

JOURNAL of the ADELAIDE BOTANIC GARDENS

AN OPEN ACCESS JOURNAL FOR AUSTRALIAN SYSTEMATIC BOTANY

flora.sa.gov.au/jabg

Published by the

STATE HERBARIUM OF SOUTH AUSTRALIA

on behalf of the

BOARD OF THE BOTANIC GARDENS AND STATE HERBARIUM

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Australian Plant Census Precursor Papers 1

Introduction to the series

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The Australian Plant Census (APC) is an ongoing national cooperative project to produce a consensus list of the vascular flora of Australia with synonyms reflecting past taxonomic concepts.

Origins of the Australian Plant Census

Until now plant census lists in Australia have mainly been compiled and maintained on a State or Territory basis, with, at most, limited and regional synonymy. The last national plant census was that of Hnatiuk (1990), and the ones before that were by Mueller (1882, 1889).

Since 1991 Australia has also been fortunate to have available the Australian Plant Name Index (APNI), at first as a printed work (Chapman 1991) and later as a website (Australian National Herbarium et al. 2004).

APNI provides a comprehensive view of the major literature of Australian vascular plant taxonomy associated with the Australian flora, with information on places of publication of names, indications of synonymy in papers by the original and secondary authors, type citations and some notes on nomenclature. What it has not provided are value judgements on the names listed. There was little or no information presented on which were accepted names and which were synonyms, and little on alternative taxonomies.

It was left to users to access the botanical literature, censuses and other works, and to develop their own view of currently accepted names and their synonyms. While APNI provided some information on distribution, this was derived from the tables in Hnatiuk (1990), derived from sources such as state censuses, floras and monographs. These data are now frequently out of date.

In the late 1990s and into the early 2000s, individuals, institutions and organisations decided to work together to try to produce a single consensus view of the accepted names for the Australian vascular flora based on the APNI, State and Territory censuses and Floras, taxonomic monographs and revisions, and expert advice. It was not intended that this view should be formally binding: its use by any individual or organisation was to be purely optional. It was intended that, through this collaborative approach, it would

- have the immediate and ongoing support of the majority of the Australian taxonomic community as a day-to-day working list,
- so far as possible in the Australian context, provide full synonymies
- provide an indication for accepted taxa of their distribution in Australia and Territories at least to State level
- reflect, at least in overview, alternative taxonomies, and
- provide commentary on nomenclatural complexities and other related matters.

This list, which became known as the Australian Plant Census, was to be available electronically as a searchable database built on APNI as a bibliographic and nomenclatural source. In effect, it was to provide a view of the APNI data, reorganised as formal synonymies, with recommended name usages, and seamless links from the synonymies to the underlying literature resources.

A major driver of the Australian Plant Census was a growing perception of need for a single agreed view

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of the Australian flora for users of flora information; the single view of birds provided by the RAOU Bird Lists (Barrett et al. 2003), for example, had long proved beneficial in publications and other communication, with taxonomic controversy able to go on behind the scenes unconstrained by the need to consider impact on the broader user. A catalyst was the development of Council of Heads of Australasian Herbaria (CHAH)'s vision of the Australia's Virtual Herbarium; the concept provided funding for capture of the nation's 6 million specimens housed in the principle herbaria across the continent.

The Australian Plant Census project

In 2005 CHAH, as lead organisation for production and maintenance of the APC, obtained a grant from the Natural Heritage Trust for a two-year pilot project to compile the 'first pass' of the APC. A Project Officer (AEO) was appointed as the project's Coordinator, based at the Australian National Herbarium, which hosts and provides a team servicing the APNI database (Table 1). CHAH provided substantial additional support, with each member herbarium providing unlimited access to one of their staff as a member of an APC Working Group. Backup staff members were also nominated to the Working Group.

The normal operating procedure is for the Coordinator to draft initial synonymies family-by-family. The drafts are circulated to the Working Group who consult with colleagues. Comments and changes resulting from this consultation are incorporated in the family lists, which are then circulated to CHAH for final approval. Additional funding has been provided by CHAH and private sources to support entry of the agreed family classification into the APNI database.

The project began in April 2005, and the first pass initial compilation encompassing the vascular flora including its major synonymy and distributional data, is scheduled to be completed in April 2007. By that time it is expected that a 'first pass' census of the Australian vascular flora, with its major synonymy and distributional data, will be completed. Plans will also be developed for its further development, including searching of secondary literature for additional synonyms, further entry of alternative taxonomies, and extension to other plant groups, and for its on-going maintenance.

Further information on the project, including updates on progress, and website addresses to access the data, can be found in West (2005), Council of Heads of Australasian Herbaria (2006), and Orchard (2005a, b, c, 2006a, b).

