Bryophytes of Uganda. 5. Bryocrumia L.E.Anderson (Hypnaceae), a monotypic moss genus new to Africa

Brian J. O’Shea and William R. Buck

1 41 Fawnbrake Avenue, London SE24 0BG, U.K.
2 Institute of Systematic Botany, New York Botanical Garden, Bronx, NY 10458-5126, U.S.A.

Abstract. A number of collections from Africa identified as Phyllodon scutellifolius or Glossadelphus serpyllifolius belong to Bryocrumia vivicolor, previously known only from America and Asia. Phyllodon scutellifolius is known only from one (possibly two) collections from Madagascar, and Glossadelphus serpyllifolius is a synonym of Bryocrumia vivicolor.

Amongst recent collections from Uganda (Wigginton et al. 1999) were a number of collections of a moss from wet rocks in forest, stones in streams and wet rocks in a waterfall. The moss was identified by M.J. Wigginton as Glossadelphus serpyllifolius P.de la Varde, based on the original publication (Potier de la Varde 1955). This moss was described from a 1948 collection of Dr. Olov Hedberg from the Mobuku Valley, quite low on the eastern flanks of the Rwenzori Mountains, Uganda; the description and illustration are succinct but clear and explicit.

In a review of Glossadelphus, Tixier (1988) included G. serpyllifolius in the synonymy of G. scutellifolius Besch. (= Phyllodon scutellifolius (Besch.) W.R.Buck), but without giving any reasons, and apparently without examining the type of G. serpyllifolius, which is in Potier de la Varde’s herbarium in PC, nor the type of G. scutellifolius, which is in BM, with an isotype in PC. This has resulted in a number of recent African collections of Potier de la Varde’s plant being identified as Phyllodon scutellifolius. Tixier (1988) also included Glossadelphus vivicolor (Broth. & Dixon) Broth. in the synonymy of G. scutellifolius, but this species is now treated as Bryocrumia vivicolor (Broth. & Dixon) W.R.Buck (Buck 1987). The type specimen of Phyllodon scutellifolius has been examined, and Glossadelphus serpyllifolius is clearly a separate species. The material recently collected in Uganda agrees perfectly with Potier de la Varde’s type collection and his published description and illustration of G. serpyllifolius, but not at all with G. scutellifolius. In addition, the type specimen of the Indian Glossadelphus vivicolor (= Bryocrumia vivicolor) has also been examined, and this also agrees remarkably well with the Uganda collections.

All three taxa belong in the traditional rather lax concept of Glossadelphus. The genus Bryocrumia was separated from Glossadelphus...
and *Taxiphyllum* by Anderson (1980), and subsequently Buck (1987) separated *Phyllodon*, pointing out that *Glossadelphus* was a synonym of *Phyllodon*, and thus species currently in *Glossadelphus* should either be moved into *Phyllodon*, or transferred elsewhere. The three genera *Taxiphyllum*, *Phyllodon* and *Bryocrumia* ‘lack clear definition’ (Anderson 1980), but can be distinguished as shown in Table 1.

Contrary to descriptions, all three genera have a discrete short double costa, although this isn’t always easy to see, but stands out best in cleared specimens, for instance mounted in Hoyer’s solution. The African plant thus falls within the concept of *Bryocrumia*, a genus with only one species.

*Bryocrumia* was created as a genus by Anderson (1980) because he believed that the taxon named *Glossadelphus andersonii* did not appear to fit well in *Glossadelphus*, and nor was it a good fit for the only alternative, *Taxiphyllum*. Subsequently, Buck (1987) discovered that the Indian *Taxithelium vivicolor* was ‘almost identical’ to *Bryocrumia andersonii*, and that ‘it may indeed prove to be synonymous but from the limited material available it is slightly more robust’, and he transferred it to the genus. He also commented that ‘an explanation is elusive for a disjunction between southern India and South Carolina’. Subsequently further specimens have been found in both North and South Carolina as well as China, and the African collections complete the picture, of a taxon that requires high levels of moisture for large parts of the year, growing in or by water. The present distribution suggests a relict presence of a plant much more widely distributed in the past, but still able to grow in some abundance where the conditions remain suitable (see Figure 1). *Bryocrumia vivicolor* was based by Brotherus and Dixon on a collection made by L.J. Sedgwick, and as Dixon was the recipient of Sedgwick’s collections, the specimen in BM from Dixon’s herbarium should be made the lectotype, and any specimen in H-BR is likely to be an extract from this.

