

(1924) Proposal to conserve the name *Cupressinocladus* against *Libocedrites* (fossil *Coniferophyta*)

Gea Zijlstra¹ & Zlatko Kvaček²

¹ Laboratory of Palaeobotany & Palynology, Budapestlaan 4, 3584 CD Utrecht, The Netherlands

² Charles University, Faculty of Science, Albertov 6, 128 43 Praha 2, Czech Republic

Author for correspondence: Gea Zijlstra, g.zijlstra@uu.nl

(1924) *Cupressinocladus* Seward, Foss. Pl. 4: 303, 307. 1919 (post 18 Jun), nom. cons. prop.

Typus: *C. massiliensis* (Saporta) Seward (*Thujopsis massiliensis* Saporta), typ. cons. prop.

(=) *Libocedrites* Endl., Syn. Conif.: 275. Mai–Jun 1847.

Typus: *L. salicornioides* (Unger) Endlicher (*Thuites salicornioides* Unger ('*Thuytes*'))

In 1919, Seward published *Cupressinocladus* as a genus of fossil conifers. In his diagnosis (p. 304), he proposed this name “for vegetative shoots agreeing in the habit of branching and in the predominance of decussate arrangement of appressed leaves with recent *Cupressineae* (...) When cones are present which throw any light on generic affinity some other term should be adopted.” On pp. 307–311 he included four groups of species, starting with species previously referred to *Libocedrus*. Here *Cupressinocladus salicornioides* is discussed, a species that originally was described by Unger as *Thuites salicornioides*, and later on by various authors was reported from a number of localities in Europe as a species of *Libocedrus* or *Libocedrites*. Seward does not consider affinity with *Libocedrus* to be more likely than with, e.g., *Thuja* or *Thujopsis*, and so Seward argues (p. 308) that “it would be unwise to adopt the designation *Libocedrus* or *Libocedrites*”. Endlicher (Syn. Conif.: 275. Mai–Jun 1847) had created *Libocedrites*, with *Thuites salicornioides* Unger as the only species, which thus provides the type. Seward’s reasoning violates

Art. 51.1 of the ICBN: “A legitimate name must not be rejected merely because it, or its epithet, is inappropriate or disagreeable, or because another is preferable or better known (but see Art. 56.1), or because it has lost its original meaning [...]”. In other words, under Art. 52.1 *Cupressinocladus* is illegitimate: “A name [...] is illegitimate and is to be rejected if it was nomenclaturally superfluous when published, i.e. if the taxon to which it was applied, as circumscribed by its author, definitely included the type [...] of a name which ought to have been adopted [...] under the rules”.

The name *Cupressinocladus* is, however, in general use for a genus including dozens of species, whereas in *Libocedrites* only two combinations have ever been made (Jongm. & Dijkstra, Foss. Cat., II. Pl. 81: 212–214. 1972; 83: 489–490. 1973; Dijkstra & Amerom, *ibid.* 100: 136–141. 1999; 102: 376–377. 2000). Therefore we propose to conserve *Cupressinocladus* against *Libocedrites*. The conserved type allows the name to apply also to the narrow concept of the genus after the removal of *Cupressinocladus salicornioides* (Unger) Seward ('*salicornoides*') (*Thuites salicornioides* Unger ['*Thuytes*']) to *Tetraclinis* Masters 1892.

The lectotype of *Cupressinocladus massiliensis* as suggested and re-illustrated by Kvaček, Sborn. Nár. Mus. Praze, Řada B, Přír. Vědy 64: 92. pl. 2, f. 4, 5. 2008 (*Thujopsis massiliensis* Saporta, Ann. Sci. Nat., Bot., ser. 5, 3: 72, pl. 1, f. 6 [non pl. 4, f. 2]. 1865) is confirmed and designated here to fulfil Art. 7.11 of the ICBN.

