

## Validations of the names of seven *Podocarpaceae* macrofossils

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Seven names of macrofossil taxa belonging to *Podocarpaceae* are here validated; they were all previously published but not validly so under the *International Code of Botanical Nomenclature*. The names apply to species in the genera *Acmopyle* Pilg. [*A. setiger* (Townrow) R. S. Hill & R. J. Carp. ex R. R. Mill & R. S. Hill], *Dacrycarpus* (Endl.) de Laub. [*D. praecupressinus* (Ettingsh.) D. R. Greenw. ex R. R. Mill & R. S. Hill], *Falcatifolium* de Laub. [*F. eocenicum* (D. R. Greenw.) R. S. Hill & L. J. Scriven ex R. R. Mill & R. S. Hill], *Prumnopitys* Phil. [*P. tasmanica* (Townrow) D. R. Greenw. ex R. R. Mill & R. S. Hill], *Sigmaphyllum* R. S. Hill & L. J. Scriven [*S. australe* (D. R. Greenw.) R. S. Hill & L. J. Scriven ex R. R. Mill & R. S. Hill], *Smithtonia* R. S. Hill & M. Pole [*S. lanceolata* (D. R. Greenw.) R. S. Hill & M. Pole ex R. R. Mill & R. S. Hill] and *Willungia* R. S. Hill & M. Pole [*W. maslinensis* (D. T. Blackburn) R. S. Hill & M. Pole ex R. R. Mill & R. S. Hill]. All these combinations were originally published without exact basionym references; instead, the authors cited the complete pagination of the paper in which the intended basionym was made.

**KEYWORDS:** *Acmopyle*, *Dacrycarpus*, *Falcatifolium*, macrofossils, nomenclature, *Podocarpaceae*, *Prumnopitys*, *Sigmaphyllum*, *Smithtonia*, validation, *Willungia*.

### INTRODUCTION

While compiling a catalogue raisonnée of the living and fossil *Podocarpaceae* (Mill, in prep.), it was discovered that some names in use for fossil taxa had not been validly published. In this paper, seven such names of macrofossils are validly published. These seven names have been in use in the palaeobotanical podocarp literature for up to sixteen years. All were originally published as “new combinations” by various Australasian authors (Greenwood, 1987; Hill & Carpenter, 1991a, b; Hill & Pole, 1992; Hill & Scriven, 1999). However, these authors did not cite the exact page reference for the basionym, but instead cited the whole paper, which in all cases was not co-extensive with the whole protologue. Therefore, these “names” were not validly published (ICBN Art. 33.3 Note 1: Greuter & al., 2000). (Names of new taxa in the same papers were validly published.) Basionym references have been cited in this way in some journals, including *Australian Journal of Botany* and *Australian Systematic Botany*, for a long period (another example is Hill & al., 1993). However, any new combination (whether relating to fossil or living plants) with its basionym cited in this manner has not been validly published since 1 Jan 1953, unless the entire paper in which the basionym was published is devoted solely to that one

taxon (the only way the pagination could be coextensive with the protologue).

Besides the seven names validated here, two other names that are not validly published should be mentioned. These are “*Decussocarpus araucoensis* (E. W. Berry) D. R. Greenw.” and “*D. brownei* (Selling) D. R. Greenw.”, both appearing in *Austral. J. Bot.* 35: 131 (1987; “*D. brownei*” also appears on p. 119). The name *Decussocarpus* de Laub. is illegitimate. The genus included three sections corresponding to the present genera *Afrocarpus* (J. Buchholz) de Laub., *Nageia* Gaertn. and *Retrophyllum* C. N. Page. “*D. araucoensis*” and “*D. brownei*”, “based” respectively on *Podocarpus araucoensis* E. W. Berry and *P. brownei* Selling, were regarded by Florin (1940) and Selling (1950), respectively, as members of *Podocarpus* sect. *Polypodiopsis* C. E. Bertr., which corresponds to *Retrophyllum* C. N. Page. However, because other fossil genera allied to *Retrophyllum* have been described, such as *Smithtonia* R. S. Hill & M. Pole and *Willungia* R. S. Hill & M. Pole (Hill & Pole, 1992), we refrain from making any validations or new combinations to replace “*D. araucoensis*” and “*D. brownei*” until their types have been critically re-examined.

