

(2292) Proposal to conserve the name *Palhinhaea* against *Lepidotis* (*Lycopodiaceae*)

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- (2292) ***Palhinhaea*** Franco & Vasc. in *Bol. Soc. Brot.*, ser. 2, 41: 24. 1967, nom. cons. prop.
Typus: *Palhinhaea cernua* (L.) Franco & Vasc. (*Lycopodium cernuum* L., *Lepidotis cernua* (L.) P. Beauv.).
- (≡) *Lepidotis* P. Beauv. in Lamarck & Mirbel, *Hist. Nat. Vég.* 3: 477; 4: 311. 21 Nov 1802, nom. rej. prop.

The genus *Lycopodium* L. (Sp. Pl.: 1101–1106. 1753), as originally circumscribed, comprised 24 species of “*Musci*”, which today are placed in widely different families. Several genera were split off early on, but the first substantial revision was by Palisot de Beauvois, who did not adopt the name *Lycopodium* but distributed the Linnaean lycopod species among half a dozen genera of his own. His revision was published in a book (*Prodr. Aethéogam.* 1805) and partly preprinted in

a journal (in Mag. Encycl. 9: 471–483. 1804), but Palisot's new generic names as well as the family name, *Lycopodiaceae* (as '*Lycopodia*'), first appeared in treatments of Mirbel (in Lamarck & Mirbel, Hist. Nat. Vég. 3 & 4. 1802) and are currently attributed to Mirbel. Such attribution is erroneous. Mirbel ascribes all new names to Palisot; at the end of the family description, "Caractère de famille", he adds: "caractère fait d'après le manuscrit de Palisot de Beauvois" (op. cit. 4: 293); and the formal generic treatment is preceded by the heading "Caractères génériques selon Palisot de Beauvois" (op. cit. 4: 310). Palisot himself must therefore be accepted as the author of all these names.

Application of the name *Lycopodium* itself is not in doubt. Britton & Brown's (Ill. Fl. N. U.S., ed. 2, 1: 43. 1913) designation of *L. clavatum* as type has never been challenged nor superseded by a different choice. The problem addressed here concerns typification of the name of one of Palisot's segregates, *Lepidotis* P. Beauv. [The currently accepted (e.g., by Stafleu & Cowan in Regnum Veg. 98: 734. 1979) simultaneous publication of all 15 volumes of Lamarck & Mirbel's work, not challenged here for want of an alternative, is probably a bibliographic artefact; however, even if it should appear that the relevant volumes, 3 and 4, were published in succession, the present conclusions would not be affected.]

The first to designate a type for *Lepidotis* was Rothmaler (in Feddes Repert. Spec. Nov. Regni Veg. 54: 65. 1944), who chose *L. cernua* (L.) P. Beauv. That designation was challenged by Pichi Sermolli (in Webbia 26: 145–149. 1971), who instead designated *Lycopodium clavatum* L. as type, making *Lepidotis* a nomenclatural synonym of *Lycopodium*. Pichi's reasons can be summarised as follows. (1) "Mirbel" distributed the original species of Linnaeus among 5 different genera; under the *Code* he should have named one of them *Lycopodium*, which he did not; and that one should have been *Lepidotis*, as it coincides by and large with the concept of *Lycopodium* in Dillenius (Hist. Musc., 1741), the source from which Linnaeus took the generic name. (2) Rothmaler, in his 1944 paper, accepted *L. clavatum* as the type of *Lycopodium*, and as that species was included in *Lepidotis* by Mirbel, the latter name thereby became illegitimate and unavailable for use. (3) Rothmaler did not refer to the original place of publication of the generic name, but to Palisot's next following treatment (l.c. 1804: 478), so that his type designation has no standing. (4) When Rothmaler designated *Lepidotis cernua* as type, he wrote "*L. cernua* (L.) P.B. (sub nomine *L. convoluta* P.B.)", which suggests that he actually intended *L. convoluta* P. Beauv. (l.c. 1805: 108), originally described as a distinct species but considered as synonymous by Rothmaler; indeed Rothmaler, on the following page, wrote [in translation]: "Palisot de Beauvois cites *L. convoluta* (= *L. cernua*) as the type" [a spurious statement].

