Additions and corrections to the moss flora of Réunion

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Abstract: A small collection of bryophytes made during holidays on Réunion in September 2009 revealed 6 species new to the island (Brachymenium acuminatum, B. dicranoides, Bryum lanatum, Campylopus clavatus, Mielichhoferia bryoides and Oxyrhynchium hians). Campylopus crateris has been found for the first time with sporophytes. These new records are incorporated in a new alphabetic list of the mosses of Réunion. Keys for the species for several genera are given.

Introduction

Holidays spent in 2007 in Mauritius revealed some new records and resulted in a complete moss flora of the island (Frahm et al. 2009). One year later, the Seychelles were visited, which again resulted in new records as well a new checklist (Frahm & Ho 2009.). In 2009, a short fieldtrip was made to Réunion. The results are compiled here, including some new records and comments. Furthermore, keys are given for some genera.

A checklist for the bryophytes of Réunion was published by Ah-Peng & Bardat (2005). The records for the mosses were based on taxonomic revisions and some recent publications and predominantly on a compilation by Gillis Een "Mosses from Afr 3 sensu Index Muscorum", which was available as manuscript on disk. By this way the original references are not known upon which the citation is based. This list was also available for the compilation of the moss flora of Mauritius (Frahm et al. 2009) but not used because there were too many dubious records which could not be verified by the old original literature. Furthermore many species indicated as endemic for Réunion by Ah-Peng & Bardat (2005) turned out to be more widespread, reducing the rate of endemism. Endemism rates of spore plants certainly have not that importance as compared with seed plants. First with respect to the easy modes of dispersal of spore plants such as mosses, second with respect to the young age of a neovolcanic island and third as compared with the slow evolution rate proved by fossil records and confirmed by molecular analyses, and at least with regard to the unsufficient state of knowledge of the tropical bryofloras which make it likely that a so called endemic species occurs in other parts of the world, too.

A description of the island, its bryoflora and bryological exploration has been published by Wilbraham (2009).

List of localities

visited by the author accompanied by the lichenologist Felix Schumm in September 2009:

(1) Cirque de Mafate, Aussichtspunkt am Piton Maido,21,07058 S,55,38758 E,2150, Philippia-Ulex-Hypericum Bergheide auf Lava, 07.09.2009

(2) Auffahrt zum Piton Maido, La Caverne Maido,21,06200 S,55,37890 E,1935, Bachtal im durchweideten Akazienwald, 07.09.2009

(3) Auffahrt zum Piton Caido oberhalb St. Gilles-les-Haut,21,05619 S,55,36097 E,1625,Bergmischwald,07.09.2009
(4) Cirque de Cilaos, nördlicher Ortsrand von Cilaos,21,13188 S,55,47138 E,1200,,08.09.2009
(5) Cirque de Cilaos, Bachschlucht S von Cilaos,21,15051 S,55,47630 E,970,quellige Lavawand,08.09.2009
(6) Straße St. Pierre - St. Benoit, Col de Bellevue ,21,17819S,55,58031 E,1650,durchweidetes Philippia-Gebüsch,09.09.2009
(7) Straße St. Pierre - St. Benoit, Col de Bellevue, Aire de Pique Nique,21,16580 S,55,5903 E,1660,Feuchtwald mit reichlich Baumfarnen,09.09.2009
(8) Grand Etang SW Benoit,21,09647 S,55,65324 E,525,Sekundärwald und Wegränder,09.09.2009
(9)Takamaka Schlucht am EDF Kraftwerk,21,09105 S,55,61998 E,790,feuchter Mischwald und felsige Wegränder,10.09.2009.
(10) Route de Volcan, Le Cratere Commerson,21,20736 S,55,64389 E,2320,Philippia Gebüsch auf Lava,11.09.2009
(11) Piton de la Fournaise, Pas de Bellecombe,21,22247 S,55,68913 E,2340,Philippia Gebüsch auf Lava am steilen Kraterrand,11.09.2009
(12) Route de Volcan ,21,20143 S,55,60308 E,1730,Straßenböschung aus in Philippia Gebüsch ,11.09.2009
(13) Auffahrt zum Piton de la Fournaise, Nationalparkgrenze, Cryptomeria Forst, Straßenhang 1730 m, 21,20143 S, 55,60308 E, 11.9.2009.
(14) Auffahrt von La Petite Plaine zum Col de Bebour,21,13323 S,55,57647 E,1330,Straßenböschung im Feuchtmischwald ,12.09.2009
(15) Foret de Bebour, Sentier de Piton Bebour,21,128060 S,55,56962 E,1290,Feuchtmischwald ,12.09.2009
(16) Foret de Bebour, Umgebung Gite de Belcombe,21,06082 S,55,53667 E,14709,Straßenrand auf Beton,12.09.2009
(17) Auffahrt von La Petite Plaine zum Col de Bebour,21,14621 S,55,58924E,1170,Cryptomeria Forst,12.09.2009
(18) Eingang zur Cirque de Salazie,21,00097 S,55,60141 E,220,nasse Lavafelsen und Mauern,13.09.2009
(19) Cirque de Salazie, Hell Bourg,21,05937 S,55,52306 E,850,an Cryptomeria japonica,13.09.2009
(20) Cirque de Salazie, Ilet à Vidot,21,06982S,55,51428 E,930,Bachtal,13.09.2009
(22) SE-Küste, zwischen St, Philippe und Pointe du Tremblet,21,30146 S,55,80106 E,100,Lavastrom von 1986,14.09.2009
(23)SE-Küste, zwischen St, Philippe und Pointe du Tremblet,21,29508 S,55,79921 E,10-140,Primärwald,14.09.2009
(24) E-Küste, Anse des Cascades,21,18511 S,55,82711 E,5,Unmgebung der Wasserfälle,14.09.2009
(25) Route Forestiere n. 9 des Tamarin s zw. Le Maido und Tevelav e,21,05988 S,55,36618 E,1700,Akazienforste und Bachschluchten,15.09.2009
(26) Wanderweg von Col de Bellevue zum Coil de Bebour zwischen Benoit und St. Pierre,21,14605 S,55,57029 E,1550,Philippia-Gebüsch mit Sphagnen,15.09.2009
(27) Riviere Langvin oberhalb des gleichnamigen Ortes E St. Joseph,21,136107 S,55,64667 E,130,Laubbäume und Lavagaestein ,15.09.2009