(1925) Proposal to conserve the name *Geinitzia* with a conserved type (fossil *Coniferophyta*)

Gea Zijlstra,¹ Han van Konijnenburg-van Cittert,^{1,2} Lutz Kunzmann,³ Hylke Bosma² & Jiří Kvaček⁴

¹ Laboratory of Palaeobotany & Palynology, Budapestlaan 4, 3584 CD Utrecht, The Netherlands

² Museum of Natural History Naturalis, Postbus 9517, 2300 RA Leiden, The Netherlands

³ Senckenberg Naturhistorische Sammlungen Dresden, Museum für Mineralogie und Geologie, Königsbrücker Landstrasse 159, 01109 Dresden, Germany

⁴ National Museum Prague, Václavské nám. 68, 11579 Prague 1, Czech Republic

Author for correspondence: Gea Zijlstra, g.zijlstra@uu.nl

(1925) *Geinitzia* Endl., Syn. Conif.: 280. Mai–Jun 1847, nom. cons. prop.

Typus: *G. formosa* Heer (in Neue Denkschr. Allg. Schweiz. Ges. Gesamnten Naturwiss. 24: 6. 1871), typ. cons. prop.

In 1847, Endlicher published *Geinitzia* as a genus of fossil conifers with a single species that he called *G. cretacea*. In his diagnosis, a little is said on the leaves, and a simple description of strobili (“strobili (amenta staminigera?)”) is given. His words on the strobili

are curious, since as far as we know, fossil material with cones of this genus was not yet known at that time except for Corda’s doubtful cone on a twig (“zapfentragendes Ästchen”) of *Cryptomeria primaeva* Corda (in Reuss, Verstein. Böhm. Kreideformat. 2: 89, pl. 48, f. 6. 1846). Even more serious, however, is the fact that *Geinitzia* is illegitimate, because Endlicher included *Sedites* Geinitz (Char. Schichten Petref.: 97, pl. 24, f. 5. 1842) with its only species *S. rabenhorstii* from a Cretaceous locality near Dresden (Germany). In addition, he

placed another new species of Geinitz (l.c.: 98) in his *G. cretacea*, namely *Araucarites reichenbachii* for which Geinitz only described stems with leaves. Endlicher included a third species name under his *G. cretacea*: *Cryptomeria primaeva* Corda. Corda had redescribed Geinitz's two species, focusing on material from Bohemia, with small indistinct terminal bodies on one specimen that he believed to constitute cones. He was convinced that these species, merged into one species, belong to *Cryptomeria*, and created one more illegitimate new species name for it: *Cryptomeria primaeva*.

Sedites, originally created for stems with leaves that were compared with the phanerogamous genus *Sedum*, fell into oblivion, and never was used for conifer remains after Endlicher's synonymising of it. Under Art. 51 of the ICBN, however, it may not be rejected because it has lost its original meaning. Nor is it relevant that in the original publication of the species name, Geinitz included a question mark—this is a matter of taxonomic doubt, permitted under Art. 34.1; *Sedites rabenhorstii* was accepted by the author, and is thus a validly published name. There is no way in which *Sedites* can be rejected in favour of *Geinitzia*, unless by conservation, therefore we propose conservation with a new type.

The history of the application of *Geinitzia* shows much variation. Unger (Gen. Sp. Pl. Foss.: 353–354. 1850) listed *Geinitzia* Endl. with *G. cretacea* Endl., citing Endlicher's generic and species description, along with those three synonyms; in addition, however, Unger listed several more localities. Two years later, Unger was the first to describe a cone attached to a twig from Neue Welt near Wiener Neustadt in Austria, again from Cretaceous strata, using for it Endlicher's illegitimate name *G. cretacea* Endl. (in Denkschr. Kaiserl. Akad. Wiss. Math.-Naturwiss. Kl. 4: 93, pl. 34, f. 6. 1852; reprinted as Iconogr. Pl. Foss.: 21, pl. 11, f. 6. 1852).

