

An evaluation of the bryophyte flora of the Azores

Jan-Peter Frahm

Nees Institut für Biodiversität der Pflanzen, Rheinische Friedrichs-Wilhelms Universität,
Meckenheimer Allee 170, D 53115 Bonn, Germany, Frahm@uni-bonn.de

Abstract: The diversity of bryophytes on the different islands of the Azores varies much between 104 and 324 species. Attempts have been made to explain the heterogeneity of the bryoflora. There is a correlation between species numbers and age of the islands in the way that the youngest islands (Pico) has the lowest species numbers in spite of the fact that it is the highest island. The species numbers of the other islands are correlated with the maximum elevation and with the size of the islands. The liverwort-moss ratio varies between 1.21 and 1.67 and shows a distinct humidity gradient between the islands. The floristic affinities between the islands are calculated by a cluster analysis. They show no correlation with the location of the islands (nearest neighbour), size, age, elevation or species numbers, which indicates that the species composition is mainly determined by chance. Ten species (2,3%) are endemic to the Azores and 14 species (including one genus) are endemic to the Macaronesian Islands. Some of the endemics are questionable, others may occur elsewhere in the tropics under a different name, but there is fossil prove that the others are relicts from the Tertiary which survived extinction during Quaternary in Europe.

1. Introduction

Young volcanic islands are an excellent model for phytogeographical questions. An interpretation of their bryofloras can help to find answers for questions such as:

1. „How could the bryophyte species reach these islands ?“ Is it true that only species with diaspores are able to colonize remote islands and only those with small diaspores enabled for long distance dispersal?
2. „When did the species reach the islands ?“

3. „Is there a correlation between the age of the islands and the species numbers?“ (in the way that the oldest islands are the richest in species).

4. „Is there a correlation between the size and the islands and the species numbers?“

5. „Is there a correlation between the elevation and the species number?“

The first question can be answered by an analysis of the presence of dispersal agents such as spores or brood bodies. But also dispersal by man must be taken into account.

The second question cannot easily be answered. Genetical distances between the island

	S	M	T	G	J	P	F	L	C	
<i>Campylopus cygneus</i>	1	1	1		1	1	1	1	1	8
<i>Philonotis uncinata</i>	1		1	1	1	1	1	1	1	8
<i>Daltonia stenophylla</i>		1	1		1	1	1			5
<i>Jamesoniella rubricaulis</i>		1				1				2
<i>Jungermannia callithrix</i>	1	1	1		1	1	1	1	1	8
<i>Plagiochila retrorsa</i>			1							1
<i>Plagiochila solmsii</i>						1				1
<i>Radula nudicaulis</i>		1	1			1	1			4
<i>Aphanolejeunea azorica</i>	1	1	1	1	1	1	1	1	1	9
<i>Aphanolejeunea sintenisii</i>	1	1	1	1	1	1	1	1	1	9
	5	7	8	3	6	9	7	5	5	

Tab. 5: Distribution of the neotropical elements on the Azorean islands.

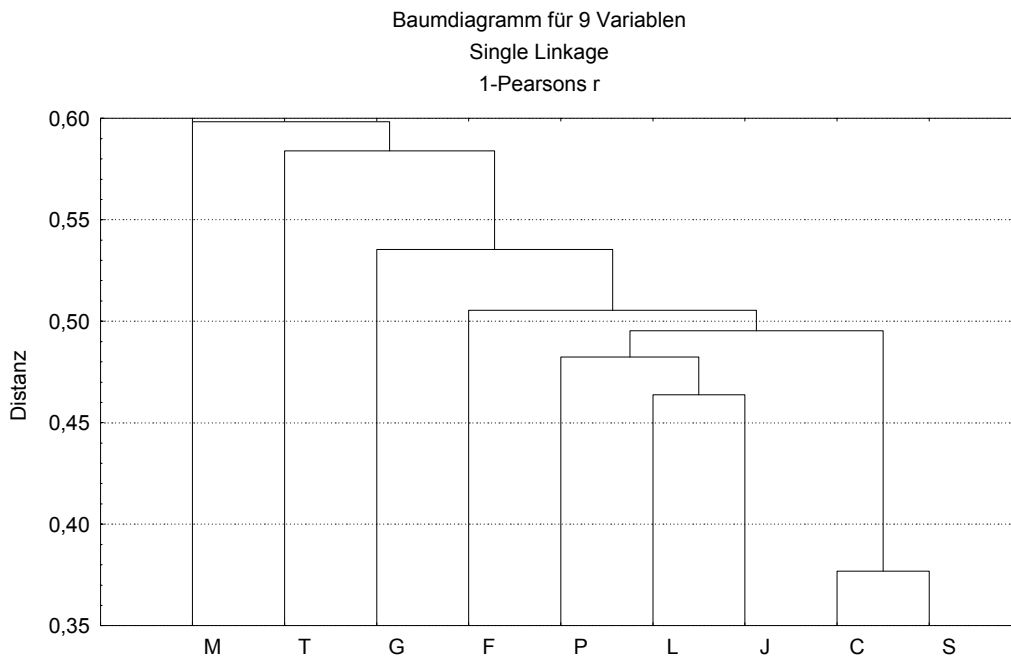


Fig. 4: Clusteranalysis of floristic relations of the bryophytes of the Azores.

Acknowledgements

I thank Prof. Dr. A. Hense (Metereological Institute, University of Bonn) for helpful informations and Philip Schmitz for entering the data into a spreadsheet..

References

- Churchill, S.P. 1986.** A revision of *Echinodium* Jur. (Echinodiaceae, Hypnobryales). J. Bryol. 14: 117-133.
- Crundwell, A.C., Greven, H.C., Stern, R.C. 1994.** Some additions to the bryophyte flora of the Azores. Journal of Bryology 18: 329-337.
- Frahm, J.-P. 2004.** A new contribution to the moss flora of Baltic and Saxon amber. Revue of Palaeobotany and Palynology 129: 81-101.
- Frahm, J.-P., Lindlar, A., Sollman, P., Fischer, E. 1996.** Bryophytes from Cape Verde Islands. Trop. Bryol. 12: 123-153.
- Ochyra, R. 1986.** *Sciaromiadelphus* A. Abr. & I. Abr.- the relationship between extant and fossil moss specimens. J. Hattori Botanical Lab. 61: 309-332.
- Schäfer, H. 2002.** Flora of the Azores. Weikersheim (Margraf) , 264 pp.
- Schumacker, R. 2001.** The hepatic flora of the Azores: bried historical outline, present knowledge, endemics and phytogeographical aspects. Belg. Journal of Botany 134: 51-63.
- Sjögren, E. 2001.** Distribution of Azorean bryophytes up to 1999, their island distribution and information on their presence elsewhere, including Madeira and the Canary Islands. Boletim do Museu Municipal do Funchal Suppl. No. 7, 89 pp.

