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Lectotypification of Hedwig names: holarctic pleurocarpous mosses

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ABSTRACT

HEDENÄS, L. & P. GEISSLER (1999). Lectotypification of Hedwig names: holarctic pleurocarpous mosses. *Candollea* 54: 417-432. In English, English and French abstracts.

The starting point for moss nomenclature is 1 January 1801, the adopted publication date of Hedwig's "Species muscorum". One hundred and ten taxa of holarctic pleurocarpous mosses are described in this book. Only thirty-three of these have been correctly lectotypified earlier. Sixty-nine new lectotypifications are presented here, most of them with specimens from the Hedwig-Schwägrichen herbarium kept at G. The lectotypes for four names, presently referred to *Anomodon*, are selected here by Iñigo Granzow de la Cerda. For four names no original material suitable for lectotypification could be found, for four earlier lectotypifications of synonyms of *Brachythecium acuminatum* (Hedw.) Aust. details are given. For *Hypnum abietinum* Hedw. an earlier neotype is here replaced by a lectotype. In the case of *Hypnum molle* Hedw. an earlier lectotypification is here suggested to be rejected because it was based on material that does not agree completely with the protologue, and which would in addition cause nomenclatural instability.

RÉSUMÉ

HEDENÄS, L. & P. GEISSLER (1999). Lectotypifications des noms de Hedwig: les mousses pleurocarpes holarctiques. *Candollea* 54: 417-432. En anglais, résumés anglais et français.

Le 1^{er} janvier 1801, date de publication des "Species muscorum" de Hedwig, a été adopté comme point de départ pour la nomenclature des mousses. Cent-dix taxa de mousses pleurocarpes holarctiques ont été décrits dans cet ouvrage. Seuls trente-trois ont été correctement lectotypifiés jusqu'à présent. Soixante-neuf nouvelles lectotypifications sont présentées ici, la plupart effectuées avec des échantillons de l'herbier Hedwig-Schwägrichen conservé à G. Les lectotypes de quatre noms, attribués actuellement au genre *Anomodon*, ont été sélectionnés ici par Iñigo Granzow de la Cerda. Pour quatre noms, il n'a été trouvé aucun matériel original qui conviendrait pour une lectotypification. Quatre lectotypifications antérieures de synonymes de *Brachythecium acuminatum* (Hedw.) Aust. ont été amendées. Pour *Hypnum abietinum* Hedw., un néotype, désigné auparavant de façon erronée, a été remplacé par un lectotype. Dans le cas de *Hypnum molle* Hedw., nous proposons de rejeter une lectotypification précédente basée sur du matériel ne correspondant pas exactement au protologue. En plus, elle pourrait être la cause d'une instabilité nomenclaturale.

KEY-WORDS: Bryophytes – Musci – Lectotypification – Hedwig – Disappearance of original herbarium specimens.

Correct typifications of names, if possible with specimens corresponding to our current concepts of these names, is the basis for nomenclatural stability. Therefore it is surprising to see how few of HEDWIG's (1801) moss names that were so far correctly typified. Since the Brussels Botanical Congress in 1910, Hedwig's work is the starting point for the nomenclature of the mosses, the *Sphagnaceae* excepted. Hence all specimens seen by Hedwig and referred to in the

protologues are normally to be regarded as syntypes. The Hedwig-Schwägrichen herbarium keeps only selected original Hedwig specimens. Sometimes different collections are glued on the same herbarium sheet, and Schwägrichen often added samples after Hedwig's death in 1799. Details on the history of the Hedwig collection are found in FLORSCHÜTZ (1960) and GEISSLER (in press).

A great proportion of Hedwig's species epithets have now been in use for two centuries, and the circumscriptions of the taxa have been refined in several important floras, such as, BRUCH, SCHIMPER & GÜMBEL (1836-1855), LIMPRICHT (1890-1904), or GROUT (1928-1940). However, despite the fact that the names are now generally used, the identities of the corresponding type specimens have often not been verified. The need for careful typifications of HEDWIG's (1801) names should be evident from the potentially disastrous consequences of inadequate or automatic lectotypifications. When current circumscriptions of species disagree with the types of their names (e.g., HEDENÄS & ISOVIITA, 1996a), conservation or rejection of species names is now fortunately possible. Strict application of the "International Code of Botanical Nomenclature" (GREUTER & al., 1994) would otherwise have caused great confusion. Within the framework of a type catalogue of the Hedwig-Schwägrichen herbarium, kept at the Conservatoire botanique in Geneva (G), we here typify most of those of HEDWIG's (1801) names of holarctic pleurocarpous mosses that had not been typified earlier.

In total, 110 names of holarctic pleurocarpous mosses described by HEDWIG (1801) are treated, including *Anictangium ciliatum*. For 65 of these, new lectotypes are proposed. No potential type specimens corresponding to Hedwig's names were found in G for four names, and therefore these were typified with the original collections at BM or S from where Hedwig received his samples. For most of the remaining names of holarctic pleurocarpous mosses, references to valid lectotypifications are given. Only for four names no potential type specimens seem to be available. Here we would like to stress that a particular specimen must be selected as the lectotype for a name. Thus, when material from several collections are present on a sheet only one element must be included, to allow an unambiguous interpretation of the taxonomic concept behind a name. We therefore did not accept WELCH's (1960) lectotypifications of Hedwig names where reference was only made to the presence of type material in OXF, rather than to actual specimens. Some recent authors, such as ROBINSON & IGNATOV (1997), omitted details in their lectotype selection. In such cases we give completing information from the corresponding herbarium sheets. GRANZOW de la CERDA (1997) likewise only indicated syntypes for four names currently placed in *Anomodon*, but he kindly sent us now his lectotype selection to be included in our list.

In the course of our work with the typifications we noted that, during the years, shoots or shoot portions have been removed from the already originally scarce material present in numerous cases. This was evident both from comparisons with HEDWIG's (1791, 1797, 1801) illustrations of some of the still extant specimens, and from traces left on the herbarium sheets. We feel that this is a good occasion to point out the responsibility all researchers have for not destroying some of the most important extant herbarium material. Hedwig's herbarium is certainly far too valuable to let primitive wishes to have ones own reference at home take over.

The following template was used for our lectotypifications:

1. Hedwig's name of the taxon, with bibliographical reference to HEDWIG's (1801) "Species muscorum". Names for which lectotypes are selected in the present paper are indicated in bold.
2. The current name (CN) of the taxon described by Hedwig, if different from the basionym.
3. Information on possible type material from the protologue (PR).

4. Lectotype (**LT**), either as selected here and with full specimen citation, or a reference is given to a correctly made lectotypification. If possible, new lectotypes were selected among syntype material in herbarium Hedwig-Schwägrichen.
5. Other relevant extant specimen(s) (**OS**), frequently syntypes.
6. Comments (**CO**).

Items 3, 5, and 6 are usually not included when the name has been correctly lectotypified earlier. Most labels written in Hedwig's hand bear only a reference to DILLENIIUS (1741), LINNÉ (1763), HEDWIG (1791, 1797), or other earlier descriptions. Indications regarding collector or the origin of the material are rather rare (thus often "*s. l. c.*"). Unless otherwise stated, all specimens mentioned, including the lectotypes, are located in herbarium Hedwig-Schwägrichen in G.

List of basionyms

Anictangium ciliatum Hedw., Sp. Musc. Frond. 1: 40. **CN**: *Hedwigia ciliata* (Hedw.) P. Beauv. **LT**: HEDENÄS (1994).

Fissidens sciuroides Hedw., Sp. Musc. Frond. 1: 161. **CN**: *Leucodon sciuroides* (Hedw.) Schwägr. **PR**: "Ad arborum, praesertim salicum, fagorumque annosarum truncos in Europa copiose, ad terram rarius". **LT** (selected here): The specimen at the lower left, having the most complete peristome, on a sheet with reference to "Fund. hist. nat. II, p. 91, t. VIII, 45, 46", *s. l. c.* **OS**: In total, four individuals are present on the sheet with the lectotype, placed in two rows. **CO**: HEDWIG's (1782: Tab. 8) illustration exaggerates the length of the peristome teeth.