List of species and comments

Since the previous checklist by Ah-Peng & Bardat (2005) was systematically arranged, an alphabetical list is provided here. In this list, new records, keys and comments are incorporated.

Keys, even few, are included to enhance the knowledge of genera and species especially with concern to the lack of floras in the tropics. In most publications, only lists of species are given but it is not explained how the author has recognized a species or distinguished from others within the genus. The specialist has to go back to the original description of species and has gained some experience and knowledge which is taken into the grave when the bryologists dies and every other bryologists has to start again from the beginning. There were and are specialists for certain genera who were able to identify species but have never provided keys or illustrations. Therefore it is absolutely necessary to make the knowledge widely available, even if the knowledge is scarce.
The specimens are kept in the herbarium of the author (BONN).

New records
Deletions
Comments
(1) locality number (see list of localities above)

Acroporium megasporum
Aerobrydium subpiligerum (7, 9)
Aerobryopsis capensis
Amphidium tortuosum
Anacolia laevisphaera
Andreaea borbonica
Andreaea tsaratananae
Anisothecium cardotti
Anoectangium borbonense Besch. According to Ph. Sollman, this is a local name for the cosmopolitan A. aestivum.
Anoectangium mafatense
Anoectangium rhaphidostegium
Anomobryum filiforme Dicks. (09, 12)

The only species of Anomobryum recorded from Réunion was A. laceratum. The type was collected at Hell Bourg in the Cirque de Salazie and since the species was never recorded from other parts of the world, it was regarded as endemic to Réunion. According to Ochi (1972), it differs from the almost cosmopolitan A. filiforme by shortly excurrent nerves and capsules with very short neck which is as wide as the urn, whereas the nerve of A. filiforme ends in or before the leaf apex and the neck is as long as the urn and narrower.

Anomobryum filiforme is probably much common in Réunion on lava rocks, concrete walls, even asphalt of roadsides. Unfortunately only two specimens have been collected, which are definitely A. filiforme. Therefore the frequency and distribution of this species cannot be described here. It could be that all Anomobryum-like specimens have been automatically named as A. laceratum before. The illustration of the capsule A. laceratum by Ochi (1972) gives not the impression of an Anomobryum and therefore this species seems to be dubious.

The species can be confused with Aongstroemia julacea in the field, which has short (2:1) upper laminal cells.

Anomodon pseudotristis
Anomodon tristis
Aongstroemia filiformis (7) common along roadside banks. Resembles much Garckea comosa in appearance but has very conspicuous sheathing leaf bases which are abruptedly contracted to the leaf apex.
Aongstroemia julacea (10) Easily taken for an Anomobryum but differing by very short laminal cells.

Astomum borbonicum
Atractylocarpus madagascariensis (12, 26) On branches of Philippia.
Atrichum androgynum (15)
Barbula indica (1)
Barbula unguiculata
Bartramia Key to the species reported from Réunion based upon Fransén (2004). All species in sect. Vaginella with broad sheathing whitish leaf bases.