The Australian Plant Census precursor papers

This is the first in a series of papers addressing minor nomenclatural problems encountered during compilation of the Australian Plant Census. These papers will be

Table 1. Personnel and institutional representation in the Australian Plant Census project. Modified from Council of Heads of Australasian Herbaria (2006).

Personnel	Institution
<i>Project Coordinator</i>	
A.E. Orchard (2005–06)	Australian National Herbarium (CANB) (employed through Northern Territory Herbarium)
A. Monro (2006–)	Australian National Herbarium (CANB)
<i>Working Group members (backup)</i>	
Robyn Barker (Helen Vonow) 2005–	State Herbarium of South Australia (AD)
Ailsa Holland (Peter Bostock) 2005–	Queensland Herbarium (BRI)
Brendan Lepschi (Kirsten Cowley) 2005–	Australian National Herbarium (CANB)
Dale Dixon 2005– Ian Cowie 2006– Philip Short 2006–	Herbarium of the Northern Territory (DNA_)
Alex Buchanan (Marco Duretto) 2005–	Tasmanian Herbarium (HO)
Neville Walsh (Val Stajsic) 2005–	National Herbarium of Victoria (MEL)
Peter Wilson (Joy Everett) (2005–)	National Herbarium of New South Wales (NSW)
Terry Macfarlane (Cheryl Parker) 2005–	Western Australian Herbarium (PERTH)
<i>Council of Heads of Australasian Herbaria approval</i>	
Bill Barker 2005–	State Herbarium of South Australia (AD)
Gordon Guymmer 2005– Judy West 2005–	Queensland Herbarium (BRI) Australian National Herbarium (CANB)
Greg Leach 2005– Dale Dixon 2005–06	Herbarium of the Northern Territory (DNA_)
Gintaras Kantvilas 2005–	Tasmanian Herbarium (HO)
Jim Ross 2005 Teresa Lebel 2006 David Cantrill 2006–	National Herbarium of Victoria (MEL)
Brett Summerell 2005–	National Herbarium of New South Wales (NSW)
Neville Marchant 2005 Nick Lander 2006 Kevin Thiele 2006–	Western Australian Herbarium (PERTH)
<i>Information management</i>	
Bronwyn Collins 2006– Kirsten Cowley 2005– Jim Croft 2005– Murray Fagg 2005– Brendan Lepschi 2005– Anna Monro 2005– Greg Whitbread 2005–	Australian National Herbarium (CANB)
<i>Specialist taxonomic advice</i>	
See APC website	< www.chah.gov.au/chah/apc/contributors.html >

restricted to short communications about such matters as lectotypification and necessary recombinations and short discussions of nomenclatural problems. Longer papers will be published separately.

The format will be an umbrella-type heading, followed by self-contained short papers each with its own author(s). These papers should be cited as follows in the way the first paper in the series is cited here:

Orchard, A.E., George, A.S. & Brummitt, R.K., (2007) Australian Plant Census precursor papers 1: Publication and lectotypification of the name *Stenocarpus sinuatus* (Proteaceae). *J. Adelaide Bot. Gard.* 21: 85–87.

Different Australian herbarium house journals may be used for publication of the series from time to time, depending on publication schedules.

Acknowledgements

Apart from acknowledging the hard work contributed by the State-based members of Working Group, CHAH, and the Information Management Group (listed in the table above) I would like to place on record my sincere thanks to all those other colleagues who have contributed data and encouragement to this project. To date the census has truly been a national effort, and one which demonstrates the collegiality of Australian plant taxonomy, and it shows every sign of continuing thus. In particular I wish to thank Bill Barker and Jim Croft, both for keeping me focused on the project, and for very useful suggestions to improve this overview.

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Council of Heads of Australasian Herbaria (2006). Australian Plant Census. A database of plant names for Australia. Viewed in October 2006 on <<http://www.chah.gov.au/chah/apc/index.html>>.

Hnatiuk, R.J. (1990). *Census of Australian Vascular Plants*. (Australian Flora & Fauna Series Number 11. AGPS Press, Canberra).

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Orchard, A.E. (2006a). CHAH Business. Australian Plant Census. *Austral. Syst. Bot. Soc. Newslett.* 126: 30–31.

Orchard, A.E. (2006b). CHAH Business. Australian Plant Census. *Austral. Syst. Bot. Soc. Newslett.* 127: 16–17.

West, J. (2005). The Consensus Census: The List of Agreed Australian Vascular Plant Names. *Austral. Syst. Bot. Soc. Newslett.* 122: 10.

Publication and lectotypification of the name *Stenocarpus sinuatus* (Proteaceae)

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The Firewheel Tree or Yiel-yiel is well known in cultivation and as a street tree, and admired for both its glossy dark green foliage and its spectacular radiating umbels of red and yellow flowers.