Fontinalis antipyretica Hedw., Sp. Musc. Frond. 1: 298. **PR**: "Fluvii rivulique omnis Europae". **LT** (selected here): The well developed, nearly 30 cm long stem with capsules, on a sheet with reference to "Linné. Sp. Pl.", and "Dillenius", *s. l. c.* **OS**: Another, weaker specimen with more distant leaves and with sporophytes is present, labelled "*Fontinalis antipyretica* L.".

Fontinalis falcata Hedw., Sp. Musc. Frond. 1: 299. **CN**: *Dichelyma falcatum* (Hedw.) Myrin. **PR**: "Habitat in aquis Sueciae". **LT** (selected here): The specimen consisting of five shoots, of which two correspond to HEDWIG (1791: Tab. 24, Fig. 1 (3)) and another to Fig. 2 in the same work, on a sheet with reference to "Descr. III, t. 24", *s. l. c.* **CO**: On the shoot in HEDWIG's (1791: Fig. 2), the longest branch has been removed. WELCH (1960) discussed which specimen was likely to be the type of *Fontinalis falcata*, but did not actually select a lectotype for the name.

Fontinalis squamosa Hedw., Sp. Musc. Frond. 1: 299. **PR**: "Locus in Anglia, Scotiae rivulus alpinis, in Hercynia". **LT** (selected here): "e Dilleni herbario". **OS**: Other syntypes were identified by Cardot as *Amblystegium cf. fluviatile* (Hedw.) Schimp., *Cinclidotus aquaticus* (Hedw.) Bruch & Schimp., and *C. riparius* (Brid.) Arnott. **CO**: HEDWIG (1791) mentions that the Dillenius specimen was collected at "Llanberis".

Hypnum abbreviatum Hedw., Sp. Musc. Frond. 1: 249. **CN**: *Rhynchostegium murale* (Hedw.) Schimp. **PR**: "In Sudetibus". **LT** (selected here): The single specimen present, on a sheet with reference to "Spec. Musc. p. 249, t. 65 fig. 1-4", *s. l. c.*

Hypnum abietinum Hedw., Sp. Musc. Frond. 1: 353. **CN**: *Abietinella abietina* (Hedw.) M. Fleisch. **PR**: "locis arenosis, siccioribus Europae. In Germania et Suecia...fructiferum". **LT** (selected here): The right specimen in the upper row, with one capsule, on sheet "A", "Aus dem Voigtland", with reference to "St. Crypt. 4. t. 32". Two other original specimens, one sterile and one with three capsules, are glued on this sheet. **OS**: On sheet "A" there is also a small envelope "calyptra & operc. Oelsnitz [*manu Schwaegrichenii*]", four individuals

labelled "b. a Pensylvan. Muhlenbg", and three individuals labelled "c. Hypn. scitum a Palisot". Other material includes sheet "B" "a. Ehrhart", *s. l. c.*, with reference to "St. Cr. 4 t. 32", "b. a Voitiio Suevofortii [Schweinfurt]", "c. a Swartzio" (= *Helodium blandowii* (F. Web. & D. Mohr) Warnst., det. R. Düll 1980), sheet "C", "Plantulae ramulorum incrassatis", "a. c. fr[uctum abstulit Rom. Hedwig]. Ehrhart", "b. a Muhlenbergio ad ligna putrida n.149" (additions written by Hedwig), and sheets "D" and "E", containing two sterile specimens, *s. l. c.*, but with reference to LINNÉ (1763) and Dillenius. **CO**: All original specimens represent *Abietinella abietina* (Hedw.) M. Fleisch. *s. str.* DÜLL-HERMANNNS (1981) chose a neotype from the Schwägrichen herbarium: "Hypn. abietinum fructus deperdit, Oelsnitz 1798". The author of the label could not be identified. It cannot be excluded that these sterile stems belong to the same population as the original ones on sheet "A", but there is no proof that Hedwig has actually seen this specimen. Although Düll-Hermanns saw all original Hedwig specimens, she did not indicate why she selected a neotype.

The "a" specimen on sheet "B" corresponds exactly with HEDWIG (1797: Tab. 32, Fig. 2) except that the capsule is no longer present. To check whether a perichaetial branch was present or not would have destroyed the specimen. HEDWIG (1797) referred to LINNÉ's (1763) description of the sporophyte, which is lacking in LINNÉ (1753). Therefore we lectotypified with a capsule-bearing individual resembling HEDWIG (1797: Tab. 32, Fig. 3).

The description of *Hypnum abietinum* was printed on a supplementary page (p. 353) added by Schwägrichen after the publication of HEDWIG (1801), but apparently inserted in the stock of books for sale (van der WIJK, 1951). Fortunately it is present in the original Utrecht copy from which the reprint of "Species muscorum" was made.

Hypnum adnatum Hedw., Sp. Musc. Frond. 1: 248. **CN**: *Homomallium adnatum* (Hedw.) Broth. **PR**: "Locus arboreus Lancastriae in Pensilvania". **LT** (selected here): The upper left specimen on a sheet labelled "ad Lancaster Pennsylvaniae Muhlenb.". **OS**: On the sheet with the lectotype there are in total eleven specimens, including one labelled "b. *appressum* Brid. non differt." [*manu Schwaegrichenii*]. **CO**: CARDOT (1899) did not select a lectotype.

Hypnum aduncum Hedw., Sp. Musc. Frond. 1: 295. **CN**: *Drepanocladus aduncus* (Hedw.) Warnst. **LT**: ISOVIITA & OCHYRA (1990).

Hypnum albicans Hedw., Sp. Musc. Frond. 1: 251. **CN**: *Brachythecium albicans* (Hedw.) Schimp. **LT**: HEDENÄS (1996).

Hypnum alopecurum Hedw., Sp. Musc. Frond. 1: 267. **CN**: *Thamnobryum alopecurum* (Hedw.) Gangulee. **PR**: "In terra lutosa silvarum umbrosarum, rupibus, maxime calcareis, omnis Germaniae, in Gallia, Anglia". **LT** (selected here): The specimen to the right on a sheet labelled "*Hypnum alopecurum*" [*manu Hedwigii*], *s. l. c.* **OS**: Another sheet exists, placed together with the lectotype, but without a label.

Hypnum alpestre Hedw., Sp. Musc. Frond. 1: 247. **CN**: *Hygrohypnum alpestre* (Hedw.) Loeske. **PR**: "In fluvio alpium Norwegicarum, Augusto, legit O. Swartz". **LT** (selected here): "Hypn. Kyrtoponum", the large, central upper specimen on a sheet in herb. Swartz in S. **OS**: The sheet with the lectotype contains twelve separate plants or groups of plants (where the individual plants cannot be separated), all seemingly belonging to the same collection, and all having the general size and appearance of the plants figured in SWARTZ (1799), that is, capsuliferous plants that are brown with yellow shoot apices. **CO**: No potential type material is present in the Hedwig-Schwägrichen herbarium. There is no material in herb. Swartz that was labelled *H. alpestre* by Swartz himself. The sheet on which the selected lectotype is glued has got the following text written on it (translated from Swedish): "Note. In Swartz herbarium there is no specimen on which he has written *H. alpestre*, but probably this is it. To judge from his citations on the cover of this envelope he seems to have considered *H. alpestre* to be a synonym of *H. molle*." Although none of the plants figured by either

SWARTZ (1799) or HEDWIG (1801) seem to be extant, it seems most likely that these specimens in Swartz herbarium represent original material, and a specimen on the sheet is here chosen as lectotype for the name.