1	Plants strongly appressed when dry. Leaf tips easily broken.	B. gigantea
1*	Leaves erect patent or crisp. Leaf tips not broken.	2
2	Cells of sheathing leaf base smooth.	B. ithyphylla
2*	Cells of sheathing leaf base porose, thick walled.	B. longifolia

Bartramia gigantea (1)
Bartramia ithyphylla (11)
Bartramia longifolia
Blindia. Key for the species from Réunion from Bartlett & Vitt (1986)

1	Moist setae cygneous	B. magellanica
1*	Moist setae erect to flexuose	B. acuta

Blindia acuta (25)

> "When sterile, both species are sometimes difficult to distinguish: Blindia acuta has short upper leaf cells (8-25µm long) and generally is a smaller plant (up to 1,5 cm long, leaves 1,5-2,5(3.0) mm long), whereas B. magellanica usually has longer upper leaf cells (10)18-40(50) µm and is a taller plant, up to 3 cm long (leaves (2.)3.0-5.0 mm long). (Bartlett & Vitt 1964).

Blindia magellanica
Brachymenium acuminatum (25)

> Easily identified in the field by its lustrous colour.

Brachymenium dicranoides (1)

> One of the very few species within the genus with a not excurrent costa.

Brachymenium exile (B. gemmiferum fide Müller 2000)
Brachymenium eurychelium
Brachymenium exile
Brachymenium gemmiferum
Brachymenium leptophyllum
Brachymenium pulchrum
Brachymenium spathidophyllum

> This species is regarded by Ochi (1972) as a synonym of *B. eurychelium* Müll.Hall. ex Besch. It is not endemic to Réunion but was also found in Rodriguez. Ochi (1972) wrote: "This may not be a good species", because it is very similar to the widespread B. longicolle, which has also been found on Mauritius.

Brachythecium borgenii
Brachythecium chauvetii
Brachythecium decurrens
Brachythecium plumosum
Brachythecium valentinii
Breutelia. Key to the species reported from Réunion after de Sloover (1975)

1	Leaves with distinct widened base, abruptedly narrowed into the acumen, strongly longitudinally plicate.	2
1*	Leaf base less distinct or not widened, if less distinct, not abruptedly narrowed into the acumen, not or slightly plicate.	4
2	Leaves > 6mm, mostly 7-9 mm long or longer	B. stuhlmannii
2*	Leaves shorter, <6 mm	2

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3 Leaves <4 mm long. Stems with many branches. B. perrieri
3* Leaves >4,5 mm long. Stems not much branched. B. borbonica
4 Leaf base widened. Leaves 3 – 3,5 mm long. B. gnaphalea
4* Leaf base not widened. 5
5 Leaves lanceolate, widest above base, ovate, shortly pointed. B. magdalenae
5* Leaves triangular, widest at base, leaf tip as long as the lamina. B. stenodictyon

Breutelia borbonica (14)
Breutelia gnaphalaea (25)
Breutelia magdalenae
Breutelia perrieri
Breutelia stenodictyon
Breutelia stuhlmannii (13)

Bryohumbertia filifolia (Hornsch.) J.-P- Frahm (Campylopus filifolius)

The species is known from a collection leg. Robillard on Mauritius but since it is a neotropical species, the record is doubtful.

Bryoerythrophyllum campylocarpum

Bryum (Key for the species reported from Réunion modified from Ochi1972)

1 Plants silvery, julaceous 2
1* Plants otherwise 3
2 Plants slender, excurrent nerve reflexed B. lanatum
2* Plants rigide, excurrent nerve straight, appressed. B. argenteum
3 Leaves in a terminal rosette 4
3* Leaves not in a rosette 5
4 Plants without subterraneous stolons. Leaves <5 mm long. Nerve without stereids. Bryum billardieri
4* Plants with subterraneous stolons. Leaves >7 mm long. Nerve in transverse section with stereids. Bryum aubertii
5 Leaves with obtuse apex, concave, areolation lax. B. cellulare
5* Leaves acuminate 6
6 Leaf margins bordered by elongate cells, large plants. Neck of capsule longer than the urn. 7
6* Leaf margins not bordered, small plants. Neck of capsule half as long than the urn. B. coronatum
7 Costa longly exurrent. Leaves lanceolate (4:1) B. cadetii
7* Costa percurrent or shortly excurrent. Leaves ovate (2:1). B. pseudotriquetrum

Bryum apiculatum (nitens)
Bryum argenteum
Bryum aubertii
Bryum billardieri (9,22)

Common species on rocks, rock fissures and soil.

Bryum cadetii

A dubious taxon described by Bizot (1974), known only from the type collection in Réunion. The author placed it into the sect. Trichophora although the leaves are not contorted when dry and compared it with B. donnianum and B. pachyloma, from which it shall be distinguished by the longly excurrent nerve and the not contorted leaves.