Pichi's first two points are of academic interest only and are nomenclaturally irrelevant. In particular, *Lepidotis* cannot have been made illegitimate in 1802 by inclusion of the type of *Lycopodium* L. that was not designated before 1913 (ICN, Art. 52.2(b); McNeill & al. in Regnum Veg. 154. 2012); the name itself (*Lycopodium*) was mentioned by Palisot (in Lamarck & Mirbel, Hist. Nat. Vég. 3: 476–478. 1802, and l.c. 1804: 471–483) as a [pro parte] synonym under all but one of his *Lycopodiaceae* genera. The third argument raises the interesting question whether designation of the type of a later isonym (which is the status of *Lepidotis* in Palisot's 1805 publication) does result in typification of the name itself (*Lepidotis* P. Beauv. in Lamarck & Mirbel, l.c. 1802). That question is not addressed directly in the ICN, but by implication the answer is: yes, it does – a conclusion that agrees with currently prevailing practice and is supported in particular by the lack of any requirement in the ICN that, for a type designation to be effective, the typified name must be specified with any degree of accuracy.

There remains the fourth and last point. Obviously *Lepidotis convoluta*, published in 1805, cannot provide the type of *Lepidotis* P. Beauv., which dates from 1802. On the basis of Rothmaler's two rather ambiguous sentences quoted by Pichi (see above), one might be in doubt as to whether the mention of *L. convoluta* by Rothmaler is a fortuitous error that may be disregarded or as a fatal error that invalidates the type designation. However, Pichi forgets to refer to the decisive point. Further down in Rothmaler's 1944 paper (bottom of p. 66), under the invalid designation "*Lepidotis* ser. *Cernuae*" ('*Cernua*'), stands the clear and unambiguous statement: "*L. cernua* (L.) P.B., typus generis, sectionis et seriei". This, we believe, settles the matter. But even if one should choose to disregard Rothmaler's type designation, one cannot possibly discard the subsequent one by Fuchs (in Verh. Naturf. Ges. Basel 66: 37. 1955). Fuchs cites *Lepidotis* from Mirbel and states the type to be *Lycopodium cernuum*.

Having at some length demonstrated that *Lepidotis*, contrary to what is generally believed ever since Pichi published his views, is a legitimate name typified by *L. cernua*, we must now consider the nomenclatural consequences. These depend on the generic classification one accepts in *Lycopodiaceae*.

The traditional view recognises *Lycopodiaceae* as a monogeneric family. Such a broad concept of *Lycopodium*, while natural, has lost favour in taxonomy and is only rarely upheld in scientific texts nowadays. Under it, the present proposal is of no relevance.

A narrow generic concept, championed by Holub in various papers, has been accepted, in particular, by Wagner & Beitel (in Fl. N. Amer. 2: 18–37. 1993) and recently again by Øllgaard (in Phytotaxa 57: 10–22. 2012). Under such a view, *Lycopodium cernuum* is currently assigned to the genus *Palhinhaea* (L.) Franco & Vasc. (in Bol. Soc. Brot., ser. 2, 41: 24. 1967) as *P. cernua* Franco & Vasc. However, *Palhinhaea* is an illegitimate name, being based on the previously designated type of *Lepidotis* P. Beauv. It can become legitimate only by conservation.

Palhinhaea, or *Lepidotis* s.str., is a tropical genus of 10–15 species (Wagner & Beitel, l.c.), or up to 35 according to Øllgaard (in Biol. Skr. 34: 117–118. 1989, under *Lycopodiella* sect. *Campylostachys*). Only 2 of these have been named under *Lepidotis*, against 25 under *Palhinhaea* (combining information of Tropicos, <http://www.tropicos.org>, and IPNI, <http://www.ipni.org/>). Yet, it may be argued that the name *Palhinhaea* is not widely used and the single species in it that is generally known, *P. cernua*, already has been named under *Lepidotis*, so that the case for conserving the former name against the latter is not overwhelmingly strong.