Most recent references (e.g. Foreman 1995; Henderson 2002) give its name as *Stenocarpus sinuatus* (Loudon) Endl., following Chapman (1991). Exceptionally Stanley & Ross (1986) and Harden (2002) cite the name as *Stenocarpus sinuatus* Endl.

The species epithet was first published by Loudon (1832), who utilised an Allan Cunningham manuscript name ‘*Agnostus sinuatus*’ in a list of plants growing

in England. Loudon pointed out that Cunningham’s generic name meant “unknown; provisional name”. However, Loudon accepted it, so it was not a nomen provisorium, but he did not provide a validating description. In the table of properties accompanying the list were symbols meaning “Evergreen tree”, “15 feet”, “ornamental” and “greenhouse”. The tabular format of Loudon’s publication is comparable with that of Sweet’s *Hortus Britannicus* which is ruled in Ex. 3 of Art. 32 as not providing validating descriptions. The generic-specific combination is thus a nomen nudum and invalidly published. There was a note accompanying

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Loudon's listing of 'Agnostus sinuatus': "This is the plant compared to an oak in the late notice of *Kew Garden, Gard. mag.* vol. vii p.687". This note does not provide a validating description, for two reasons. Firstly, the note referred to, in discussing Cunningham's collections, merely states "...another which may turn out a *Quercus*." Secondly, the last sentence of Art. 42.1 precludes using an earlier description or diagnosis to validate a descriptio generico-specifica.

So when was *Stenocarpus sinuatus* validated? In 1830 Brown described a quite different plant as *Stenocarpus cunninghamii* R.Br., and this name is still applied to a plant of Western Australia and the Northern Territory. Hooker (1846) described another plant as *Stenocarpus cunninghamii* Hook. and gave *Agnostus sinuatus* as a synonym. So *Agnostus sinuatus* was still invalid in this publication (Art. 34.1 (a) and *Stenocarpus cunninghamii* Hook. was illegitimate (Art. 53.1). Endlicher (1848) accepted the name *Stenocarpus sinuatus* and referred back to Hooker's description of *Stenocarpus cunninghamii* Hook. Thus *Stenocarpus sinuatus* is validated in Endlicher and its type must be that on which Hooker based his description. Hooker mentioned several specimens on which his description was based, and also provided a diagnostic plate. A lectotype should be chosen from among these. The correct citation of the name of this species is *Stenocarpus sinuatus* Endl. (1848).

Lectotypification

Hooker (1846) was very specific about the sources of his material. It had its origin in plants collected by Allan Cunningham in 1828 along the Brisbane River, Moreton Bay. These specimens were sterile and Cunningham was not sure what they were. He sent two rooted plants to England to "Mr Smith" who propagated a number of others from them. He also sent dried material to Robert Heward. In the meantime "T.Bidwill" [?J.C.Bidwill] had sent fruits (without seeds) to Hooker in 1843, and these were shown to Cunningham, who determined them as *Stenocarpus*. In August 1847 Hooker received from Messrs. Weeks and Day, from the greenhouse of the 'United Gardeners' Society', King's Road, Chelsea 'fine flowering specimens'. From these the plate in the *Botanical Magazine* was prepared, and the extensive validating description. Hooker noted that while the paper was in press he heard of additional flowering specimens in Edinburgh Botanic Garden (specimen received per Dr. Balfour) and at the Birmingham Botanic Garden per Mr Cameron (no specimen mentioned). Neither of these last two can be considered as providing potential syntypes, as they were received after preparation of the description.

As Cunningham's collections are sterile, and because Hooker described flowers and fruits, they are not ideal choices as lectotypes. Hooker's description is fulsome on flower characters, and thus the Weeks and Day specimen is the prime candidate for lectotype. Hooker

also described the fruit, obviously on the evidence of the Bidwill collection, and this should also be considered a syntype.

Only one specimen derived from cultivated material survives in Hooker's Herbarium in Kew. It is flowering, and bears the following annotations: 'Cult.' 'S.sinuatus Endl. V. 539', with a printed label 'FLORA AUSTRALIENSIS named by Mr. Bentham.', another 'S. sinuatus Endl.! *Stenocarpus Cunninghamii* Hook. non Br. Bot. Mag. tab. 4263 1847 t.7', a faint pencil annotation that seems to read 'Fl. des Serres' [ie referring to a dry glasshouse], and a 'Herbarium Hookerianum' stamp. This specimen is here designated as lectotype of *Stenocarpus sinuatus* Endl.

Two Cunningham collections from Moreton Bay survive, both sterile, and these should be considered to be residual syntypes. One is in Kew Herbarium (K), one in the Natural History Museum (BM).