Bryum cellulare (5)
Bryum coronatum

Bryum lanatum Hedw.

Bois Marron. G. de Isle 1875 (Bescherelle 1880) as B. argenteum var. lanatum. This taxon is very distinct from B. argenteum by its very small size, the recurved excurrent nerves and its occurrence in natural habitats.

Bryum pseudotriquetrum (8, lake shore)

Bryum sp. (sect. Trichophora) (1, # REU-350))

This specimen keys out to B. donianum from the Mediterranean. It is has equally foliate stems 3 cm long, slightly comose at tips, ovate leaves with shortly excurrent costa, and a border 3-4 cells wide, serrate at tips.

Bryum sp. (18, REU-354)

Plants comose at tips, similar to B. billardieri, but plants much smaller (leaves 1.5 mm) and leaves not bordered, hardly involute.

Callicostella fissidentella

Callicostella salaziae

Calymperes hispidum

Calymperes palisotii

Calymperes taitense

Calyptothecium acutifolium

Calyptrochaeta asplenioides (9)

Campylopus

A key to the species reported from Réunion:

1	Basal laminal cells hyaline, translucent, thin walled.	2
1*	Basal laminal cells incrassate, chlorophyllose	11
2	Nerves ending in a hyaline hairpoint	3
2*	Nerve excurrent in a concolorous point	8
3	Hairpoints recurved or reflexed.	4
3*	Hairpoints straight.	5
4	Hairpoints recurved when wet (appressed when dry or in male plants), very long, about 1/3 of total leaf length,. Sterile plants appressed foliate Male plants with terminal buddy perichaetia. Capsules asymmetric, strumose; upper laminal cells oval; costa lamellose at back with 2-3 cells, in transverse section with ventral substereids. Common species, much varying in size and colour (from green to black).	aureonitens
4*	Hairpoints reflexed. Austral species, so far known from only one collection.	introflexus
5	Stems densely foliate	6
5*	Stems not julaceous.	7
6	Hyaline hairpoint serrate. Stems not branched.	julaceus
6*	Hyaline hairpoint almost smooth. Stems branched	smaragdinus
7	Nerve with dorsal lamellae 3-4 cells high.	pilifer
7*	Nerve only ridged at back.	schmidii, clavatus
8	Alar cells protruding into the costa; Upper laminal cells subquadrate, small; transverse section of costa with large ventral hyalocysts. Robust plants with long leaf tips.	jamesonii
8*	Alar cells not protruding into the costa	9
9	Upper laminal cells oval.	nivalis
9*	Upper laminal cells not oval.	10
10	Upper laminal cells short rectangular to oblique (2:1). Les tip not canaliculate.	hildebrandtii
10*	Upper laminal cells rectangular (4:1). Leaf tip long and narrow, canaliculated.	pyriformis
11	Nerve excurrent in a hyaline hairpoint, which is almost smooth. Basal laminal cells thick walled and pitted; upper laminal cells elongate oval; transverse section of costa with small ventral stereids. Blackish plants especially on lava rocks.	crateris
11*	Excurrent nerve concolorous smooth or subhyaline and roughly dentate.	12
12	Excurrent nerve concolorous or subhyaline, roughly dentate. Basal laminal cells rectangular, quadrate at margins; upper laminal cells quadrate to oblique.	robillardei
12*	Excurrent leaf tip concolourous,	13

13	Excurrent nerve almost smooth. Leaf tip very longly acuminate, costa longly excurrent. Basal laminal cells porose, bordered by some hyaline elongate cell rows. Alar cells very conspicuous. Costa with ventral stereids. Robust plants	arcuatus
13*	Excurrent nerve serrate	14
14	Basal laminal cells smooth.	15
14*	Basal laminal cells pitted. Costa with ventral stereids	16
15	Plants small, usually not larger than 1 cm high, without flagellae.	nanophyllus
15*	Plants robust 4-5 cm high, with microphyllous flagellae.	flexuosus
16	Plants interruptedly foliate.	trachyblepharon
16*	Plants not interruptedly foliate	17
16	Upper laminal cells quadrate. Lamina reaching almost the leaf tip.	arctocarpus
16*	Upper laminal cells oval. Lamina vanishing in upper part of the leaf.	thwaitesii

Campylopus arctocarpus ssp. madegassus (2, 25)

Campylopus arcuatus (2, 6, 14, 25)

Campylopus aureonitens (1, 6, 11, 12, 25) is the most common species of the genus on Réunion. It grows on lava rocks from sea level to 2500 m, even on secondary habitats such as banks of asphalt roads. It replaces C. pilifer, which is usually found in the tropics in such habitats. Campylopus aureonitens has possibly reached the island before C. pilifer and has occupied its ecological niche. The species is an East African element.