Hypnum clavellatum Hedw., Sp. Musc. Frond. 1: 250. CN: *Rhynchostegium confertum* (Dicks.) Schimp. PR: “Ad terram umbrosam truncosque putridos circa Lautern in silva Halgrund, in Palatinatu. Pollich”. LT (selected here): “e locis a Pollichio indicatis. Mr. Koch”, herb. De Candolle in G. CO: No specimen is present in the Hedwig-Schwägrichen herbarium. There is no evidence that Hedwig has seen this particular specimen but most probably he saw at least another part of the same sample. The location of Pollich’s herbarium is unknown. The taxonomic identity of this specimen corresponds to BRIDEL’s (1827) indication. *Hypnum clavellatum* has priority over *Hypnum confertum* and the latter name has to be conserved.

Hypnum commutatum Hedw., Sp. Musc. Frond. 1: 284. CN: *Palustriella commutata* (Hedw.) Ochyra. LT: OCHYRA (1989).

Hypnum contextum Hedw., Sp. Musc. Frond. 1: 278. CN: *Amblystegium serpens* (Hedw.) Schimp. (cf. MÜLLER, 1851). PR: “In trabibus putridis, hieme inundatis, in Suecia legit Junio O. Swartz; intererat etiam muscis Lancastrensibus Americanis”. CO: No potential type material is available at G (cf. CARDOT, 1899).

Hypnum cordifolium Hedw., Sp. Musc. Frond. 1: 254. CN: *Calliergon cordifolium* (Hedw.) Kindb. LT: KARCZMARCZ (1971) emend. HEDENÄS (1993).

Hypnum crista-castrensis Hedw., Sp. Musc. Frond. 1: 287. CN: *Ptilium crista-castrensis* (Hedw.) De Not. PR: “Locus udiusculus, praeprimis in abiegnis acerosis”. LT (selected here): The specimen with six stems and labelled “Ehrhart”, *c. sp.* OS: Two syntypes, *s. l. c.*, are also present.

Hypnum cupressiforme Hedw., Sp. Musc. Frond. 1: 291. LT: ANDO (1989).

Hypnum curvifolium Hedw., Sp. Musc. Frond. 1: 285. PR: “In palustribus circa Lancaster Pennsylvaniae Aprili, Majo. D. Mühlenberg”. LT (selected here): “In palustribus circa Lancaster Pennsylvaniae Muhlenberg”. CO: The selected specimen was seen by Ando in 1970 but the typification was never published.

Hypnum cuspidatum Hedw., Sp. Musc. Frond. 1: 254. CN: *Calliergonella cuspidata* (Hedw.) Loeske. LT: HEDENÄS (1992).

Hypnum delicatulum Hedw., Sp. Musc. Frond. 1: 260. CN: *Thuidium delicatulum* (Hedw.) Schimp. PR: “Habitat in Pensilvania, unde habuit et ipse Dillenius”. LT (selected here): “e Pennsylvania accepta a Dn. D. Muhlenberg, Lancastriae”: the upper left specimen, marked “c”. The bottom specimen on the same sheet is also marked c. (“a Joan Hg”), whereas the upper right specimens “a” is annotated by Schwägrichen with “Muhlbg 24 n. 223”. CO: The chosen specimen corresponds with the illustrations in HEDWIG (1797: Tab. 33, Figs 1, 3). In contrast to van der WIJK & al. (1969) and following CRUM & ANDERSON (1981) we consider the combination *Thuidium delicatulum* (Hedw.) Schimp. to be legitimate. Schimper (in BRUCH & al., 1836-1855) gives an indirect reference to the Hedwig basionym through citation of *Hypnum delicatulum* L., which is also mentioned by Hedwig. Schimper considered *Hypnum recognitum* Hedw. to be a taxonomic synonym of *Thuidium delicatulum*, following SCHWAEGRICHEN (1816: p. 236).

Hypnum denticulatum Hedw., Sp. Musc. Frond. 1: 237. CN: *Plagiothecium denticulatum* (Hedw.) Schimp. LT: IRELAND (1969).

Hypnum filicinum Hedw., Sp. Musc. Frond. 1: 285. CN: *Cratoneuron filicinum* (Hedw.) Spruce. LT: OCHYRA (1989).

- Hypnum flagellare* Hedw., Sp. Musc. Frond. 1: 282. CN: *Hygrohypnum luridum* (Hedw.) Jenn. PR: "Ad saxa fontium silvaticarum prope Giessam Dillenius et Dicksonus ad saxa iuxta rivulos in alpbibus Scotie invenere". LT (selected here): "flagellare, 14", on a sheet in herb. Dickson in BM. CO: No type material is extant in herb. Hedwig-Schwägrichen, but because HEDWIG (1801) cited material collected by Dickson, material in Dickson's herbarium can be used to typify the name.
- Hypnum fluitans* Hedw., Sp. Musc. Frond. 1: 296. CN: *Warnstorfia fluitans* (Hedw.) Loeske. LT: HEDENÄS (1993).
- Hypnum fluviatile* Hedw., Sp. Musc. Frond. 1: 277. CN: *Amblystegium fluviatile* (Hedw.) Schimp. PR: "Sub aqua in saxis fluviorum Sueciae. D.O.Swartz". LT (selected here): The upper left shoot on a sheet labelled "Sub aqua in saxis fluviorum Sueciae. Swartz", corresponding to HEDWIG (1801: Tab. 71, Fig. 4 (cf. CARDOT, 1899)).
- Hypnum halleri* Hedw., Sp. Musc. Frond. 1: 279. CN: *Campylophyllum halleri* (Hedw.) M. Fleisch. LT: HEDENÄS (1997).
- Hypnum hians* Hedw., Sp. Musc. Frond. 1: 272. CN: *Eurhynchium hians* (Hedw.) Sande Lac. PR: "Pensylvania". LT (selected here): The fertile specimen at the upper left on a sheet labelled "In Pennsylvania ad Lancaster lectum".
- Hypnum illecebrum* Hedw., Sp. Musc. Frond. 1: 252. CN: *Bryoandersonia illecebra* (Hedw.) H. Rob. PR: "Pascua nemorosa Europeae et Americae septentrionalis". LT (selected here): The middle fertile one of the three original specimens in the upper left row, on a sheet labelled "Haec exemplaria ex Pennsylvania circa Lancaster lecta" (cf. KOCH, 1949). CO: As for CARDOT (1899), *Hypnum illecebrum* L. is not conspecific with *H. illecebrum* Hedw., and he cited the latter under *H. boscii* Schwägr., not knowing that the starting point for moss nomenclature would be changed in 1910. One syntype, "Chemnitzii lecta", was identified by Cardot already in 1897 as *Pleurozium schreberi* (Brid.) Mitt. Neither Cardot nor Koch mentioned the existence of this syntype which, if revealed earlier, could have caused some confusion regarding the name of one of the most common boreal forest mosses.
- Hypnum imponens* Hedw., Sp. Musc. Frond. 1: 290. LT: ANDO (1986).
- Hypnum intricatum* Hedw., Sp. Musc. Frond. 1: 271. CN: *Brachythecium velutinum* (Hedw.) Schimp. PR: "In aggeribus silvaticis ad arborum truncos, cespitulis angustis valde implicatis lutescentibus". LT (selected here): "Exemplar ab ipso JC. Schrebero acceptum". OS: "*Hypnum intricatum* Schreb. *filiciforme*. Lips. Rosenthal".
- Hypnum loreum* Hedw., Sp. Musc. Frond. 1: 294. CN: *Rhytidiadelphus loreus* (Hedw.) Warnst. PR: "Silvae montosae acerosae, ad rupes, vias cavas frequens". LT (selected here): The only specimen in a blue folder from the original Hedwig herbarium, on the outside bearing the inscription "*Hypnum loreum*" in Hedwig's hand, *s. l. c.* OS: Other syntypes are a specimen with reference to "Ehrhart, Pl. Crypt. Linn. n. 27 ("Hannoverae")" and a specimen sent by Schreber to Hedwig in 1797, both incorporated in the Hedwig-Schwägrichen herbarium. CO: We hesitated a bit when selecting the lectotype, because the text of the sheet label is identical to the label of the lectotype of *Hypnum squarrosum* except that the word "*squarrosum*" in between "': :'" has been crossed out and replaced below, perhaps by Schwägrichen, with "*Hypnum loreum*".
- Hypnum lucens* Hedw., Sp. Musc. Frond. 1: 243. CN: *Hookeria lucens* (Hedw.) Sm. PR: "Habitat in umbrosis humidis Hercyniae, Sudetum, Austriae". LT (selected here): "*Hypnum lucens*" [*manu Hedwigii*], *s. l. c.*, *c. sp.* OS: "*Hypnum lucens* Sudet. 1797" [*manu Schwaegrichenii*], *c. sp.* CO: WELCH (1962) did not publish the lectotypification although she saw the specimen in 1959.
- Hypnum luridum* Hedw., Sp. Musc. Frond. 1: 291. CN: *Hygrohypnum luridum* (Hedw.) Jenn. PR: "Ad sublicas putrescentes in Suecia, Germania, Junio". LT (selected here): The upper right fertile specimen with a complete peristome, on a sheet labelled "In Suecia ad trabes

