

# Contribution to the bryophyte flora of Madeira Island

UWE SCHWARZ<sup>1</sup>, FELIX SCHUMM<sup>2</sup>

<sup>1</sup> Uwe Schwarz, Hohenstaufenstrasse 9, 70794 Filderstadt, Germany. Email: schwarzu@lumot.de

<sup>2</sup> Felix Schumm, Mozartstrasse 9, 73117 Wangen, Germany. Email: fschumm@online.de

**Abstract:** Schwarz, U., Schumm F. (2019): Contribution to the bryophyte flora of Madeira Island. *Frahmia* 15:1-22.

During field trips in Madeira 2018, 173 bryophyte taxa were collected. The list of the taxa and the location of collection is given. *Platyhypnidium torrenticola*, so far only known from the Canary Islands, was also found. An illustration and comments on this peculiar plant are provided.

## 1. Introduction

The 2 authors arranged several field trips in September 2018 to explore the bryophyte and lichen flora of Madeira island. Though the flora is quite well known it was suspected that the knowledge about the distribution of bryophytes and lichens in Madeira could be extended. Therefore, locations which seem interesting were selected.

Prior to the fieldtrips the checklist from SÉRGIO et. al. 2006 were analyzed to get an overview about potential species. Studies resulting in HEDENÄS 1992 dealt with pleurocapous mosses intensively. Respective records from the herbarium in Stockholm (S) were also used for the preparation. It led altogether to collection areas on the northern part of the island.

As there are multiple summaries about the location, geography, climate and exploration of the Madeiran bryophytes (e.g. SÉRGIO et. al. 2006) we only refer to those sources without repeating their statements at this place.

## 2. List of Locations

The locations mentioned below represent the starting point of each field trip. Variations of the location along the track were not recorded which can lead to a deviation of up to 2 km from the actual collection point.

1. Concelho Ribeira Brava, Freguesia Serra de Água, Forest Track south to Boca da Encumeada, 32° 45' 12.03" N, 17° 1' 11.83" W, alt. 910 m, 12.09.2018
2. Concelho São Vicente, Freguesia São Vicente, Levada da Fajã do Rodrigues south to São Vicente, 32° 46' 33.28" N, 17° 2' 38.29" W, alt. 600 m, 12.09.2018
3. Concelho Porto Moniz, Freguesia Achadas da Cruz, Roadside between Santa and Achadas da Cruz, 32° 50' 24.49" N, 17° 11' 35.62" W, alt. 700 m, 13.09.2018
4. Concelho Porto Moniz, Freguesia Achadas da Cruz, Calhau das Achadas, 32° 51' 6.66" N, 17° 13' 0.64" W, alt. 20 m, 13.09.2018

5. Concelho Porto Moniz, Freguesia Ribeira da Janela, Roadside between Ribeira da Janela and Fanal, 32° 49' 56.12" N, 17° 9' 34.07" W, alt. 700 m, 13.09.2018
6. Concelho Porto Moniz, Freguesia Ribeira da Janela, Roadside between Ribeira da Janela and Fanal, 32° 49' 22.02" N, 17° 9' 16.33" W, alt. 890 m, 13.09.2018
7. Concelho Porto Moniz, Freguesia Ribeira da Janela, Roadsite between Fanal and Paul da Serra, 32° 48' 23.91" N, 17° 8' 27.02" W, alt. 1120 m, 13.09.2018
8. Concelho Calheta, Freguesia Calheta, Roadsite between Fanal and Paul da Serra, 32° 46' 1.63" N, 17° 6' 29.73" W, alt. 1420 m, 13.09.2018
9. Concelho Porto Moniz, Freguesia Porto Moniz, Levada da Central da Ribeira da Janela southwest to Lamaceiros, 32° 50' 56.76" N, 17° 10' 4.57" W, alt. 310 m, 14.09.2018
10. Concelho Porto Moniz, Freguesia Seixal, Vereda do Lombo Barbinhes south to Chão da Ribeira, 32° 47' 49.37" N, 17° 6' 50.2" W, alt. 500 m, 14.09.2018
11. Concelho Porto Moniz, Freguesia Achadas da Cruz, Roadside between Porta da Vila and Fonte do Bispo, 32° 49' 49.96" N, 17° 11' 21.63" W, alt. 890 m, 15.09.2018
12. Concelho Porto Moniz, Freguesia Achadas da Cruz, Roadside between Porta da Vila and Fonte do Bispo, 32° 49' 28.44" N, 17° 11' 41.57" W, alt. 1010 m, 15.09.2018
13. Concelho Calheta, Freguesia Fajã da Ovelha, Roadside between Fonte do Bispo and Rabaçal, 32° 47' 15.82" N, 17° 10' 50.23" W, alt. 1280 m, 15.09.2018
14. Concelho Porto Moniz, Freguesia Ribeira da Janela, Roadside between Ribeira da Janela and Fanal, 32° 49' 3.89" N, 17° 9' 14.43" W, alt. 1080 m, 15.09.2018
15. Concelho São Vicente, Freguesia São Vicente, Roadside between Boca de Encumeada and São Vicente, 32° 45' 27.63" N, 17° 1' 3.11" W, alt. 880 m, 16.09.2018
16. Concelho São Vicente, Freguesia São Vicente, Roadside between Boca de Encumeada and São Vicente, 32° 45' 35.93" N, 17° 0' 59.81" W, alt. 830 m, 16.09.2018
17. Concelho Machico, Freguesia Porto da Cruz, Levada do Furado, northwest to Ribeiro Frio, 32° 44' 7.42" N, 16° 53' 6.38" W, alt. 850 m, 17.09.2018

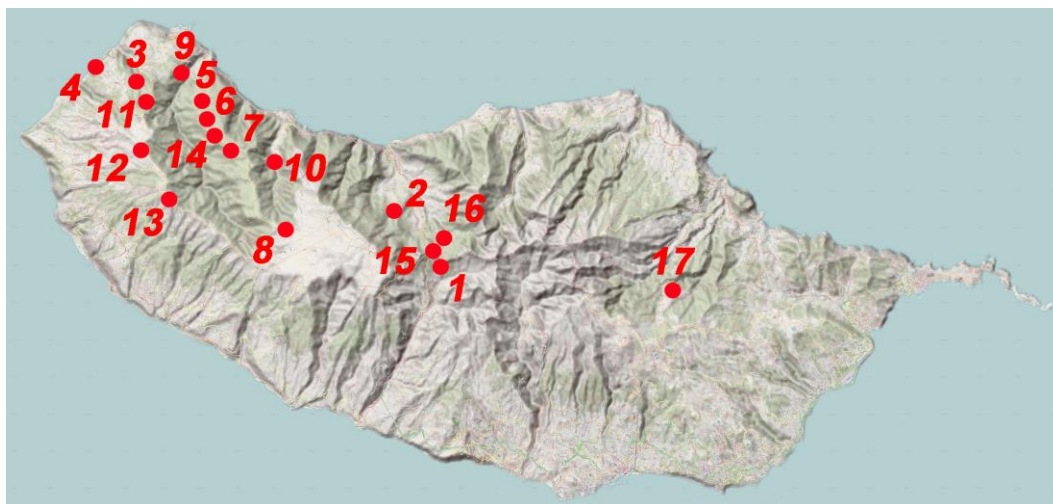


Figure 1: Collection areas

### 3. List of Species

The list of species is arranged alphabetically. Mosses and liverworts are not separated. For easier use the nomenclature follows HODGETTS 2015. Alternative names and synonyms are only mentioned when other names are commonly used.

Bold location numbers refer to the locations above. The numbers in brackets indicate the herbarium number of the first author. For intermixed species the “main species” under which it is deposited in the authors herbarium is also mentioned.

