

SHORT COMMUNICATION

Typification of *Banksia benthamiana* (Proteaceae)

Banksia benthamiana C.A. Gardner was described by Gardner (1964: 57) with the type citation ‘Hab. in distr. Austin ad Dalwallinu ad Lacum Monger, attingit et prope oppidulum Wilroy, in arenosis glareosis, fl.m. Decembri-Januario. prope Wubin *Gardner* 12097; Wilroy *Gardner* 12075 (TYPUS)’. Given the punctuation, Gardner thus designated *Gardner* 12075 as the holotype, with *Gardner* 12097 a paratype.

George (1981), after failing to locate any specimen numbered *Gardner* 12075 in PERTH or elsewhere, lectotypified the name on the specimen *Gardner s.n.* (PERTH 01178210) ‘Dalwallinu, Jan. 1940’. He listed after the prefix ‘syn’ a further collection, *Gardner* 12097 ‘Rabbit Proof Fence E. from Perenjori, 24 Nov. 1953’, with duplicates at PERTH, AD, CANB, K, MEL and NSW.

At the time that George lectotypified *B. benthamiana*, the Leningrad Code (Stafleu *et al.* 1978) stipulated that a lectotype should be chosen from either an isotype, syntype, or other original material, in that order. Paratypes could be used for lectotypification, but this was not mandated. George was thus free, at that time, to lectotypify on either a paratype or other original material: the specimen he chose bears a red, printed ‘Type specimen’ label of a type known to have been used by Gardner (A. George pers. comm.), and was thus regarded by him as original material.

The St. Louis Code (Greuter *et al.* 2000) for the first time included paratypes in the required order of specimens for lectotypification, between syntypes and other original material, an order that remains in force in the (current) Melbourne Code (McNeill *et al.* 2012). Article 9.10 (9.12 in the Melbourne Code), where this order is established, has no starting date and is thus retroactive. On the face of it, this could invalidate George’s lectotypification by requiring that the paratype *Gardner* 12097 be used instead.

Peter Wilson (pers. comm.), while dealing with an enquiry regarding type specimens for the Global Plants Initiative, drew my attention to the fact that *Gardner* 12075 was listed on *FloraBase* (Western Australian Herbarium 1998–) under the name *B. elegans* Meissn., and queried whether this was the missing type of *B. benthamiana*. Fortunately, this appears not to be the case, as the specimen is indeed *B. elegans* and the location does not match the protologue. However, addressing this question has shown that typification of *B. benthamiana* is a tangled web caused by missing specimens, duplicated numbering systems, and erroneous locality descriptions and/or specimen citations. This paper is intended to clarify, as far as possible, a messy situation and to confirm the typification of *B. benthamiana*.

The following specimens and citations of Gardner’s are at issue here:

Gardner 12073 ‘prope Wubin, 8 Jan. 1958’ (PERTH 01155180, a specimen of *B. benthamiana*; Gardner’s original label on the left-hand side of the sheet has ‘1958’, the last digit overtyped with ‘9’, the corrected year agreeing with other collections in this number series).

Gardner 12075 ‘Wilroy’ *sine dat.* (cited as the holotype of *B. benthamiana*; this specimen has not been found).

Gardner 12075 'prope Three Springs, 10 Jan. 1959' (PERTH 01149687, a specimen of *B. elegans*).

Gardner 12075 'E of Perenjori, 8 Sept. 1953' (as listed in *Gardner's* collecting book, as a specimen of *Melaleuca neglecta*; this specimen has not been found).

Gardner 12097 'prope Wubin' *sine dat.* (as cited, a paratype of *B. benthamiana*; this specimen has not been found).

Gardner 12097 'Rabbit Proof Fence, E. from Perenjori, 24 Nov. 1953' (two sheets of *B. benthamiana*, PERTH 01178245 and 01178253, annotated paralectotype by A.J.G. Wilson 5/4/90, duplicated at AD, CANB, K, MEL and NSW).

Gardner 12097 'Culham Inlet, 13 Feb. 1959' (three sheets of *Melaleuca lanceolata*).

Gardner s.n. 'Dalwallinu, Jan. 1940' (PERTH 01178210, annotated with a small, printed red 'Type specimen' label; annotated lectotype by A.S. George 20/11/80; PERTH 01178237 and 01178229, both annotated isolectotype by A.J.G. Wilson 5/4/90).