Campylopus bartramiaceus The record is based upon Eens manuscript on disk but lacks any basis. The species is subantarctic and its occurrence in Réunion is unlikely. The name has also been used for C. hildebrandtii.

Campylopus clavatus (12) A blackish species with appressed foliate stems and leaves with hyaline basal laminal cells and long hairpoints. In this respect similar to the very common C. aureonitens but the hairpoints are not recurved, the costa is not lamellose and the capsules are symmetric, oval with a scabrous base (subg. Thysanomitrion). The plants have also buddy male perichaetia like C. aureonitens. An austral species which is common in the southern hemisphere.

Campylopus crateris (11, 12) is a conspicuously blackish species with hairpoints growing on bare rocks at high altitudes. The type locality is Cratere Commerson, where it is still found as well as in the whole area of the Piton de la Fournaise. It is found else only rarely in Kenia, Madagaskar and the Comores (each one record) and has the largest population on Réunion.

The species was known so far only in sterile condition, one specimen (REU 217 from loc. 11), however, showed sporophytes for the first time. The seta is redbrown, 5-7 mm long and sinuose. The capsule is 1,5 mm long, ovate, furrowed when ripe or empty, light brown to brown in age, and scabrous at base. The operculum is 0,5 mm long and oblique. The peristome is reddish at base and ends in filiform tips. All characters support that this species belongs to the subg. Thysanomitrion as already suggested by Frahm (1984).

Campylopus flexuosus (6, 13, 25)

Campylopus flexuosus var. *incacorralis*. This tropical alpine species has been recorded by Een from a Tamarind forest which makes the record dubious.

Campylopus fragilis

Campylopus hildebrandtii (11)

Campylopus introflexus

Campylopus jamesonii (2, 14)

Campylopus julaceus ssp. arbogasti (14)

Campylopus nanophyllus

Campylopus nivalis (11)

Campylopus pilifer (1, 6, 17, 22)

Campylopus praetermissus. This record is based on a collection made by Een. As in other records of Campylopus specimens, the author has discussed to which extend the specimen agrees with the description or not and in the case of new records for Réunion, the identification must be questioned.

Campylopus pyriformis (2)

Campylopus robillardei (25, 26)

Campylopus schmidii (10, 13, 25)

A species with hyaline hairpoints, hyaline basal laminal cells and oval upper laminal cells like C. pilifer or C. aureonitens. It is distinguished from these species by the smooth back of the costa, which is only slightly ridged, whereas both other species have lamellose costas. Campylopus pilifer and schmidi are closely related and vicariant species in the new world and Africa viz. tropical Asia. I spite of the similarity, C. aureonitens belongs to another group of species because it has symmetric capsules which are scabrous at base, whereas the other species have curved capsules.

Campylopus smaragdinus

Campylopus thwaitesii

Campylopus trachyblepharum

Cardotiella appendiculata

Cardotiella subappendiculata

Catagonium nitens

Ceratodon purpureus

Chaetomitrium borbonicum

Cyclodictyon albicans

Cyclodictyon borbonicum

Cyclodictyon brevifolium

Cyclodictyon perrottetii

Cyclodictyon vesiculosum

Daltonia angustifolia

Daltonia latimarginata

Daltonia onraedtii

Dicranella cratericola

Dicranella flavipes

Dicranella subsubulata

Dicranoloma billardierei

Dicranoloma borbonicum

Didymodon maschalogena

Distichophyllum mascarenicum

Ditrichum. Key to the species in Réunion based upon the Seppelt (1982).

1 Leaves gradually contracted from base. Leaf tips not twisted. Capsule 4 mm long. D. difficile Austral species extending to SE-Asia.

2 Leaves abruptedly contracted from base. Leaf tips twisted when dry. Capsule 1-2 mm long. D. punctulatum Species from Australia and New Zealand

Ditrichum difficile (2,13) Widespread on roadside banks.

Ditrichum punctulatum

Ectropothecium regulare

Ectroprothecium occulum

Ectroprothecium valentinii

Ectroprothecium viridulum

Entodon dregeanus

Entodon geminidens

Entodon macropodus

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Entosthodon. Key to the species reported from Réunion

1 Capsule symmetric, erect. Leaves apiculate, ending in a short point. E. borbonicus

1* Capsule slightly asymmetric, inclined, leaves with long hairpoint. E. lepervancei

Entosthodon borbonicus (12, 15)

Widespread on roadside banks. Similar is E. mauritianus, which is described as synecious, whereas E. borbonicus shall be autoecious. The relation between both species has to be studied.