The Kew specimen is annotated '5. *Stenocarpus sinuatus* Endl. D.C.XIX 451 *Stenocarpus Cunninghamii* Hook. Bot. Mag. t. 4263 (non R.Br.) *Agnostus sinuatus* A.Cunn. Brisbane River Moreton Bay New Holland A.Cunningham 193/1828' plus a printed label 'ALLAN CUNNINGHAM'S AUSTRALIAN HERBARIUM Presented by Robert Heward Esq. 1862'.

The BM collection (cited by Foreman 1995) is annotated 'Moreton Bay' and lacks a collector, but is thought to be an Allan Cunningham collection.

No Bidwill material has been located.

The synonymy, formally, is:

Stenocarpus sinuatus Endl.

Genera Plantarum, Suppl. 4(2): 88 (1848). **Typus**: "Allan Cunningham, banks of the Brisbane River, Moreton Bay, 1828; T. Bidwill Esq., loc. cit., 1843 [fruits]; Weeks & Day, United Gardeners Society, Kings Rd, Chelsea, August 1847 [cultivated specimen]; Dr Balfour, Edinburgh Botanic Garden, 1848 [cultivated specimen]." – **Lectotypus** (designated here): *Anon.* [? *Weeks & Day*] s.n., s. dat., Cultivated (London) "S. sinuatus Endl. V. 539, Flora Australiensis named by Mr Bentham, S. sinuatus Endl.! *Stenocarpus Cunninghamii* Hook. non Br. Bot. Mag. tab. 4263 1847 t.7, Herbarium Hookerianum", K! – *Residual syntypi*: *A. Cunningham 193*, 1828, Brisbane River, Moreton Bay, New Holland "5. *Stenocarpus sinuatus* Endl. D.C.XIX 451 *Stenocarpus Cunninghamii* Hook. Bot. Mag. t. 4263 (non R.Br.) *Agnostus sinuatus* A.Cunn. ALLAN CUNNINGHAM'S AUSTRALIAN HERBARIUM Presented by Robert Heward Esq. 1862", K!; *Anon.* [? *Allan Cunningham*], s.dat., Moreton Bay, BM (fide Foreman, 1995, n.v.).

Agnostus sinuata Loudon, Hort. Brit. Suppl.1: 580 (1832), nom. nud., nom. inval.

Cybele sinuata (Loudon) Kuntze, Revis. Gen. Pl. 2: 578 (1891)

Stenocarpus cunninghamii Hook., Bot. Mag.: t. 4263 (1846), (as *cunninghami*), nom. illeg.

Stenocarpus sinuosus F.Muell., Fragm. 5: 154 (1866), nom. nud., nom. inval.

Stenocarpus sinuosus var. *integrifolius* F.Muell., Fragm. 5: 154 (1866) nom. nud., nom. inval., (as *integrifolia*)

It is worth noting that Chapman (1991) in listing many of these names, inadvertently attributed to Mueller (1866) two combinations that were never actually made, “*Stenocarpus sinuosus* F.Muell. var. *latifolium* F.Muell.” and “*S. sinuosus* var. *sectus* F.Muell.” Mueller actually described these taxa as varieties of *S. moorei* F.Muell., which is now considered synonymous with *S. salignus* R.Br. The Chapman combinations are at best invalid, not accepted by the author (he stated in the Introduction, p.xii, to the Australian Plant Name Index that he did not intend to make any formal nomenclatural actions). They are probably best treated as orthographic variants.

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What is the gender of *Sphenotoma* (Epacridaceae)?

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The generic name *Sphenotoma* for a genus of 6–7 Western Australian Epacridaceae has been variously treated as feminine or neuter by different authors. The name was derived from two Greek words : *spheno* (m.) to connect or bind together, and *tomos* (m.) a slice or section. The gender of the compound word is fixed by the final part. So notionally the name is masculine. In Latin, *tomus* (book, volume, from the same root) is also masculine. So on the face of it, the generic name *Sphenotoma* should be masculine.

However the *International Code of Botanical Nomenclature* (Art. 62.1) states that gender of generic names is assigned by botanical tradition. That is, if the original author assigned the wrong gender and everyone followed him, then that overrides classical usage. What happened with *Sphenotoma*?

Sweet (1828) described only a single species *S. gracilis*. What does that say about the gender he was assigning? Unfortunately ‘*gracilis*’ is a Group B adjective (Stearn 1992)) and the ending can signify either masculine or feminine gender, but not neuter (which would be *S. gracile*).

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What did later authors do?