There is, however, an intermediate generic concept, recognising 3(–4) natural and reasonably well defined *Lycopodiaceae* genera: *Huperzia* Bernh., *Lycopodium* L., and *Lycopodiella* Holub, the latter of which includes *L. cernua* (L.) Pic. Serm. and must therefore, for reasons of priority, bear the name *Lepidotis*. *Lycopodiella* thus circumscribed has been accepted by, e.g., Pichi Sermolli (in Webbia 31: 320. 1977) and Øllgaard (in Opera Bot. 92: 153–178. 1988 & l.c. 1989), and in a large majority of recent floras and floristic catalogues (note that in many cases, when only one or a few species are included, it is not possible to know whether *Lycopodiella* is being used in the wide or narrow sense). This circumscription has recently been adopted in the influential paper on pteridophyte classification by Christenhusz & al. (in Phytotaxa 19: 7–54. 2011) and has again been commended by Christenhusz & Chase (in Ann. Bot. 113: 571–594. 2014).

According to Øllgaard (l.c. 1988, l.c. 1989), followed among others by Chinnock (in Orchard, Fl. Australia 48: 66–85. 1998), *Lycopodiella* s.l. consists of 4 sections previously treated as genera: *L.* sect.

Lycopodiella (*Lycopodiella* Holub; type: *L. inundata* (L.) Holub; ca. 7 species), *L.* sect. *Carolinianae* (J.G. Bruce) B. Øllg. (*Pseudolycopodiella* Holub; type: *L. caroliniana* (L.) Pic. Serm. ≡ *P. caroliniana* (L.) Holub; ca. 13 species), *L.* sect. *Campylostachys* (K. Muell.) B. Øllg. (*Palhinhaea* Franco & Vasc.; type: *L. cernua* (L.) Pic. Serm. ≡ *P. cernua* (L.) Franco & Vasc.; 25–35 species), and *L.* sect. *Lateristachys* (Holub) B. Øllg. (*Lateristachys* Holub; type: *Lycopodiella lateralis* (R. Br.) B. Øllg. ≡ *Lateristachys lateralis* (R. Br.) Holub; 3 species).

Most of the ca. 60 species of this combined genus have been named under *Lycopodiella*, but only 10 under *Lepidotis* (a majority of combinations published under the latter name pertains to *Lycopodium* s.str. or *Huperzia*). Furthermore, since Pichi's 1971 paper negated its legitimacy *Lepidotis* has been completely dropped from use, with the lone exception of Pignatti (Fl. Italia 1: 38. 1982). No useful purpose is served by taking up that name again and abandoning the widely used *Lycopodiella* except in a sense restricted to a small group of circum-boreal species.

Conserving *Lycopodiella* against *Lepidotis* would solve the main problem, but would not restore *Palhinhaea* as a legitimate name. Those opting for a narrow genus concept in *Lycopodiaceae*, whose number may well increase in the future, would have to transfer to *Lepidotis* all species currently placed in *Palhinhaea* and, to do so,

would have to propose ±30 new species-level combinations. The above proposal is an elegant way to ensure at one stroke the best possible stability under both taxonomic scenarios. Not only does it permit continued use of the otherwise illegitimate name *Palhinhaea* by those who favour a narrow definition of genera, but by rejecting *Lepidotis* it removes the threat to *Lycopodiella* in the wider sense (Art. 14.7). The Committee for Vascular Plants is therefore requested to consider the merits (or otherwise) of the proposal on both levels, not only the one that is apparent from the to-be conserved name.

There are very many examples of basic floristic literature in which *Lycopodiella* has been used for a genus that includes *L. cernua*. These include: Castroviejo & al., Fl. Iber. 1. 1986; Harling & Anderson, Fl. Ecuador 33(1). 1988; Johns, Pterid. Trop. E. Africa. 1991; Tutin & al., Fl. Europ., ed. 2, 1. 1993; Heller & Heyn, Consp. Fl. Orient. 9. 1994; Davidse & al., Fl. Mesoamer. 1. 1995; Berry & al., Fl. Venezuel. Guayana 2. 1995; Orchard, Fl. Australia 48. 1998; Goldblatt & Manning, Cape Pl. [Strelitzia 9]. 2000; Mickel & Smith, Pterid. Mexico [Mem. New York Bot. Gard. 88]. 2004; Dassanayake, Revised Handb. Fl. Ceylon 15A. 2006; Murillo-Pulido & al., Pterid. Colombia. 2008; Dobignard & Chatelain, Index Syn. Fl. Afrique N. 1. 2010; and Schatz & al., Cat. Vasc. Pl. Madagascar (consulted on 21 Apr 2012 at: <http://www.efloras.org/madagascar>).