## VALIDATIONS OF NAMES

*Acmopyle setiger* (Townrow) R. S. Hill & R. J. Carp. ex R. R. Mill & R. S. Hill, **comb. nov.** – Not validly published (Arts. 32.4, 33.3 Note 1) by Hill & Carpenter, Austral. Syst. Bot. 4: 469 (1991); basionym reference cited as “Pap. Proc. R. Soc. Tas. 99: 87–107 (1965)”. – Basionym: *Podocarpus setiger* Townrow, Pap. & Proc. Roy. Soc. Tasmania 99: 95, pl. 2A and figs. 4 A, B, C, 5B, E, 7 F, 10 A, B (1965). Neotype: Tasmania: Buckland, *B-001*, housed in the Department of Plant Science, University of Tasmania; designated by Hill & Carpenter (1991a: 469) as lectotype.

Townrow (1965: 95) stated that the holotype of *Podocarpus setiger* was no. 81908 in the University of Tasmania. That specimen was stated by Hill & Carpenter (1991a) to be missing (presumably lost; Townrow kept much of his fossil material at his home and all these were destroyed in a fire), and they designated *B-001* as lectotype instead. This specimen was found among a small quantity of Buckland material that Townrow had used for an open day display and which represents the only extant Buckland material (Hill, unpubl.). The number *B-001* was assigned to it by Hill & Carpenter (1991a) who cited no previous number that may have been given to it. All the material utilized by Townrow to draw up his description of *P. setiger* did bear original numbers (indicated in the figure legends of his paper as 81918, 81919, 81920, 81921, 81922). Specimen 81908 is cited elsewhere in his paper (Townrow, 1965, legend, Plate 1A) as representing *Podocarpus tasmanicus*. Internal evidence from Townrow’s paper reveals that consecutive blocks of numbers were allotted to each taxon described and that numbers 81905–81912 were given to specimens of *P. tasmanicus*. We conclude, therefore, that the correct number for the holotype of *P. setiger* is 81918, as given in the legend to Fig. 4A which Townrow (l.c. 95) stated was a depiction of it. In the absence of any Townrow number in the “819xx” series on specimen *B-001*, it cannot be demonstrated that this specimen is part of the original material (as defined by ICBN Art. 9.2 Note 2a) utilized by Townrow to draw up his description of *P. setiger*. Although Townrow would certainly have seen it at one time, there is no evidence that he critically examined it, or that he saw it before publishing the name *P. setiger*. Hill & Carpenter’s use of the term “lectotype” for specimen *B-001* was therefore incorrect (Art. 9.8) and this is in fact a neotype.

Since first publication, the name *A. setiger* has been used in the following references, but without validation in any of them: Hill & Carpenter (1991b; no bibliographic information), Hill (1994; only the binomial used, with no bibliographic information), Carpenter & Pole (1995; only the binomial used, with no bibliographic

information), Hill & Brodribb (1999; full bibliographic citation not given).

*Dacrycarpus praecupressinus* (Ettingsh.) D. R. Greenw. ex R. R. Mill & R. S. Hill, **comb. nov.** – Not validly published (Art. 33.3 Note 1) by D. R. Greenwood, Austral. J. Bot. 35: 131 (1987). – Basionym: *Podocarpus praecupressinus* Ettingsh., Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl. 53: 92, t. 8 f. 25–27 (1886). The name was also published by Ettingshausen in Mem. Geol. Surv. New South Wales 2: 99, pl. VIII f. 25–27 (1888), which is the reference that Greenwood (1987) quoted (without the page or plate citations, so rendering his combination not validly published under Art. 33.3), but is not the earliest place of publication (see below). Lectotype (designated by Hill & Carpenter, 1991a: 466, sub *D. praecupressinus* (Ettingsh.) D. R. Greenw., **comb. inval.**): *F 51245* housed in the Geological Survey of New South Wales, Sydney; from Witherden’s Tunnel, New South Wales. This specimen forms part of the original Vegetable Creek collection that Ettingshausen studied. Ettingshausen’s original description of *P. praecupressinus* was based approximately equally on two elements belonging to different taxa: a vegetative specimen belonging to *Dacrycarpus* and selected by Hill & Carpenter (1991a) as lectotype of the name, and a reproductive structure assigned by Hill & Carpenter (l.c.) to *Podocarpus* and described by them as the new species *P. witherdenensis* R. S. Hill & R. J. Carp.