- Lindley (1832) made the combination *S. capitatum* (neuter)
- Don (1834) made the combination *S. squarrosa* (feminine)
- Sonder (1845) made the combination *S. dracophylloides* (masculine, feminine or neuter)
- Mueller (1883) made the combination *S. drummondii* (genitive, not relevant) and the combination *S. parviflorum* (neuter)
- Bentham (1869) put *Sphenotoma* in synonymy under *Dracophyllum* but gave the synonymous names neuter endings.
- Jacks (1970) and Newbey (1970) both treated it as neuter.
- Recent Western Australian checklists and censuses have treated *Sphenostoma* as neuter (see for example, Green, 1985; Paczkowska & Chapman, 2000); FloraBase website)
- APNI (Australian National Herbarium et al. 2004) treats the names as feminine (except 116631 *Sphenotoma gracile* (n.) which was taken from a WA source), following Arthur Chapman (1991).
- Watson & Dallwitz (2005) use the name *Sphenotoma gracile*, i.e., neuter.

Historical usage in Australia is thus ambiguous, although there is a tendency to treat the name as neuter, particularly in Western Australia where it grows. What about usage of *-toma* in other genera?

Within the Australian flora I can find only two other examples, *Crossotoma* (= *Scaevola*) and *Isotoma* in Goodeniaceae.

Unfortunately the only two taxa in *Crossotoma* are *C. oleoides* and *C. spinescens*, both of which have the same endings irrespective of gender, and are thus completely inconclusive.

Isotoma seems to have been fairly consistently treated as feminine, with about seven epithets ending in -a (the remainder are either genitive, or end in -is).

A search in *Index Nominum Genericorum* revealed only 23 generic names (excluding *Sphenotoma*) which were unequivocally compounds with a final part *-toma*. This seems to be a relatively rare construction in vascular plants but more common in algae. Of the 23 examples, 14 adopted a clear feminine gender, 4 adopted neuter gender, 1 was either masculine or feminine, and 4 were inconclusive (as for *Crossotoma*). Interestingly, *Polytoma* has been treated as feminine, as has *Parapolytoma*, but *Metapolytoma* is treated as neuter!

In summary, although the source words in the generic name are masculine, almost no-one treats the compound as masculine. The original author treated it as either masculine or feminine, the next author as feminine, and thereafter the usage became ambiguous, tending towards neuter. Parallel constructions in other families strongly favour treating it as feminine. This has the added benefit of the generic and specific epithets (Group A adjectives) both ending in 'a' (e.g. *Sphenotoma squarrosa*) rather than, if neuter, having mixed 'a/um' endings (e.g. *Sphenotoma squarrosus*) which many find confusing.

The weight of priority, usage, custom and aesthetics suggest that *Sphenotoma* should be treated as feminine.

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***Xylomelum benthamii* Orchard, a replacement name for *Xylomelum salicinum* (Meisn.) Benth., nom. illeg. (Proteaceae)**

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The name of this Queensland taxon was based on *Xylomelum salicinum* A.Cunn. ex R.Br. (1830), a name mentioned only in synonymy, and thus invalid. It was validated as *X. pyriforme* β *salicinum* Meisn. (Meisner

1856). Bentham (1870) raised it to species status as “*X. salicinum* A.Cunn. in R.Br.” (and incidentally was the first to give Meisner’s name the formal rank of variety), but unfortunately cited *X. scottianum* in synonymy. The

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name *X. salicinum* is thus a superfluous illegitimate name, synonymous with *X. scottianum*. The plant currently called *X. salicinum*, based on *X. pyriforme* β (var.) *salicinum* Meisn. therefore requires a new name at species rank.

***Xylomelum benthamii* Orchard, nom. nov.**

Based on *Xylomelum pyriforme* var. *salicinum* Meisn. as (β *salicinum*) in A.L.P.P. de Candolle, *Prodr.* 14: 423 (1856), non *Xylomelum salicinum* (Meisn.) A.Cunn. ex Benth., *Fl. Austral.* 5: 408 (1870), nom. superfl. — *Xylomelum pyriforme* β R.Br. *Suppl. Prodr. Fl. Nov. Holl.* 31 (1830), nom. inval. — *Xylomelum pyriforme* var. *salicinum* Meisn. in A.P. de Candolle, & A.L.P.P. de Candolle, (eds), *Prodr.* 14(1): 423 (1856) — **Type:** on the Brisbane River about 88 miles [140 km] NW from the penal settlement on that stream [Qld], 25 June 1829, *A.Cunningham* 35; holo: K, iso: MEL. (fide D.B.Foreman, 1995).

The synonymy of *Xylomelum scottianum* is as follows:

***Xylomelum scottianum* (F.Muell.) F.Muell.**

Fragm. Phyt. Austral. 5: 174 (1866). — *Helicia scottiana* F.Muell., *Fragm.* 4: 107 (1864), **basionym.** — **Type:** Rockingham Bay, Qld, 8 Feb 1874, *J.Dallachy*; holo: MEL. (fide D.B.Foreman, 1995).

Xylomelum salicinum (Meisn.) Benth., *Fl. Austral.* 5: 408 (1870), nom. superfl.

