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Phebalium banyabba (Rutaceae: Zanthoxyloideae), an endangered, narrowly endemic new species from north-eastern New South Wales

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Abstract

Phebalium banyabba I.Telford & J.J.Bruhl (Rutaceae: Zanthoxyloideae), previously included in *P. nottii* (F.Muell.) Maiden & Betche and endemic to the sandstones of the Grafton Formation of north-eastern New South Wales, is named as new. Data on distribution, habitat and ecology, conservation status and a table of differences separating the new species from the vegetatively similar *P. speciosum* I.Telford are provided.

Introduction

The genus *Phebalium* Vent. (Rutaceae: Zanthoxyloideae), widespread through southern and eastern Australia, contains 29 currently recognised species (APC [The Australian Plant Census] continuously updated, https://biodiversity.org.au/nsl/services/search/taxonomy, accessed 14 Aug. 2025), several showing considerable morphological variation. *Phebalium nottii* (F.Muell.) Maiden & Betche, as currently circumscribed (Wilson 2013), is a variable species distributed mainly in inland areas from northern Queensland, south-west of Charters Towers, southwards to near Parkes, New South Wales. Wilson (1970) discussed the morphological variability of the species and a probable intergrade with *P. woombye* (F.M.Bailey) Domin. Our preliminary morphological observations indicated geographical "variants" with disjunct distributions suggest a species complex rather than a single variable taxon; i.e. the *P. nottii* complex. Comprehensive and densely sampled molecular phylogenetic analysis across the genus (Dema 2024; S. Dema *et al*. unpubl. data) has shown the *P. nottii* complex (including *P. nottii*, *P. speciosum*, *P. woombye* and various putative undescribed species) to constitute a clade with the morphological synapomorphy of stamens reflexed upwards relative to the more-or-less straight style and the floral axis (Fig. 1 C, F).

Phebalium speciosum I.Telford was the first species to be segregated from *P. nottii* on morphological differences (Telford 2013). *Phebalium speciosum* is restricted to trachyte plugs near Urbenville. A recent collection (P.R. Sheringham NE113289) from the Banyabba Nature Reserve, on the Clarence Sandstones, c. 35 km north of Grafton, New South Wales, was tentatively identified by the collector as *P. speciosum,* and a specimen was sent to the N.C.W. Beadle Herbarium, University of New England, for confirmation, but it was instead recognised (by IRT and JJB) as another putative new species in this complex. As an immediate action, we proposed the phrase name *Phebalium* sp. Banyabba Nature Reserve (J.J.Bruhl 3709) NE Herbarium for rapid listing by APC, which has been accepted (see https://biodiversity.org.au/nsl/services/rest/name/apni/51460377/api/apni-format. Accessed 23 Dec. 2025). This current paper focusses on the publication of this highly distinctive, rare and restricted species to facilitate its listing as a Threatened Species (cf. Dema *et al.* 2021).