molendiana lectum a Dr. ... Swartz". **OS:** In total, seven specimens are present on the same sheet, but none of them is illustrated by HEDWIG (1797: Tab. 38). **CO:** JAMIESON (1976) suggested that a neotype should be selected for this name, but since original material is available this is not necessary.

Hypnum lutescens Hedw., Sp. Musc. Frond. 1: 274. **CN:** *Homalothecium lutescens* (Hedw.) H. Rob. **LT:** HOFMANN (1998).

Hypnum microphyllum Hedw., Sp. Musc. Frond. 1: 269. **CN:** *Haplocladium microphyllum* (Hedw.) Broth. **PR:** "Jamaica, et, quantum ex adhaerentibus ramentis conicere licuit, in asseribus putridis". **LT** (selected here): The left specimen on a sheet labelled "*Hypnum microphyllum* Sw. 142. Spec. Musc. p. 269. t. 69. f. 1-5. Swartz Prodr. p. 142. Jamaicae [sic!] lectum misit D. O. Swartz". **OS:** The other specimens on the sheet, as well as one in a separate envelope (herb. Duby in G), and two specimens in herb. Swartz in S are possible syntypes of the name. **CO:** The specimen selected as lectotype was illustrated by HEDWIG (1801: Tab. 69).

Hypnum minutulum Hedw., Sp. Musc. Frond. 1: 260. **CN:** *Thuidium minutulum* (Hedw.) Schimp. **PR:** "Habitat in Pensylvania". **LT** (selected here): "In Pensylvanicae circa Lancaster lectum ac missum e Rev. D. Muhlenberg". **OS:** One sheet labelled "hb. Hedwig in hb. Schwägrichen" (= *Thuidium minutulum* and *Haplocladium microphyllum* (Hedw.) Broth.), and one sheet labelled "Hb. Schwägrichen, misit Muhlenberg" with *Raiiella scita* (Müll. Hal.) Reimers. **CO:** The lectotype specimen consists of two fertile stems and was annotated by Touw in 1992.

Hypnum molle Hedw., Sp. Musc. Frond. 1: 273. **CN:** *Hygrohypnum molle* (Hedw.) Loeske. **PR:** "Locus ad rivulorum ripas in alpihus Scoticis". **LT** (selected here): "molle, 11", on a sheet in herb. Dickson in BM. **CO:** The only possible syntype in herbarium Hedwig-Schwägrichen, "b. a Dicksono", represents *Hygrohypnum duriusculum* (De Not.) Jamieson, and is therefore not suitable to choose as lectotype. GEISSLER (1985), having a broad concept of *Hygrohypnum molle* (including *H. duriusculum* and *H. alpinum* (Lindb.) Loeske), selected the specimen in herbarium Hedwig-Schwägrichen as the lectotype for the name. (The same specimen was annotated as the holotype of *Hypnum molle* by Ochyra in 1991). However, the lectotypification by GEISSLER (1985) would necessitate nomenclatural changes when *H. duriusculum* and *H. alpinum* are recognised as separate species. We therefore would like to point out that HEDWIG's (1801: Tab. 70, Figs 8, 9) illustration and description ("folia ovato-lanceolata") agree with *H. molle* s. str. rather than with *H. duriusculum* (= the earlier chosen lectotype). The earlier lectotypification did not consider well enough that the variation within *H. molle* s. l. is frequently recognised at the species level (e.g., JAMIESON, 1976; NYHOLM, 1965; SMITH, 1978), or the nomenclatural consequences when this is done. We are thus rejecting the earlier lectotypification (Art. 9.10, 9.13), and since HEDWIG (1801) referred to Dickson, we here lectotypify the name with a specimen in Dickson's herbarium in order to keep nomenclature stable. JAMIESON (1976) suggested that *Hypnum molle* Hedw. should be neotypified, but since original material is available, this is not necessary.

Hypnum molluscum Hedw., Sp. Musc. Frond. 1: 289. **CN:** *Ctenidium molluscum* (Hedw.) Mitt. **LT:** NISHIMURA (1985).

Hypnum murale Hedw., Sp. Musc. Frond. 1: 240. **CN:** *Rhynchostegium murale* (Hedw.) Schimp. **PR:** "Habitat in muris, saxis silvarum Saxoniae, Silesiae, Austriae, Clagenfurthi, Göttingae et in Anglia". **LT** (selected here): The left specimen in the upper row, with reference to "Descr. IV, p. [79 "78"] t. 30", s. l. c., and corresponding to HEDWIG (1797: Tab. 30, Figs 1, 4).

Hypnum myosuroides Hedw., Sp. Musc. Frond. 1: 266. **CN:** *Isothecium alopecuroides* (Dubois) Isov. **LT:** ISOVIITA (1981).