MOSESSES	Azores islands								
	S	M	T	G	J	P	F	L	C
<i>Sphagnum capillifolium</i>	+		+				+		
<i>Sphagnum compactum</i>		+	+						
<i>Sphagnum cuspidatum</i>			+						
<i>Sphagnum girgensohnii</i>								+	
<i>Sphagnum imbricatum</i>									
<i>subsp. affine</i>			+		+				
<i>Sphagnum auriculatum</i>		+	+		+	+	+	+	+
<i>Sphagnum magellanicum</i>								+	
<i>Sphagnum nitidulum</i>			+						
<i>Sphagnum palustre</i>		+	+		+	+	+	+	+
<i>Sphagnum papillosum</i>		+	+			+	+	+	
<i>Sphagnum pylaesii</i>			+						
<i>Sphagnum rubellum</i>			+						
<i>Sphagnum squarrosum</i>		+	+					+	+
<i>Sphagnum inundatum</i>		+							
<i>Sphagnum subnitens</i>		+	+		+	+	+	+	+
<i>Andreaea rupestris</i>						+	+		
<i>Alophosia azorica</i>		+	+		+	+	+	+	+
<i>Atrichum angustatum</i>	+	+			+	+	+	+	+
<i>Atrichum undulatum</i>	+	+	+		+	+	+	+	+
<i>Pogonatum aloides</i>	+	+	+		+	+	+	+	+
<i>Pogonatum nanum</i>	+	+							
<i>Pogonatum urnigerum</i>		+					+		
<i>Polytrichum commune</i>	+	+	+		+	+	+	+	+
<i>Polytrichum formosum</i>	+	+	+		+	+	+	+	+
<i>Polytrichum juniperinum</i>	+	+	+	+	+	+	+	+	+
<i>Polytrichum piliferum</i>	+	+	+	+	+	+		+	
<i>Diphyscium foliosum</i>	+	+	+	+	+	+	+	+	+
<i>Archidium alternifolium</i>	+	+	+						
<i>Fissidens asplenioides</i>	+	+	+	+	+	+	+	+	+
<i>Fissidens azoricus</i>								+	
<i>Fissidens bryoides</i>	+	+	+	+	+	+	+	+	
<i>Fissidens coacervatus</i>	+		+						
<i>Fissidens crassipes ?</i>		+	+		+		+	+	
<i>Fissidens curvatus</i>								+	
<i>Fissidens dubius</i>		+	+					+	
<i>Fissidens luisierii</i>		+	+				+		
<i>Fissidens ovatifolius</i>			+					+	
<i>Fissidens papillosus</i>		+	+			+	+		
<i>Fissidens pusillus</i>									
<i>Fissidens rivularis</i>	+	+			+	+			+
<i>Fissidens serrulatus</i>	+	+	+	+	+	+	+	+	+
<i>Fissidens sublinaefolius</i>						+			
<i>Fissidens taxifolius</i>	+	+	+				+	+	
<i>Fissidens taxifolius subsp. pallidicaulis</i>	+	+	+	+	+	+	+	+	+
<i>Campylopus brevipilius</i>		+	+						+
<i>Campylopus cygneus</i>	+	+	+		+	+	+	+	+
<i>Campylopus flaccidus</i>		+							
<i>Campylopus flexuosus</i>	+	+	+	+	+	+	+	+	+
<i>Campylopus fragilis</i>	+	+	+	+	+	+	+	+	+
<i>Campylopus incrassatus</i>			+		+	+		+	+
<i>Campylopus introflexus</i>			+		+	+		+	
<i>Campylopus pilifer</i>	+	+	+	+	+	+	+	+	+
<i>Campylopus pyriformis</i>		+	+		+	+	+	+	+
<i>Campylopus shawii</i>		+	+		+	+	+	+	+
<i>Ceratodon purpureus</i>	+	+	+	+	+	+	+	+	+
<i>Cheilothea chloropus</i>	+								
<i>Cynodontium bruntonii</i>							+		
<i>Dicranella heteromalla</i>	+	+	+			+	+	+	

<i>Dicranella howei</i>					+			+
<i>Dicranella schreberiana</i>					+			
<i>Dicranoweisia cirrata</i> ?					+			
<i>Dicranoweisia crispula</i> ?						+		+
<i>Dicranum bonjeanii</i>		+	+		+			
<i>Dicranum flagellare</i>							+	
<i>Dicranum majus</i>							+	
<i>Dicranum scoparium</i>		+	+				+	
<i>Dicranum scottianum</i>								
subsp. <i>Scottianum</i>	+	+	+		+	+	+	+
<i>Dicranum scottianum</i> var. <i>Canariense</i>		+	+					
<i>Kiaeria blyttii</i>							+	
<i>Leucobryum albidum</i>		+	+				+	+
<i>Leucobryum glaucum</i>		+	+				+	+
<i>Leucobryum juniperoideum</i>	+	+	+	+	+	+	+	+
<i>Microcampylopus laevigatus</i>	+	+	+				+	+
<i>Rhabdoweisia fugax</i>								+
<i>Ditrichum pallidum</i>	+	+	+					
<i>Ditrichum punctulatum</i>								
<i>Ditrichum subulatum</i>	+	+						
<i>Pleuridium acuminatum</i>	+	+	+				+	+
<i>Pseudephemerum nitidum</i>		+	+					+
<i>Trematodon perssonorum</i>		+						
<i>Aloina ambigua</i>	+	+						
<i>Aloina ridiga</i>							+	
<i>Anoetangium angustifolium</i>			+					
<i>Barbula convoluta</i>		+	+					
<i>Barbula unguiculata</i>	+	+		+		+	+	+
<i>Bryoerythrophyllum inaequalifolium</i>							+	
<i>Desmatodon bogoscus</i>	+		+					
<i>Dialytrichia mucronata</i>		+	+					
<i>Didymodon acutus</i>		+					+	
<i>Didymodon insulanus</i>	+	+	+					+
<i>Didymodon luridus</i>		+		+	+		+	
<i>Didymodon rigidulus</i>							+	
<i>Didymodon tophaceus</i>	+	+	+	+				+
<i>Didymodon vinealis</i>	+	+	+			+	+	
<i>Eucladium verticillatum</i>		+	+					+
<i>Gymnostomum calcareum</i>	+	+	+		+		+	+
<i>Gymnostomum viridulum</i>		+						
<i>Gyroweisia tenuis</i>							+	
<i>Leptobarbula berica</i>		+	+				+	
<i>Phascum leptophyllum</i>	+		+			+	+	
<i>Pleurochaete squarrosa</i>	+	+				+		
<i>Pottia truncata</i>	+	+	+					+
<i>Pseudocrossidium hornschuchianum</i>			+					
<i>Pseudocrossidium revolutum</i>							+	
<i>Rhamphidium purpuratum</i>		+	+		+	+	+	+
<i>Scopelophila ligulata</i>		+						
<i>Timmiella barbuloides</i>		+	+		+	+	+	
<i>Tortella flavovirens</i>	+	+	+	+	+	+	+	+
<i>Tortella nitida</i>	+	+	+	+	+	+	+	+
<i>Tortula canescens</i>	+							
<i>Tortula cuneifolia</i>	+	+	+		+		+	+
<i>Tortula laevipila</i>		+	+					
<i>Tortula marginata</i>	+	+	+				+	+
<i>Tortula muralis</i>	+	+	+	+	+	+	+	+