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A new combination *Trema tomentosa* var. *aspera* (Brongn.) Hewson (Ulmaceae)

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E. Soepadmo (1977) treated *Trema viridis* as a synonym of *Trema cannabina*, while recognising the other two Australian taxa, *T. orientalis* and *T. tomentosa* as distinct species. In *Flora of Australia* (1989) I adopted the view that the name *T. cannabina* was misapplied to Australian collections, and that they should be recognised as constituting a distinct taxon.

I believed that this taxon was closely related to *T. tomentosa*, and proposed that it be treated as a subspecies of that species. A new combination was required, and I published *Trema tomentosa* var. *viridis* (Planch.) Hewson (1989).

Unfortunately, at the time I had overlooked Article 57.3 of the 1983 ICBN (now Art. 11.6) which rules that the autonym has priority over the name of the same date and rank that created it. Accordingly, my combination is invalid. The correct combination is *Trema tomentosa* var. *aspera*, which is formally created below.

The synonymy relates to Australian occurrences of the taxon only.

***Trema tomentosa* var. *aspera* (Brongn.) Hewson, comb. nov.**

Celtis aspera Brongn., in L.I.Duperrey, *Voy. Monde* (Phan.) 213, t. 48 (Atlas) (1834) **basionym.** — *Sponia aspera* (Brongn.) Decne, *Nouv. Ann. Mus. Hist. Nat.* 3: 498

(1834) — *Trema aspera* (Brongn.) Blume, *Mus. Bot.* 2: 58 (1856) — *Trema aspera* (Brongn.) Blume var. *aspera*: G. Bentham, *Flora Austral.* 6: 158 (1873) — *Trema aspera* var. *typica* Domin, *Biblioth. Bot.* 89: 560 (1921), nom. inval.

Sponia viridis Planch., *Ann. Sci. Nat. Bot. ser.* 3, 10: 319 (1848) — *Trema viridis* (Planch.) Blume, *Mus. Bot.* 2: 58 (1856) — *Trema aspera* var. *viridis* (Planch.) Benth., *Fl. Austral.* 6: 158 (1873) — *Trema tomentosa* var. *viridis* (Planch.) Hewson, *Fl. Austral.* 3: 190 (1989), nom. inval.

Trema aspera var. *xerophila* Domin, *Biblioth. Bot.* 89: 6 (1921)

Acknowledgements

I thank Peter Wilson, a member of the Australian Plant Census Working Group, for drawing this to my attention, and Tony Orchard, for help in drafting the paper.

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***Stackhousia subterranea*, a new name and revised circumscription for *S. gunnii* Hook.f. (Stackhousiaceae~Celastraceae)**

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It became evident on examination of Tasmanian populations of *Stackhousia gunnii* Hook.f. in the field in 1995 that this species is conspecific with an unnamed mainland race of *S. monogyne* Labill. s.lat. This race is widespread in mallee habitats on calcareous loams on the southeastern Australian mainland (Barker 1986, 1999).

In my account in the *Flora of Australia* (Barker 1984), *S. monogyne* was circumscribed very broadly to encompass all racemose species with single flowers at each node in the inflorescence and cocci without wings. The *Flora* treatment was, through urgency, an interim pre-revisional view of the family in which many good, previously recognised taxa across southern Australia were swept under this name. Earlier and subsequent treatments for South Australia (Barker 1969, 1977, 1986, 2005) and a subsequent treatment for Victoria (Barker 1999) resurrected some of these taxa. A paper in its advanced stages will go a long way to resolving this complex (Barker, in preparation); it gives the basis for the concepts provided to and presented in the Australian Plant Census (W.R. Barker in Council of Heads of Australasian Herbaria 2006).

Since its detailed description in 1855 (Hooker 1855), *S. gunnii* Hook.f. has been considered a Tasmanian endemic, restricted to the dry midlands region of the island. It has been listed as an endangered species in Tasmania (Kirkpatrick et al. 1991; Department of Primary Industries & Water 2006), a status that is under review following understanding of its wider distribution (M. Duretto pers. comm., early 2006).

A new name is here supplied for the species currently known as *S. gunnii* because that name is illegitimate, being a later homonym (Barker 1969). It is predated by the earlier name *S. gunnii* Schldl. (Schlechtendal 1847), which is based on a different Tasmanian specimen collected by Ronald Gunn (no. 69), and is a synonym of *S. monogyne* Labill., in its strict sense (Barker 1969).