*Bryocrumia vivicolor* (Broth. & Dixon)
Type: India: Maharashtra. On stones in the bed of a torrent, Mahabaleshwar, 1220 m, Jan 1909, Sedgwick [23] (BM - lect. nov.,

<table>
<thead>
<tr>
<th><strong>Taxiphyllum</strong> M.Fleisch.</th>
<th><strong>Phyllodon</strong> Schimp. in Bruch, Schimp. &amp; W.Gümbel</th>
<th><strong>Bryocrumia</strong> L.E.Anderson</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leaf shape</strong></td>
<td>Narrowly ovate to lingulate</td>
<td>Elliptic to oblong-ovate, from a contracted base, strongly concave</td>
</tr>
<tr>
<td><strong>Leaf apex</strong></td>
<td>Acute (sometimes bluntly)</td>
<td>Truncate</td>
</tr>
<tr>
<td><strong>Leaf areolation</strong></td>
<td>Cells pointed</td>
<td>Cells blunt to rounded</td>
</tr>
<tr>
<td><strong>Leaf papillae</strong></td>
<td>Absent, but cells sometimes slightly prorate</td>
<td>Present, obvious, and cells often prorate</td>
</tr>
<tr>
<td><strong>Leaf decurrency</strong></td>
<td>Not decurrent</td>
<td>Not decurrent</td>
</tr>
<tr>
<td><strong>Alar cells</strong></td>
<td>Sparsely differentiated</td>
<td>Not differentiated</td>
</tr>
</tbody>
</table>

Table 1: Characters distinguishing *Taxiphyllum*, *Phyllodon* and *Bryocrumia*
Bryocrumia new to Africa

BM 000661471).
Paratype: India: Tamil Nadu. Shembaganur, 1911, Foreau (BM bm000661472 !).

= Glossadelphus andersonii E.B.Bartram, Bryologist 54: 81. f.1-6. 1951;
Taxiphyllum andersonii (E.B.Bartram) H.A.Crum, Bryologist 68: 220. 1965;
Type: U.S.A. South Carolina: Oconee Co., Lower Falls, Whitewater River, about 3 miles NW of Jocassee, moist vertical rock, cool ravine, hemlock-hardwood community, 460 m, 6 Jun 1950, L.E. Anderson 9237 (FH - holotype; DUKE !, NY - isotypes !).

Type: Uganda. Rwenzori: Mubuku valley, at a small stream in montane rain forest, 2100 m, 19 Mar 1948, Hedberg 329c p.p. (PC !) syn. nov.

Habitat: wet rocks in forest, streams, rivers and waterfalls, to 2300 m in Yunnan, 2680 m in Uganda, but more usually 1000-1600 m in the tropics, and 400-500 m in the Carolinas.

Distribution: U.S.A. (North Carolina, South Carolina), Zaire, Uganda, Kenya, India (Maharashtra, Tamil Nadu), Sri Lanka (Nuwara Eliya), China (Yunnan).