<i>Tortula revolvens</i>								+
<i>Tortula ruralis</i>			+					+
<i>Tortula solmsii</i>		+	+					+
<i>Tortula vahliana</i>								+
<i>Trichostomum brachydontium</i>	+	+	+	+	+	+	+	+
<i>Trichostomum crispulum</i>	+	+			+		+	+
<i>Weissia brachycarpa</i>			+	+				
<i>Weissia condensa</i>								+
<i>Weissia controversa</i>	+	+	+	+	+	+	+	+
<i>Weissia triumphans</i>		+	+		+	+		
<i>Grimmia elongata</i>						+		
<i>Grimmia incurva ?</i>						+		
<i>Grimmia laevigata ?</i>				+	+			
<i>Grimmia lisae</i>	+	+	+	+	+	+	+	+
<i>Grimmia montana ?</i>				+				
<i>Grimmia pulvinata</i>		+	+		+			+
<i>Racomitrium aciculare</i>		+	+		+		+	+
<i>Racomitrium aquaticum</i>	+		+		+		+	+
<i>Racomitrium elongatum</i>		+				+		+
<i>Racomitrium fasciculare</i>		+	+		+	+	+	+
<i>Racomitrium heterostichum</i>		+	+		+	+	+	+
<i>Racomitrium languinosum</i>		+	+			+	+	
<i>Schistidium alpicola</i>						+		+
<i>Schistidium apocarpum</i>						+		
<i>Glyphomitrium daviesii</i>								+
<i>Ptychomitrium nigrescens</i>	+	+	+	+	+	+	+	+
<i>Ptychomitrium polyphyllum</i>	+	+	+		+	+	+	+
<i>Blindia acuta</i>		+	+		+	+	+	
<i>Enthostodon attenuatus</i>	+	+	+		+	+	+	+
<i>Enthostodon obtusus</i>	+	+	+		+	+	+	
<i>Funaria hygrometrica</i>		+	+					
<i>Funaria muhlenbergii</i>	+	+						
<i>Funaria pulchella</i>		+					+	
<i>Physcomitrium pyriforme</i>		+						
<i>Ephemerum cohaerens</i>							+	
<i>Splachnobryum obtusum</i>	+	+						
<i>Anomobryum julaceum</i>	+	+	+	+	+	+	+	
<i>Brachymenium notarisii</i>		+		+		+	+	
<i>Bryum alpinum</i>	+	+	+			+	+	+
<i>Bryum argenteum</i>	+	+	+			+	+	+
<i>Bryum bicolor</i>	+	+	+		+			+
<i>Bryum caespiticium</i>	+	+						+
<i>Bryum canariense</i>	+	+	+	+	+	+	+	
<i>Bryum capillare</i>	+	+	+	+		+	+	+
<i>Bryum creberrimum</i>	+	+	+					+
<i>Bryum donianum</i>	+	+	+	+	+	+	+	+
<i>Bryum dunense</i>	+							
<i>Bryum gemmiparum</i>	+	+						+
<i>Bryum microerythrocarpum</i>			+					
<i>Bryum mildeanum</i>		+			+			+
<i>Bryum pseudotriquetrum</i>	+	+	+		+	+	+	+
<i>Bryum radiculosum</i>	+	+	+					
<i>Bryum rubens</i>	+	+						
<i>Bryum ruderale</i>	+	+					+	
<i>Bryum sauteri</i>	+							
<i>Bryum tenuisetum</i>	+							
<i>Bryum torquescens</i>	+	+			+	+	+	+
<i>Eipterygium tozeri</i>	+	+	+	+	+	+	+	+
<i>Leptobryum pyriforme</i>		+						
<i>Pohlia andalusica ?</i>								+

<i>Pohlia annotina</i>	+								+
<i>Pohlia bulbifera</i>		+	+						
<i>Pohlia cruda</i>									+
<i>Pohlia melanodon</i>		+							
<i>Pohlia nutans</i>									+
<i>Pohlia prolifera</i>		+	+		+		+	+	
<i>Mnium hornum</i>		+	+		+	+	+	+	
<i>Plagiomnium rostratum</i>		+							+
<i>Plagiomnium undulatum</i>	+	+	+		+	+	+	+	+
<i>Rhizomnium punctatum</i>		+	+		+	+	+		
<i>Aulacomnium palustre</i>		+			+	+			
<i>Bartramia stricta</i>	+	+	+	+		+			+
<i>Breutelia azorica</i>		+	+		+	+	+	+	
<i>Philonotis caespitosa</i>		+	+						+
<i>Philonotis calcarea</i>	+	+					+		
<i>Philonotis capillaris</i>			+		+				
<i>Philonotis fontana</i>		+	+		+		+		
<i>Philonotis hastata</i>	+	+	+		+		+	+	
<i>Philonotis marchica</i>		+	+						
<i>Philonotis rigida</i>	+	+	+	+	+	+	+	+	+
<i>Philonotis uncinata</i>	+		+	+	+	+	+	+	+
<i>Amphidium mougeotii</i>			+		+	+	+	+	
<i>Orthotrichum diaphanum</i>	+	+	+				+	+	
<i>Orthotrichum tenellum</i>		+							
<i>Ulota calvescens</i>		+	+			+			
<i>Ulota crispa</i>						+			
<i>Zygodon conoideus</i>		+	+				+		
<i>Zygodon viridissimus</i>	+	+	+	+	+	+	+	+	+
<i>Fontialis antipyretica</i>	+				+			+	
<i>Cryphaea heteromalla</i>		+							
<i>Leucodon canariensis ?</i>		+							
<i>Leucodon sciuroides ?</i>							+		
<i>Leucodon treleasei</i>	+	+	+	+	+	+	+	+	+
<i>Pterogonium gracile</i>		+	+	+	+			+	+
<i>Myurium hochstetteri</i>	+	+	+	+	+	+	+	+	+
<i>Echinodium prolixum</i>	+	+	+	+	+	+	+	+	+
<i>Echinodium renaudii</i>		+	+		+	+	+	+	+
<i>Homalia lusitanica</i>		+							
<i>Homalia webbiana</i>	+			+	+			+	
<i>Neckera cephalonica</i>						+			
<i>Neckera complanata</i>						+			
<i>Neckera crispa ?</i>		+							
<i>Neckera intermedia</i>	+	+	+	+	+	+	+	+	+
<i>Cyclodictyon laetevirens</i>		+	+		+	+			
<i>Daltonia stenophylla</i>		+	+		+	+	+		
<i>Hookeria lucens</i>		+	+		+			+	
<i>Tetrastichium fontanum</i>	+	+	+	+	+	+	+	+	+
<i>Tetrastichium virens</i>	+	+	+	+	+	+	+	+	+
<i>Thamnobryum alopecurum</i>	+	+	+	+	+	+	+	+	+
<i>Thamnobryum maderense</i>			+		+	+			
<i>Heterocladium heteropterum</i>	+	+	+		+	+	+	+	+
<i>Thuidium tamariscinum</i>		+	+	+	+	+	+	+	+
<i>Amblystegium humile ?</i>								+	
<i>Amblystegium riparium</i>		+	+						
<i>Amblystegium serpens</i>		+							
<i>Amblystegium tenax</i>		+				+			
<i>Amblystegium varium</i>			+						+
<i>Calliergonella cuspidata</i>	+	+			+			+	
<i>Drepanocladus fluvians</i>		+	+			+	+	+	
<i>Hygrohypnum luridum</i>			+						
<i>Brachythecium albicans</i>	+	+							