Heer (in Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturwiss. 24: 6–8, pl. 1, f. 9; 10, pl. 2, f. 1–6. 1871) described a second species from the Cretaceous of Quedlinburg (Germany): *G. formosa*. In one specimen he described the cone as attached to the twig (f. 5), another specimen showed two twigs along with a cone (f. 4). He considered his new species to be strongly related to *G. cretacea* as described by Unger (1852) and mentioned the latter as author of this species: '*G. cretacea* Unger', a practice that was continued by many later authors, as if Unger had described a later homonym.

Heer (l.c.) pointed out that Endlicher described a cone whereas Unger was the first who had twig material with an attached cone, so he supposed that Endlicher might already have seen an undescribed specimen of Unger (besides Corda's illustration of a doubtful cone).

There can be doubt whether or not Heer's f. 5 specimen really shows cone and twig attached—a cone crossing the top of a twig seems more probable. Maybe this is the reason why several later authors said that Heer based his species on specimens in which the cone was not attached to a twig. There can be no doubt, however, that Heer's twigs and cones belong to each other, and in Heer's species

description, the cone characters are well explained and constitute the outstanding element. Several authors stressed that Endlicher originally had sterile shoots, yet they retained *Geinitzia* as a natural genus, e.g., Seward (Foss. Pl. 4: 357–361. 1919). He stated that *Pagiophyllum* should be applied to sterile branches of this type.

Quite a different position, however, was taken by Harris (Yorkshire Jurass. Fl. 5: 57–58. 1979) who emended *Geinitzia* to be a form-genus including "Mesozoic shoots that have been described under the names *Araucaria*, *Araucarites*, *Pagiophyllum*, *Cryptomeria*, *Sequoia*, *Sequoiites*, *Elatides* and others. It merges into other form-genera, particularly *Pagiophyllum*, but ...". Despite this, *Geinitzia* remained in use for a natural genus.

Kunzmann (in Abh. Staatl. Mus. Mineral. Geol. Dresden 45: 122–124. 1999) compared the vascular system in the cone scales of *Geinitzia*, *Cupressospermum* Mai and *Chamaecyparites* Endl. with that of the cone scales of several *Taxodiaceae* and *Cupressaceae*, and concluded that these three genera should be considered as belonging to a family of their own, that he named *Geinitziaceae*. To retain *Geinitzia* in its traditional sense, however, it not only requires conservation because of the earlier *Sedites*, it must also be conserved with a different type than Endlicher had (ICBN Art. 14.9)—we propose that *G. formosa* Heer provide the type, since Heer (1871) more than any other author stood at the basis of the present concept of *Geinitzia* as a natural genus.

Kunzmann (l.c.: 117) saw two of Schenk's specimens of *Geinitzia formosa*, on which Heer based his species; these were until recently stored in Würzburg, but are now in Munich. The remaining original material was probably lost during World War II. One of these two specimens was figured by Heer (pl. 1, f. 9) who (l.c.: 7) interpreted it as a thick branch. Kunzmann (l.c.: 117) re-identified it as a stem fragment 'cf. *Cunninghamites squamosus* Heer', a species that was published in Heer (l.c., 1871) as well. The present authors agree, this specimen thus is not suitable for selection as the lectotype of *G. formosa*. The other original Schenk specimen (UW 3936) was not figured by Heer, it is a branched twig that was figured in Kunzmann in his pl. XXVII, f. 1, who designated this specimen as the neotype (Kunzmann, l.c.: 114, 117). As the specimen is original material of *G. formosa* this designation is to be corrected to that of lectotype under Art. 9.8 of the ICBN. Since this specimen is sterile, the designation of an epitype with two cones is necessary for critical identification—as such we designate here specimen S 095084, conserved in the Naturhistoriska Riksmuseet in Stockholm (NHRMS), figured in Kunzmann in his pl. XXVI, f. 1. Because in conifers, the epidermis structure is quite diagnostic at the species level, we draw attention to another specimen, MB Pb. 1993/9321c, preparation MMG Qg 13/97, stored in the Museum f. Naturkunde (MB) in Berlin, figured in Kunzmann in his pl. XXXVIII, f. 1, which shows the epidermis well. Both this specimen and the epitype are from the original locality: Cretaceous (Santonian) strata in Quedlinburg, Germany.