Greenwood (1987, loc. cit.), when making his combination *D. praecupressinus*, cited the basionym reference merely as “*Podocarpus praecupressinus* Ett. (section *Dacrycarpus*) 1888, Mem. Geol. Surv. N.S.W. 2; Cookson & Pike 1963, Aust. J. Bot. 1: 71–82”. Neither reference was to Ettingshausen’s original publication (1886), and Cookson & Pike’s much later paper misapplied the name *P. praecupressinus* Ettingsh. to a different species. (The latter was rather confusingly corrected by Hill & Carpenter, 1991a: 466, when they described *Dacrycarpus latrobensis* R. S. Hill & R. J. Carp.) When citing Ettingshausen’s 1888 publication, Greenwood failed to give either page or plate reference for *Podocarpus praecupressinus*. Thus, Greenwood’s combination based on that name was not validly published under Art. 33.3. Hill & Carpenter (1991a) created some confusion when they cited “*D. praecupressinus* Greenwood, Aust. J. Bot. 35: 111–33 (1987)” in the synonymy of their new species *Dacrycarpus latrobensis*. At first sight, this would appear to render *D. latrobensis* illegitimate but it does not; the reference to “*D. praecupressinus* Greenwood” cited under *D. latrobensis* clearly refers to the plant from Yallourn, Victoria, to which Cookson & Pike (op. cit. 1: 72 ff., 1953) misapplied the

name *Podocarpus praecupressinus*. The entry “*Dacrycarpus praecupressinus* Greenwood” in the synonymy given under *D. latrobensis* by Hill & Carpenter (1991a) should therefore read “*D. praecupressinus* sensu Greenwood p.p. excl. typ., non *Podocarpus praecupressinus* Ettingsh. (1886)”]; there is no name “*D. praecupressinus* Greenwood” and it has been demonstrated above that the combination *D. praecupressinus* (Ettingsh.) D. R. Greenw. was not validly published.

Since first publication the name *Dacrycarpus praecupressinus* (Ettingsh.) D. R. Greenw. has also been used in the following references, but without validation: Hill (1988; no full bibliographic information), Hill & Carpenter (1991a; pagination of whole paper cited) and Hill & Brodribb (1999; no full bibliographic reference given).

***Falcatifolium eocenicum*** (D. R. Greenw.) R. S. Hill & L. J. Scriven ex R. R. Mill & R. S. Hill, **comb. nov.** – Not validly published by Hill & Scriven in Austral. Syst. Bot. 11: 718 (1999, as “*F. eocenica*”). – Basionym: *Dacrycarpus eocenicus* D. R. Greenw., Austral. J. Bot. 35: 116, f. 8 & 9 (1987, “*eocenica*”). Type: [Victoria, Australia] “Holotype: 2351 and 2350 (upper and lower parts of fragmented whole twig). Clay lens 70 m below ground level in the Demons Bluff Formation, 25 m above coal surface, south face of the new workings (1983) of the Alcoa Anglesea open-cut (Eastern View Coal Measures)”. The holotype is conserved in AD. Hill & Scriven (1999: 718) provided an emended diagnosis when making their original combination.

Apart from the original publication of the combination, the only other occurrence of the name *F. eocenicum* in the literature appears to be in Hill & Brodribb (1999) where it was not validated because no full bibliographic citation was given.