- Hypnum nitens* Hedw., Sp. Musc. Frond. 1: 255. CN: *Tomentypnum nitens* (Hedw.) Loeske. PR: "In pratis paludosis Lipsiae, Erlangae, in Hassia, Gallobelgio". LT (selected here): "a", "leg. Ehrhart".
- Hypnum piliferum* Hedw., Sp. Musc. Frond. 1: 275. CN: *Cirriphyllum piliferum* (Hedw.) Grout. PR: "Habitat in nemorosis udis rupestribus umbrosis Saxoniae, Franconiae". LT (selected here): Specimen "b. Gottingae lectum", illustrated by HEDWIG (1797: Tab. 14). OS: "a. Exemplar a Schrebero acceptus", also illustrated by HEDWIG (1797: Tab. 14). CO: Half of the right shoot of the lectotype has disappeared, as compared with Hedwig's illustration.
- Hypnum plumosum* Hedw., Sp. Musc. Frond. 1: 257. CN: *Brachythecium plumosum* (Hedw.) Schimp. PR: "Habitat ad saxa, rupes, in silvis et nemoribus, ad asseres inferiores putridos, ad salicum truncos vetustos". CO: All potential type material in herb. Hedwig-Schwägrichen belongs to the species that today is universally called *Brachythecium salebrosum* (F. Web. & D. Mohr) Schimp. (HEDENÄS & ISOVIITA, 1996a). HEDENÄS & ISOVIITA (1996a) therefore proposed a conservation of the name *Hypnum plumosum* with a new type: "Österreich, Ost-Steiermark, ... Ringkogel... J. Baumgartner in Crypt. Exs. Mus. Hist. Nat. Vindob. No. 3733", in S. Note that the exsiccate number was erroneously given as 3773 in HEDENÄS & ISOVIITA (1996a).
- Hypnum polymorphum* Hedw., Sp. Musc. Frond. 1: 259, *nom. rejic. prop.* CN: *Campylium protensum* (Brid.) Kindb. LT: Hedenäs, in HEDENÄS & ISOVIITA (1996b). CO: Because Hedwig's name has priority over the widely used name *Campylium protensum*, it is proposed to be rejected by HEDENÄS & ISOVIITA (1996b).
- Hypnum populeum* Hedw., Sp. Musc. Frond. 1: 270. CN: *Brachythecium populeum* (Hedw.) Schimp. PR: "Ad populi tremulae albaeque truncos in Suecia legit D.O.Swartz". LT (selected here): The middle specimen in the upper row, on a sheet labelled "In truncis Populi tremulae et albae legit et detexit D. O. Swartz" and corresponding to HEDWIG (1801: Tab. 70, Fig. 1, uppermost illustration). OS: The sheet contains at least two specimens, one collected on *Populus tremula*, the other on *Populus alba*. CO: The chosen specimen was designated as holotype by Ignatov in 1995, but since more than one specimen is present a lectotypification is necessary.
- Hypnum praecox* Hedw., Sp. Musc. Frond. 1: 249. CN: *Eurhynchium pulchellum* (Hedw.) Jenn. PR: "Locus terrestris in Suecia D.O.Swartz". LT (selected here): The second stem from the left, *c. sp.* and with a complete peristome, on a sheet labelled "in Suecia lectum a D. O. Swartz terrestris". OS: In total eight stems, glued in one row, are present on the sheet with the lectotype. CO: No difference could be found between the lectotype and the type of *Hypnum pulchellum* Hedw. Therefore we consider these two taxa to be conspecific, as already stipulated by CRUM & ANDERSON (1981).
- Hypnum praelongum* Hedw., Sp. Musc. Frond. 1: 258. CN: *Eurhynchium praelongum* (Hedw.) Schimp. LT: HEDENÄS (1996). CO: TOUW & KNOL (1978) did not select a lectotype.
- Hypnum pulchellum* Hedw., Sp. Musc. Frond. 1: 265. CN: *Eurhynchium pulchellum* (Hedw.) Jenn. PR: "In Suecia primo vere operculis secedentibus legit O.Swartz". LT (selected here): The second specimen from the left, with two complete sporophytes, on a sheet labelled "Hypnum pulchellum Spec. Musc. p. 265, tab. 68 – e Suecia acceptus ab O. Swartz".
- Hypnum purum* Hedw., Sp. Musc. Frond. 1: 253. CN: *Pseudoscleropodium purum* (Hedw.) M. Fleisch. LT: HEDENÄS (1996).
- Hypnum recognitum* Hedw., Sp. Musc. Frond. 1: 261. CN: *Thuidium recognitum* (Hedw.) Lindb. PR: "Habitat in silvis et nemoribus, praecipue regionum elatiorum sicciorum". LT (selected here): "lectum Lipsiae in Universitäts Gehölz", corresponding to HEDWIG (1797: Tab. 35, Fig. 2). OS: "lectum prope Chemnitium ad Lichtenvalde; via cava".

- Hypnum riparioides* Hedw., Sp. Musc. Frond. 1: 242. CN: *Platyhypnidium riparioides* (Hedw.) Dixon. PR: “In regionibus montosis Angliae, Germaniae, ad saxa rivulorum”. LT (selected here): The upper right, fertile “a” specimen, *s. l. c.*, corresponding to HEDWIG (1797: Tab. 4, Fig. 1). OS: On the same sheet as the lectotype specimens added later by Schwägrichen and labelled “b”, “c”, and “d” are also present, and in addition there is a specimen labelled “Göttingae lect. Persoon”.
- Hypnum riparium* Hedw., Sp. Musc. Frond. 1: 241. CN: *Leptodictyum riparium* (Hedw.) Warnst. PR: “Ad aquas puriores, fluentes, scaturientes stagnantes, ad palos, lapides”. LT (selected here): The specimen to the right at the bottom of the sheet, labelled “libere in puteo natans: capsuliferae marginis adnatae”, and corresponding to HEDWIG (1797: Tab. 3, Fig. 2).
- Hypnum rugosum* Hedw., Sp. Musc. Frond. 1: 293. CN: *Rhytidium rugosum* (Hedw.) Kindb. PR: “In montosis sicciusculis, rupibus, pratis acclivibus in Hercynia, Saxoniae Variscia, Franconia, Austria, Anglia, rarissime frugiferum, etsi copiosum magnisque cespitibus ecrescat”. LT (selected here): “E monte Buchberg ad thermas Carolinas”. OS: Four more syntypes are present.
- Hypnum rutabulum* Hedw., Sp. Musc. Frond. 1: 276. CN: *Brachythecium rutabulum* (Hedw.) Schimp. LT: HEDENÄS (1996).
- Hypnum scorpioides* Hedw., Sp. Musc. Frond. 1: 295. CN: *Scorpidium scorpioides* (Hedw.) Limpr. LT: HEDENÄS (1989).
- Hypnum serpens* Hedw., Sp. Musc. Frond. 1: 268. CN: *Amblystegium serpens* (Hedw.) Schimp. PR: “Fere ubique ad terram, truncos lignaque putrida, tegulis saxisque arenariis humectatis”. LT (selected here): The left specimen, with five capsules, and reference to “Stirp. Cr. p. 45 t. 18”, *s. l. c.* (G5738). OS: Other specimens on the sheet are intermixed with *Brachythecium velutinum* (Hedw.) Schimp. and *Hypnum* sp. CO: The sheet was annotated by A. C. Crundwell and E. Nyholm in 1961.
- Hypnum serrulatum* Hedw., Sp. Musc. Frond. 1: 238. CN: *Rhynchostegium serrulatum* (Hedw.) A. Jaeger. PR: “Lancastriae in Pensilvania lecta specimina terrestria”. LT (selected here): The lower of the two rightmost plants on the sheet, with two operculate capsules, on a sheet labelled “circa Lancaster Pennsylvaniae legit Muhlenberg” (a small shoot of *Amblystegium* sp. crosses the shoot of *Hypnum serrulatum*). OS: In total eleven stems are present on the sheet. Two are marked “b” (“laetevirens herb. Brid.” [*manu Schwaegrichenii*]), another “bx” (= *Platyhypnidium riparioides* according to Cardot in 1897).
- Hypnum smithii* Hedw., Sp. Musc. Frond. 1: 264. CN: *Leptodon smithii* (Hedw.) F. Web. & D. Mohr. PR: “Ad arborum truncus in Cantio prope Barham Downs”. LT (selected here): “Smithii, 9”, on a sheet in herb. Dickson in BM. OS: On the single sheet present in G and labelled by Schwägrichen, there are three specimens: “a” (hardly legible, not to be unambiguously identified as Barham Downs), “b” (“ex Helvet.”), and “c”. CO: Because none of the specimens in G was certain type material, the lectotype was selected from Dickson’s herbarium.
- Hypnum spinulosum* Hedw., Sp. Musc. Frond. 1: 269. CN: *Amblystegium serpens* (Hedw.) Schimp. PR: “Locus ad arborum stipites Germaniae, Sueciae”. LT (selected here): The second specimen from the right in the upper row, on a sheet labelled “e Suecia ab O. Swartz accepta”, most probably corresponding to HEDWIG (1801: Tab. 69, Fig. 3).
- Hypnum splendens* Hedw., Sp. Musc. Frond. 1: 262. CN: *Hylocomium splendens* (Hedw.) Schimp. LT: Geissler in MARGADANT & GEISSLER (1995).

