

Taxonomic Results of the BRYOTROP Expedition to Zaire and Rwanda

11. Cephaloziaceae, Cephaloziellaceae, Gymnomitriaceae, Jungermanniaceae, Lophoziaceae

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CEPHALOZIACEAE

Only one genus, *Cephalozia*, in the area.

Cephalozia (Dum.) Dum.

For a survey of the African species see Vána (1988).

1. Leaves ovate to ovate-rectangular, usually longer than wide, subtransversely inserted

.....*C.bicuspidata*

1* Leaves orbicular to quadrate-rotund, as wide as long, horizontally or very obliquely inserted

.....*C.africana*

Abbreviations:

* New record for Rwanda viz. Zaire

KB: Kahuzi-Biega (Zaire)

Ka: Karisimbi (Rwanda)

Ny: Nyungwe Forest (Rwanda)

Ak: Akagera region (Rwanda)

Ki: Kigali region (Rwanda)

For explanations of the localities see the contribution by E. Fischer in this volume (Tropical Bryology 8: 13-37, 1993)..

The specimens are deposited at the Botanical Museum Berlin (B). Duplicates are in the herbarium of the author.

**Cephalozia bicuspidata* (L.) Dum.

Widely distributed holarctic species, extending to Africa, South America and Tasmania. In Africa known from the Azores, Madeira, Canary Is., central African mountains, Réunion, Natal and Cape, and also from Marion I., Crozet I. and Tristan da Cunha. In the area it occurs in the subalpine belt from 2500 to 3560 m, on soil and rocks.

Ny: 102, *Pócs* 6041 p.p. **Ka:** 161, *Frahm* 8045 p.p., 162, *Pócs* 8236 p.p.

***Cephalozia africana* Vána

This species recently (Vána 1988) described from Rwanda, was so far known only from the

type collection. It grows mostly in bogs or on wet ground in the subalpine belt from 2350 to 2680 m. New to Zaire.

KB: 129, *Pócs 7062, Pócs 7366. 132, Pócs 7139.*

CEPHALOZIELLACEAE

1. Leaves transversely inserted and oriented, slightly concave; leaf insertion extended quite to stem midline dorsally *Cephaloziella*
Leaves obliquely to subhorizontally inserted, almost flat; leaf insertion not attaining stem midline dorsally *Cylindrocolea*

Cephaloziella (Spruce) Schiffn.

1. Leaves nearly transversely inserted, mostly remote, pectinately oriented; leaf cells more or less thick-walled *C. kiaeri*
1* Leaves subtransversely inserted, not remote and pectinately oriented; leaf cells thin-walled *C. vaginans*

* *Cephaloziella kiaeri* (Aust.) Douin

A widespread and common palaeotropical species, occurring mostly on soil and rocks in forest region (in the area from 1300 m to 2400 m).

KB: 125, *Pócs 6715, Pócs 6729. 128, Pócs 7404. 144, Pócs 7778.*

* *Cephaloziella vaginans* Steph.

A relatively rare species with imperfectly known distribution; probably only in central African mountains. It grows on rocks in the forest region (2000 m).

Ny: 106, *Pócs 6252.*

Cylindrocolea Schust.

1. Leaves distant; perianth contracted to the truncate mouth *C. gittinsii*
1* Leaves imbricate or spreading; perianth not contracted to the entire and lobed mouth *C. atroviridis*

* *Cylindrocolea atroviridis* (Sim) Vána

A species not rare in central and southern Africa, growing mostly on rotten log, rarely on soil in the forest region (in the area 2100 m).

KB: 143, *Pócs 7777.*

** *Cylindrocolea gittinsii* (E. W. Jones) Schust.

A very rare species, probably known only from the type locality in Uganda (the reports in Vandenberg 1972 belong to *Cephaloziella kiaeri*). Collected in paramo on decaying *Senecio refractisquamatus* in the subalpine belt (3570 m).

Ka: 162, *Pócs 8223.*

GYMNOMITRIACEAE

Only one genus, *Marsupella*, in the area.

Marsupella Dum.

for a survey of the African species see Vána (1985).

Key to the species:

1. Leaf margin revolute, leaflobes blunt
..... *M. africana*
1* Leaf margin plane, leaflobes mostly acute ..
..... *M. emarginata*

* *Marsupella africana* Steph. ex Bonner

A species closely related to *M. revoluta* (Nees) Dum. with African - South and Central American distribution. It grows on rocks in alpine desert, in the area between 4120-4400 m. This species has been already known from Karisimbi area in Zaire, and also from high mountains in Uganda, Kenya and Tanzania (cf. Gradstein et al. 1983).