1. ***Acanthocoleus aberrans*** (LINDENB. & GOTTSCHKE) KRUIJT. *Bryophytorum Bibliotheca*. 36:62. 1988. (Lejeuneaceae)  
Locations: **3** (13893, 14038, 14048), **6** (14050)  
On dry, half shaded bark.
2. ***Amphidium curvipes*** (MÜLL. HAL.) BROTH. *Die Natürlichen Pflanzenfamilien* 1(3) ... Musci. 460. 1902. (Orthotrichaceae)  
Locations: **1** (14155, 14174), **2** (14154, 14175), **17** (13786)  
On dry to moist, shaded to half shaded stone.
3. ***Andoa berthelotiana*** (MONT.) OCHYRA. *Journal of Bryology*. 12:31. 1982. (Hypnaceae)  
Locations: **2** (13768 in *Frullania tamarisci*), **7** (13905), **10** (13900, 13906, 13909, 13910, 13911, 14074 in *Saccogyna viticulosa*), **17** (13992)  
On dry to moist, half shaded to shaded bark or stone.
4. ***Anoetangium aestivum*** (HEDW.) MITT. *Musci austro-americi*. 175. 1869. (Pottiaceae)  
Locations: **15** (13982), **17** (13852, 13981, 14185)  
On dry to moist, half shaded to shaded stone.
5. ***Anomobryum julaceum*** (SCHRAD. EX P. GAERTN., B. MEY. & SCHERB.) SCHIMP. *Synopsis muscorum europaeorum*. Ed. 1. 382. 1860. (Bryaceae)  
Locations: **2** (13785), **13** (14187 in *Hypnum cupressiforme* var. *lacunosum*)  
On dry, shaded to half shaded stone or soil.
6. ***Anthoceros caucasicus*** STEPHANI. *Species Hepaticarum*. 6. 427. 1923. (Anthocerotaceae)  
Locations: **2** (13998)  
On moist, half shaded soil.
7. ***Anthoceros punctatus*** L. *Species plantarum* 2. 1139. 1753. (Anthocerotaceae)  
Locations: **9** (13999), **10** (14000)  
On moist to wet, half shaded soil.
8. ***Antitrichia curtispindula*** (HEDW.) BRID. (Leucodontaceae)  
Locations: **7** (13847)  
On half shaded bark.
9. ***Aphanolejeunea azorica*** (V. ALLORGE & JOVET-AST) BERNECKER & PÓCS IN GRADST. & D.P. COSTA. *Memoirs of the New York Botanical Garden*. 87:109. 2003. (Lejeuneaceae)  
Locations: **17** (14035, 14060 in *Marchesia mackaii*, 14062 in *Aphanolejeunea sintenisii*)  
On shaded leaves. The identification of the *Aphanolejeunea* species is based on the description and illustration of SJÖGREN 1975.
10. ***Aphanolejeunea microscopica*** (TAYLOR) A. EVANS. *Bulletin of the Torrey Botanical Club*. 38:273. 1911. (Lejeuneaceae)  
Locations: **1** (14044)  
On shaded bark.
11. ***Aphanolejeunea sintenisii*** STEPHANI. *Species Hepaticarum*. 5. 861. 1916. (Lejeuneaceae)  
Locations: **15** (14033, 14034), **17** (14062)  
On shaded leaves.
12. ***Atrichum angustatum*** (BRID.) BRUCH & SCHIMP. IN BRUCH, SCHIMP. & W. GÜMBEL. *Bryologia Europaea*. Vol. 4. Fasc. 21-22. 237. 1844. (Polytrichaceae)  
Locations: **5** (13979), **9** (13978)  
On moist, half shaded soil.

13. *Atrichum undulatum* (HEDW.) P. BEAUV. Prodrôme des Cinquième et Sixième Familles de l'Aethéogamie. 42. 1805. (Polytrichaceae)  
Locations: **1** (13758), **10** (13980)  
 On moist, half shaded soil.
14. *Brachythecium albicans* (HEDW.) SCHIMP. IN BRUCH, SCHIMP. & W. GÜMBEL. Bryologia Europaea. Vol. 6. Fasc. 52-54. 23. 1853. (Brachytheciaceae)  
Locations: **1** (14196)  
 On dry, half shaded soil.
15. *Brachythecium rutabulum* (HEDW.) SCHIMP. IN BRUCH, SCHIMP. & W. GÜMBEL. Bryologia Europaea. Vol. 6. Fasc. 52-54. 15. pl. 543. 1853. (Brachytheciaceae)  
Locations: **2** (14199, 14200, 14218, 14221), **3** (13893 in *Acanthocoleus aberrans*), **9** (13759), **10** (14197)  
 On dry, shaded to half shaded stone or soil.
16. *Calliergonella cuspidata* (HEDW.) LOESKE. *Hedwigia*. 50:248. 1911. (Hypnaceae)  
Locations: **17** (13794)  
 On moist, shaded soil.
17. *Calypogeia arguta* NEES & MONT. EX NEES. Naturgeschichte der europäischen Lebermoose. Vol. 3. 24. 1838. (Calypogeiaceae)  
Locations: **5** (13787)  
 On dry, half shaded soil.
18. *Calypogeia fissa* (L.) RADDI. Jungermanniografia Etrusca. 33. 1818. (Calypogeiaceae)  
Locations: **1** (13985 in *Diphyscium foliosum*, 14024 in *Pogonatum aloides*, 14086 in), **2** (13921 in *Fissidens asplenioides*, 14068 in *Saccogyna viticulosa*, 14091 in), **10** (13789), **11** (13788, 14105 in *Pohlia elongata*), **15** (13825 in *Plagiothecium nemorale*, 14076 in *Telaranea europaea*)  
 On dry to moist, shaded to half shaded soil.
19. *Campylopus flexuosus* (HEDW.) BRID. Muscologia recentiorum. Suppl. 4. 71. 1818 [1819]. (Dicranaceae)  
Locations: **5** (13866), **6** (13867), **15** (13877)  
 On moist, half shaded soil and rotten wood.
20. *Campylopus introflexus* (HEDW.) BRID. Muscologia recentiorum. Suppl. 4. 72. 1818 [1819]. (Dicranaceae)  
Locations: **3** (13865)  
 On moist, half shaded soil.
21. *Campylopus pilifer* BRID. Muscologia recentiorum. Suppl. 4. 72. 1818 [1819]. (Dicranaceae)  
Locations: **1** (13864)  
 On dry, half shaded stone.
22. *Campylopus pyriformis* (SCHULTZ) BRID. Bryologia universa. Vol. 1 (1). 471. 1826. (Dicranaceae)  
Locations: **1** (13869), **15** (13870)  
 On dry, half shaded stone.
23. *Campylopus pyriformis* var. *fallaciosus* (THÉR.) M.F.V. CORLEY. *Journal of Bryology*. 9:201. 1976. (Dicranaceae)  
Locations: **5** (13871, 13878), **6** (13872)  
 On dry, half shaded bark or soil.
24. *Cephalozia bicuspidata* (L.) DUMORT. Recueil d'observations sur les Jungermanniace'es. 18. 1835. (Cephaloziaceae)  
Locations: **2** (13987, 14025 in *Pogonatum aloides*), **7** (14071 in *Solenostoma gracillimum*)  
 On moist, half shaded soil.

#### Remarks on the genus *Cephaloziella*

The diversity of the Madeiran *Cephaloziella* species is quite high, whereas *C. turneri* is the most frequent species in Madeira, easy to distinguish by its bright green color and the dentate leaves. As

plants of *C. divaricata*, *C. granatensis*, *C. rubella* and *C. stellulifera* can look very similar in the field it is highly recommended to always collect the plants for microscopical studies. *C. dentata* and *C. granatensis* can easily be identified by their characteristic gemmae. It usually requires some time to find them as they are not produced in big quantity. In *C. rubella* the margin of the leaf lobes are usually parallel, cells short rectangular and the lobes usually 4 cells wide. The leaf lobes in *C. hampeana* are usually wider and do have the tendency to be obtuse. *C. divaricata* and *C. stellulifera* always develop underleaves, whereas the later one is usually developing perianths.

25. *Cephaloziella dentata* (RADDI) STEPHANI. *Bulletin de l'Herbier Boissier*. 5 (2):78. 1897. (Cephaloziellaceae)

Locations: 1 (14085)

On dry, shaded stone.

26. *Cephaloziella divaricata* (SM.) SCHIFFNER. *Die Natürlichen Pflanzenfamilien* 1(3) ... Hepaticae. 99. 1893. (Cephaloziellaceae)

Locations: 1 (13869 in *Campylopus pyriformis*, 14243), 5 (14244)

On dry to moist, sunny to half shaded soil or stone.

27. *Cephaloziella divaricata* var. *scabra* (M. HOWE) S. ARNELL. *Illustrated moss flora of Fennoscandia*. Volume 1. Hepaticae. 71. 1956. (Cephaloziellaceae)

Locations: 5 (14065 in *Odontoschisma prostratum*)

Creeping between *Odontoschisma* and *Leucobryum juniperoides*. In comparison to *C. divaricata* the collected plants show a coarsely papillose cuticula but didn't develop a dentate leaf margin which can often be found in this variety.

28. *Cephaloziella granatensis* (J.B. JACK EX STEPHANI) FULFORD. *Memoirs of the New York Botanical Garden*. 11(4):411. 1976. (Cephaloziellaceae)

Locations: 17 (14246, 14247)

On moist, half shaded stone.

29. *Cephaloziella hampeana* (NEES) SCHIFFNER EX LOESKE. *Moosflora des Harzes*. 92. 1903. (Cephaloziellaceae)

Locations: 5 (13866 in *Campylopus flexuosus*), 6 (14245)

On moist, half shaded soil or rotten wood.

30. *Cephaloziella rubella* (NEES) WARNST. *Kryptogamenflora der Mark Brandenburg*. Leber- und Torfmoose. 231. 1902. (Cephaloziellaceae)

Locations: 1 (14115), 2 (14092)

On dry to moist, half shaded stone or soil.

31. *Cephaloziella stellulifera* (TAYLOR EX CARRINGTON & PEARSON) CROZ. *Revue Bryologique*. 30 (2):31. 1903. (Cephaloziellaceae)

Locations: 2 (14239, 14240)

On dry, half shaded soil.

32. *Cephaloziella turneri* (HOOK.) MÜLL. FRIB. *Die Lebermoose Deutschlands, Oesterreichs und der Schweiz*. Band 2. 202. 1913. (Cephaloziellaceae)

Locations: 1 (13914 in *Fissidens asplenioides*, 13985 in *Diphyscium foliosum*, 14170 in *Diphyscium foliosum*, 14242, 14264 in), 2 (14241), 3 (13865 in *Campylopus introflexus*, 13983 in *Philonotis rigida*, 14096)

On dry to moist, shaded to half shaded soil or stone. Plants of *Cephaloziella turneri* are found in low quantity intermixed with other bryophytes on soil or stone.