Additional description/illustration:
Crum & Anderson 1981: 1187 (as B. andersonii). N.B.: African specimens are closer to illustrations of Dixon (1914) than those of Crum & Anderson (1981). Phyllodon scutellifolius (Besch.) W.R.Buck has probably been collected only once, from the island of Nossi Comba, just off the north west coast of Madagascar, as all references to this taxon (Crosby & Schultz-Motel 1983) refer back to the type collection (Bescherelle 1880a: 311; 1880b: 38; Wright 1888: 267; Renault 1898: 243; Renault & Cardot 1915: 474). Appearing to contradict this point of view, though, Tixier (1988) refers to a collection in PC from Sainte-Marie, an island off the east coast of Madagascar, also collected by Marie. However, as Edouard Auguste Marie was resident as a French colonial civil servant on Nossi Bé (an island adjacent to Nossi Comba), there may have been confusion caused by his name, although there is independent evidence that he did collect on Île Sainte-Marie (Dorr 1997). A duplicate of the collection labelled from Sainte-Marie is at NY in the Mitten Herbarium. However, the only specimen available from PC appears to be the one seen by Renault & Cardot (1915) (who stated that there was one small specimen, and described a plant that sounds the same as the BM specimen), and appears from the label data to be an extract from Bescherelle’s original Nossi Comba specimen, even sharing the same associated Callicostella (see below). Bescherelle’s herbarium is in BM, and the specimen there, which must be regarded as the type, is labelled ‘Taxithelium scutellifolium’ Bescherelle, Nossi Bé, M. Marie in Bescherelle’s handwriting. Nossi Comba is a small island off the south end of Nossi Bé, and although Bescherelle is precise about the location in the protologue, on other occasions he includes both islands under the name of Nossi Bé (Bescherelle 1880b). In order to further confirm whether or not this plant is the holotype, the other taxon mentioned in the protologue as collected with it, Hookeria nossiana, was also investigated. The plant was actually described as Hookeria lacerans var. nossiana (now Callicostella fissidentella) elsewhere in the same paper (Bescherelle 1880a) and there are specimens of that taxon also in BM. Although it was possible to find Callicostella in the Phyllodon specimen, it was not possible to find Phyllodon in the Callicostella specimen, so the evidence is inconclusive, but nevertheless the BM specimen must be regarded as the holotype, and the PC specimen as an isotype. This confirms the taxonomic view of Buck (1987), placing Taxithelium scutellifolium in Phyllodon.

Type: Madagascar: Nossi Comba, associé à Hookeria Nossiana, août 1879, Marie s.n.
Specimens examined

**Bryocrumia vivicolor**

USA: North Carolina. Jackson County: Upper Falls, Whitewater River, near Bohaynee, 35°02′N, 83°01′W, 25 Aug 1949, L. E. Anderson 8652a (DUKE); Transylvania County: Tuxaway Creek, in Tuxaway Gorge, 8 mi SW of Rosman, 35°05′N, 82°54′W, 29 Jul 1952, L. E. Anderson 11088a, 11089a (DUKE), East Fork, Thompson River, 5 mi SE of Bohaynee, 35°03′N, 82°59′W, 30 Jul 1952, L. E. Anderson 11106a (DUKE).

South Carolina. Oconee County: Lower Falls, Whitewater River, ca. 3 mi NW of Jocassee, 35°00′N, 83°00′W, 6 Jun 1950, L. E. Anderson 9237 (Type of Glossadelphus andersonii) (DUKE, NY), 9242a (DUKE), Lower portion of Coley Creek emptying into Thompson River cove portion of Lake Jocassee, 35°01′N, 82°38′W, 15 Jul 1987, L. E. Anderson & C. Gadd 25052 (DUKE); Pickens County: Eastatoe Creek, in Toxaway Gorge, 8 mi SW of Rosman, 35°02′N, 83°01′W, 25 Aug 1949, L. E. Anderson 22264a (DUKE).

Uganda: Kabarole. Mubuku valley, at a small stream in montane rain forest, between Pinga and Peti, about 120 km NW of Goma, 1°00′S 28°43′E, 18-23 Aug 1991, F. Müller Z575 (Hb. F. Müller) (see also Müller 1995)

Uganda: Kivu. Stone in waterfall in montane rain forest, between Pinga and Peti, about 120 km NW of Goma, 1°00′S 28°43′E, 18-23 Aug 1991, F. Müller Z575 (Hb. F. Müller) (see also Müller 1995)

**Phyllodon scutellifolius**

Madagascar: Nossi Bé. Marie s.n. (BM - holotype, bm000661470; PC - isotype); Île Ste.-Marie, Marie s.n. (NY 456552).

Acknowledgments

We thank Molly McMullen at Duke University Herbarium for sending us the locality data of *Bryocrumia* from that herbarium, and Catherine Rausch for providing specimens from PC.

References


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Figure 1. World distribution of *Bryocrumia vivicolor*


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