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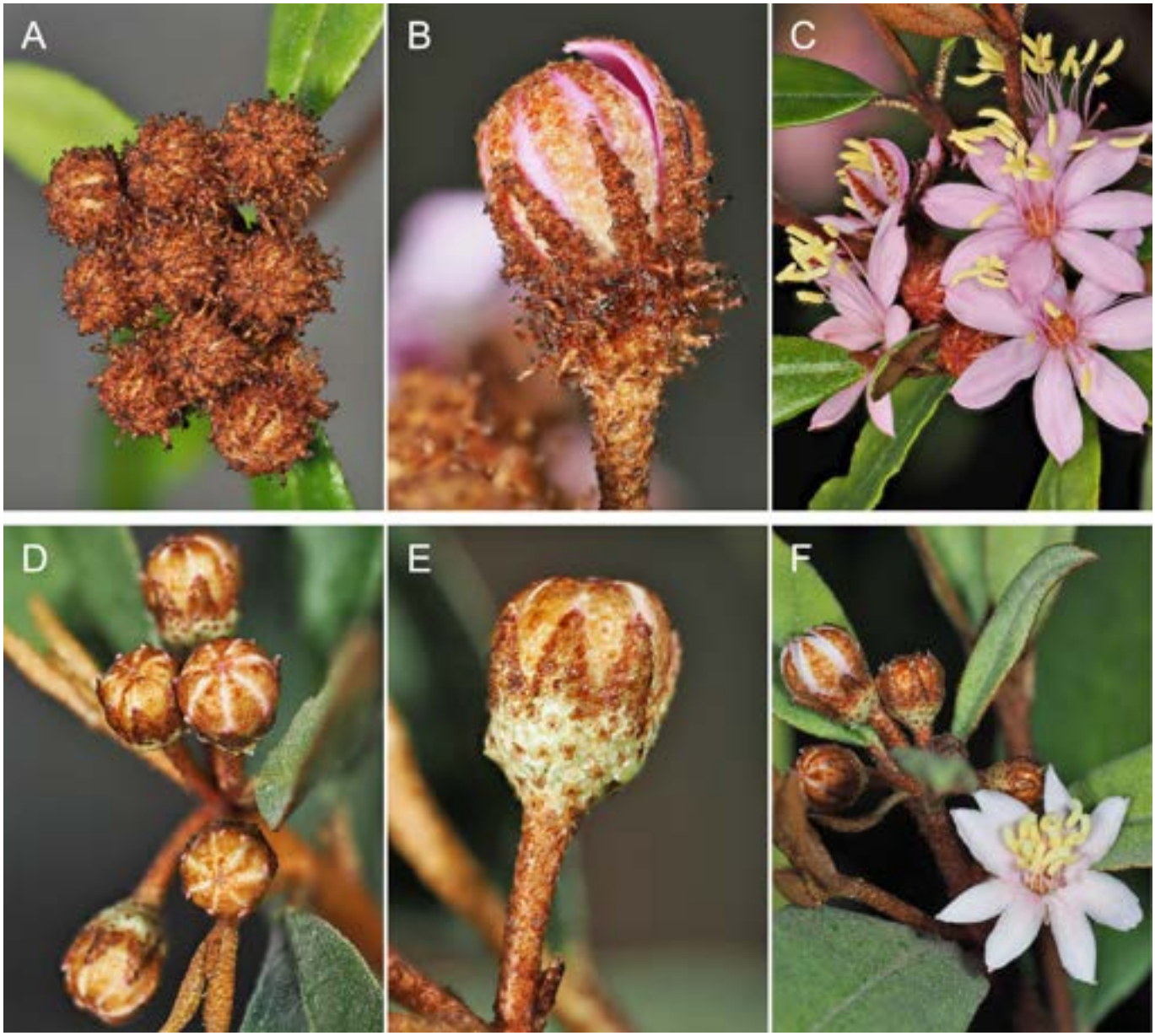

Fig. 1. Floral comparison of **A–C:** *Phebalium banyabba*, voucher: *J.J. Bruhl 3709* (NE); **D–F:** *P. speciosum*. voucher: *I.R. Telford 13524* (NE). Photos by J.J. Bruhl.

Materials and methods

In north-eastern New South Wales (North Coast Botanical Division), in the region where *P.* sp. Banyabba Nature Reserve occurs, the only other members of the *P. nottii* complex are *P. speciosum* and *P. woombye*.

Fieldwork was undertaken by PS and JJB to obtain sufficient flowering and fruiting material of *P.* sp. Banyabba Nature Reserve to allow morphological and molecular analysis. Further fieldwork by PS was undertaken to search for additional occurrences of the entity, to observe aspects of its habitat, ecology, distribution, abundance and threat to allow assessment of the identity of other earlier collection of *Phebalium* across similar habitats of the region, and work towards a conservation assessment for nomination and listing.

Living material was propagated and maintained at the nursery of JJB allowing further detailed observation ex situ of fresh material and effectively providing a 'common garden experiment' comparison of *P.* sp. Banyabba Nature Reserve with *P. speciosum* also in cultivation in the same shade house. Material of *P.* sp. Banyabba Nature Reserve was shared with the Australian National Botanic Gardens and further material will be distributed to some other botanic gardens.

The study was otherwise undertaken at the N.C.W. Beadle Herbarium (NE), which is home to an extensive collection of *Phebalium*. To search for further occurrences of the putative new species and other occurrences of *Phebalium* we searched AVH [Australasian Virtual Herbarium] (https://avh.ala.org.au, accessed Oct. 2021).

