>Trichostomum triumphans</i> & <i>Weissia tyrrhena</i> , according to Ros & Werner 2007
<i>Pseudoamblystegium</i>	<i>subtile</i>	(Hedw.) Vanderp. & Hedenäs	Vanderpoorten & Hedenäs 2009
<i>Pseudocampylium</i>	<i>radicale</i>	(P. Beauv.) Vanderp. & Hedenäs	Vanderpoorten & Hedenäs 2009
<i>Pseudorhynchostegiella</i>	<i>duriaei</i>	(Mont.) Ignatov & Vanderp.	Aigoin <i>et al.</i> 2009
<i>Pseudosymbelpharis</i>	<i>bombayensis</i>	(Müll.Hal.) P.Sollman	Ignatova <i>et al.</i> 2012
<i>Pterygoneurum</i>	<i>compactum</i>	M.J.Cano, J.Guerra & Ros	Synonymised with <i>P. ovatum</i> in Spanish Flora (Guerra 2004–2006)
<i>Pterygoneurum</i>	<i>crossidioides</i>	W.Frey, Herrnst. & Kürschner	Synonymised with <i>P. ovatum</i> in Spanish Flora (Guerra 2004–2006)
<i>Pterygoneurum</i>	<i>squamulosum</i>	Segarra & Kürschner	Synonymised with <i>P. ovatum</i> in Spanish Flora (Guerra 2004–2006)
<i>Ptychostomum</i>	<i>archangelicum</i>	(Bruch & Schimp.) J.R.Spence	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>arcticum</i>	(R.Br.) J.R.Spence ex Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>boreale</i>	(F.Weber & D.Mohr) Ochyra & Bednarek-Ochyra	[=Bryum pallescens] Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>bornholmense</i>	(Wink. & R.Ruthe) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>capillare</i>	(Hedw.) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>cernuum</i>	(Hedw.) Hornsch.	[=Bryum uliginosum] Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>compactum</i>	Hornsch.	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>compactum</i> var. <i>compactum</i>	(Warnst.) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>compactum</i> var. <i>rutheanum</i>	(Taylor) J.R.Spence & H.P.Ramsay	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>creberrimum</i>	(Schwägr.) J.R.Spence	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>cyclophyllum</i>	(Hook.) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>demissum</i>	(Grev.) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>donianum</i>	(Müll.Hal.) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>imbricatum</i>	(Blandow ex Schwägr.) J.R.Spence	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>longisetum</i>	(Podp.) Ros & Mazimpaka	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>moravicum</i>	(Sw.) J.R.Spence	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>pallens</i>	(Hedw.) J.R.Spence & H.P.Ramsay	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>pseudotriquetrum</i>	(Schreb.) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>pseudotriquetrum</i> var. <i>bimum</i>		Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>pseudotriquetrum</i> var. <i>pseudotriquetrum</i>		Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>rubens</i>	(Mitt.) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>torquescens</i>	(Bruch & Schimp.) Ros & Mazimpaka	Holyoak & Pedersen 2007
<i>Ptychostomum</i>	<i>zieri</i>	(Hedw.) Holyoak & N.Pedersen	Holyoak & Pedersen 2007
<i>Racomitrium</i>	<i>nivale</i>	(Köckinger, Bednarek-Ochyra & Ochyra) Köckinger	[=Bucklandiella nivalis] Köckinger <i>et al.</i> 2007; Köckinger 2008

Genus	Specific/Subspecific epithets	Authority	References for additions and changes to Hill <i>et al.</i> 2006)
<i>Rhynchostegium</i>	<i>alopécuroides</i>	(Brid.) A.J.E.Sm.	Huttunen & Ignatov 2010; Ros <i>et al.</i> 2013
<i>Rhynchostegium</i>	<i>confusum</i>	K.Cezón, J.Muñoz, Hedenäs & Huttunen	Cezón <i>et al.</i> 2010; Ros <i>et al.</i> 2013