33. *Ceratodon conicus* (HAMPE EX MÜLL. HAL.) LINDB. *Musci scandinavici*. 27. 1879. (Ditrichaceae)

Locations: 13 (14187 in *Hypnum cupressiforme* var. *lacunosum*)

On dry, half shaded soil.

34. *Ceratodon purpureus* (HEDW.) BRID. *Bryologia universa*. Vol. 1 (1). 480. 1826. (Ditrichaceae)

Locations: 1 (14114, 14163), 2 (14180)

On dry, half shaded stone or concrete.

35. *Conocephalum conicum* (L.) UNDERW. *Botanical Gazette*. 20:67. 1895. (Conocephalaceae)

Locations: 1 (13790), 9 (14226)

On moist, shaded to half shaded stone or soil.

36. *Cyclodictyon laetevirens* (HOOK. & TAYLOR) MITT. *Journal of the proceedings of the Linnean Society. Botany.* 7:163. 1863. (Pilotrichaceae)  
Locations: 15 (13761)  
 On shaded, moist soil.
37. *Dicranella heteromalla* (HEDW.) SCHIMP. *Corollarium bryologiae europaeae.* 13. 1856. (Dicranaceae)  
Locations: 3 (13868)  
 On dry, half shaded soil.
38. *Dicranum canariense* HAMPE EX MÜLL. HAL. *Botanische Zeitung (Berlin).* 20:11. 1862. (Dicranaceae)  
Locations: 6 (13874), 15 (13886)  
 On dry, sunny bark or shaded rotten wood.
39. *Dicranum scoparium* HEDW. *Species muscorum frondosorum.* 126. 1801. (Dicranaceae)  
Locations: 1 (13875, 13884), 12 (13879), 17 (13883)  
 On dry to moist, shaded to half shaded stone or soil.
40. *Dicranum scottianum* TURNER EX R. SCOTT. *Transactions of the Dublin Society.* 3 (3):158. pl. 2. 1803. (Dicranaceae)  
Locations: 5 (13882), 6 (13885), 10 (13881, 13890), 13 (13880)  
 On dry, sunny to half shaded stone.
41. *Didymodon insulanus* (DE NOT.) M.O. HILL. *Journal of Bryology.* 11:599. 1981 [1982]. (Pottiaceae)  
Locations: 16 (14177)  
 On half shaded stone.
42. *Diphyscium foliosum* (HEDW.) D. MOHR. *Observationes botanicae.* 35. 1803. (Diphysciaceae)  
Locations: 1 (13985, 14170, 14173), 2 (14169)  
 On dry, shaded soil.
43. *Diplophyllum albicans* (L.) DUMORT. *Recueil d'observations sur les Jungermanniace'es.* 16. 1835. (Scapaniaceae)  
Locations: 3 (13865 in *Campylopus introflexus*, 13868 in *Dicranella heteromalla*, 13983 in *Philonotis rigida*), 7 (14071 in *Solenostoma gracillimum*), 11 (14105 in *Pohlia elongata*), 12 (13792), 17 (14077 in *Saccogyna viticulosa*)  
 On dry to moist, half shaded soil.
44. *Drepanolejeunea hamatifolia* (HOOK.) STEPHANI. *Hedwigia.* 29:71. 1890. (Lejeuneaceae)  
Locations: 1 (13809 in *Neckera cephalonica*, 13835 in *Porella canariensis*, 13836 in *Porella canariensis*, 14044 in *Aphanolejeunea microscopica*, 14117 in *Hypnum cupressiforme*), 2 (14046, 14047 in *Lejeunea hibernica*), 5 (13777 in *Frullania (Frullania) tamarisci*, 13841 in *Porella canariensis*), 6 (14040), 7 (13847 in *Antitrichia curtispindula*, 14135 in *Plagiochila exigua*, 14260 in *Metzgeria consanguinea*), 10 (13783 in *Frullania microphylla*, 14041, 14053), 15 (14034 in *Aphanolejeunea sintenisii*), 17 (14032 in *Harpalejeunea molleri*, 14035 in *Aphanolejeunea azorica*)  
 On dry, shaded to half shaded bark, stone or leaves. It also grew once on a wet, shaded plastic pipe.
45. *Dumortiera hirsuta* (SW.) NEES IN MART. *Flora Brasiliensis seu enumeratio plantarum in Brasilia.* Part 1. 307. 1833. (Marchantiaceae)  
Locations: 15 (13791)  
 On moist, shaded soil.
46. *Echinodium spinosum* (MITT.) JUR. *Botanische Zeitung (Berlin).* 24:178. 1866. (Echinodiaceae)  
Locations: 10 (13795, 13858)  
 On moist, half shaded stone.
47. *Entosthodon attenuatus* (DICKS.) BRYHN. *Det Kongelige Norske videnskabers selskabs skrifter.* 1908 (8):25. 1908. (Funariaceae)  
Locations: 2 (13988, 14093 in *Jungermannia*)  
 On moist to dry, half shaded soil.
48. *Epipterygium tozeri* (GREV.) LINDB. *Öfversigt af Kongliga Vetenskaps-Akademiens Förhandlingar.* 21 (10):577. 1864 [1865]. (Bryaceae)

- Locations: 2 (13800), 3 (13801)  
On moist to wet, shaded to half shaded soil.
49. *Eurhynchium striatum* (SCHREB. EX HEDW.) SCHIMP. Corollarium bryologiae europaeae. 119. 1856.  
(Brachytheciaceae)  
Locations: 1 (14194)  
On dry, shaded soil.
50. *Exsertotheca intermedia* (BRID.) S. OLSSON, ENROTH & D. QUANDT. *Taxon*. 60 (1):45. 2011. (Neckeraceae)  
Syn.: *Neckera intermedia* BRID.  
Locations: 1 (13813, 13814, 13827), 3 (13815), 5 (13908), 6 (14223 in *Zygodon rupestris*), 10 (13810, 13811, 13812, 13907), 15 (13816), 17 (13845 in *Porella canariensis*)  
On dry, shaded bark or stone.
51. *Fissidens asplenioides* HEDW. Species muscorum frondosorum. 156. 1801. (Fissidentaceae)  
Locations: 1 (13914), 2 (13921, 13922, 13986 in *Philonotis rigida*), 3 (14122), 9 (14120, 14123), 17 (14121)  
On moist to dry, shaded to half shaded stone or soil.
52. *Fissidens bryoides* HEDW. Species muscorum frondosorum. 153. 1801. (Fissidentaceae)  
Locations: 1 (13835 in *Porella canariensis*)  
On dry, shaded stone.
53. *Fissidens bryoides* var. *caespitans* SCHIMP. Synopsis muscorum europaeorum. Ed. 2. 111. 1876.  
(Fissidentaceae)  
Locations: 1 (13915, 13916, 13917, 13918), 2 (14082 in *Kindbergia praelonga*), 15 (14124)  
On moist to dry, shaded soil.
54. *Fissidens luisierii* P. DE LA VARDE. *Mitteilungen der Thüringischen Botanischen Gesellschaft*. 1 (2/3):15. 1955.  
(Fissidentaceae)  
Locations: 1 (13913), 2 (13919, 13924), 9 (13925 in *Fissidens taxifolius*), 10 (14055 in *Lejeunea eckloniana*, 14127 in *Fissidens taxifolius* subsp. *pallidicaulis*, 14272 in *Marchantia*), 17 (14119)  
On dry, shaded to half shaded stone or soil.
55. *Fissidens sublineaefolius* (P. DE LA VARDE) BRUGG.-NANN. *Proceedings of the Koninklijke Nederlandse Akademie van Wetenschappen, Series C: Biological and Medical Sciences*. 85:96. 1982. (Fissidentaceae)  
Locations: 10 (14125)  
In a small fast running stream, on half shaded stone.
56. *Fissidens taxifolius* HEDW. Species muscorum frondosorum. 155. pl. 39, fig. 1-5. 1801. (Fissidentaceae)  
Locations: 2 (13920, 14082 in *Kindbergia praelonga*), 5 (13928 in *Heteroscyphus denticulatus*), 9 (13925)  
On dry, shaded to half shaded soil.
57. *Fissidens taxifolius* subsp. *pallidicaulis* (MITT.) P. DE LA VARDE. *Revue Bryologique et Lichénologique*. 15:31. 1945. (Fissidentaceae)  
Locations: 3 (14126), 10 (14127), 17 (13923)  
On wet, shaded stone, on dry, shaded soil, on wet, half shades stone.
58. *Frullania azorica* SIM-SIM, SÉRGIO, MUES & KRAUT. *Cryptogamie Bryologie, Lichenologie*. 16:112. 1995.  
(Jubulaceae)  
Locations: 1 (14058 in *Harpalejeunea molleri*)  
On dry, shades stone.
59. *Frullania ericoides* (NEES EX MART.) MONT. *Annales des Sciences Naturelles, Botanique, Sér. 2*. 12:51. 1839.  
(Jubulaceae)  
Locations: 4 (13769)  
On dry, shaded stone.
60. *Frullania microphylla* (GOTTSCHE) PEARSON. *Journal of Botany. British and Foreign*. 32:328. 1894.  
(Jubulaceae)  
Locations: 2 (14046 in *Drepanolejeunea hamatifolia*), 3 (13774), 5 (13841 in *Porella canariensis*, 13863 in *Leucodon treleasei*, 14252 in *Radula lindenbergiana*), 10 (13766, 13783), 15 (13849 in *Isoetecium prolixum*, 14034 in

*Aphanolejeunea sintenisii*, **17** (14032 in *Harpalejeunea molleri*, 14035 in *Aphanolejeunea azorica*, 14060 in *Marchesinia mackaii*, 14061 in *Myriocoleopsis minutissima*)  
On dry, shaded to half shaded bark or leaves.

