Leucobryum juniperoideum (Brid.) C.Müll. in North America

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Abstract: *Leucobryum juniperoideum* was found on a fieldtrip in December 2009 in North Carolina. This species was so far known from the tropics as well from Europe where it had formerly be included in *L. glaucum* until 1962. It is the third species of this genus in North America and differs from *L. albidum* and *L. glaucum* by a different leaf shape, a different transverse section of the costa and different shape of the capsules.

During a visit of the author to the U.S. in December 2009, Blanka and Jon Shaw organized a fieldtrip to Mitchell´s Mill, Wake Co., N.C. The locality is situated along the fall line, the border between the Piedmont and the coastal plain in North Carolina, and is famous for the only record of *Campylopus oerstedianus* in North America, a rare and worldwide sterile circum-tethyan element distributed along the former costa of the mesozoic Tethys Sea from Guatemala, Jamaica, North Carolina to the northern Mediterranean in Europe.
During this field trip, a *Leucobryum* was found, which was attributed by me to *L. juniperoideum*, a species so far not recorded from North America, and which I had just seen two months before in Réunion.
Leucobryum juniperoideum was described by Bridel already in 1826 from Tenerife and Réunion as *Dicranum juniperoideum* and later transferred to *Leucobryum* by Carl Müller in 1845. It was later recorded also from Brazil. Accordingly, the authors of the Index Muscorum (Wijk et al. 1964) list it from "Afr. 1,3, Am. 5". Although not known in Europe under this name, it has been described from there as *Leucobryum minus* Hampe and *Leucobryum glaucum* var. *rupestre* Breidl. in Bauer. *Leucobryum minus* was synonymised with the North American *L. albidum*, until the Czeck bryologist Pilous (1962) stated that both, *L. albidum* from North America and *L. minus* from Europe are not identical but the latter is identical with *L. juniperoideum* described earlier.

Consequently, the existence of this species in Europe was confirmed by other bryologists in many countries of Europe (Bonnot 1965, Breuer 1970, De Sloover & Lambinon 1966, Enroth 1989, Zündorf 1988) as well as Madagascar, Turkey, Caucasus, China and Japan (Bonnot 1965) and its anatomical as well as ecological differences to *L. glaucum* were discussed. *Leucobryum juniperoideum* is now generally accepted in Europe in all recent floras. In Europe, *L. juniperoideum* is very characteristic for sandstone rocks and also bases of trees, whereas *L. glaucum* grows preferably on soil or rotten wood in forests in generally moister habitats as compared with *L. juniperoideum*. The separation into two species was supported by isozyme analysis (Krzakowa & Smajda 1992). Molecular data from 18S-26S nuclear ribosomal DNA, however, did not support the distinction (Vanderpoorten et al. 2003). A third species, *Leucobryum albidum*. is a North American species. Records from the Macaronesian Islands were questioned, however, the occurrence of this species on the Azores was confirmed by Frahm (2005) which is not surprising due to the presence of other New World elements on this archipelago.

All three species can be distinguished as follows:

	L. albidum (fig. 3)	L. juniperoideum (fig. 1)	L. glaucum (fig. 2)
Leaves	2-4 mm long, short and broad, the upper part as long as the basal part.	5-6 mm long, narrow and long, sometimes slightly curved, the upper part much longer than the basal part.	5-12 mm long with ovate base, straight, the widened basal part longer than the narrow upper part.
Plants	1(-1,5) cm tall, whitish green	1-6 cm tall, light bluish green	to 20 cm tall, whitish green
Transverse section of costa near leaf base	Each 1(-2) rows of hyalocysts above and below the median chlorocysts	In general only one row of hyalocysts above and below the chlorocysts	Each 2 rows of hyalocysts above and below the median chlorocysts
Sporophyte	Capsule strongly inclined and curved, 1-1,5 mm longnot or slightly strumose	Capsule ovate, 1,0-1,5 mm long, hardly inclined and curved and hardly strumose	Capsule 1,5-2,0 mm long, inclined, strongly arcuate, striate, strumose

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Illustrations of L. glaucum and juniperoideum are found in Smith (2004), those of L. glaucum and L. albidum in Crum & Anderson (1981, fig. 107 G is perhaps referable to L. juniperoideum).

Leucobryum juniperoideum can be recognised in the field by the narrow long leaves with acute tips. The widened basal part is much shorter than the narrow upper part. Leucobryum albidum has much shorter leaves with much shorter and broader (dolphin nose shaped) apex. Under the microscope it is the only species in question which has only 2 rows of hyalocysts (one, ventral, one dorsal), There can be in parts of the leaves also two dorsal rows.

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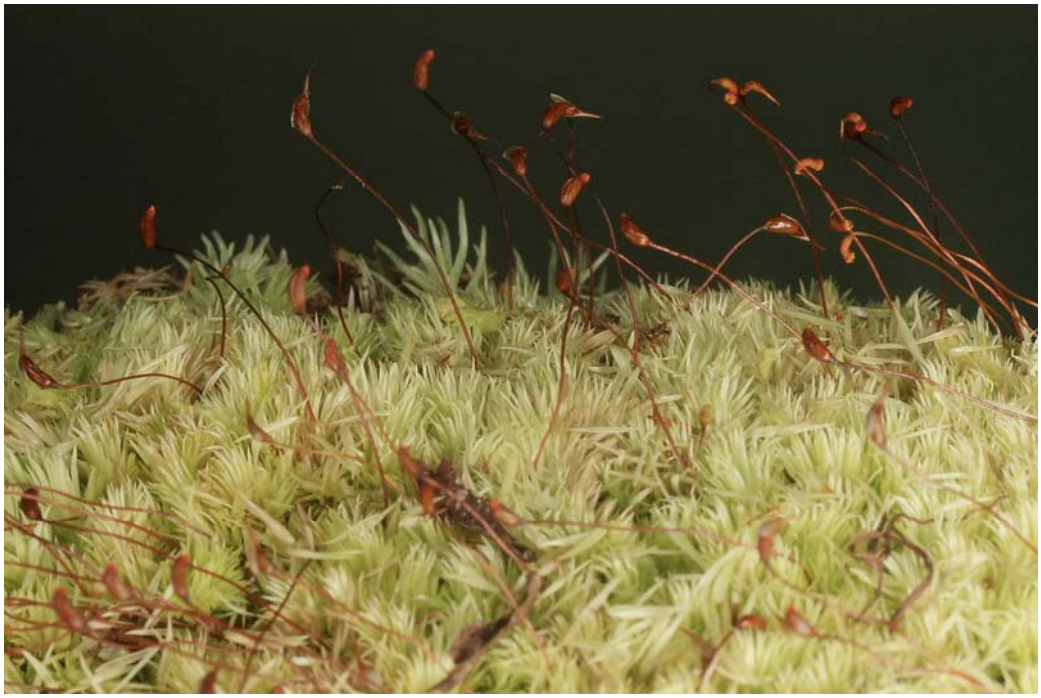

Fig. 1: Leucobryum juniperoideum from Mitchell´s Mill, N.C.

Fig. 2: Leucobryum glaucum, France.

Fig. 3: Leucobryum albidum from the Azores.

Titel in 14 p Arial

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Abstract: Beides kann bei Kurzmitteilungen wegfallen.

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