

New or interesting records of bryophytes from the Azores

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Summary: *Lepidozia stuhlmannii*, *L. pearsonii*, *Atrichum tenellum*, *Bryum lanatum*, *Campylopus subulatus*, *Ceratodon stenocarpus*, *Polytrichum commune* var. *humile* and *Thuidium delicatulum* are reported as new to the Azores. The record of *Sphagnum pylaisii* from Terceira is referred to a monoclade expression of *S. denticulatum*. The presence of the North American *Leucobryum albidum* on the Azores is confirmed and the distinguishing characters between this species and *Leucobryum juniperoideum* are discussed. The recently described *Thamnobryum rudolphianum* is reported another time from Terceira. *Campylopus brevopilus* and *Racomitrium aquaticum* are reported as new to Pico.

From August 17.-31., 2004, I spent my holidays on the Azorean islands of Terceira and Pico (with a short one day trip to Faial). During this trip I collected some bryophytes, of which some proved to be new records for the Azores or one of these islands according to the most recent checklist of the Azores (Sjögren 2001).

** New to the Azores

* New to an island of the Azores

HEPATICS

***Lepidozia pearsonii* Spruce

Terceira, top of Serra de Santa Barbara 950 - 1000 m, in Calluna-juniper-shrub, conf. Vana. The species was so far known from Malawi, the

oceanic parts of the British Isles and SW-Norway.

***Lepidozia stuhlmannii* Steph. det. Pócs

Terceira, road from Algar do Carvao to Aqualva, low *Ilex perado* – *Laurus azorica* – *Juniperus brevifolia* forest, 660 m, together with *Calypogeia* aff. *neesiana*, *C.* aff. *azorica* and *Cephalozia crassifolia* (all det. Pócs). The plants are intermediate in size between *L. pearsonii* and *L. reptans*. This is an afro-montane element and insofar remarkable, as there are only few African elements in the bryoflora of the Azores. It could, however, be that this species was present in Europe in Tertiary, got extinct during Quaternary (in contrast to, for example, *Lepidozia pinnata*, and survived on the Azores and was not dispersed from tropical Africa.

Frullania sp.

Terceira, top of Serra de Santa Barbara at radi station, 950 - 1000 m, wet Calluna-Juniper heathland, epiphytic on Juniper, with *Odontoschisma prostratum*, *Plagiochila exigua*, *P. spec.*, *Scapania gracilis* and *Lejeunea mandonii*. Pico, southern flank of Mt. Pico above S. Mateus and A. Caetano, grazed Laurus-Erica-Pittospermum-forest, on bark with *Radula aquilegia* and a strange form of *Lejeunea flava* (?) with smooth perianth.

This species is apparently not known from Europe (Vana), not identical with one of the North American species of the genus and possibly a tropical taxon, if not an endemic. It resembles much in size and appearance *F. tamarisci*, but differs by smaller size, smaller laminal cells, a different number of oil bodies and very conspicuously by leaves with longly acuminate tips and the incurved leaf apices, which end in a long unicellular acumen.

MOSESSES

*****Atrichum tenellum* (Röhl) Bruch & Schimp.**

Terceira: Lagoa do Negro, 550 m, on soil near the lake shore. The lake is oligotrophic and harbours masses of *Litorella uniflora* as well as smaller quantities of *Isoetes azorica*, *Illecebrum verticillatum* and *Lobelia dortmanna*. This habitat resembles much that of *Atrichum tenellum* in western Europe, for instance wet heathlands in western Germany. Accompanying bryophyte species were *Pseudephemerum nitidum*, *Polytrichum perigoniale* and *Fossombronia* spp. Although the Lagoa do Negro is a well known touristical spot, this species has not been recorded before.

*****Bryum lanatum* (P. Beauv.) Brid.**

Terceira: Caldeira de Guilherme Moniz, roadside bank in a Calluna heath (with *Riccia crozalsii*, *R. nigrella*, *R. sorocarpa* and *Bryum* sp.). This species is included by some authors in *B. argenteum*, but differs already macroscopically by much smaller size and recurved leaf apices. It is much common in savannah regions of tropical Africa and in Europe characteristic for dry and warm natural habitats, never in man-made habitats such as *Bryum argenteum* s.str.

****Campylopus brevipilus* Bruch & Schimp.**

Pico: summit of Pico de Urze 900m, bank of road. New to Pico. Previously only known from Sao Miguel, Terceira and Corvo.

*****Campylopus subulatus* Schimp. in Rabenh.**

Pico, Lagoa do Paúl, grazed Laurus forests fragments, on soil, 760 m elev. This species is recognized by almost lacking alar cells, hyaline basal laminal cells and short upper laminal cells, 1,5 times longer than wide. The plants are larger and more robust as compared with plants from continental Europe, which is, however, also the fact in *C. pyriformis*, and probably due to the higher humidity. The species is practically always sterile (like other species such as *C. shawii*), which raises the question how these species got to the islands.

*****Ceratodon stenocarpus* Bruch & Schimp.**

Pico: along road from Piedade to the center of the Island (Longitudinal), at turn-off to Arrife, on soil beside the road amongst pastures. The species gave the impression of *Didymodon vinealis* in the field, with brownish plants and twisted leaf apices, but the involute leaf margins with quadrate, smooth laminal cells lead to *Ceratodon*. There were several pale yellow setae, one with sulcate sporophyte typical for *Ceratodon*, which is inclined in this species. Sjögren (2001) indicates this species (as ssp. of *C. purpureus*) from Madeira. It is pantropical in distribution.