***Stackhousia subterranea* W.R.Barker, nom. nov.**

Replaced name: *Stackhousia gunnii* Hook.f., Fl. Tasman. 1:79 (1855), nom. illeg., [non *S. gunnii* Schldl., Linnaea 20: 642 (1847)]. **Lectotypus hic designatus:** *Gunn 1048/1842*, 6 Nov 1843, Formosa./ Open sandy pasture land. K s.n. (p.p.) (specimen closest to label); **isolectotypi:**

K s.n. (p.p.: other specimens on lectotype sheet attributable to Formosa collection on sheet); **isolectotypus probabilis:** *Gunn 1048*, 6 Nov 1843, Formosa, NSW148156 (p.p.); **syntypi:** *Gunn 1048*, 30 Oct 1845, Snake Banks K s.n. (p.p.); **syntypi probabiles:** *R. Gunn 1048/1842*, 29 Oct 1841. At Formosa, Lake River, BM s.n. (p.p.); *R.C. Gunn s.n.*, s.dat., "Ex Herb. Hook./Stackhousia Gunnii, Hook. fil./ Hab. Tasmania". M s.n. S s.n. WU s.n.; **syntypus possibilis:** *Gunn 1048*, 6 Nov 1843. Formosa. Open pastures. NSW148156 (p.p.).

S. flava auct. non Hook.: J.M.Black, Fl. S. Austral 2: 538 (1952), p.p.

S. sp. 1: W.R.Barker, Fl. Victoria 4: 51 (1999)

S. aff. monogyne (Western Plains): J.H.Ross, Census Vasc. Pl. Victoria edn 5 (1996)

S. monogyne auct. non Labill.: W.R.Barker, Fl. Austral. 22: 188 (1984), p.p.; W.R.Barker, Fl. S. Austral. 806 (1986), p.p.; W.R.Barker, Cens. S. Austral. Vasc. Pl. 89 (2005), p.p.

Typification

The sheet bearing the lectotype also bears a collection *Gunn 1048* from Snake Banks. The lectotype should come from this sheet as Hooker's (1855) protologue matches one of Gunn's handwritten labels and, as alluded to in the protologue, the suite of plants are quite uniform. There is doubt in matching the two collection labels on the sheet with the many flowering branches on the sheet. In the National Herbarium of New South Wales (NSW) there is a duplicate of the chosen lectotype label, but this is of little help as, in keeping with what Gunn has written, the plants are very uniform, as they are throughout all isosyntypes. The solution has been to take the nearest specimen to the label as the lectotype, taking advice (P.S. Green, pers. comm., early 1970s), that material in the Hooker Herbarium at the Royal Botanic Gardens, Kew (K) is mounted close to the pertinent label, and to designate other material as belonging to either isolectotype or other syntype material.

Etymology

The Latin adjective *subterraneus* alludes to the distinctive method of perennation from an underground root system, which in the genus is restricted to this species.

Diagnostic features, distribution and ecology

Stackhousia subterranea is closely allied to *S. monogyna* Labill., in its strict sense applied here. Amongst species with flowers single in the axils, these two species share the feature of reduced (vestigial) bracteoles. *S. subterranea* differs from *S. monogyna* s.str. by its horizontal roots deep in the soil, from which clonal aerial stems or clusters of stems arise (Barker 1986, 1999), its thick rather fleshy leaves, its bracts outwardly saccate in the basal half or two-thirds (Barker 1977, fig. 1A), and its tetraploid chromosome number (Barker 1969; M. Kiehn & W.R. Barker, in preparation). It is widespread in calcareous mallee woodlands and associated more open vegetation of peninsular regions of South Australia to south-eastern Australia and Tasmania.

By comparison (Barker 1986, 1999), *S. monogyna* s.str. is also perennial, but initially with a single aerial stem and in subsequent years clusters of stems arising from a vertical tap root. The species commonly has thin pliant leaves, bracts hardly swollen at the base, and (M. Kiehn & W.R. Barker, in preparation) a diploid chromosome number; and is widespread in wet and dry sclerophyll forests and coastal habitats of eastern Australia, with a possible outlier in the southern Flinders Ranges of South Australia.

Ronald Campbell Gunn, noted for his intimate observations so important to the documentation of Tasmanian plants by colleagues such as J.D. Hooker, observed the difference in root system between the two species (Hooker 1855). The notes in Gunn's hand on the lectotype about *S. subterranea* incorrectly indicate, however, that *S. monogyna* (Gunn 69: as *S. obtusa*) is annual:

1048. *Stackhousia*. Certainly a distinct species. It is not uncommon in all the open sandy pasture lands of Norfolk Plains, Epping Forest, &c – usually having one single stalk only, and the root seems in many cases to run along under the surface of the ground. At all counts the root is not fibrous like my 69. - I believe it to be perennial whereas 69 is annual. The colour of the flowers is yellowish cream colour; & it flowers about 1 [Nov^r].

Hooker (1855) disagreed with Gunn, specifying that the roots of *S. monogyna* were perennial.