Ka: 164, *Pócs 8210, Pócs 8251 p.p. 165, Pócs 8200.*

Marsupella emarginata (Ehrh.) Dum.

A widespread Laurasian species extending to the high mountains in the tropical regions (cf. Gradstein and Vána 1987). The recently known African distribution of this species is similar to *M.*

africana, it grows on rocks in the alpine belt (4340 m).

Ka: 164, *Pócs* 8315 p.p.

conspecific with *N. lutescens* (Lehm. et Lindenb.) Mitt. This species was collected in rocky slopes in the forest region (2000 m).

Ny: 106, *Pócs* 6255, *Pócs* 6268.

JUNGERMANNIACEAE

1. Underleaves absent*Jungermannia*

1* Bilobed underleaves present*Notoscyphus*

Jungermannia L. emend. Grolle

for a survey of the African species see Vána (1974)

1. Leaf cells mostly 30-45 µm; plants dioecious

..... *J. borgenii*

1* Leaf cells mostly 20-30 µm; plants paroecious

..... *J. sphaerocarpa*

**Jungermannia borgenii* Gott. in Pears.

A species widely distributed in central and south Africa. In the area it grows on ground and wet rocks from 2500 to 3980 m.

Ny: 102, *Fischer* 6107; 104, *Pócs* 6189; **Ka:** 161, *Pócs* 8045 p.p. 163, *Pócs* 8186 p.p.

**Jungermannia sphaerocarpa* Hook.

A common and widespread holarctic species, also widespread in the high mountains in the tropics (cf. Gradstein and Vána 1987). It grows mostly on soil along trails, rarely on rocks from the forest region to the subalpine belt (2400-4340 m).

Ny: 102, *Pócs* 6033, *Pócs* 6034, *Pócs* 6041 p.p., *Pócs* 6048, *Pócs* 6097. 104, *Pócs* 6195. **Ka:** 162, *Pócs* 8236, *Pócs* 8331. 163, *Pócs* 8077, *Pócs* 8313. 164, *Pócs* 8315 p.p. **KB:** 128, *Pócs* 7404 p.p. 145, *Pócs* 7591. 148, *Pócs* 7882.

Notoscyphus Mitt.

* *Notoscyphus belangerianus* (Lehm. et Lindenb.) Mitt.

A relatively common African species, probably

LOPHOZIACEAE

1. Leaves unlobed*Jamesoniella*

1* Leaves 2-4-lobed 2

2. Underleaves large; leaves mostly 2-4-lobed, more than 5/6 the leaf length 3

2* Underleaves absent; leaves bilobed less than 5/6 the leaf length 4

3. Leaves asymmetrically 2-4-lobed, obliquely inserted; leaf cells with large, bulging trigones ...

.....*Chandonanthus*

Leaves symmetrically 4-lobed, transversely inserted; leaf cells with indistinct trigones

.....*Tetralophozia*

4. Leaves asymmetrically (2-)3-lobed ...

.....*Tritomaria*

4* Leaves ± symmetrically bilobed..... 5

5. Plants with Anomoclada-type filiform branches

.....*Andrewsianthus*

5* *Anomoclada*-type branching absent

.....*Anastrophyllum*

Anastrophyllum (Spruce) Steph.

for a survey of the African species see Vána (1982).

1. Leaves bilobed to ± 1/3 their length; leaf lobes acute, not overlapping at the base; trigones of the leaf cells not nodulose

.....*A. auritum*

1* Leaves bilobed to ± 1/2 their length; leaf lobes cuspidate, overlapping at the base; leaf cells with large nodulose trigones

.....*A. piligerum*

Anastrophyllum auritum (Lehm.) Stoph.

A species with pantropical distribution, relatively common in high mountains areas. In Africa known from Cameroon, Uganda and Kenya mountains in the north to Marion I. and Crozet I. in the south. It grows on rock and rotten wood from the forest region to the alpine belt (2400-4140 m in the examined area).

KB: 144, *Pócs* 7676. 145, *Pócs* 7504, *Pócs* 7636. 148, *Pócs* 7873. **Ka:** 159, *Pócs* 8179 p.p. 161, *Frahm* 8348. 162, *Pócs* 8204, *Pócs* 8332. 164, *Pócs* 8161, *Pócs* 8251.

Anastrophyllum piligerum (Nees) Steph.

A species with pantropical distribution, growing mostly in the forest region. Extremely rare in the mainland of Africa (only one locality, Inyanga in Zimbabwe, known until this time). The present specimen was collected on rocks in forest (2000 m).

Ny: 106, *Pócs* 6236.

Andrewsianthus Schust.