**61. *Frullania polysticta*** GOTTSCHE, LINDENB. & NEES. Synopsis hepaticarum. Part 2. 440. 1845. (Jubulaceae)

Locations: **7** (13850 in *Isotheicum prolixum*), **10** (13907 in *Exsertotheca intermedia*)

On dry, shaded to half shaded bark.

**62. *Frullania tamarisci*** (L.) DUMORT. Recueil d'observations sur les Jungermanniace'es. 13. 1835. (Jubulaceae)

Locations: **1** (14043 in *Lejeunea lamacerina*, 14142 in *Plagiochila bifaria*), **2** (13768, 13778), **3** (13893 in *Acanthocoleus aberrans*, 14048 in *Acanthocoleus aberrans*), **5** (13777), **6** (13874 in *Dicranum canariense*, 14128 in *Plagiochila*), **7** (13847 in *Antitrichia curtispindula*), **9** (13826), **10** (13783 in *Frullania microphylla*), **12** (13879 in *Dicranum scoparium*), **13** (14075 in *Saccogyna viticulosa*), **15** (13776, 13870 in *Campylopus pyriformis*, 13929 in *Plagiochila exigua*, 14037 in *Harpalejeunea molleri*, 14134 in *Plagiochila stricta*), **17** (14032 in *Harpalejeunea molleri*, 14062 in *Aphanolejeunea sintenisii*, 14077 in *Saccogyna viticulosa*)

On moist to dry, shaded to half shaded bark or stone.

**63. *Frullania teneriffae*** (F. WEBER) NEES IN GOTTSCHE, LINDENB. & NEES. Synopsis hepaticarum. Part 3. 239. 1838. (Jubulaceae)

Locations: **1** (13771, 13772, 13781, 13782, 13814 in *Exsertotheca intermedia*, 13836 in *Porella canariensis*, 14044 in *Aphanolejeunea microscopica*, 14058 in *Harpalejeunea molleri*, 14078 in *Kindbergia praelonga*, 14117 in *Hypnum cupressiforme*, 14166 in *Ptychomitrium polyphyllum*), **2** (13773, 13779, 13780, 14046 in *Drepanolejeunea hamatifolia*, 14047 in *Lejeunea hibernica*), **3** (13775), **5** (13841 in *Porella canariensis*, 13863 in *Leucodon treleasei*, 13908 in *Exsertotheca intermedia*), **7** (13808 in *Neckera cephalonica*, 13851 in *Isotheicum prolixum*, 14135 in *Plagiochila exigua*, 14260 in *Metzgeria consanguinea*), **8** (14113 in *Hypnum*), **9** (14059 in *Harpalejeunea molleri*), **10** (14137 in *Plagiochila*), **13** (13767), **14** (13848 in *Isotheicum prolixum*, 13904 in *Isotheicum prolixum*), **15** (14037 in *Harpalejeunea molleri*), **17** (14032 in *Harpalejeunea molleri*)

On dry, shaded to half shaded stone or bark. Seldom on shaded leaves. *F. teneriffae* is together with *F. tamarisci* the most common *Frullania* species on Madeira.

**64. *Grimmia funalis*** (SCHWÄGR.) BRUCH & SCHIMP. IN BRUCH, SCHIMP. & W. GÜMBEL. Bryologia Europaea. Vol. 3. Fasc. 25-28. 119. 1845. (Grimmiaceae)

Locations: **13** (14152)

On dry, half shaded stone.

**65. *Grimmia pulvinata*** (HEDW.) SM. English botany. Vol. 24. 1728. 1807. (Grimmiaceae)

Locations: **10** (14160)

On dry, sunny concrete.

**66. *Harpalejeunea molleri*** (STEPHANI) GROLLE. *Taxon*. 38:89. 1989. (Lejeuneaceae)

Locations: **1** (14058), **5** (14049), **7** (13847 in *Antitrichia curtispindula*), **9** (14059 in *Harpalejeunea molleri*, 14059), **10** (13789 in *Calypogeia fissa*), **15** (14037, 14056, 14146 in *Plagiochila stricta*), **17** (14032)

On dry, shades to half shaded bark or stone.

**67. *Heterocladium wulfsbergii*** I. HAGEN. *Kongelige Norske Videnskabers Selskabs Skrifter*. 1908 (9):74. 1909. (Thuidiaceae)

Locations: **15** (13990), **17** (13991)

On moist, shaded to half shaded stone.

**68. *Heteroscyphus denticulatus*** (MITT.) SCHIFFNER. *Beihefte zum Botanischen Centralblatt*. 29 (2):106. 1912. (Lophocoleaceae)

Locations: **5** (13928), **9** (13925 in *Fissidens taxifolius*, 13930 in *Plagiochila punctata*, 13977 in *Tetrastichium virens*)

On dry to moist, shaded soil or stone.

**69. *Homalia lusitanica*** SCHIMP. *Corollarium bryologiae europaeae*. 101. 1856. (Neckeraceae)

Locations: **10** (13805, 13806)

On wet to moist, shaded stone.

**70. *Homalia webbiana*** (MONT.) MITT. IN GODM. *Natural History of the Azores*. 306. 1870. (Neckeraceae)

Locations: **10** (13807)

On moist, shaded stone.



71. *Homalothecium aureum* (SPRUCE) H. ROB. *The Bryologist*. 65:96. 1962 [1963]. (Brachytheciaceae)  
Locations: **15** (13996)  
 On dry, shaded bark.
72. *Homalothecium sericeum* (HEDW.) SCHIMP. IN BRUCH, SCHIMP. & W. GÜMBEL. *Bryologia Europaea*. Vol. 5. Fasc. 46-47. 93. 1851. (Brachytheciaceae)  
Locations: **17** (13912)  
 On dry, sunny stone.
73. *Hookeria lucens* (HEDW.) SM. *Transactions of the Linnean Society of London*. 9:275. 1808. (Hookeriaceae)  
Locations: **15** (13804, 13825 in *Plagiothecium nemorale*, 14076 in *Telaranea europaea*)  
 On moist, shaded soil.
74. *Hygroamblystegium tenax* (HEDW.) JENN. *A manual of the mosses of Western Pennsylvania*. 277. 1913. (Amblystegiaceae)  
Locations: **9** (13855 in *Thamnobryum alopecurum*)  
 On moist, shaded concrete
75. *Hygroamblystegium varium* (HEDW.) MÖNK. *Hedwigia*. 50:275. 1911. (Amblystegiaceae)  
 Syn.: *Amblystegium varium* (HEDW.) LINDB.  
Locations: **9** (14191)  
 On dry, half shaded stone.
76. *Hypnum cupressiforme* HEDW. *Species muscorum frondosorum*. 291. 1801. (Hypnaceae)  
Locations: **1** (13836 in *Porella canariensis*, 14111, 14117)  
 On dry, shaded to half shaded bark.
77. *Hypnum cupressiforme* var. *lacunosum* BRID. *Muscologia recentiorum*. Vol. 2(2). 136. 1801. (Hypnaceae)  
 Syn.: *Hypnum lacunosum* (BRID.) HOFFM. EX BRID.  
Locations: **13** (14187)  
 On dry, half shaded soil.
78. *Hypnum cupressiforme* var. *resupinatum* (TAYLOR) SCHIMP. *Corollarium bryologiae europaea*. 133. 1856. (Hypnaceae)  
 Syn.: *Hypnum resupinatum* TAYLOR EX SPRUCE.  
Locations: **4** (14107)  
 On dry, half shaded stone.
79. *Hypnum uncinulatum* JUR. *Botanische Zeitung (Berlin)*. 24:21. 1866. (Hypnaceae)  
Locations: **1** (14143 in *Plagiochila virginica*), **2** (14108), **6** (14110), **15** (13903)  
 On dry, shaded bark or stone.
80. *Isothecium prolixum* (MITT.) M. STECH, SIM-SIM, TANGNEY & D. QUANDT. *Organisms Diversity & Evolution*. 8 (4):290. 2008. (Brachytheciaceae)  
 Syn.: *Echinodium prolixum* (MITT.) BROTH.  
Locations: **1** (14081 in *Kindbergia praelonga*), **7** (13850, 13851), **10** (13796), **14** (13848, 13904), **15** (13797, 13849, 14146 in *Plagiochila stricta*), **17** (13798, 13799, 14077 in *Saccogyna viticulosa*)  
 On dry, shaded to half shaded stone or bark.
81. *Jubula hutchinsiae* var. *integrifolia* (STEPHANI) S. HATT. *Bulletin of the Tokyo Science Museum*. 11:156. 1944. (Jubulaceae)  
Locations: **10** (14083), **17** (13894, 13895)  
 On wet, shaded to half shaded stone.
82. *Kindbergia praelonga* (HEDW.) OCHYRA. *Lindbergia*. 8:54. 1982. (Brachytheciaceae)  
 Syn.: *Eurhynchium praelongum* (HEDW.) SCHIMP.  
Locations: **1** (13814 in *Exsertotheca intermedia*, 13896, 14078, 14081, 14196 in *Brachythecium albicans*, 14220), **2** (13897, 14068 in *Saccogyna viticulosa*, 14082), **3** (13902, 14039 in *Lejeunea flava*), **10** (13842 in *Porella canariensis*), **15** (14076 in *Telaranea europaea*), **17** (14132 in *Plagiochila bifaria*)  
 On moist to dry, shaded to half shaded bark, soil or stone.