Conservation status

While the species overall is not at all endangered, being common in many parts of its range in mainland Australia, the endangered status accorded the Tasmanian populations in its diminished midlands habitats

(Department of Primary Industries & Water 2006) should surely be retained.

Acknowledgements

Louise Gilfedder is thanked for taking me on a day in the field in October 1995 in Tasmania's midlands to view scattered populations of "*S. gunnii* Hook.f."

Marco Duretto's encouragement to publish this name change to meet the desire by Tasmanians to clear up the conservation status of their species is greatly appreciated.

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Eucalyptus viminalis* subsp. *hentyensis* Brooker & Slee new from TasmaniaM.I.H. Brooker & A.V. Slee*Australian National Herbarium, Centre for Plant Biodiversity Research,
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The following subspecies of *Eucalyptus viminalis* was described in the CD interactive key EUCLID (Brooker et al., 2002). This publication, being electronic, was ineffective under the ICBN, and the formal publication is effected here. For additional description and discussion, see EUCLID.

Eucalyptus viminalis* subsp. *hentyensis* Brooker & Slee, *subspecies nova

Eucalyptus viminalis subsp. *hentyensis*: a subspeciebus aliis, foliis juvenilibus grossis late lanceolatis vel ellipticis, inflorescentiis 3 et 7 floribus in eadem arbore, cortice aspero minimo vel cortice laevi differt. Arenam infertilem albidam habitans.

Type: Tasmania: S of Henty River, between Zeehan and Strahan, 42°2'16"S, 145°16'13"E, 19 Jan. 1996, *M.I.H. Brooker 12467 & A.V. Slee*; holo: CANB; iso: HO, MEL, NSW.

Distribution & notes. Endemic to Tasmania where it grows on poor white sands on the west coast, north from

Strahan. Subsp. *hentyensis* has little rough bark, coarse, broad juvenile leaves and buds in 3s or 7s.

Etymology: from the Henty River, western Tasmania.

Other specimens examined: Tasmania: S of Henty River, between Zeehan and Strahan, 19 Jan. 1996, *M.I.H. Brooker 12468, 12469, 12470 & A.V. Slee* (CANB); Henty sand dunes picnic area, 20 km N of Strahan, 5 Sep. 1979, *A.M. Gray 417, 418, 419* (CANB, HO); West Coast: Henty Road at the Henty River Bridge c. 18 km south of Zeehan, 24 May 1985, *A.M. Gray 660* (CANB); Henty road, c. 1 km south of the Henty river bridge, 24 May 1985, *A.M. Gray 662* (CANB, HO).

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**A new status in *Nicotiana* (Solanaceae):
N. monoschizocarpa (P.Horton) Symon & Lepschi***D.E. Symon^a & B.J. Lepschi^b*

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Nicotiana monoschizocarpa* (P.Horton) Symon & Lepschi, *comb. & stat. nov.

Basionym: *Nicotiana debneyi* subsp. *monoschizocarpa* P.Horton, J. Adelaide Bot. Gard. 3: 12 (1981). **Type:** Daly River Crossing, Daly River Road, N.T., 28 Sept. 1973, *J. McKean 1183* (holo: NT; iso: CANB, DNA, NSW).

N. monoschizocarpa differs from *N. debneyi* in having staminal filaments less than 4mm long (cf. 6–11

mm in *N. debneyi*) inserted high in the corolla tube (cf. low in tube); corolla lobes narrow, acute to narrowly obtuse (cf. broad & obtuse), capsule 2-valved (cf. 4-valved). The natural populations are widely disjunct (Haegi et al. 1982: maps 39–40).

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***Euphrasia tasmanica* Gand. formally reduced to
a subspecies in *E. collina* R.Br.⁵**

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In my revision of Australian *Euphrasia* (Barker 1982) *Euphrasia tasmanica* Gandoger was reduced to synonymy under *E. collina* R.Br. Although many subspecies were formally recognised within the species, a putative race including the type of this name was given the informal designation *E. collina* ssp. '*tasmanica*'.

While the separation of glandular-hairy lowland Tasmanian populations into four subspecies is not entirely satisfactory and warrants closer study, a formal name for the subspecies is desirable as it usefully caters for variants not coming under other taxa. The combination is formalised here.

***Euphrasia collina* R.Br. subsp. *tasmanica* (Gand.)**

W.R. Barker, comb. & stat. nov.

Euphrasia tasmanica Gand., Bull. Soc. Bot. France 66 (1912) 218, **basionym**; Briggs in McGillivray, Contr. N.S. Wales Nat. Herb. 4 (1973) 339; W.R. Barker, J. Adel. Bot. Gard. 5 (1982) 160, 198, as syn. — **Holotype**: Simson 58, 17.x.1875. Georges Bay. LY (Herb. Spicer).
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⁵ Taxonomic studies in *Euphrasia* L. (Scrophulariaceae). IX.