- Hypnum squarrosum* Hedw., Sp. Musc. Frond. 1: 281. CN: *Rhytidiadelphus squarrosus* (Hedw.) Warnst. PR: "In silvarum pratis humidiusculis". LT (selected here): The left specimen on a sheet with reference to "Linné Sp. Pl." and "Dillenius", *s. l. c.*, *c. sp.* CO: Considering the habitat given in the protologue, we are fortunate that it represents *Rhytidiadelphus squarrosus* rather than *R. subpinnatus* (Lindb.) T. Kop.
- Hypnum stellatum* Hedw., Sp. Musc. Frond. 1: 280. CN: *Campylium stellatum* (Hedw.) C. E. O. Jens. LT: HEDENÄS (1997).
- Hypnum striatum* Hedw., Sp. Musc. Frond. 1: 275. CN: *Eurhynchium striatum* (Hedw.) Schimp. PR: "Locis umbrosis nemorosis frequens". LT (selected here): The left specimen on a sheet with reference to "Schreber, Spicil." and "Dillenius", *s. l. c.* OS: One more specimen is present on the same sheet as the lectotype. CO: None of the specimens seem to correspond with HEDWIG (1797: Tab. 13). The lectotype is unambiguously representing *Eurhynchium striatum* s. str. as currently understood.
- Hypnum tamariscinum* Hedw., Sp. Musc. Frond. 1: 261. CN: *Thuidium tamariscinum* (Hedw.) Schimp. PR: "Silvarum pratorumque uda". LT (selected here): The right specimen in the middle row, on a sheet labelled "*Hypnum tamariscinum* Spec. Musc. 261 tab. 67", *s. l. c.*
- Hypnum tenax* Hedw., Sp. Musc. Frond. 1: 277. CN: *Amblystegium tenax* (Hedw.) C. E. O. Jens. PR: "Lancaster in Pensilvania, in lignis aut arborum vetustarum cortice putridis. D. Mühlberg". LT (selected here): The upper left shoot on a sheet labelled "Circa Lancaster Pennsylvaniae legit Rev. D. Mühlberg", and corresponding to HEDWIG (1801: Tab. 72, Fig. 1).
- Hypnum tomentosum* Hedw., Sp. Musc. Frond. 1: 240. CN: *Racopilum tomentosum* (Hedw.) Brid. LT: FLORSCHÜTZ (1964). CO: The protologue mentions "Habitat in Hispania", which probably is a typographic error for "Hispaniola". However, this indication could not be found on the herbarium specimen, although mentioned by Florschütz. The distribution of this species is mainly neotropical.
- Hypnum triquetrum* Hedw., Sp. Musc. Frond. 1: 256. CN: *Rhytidiadelphus triquetrus* (Hedw.) Warnst. LT: Geissler in MARGADANT & GEISSLER (1995).
- Hypnum umbratum* Hedw., Sp. Musc. Frond. 1: 263. CN: *Hylocomium umbratum* (Hedw.) Schimp. PR: "Locus silvaticus". LT (selected here): The upper left specimen, *s. l. c.*, with six capsules, one of them still operculate, as illustrated by HEDWIG (1801: Tab. 67, Fig. 13).
- Hypnum uncinatum* Hedw., Sp. Musc. Frond. 1: 289. CN: *Sanionia uncinata* (Hedw.) Loeske. LT: HEDENÄS (1989).
- Hypnum undulatum* Hedw., Sp. Musc. Frond. 1: 242. CN: *Plagiothecium undulatum* (Hedw.) Schimp. LT: IRELAND (1969).
- Hypnum velutinum* Hedw., Sp. Musc. Frond. 1: 272. CN: *Brachythecium velutinum* (Hedw.) Schimp. PR: "Locis umbrosis ad arborum truncos, aggeres, murosque vetustos". LT (selected here): The specimen consisting of a single stem with three capsules and with reference to "Hypnum velutinum surculo repente Linn. Spec. pl. 2. p. Hypnum velutinum capsulis ovatis cernuis Dill. H. M. 326 t.42. f. 61. C.", *s. l. c.* OS: Five more original Hedwig specimens are extant, all *s. l. c.* CO: In 1995 Ignatov annotated another specimen with the same references as the lectotype, but with two more individuals added by Schwägrichen (b. *aspe-rulum* Brid.) which are now lost. The sheet with two specimens corresponding to HEDWIG (1797: Tab. 27, Figs 1-3) represent *Brachythecium salebrosum* (F. Web. & D. Mohr) Schimp. and have smooth setae, while the description on p. 70 in the same publication clearly indicates "pedunculus tuberculosis". On the other sheets also stems of *B. populeum* and *Hypnum cupressiforme* can be found.

- Leskea acuminata* Hedw., Sp. Musc. Frond. 1: 224. CN: *Brachythecium acuminatum* (Hedw.) Aust. LT: ROBINSON & IGNATOV (1997) OS: On the same sheet as the lectotype there are two specimens annotated “b. Mhlbg n. 108”, and one annotated “c. Mhlbg n. 90....”, as well as two fertile stems without letters.
- Leskea attenuata* Hedw., Sp. Musc. Frond. 1: 230. CN: *Anomodon attenuatus* (Hedw.) Huebener. PR: “Ad truncos arborum inferiores in silvis humidis Germaniae”. LT: (selected here by Iñigo Granzow de la Cerda): The specimen to the left on the sheet labelled “Dill. Musc. 327 t. 42 f. 62” and “Hedw. St. Crypt. I. p 33. tab.ii”. OS: A second specimen on the lectotype’s sheet; another sheet with at least five specimens, all fertile, labelled “Schreb. spicil. p. 100” and “Dill. H. M. 331, t. 42, f. 66?”. CO: In HEDWIG (1801) as well as on the label Hedwig refers, erroneously, to tab. II in HEDWIG (1785-1787) instead of t. XII.
- Leskea complanata* Hedw., Sp. Musc. Frond. 1: 231. CN: *Neckera complanata* (Hedw.) Huebener. PR: “Ad arborum truncos, maxime fagos et abietes, rupes calcareas”. LT (selected here): A specimen without label, s. l. c. CO: The origin of other specimens present in G is unclear.
- Leskea compressa* Hedw., Sp. Musc. Frond. 1: 232. CN: *Entodon cladorrhizans* (Hedw.) Müll. Hal. (non *E. compressus* Müll. Hal.). PR: “Arborum trunci ad Lancaster Pensilvaniae”. LT (selected here): The lower, middle plant, with two spore capsules (one with most of the peristome remaining), on a sheet labelled “Lancastriae in Pennsylvania legit ac misit Rev. Muhlenberg”. OS: The upper, middle plant on the sheet with the selected lectotype is perhaps illustrated in HEDWIG (1801), but since the single sporophyte of this plant is young, and peristome characters are important for a certain identification, this is not chosen as the lectotype for the name. CO: Cardot has annotated the lectotype specimen with “absolument identique au *Neckera cladorrhizans* Hedw.!”.
- Leskea dendroides* Hedw., Sp. Musc. Frond. 1: 228. CN: *Climacium dendroides* (Hedw.) F. Web. & D. Mohr. CO: No supposedly original Hedwig material is present in G.
- Leskea fasciculosa* Hedw., Sp. Musc. Frond. 1: 217. CN: *Eurhynchium pulchellum* (Hedw.) Jenn. PR: “Locus humosus prope Lancaster Pensilvaniae”. LT (selected here): The middle plant in the upper row on a sheet labelled “Lecta Lancast. Pensylvan.” CO: In 1893 Cardot annotated “= *Eurhynchium diversifolium* BS!” and in 1897 “Un nouvel examen et de nouvelles comparaisons m’ont fait modifier légèrement mon opinion de 1893: C’est plutôt une forme oscillant entre l’*E. diversifolium* et la var. *praecox* de *strigosum*”.
- Leskea gracilescens* Hedw., Sp. Musc. Frond. 1: 222. CO: No original Hedwig specimen is present in G.
- Leskea imbricatula* Hedw., Sp. Musc. Frond. 1: 224. CN: *Brachythecium acuminatum* (Hedw.) Aust. LT: ROBINSON & IGNATOV (1997), as “*L. imbricata*”. OS: On the sheet with the lectotype are three additional stems annotated “b. Mhlbg. n. 145”, and three annotated “c. a Spr. sub ...”.
- Leskea incurvata* Hedw., Sp. Musc. Frond. 1: 216. CN: *Lescuraea incurvata* (Hedw.) E. Lawton. PR: “Haud infrequens in montanis regionibus; e.g. supra lapides nivosae summitatis Sudetum”. LT (selected here): The specimen at the upper left, labelled “Circa summitatem nivosam (Schneekoppe) legit Ludwig hortul.”, corresponding to HEDWIG (1801: Tab. 53, Fig. 8). OS: “Um die Schneekoppe des Riesengebirges”. The other specimens on the sheet with the lectotype, as well as one in a separate envelope (ex. herb. Duby) are syntypes of the name.
- Leskea obscura* Hedw., Sp. Musc. Frond. 1: 223. PR: “Arborum trunci prope Lancaster Pensilvaniae”. LT (selected here): The right specimen in the middle row on a sheet labelled “ad Lancaster Pensilvaniae lecta” and illustrated by HEDWIG (1801: Tab. 57, Figs 1-9). OS: The specimens in the upper row on the sheet with the lectotype belong to *Leskea polycarpa* Hedw. (“a (arborea)”), those in the lower row according to Cardot in 1893 to *Leskea obs-*

cura (“b (terrestris)”). In the upper row there are now four specimens (originally six), in the lower row there are three (originally seven) specimens.