Entosthodon lepervanchei
Eurhynchium acicladium
Eustichia longirostris
Felipponea assimilis
Fissidens asplenioides
Fissidens brevifrons
Fissidens crispulus
Fissidens darntyi
Fissidens ellipticus
Fissidens intramarginatus
Fissidens ovatus
Fissidens palmifolius
Fissidens pellucidus
Fissidens planifrons
Fissidens plumosus
Fissidens pseudoplumosus
Fissidens sciophyllus
Floribundaria floribunda (20)
Floribundaria vaginans
Funaria hygrometrica
Garckea flexuosa
Grimmia eongata
Grimmia laevigata
Grimmia longirostris
Gymnostomiella vernicosa
Hedwigidium integrifolium (25)

The genera Hedwigidium, which is monotypic with H. integrifolium, and Braunia with about a dozen species worldwide both inhabit open bare rocks and are usually dististinguished by sporophytic characters in the way that Braunia has a longer Seta with an elongate capsule and Hedwigidium a reduced seta and an ovate capsule. The plants are, however frequently sterile and then difficult to separate. As figured out by Frahm (1974) both genera can also be distinguished vegetatively as follows:

1 Leaves with flat margin; laminal cells with dense high papillae, opaque; leaf tips blunt, dolphin nose shaped, entire Braunia

1* Leaves margins rolled in almost along the whole leaf; laminal cells with low papillae, translucent: leaf lanceolate, tips gradually narrowed; often slightly dentate. Hedwigidium

Hildebrandtiella rotundifolia
Hildebrantiella phleoides
Holomitrium borbonicum
Holomitrium cyclindraceum
Homaliodendron exiguum
Hookeria splachnifolia
Hylocomnium brevirostre
Hymenostylium recurvirostrum

Hymenostylium scaturiginosum
Hyophila involuta (9) widespread
Hypnum bicolor
Hypnum boryanum
Hypnum cupressiforme
Hypnum jutlandicum
Hypnum macrogynum
Hypnum radiatum
Hypopterygium tamarisci
Isopterygium citrinellum
Isopterygium intortum
Isopterygium molle
Isopterygium radicans
Jaegerina solitaria (9)
The only species of the genus in Réunion (Argent 1973).
Leiomela bartramioides (12) Differs from Bartramia and Anacolia by not differentiated basal laminal cells and very long leaf apices.
Leiomitrium plicatum
Lepidopilidium caespitosa
Lepidopilidium flexuosum
Lepidopilidium hirsutum
Lepidopilidium isleanum
Leptodon fuciformis
Leptodontium Key for the species reported from Réunion after De Sloover (1987)

1	Stems smooth.	2
1	Stems with longitudinal furrows (crenulated in transverse section	3
2	Plants <3 cm, leaves < 3mm.	L. flexifolium
2*	Plants > 3 cm, leaves > 3 mm.	L. viticulosoides
3	Uppermost laminal cells elongate, smooth.	L. pungens
3*	Uppermost laminal cells short, papillose.	L. longicaule

Leptodontium flexifolium
Leptodontium longicaule (2)
Leptodontium pungens
Leptodontium viticulosoides
Leptophascum leptophyllum
Leptotrichella lutaria
Leucobryum boryanum
Leucobryum isleanum
Leucobryum javense
Leucobryum juniperoideum (9)
Leucobryum mayottense
Leucoloma bifidum
Leucoloma boivinianum
Leucoloma candidulum
Leucoloma capillifolium
Leucoloma cinclidotioides
Leucoloma cirrosulum
Leucoloma fuscifolium
Leucoloma lepervancheri
Leucoloma longifolium
Leucoloma mafatense

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Leucoloma membranaceum
Leucoloma onraedtii
Leucoloma persecundum
Leucoloma rutenbergii
Leucoloma sanctae-mariae
Leucoloma seychellense
Leucoloma sinuosulum
Leucoloma subcespitulans
Leucomium strumosum
Leucophanes angustifolium (23)
Leucophanes hildebrandtii
Leucophanes rodriguezii
Lopidium struthiopteris
Macrocoma tenuis
Macrohymenium acidodon
Macromitrium belangeri
Macromitrium fasciculare
Macromitrium fimbriatum
Macromitrium gimalacii
Macromitrium mauritianum
Macromitrium pallidum
Macromitrium rufescens
Macromitrium scleropodium
Macromitrium serpens
Macromitrium voeltzkowii
Meiothecium madagascariense
Mielichhoferia borbonica
Mielichhoferia bryoides (1,2)

Plants resembling a species of Pohlia with lanceolate leaves, serrate at tips, narrow elongate rhomboideal cells, a costa ending before or in the leaf tip, but yellow brown, inclined and asymmetric capsules with convex operculum. A species known from South Africa, New Zealand and Australia.