<i>Brachythecium mildeanum</i>		+			+		+	
<i>Brachythecium plumosum</i>	+	+	+	+	+	+	+	+
<i>Brachythecium populeum</i>	+	+	+	+	+	+	+	+
<i>Brachythecium rivulare</i>	+	+		+		+	+	+
<i>Brachythecium rutabulum</i>	+	+	+		+		+	+
<i>Brachythecium salebrosum</i>	+	+	+	+	+		+	
<i>Brachythecium velutinum</i>		+	+			+	+	+
<i>Cirriphyllum piliferum</i>							+	
<i>Eurhynchium hians</i>	+	+	+	+	+	+	+	+
<i>Eurhynchium meridionale</i>	+	+	+					+
<i>Eurhynchium praelongum</i>	+	+	+	+	+	+	+	+
<i>Eurhynchium pumilum</i>	+	+	+	+	+	+	+	+
<i>Eurhynchium speciosum</i>		+				+	+	
<i>Eurhynchium striatulum ?</i>								
<i>Eurhynchium striatum</i>	+	+						
<i>Homalothecium sericeum</i>	+							
<i>Isothecium alopecuroides</i>		+						
<i>Isothecium myosuroides</i>		+	+		+	+	+	+
<i>Rhynchostegiella curviseta</i>	+				+			+
<i>Rhynchostegiella durieui</i>		+			+		+	
<i>Rhynchostegiella tenella</i>	+	+		+			+	
<i>Rhynchostegium confertum</i>	+	+	+		+	+	+	+
<i>Rhynchostegium megapolitanum</i>	+	+	+		+	+		+
<i>Rhynchostegium riparioides</i>	+	+	+	+	+	+	+	+
<i>Scleropodium purum</i>	+	+	+	+	+	+	+	+
<i>Scleropodium touretii</i>	+	+	+	+		+	+	+
<i>Scorpiurium circinatum</i>	+	+	+	+	+	+	+	+
<i>Herzogiella striatella ?</i>							+	
<i>Isopterygium tenerum</i>		+	+					
<i>Plagiothecium nemorale</i>		+	+		+	+	+	
<i>Plagiothecium succulentum ?</i>				+	+			+
<i>Pseudotaxiphyllum elegans</i>	+	+	+		+	+	+	+
<i>Pseudotaxiphyllum laetevirens</i>	+	+	+		+	+		
<i>Sematophyllum substrumulosum</i>	+	+	+	+	+	+	+	+
<i>Andoa berthelotiana</i>	+	+	+	+	+	+	+	+
<i>Ctenidium molluscum</i>		+			+			
<i>Hylocomium brevirostre</i>		+	+			+		
<i>Hylocomium splendens</i>		+	+		+	+		+
<i>Hyocomium armoricum</i>					+			
<i>Hypnum cupressiforme</i>	+	+	+	+	+	+	+	+
<i>Hypnum imponens</i>		+	+			+		+
<i>Hypnum jutlandicum</i>	+	+	+	+	+	+	+	
<i>Hypnum andoi ?</i>	+	+	+				+	
<i>Hypnum resupinatum</i>	+	+	+	+	+	+	+	+
<i>Hypnum uncinulatum</i>	+	+	+	+	+	+	+	+
<i>Pleurozium schreberi</i>		+	+		+	+	+	+
<i>Rhytidiadelphus loreus</i>			+			+		
<i>Rhytidiadelphus squarrosus</i>		+	+	+	+	+	+	+
<i>Rhytidiadelphus subpinnatus</i>		+	+		+	+	+	+
HEPATICA								
<i>Anthoceros caucasicus</i>	+	+	+		+	+	+	+
<i>Anthoceros punctatus</i>		+	+			+	+	
<i>Phaeoceros bulbiculosus</i>		+	+			+	+	
<i>Phaeoceros carolinianus</i>					+			

<i>Phaeoceros laevis</i>	+	+	+			+	+	+	+
<i>Sphaerocarpos texanus</i>			+						
<i>Targionia hypophylla</i>	+	+	+	+	+	+	+	+	+
<i>Asterella africana</i>		+	+		+		+	+	
<i>Mannia androgyna</i>	+	+	+		+		+	+	+
<i>Plagiochasma rupestre</i>		+	+						
<i>Reboulia hemisphaerica</i>	+	+	+	+	+	+	+	+	+
<i>Conocephalum conicum</i>	+	+	+	+	+	+	+	+	+
<i>Lunularia cruciata</i>	+	+	+	+	+	+	+	+	+
<i>Marchantia paleacea</i>	+	+	+	+	+	+	+	+	+
<i>Marchantia polymorpha</i>		+			+	+			
<i>Dumortiera hirsuta</i>		+	+	+	+	+	+	+	
<i>Exormotheca pustulosa</i>		+	+		+		+	+	
<i>Corsinia coriandrina</i>	+	+	+		+	+	+	+	+
<i>Riccia beyrichiana</i>			+						
<i>Riccia bifurca</i>		+	+						
<i>Riccia ciliifera ?</i>									
<i>Riccia crozalsii</i>		+	+		+	+	+	+	
<i>Riccia crystallina</i>		+	+						
<i>Riccia glauca</i>	+	+	+						+
<i>Riccia huebenericana</i>			+						
<i>Riccia ligula</i>			+						
<i>Riccia nigrella</i>	+	+	+		+		+		+
<i>Riccia sorocarpa</i>	+	+	+		+				+
<i>Riccia subbifurca ?</i>									
<i>Riccia warnstorffii</i>		+							
<i>Metzgeria furcata</i>	+	+	+		+	+	+	+	+
<i>Metzgeria leptoneura</i>		+	+		+	+	+	+	
<i>Pellia epiphylla</i>		+	+		+	+	+	+	
<i>Pallavicinia lyellii</i>			+		+	+			
<i>Aneura pinguis</i>		+	+		+	+		+	
<i>Riccardia chamedryfolia</i>	+	+	+		+	+	+	+	+
<i>Riccardia latifrons</i>	+	+	+	+	+	+	+	+	+
<i>Riccardia multifida</i>	+	+	+		+	+	+	+	+
<i>Riccardia palmata</i>		+	+		+	+	+	+	
<i>Fossombronia angulosa</i>	+	+	+	+	+	+	+	+	+
<i>Fossombronia caespitiformis</i>	+	+	+		+				+
<i>Fossombronia echinata</i>			+						
<i>Fossombronia husnotii</i>	+	+	+	+			+		+
<i>Fossombronia pusilla</i>				+				+	
<i>Fossombronia wondraczekii</i>			+						
<i>Herbertus azoricus</i>		+	+		+	+	+	+	
<i>Blepharostoma trichophyllum</i>	+	+	+		+	+	+	+	+
<i>Trichocolea tomentella</i>		+							
<i>Bazzania azorica</i>		+	+		+	+	+	+	
<i>Kurzia pauciflora</i>		+	+				+	+	
<i>Lepidozia azorica</i>		+	+		+	+			
<i>Lepidozia cupressina</i>		+	+		+	+	+	+	
<i>Lepidozia reptans</i>	+	+	+		+	+	+	+	+
<i>Telaranea nematodes</i>	+	+	+		+	+	+	+	+
<i>Calypogeia arguta</i>	+	+	+	+	+	+	+	+	+
<i>Calypogeia azorica</i>		+	+		+	+	+	+	
<i>Calypogeia fissa</i>	+	+	+	+	+	+	+	+	+
<i>Calypogeia fusca</i>		+	+		+	+	+	+	
<i>Calypogeia integrispula</i>		+	+			+		+	
<i>Calypogeia muelleriana</i>	+	+	+		+	+	+	+	+
<i>Calypogeia neesia</i>		+	+		+			+	
<i>Calypogeia sphagnicola</i>			+					+	
<i>Calypogeia suecica</i>		+			+			+	
<i>Andelanthus decipiens</i>		+	+			+	+	+	