We compared various aspects of morphology of *P. speciosum* and *P. woombye* with *P.* sp. Banyabba Nature Reserve as they are relatively similar each other and they occur in the same region of north-eastern New South Wales. Vegetative measurements were scored from dried herbarium material, floral data from rehydrated flowers. Morphological analysis was undertaken at the N.C.W. Beadle Herbarium.

Distributional data in the taxonomic section follow the IBRA bioregions (Department of Climate Change, Energy, the Environment and Water 2025) and, in specimen citations, the botanical districts used by NSW. In the citation of specimens seen, those studied directly are indicated by !, while those only seen as images from the NSW database are indicated by NSW*. Herbarium codes follow Index Herbariorum (Thiers 2024).

No modification of the key to species of *Phebalium* in PlantNET (PlantNET 2026) is provided as considerable reworking is needed and in progress (Dema 2024; Dema *et al*. unpubl. data; I. Telford *et al*. unpubl. data). Images of *P.* sp. Banyabba Nature Reserve provided here enable the recognition of the new species separate from all other species of *Phebalium*, thus providing a practical, useful identification tool.

Results and discussion

Morphological differences separating *Phebalium* sp. Banyabba Nature Reserve, *P speciosum* and *P. woombye* are presented in Table 1. Of particular note is the calyx of *P.* sp. Banyabba Nature Reserve, densely clothed in dendroidal hairs. (Figs 1, 2). Both *P. speciosum* and *P. woombye* have calyces devoid of such dendroidal hairs. Comparison of seeds of *P.* sp. Banyabba Nature Reserve with those of *P. speciosum* and *P. woombye* show differences in size, shape and ornamentation (Fig. 3). The seeds illustrated of *P. woombye* are from widely separate localities, yet are consistent in shape, hilum characteristics and ornamentation, although differing slightly in size. Seed morphology thus provides another useful means of identification (see also Telford *et al*. 2019; Dema *et al*. 2022).

Table 1. Comparison of distinguishing morphological attributes of *Phebalium banyabba* and *P. speciosum*.

Attribute/Species	*P. banyabba*	*P. speciosum*	*P. woombye*
Calyx lobe number	(6–)8 or 9	6–8	5(–6)
Calyx lobe length (mm)	5.2–6.8	2.2–3.0	1.3–3.8
Calyx dendroidal hairs terminating in fringed lepidote trichomes (presence)	present	absent	absent
Petal number	(6–)8 or 9	6–8	5(–6)
Stamens whether reflexed upwards (relative to the more-or-less straight style and the floral axis)*	yes	yes	yes
Stamen number	(12–)16 or 18	12–16	10(–12)
Seed length (mm)	3.6–4.2	2.4–3.2	1.8–2.8

* a morphological synapomorphy for all members of the *P. nottii* clade.

Searching records in the AVH [Australasian Virtual Herbarium] (https://avh.ala.org.au, accessed Oct. 2021), it was found that earlier collections from the sandstone area north of Grafton had been referred to *P. nottii*, and their images available from the NSW database (https://herbariumcollection.botanicgardens.org.au/) unmistakably show them to be *P.* sp. Banyabba Nature Reserve. The earliest gathering had been made by John Boorman in 1909, identified as *P. nottii*, to which species it has remained assigned until now.

Phebalium nottii had been maintained as a variable, widely distributed, single species by Wilson (1970, 2013), which included specimens here transferred to *P. banyabba*. With *P. banyabba* and *P. speciosum* removed from *P. nottii*, that species still exhibits considerable morphological variability, geographical "variants" with disjunct distributions indicating a species complex rather than a continuously variable species. Importantly here, neither *P. nottii* nor any of the elements that we will treat as distinct species occurs with *P. banyabba*. The closest occurrence is the morphologically distinct *P. woombye* more than 6 km away, i.e. *P. banyabba* (*P.R. Sheringham s.n.*, Aug. 2021, NE113289) and *P. woombye* (*P.G. Richards 642*, NSW615093). A complete revision of the *P. nottii* clade is currently being undertaken at the N.C.W. Beadle Herbarium using morphological and molecular analyses (I. Telford *et al*. unpublished data).