Leskea pallescens Hedw., Sp. Musc. Frond. 1: 219. **CN:** *Hypnum pallescens* (Hedw.) P. Beauv. **LT:** ANDO (1973).

Leskea paludosa Hedw., Sp. Musc. Frond. 1: 221. **CN:** *Leskea polycarpa* Hedw. **PR:** “...Germaniae et Angliae...”. **LT** (selected here): The lower right specimen on a sheet labelled “*Leskea palustris* St. Crypt. III. p. 1. tab. 1, *Hypnum palustre* Linn. *Lipsiae lecta*”. (The cover of the sheet bears the name *Leskea paludosa*). **OS:** There are an additional three syntypes on the sheet with the lectotype. **CO:** The species epithet on the label of the type collection may seem strange at first, but HEDWIG (1797) called this taxon *Leskea palustris* in his illustration, but not in the description.

Leskea polyantha Hedw., Sp. Musc. Frond. 1: 229. **CN:** *Pylaisia polyantha* (Hedw.) Schimp. **LT:** Geissler in MARGADANT & GEISSLER (1995).

Leskea polycarpa Hedw., Sp. Musc. Frond. 1: 225. **PR:** “Habitat ad truncos arborum in umbrosis Germaniae, Saxoniae, Austriae”. **LT** (selected here): Ehrhart, Crypt. Exsicc. n. 96, 1788, in herb. A. v. Haller in G. **CO:** No original Hedwig material is present in G.

Leskea pulchella Hedw., Sp. Musc. Frond. 1: 220. **CN:** *Isopterygiopsis pulchella* (Hedw.) Z. Iwats. **PR:** “In silvis umbrosis Scotiae”. **LT** (selected here): The “b” specimen on a sheet labelled by Schwägriichen “a. Helvet. Schl.; aa. Stur[m?] b. a Turnero; c. contextum Schl. Cent. 3.49; d. Kamtschatka Tiles[us]”. (The sheet is in the original blue folder). **CO:** No original Hedwig specimen is present in G although IRELAND (1969) reported “Holotype? ... in Hedwig-Schwägriichen Herbarium as *Hypnum pulchellum* with illegible writing on sheet”. Iwatsuki annotated the sheet in 1967 with “b Type of *Leskea pulchella*” but apparently never published a lectotypification. A type could also be searched for in Dickson’s herbarium according to the protologue. However, as stated by Hedwig as well as by TURNER (1804), DICKSON’s (1790) illustration shows a leaf with a percurrent midrib. We therefore prefer to lectotypify with the Turner specimen as suggested by Iwatsuki.

Leskea rostrata Hedw., Sp. Musc. Frond. 1: 226. **CN:** *Anomodon rostratus* (Hedw.) Schimp. **PR:** “Circa Lancaster Pensilvaniae”. **LT** (selected here by Iñigo Granzow de la Cerda): The second specimen from the left, in the upper row on a sheet, corresponding to HEDWIG (1801: Tab. 55, Fig. 13), collected by Rev. Muhlenberg. **OS:** Other 7-8 fertile syntypes on the sheet, some labelled “I”, “d” and two with “c” (one of them missing). **CO:** Only one, undehisced, capsule remains in the designated lectotype.

Leskea rupicola Hedw., Sp. Musc. Frond. 1: 227. **CN:** *Brachythecium acuminatum* (Hedw.) Aust. **LT:** ROBINSON & IGNATOV (1997). **CO:** Originally five specimens were glued on this sheet but only two are left today.

Leskea sericea Hedw., Sp. Musc. Frond. 1: 228. **CN:** *Homalothecium sericeum* (Hedw.) Schimp. **LT:** HOFMANN (1998).

Leskea setosa Hedw., Sp. Musc. Frond. 1: 226. **CN:** *Brachythecium acuminatum* (Hedw.) Aust. **LT:** ROBINSON & IGNATOV (1997). **OS:** On the lectotype sheet there are three additional stems, two annotated “b. Mhlbg n. 243” and one annotated “b. Brasil. Pohl 4038”. Additional type material is present in herb. De Candolle.

Leskea subtilis Hedw., Sp. Musc. Frond. 1: 221. **CN:** *Amblystegium subtile* (Hedw.) Schimp. **PR:** “Ad truncos arborum inferiores Goettingae, aliisque Germaniae locis”. **LT** (selected here): The left specimen on the sheet without folder, *s. l. c.*, referring to “Stirp. Crypt. Vol. IV, p. [page number lacking] t. 9.” and corresponding to HEDWIG (1797: Tab. 9, Fig. 1). **OS:** Another sheet with the same data, but within a blue folder and reference to p. 29 [sic!, actually p. 23] exists.

Leskea trichomanoides Hedw., Sp. Musc. Frond. 1: 231. **CN:** *Homalia trichomanoides* (Hedw.) Schimp. **LT:** Geissler in MARGADANT & GEISSLER (1995).

Leskea varia Hedw., Sp. Musc. Frond. 1: 216. **CN:** *Amblystegium varium* (Hedw.) Lindb. **PR:** “Lancaster Pennsylvaniae. D. Mühlenberg”. **LT** (selected here): Specimen “a” on a sheet labelled “Lancastriae in Pensylv. legit Muhlenb.”. **CO:** CARDOT (1899) described the sheet with the type, and identified both specimens “a” and “a” as *Amblystegium varium*. However, specimen “a” consists mainly of *Cratoneuron filicinum* (Hedw.) Spruce and is therefore less suitable than the other specimen as lectotype. OCHYRA (1998) does not select the taxonomically correct specimen citing only the label of what he thinks to be a new lectotype for the basionym of *Orthotheciella varia* (Hedw.) Ochyra.

Neckera cladorrhizans Hedw., Sp. Musc. Frond. 1: 207. **CN:** *Entodon cladorrhizans* (Hedw.) Müll. Hal. **LT:** GEISSLER (1984).

Neckera curtispindula Timm ex Hedw., Sp. Musc. Frond. 1: 209. **CN:** *Antitrichia curtispindula* (Hedw.) Brid. **PR:** “Habitat in arborum truncis rupibusque Europae copiosissima”. **LT** (selected here): The right specimen, *c. sp.*, on a sheet labelled “Hypnum curtispindulum”, with reference to “Linné, Dill. ad saxum lecta”, *s. l. c.* **OS:** On the sheet with the lectotype another two specimens are present, and an additional sheet, labelled “Plantae gemmifera ex fago decerptae auctumno” also exists. Additional specimens were glued on the sheets by Schwägrichen.