<i>Cephalozia bicuspidata</i>	+	+	+		+	+	+	+	+
<i>Cephalozia connivens</i>		+				+			
<i>Cephalozia crassifolia</i>		+	+		+	+	+	+	
<i>Cephalozia lunulifolia</i>		+	+		+	+	+		
<i>Cladopodiella francisci</i>		+	+						
<i>Hygrobrella laxifolia</i>			+			+	+		
<i>Nowellia curvifolia</i>		+	+		+	+	+	+	
<i>Odontoschisma</i>									
<i>denudatum</i>		+	+		+	+		+	
<i>Odontoschisma prostaticum</i>	+	+	+		+	+	+	+	+
<i>Cephaloziella</i>									
<i>baumgartneri</i>			+				+		
<i>Cephaloziella calyculata</i>	+								+
<i>Cephaloziella divaricata</i>	+	+	+	+				+	+
<i>Cephaloziella hampeana</i>			+		+				
<i>Cephaloziella rubella</i>			+						
<i>Cephaloziella turneri</i>	+	+							+
<i>Anastrophyllum minutum</i>	+	+	+		+	+	+	+	+
<i>Barbilophozia attenuata</i>	+	+	+		+	+	+		+
<i>Gymnocolea inflata</i>		+	+						
<i>Lophozia bicrenata ?</i>	+				+				+
<i>Lophozia incisa</i>		+	+			+	+	+	
<i>Lophozia longiflora</i>						+		+	
<i>Lophozia ventricosa</i>			+		+	+	+	+	
<i>Jamesoniella rubricaulis</i>		+				+			
<i>Jungermannia atrovirens</i>		+	+		+	+	+	+	
<i>Jungermannia callithrix</i>	+	+	+		+	+	+	+	+
<i>Jungermannia gracillima</i>	+	+	+		+	+	+	+	+
<i>Jungermannia pumila</i>	+	+	+						+
<i>Nardia geoscyphus</i>		+	+			+	+	+	
<i>Nardia scalaris</i>	+	+	+	+	+	+	+	+	+
<i>Marsupella adusta</i>		+				+			
<i>Marsupella emarginata</i>	+	+	+		+	+	+	+	+
<i>Marsupella funckii</i>		+	+			+	+	+	
<i>Marsupella profunda</i>	+								+
<i>Marsupella sparsifolia</i>			+		+	+			
<i>Marsupella sphacelata</i>					+			+	
<i>Diplophyllum albicans</i>	+	+	+		+	+	+	+	+
<i>Scapania compacta</i>	+		+		+		+		+
<i>Scapania curta</i>					+	+	+	+	
<i>Scapania gracilis</i>		+	+		+	+	+	+	
<i>Scapania nemorea</i>		+	+		+	+		+	
<i>Scapania scandica</i>						+			
<i>Scapania undulata</i>	+	+	+		+	+	+	+	+
<i>Chiloscyphus polyanthos</i>	+	+	+		+		+		+
<i>Geocalyx graveolens</i>	+		+		+	+	+	+	+
<i>Heteroscyphus</i>									
<i>denticulatus</i>		+	+	+	+	+	+		
<i>Leptoscyphus azoricus</i>		+	+		+	+		+	
<i>Leptoscyphus cuneifolius</i>			+		+	+			
<i>Lophocolea bidentata</i>	+	+		+	+	+	+	+	+
<i>Lophocolea fragrans</i>	+	+	+	+	+	+	+	+	+
<i>Lophocolea heterophylla</i>	+	+	+	+	+	+	+	+	+
<i>Saccogyna viticulosa</i>	+	+	+	+	+	+	+	+	+
<i>Plagiochila allorgei</i>	+	+	+		+	+	+	+	+
<i>Plagiochila bifaria</i>	+	+	+	+	+	+	+	+	+
<i>Plagiochila exigua</i>	+	+	+	+	+	+	+	+	+
<i>Plagiochila punctata</i>	+					+			+
<i>Plagiochila retrorsa</i>			+						
<i>Plagiochila solmsii</i>						+			
<i>Gongylanthus ericetorum</i>	+	+	+		+	+	+	+	+
<i>Acrobolbus wilsonii</i>		+			+	+			
<i>Tylimanthus azoricus</i>		+	+		+	+	+	+	

<i>Radula aquilegia</i>		+	+		+	+	+	+	
<i>Radula carringtonii</i>	+	+	+	+	+	+	+	+	+
<i>Radula holtii</i>		+	+		+	+	+	+	
<i>Radula lindenbergiana</i>	+	+	+	+	+	+	+	+	+
<i>Radula nudicaulis</i>		+	+			+	+		
<i>Radula wichurae</i>	+	+	+	+	+	+	+	+	+
<i>Porella canariensis</i>	+	+	+	+	+	+	+	+	+
<i>Porella obtusata</i>		+	+	+	+	+		+	
<i>Frullania azorica</i>	+	+	+	+	+	+	+	+	+
<i>Frullania microphylla</i>	+	+	+	+	+	+	+	+	+
<i>Frullania tamarisci</i>	+	+	+	+	+	+	+	+	+
<i>Frullania teneriffae</i>	+	+	+	+	+	+	+	+	+
<i>Jubula hutchinsiae</i>		+	+		+	+	+	+	
<i>Acanthocoleus aberrans</i>					+	+			
<i>Aphanolejeunea azorica</i>	+	+	+	+	+	+	+	+	+
<i>Aphanolejeunea madeirensis</i>			+		+	+	+		
<i>Aphanolejeunea microscopia</i>	+	+	+		+	+	+	+	+
<i>Aphanolejeunea sintenisii</i>	+	+	+	+	+	+	+	+	+
<i>Cheilolejeunea cedercreutzii</i>		+	+			+	+		
<i>Colojeneunea minutissima</i>	+	+	+	+	+	+	+	+	+
<i>Colura calyptrifolia</i>	+	+	+		+	+	+	+	+
<i>Drepanolejeunea hamatifolia</i>		+	+	+	+	+	+	+	
<i>Harpalejeunea molleri</i>	+	+	+	+	+	+	+	+	+
<i>Lejeunea eckloniana</i>	+	+	+	+	+	+	+	+	+
<i>Lejeunea flava</i>	+	+	+		+	+	+	+	+
<i>Lejeunea hibernica</i>		+	+			+		+	
<i>Lejeunea lamacerina</i>	+	+	+	+	+	+	+	+	+
<i>Lejeunea patens</i>	+	+	+		+	+	+	+	+
<i>Lejeunea ulicina</i>		+	+	+	+	+		+	
<i>Marchesinia mackaii</i>	+	+	+	+	+	+	+	+	+