Mittenothamnium limosum
Mittenothamnium madagassum
Mittenothamnium microthamnioides
Mittenothamnium reptans
Neckera valentiana
Neckeropsis lepineana
Octoblepharum albidum
Orthodontium loreifolium
Orthostichidium involutifolium
Orthostichidium pentasticha
Orthostichopsis longinervis
Orthostichopsis subimbricata
Orthostichopsis sublivens
Oxyrhynchium hians (25, roadside next to Cryptomeria forest on asphalt)

Most likely introduced like Pseudoscleropodium purum. The only Eurhynchium s.lat. reported from Réunion is Eurhynchium acicladum, which is described by 1880 as similar to Eurhynchium crassinervium.

Palamocladium leskeoides
Papillaria africana (14)

Pelekium versicolor
Philonotis bescherellei is a nomen nudum and has therefore to be deleted from the list of species and endemics
Philonotis gracilescens
Philonotis hastata
Philonotis mauritiana
Philonotis perigonialis
Philonotis scabrifolia
Philonotis submarchica
Phyllodon perplanicaulis
Phyllodon truncatulus
Phyllogonium fulgens
Phyllogonium viride.

Both species are mainly neotropical. They are definitely no endemic of Réunion as indicated by Ah-Peng & Bardat (2005).

Phyllogonium viscosum
Physcomitrium spathulatum
Pilotrichella isleana
Pilotrichella mascarenica
Pilotrichella phleoides
Pinnatella minuta
Plagiomnium rhynchphorum
Plagiothecium nitens
Pogonatum (key based on Hyvönen 1989)

1	Leaves entire or with small indistinct teeth.	urnigerum
1*	Leaves serrate or dentate	2
2	Apical cells of lamellae extremely incrassate	perichaetiale ssp. oligodus
2*	Apical cells of lamellae not or only the outer walls incrassate	3
3	Giant plants, > 20 cm high, lamellae only 2 cells high	convolutum
3*	Smaller plants, lamellae more numerous	4
4	At least some apical cells of lamellae double	gracilifolium
4*	Apical cells not double.	belangeri

Pogonatum belangeri (15)
Pogonatum convolutum (15)

Easily recognized by its large size (to 30 cm) and lamellae only 2 cells high. A species confined to Madagascar, Mauritius and Réunion.

Pogonatum gracilifolium (3,15)
Pogonatum perichaetiale
Pogonatum proliferum

The record by Een (1993) cannot be verified. It is listed in the Index Muscorum with “As. 3” and not indicated by Hyvönen (1989) for Réunion or “Afr. 3”.

Pogonatum urnigerum
Pogonatum usambaricum
Polytrichum

1	Leaves ending in a hyaline hairpoint. Small plants, a few cm high. Apical cells of costal lamellae entire.	piliferum
1*	Leaves ending in a concolorous, green or brownisch tip. Plants larger, up to 30 cm high.	2
2	Apical cell of costal lamellae notched.	3
2*	Apical cell not notched, rounded.	formosum
3	Notch of apical cell of costal lamellae half moon shaped.	commune
3*	Notch deeply incised, bifid, rarely also entire or flattened.	subpilosum

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Polytrichum commune (22)
Polytrichum formosum
Polytrichum piliferum
Polytrichum subpilosum (1,6,15)
Polytrichum commune and subpilosum are closely related and seem to differ only in microscopic characters; the sporophyte seems to be almost identical. It seems to be that the capsules of P. subpilosum are longer, cubic and have a broad gap between urn and apophysis. whereas they are more cubic in P. commune, which has only a furrow between the urn and the apophysis. De Sloover (1986) differentiates both species also by margins of leaves with small teeth between larger ones (subpilosum) and no small teeth between the larger ones (commune), but also commune has smaller and larger teeth , however, not as pronounced. Polytrichum subpilosum is a common species (and apparently more frequent than P. commune) along roadside banks and in forests especially at lower altitudes but going up to the subalpine belt. Polytrichum commune grows in habitats such as rocks in lava flows, which seem to be dry and in sharp contrast to its habitat (swamps) in temperate regions.
Porothamnium variifolioides
Porotrichum elongatum
Porotrichum madagassum
Porotrichum stipitatum
Porotrichum usagarum
Prionodon ciliatus
Pseudephemerum nitidium
Pseudopohlia microstoma
Pseudoscleropodium purum
Pseudosymblepharis bombayensis
Pseudosymblepharis circinatula
Pterogonium gracile
Ptychomitrium subcrispatum
Pyrrhobryum spiniforme (3)
Pyrrhobryum spiniforme var. brevifolium (8,23)
This variety is conspicuously smaller. The leaves have only half size (3 instead of 6 mm length).
Pyrrhobryum spiniforme
Racomitrium lanuginosum
Racomitrium lepervanchei
Indicated for Réunion by de Sloover (1977) but not mentioned by Ah-Peng & Bardat (2005)
Racomitrium membranaceum
Is not mentioned by de Sloover (1977) as indicated by Ah-Peng & Bardat (2005).
Racomitrium subsecundum
Was listed for Réunion by de Sloover (1977) as R. alare.
Racopilum africanum
Racopilum ayresii
Not endemic to Réunion as indicated by Ah-Peng & Bardat (2005).but also found on Mauritius.
Racopilum capense
Racopilum mauritianum
Racopilum schmidii
Racopilum tomentosum
Radulina borbonica