83. *Kindbergia praelonga* var. *stokesii* (TURNER) OCHYRA. *Lindbergia*. 8:54. 1982. (Brachytheciaceae)  
Syn.: *Eurhynchium praelongum* var. *stokesii* (TURNER) DIXON.  
Locations: **17** (14195)  
On wet, half shaded stone.
84. *Lejeunea cavifolia* (EHRH.) LINDB. *Acta Societatis Scientiarum Fennicae*. 10:43. 1871. (Lejeuneaceae)  
Locations: **5** (14049 in *Harpalejeunea molleri*), **9** (13901 in *Plasteurhynchium meridionale*), **10** (13783 in *Frullania microphylla*, 14052, 14137 in *Plagiochila*), **11** (14148 in *Plagiochila bifaria*)  
On dry to moist, shaded to half shaded bark or stone.
85. *Lejeunea eckloniana* LINDENB. IN GOTTSCHKE, LINDENB. & NEES. *Synopsis hepaticarum*. Part 3. 381. 1845. (Lejeuneaceae)  
Locations: **1** (13835 in *Porella canariensis*), **9** (13925 in *Fissidens taxifolius*, 13930 in *Plagiochila punctata*, 14036, 14051), **10** (13822 in *Plagiomnium undulatum*, 13858 in *Echinodium spinosum*, 14054, 14055, 14255 in *Radula carringtonii*)  
On dry to wet, shaded stone or bark.
86. *Lejeunea flava* (SW.) NEES. *Naturgeschichte der europäischen Lebermoose*. Vol. 3. 277. 1838. (Lejeuneaceae)  
Syn.: *Lejeunea flava* subsp. *moorei* (LINDB.) R.M. SCHUST.  
Locations: **3** (14039), **9** (14144 in *Plagiochila bifaria*), **10** (13789 in *Calypogeia fissa*), **17** (14032 in *Harpalejeunea molleri*)  
On dry to moist, shaded soil, stone or leaves.
87. *Lejeunea hibernica* BISCHL., H.A. MILL. & BONNER EX GROLLE. *Lindbergia*. 3:48. 1975. (Lejeuneaceae)  
Locations: **1** (14042, 14044 in *Aphanolejeunea microscopica*, 14045, 14117 in *Hypnum cupressiforme*), **2** (14047), **6** (14040 in *Drepanolejeunea hamatifolia*, 14110 in *Hypnum uncinulatum*), **10** (13795 in *Echinodium spinosum*), **15** (14037 in *Harpalejeunea molleri*, 14057 in *Lejeunea lamacerina*), **17** (13845 in *Porella canariensis*, 14035 in *Aphanolejeunea azorica*)  
On dry to moist, shaded to half shaded bark or stone. Rarely on other bryophytes and leaves.
88. *Lejeunea lamacerina* (STEPHANI) SCHIFFNER. *Hedwigia*. 41:278. 1902. (Lejeuneaceae)  
Locations: **1** (13813 in *Exsertotheca intermedia*, 13814 in *Exsertotheca intermedia*, 13835 in *Porella canariensis*, 13836 in *Porella canariensis*, 14043, 14044 in *Aphanolejeunea microscopica*, 14117 in *Hypnum cupressiforme*), **5** (14049 in *Harpalejeunea molleri*), **12** (13792 in *Diplophyllum albicans*), **15** (13825 in *Plagiothecium nemorale*, 13929 in *Plagiochila exigua*, 14033 in *Aphanolejeunea sintenisii*, 14034 in *Aphanolejeunea sintenisii*, 14057, 14146 in *Plagiochila stricta*), **17** (13845 in *Porella canariensis*, 14032 in *Harpalejeunea molleri*, 14060 in *Marchesinia mackaii*, 14061 in *Myriocoleopsis minutissima*, 14062 in *Aphanolejeunea sintenisii*, 14077 in *Saccogyna viticulosa*, 14119 in *Fissidens luisierii*)  
On dry to moist, shaded bark or leaves..
89. *Lejeunea patens* LINDB. *Acta Societatis Scientiarum Fennicae*. 10:482. 1875. (Lejeuneaceae)  
Locations: **10** (14251 in *Radula carringtonii*), **15** (14034 in *Aphanolejeunea sintenisii*, 14037 in *Harpalejeunea molleri*), **17** (13799 in *Isoetecium prolixum*)  
On dry, shaded to half shaded stone bark ore leaves.
90. *Lepidozia cupressina* (SW.) LINDENB. IN GOTTSCHKE, LINDENB. & NEES. *Synopsis hepaticarum*. Part 2. 207. 1845. (Lepidoziaceae)  
Locations: **5** (13765, 13793, 14063 in *Odontoschisma denudatum*), **7** (14260 in *Metzgeria consanguinea*), **17** (13764)  
On dry, shaded to half shaded bark.
91. *Leucobryum juniperoideum* (BRID.) MÜLL. HAL. *Linnaea*. 18:689. 1845. (Leucobryaceae)  
Locations: **5** (14030, 14065 in *Odontoschisma prostratum*), **10** (14031)  
On moist, shaded to half shaded soil or decaying wood.
92. *Leucodon treleasei* (CARDOT) PARIS. *Index Bryologicus Supplementum Primum*. 232. 1900. (Leucodontaceae)  
Locations: **4** (13846), **5** (13863), **10** (13856), **15** (13859)  
On dry, shaded to half shades stone or bark.
93. *Lophocolea bidentata* (L.) DUMORT. *Recueil d'observations sur les Jungermanniace'es*. 17. 1835. (Lophocoleaceae)  
Locations: **10** (13824 in *Plagiomnium rostratum*, 13842 in *Porella canariensis*)  
On dry to wet, shaded to half shaded stone.

94. ***Marchantia polymorpha*** L. Species plantarum 2. 1137. 1753. (Marchantiaceae)  
Locations: **1** (14224)  
 On wet, shaded soil.
95. ***Marchesinia mackaii*** (HOOK.) GRAY. A natural arrangement of British plants. Vol. 1. 689. 1821. (Lejeuneaceae)  
Locations: **10** (13888), **17** (14060)  
 On moist, shaded stone or leaves.
96. ***Marsupella emarginata*** (EHRH.) DUMORT. Recueil d'observations sur les Jungermanniace´es. 24. 1835.  
 (Gymnomitriaceae)  
Locations: **1** (14232)  
 On dry, half shaded soil.
97. ***Metzgeria consanguinea*** SCHIFFNER. Nova Acta Academiae Caesareae Leopoldino-Carolinae Germanicae Naturae Curiosorum. 60(2):271. 1893. (Metzgeriaceae)  
 Syn.: *Metzgeria temperata* KUWAH.  
Locations: **1** (13813 in *Exsertotheca intermedia*), **7** (13847 in *Antitrichia curtispindula*, 14260), **10** (13783 in *Frullania microphylla*), **15** (14254)  
 On dry, shaded to half shaded bark.
98. ***Metzgeria furcata*** (L.) CORDA. Naturalientausch 12. 654. 1829. (Metzgeriaceae)  
Locations: **9** (14059 in *Harpalejeunea molleri*), **10** (13858 in *Echinodium spinosum*)  
 On dry shaded bark or stone.
99. ***Metzgeria violacea*** (ACH.) DUMORT. Recueil d'observations sur les Jungermanniace´es. 26. 1835.  
 (Metzgeriaceae)  
 Syn.: *Metzgeria fruticulosa* (O.F. MÜLL.) A. EVANS.  
Locations: **15** (14033 in *Aphanolejeunea sintenisii*, 14034 in *Aphanolejeunea sintenisii*)  
 On shaded leaves.
100. ***Microeurhynchium pumilum*** (WILSON) IGNATOV & VANDERP. IN AIGOIN, HUTTUNEN, IGNATOV, DIRKSE & VANDERP. *Journal of Bryology*. 31 (4):31. 219. (Brachytheciaceae)  
 Syn.: *Eurhynchium pumilum* (WILSON) SCHIMP.  
Locations: **1** (14079), **9** (13802, 13925 in *Fissidens taxifolius*, 13977 in *Tetrastichium virens*)  
 On dry, shaded concrete or stone.
101. ***Myriocoleopsis minutissima*** (SM.) R.L. ZHU, Y. YU & PÓCS. *Phytotaxa*. 183 (4):293. 2014. (Lejeuneaceae)  
 Syn.: *Cololejeunea minutissima* (SM.) SCHIFFNER.  
Locations: **1** (13836 in *Porella canariensis*), **15** (14033 in *Aphanolejeunea sintenisii*, 14034 in *Aphanolejeunea sintenisii*), **17** (14061)  
 On dry, shaded to half shaded bark or leaves.
102. ***Nardia scalaris*** (SCHRAD.) GRAY. A natural arrangement of British plants. Vol. 1. 694. 1821.  
 (Jungermanniaceae)  
Locations: **5** (14070), **8** (14064)  
 On dry to moist, half shaded soil.
103. ***Neckera cephalonica*** JUR. & UNGER IN UNGER. Wissenschaftliche Ergebnisse einer Reise in Griechenland. 112. 1862. (Neckeraceae)  
Locations: **1** (13809), **7** (13808)  
 On dry, shaded bark.
104. ***Odontoschisma denudatum*** (NEES) DUMORT. Recueil d'observations sur les Jungermanniace´es. 18. 1835.  
 (Cephaloziaceae)  
Locations: **5** (14063)  
 On shaded bark.
105. ***Odontoschisma prostratum*** (SW.) TREVIS. *Memorie del Reale Istituto Lombardo di Scienze e Lettere, Serie 3, Classe di Scienze Matematiche e Naturali*. 4:419. 1877. (Cephaloziaceae)

Locations: 5 (14065, 14084)

On moist, half shaded soil.