<i>Rhynchostegium</i>	<i>riparioides</i>	(Hedw.) Cardot	Werner <i>et al.</i> 2007; Huttunen & Ignatov 2010; Ros <i>et al.</i> 2013
<i>Sarmentypnum</i>	<i>exannulatum</i>	(Schimp.) Hedenäs	Hedenäs 2006
<i>Sarmentypnum</i>	<i>sarmentosum</i>	(Wahlenb.) Tuom. & T.J.Kop.	Hedenäs 2006
<i>Schistidium</i>	<i>abrupticostatum</i>	(Bryhn) Ignatova & H.H.Bлом	Ignatova <i>et al.</i> 2009
<i>Schistidium</i>	<i>canadense</i>	(Drepr.) Ignatova & H.H.Bлом	Ignatova <i>et al.</i> 2009
<i>Schistidium</i>	<i>echinatum</i>	Ignatova & H.H.Bлом	Ignatova <i>et al.</i> 2009
<i>Schistidium</i>	<i>obscurum</i>	H.H.Bлом, Köckinger & Ignatova	Ignatova <i>et al.</i> 2009
<i>Schistidium</i>	<i>sibiricum</i>	Ignatova & H.H.Bлом	Ignatova <i>et al.</i> 2009
<i>Schistidium</i>	<i>subflaccidum</i>	(Kindb.) H.H.Bлом	Blom <i>et al.</i> 2006
<i>Schistidium</i>	<i>succulentum</i>	Ignatova & H.H.Bлом	Ignatova <i>et al.</i> 2009
<i>Sciuro-hypnum</i>	<i>curtum</i>	(Lindb.) Ignatov	Ignatov & Milyutina 2007; Ros <i>et al.</i> 2013
<i>Sciuro-hypnum</i>	<i>dovrense</i>	(Limpr.) Draper & Hedenäs	Draper & Hedenäs 2009
<i>Sciuro-hypnum</i>	<i>tromsoense</i>	(Kaurin & Arnell) Draper & Hedenäs	Draper & Hedenäs 2008; Ros <i>et al.</i> 2013
<i>Serpoleskia</i>	<i>confervoides</i>	(Brid.) Schimp.	Vanderpoorten & Hedenäs 2009; Ros <i>et al.</i> 2013
<i>Sphagnum</i>	<i>affine</i> var. <i>flagellare</i>	(Schlieph. ex Röll) L.Söderstr. & Hedenäs	Séneca & Söderström 2009
<i>Sphagnum</i>	<i>nitidulum</i>	Warnst.	Séneca & Söderström 2009
<i>Sphagnum</i>	<i>recurvum</i>	P.Beauv.	Séneca & Söderström 2009; Ros <i>et al.</i> 2013
<i>Thamnobryum</i>	<i>subserratum</i>	(Hook. ex Harv.) Nog. & Z.Iwats.	Ignatova & Ignatov 2011; Abolina 2011; Köckinger <i>et al.</i> 2008
<i>Tortella</i>	<i>arctica</i>	(Arnold) Crundw. & Nyholm	Ellis <i>et al.</i> 2011
<i>Tortella</i>	<i>squarrosa</i>	(Brid.) Limpr.	Werner <i>et al.</i> 2005; Grundmann <i>et al.</i> 2006; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>acaulon</i>	(With.) R.H.Zander	Zander 1993; Werner <i>et al.</i> 2002, 2004; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>acaulon</i> var. <i>acaulon</i>		Zander 1993; Werner <i>et al.</i> 2002, 2004; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>acaulon</i> var. <i>papillosa</i>	(Lindb.) R.H.Zander	Zander 1993; Werner <i>et al.</i> 2002, 2004; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>acaulon</i> var. <i>pilifera</i>	(Hedw.) R.H.Zander	Zander 1993; Werner <i>et al.</i> 2002, 2004; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>acaulon</i> var. <i>retortifolia</i>	(J.Guerra & Ros) R.H.Zander	Zander 1993; Werner <i>et al.</i> 2002, 2004; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>acaulon</i> var. <i>schreberiana</i>	(Dicks.) R.H.Zander	Zander 1993; Werner <i>et al.</i> 2002, 2004; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>caucasica</i>	Broth.	[=T. <i>modica</i> ] Ros <i>et al.</i> 2008; Ros & Herrnstadt 2010; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>lindbergii</i>	Broth.	[=T. <i>lanceola</i> ] Ros <i>et al.</i> 2008; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>muralis</i> subsp. <i>obtusifolia</i>	(Schwägr.) Culm.	Košnar, J. & Kolář 2009; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>protobryoides</i>	R.H.Zander	Zander 1993; Werner <i>et al.</i> 2002, 2004; Ros <i>et al.</i> 2013
<i>Tortula</i>	<i>vlassovii</i>	(Laz.) Ros & Herrnst.	Ros & Herrnstadt 2010; Ros <i>et al.</i> 2013
<i>Zygodon</i>	<i>catarinoi</i>	C. Garcia, F. Lara, Sérgio & Sim-Sim	Garcia <i>et al.</i> 2006

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