Andrewsianthus bilobus (Mitt.) Grolle

A species limited in its distribution to the tropical Africa. It grows from forest to paramo regions (2400-3980 m) on rocks and bark.

KB: 128, *Pócs* 7337, *Pócs* 7623. 134, *Pócs* 7223. 135, *Frey and Kürschner* 7002, *Pócs* 7234, *Pócs* 7250. 144, *Pócs* 7598. 145, *Pócs* 7588. 148, *Pócs* 7886. **Ka:** 159, *Pócs* 6158, *Pócs* 6327, 162, *Pócs* 8296. 163, *Pócs* 8186 p.p. 167, *Fischer* 8304. **Ny:** 102, *Pócs* 6094.

Chandonanthus Mitt.

* *Chandonanthus hirtellus* (Web.) Mitt. subsp. *hirtellus*

Widely distributed paleotropical species, in Africa confined to tropical part. It grows on rocks and bark in montane forests to subalpine belt (2000 m - 3700 m). New to Zaire.

KB: *Pócs* 7127, *Frahm* 7703. **Ka:** *Pócs* 8309. **Ny:** 103, *Pócs* 6121. 106, *Pócs* 6248. 108, *Frahm* 6338. 155, *Pócs* 8021.

Chandonanthus hirtellus (Web.) Mitt. subsp. *giganteus* (Steph.) Vanden Berghen

A subspecies confined to central African mountains; its ecology is similar to subsp. *hirtellus*.

KB: 143, *Pócs* 7762. 148, *Frahm* 7580. 149, *Pócs* 7433. **Ka:** 159, *Pócs* 8345. 167, *Fischer* 8340.

Jamesoniella (Spruce) Carring.
for worldwide monograph see Grolle (1971).

* *Jamesoniella purpurascens* Steph.

A species distributed in southern Africa, the northernmost limits are in Tanzania and Zaire (new recent report). It grows mostly on bark in the forest region (2350-2500 m).

KB: 135, *Pócs* 7231. 142, *Pócs* 7401,

Tetralophozia (Schust.) Schljakov

Tetralophozia cavallii (Gola) Vána *comb. nova*
Basionym: *Blepharostoma cavallii* Gola, *Annali di Botanica* 6: 274, 1907

A species confined to central African high mountains (Ruwenzori, Virunga Mts., Kilimanjaro etc.); it grows on bark of trees in higher elevations (3100-3300 m).

KB: 149, *Pócs* 7659. **Ka:** 159, *Pócs* 8057, *Pócs* 8127, *Pócs* 8318. 162, *Pócs* 8312.

Tritomaria Schiffn. ex Loeske

* *Tritomaria exsecta* (Schmid. ex Schrad.) Schiffn.

A boreal-montane Laurasian species with some localities in the high mountains in the tropics (Gradstein and Vána 1987). In Africa known from the high volcanoes of East Africa, including Mts. Ruwenzori, Elgon, Kilimanjaro and Rungwe (Vána 1982).

It grows on decaying logs in higher elevation forests (3100-3300 m).

Ka: 159, *Pócs* 8179 p.p., *Pócs* 8314.

References

- Gradstein S. R. Pócs T. and Vána J. 1983. Disjunct Hepaticae in tropical America and Africa. - *Acta Botanica Hungarica*, Budapest, 29: 127-171.
- Gradstein S. R. and Vána J. 1987. On the Occurrence of Laurasian Liverworts in the Tropics. *Memoirs of the New York Botanical Garden* 45: 388-425.
- Grolle R. 1971. *Jamesoniella* und Verwandte. - Feddes Reper-

torium, Berlin, 82: 1-99.

- Vána J. 1974.** Studien über die Jungermannioideae (Hepaticae). 5. *Jungermannia* Subg. *Plectocolea* and Subg. *Solenostoma*: Afrikanische Arten. - Folia Geobotanica et Phytotaxonomica, Praha, 9: 277-312.
- Vána J. 1982.** Notes on Some African Hepatic Genera 1-5. Folia Geobotanica et Phytotaxonomica, Praha, 17: 63-87.
- Vána J. 1985.** Notes on Some African Hepatic Genera 6-9. Folia Geobotanica et Phytotaxonomica, Praha, 20: 81-99.
- Vána J. 1988.** *Cephalozia* (Dum.) Dum. in Africa, with Notes on the Genus (Notes on some African Hepatic Genera 10). Nova Hedwigia, Berlin - Stuttgart, Beih. 90: 179-198
- Vanden Berghen C. 1972.** Hépatiques et Anthocerotées. - In: Exploration hydrobiologique du bassin du lac Bangweolo et du Luapula 8(1): 1-202, Bruxelles.