George (1981) is correct that the designated type, *Gardner* 12075 'Wilroy' appears to be missing. The specimen *Gardner* 12075 (*B. elegans*; PERTH 01149687) is clearly a different specimen that happens to bear the same number. Wilson (1988) discussed difficulties associated with the numbering of *Gardner* specimens, noting that:

'By the end of 1966 ... *Gardner's* numbers had reached 19134. However, during the years 1924 to 1966 his numbers did not form a continuous series; there are large gaps in the sequence and many errors of numbering and chronology. Fortunately these errors are relatively insignificant and rarely confusing.'

Unfortunately, in this case the error is not insignificant and is confusing.

Neville Marchant (pers. comm.) has provided some background on the gaps and duplications in *Gardner's* numbering sequence in these years:

'*Gardner* often mislaid his collecting books and he frequently seized at an opportunity to go collecting at short notice, without a clear knowledge of his last collection number. This and his absent-mindedness, resulted in him jumping sets of numbers to lower the chance of duplicate specimen numbering. Hence the often large gaps in collection numbers. Inevitably this technique failed on occasions with the result such as that in January 1959 when he accidentally re-used some 1953 collection numbers; this was just under 18 months before he retired.

When *Gardner* returned from a field trip with his pressed specimens in the period around 1955–1959, and probably well before these dates, he relied too much on his belief in the infallibility of his own memory. Even with specimens without tags, he would often write labels from memory and had them pasted onto a sheet after mounting. Even though his memory was often fantastic regarding many issues, this was clearly not always the case with his labelling.

With regard to the many missing specimens, *Gardner* kept many specimens as a private herbarium at his home in Mount Yokine. As well, if he wanted to make a drawing, he took

PERTH specimen folders home with him. I well remember having to search the entire herbarium collection for missing specimen folders, on more than one occasion only to find them in his car boot!’

The simplest explanation, that the missing holotype of *B. benthamiana* was numbered with a duplicate number 12075 and subsequently lost, is complicated by an entry in Gardner’s collecting book for 1953 where he records a specimen of *Melaleuca neglecta* as *Gardner* 12075 (the collecting book for 1959, when the specimen of *B. elegans* was collected, has not been located, and may be among a number of notebooks destroyed shortly after Gardner’s death by his family). It is unlikely that there were three 12075s (M. Lewington pers. comm.); more likely is that Gardner made errors in either the locality statements or collecting numbers on his specimens and/or in his type citation. No specimens of *Banksia* at PERTH bear the locality ‘Wilroy’ (although there are 26 specimens of various genera collected by Gardner from Wilroy at PERTH). Thus, the holotype cannot be unambiguously identified based on the information provided in the protologue, and may or may not be lost.

Turning to *Gardner* 12097 ‘prope Wubin’, designated by Gardner as a paratype, one specimen of *B. benthamiana* bears this collecting locality (PERTH 01155180, dated 8 January 1959, see above) but has the collecting number 12073, while three specimens (PERTH 01178245, 01178253, 08177562) are numbered *Gardner* 12097 but are labelled ‘Rabbit Proof Fence, E. from Perenjori, 24 Nov. 1953’. Thus, the paratype also cannot be unambiguously identified.

It is most likely that neither of the specimens seen and cited by Gardner in the protologue are actually lost; rather, they probably both have either incorrect labels and/or collecting numbers or were erroneously specified in the protologue. Given this confusion, the best candidate for a type is PERTH 01178210, which is annotated *B. benthamiana* by Gardner and bears a Type label known to have been used in his time; this was selected by George as the lectotype based on his reasonable belief that it represents original material. Maintaining this lectotypification is the best available resolution of this problem.

Banksia benthamiana C.A.Gardner, *J. Roy. Soc. Western Australia* 47: 57 (1964).

Type: Dalwallinu [Western Australia], January 1940, *C.A. Gardner s.n.* (*lecto*: PERTH 01178210!, designated by A.S. George, *Nuytsia* 3(3): 357 (1981); *isolecto*: PERTH 01178237!, PERTH 01178229!).

Note that specimens of *Gardner* 12097 ‘Rabbit Proof Fence, E. from Perenjori, 24 Nov. 1953’ (PERTH 01178245!, 01178253!, 08177562! and with duplicates at AD, CANB, K, MEL and NSW), regarded by George (1981) as syntypes presumably on the basis of their collecting number, are at best ambiguous paratypes, and I believe should be regarded as having no type status. These specimens were erroneously annotated paralectotype by A.J.G. Wilson.

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