106. *Oxyrrhynchium hians* (HEDW.) LOESKE. *Verhandlungen des Botanischen Vereins für die Provinz Brandenburg und die Angrenzenden Länder*. 49:59. 1907. (Brachytheciaceae)

Syn.: *Eurhynchium hians* (HEDW.) SANDE LAC.

Locations: 9 (14192), 10 (13822 in *Plagiomnium undulatum*, 13898, 13899), 15 (13989)

On dry to moist, shaded to half shaded stone.

107. *Pelekium atlanticum* (HEDENÄS) HEDENÄS IN HILL ET. AL. *Journal of Bryology*. 28:201. 2006. (Thuidiaceae)

Locations: 10 (13817)

On dry, shaded stone.

108. *Pellia epiphylla* (L.) CORDA EX OPIZ. *Naturalientausch* 12. 654. 1829. (Pelliaceae)

Locations: 1 (14258), 10 (14083 in *Jubula hutchinsiae* var. *integrifolia*)

On wet to moist, shaded soil or stone.

109. *Phaeoceros laevis* (L.) PROSK. *Bulletin of the Torrey Botanical Club*. 78 (4):347. 1951. (Anthocerotaceae)

Locations: 2 (14093 in *Jungermannia*)

On moist, shaded soil.

110. *Philonotis marchica* (HEDW.) BRID. *Bryologia universa*. Vol. 2. 23. 1827. (Bartramiaceae)

Locations: 1 (14003), 10 (13789 in *Calypogeia fissa*)

On dry to moist, shaded or half shaded soil.

111. *Philonotis rigida* BRID. *Bryologia universa*. Vol. 2. 17. 1827. (Bartramiaceae)

Locations: 1 (14267 in *Pohlia*), 2 (13986, 14002), 3 (13983, 14069 in *Saccogyna viticulosa*, 14096 in ,14122 in *Fissidens asplenioides*), 15 (13984), 17 (14001)

On dry to moist, shaded to half shaded soil or stone.

112. *Plagiochila bifaria* (SW.) LINDENB. *Species hepaticarum*. Fasc. 5. 127. 1843. (Plagiochilaceae)

Locations: 1 (14139, 14142), 9 (14144), 10 (14140), 11 (14148), 17 (14132)

On dry to moist, shaded to half shaded bark or stone.

113. *Plagiochila exigua* (TAYLOR) TAYLOR. *London Journal of Botany*. 5:265. 1846. (Plagiochilaceae)

Locations: 5 (14147), 7 (13847 in *Antitrichia curtispindula*, 14135), 11 (13931 in *Saccogyna viticulosa*, 14148 in *Plagiochila bifaria*), 12 (13792 in *Diplophyllum albicans*), 15 (13929), 17 (13799 in *Isoetecium prolixum*, 13932)

On dry to moist, shaded to half shaded bark, stone or soil.

114. *Plagiochila maderensis* GOTTSCHKE EX STEPHANI. *Species Hepaticarum*. 2. 350. 1904. (Plagiochilaceae)

Locations: 15 (14131), 17 (14138)

On dry to moist, shaded stone.

115. *Plagiochila punctata* (TAYLOR) TAYLOR. *London Journal of Botany*. 5:261. 1846. (Plagiochilaceae)

Locations: 9 (13930), 10 (13858 in *Echinodium spinosum*, 14136), 11 (13931 in *Saccogyna viticulosa*)

On dry to moist, shaded to half shaded stone or soil or stone.

116. *Plagiochila retrorsa* GOTTSCHKE. *De mexikanske Levermosser*. 67. 1863. (Plagiochilaceae)

Locations: 15 (14130)

On dry, half shaded stone.

117. *Plagiochila stricta* LINDENB. *Species hepaticarum*. Fasc. 1. 20. 1839. (Plagiochilaceae)

Locations: 15 (14134, 14141, 14146)

On dry to moist, shaded to half shaded stone.

118. *Plagiochila virginica* A. EVANS IN MILLSP. *Bulletin, West Virginia Agricultural Experiment Station*. 24:497. 1892. (Plagiochilaceae)

Locations: 1 (14143)

On dry, shaded bark.

119. *Plagiomnium affine* (BLANDOW EX FUNCK) T.J. KOP. *Annales Botanici Fennici*. 5(2):146. 1968. (Mniaceae)

Locations: **10** (14074 in *Saccogyna viticulosa*)  
On dry, shaded stone.

120. *Plagiomnium rostratum* (SCHRAD.) T.J. KOP. *Annales Botanici Fennici*. 5(2):147. 1968. (Mniaceae)

Locations: **10** (13824)  
On wet, shaded stone.

121. *Plagiomnium undulatum* (HEDW.) T.J. KOP. *Annales Botanici Fennici*. 5(2):146. 1968. (Mniaceae)

Locations: **10** (13820, 13822), **15** (13823)  
On moist to wet, half shaded stone.

122. *Plagiomnium undulatum* var. *madeirense* T.J. KOP. & SÉRGIO. *Cryptogamie, Bryologie*. 22 (1):14. fig. 1. 2001. (Mniaceae)

Locations: **17** (13821)  
On wet, half shaded stone.

123. *Plagiothecium nemorale* (MITT.) A. JAEGER. *Bericht über die Thätigkeit der St. Gallischen Naturwissenschaftlichen Gesellschaft*. 1876-77:451. 1878. (Plagiotheciaceae)

Locations: **1** (13914 in *Fissidens asplenioides*), **9** (13925 in *Fissidens taxifolius*), **15** (13825, 14076 in *Telaranea europaea*)  
On dry to moist, shaded soil.

124. *Plasteurhynchium meridionale* (SCHIMP.) M. FLEISCH. EX BROTH. *Die Natürlichen Pflanzenfamilien*. 2. Aufl. (Band 11). 212. 1925. (Brachytheciaceae)

Syn.: *Eurhynchium meridionale* (SCHIMP.) DE NOT. IN PICCONE.  
Locations: **4** (14222), **9** (13901)  
On dry, half shaded stone.

125. *Platyhypnidium torrenticola* (OCHYRA, C. SCHMIDT & BÜLTMANN) OCHYRA & BEDN.-OCHYRA.

*Haussknechtia*. *Beiheft*. 9:263. 1999. (Brachytheciaceae) – Plate 1

Locations: **10** (13993, 13994)  
In a small, fast running stream, on half shaded stone.

*Platyhypnidium torrenticola* was described by OCHYRA et. al. 1998 from Tenerife where it grew submerged on rocks of a waterfall. Characteristic features are the bistratose lamina at the leaf base and multistratose ridges in the upper part of the lamina. Furthermore, it has a broad, partially forked costa. *P. torrenticola* fits best to the Madeiran plants even though the leaf apex is more obtuse and the bistratose ridges are less developed in the upper part of the leaf.

Similar plants were described from southern Germany (*Platyhypnidium mutatum*). Molecular studies by STECH & FRAHM 1999 revealed that this plant is identical to *P. ripariodes*. HEDENÄS and HUTTONEN (in litt.) ventured a similar guess for the Madeiran plants based on the provided images, but indicated that molecular studies are required to finally confirm.

For the time being the specimen will be placed under *P. torrenticola* to keep attention to these, morphologically quite different forms.

126. *Pogonatum aloides* (HEDW.) P. BEAUV. *Prodrome des Cinquième et Sixième Familles de l'Aethéogamie*. 84. 1805. (Polytrichaceae)

Locations: **1** (14024, 14265 in *Bryum*), **2** (14025), **3** (14026, 14027, 14122 in *Fissidens asplenioides*), **7** (14028), **9** (14029), **11** (14105 in *Pohlia elongata*)  
On dry to moist, shaded to half shaded soil.

127. *Pohlia elongata* HEDW. *Species muscorum frondosorum*. 171. 1801. (Bryaceae)

Locations: **11** (14105)  
On moist, half shaded soil.

128. *Pohlia prolifera* (KINDB. EX BREIDL.) LINDB. EX ARNELL. *Botaniska Notiser*. 1894:54. 1894. (Bryaceae)

Locations: **2** (14025 in *Pogonatum aloides*)  
On moist, half shaded soil.