***Leucobryum albidum* (P. Beauv.) Lindb.**

The presence of this North American species from the Macaronesian Islands was questioned (see Eggers 1982), and according to Sjögren (2001), the presence of this species on the Azores needs confirmation. The present collections revealed two different phenotypes, which are referred to *L. juniperoideum* and *L. albidum*. Both species can be distinguished as figured out in table 1. *Leucobryum juniperoideum* has frequently been observed in forests. *Leucobryum albidum* was found only twice on Terceira, on soil at the Furnas do Enxofre hot springs and at the crater Aqualva. True *L. glaucum* has not been observed.

	<i>L. albidum</i>	<i>L. juniperoideum</i>
Leaves	2-4 mm long, short and broad, the upper part as long as the basal part	5-6 mm long, narrow and long, the upper part 3 times as long as the basal part
Plants	1(-1.5) cm tall, whitish green	1-2 cm tall, light bluish green
Habitat	On soil	On bark of trees and rotten wood
Transverse section of costa near leaf base	Each 2(-3) rows of hyalocysts above and below the median chlorocysts	Each 1 row of hyalocysts above and below the median chlorocysts

Table 1: Characters distinguishing *Leucobryum albidum* and *L. juniperoideum***Polytrichum commune* Hedw. var. *humile* Sw.

Terceira: Caldeira de Guilherme Moniz, on open soil in a *Calluna* heath (with *Campylopus pilifer* and *Microcampylopus laevigatus*). Previously indicated by Allorge & Allorge (1952) as *P. commune* var. *minus* from Flores and probably not rare in the Azores, but not indicated in the checklists by Eggers (1982) and Sjögren (2001). This taxon resembles *Polytrichum commune* var. *perigoniale*, especially in size and habitat, but differs according to Smith (2004) by the inner perichaetial leaves, which are abruptly narrowed into the leaf tip. The var. *perigoniale* has perichaetial leaves gradually tapering into the leaf tip. Smith (2004) indicates Macaronesia as part of the range of var. *perigoniale*, however, I have no reference for an occurrence in the Azores. Thus it cannot be decided whether former records of var. *perigoniale* might be referred to var. *humile* or whether var. *perigoniale* was also collected on the Azores.

Another specimen was found on Terceira, Lagoa do Negro, on sand beside the lake, which had, however, no perichaetia. It can therefore not be decided whether the specimen belongs to var. *humile* oder var. *perigoniale*. The ecology of var. *humile* seems to be almost identical with that of var. *perigoniale*. It remains therefore doubtful to differentiate between both taxa.

**Racomitrium aquaticum* (Schrad.) Brid.

Pico, above Arrife, on rocks beside an episodic stream in a “ribeirinho”, 330m.

Sphagnum sp.

Terceira, Serra de Santa Barbara, 950 m alt., *Calluna* – juniper heathland with *Sphagnum palustre*, *S. imbricatum*, *S. subnitens*, *S. cuspidatum*, *Breutelia azorica*, *Herbertus azoricus*, *Campylopus shawii* and others.

This species was included by Sjögren (2001) as *S. pylaisii* based on a collection by R. Schumacker from the same locality. *Sphagnum pylaisii* resembles this species much in appearance but differs by the transverse section of the leaves with chlorocysts exposed to the inner surface. The present plants have the chlorocysts exposed to the outer side as typical for Sect. Subsecunda. At Santa Barbara, the species grew together with *S. denticulatum*, suggesting that this species might just be a monoclade expression of the latter, perhaps a somatic mutation. A molecular study to clarify this problem is in progress.

Thamnobryum rudolphianum Mastracci

This species was recently described by Mastracci (2004) as endemic from the Azores and recorded from Terceira, Corvo, Pico and Faial. From Terceira, a herbarium specimen was cited, which Herman Persson had collected in 1937 in “Aqualva”. Aqualva is the name of a small crater, of which the cave at bottom is accessible through a tunnel. The wet lava rocks are covered by ferns and in the dark interior, by bryophytes, mainly *Riccardia chamaedryfolia* and a *Thamnobryum*, as well as *Cyclodictyon laetevirens* and *Fissidens serrulatus* in smaller quantities. The *Thamnobryum* is conspicuous by its large, lax

plants with long flagelliferous branches. Under the microscope, the leaves differ by smaller size and broad shape, lacking elongate submarginal cells as described by Mastracci (2004). Although the description of the species differs not so much from *Thamnobryum alopecurum*, the appearance is totally unlike. The cave was not accessible at Persson's time, and the crater rim is very steep (more like a hole), so Persson must have found the species outside. I would have taken the specimen for an extreme modification of *Thamnobryum alopecurum*, if Mastracci (l.c.) has not pointed out the anatomical differences.

***Thuidium delicatulum* (Hedw.) Mitt.

Pico: Surroundings of Lagoa de Caiado c. 800 m alt., *Erica-Juniperus*-shrub. So far, only *T. tamariscinum* was reported from the Azores.

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