While we generally favour publication of taxonomic papers that are comprehensive in scope (e.g. Collins *et al*. 2022; Bruhl *et al*. 2024; Kennedy *et al*. 2025), there is merit in pursuing a more limited taxonomic agenda where there are compelling conservation benefits (cf. Albrecht *et al*. 2024; Collins *et al*. 2019; Kennedy *et al*. 2020; Dema *et al*. 2021; Jones *et al*. 2024) or where publication has other benefits, such as student training and taxonomic outcomes (e.g. O'Donnell *et al*. 2023; Collins *et al*. 2025; Palsson *et al*. 2025). In the current case, publication of *P. banyabba* as a Threatened Species serves its conservation, management, and we hope, its timely introduction into the horticultural trade, thus removing incentives for illicit collection from the conservation reserves.

The naming of this species also adds another narrowly endemic species to the flora of the sandstones of the Grafton Formation and Kangaroo Creek Sandstone, which exhibits remarkable endemism (see Telford & Copeland 2006; Telford & Bruhl 2020; Kennedy *et al*. 2025) worthy of regional biogeographical analysis.

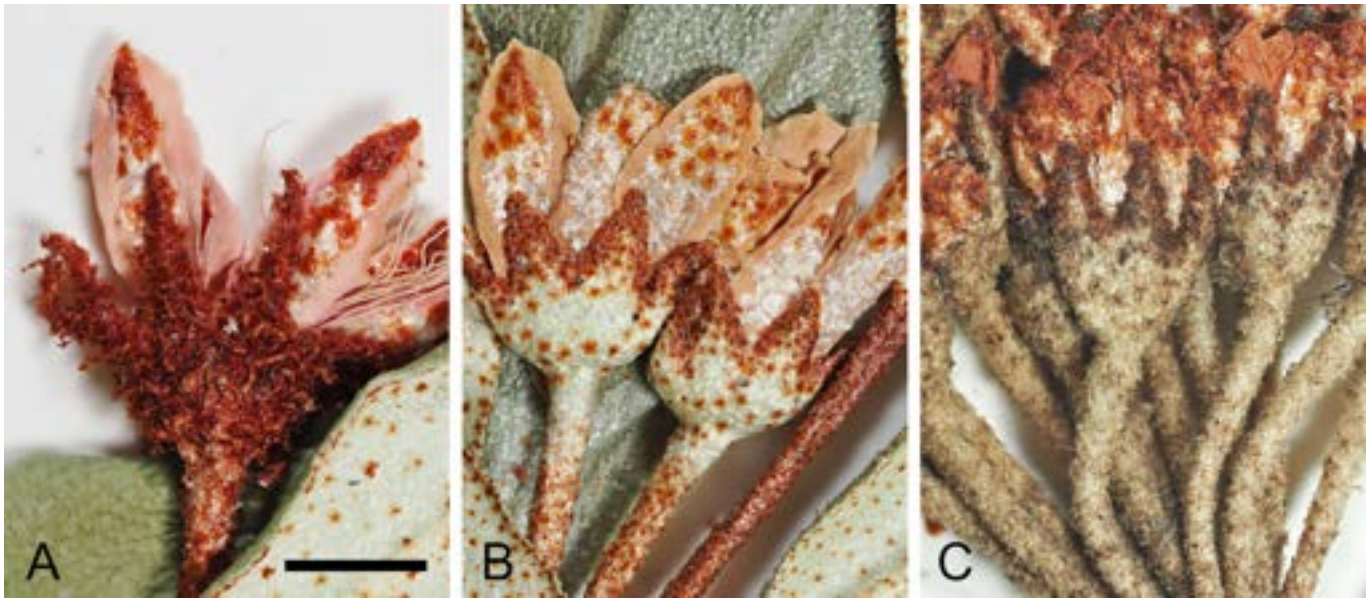

Fig. 2. Comparison of calyces of **A:** *Phebalium banyabba*, voucher: *J.J. Bruhl 3709* (NE); **B:** *P. speciosum*, voucher: *I.R. Telford 13524* (NE); **C:** *P. woombye*, voucher: *P.G. Richards 642* (NE). Photos by J.J. Bruhl.

Fig. 3. Comparison of seeds in side view and hilum view of **A, B:** *Phebalium banyabba*, voucher: *J.J. Bruhl 3709* (NE); **C, D:** *P. speciosum*, voucher: *I.R. Telford 13524* (NE); **E, F:** *P. woombye,* voucher: *P.R. Sheringham 38* (NE), New South Wales, Yuraygir State Conservation Area; **G, H:** *P. woombye,* voucher: *T.L. Collins 1118* (NE), Queensland, Noosa National Park. Scale bar = 1 mm. Photos by J.J. Bruhl.