Appendix 2: List of bryophyte species of the Azores with numbers of islands

		<i>Calypogeia arguta</i>	9
		<i>Calypogeia fissa</i>	9
		<i>Nardia scalaris</i>	9
		<i>Lophocolea fragrans</i>	9
		<i>Lophocolea heterophylla</i>	9
		<i>Saccogyna viticulosa</i>	9
		<i>Plagiochila bifaria</i>	9
		<i>Plagiochila exigua</i>	9
		<i>Radula carringtonii</i>	9
		<i>Radula lindenbergiana</i>	9
		<i>Radula wichuriae</i>	9
		<i>Porella canariensis</i>	9
		<i>Frullania azorica</i>	9
		<i>Frullania microphylla</i>	9
		<i>Frullania tamarisci</i>	9
		<i>Frullania teneriffae</i>	9
		<i>Aphanolejeunea azorica</i>	9
		<i>Aphanolejeunea sintenisii</i>	9
		<i>Colojeneunea minutissima</i>	9
		<i>Harpalejeunea molleri</i>	9
		<i>Lejeunea eckloniana</i>	9
		<i>Lejeunea lamacerina</i>	9
		<i>Marchesinia mackaii</i>	9
		<i>Atrichum undulatum</i>	8
		<i>Pogonatum aloides</i>	8
		<i>Polytrichum commune</i>	8
		<i>Polytrichum formosum</i>	8
		<i>Fissidens bryoides</i>	8
		<i>Campylopus cygneus</i>	8
		<i>Dicranum scottianum</i>	
		subsp. <i>Scottianum</i>	8
		<i>Tortella flavovirens</i>	8
		<i>Tortella nitida</i>	8
		<i>Ptychomitrium polyphyllum</i>	8
		<i>Enthostodon attenuatus</i>	8
		<i>Anomobryum julaceum</i>	8
		<i>Bryum canariense</i>	8
		<i>Bryum capillare</i>	8
		<i>Bryum donianum</i>	8
		<i>Plagiomnium undulatum</i>	8
		<i>Philonotis uncinata</i>	8
		<i>Heterocladium heteropterum</i>	8
		<i>Thuidium tamariscinum</i>	8
		<i>Rhynchostegium confertum</i>	8
		<i>Pseudotaxiphyllum elegans</i>	8
		<i>Hypnum jutlandicum</i>	8
		<i>Rhytidiadelphus squarrosus</i>	8
		<i>Anthoceros caucasicus</i>	8
		<i>Corsinia coriandrina</i>	8
		<i>Metzgeria furcata</i>	8
<i>Polytrichum juniperinum</i>	9		
<i>Diphyscium foliosum</i>	9		
<i>Fissidens asplenioides</i>	9		
<i>Fissidens serrulatus</i>	9		
<i>Fissidens taxifolius</i> subsp.			
<i>pallidicaulis</i>	9		
<i>Campylopus flexuosus</i>	9		
<i>Campylopus fragilis</i>	9		
<i>Campylopus pilifer</i>	9		
<i>Ceratodon purpureus</i>	9		
<i>Leucobryum juniperoideum</i>	9		
<i>Tortula muralis</i>	9		
<i>Trichostomum brachydontium</i>	9		
<i>Weissia controversa</i>	9		
<i>Grimmia lisae</i>	9		
<i>Ptychomitrium nigrescens</i>	9		
<i>Epipterygium tozeri</i>	9		
<i>Philonotis rigida</i>	9		
<i>Zygodon viridissimus</i>	9		
<i>Leucodon treleasei</i>	9		
<i>Myurium hochstetteri</i>	9		
<i>Echinodium prolixum</i>	9		
<i>Neckera intermedia</i>	9		
<i>Tetrastichium fontanum</i>	9		
<i>Tetrastichium virens</i>	9		
<i>Thamnobryum alopecurum</i>	9		
<i>Brachythecium plumosum</i>	9		
<i>Brachythecium populeum</i>	9		
<i>Eurhynchium hians</i>	9		
<i>Eurhynchium praelongum</i>	9		
<i>Eurhynchium pumilum</i>	9		
<i>Rhynchostegium riparioides</i>	9		
<i>Scleropodium purum</i>	9		
<i>Scorpiurium circinatum</i>	9		
<i>Sematophyllum substrumosum</i>	9		
<i>Andoa berthelotiana</i>	9		
<i>Hypnum cupressiforme</i>	9		
<i>Hypnum resupinatum</i>	9		
<i>Hypnum uncinulatum</i>	9		
<i>Targionia hypophylla</i>	9		
<i>Reboulia hemisphaerica</i>	9		
<i>Conocephalum conicum</i>	9		
<i>Lunularia cruciata</i>	9		
<i>Marchantia paleacea</i>	9		
<i>Riccardia latifrons</i>	9		
<i>Fossombronia angulosa</i>	9		