Neckera crispa Hedw., Sp. Musc. Frond. 1: 206. **PR:** “Habitat in silvaticis rupestribus; in regionibus calcareis frequentissima”. **LT** (selected here): The lower, fertile specimen on a sheet with reference to “Linné Sp. Pl., Dill.”, *s. l. c.* **OS:** Another sheet “Plantae gemmifera ad saxa Dittersdorff auctumno lectae” bears three individuals, two sterile shoots are glued and the only one with two capsules is loose. **CO:** The original spelling on the sheet, *Hypnum undulatum* (referring to “Linné Sp. Pl. II: 1589, n. 10” = *Plagiothecium undulatum* (Hedw.) Schimp.), was changed by Hedwig himself to “*crispum*”.

Neckera heteromalla Hedw., Sp. Musc. Frond. 1: 202. **CN:** *Cryphaea heteromalla* (Hedw.) D. Mohr. **PR:** “Habitat in Anglia”. **LT** (selected here): Specimen “b” on a sheet labelled “a hb Hg. America. b. hbar Dillen” [*manu Schwaegrichenii*]. **CO:** The specimen does not correspond to HEDWIG (1791: Tab. 15).

Neckera pennata Hedw., Sp. Musc. Frond. 1: 200. **PR:** “Habitat in Anglia, Helvetia, Germania, Silesia, Nassovia, Erlangae, prope Rochlitz in Saxonia; in cortice arborum, maxime fagorum”. **LT** (selected here): The left, fertile specimen on a sheet with reference to “Descr. III, p. 47, t. 19.”, *s. l. c.*, and corresponding to HEDWIG (1791: Tab. 19, Fig. 1). **OS:** The material on the other sheet present, *s. l. c.*, has no sporophytes.

Neckera pumila Hedw., Sp. Musc. Frond. 1: 205. **PR:** “Habitat in arborum truncis in silvis inter Troutbeck et Ambleside in Westmoreland in Anglia, Dicksono autore”. **LT** (selected here): The second specimen from the left, between “b” and “c”, on a sheet with reference to “Descr. III p. 49 t. 20”, *s. l. c.*, and corresponding to HEDWIG (1791: Tab. 20, Fig. 1 left, without small letter). **OS:** In total there are six stems on the sheet with the lectotype. The following are indicated separately: “[b] a Gallobritann. [?] La Pylaie”, “c. Schleich. 4.21”, and “d. a Kamtschatka, Tile[sius]” [*manu Schwaegrichenii*].

Neckera seductrix Hedw., Sp. Musc. Frond. 1: 208. **CN:** *Entodon seductrix* (Hedw.) Müll. Hal. **PR:** “Lancaster Pennsylvaniae”. **LT** (selected here): The upper left plant on a sheet labelled “ad Lancaster Pennsylvaniae Rev. Muhlenberg”.

Neckera viticulosa Hedw., Sp. Musc. Frond. 1: 209. **CN:** *Anomodon viticulosus* (Hedw.) Hook. f. & Taylor. **PR:** “ad arbores vetustas silvarum umbrosarum per omnem Europam, rarius in terra”. **LT** (selected here by Iñigo Granzow de la Cerda): The specimen to the right in the lower row, most likely corresponding to HEDWIG (1801: Tab. 48, Fig. 4), on the sheet annotated “Lips. lectus”. **OS:** Three other specimens, also fertile are present on the same sheet as lectotype; in addition a second sheet with five specimens, all fertile, exists, and although the label is almost identical (different calligraphy), it provides no locality.

Neckera viticulosa β var. *minor* Hedw., Sp. Musc. Frond. 1: 210. CN: *Anomodon minor* (Hedw.) Lindb. PR: “Ad Lancaster Pensilvaniae lectam, accepi a Rev. D. Mühlenberg”. LT (selected here by Iñigo Granzow de la Cerda): The fertile specimen to the left, probably corresponding to HEDWIG (1801: Tab. 48, Fig. 6) on the sheet labelled “ad Lancaster Pensilvaniae lecta a Rever D. Muhlenberg”. OS: Three more specimens on the same sheet as the lectotype, only one with a collection number (“Muhlenberg 210. b id ad Palisot c a Michaux” written on the actual sheet by Schwäggrichen). CO: Part (roughly half) of the lectotype seems to have broken off after being affixed to the sheet.

Pterigynandrum filiforme Hedw., Sp. Musc. Frond. 1: 81. PR: “Inventor Cl. Timm saxi silvarum superstratum reperit ad Pisede, Ducatus Megapolitani. (in Austria Host., in Franconiae rupesribus calcareis. S.)”. LT (selected here): Specimen “a” on a sheet with reference to “Descr. IV, p. 18 t. VII [leg. Timm,...]”, *s. l. c.*, and corresponding to HEDWIG (1797: Tab. 7, Fig. 1). OS: “a Dr. Froelich ad Fagos alpium Schneeberg lecta”.

Pterigynandrum gracile Hedw., Sp. Musc. Frond. 1: 80. CN: *Pterogonium gracile* (Hedw.) Sm. PR: “... in Anglia et Scotia prope Edinburg: etiam in saxi legisse Brewerum Dillenius habet”. LT (selected here): “e Dilleni herbario”, *s. l. c.*

Pterigynandrum hirtellum Hedw., Sp. Musc. Frond. 1: 83. CN: *Thelia hirtella* (Hedw.) Sull. PR: “Circa Lancaster Pensilvaniae in arboribus rupibusque”. CO: No original Hedwig specimens are present in G.

Pterigynandrum intricatum Hedw., Sp. Musc. Frond. 1: 85. CN: *Pylaisia intricata* (Hedw.) Bruch & Schimp. LT: Geissler in MARGADANT & GEISSLER (1995).

Pterigynandrum iulaceum Hedw., Sp. Musc. Frond. 1: 81. CN: *Leucodon julaceus* (Hedw.) Sull. PR: “In arborum truncis in Pensilvania vulgaris”. LT (selected here): The rightmost plant on a sheet labelled “Leskea 26. ... das grösste Exemplar... von Sprengel ...Muhlbg 21. Mart. 1800”. CO: No original Hedwig specimen is available, and a G specimen collected by Muehlenberg is therefore chosen as the lectotype for the name.

Pterigynandrum subcapillatum Hedw., Sp. Musc. Frond. 1: 83. CN: *Homalotheciella subcapillata* (Hedw.) Broth. PR: “Stipitum putrescentium cortici inhaerentem accepi muscum e Pensilvania”. LT (selected here): The left specimen on a sheet labelled “ad Lancaster Pensilvaniae legit Muhlenberg”. OS: In total, three fertile populations (of originally seven) are present on the sheet with the lectotype.

Pterigynandrum trichomitrium Hedw., Sp. Musc. Frond. 1: 82. CN: *Forsstroemia trichomitria* (Hedw.) Lindb. PR: “Arborum trunci circa Lancaster Pensilvaniae, Mühlenberg: et in Flandria secundum Neckerum”. LT (selected here): The middle specimen in the upper row, “Ad Lancaster Pensilvaniae lecta ac missa a Rev. Muhlenberg”, labelled by Hedwig with “*Pterigynandrum capillatum ciliatum* Sp. Musc. p. 84 t. 17 f. 7-13. Hypnum Dill. t.85 f. 18.”. “*trichomitrium*” is written by pencil on the sheet, perhaps by Hedwig himself. CO: CARDOT (1899) thought that the indication from Europe is likely to be erroneous, and suggested typification with the iconotype of HEDWIG (1801: Tab. 16, Figs 1-6) as he couldn't find an original Hedwig specimens. However, the above mentioned specimen was found misplaced in G. In no way it represents *Pterigynandrum ciliatum* Hedw. (≡ *Catharomnion ciliatum* (Hedw.) Hook. f. & Wils.) as could be suggested by Hedwig's reference to plate 17, and DILLENIUS' (1741) illustration presents *Forsstroemia trichomitria*. Furthermore, the chosen lectotype clearly was the model for HEDWIG (1801: Tab. 16, Fig. 1). Unfortunately the left shoot as well as the connection of the right shoot with the primary shoot, indicated by glue lines, are now lacking. On the blue folder Hedwig wrote *Pterigynandrum capillatum*, a name never published.

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