***Prumnopitys tasmanica*** (Townrow) D. R. Greenw. ex R. R. Mill & R. S. Hill, **comb. nov.** – Not validly published by D. R. Greenwood in Austral. J. Bot. 35: 131 (1987). – Basionym: *Podocarpus tasmanicus* Townrow, Pap. & Proc. Roy. Soc. Tasmania 99: 91, pl. IA, 2F, H, 3A, D, E, 6 A–K, II A, B (1965). Holotype: University of Tasmania, 81905, from “the Bed of Tea Tree Rivulet, about two miles upstream from the Gatehouse Marsh causeway, Buckland, Tasmania” (see statement in Townrow, 1965: 87). Type housed in the Dept of Geology, University of Tasmania.

Hill & Carpenter (1991a) also discussed this taxon but, like Greenwood (1987), did not cite the exact page reference for the basionym. Other references that have mentioned the name without validating it include Hill (1988; no full bibliographic information), Stockey & Frevel (1997; binomial used without authority or biblio-

graphic citation) and Hill & Brodribb (1999; cited without full bibliographic information).

***Sigmaphyllum australe*** (D. R. Greenw.) R. S. Hill & L. J. Scriven ex R. R. Mill & R. S. Hill, **comb. nov.** – Not validly published (Art. 33.3 Note 1) by R. S. Hill & L. J. Scriven, Austral. Syst. Bot. 11: 718, f. 3, 5, 6, 8 (1999). – Basionym: *Falcatifolium australe* D. R. Greenw., Austral. J. Bot. 35: 121, f. 18–20 (1987, “*australis*”). Type: “Holotype: 2349. Paratypes: 2360, 2361. Clay lens 70 m below ground level in the Demons Bluff Formation, 25 m above coal surface, south face of the new workings (1983) of the Alcoa Anglesea open-cut brown coal mine (Eastern View coal measures), Victoria, Australia”.

*S. australe* was designated the type of Hill & Scriven’s new genus *Sigmaphyllum* R. S. Hill & L. J. Scriven (Hill & Scriven, 1999). Although their combination *S. australe* was not validly published in that paper, the basionym *F. australe* D. R. Greenw. is valid, and therefore the generic name *Sigmaphyllum* was validly published. Since *S. australe* was first described, the only reference that has used the name appears to have been Hill & Brodribb (1999), where it was not validated because no full bibliographic citation was given.

***Smithtonia lanceolata*** (D. R. Greenw.) R. S. Hill & M. Pole ex R. R. Mill & R. S. Hill, **comb. nov.** – Not validly published by R. S. Hill & M. Pole in Austral. Syst. Bot. 5(3): 355 (1992). – Basionym: *Prumnopitys lanceolata* D. R. Greenw., Austral. J. Bot. 35: 124, f. 25, 26, 32, 33 (1987). Holotype: 2355 (AD); paratypes 2356, 2357, 2358 and 2359 (all conserved at AD). Clay lens 70 m below ground surface in the Demons Bluff Formation, 25 m above coal surface, south face of the new workings (1983) of the Alcoa Anglesea open-cut brown coal mine (Eastern View coal measures), Victoria, Australia.

Since the original publication of the name, *S. lanceolata* has been used in one other paper (Hill & Brodribb, 1999) but was not validated there because no full bibliographic citation was included.

***Willungia maslinensis*** (D. T. Blackburn) R. S. Hill & M. Pole ex R. R. Mill & R. S. Hill, **comb. nov.** – Not validly published by R. S. Hill & M. Pole in Austral. Syst. Bot. 5(3): 356 (1992). – Basionym: *Decussocarpus maslinensis* D. T. Blackburn, Alcheringa 5: 12, f. 2 A–D (2 Mar 1981). Type: Maslin Bay, South Australia (holotype, S-641 and 642, counterparts: AD).

Since the first invalid publication of the name *W. maslinensis*, it seems to have been only used by Hill & Brodribb (1999) who did not validate the name because it was cited without a full bibliographic reference.

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