<i>Riccardia chamedryfolia</i>	8	<i>Campylopus shawii</i>	6
<i>Riccardia multifida</i>	8	<i>Dicranella heteromalla</i>	6
<i>Blepharostoma trichophyllum</i>	8	<i>Gymnostomum calcareum</i>	6
<i>Lepidozia reptans</i>	8	<i>Tortula cuneifolia</i>	6
<i>Telaranea nematodes</i>	8	<i>Trichostomum crispulum</i>	6
<i>Calypogeia muelleriana</i>	8	<i>Racomitrium aciculare</i>	6
<i>Cephalozia bicuspidata</i>	8	<i>Racomitrium fasciculare</i>	6
<i>Odontoschisma prostratum</i>	8	<i>Mnium hornum</i>	6
<i>Anastrophyllum minutum</i>	8	<i>Bartramia stricta</i>	6
<i>Jungermannia callithrix</i>	8	<i>Breutelia azorica</i>	6
<i>Jungermannia gracillima</i>	8	<i>Philonotis hastata</i>	6
<i>Marsupella emarginata</i>	8	<i>Pterogonium gracile</i>	6
<i>Diplophyllum albicans</i>	8	<i>Brachythecium velutinum</i>	6
<i>Scapania undulata</i>	8	<i>Rhynchostegium megapolitanum</i>	6
<i>Lophocolea bidentata</i>	8	<i>Plagiothecium nemorale</i>	6
<i>Plagiochila allorgei</i>	8	<i>Pleurozium schreberi</i>	6
<i>Gongylanthus ericetorum</i>	8	<i>Rhytidiadelphus subpinnatus</i>	6
<i>Aphanolejeunea microscopia</i>	8	<i>Riccia crozalsii</i>	6
<i>Colura calyptrifolia</i>	8	<i>Riccia nigrella</i>	6
<i>Lejeunea flava</i>	8	<i>Metzgeria leptoneura</i>	6
<i>Lejeunea patens</i>	8	<i>Pellia epiphylla</i>	6
<i>Sphagnum auriculatum</i>	7	<i>Riccardia palmata</i>	6
<i>Sphagnum palustre</i>	7	<i>Fossombronina husnotii</i>	6
<i>Sphagnum subnitens</i>	7	<i>Herbertus azoricus</i>	6
<i>Alophosia azorica</i>	7	<i>Bazzania azorica</i>	6
<i>Atrichum angustatum</i>	7	<i>Lepidozia cupressina</i>	6
<i>Polytrichum piliferum</i>	7	<i>Calypogeia azorica</i>	6
<i>Campylopus pyriformis</i>	7	<i>Calypogeia fusca</i>	6
<i>Leucobryum glaucum</i>	7	<i>Cephalozia crassifolia</i>	6
<i>Microcampylopus laevigatus</i>	7	<i>Nowellia curvifolia</i>	6
<i>Barbula unguiculata</i>	7	<i>Cephaloziella divaricata</i>	6
<i>Rhamphidium purpuratum</i>	7	<i>Jungermannia atrovirens</i>	6
<i>Racomitrium heterostichum</i>	7	<i>Scapania gracilis</i>	6
<i>Enthostodon obtusus</i>	7	<i>Chiloscyphus polyanthos</i>	6
<i>Bryum alpinum</i>	7	<i>Heteroscyphus denticulatus</i>	6
<i>Bryum argenteum</i>	7	<i>Tylimanthus azoricus</i>	6
<i>Bryum pseudotriquetrum</i>	7	<i>Radula aquilegia</i>	6
<i>Bryum torquescens</i>	7	<i>Radula holtii</i>	6
<i>Echinodium renauldii</i>	7	<i>Porella obtusata</i>	6
<i>Brachythecium rivulare</i>	7	<i>Jubula hutchinsiae</i>	6
<i>Brachythecium rutabulum</i>	7	<i>Lejeunea ulicina</i>	6
<i>Brachythecium salebrosum</i>	7	<i>Sphagnum papillosum</i>	5
<i>Isothecium myosuroides</i>	7	<i>Fissidens crassipes ?</i>	5
<i>Scleropodium touretii</i>	7	<i>Fissidens rivularis</i>	5
<i>Phaeoceros laevis</i>	7	<i>Fissidens taxifolius</i>	5
<i>Mannia androgyna</i>	7	<i>Campylopus incrassatus</i>	5
<i>Dumortiera hirsuta</i>	7	<i>Leucobryum albidum</i>	5
<i>Barbilophozia attenuata</i>	7	<i>Pleuridium acuminatum</i>	5
<i>Geocalyx graveolens</i>	7	<i>Didymodon tophaceus</i>	5
<i>Drepanolejeunea hamatifolia</i>	7	<i>Didymodon vinealis</i>	5

<i>Timmiella barbuloidea</i>	5	<i>Hypnum imponens</i>	4
<i>Tortula marginata</i>	5	<i>Hypnum andoi</i> ?+A312	4
<i>Racomitrium aquaticum</i>	5	<i>Anthoceros punctatus</i>	4
<i>Blindia acuta</i>	5	<i>Phaeoceros bulbiculosus</i>	4
<i>Bryum bicolor</i>	5	<i>Riccia glauca</i>	4
<i>Pohlia prolifera</i>	5	<i>Kurzia pauciflora</i>	4
<i>Rhizomnium punctatum</i>	5	<i>Lepidozia azorica</i>	4
<i>Amphidium mougeotii</i>	5	<i>Calypogeia integrispula</i>	4
<i>Orthotrichum diaphanum</i>	5	<i>Calypogeia neesia</i>	4
<i>Daltonia stenophylla</i>	5	<i>Jungermannia oumila</i>	4
<i>Drepanocladus fluians</i>	5	<i>Scapania curta</i>	4
<i>Eurhynchium meridionale</i>	5	<i>Radula nudicaulis</i>	4
<i>Rhynchostegiella tenella</i>	5	<i>Aphanolejeunea madeirensis</i>	4
<i>Pseudotaxiphyllum laetevirens</i>	5	<i>Cheilolejeunea cedercreutzii</i>	4
<i>Hylocomium splendens</i>	5	<i>Lejeunea hibernica</i>	4
<i>Asterella africana</i>	5	<i>Sphagnum capillifolium</i>	3
<i>Exormotheca pustulosa</i>	5	<i>Archidium alternifolium</i>	3
<i>Riccia sorocarpa</i>	5	<i>Fissidens dubius</i>	3
<i>Aneura pinguis</i>	5	<i>Fissidens luisierii</i>	3
<i>Fossombronia caespitiformis</i>	5	<i>Campylopus brevipilius</i>	3
<i>Andelanthus decipiens</i>	5	<i>Dicranoweisia crispula</i> ?	3
<i>Cephalozia lunulifolia</i>	5	<i>Dicranum bonjeanii</i>	3
<i>Odontoschisma denudatum</i>	5	<i>Dicranum scoparium</i>	3
<i>Lophozia incisa</i>	5	<i>Ditrichum pallidum</i>	3
<i>Lophozia ventricosa</i>	5	<i>Pseudephemerum nitidum</i>	3
<i>Nardia geoscyphus</i>	5	<i>Eucladium verticillatum</i>	3
<i>Marsupella funckii</i>	5	<i>Leptobarbula berica</i>	3
<i>Scapania compacta</i>	5	<i>Pleurochaete squarrosa</i>	3
<i>Scapania nemorea</i>	5	<i>Tortula solmsii</i>	3
<i>Leptoscyphus azoricus</i>	5	<i>Racomitrium elongatum</i>	3
<i>Sphagnum squarrosus</i>	4	<i>Bryum caespiticium</i>	3
<i>Fissidens papillosus</i>	4	<i>Bryum gemmiparum</i>	3
<i>Campylopus introflexus</i>	4	<i>Bryum mildeanum</i>	3
<i>Didymodon insulanus</i>	4	<i>Bryum radiculosum</i>	3
<i>Didymodon luridus</i>	4	<i>Bryum ruderales</i>	3
<i>Phascum leptophyllum</i>	4	<i>Plagiomnium rostratum</i>	3
<i>Pottia truncata</i>	4	<i>Aulacomnium palustre</i>	3
<i>Weissia triumphans</i>	4	<i>Philonotis caespitosa</i>	3
<i>Grimmia pulvinata</i>	4	<i>Philonotis calcarea</i>	3
<i>Racomitrium languinosum</i>	4	<i>Ulota calvescens</i>	3
<i>Brachymenium notarisii</i>	4	<i>Zygodon conoideus</i>	3
<i>Bryum creberrimum</i>	4	<i>Fontialis antipyretica</i>	3
<i>Philonotis fontana</i>	4	<i>Thamnobryum maderense</i>	3
<i>Homalia webbiana</i>	4	<i>Brachythecium mildeanum</i>	3
<i>Cyclodictyon laetevirens</i>	4	<i>Eurhynchium speciosum</i>	3
<i>Hookeria lucens</i>	4	<i>Plagiothecium succulentum</i>	3
<i>Calliergonella cuspidata</i>	4	<i>Marchantia polymorpha</i>	3
<i>Rhynchostegiella curviseta</i>	4	<i>Pallavicinia lyellii</i>	3
<i>Rhynchostegiella durieui</i>	4	<i>Calypogeia suecica</i>	3
<i>Hylocomium brevirostre</i>	4	<i>Hygrobrella laxifolia</i>	3