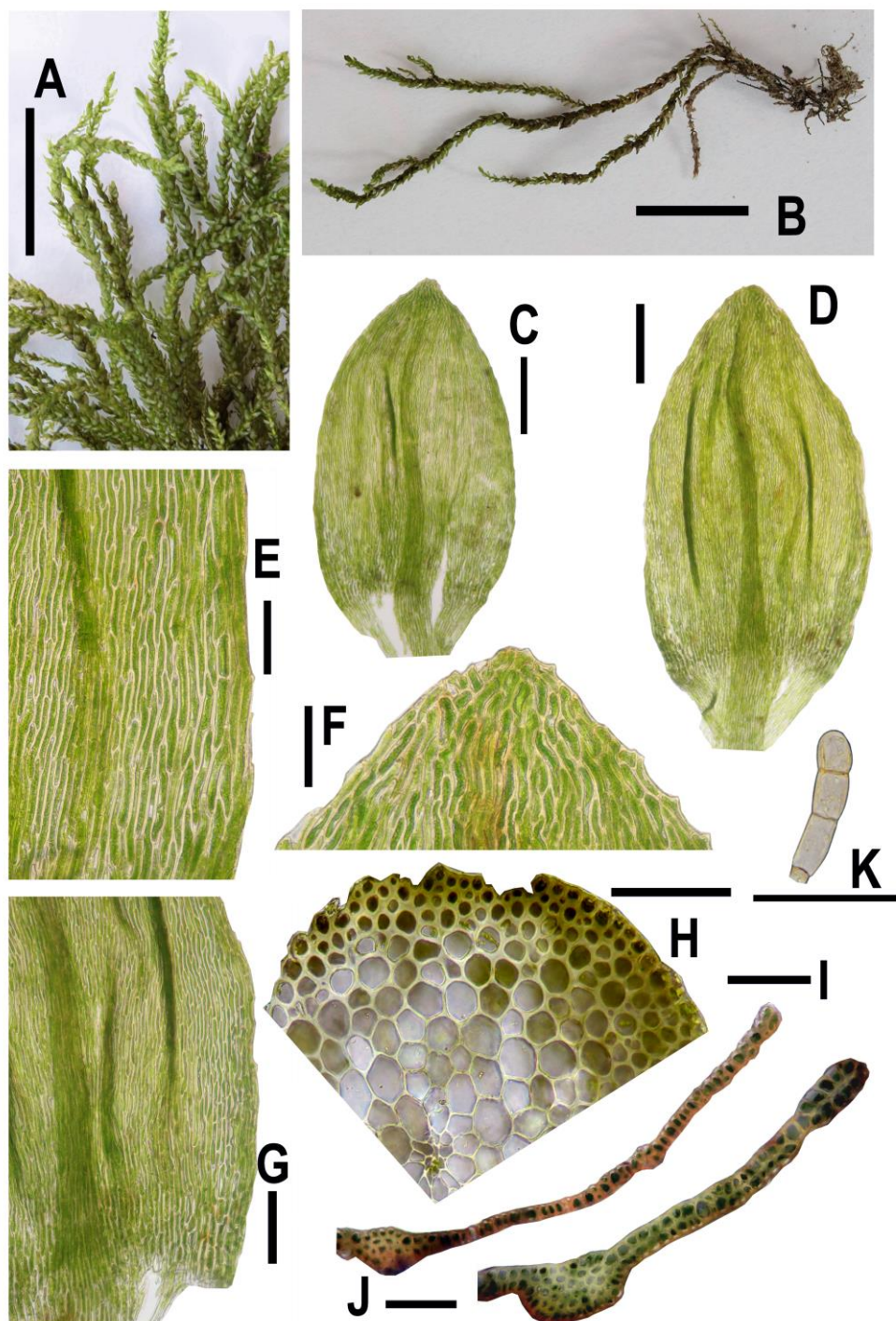


Plate 1: *Platyhypnidium torrenticola* (Herbarium U. Schwarz, No. 13993). A, B – Habitus, C – Branch leaf, D – Stem leaf, E – Medium area of stem leaf, F – Apex stem leaf, G – Base stem leaf, H – Stem cross section, I – Leaf cross section middle of stem leaf, J – Leaf cross section base stem leaf, K – Axillary hair. (Scales: A, B – 1 cm, C, D, G – 0.2 mm, E, F, H, I, J, K – 0.1 mm)

129. *Polytrichum commune* HEDW. Species muscorum frondosorum. 88. 1801. (Polytrichaceae)  
Locations: 5 (14020), 12 (14021)  
 On wet to moist, sunny to half shaded soil.
130. *Polytrichum juniperinum* HEDW. Species muscorum frondosorum. 89. pl. 18, fig. 6-10. 1801. (Polytrichaceae)  
Locations: 1 (14023), 2 (14022)  
 On dry, sunny to half shaded soil.
131. *Polytrichum piliferum* HEDW. Species muscorum frondosorum. 90. 1801. (Polytrichaceae)  
Locations: 13 (14187 in *Hypnum cupressiforme* var. *lacunosum*)  
 On dry, half shaded soil.
132. *Porella canariensis* (F. WEBER) UNDERW. IN TREL. *Missouri Botanical Garden Annual Report*. 8:186. 1897. (Porellaceae)  
Locations: 1 (13834, 13835, 13836, 13837, 14078 in *Kindbergia praelonga*, 14142 in *Plagiochila bifaria*), 2 (13828, 13829, 13830), 3 (13831, 13838, 13839, 13840), 5 (13841, 13863 in *Leucodon treleasei*), 6 (14223 in *Zygodon rupestris*, 14256 in *Radula carringtonii*, 14269 in *Bryum*), 7 (13850 in *Isoetecium prolixum*), 9 (13901 in *Plasteurhynchium meridionale*, 14144 in *Plagiochila bifaria*), 10 (13833, 13842, 13843, 13888 in *Marchesinia mackaii*, 14074 in *Saccogyna viticulosa*, 14137 in *Plagiochila*), 11 (13844 in *Saccogyna viticulosa*), 14 (13904 in *Isoetecium prolixum*), 15 (13832, 13929 in *Plagiochila exigua*), 17 (13845, 14119 in *Fissidens luisierii*)  
 On dry to moist, shaded to half shaded stone, bark or soil.
133. *Pseudoscleropodium purum* (HEDW.) M. FLEISCH. Die Musci der Flora von Buitenzorg. Vierter Band. 1136. 1923. (Brachytheciaceae)  
 Syn.: *Scleropodium purum* (HEDW.) LIMP. R.  
Locations: 1 (13876), 2 (14067 in *Saccogyna viticulosa*, 14227), 5 (13866 in *Campylopus flexuosus*, 14016 in *Scapania nemorea*)  
 On dry to moist, sunny to shaded soil.
134. *Pseudotaxiphyllum elegans* (BRID.) Z. IWATS. *Journal of the Hattori Botanical Laboratory*. 63:449. 1987. (Hypnaceae)  
Locations: 15 (13853)  
 On moist, shaded soil.
135. *Ptychomitrium nigrescens* (KUNZE) WIJK & MARGAD. *Taxon*. 8:74. 1959. (Ptychomitriaceae)  
Locations: 4 (13887), 9 (13891, 13892), 10 (13888 in *Marchesinia mackaii*, 13889)  
 On dry to moist, sunny to half shaded stone.
136. *Ptychomitrium polyphyllum* (SW.) BRUCH & SCHIMP. IN BRUCH, SCHIMP. & W. GÜMBEL. *Bryologia Europaea*. Vol. 3. Fasc. 2-3. 82. 1837. (Ptychomitriaceae)  
Locations: 1 (14162, 14164, 14165, 14166), 2 (14167), 10 (14168)  
 On dry, sunny to shaded stone.
137. *Ptychostomum capillare* (HEDW.) HOLYOAK & N. PEDERSEN. *Journal of Bryology*. 29:119. 2007. (Bryaceae)  
 Syn.: *Bryum capillare* HEDW.  
Locations: 1 (14024 in *Pogonatum aloides*), 2 (13986 in *Philonotis rigida*), 15 (13984 in *Philonotis rigida*)  
 On dry, shaded soil or stone.
138. *Ptychostomum pseudotriquetrum* (HEDW.) J.R. SPENCE & H.P. RAMSAY EX HOLYOAK & N. PEDERSEN. *Journal of Bryology*. 29:120. 2007. (Bryaceae)  
 Syn.: *Bryum pseudotriquetrum* (HEDW.) P. GAERTN., B. MEY. & SCHERB.  
Locations: 17 (14104)  
 On wet, half shaded stone.
139. *Racomitrium aquaticum* (BRID. EX SCHRAD.) BRID. *Muscologia recentiorum*. Suppl. 4. 80. 1819 [1818]. (Grimmiaceae)  
Locations: 17 (14004)  
 On sunny stone.