Rhacocarpus purpurascens
Rhaphidorrhynchium crispans
Rhaphidorrhynchium rubricaule
Rhodobryum commersonii
Rhodobryum giganteum
Rhynchostegiella tenelliformis
Rhynchostegium comorae
Rhynchostegium distans
Rhyncostegium pseudodistans
Rutenbergia borbonica
Rutenbergia prionodon
Schistidium apocarpum
Schlotheimia angulosa
Schlotheimia badiella
Schlotheimia brachyphylla
Schlotheimia fornicata
Schlotheimia illecebra
Schlotheimia malacophylla
Schlotheimia microcarpa
Schlotheimia richardii
Schlotheimia robillardi
Schlotheimia squarrosa
Schlotheimia subfornicata
Schwetschkea grateloupii
Sematophyllum crassiusculum
Sematophyllum schimperi
Sematophyllum sinuosulum
Sematophyllum subpinnatum
Serpotorella chenagonii
Serpotorella cyrtophylla
Sphagnum bourbonense
Sphagnum capense
Sphagnum capillifolium
Sphagnum ceylonicum
Sphagnum condensatum
Sphagnum davidii
Sphagnum ericetorum
Sphagnum perichaetiale
Sphagnum rutenbergii
Sphagnum strictum
Sphagnum truncatum
Sphagnum tumidulum
Sphagnum violascens
Squamidium brasiliense
Stereophyllum radiculosum
Symphyodon pygmaeus
Syrrhopodon armatus
Syrrhopodon asper
Syrrhopodon gardneri
Syrrhopodon gaudichaudii
Syrrhopodon involutus

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Syrrhopodon mahensis Besch. Is not an endemic as indicated by Ah-Peng & Bardat (2005).but described from Mahé (Seychelles).
Syrrhopodon mauritianus
Syrrhopodon parasiticus
Syrrhopodon prolifer
Syrrhopodon rodriguezii
Taxithelium pseudo-amoenum
Tayloria isleana
Tayloria orthodonta
Thuidium Key to the species reported from Réunion, partly from Touw (1976)

1	Terminal cell of branch leaf smooth.	T. tamariscinum
1*	Terminal cells of Branch leaf pluripapillose.	2
2	Stem leaves ending in 1-3 hyaline cells.	T. aculeoserratum
2*	Stem leaves ending in 3-4 hyaline cells.	T. assimile

Thuidium aculeoserratum
Thuidium assimile
Thuidium tamariscinum (14)
Tortella humilis (12) Can be recognized by the lingulate leaves with hyaline leaf base, which does not extend V-shaped along the margins as in other species of the genus.
Tortella vernicosa
Trachyphyllum inflexum
Trachypodopsis serrulata
Trachypus bicolor
Trematodon borbonicus
Trematodon paradoxus
Trematodon subambiguus
Trichosteleum adhaerens
Trichosteleum constrictum
Trichosteleum debettei
Trichosteleum pervilleanum
Trichostomum brachydontium (4)
Trichostomum cardotii
Trichostomum crispulum
Trichostomum tenuirostre (1)
Ulota fulva
Vesicularia rodriguezii
Vesicularia scaturigina
Vesicularia subspherica
Warburgiella leptorrhyncha
Weissia ayresii
Weissia controversa
Weissia ricciae
Wijkia protensa
Zygodon intermedius
Zygodon reinwardtii

Key to the Meteoriaceae from Réunuion

1	Leaves ecostate, ovate	Orthostichella pentasticha
1*	Leaves costate, ending in a long acumen.	2

2	Laminal cells with papillae over the cell walls; Leaves apressed when dry, strongly auriculate	Papillaria africana
2*	Laminal cells with papillae over the lumen, leaves widespread, auriculate or not.	3
3	Leaves not auriculate, margins plane.	Floribundaria floribunda, vaginans
3*	Leaves auriculate, margins undulate ^	4
4	Laminal cells oval to elliptic, costa to midleaf.	Aerobryopsis capensis
4*	Laminal cells lineal, costa reaching to leaf tip.	Aerobryidium subpiligerum

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