<i>Cephaloziella turneri</i>	3	<i>Riccia crystallina</i>	2
<i>Lophozia bicrenata</i> ?	3	<i>Fossombronia pusilla</i>	2
<i>Marsupella sparsifolia</i>	3	<i>Calypogeia sphagnicola</i>	2
<i>Leptoscyphus cuneifolius</i>	3	<i>Cephalozia connivens</i>	2
<i>Plagiochila punctata</i>	3	<i>Cladopodiella francisci</i>	2
<i>Acrobolbus wilsonii</i>	3	<i>Cephaloziella baumgartneri</i>	2
<i>Sphagnum compactum</i>	2	<i>Cephaloziella calyculata</i>	2
<i>Sphagnum imbricatum</i>		<i>Cephaloziella hampeana</i>	2
<i>subsp. affine</i>	2	<i>Gymnocolea inflata</i>	2
<i>Andreaea rupestris</i>	2	<i>Lophozia longiflora</i>	2
<i>Pogonatum nanum</i>	2	<i>Jamesoniella rubricaulis</i>	2
<i>Pogonatum urnigerum</i>	2	<i>Marsupella Adusta</i>	2
<i>Fissidens coacervatus</i>	2	<i>Marsupella profunda</i>	2
<i>Fissidens ovatifolius</i>	2	<i>Marsupella sphacelata</i>	2
<i>Dicranella howei</i>	2	<i>Acanthocoleus aberrans</i>	2
<i>Dicranum flagellare</i>	2	<i>Sphagnum cuspidatum</i>	1
<i>Dicranum scottianum</i>		<i>Sphagnum girgensohnii</i>	1
<i>var. canariense</i>	2	<i>Sphagnum magellanicum</i>	1
<i>Ditrichum subulatum</i>	2	<i>Sphagnum nitidulum</i>	1
<i>Aloina ambigua</i>	2	<i>Sphagnum pylaesii</i>	1
<i>Barbula convoluta</i>	2	<i>Sphagnum rubellum</i>	1
<i>Bryoerythrophyllum inaequalifolium</i>	2	<i>Sphagnum inundatum</i>	1
<i>Desmatodon bogoscus</i>	2	<i>Fissidens azoricus</i>	1
<i>Dialytrichia mucronata</i>	2	<i>Fissidens curvatus</i>	1
<i>Didymodon acutus</i>	2	<i>Fissidens sublinaefolius</i>	1
<i>Tortula laevipila</i>	2	<i>Campylopus flaccidus</i>	1
<i>Tortula ruralis</i>	2	<i>Cheilothela chloropus</i>	1
<i>Weissia brachycarpa</i>	2	<i>Cynodontium bruntonii</i>	1
<i>Weissia condensa</i>	2	<i>Dicranella schreberiana</i>	1
<i>Grimmia laevigata</i> ?	2	<i>Dicranoweisia cirrata</i> ?	1
<i>Schistidium alpicola</i>	2	<i>Dicranum majus</i>	1
<i>Funaria hygrometrica</i>	2	<i>Kiaeria blyttii</i>	1
<i>Funaria muhlenbergii</i>	2	<i>Rhabdoweisia fugax</i>	1
<i>Funaria pulchella</i>	2	<i>Trematodon perssonorum</i>	1
<i>Splachnobryum obtusum</i>	2	<i>Aloina ridiga</i>	1
<i>Bryum rubens</i>	2	<i>Anoetangium angustifolium</i>	1
<i>Pohlia annotina</i>	2	<i>Didymodon rigidulus</i>	1
<i>Pohlia bulbifera</i>	2	<i>Gymnostomum viridulum</i>	1
<i>Philonotis capillaris</i>	2	<i>Gyroweisia tenuis</i>	1
<i>Philonotis marchica</i>	2	<i>Pseudocrossidium</i>	
<i>Amblystegium riparium</i>	2	<i>hornschuchianum</i>	1
<i>Amblystegium tenax</i>	2	<i>Pseudocrossidium revolutum</i>	1
<i>Amblystegium varium</i>	2	<i>Scopelophila ligulata</i>	1
<i>Brachythecium albicans</i>	2	<i>Tortula canescens</i>	1
<i>Eurhynchium striatum</i>	2	<i>Tortula revolvens</i>	1
<i>Isopterygium tenerum</i>	2	<i>Tortula vahliana</i>	1
<i>Ctenidium molluscum</i>	2	<i>Grimmia elongata</i>	1
<i>Rhytidiadelphus loreus</i>	2	<i>Grimmia incurva</i> ?	1
<i>Plagiochasma rupestre</i>	2	<i>Grimmia montana</i> ?	1
<i>Riccia bifurca</i>	2	<i>Schistidium apocarpum</i>	1

<i>Glyphomitrium daviesii</i>	1
<i>Physcomitrium pyriforme</i>	1
<i>Ephemerum cohaerens</i>	1
<i>Bryum dunense</i>	1
<i>Bryum microerythrocarpum</i>	1
<i>Bryum sauteri</i>	1
<i>Bryum tenuisetum</i>	1
<i>Leptobryum pyriforme</i>	1
<i>Pohlia andalusica</i> ?	1
<i>Pohlia cruda</i> ?+A211	1
<i>Pohlia melanodon</i>	1
<i>Pohlia nutans</i>	1
<i>Orthotrichum tenellum</i>	1
<i>Uloa crispa</i>	1
<i>Cryphaea heteromalla</i>	1
<i>Leucodon canariensis</i> ?	1
<i>Leucodon sciuroides</i> ?	1
<i>Homalia lusitanica</i>	1
<i>Neckera cephalonica</i>	1
<i>Neckera complanata</i>	1
<i>Neckera crispa</i> ?+A250	1
<i>Amblystegium humile</i> ?	1
<i>Amblystegium serpens</i>	1
<i>Hygrohypnum luridum</i>	1
<i>Cirriphyllum piliferum</i>	1
<i>Homalothecium sericeum</i>	1
<i>Isothecium alopecuroides</i>	1
<i>Herzogiella striatella</i> ?	1
<i>Hyocomium armoricum</i>	1
<i>Phaeoceros carolinianus</i>	1
<i>Sphaerocarpos texanus</i>	1
<i>Riccia beyrichiana</i>	1
<i>Riccia huebenericana</i>	1
<i>Riccia ligula</i>	1
<i>Riccia warnstorffii</i>	1
<i>Fossombronia echinata</i>	1
<i>Fossombronia wondraczekii</i>	1
<i>Trichocolea tomentella</i>	1
<i>Cephaloziella rubella</i>	1
<i>Scapania scandica</i>	1
<i>Plagiochila retrorsa</i>	1
<i>Plagiochila solmsii</i>	1