140. *Racomitrium elongatum* EHRH. EX FRISVOLL. *Gummeria*. 41:74. 1983. (Grimmiaceae)  
Locations: 7 (14005)  
 On dry, sunny soil.
141. *Racomitrium heterostichum* (HEDW.) BRID. *Muscologia recentiorum*. Suppl. 4. 79. 1818 [1819]. (Grimmiaceae)  
Locations: 1 (14009), 2 (14008), 5 (14007), 13 (14006)  
 On dry, sunny to shaded stone.
142. *Radula carringtonii* J.B. JACK. *Flora*. 64:385. 1881. (Radulaceae)  
Locations: 6 (14256), 7 (14260 in *Metzgeria consanguinea*), 10 (13789 in *Calypogeia fissa*, 14251, 14255)  
 On dry, shaded to half shaded bark or soil.
143. *Radula lindenberghiana* GOTTSCHKE EX C. HARTM. *Handbok i Skandinavians flora*. Nionde upplagen. Sednare Delen. Mossor. 98. 1864. (Radulaceae)  
Locations: 1 (13814 in *Exsertoheca intermedia*, 13835 in *Porella canariensis*, 14257), 5 (14252), 7 (13847 in *Antitrichia curtispindula*)  
 On dry, shaded to half shaded bark or stone.
144. *Reboulia hemisphaerica* (L.) RADDI. *Opuscoli scientifici d'una Società di professori della Pontifical Università di Bologna*. 2(6):357. 1818. (Aytoniaceae)  
Locations: 9 (14225 in *Rhynchostegiella litorea*)  
 On dry, shaded stone.
145. *Rhamphidium purpuratum* MITT. IN GODM. *Natural History of the Azores*. 290. 1870. (Pottiaceae)  
Locations: 9 (14186)  
 On dry, half shaded soil.
146. *Rhynchostegiella litorea* (DE NOT.) LIMPR. *Die Laubmoose Deutschlands, Oesterreichs und der Schweiz*. Band 3. 214. 1896. (Brachytheciaceae)  
Locations: 9 (14225)  
 On dry, shaded stone.
147. *Rhynchostegium riparioides* (HEDW.) CARDOT IN TOURRET. *Bulletin de la Société Botanique de France*. 60:231. 1913. (Brachytheciaceae)  
 Syn.: *Platyhypnidium riparioides* (HEDW.) DIXON.  
Locations: 17 (14190)  
 On wet, half shaded stone.
148. *Rhytidiadelphus squarrosus* (HEDW.) WARNST. *Kryptogamenflora der Mark Brandenburg*. Laubmoose. 918. fig. 5. 1906. (Hylocomiaceae)  
Locations: 12 (14253), 16 (14261)  
 On moist, sunny to half shaded soil.
149. *Riccardia multifida* (L.) GRAY. *A natural arrangement of British plants*. Vol. 1. 684. 1821. (Aneuraceae)  
Locations: 1 (14259), 17 (14262, 14263)  
 On wet, shaded to half shaded soil or stone.
150. *Saccogyna viticulosa* (L.) DUMORT. *Sylloge Jungermannidearum Europae indigenarum*. 74. 1831. (Geocalycaceae)  
Locations: 1 (14066, 14080, 14139 in *Plagiochila bifaria*, 14145), 2 (13778 in *Frullania (Frullania) tamarisci*, 14067, 14068, 14089, 14091 in *Jungermannia*), 3 (14039 in *Lejeunea flava*, 14069), 5 (13866 in *Campylopus flexuosus*), 9 (13759 in *Brachythecium rutabulum*), 10 (14074), 11 (13844, 13931), 13 (14075), 15 (13825 in *Plagiothecium nemorale*, 13929 in *Plagiochila exigua*, 14076 in *Telaranea europaea*, 14141 in *Plagiochila stricta*), 17 (14077)  
 On dry to moist, shaded to half shaded stone or soil.
151. *Scapania compacta* (ROTH) DUMORT. *Recueil d'observations sur les Jungermanniace'es*. 14. 1835. (Scapaniaceae)  
Locations: 2 (14012, 14014), 9 (14072)  
 On dry, shaded to half shaded stone or soil.



152. *Scapania gracilis* LINDB. *Morgonbladet*. 1873 (286):2. 1873. (Scapaniaceae)  
Locations: 3 (14011), 14 (14018)  
 On dry to moist, half shaded bark or soil.
153. *Scapania nemorea* (L.) GROLLE. *Revue Bryologique et Lichénologique*. 32:160. 1963 [1964]. (Scapaniaceae)  
Locations: 1 (14013), 2 (14091 in *Jungermannia*), 5 (14016), 10 (14015), 11 (14019), 12 (13792 in *Diplophyllum albicans*), 16 (14017)  
 On dry to moist, sunny to shaded stone or soil.
154. *Scleropodium touretii* (BRID.) L.F. KOCH. *Revue Bryologique et Lichénologique*. 18:177. 1949.  
 (Brachytheciaceae)  
Locations: 17 (14198)  
 On sunny stone.
155. *Sematophyllum substrumosum* (HAMPE) E. BRITTON. *Journal of Botany. British and Foreign*. 40:354. 1902. (Sematophyllaceae)  
Locations: 2 (13762, 13763, 14047 in *Lejeunea hibernica*)  
 On dry, shaded bark or decaying wood.
156. *Solenostoma callithrix* (LINDENB. & GOTTSCHKE) STEPHANI. *Species Hepaticarum*. 2. 48. 1901.  
 (Jungermanniaceae)  
 Syn.: *Jungermannia callithrix* LINDENB. & GOTTSCHKE IN GOTTSCHKE, LINDENB. & NEES.  
Locations: 2 (13987 in *Cephalozia bicuspidata*, 14025 in *Pogonatum aloides*), 3 (13983 in *Philonotis rigida*), 9 (14073)  
 On moist, half shaded soil.
157. *Solenostoma gracillimum* (SM.) R.M. SCHUST. (Jungermanniaceae)  
 Syn.: *Jungermannia gracillima* SM. IN J.C. SOWERBY.  
Locations: 7 (14071)  
 On half shaded soil.
158. *Sphagnum auriculatum* SCHIMP. *Mémoire pour servir à l'histoire naturelle des Sphaignes*. 79. pl. 24. 1857.  
 (Sphagnaceae)  
 Syn.: *Sphagnum denticulatum* BRID..  
Locations: 5 (13927)  
 On wet, sunny soil.
159. *Sphagnum subnitens* RUSSOW & WARNST. EX WARNST. *Verhandlungen des Botanischen Vereins für die Provinz Brandenburg und die Angrenzenden Länder*. 30:115. pl. 3, fig. 9, pl. 4, fig. 22,23. 1888. (Sphagnaceae)  
Locations: 5 (13926)  
 On wet, sunny soil.
160. *Telaranea europaea* J.J. ENGEL & G.L. MERR. *Fieldiana Botany*. 44:2004. fig. 48. 150. (Lepidoziaceae)  
 Syn.: *Telaranea nematodes* (GOTTSCHKE EX AUSTIN) M. HOWE.  
Locations: 15 (13825 in *Plagiothecium nemorale*, 14076)  
 On moist, shaded soil.
161. *Tetrastichium fontanum* (MITT.) CARDOT. *Revue Bryologique*. 35:7. 1908. (Hookeriaceae)  
Locations: 9 (13760)  
 On shaded, moist stone.
162. *Tetrastichium virens* (CARDOT) S.P. CHURCHILL. *Journal of Bryology*. 15:538. 1989. (Hookeriaceae)  
Locations: 9 (13803, 13977), 10 (13976)  
 On dry to moist, shaded stone or decaying wood.
163. *Thamnobryum alopecurum* (HEDW.) NIEUWL. EX GANGULEE. *Mosses of Eastern India and adjacent regions*. Fasc. 5. 1452. 1976. (Neckeraceae)  
Locations: 9 (13854, 13855, 13934), 10 (13857, 14219), 17 (13862)  
 On wet to moist, shaded to half shaded stone.
164. *Thamnobryum maderense* (KINDB.) HEDENÄS. *Journal of Bryology*. 17:120. 1992. (Neckeraceae)

Locations: 15 (13860, 13861)

On moist, shaded stone.

165. *Tortella flavovirens* (BUCH) BROTH. Die Natürlichen Pflanzenfamilien 1(3) ... Musci. 397. 1902. (Pottiaceae)

Locations: 4 (14161, 14176)

On dry, sunny to half shaded soil or stone.

166. *Tortella tortuosa* (HEDW.) LIMPR. Die Laubmoose Deutschlands, Oesterreichs und der Schweiz. Band 1. 604. 1888. (Pottiaceae)

Locations: 1 (14182), 2 (14151)

On dry, sunny to shaded stone.

167. *Tortula marginata* (BRUCH & SCHIMP.) SPRUCE. *London Journal of Botany*. 4:192. 1845. (Pottiaceae)

Locations: 9 (14171)

On dry, sunny concrete.

168. *Trichostomum brachydontium* BRUCH IN F.A. MÜLL. *Flora*. 12:393. pl. 3. 1829. (Pottiaceae)

Locations: 1 (14183), 3 (14158), 9 (14149, 14150, 14181), 10 (14156, 14157)

On dry to moist, shaded to half shaded stone.

169. *Trichostomum crispulum* BRUCH IN F.A. MÜLL. *Flora*. 12:395. pl. 4. 1829. (Pottiaceae)

Locations: 1 (14184), 3 (14178), 17 (14153, 14159)

On dry to wet, shaded to half shaded stone.

170. *Ulota calvescens* CARRINGTON IN RABENH. *Bryotheca Europaea*. Fasc. 11. 520. 1862. (Orthotrichaceae)

Locations: 1 (14229, 14230)

On dry, half shaded bark.

171. *Ulota crispa* (HEDW.) BRID. *Muscologia recentiorum*. Suppl. 4. 112. 1818 [1819]. (Orthotrichaceae)

Locations: 8 (14228)

On dry, half shaded bark.

172. *Weissia controversa* HEDW. *Species muscorum frondosorum*. 67. 1801. (Pottiaceae)

Locations: 2 (14179)

On dry, half shaded stone.

173. *Zygodon rupestris* SCHIMP. EX LORENTZ. *Bryologisches Notizbuch*. 32. 1865. (Orthotrichaceae)

Locations: 6 (14223)

On dry, half shaded bark.

#### 4. Acknowledgments

I want to thank L. Hedenäs (Stockholm) and Sanna Huttonen (Turku) for their opinion on *Platyhypnidium torrenticola*.

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