Taxonomy

Phebalium banyabba I.Telford & J.J.Bruhl, *sp. nov.*

Type: AUSTRALIA: NEW SOUTH WALES: North Coast: Banyabba Nature Reserve, 18 Sep. 2021, *J.J. Bruhl 3709 & P.R. Sheringham* (holo: NSW!; BRI!, CANB!, K!, MEL!, MO!, NE112364!, PERTH!.

Diagnosis: *Phebalium banyabba* differs from the vegetatively similar *P. speciosum* in calyx lobe length (5.2–6.8 vs 2.2–3.0 mm long), calyx indumentum (rufous to dark brown dendroidal hairs 1.5–2.0 mm long vs bicolored with white tube and rufous lobes) and seed length (3.6–4.2 vs 2.4–3.2 mm long). (Figs 1–3)

Phebalium nottii auct. non (F.Muell.) Maiden & Betche; P.G. Wilson, *Nuytsia* 1: 89 (1970); *Flora of Australia* 26: 478 (2013), excluding specimens cited except those from the Upper Copmanhurst and Punchbowl localities, north of Grafton.

Phebalium sp. Banyabba Nature Reserve (J.J.Bruhl 3709) NE Herbarium; sensu Council of Heads of Australasian Herbaria (17 November 2021), Australian Plant Census (https://biodiversity.org.au/nsl/services/rest/name/apni/51460377/api/apni-format)

Shrub to 2 m tall. *Branchlets* terete, indumentum dense with white, peltate, fimbriate, lepidote trichomes and dark brown stellate hairs. *Leaves*: petiole 2.2–5.5 mm long, adaxially grooved, densely white lepidote with peltate, fimbriate trichomes, some scales with rufous markings; lamina narrowly elliptical, 21.0–59.0 mm long, 9.2–11.8 mm wide, apex rounded, margin slightly recurved; upper surface initially densely white stellate hairy, glabrescent; lower surface densely white and rufous lepidote with peltate, fimbriate trichomes. *Inflorescence* a terminal (4–)6–8-flowered sessile umbel, rarely with a secondary umbel included; pedicels 10–16.5 mm long, thickening distally, densely white and rufous lepidote. *Calyx* ±hemispherical; tube 4.5–5.0 mm long, 6.5–8.2 mm diam., externally bearing many dendroidal hairs 1.5– 2 mm long, red-brown to dark brown, their axes scabridulous and terminating in fimbriate lepidote trichomes, internally glabrous; lobes (6–)8–9, spreading at anthesis, narrowly triangular, c. 5.0 mm long, each lobe terminating in an echinulate, white apiculum. *Corolla* actinomorphic, of (6–)8 or 9 free, spreading clawed petals; claw c. 1.5 mm long; lamina narrowly elliptical to narrowly obovate, 7.8–9.2 mm long, 3.8–4.2 mm wide, apiculate with a minutely papillate, white apiculum; upper surface glabrous, deep pink; lower surface glabrous, pink with a central band of rufous lepidote trichomes. *Stamens* (12–)16–18, inclined away from the style; filaments filiform, 8.5–10.2 mm long, glabrous, pink; anthers oblong, 1.5–2.0 mm long, yellow. *Ovary* compressed subglobose, 2.8–3.2 mm diam., c. 1.5 mm long, glabrous except for several lepidote trichomes at summit, of 6–9 erect carpels; style 4.2–6.0 mm long, glabrous except for several trichomes at base; stigma capitate, echinulate. *Fruit* of (1 through abortion–)6–9 erect cocci surrounded by the persistent erect calyx lobes; cocci compressed ±ellipsoidal, c. 5.0 mm long, c. 2.8 mm wide, glabrous, green. *Seeds* compressed ±ellipsoidal, 3.6–4.2 mm long, 2.0–2.2 mm wide, longitudinally finely 12–14-ridged on each side face, the ridges discontinuous, dark grey. (Figs 1A–C; 2A, 3A, B)

Distribution: Restricted to north-eastern New South Wales in the Southeast Queensland Bioregion in the Coaldale area, c. 35 km north of Grafton, occurring in Banyabba Nature Reserve and Wombat Creek State Conservation Area and on adjoining freehold land (Fig. 4).

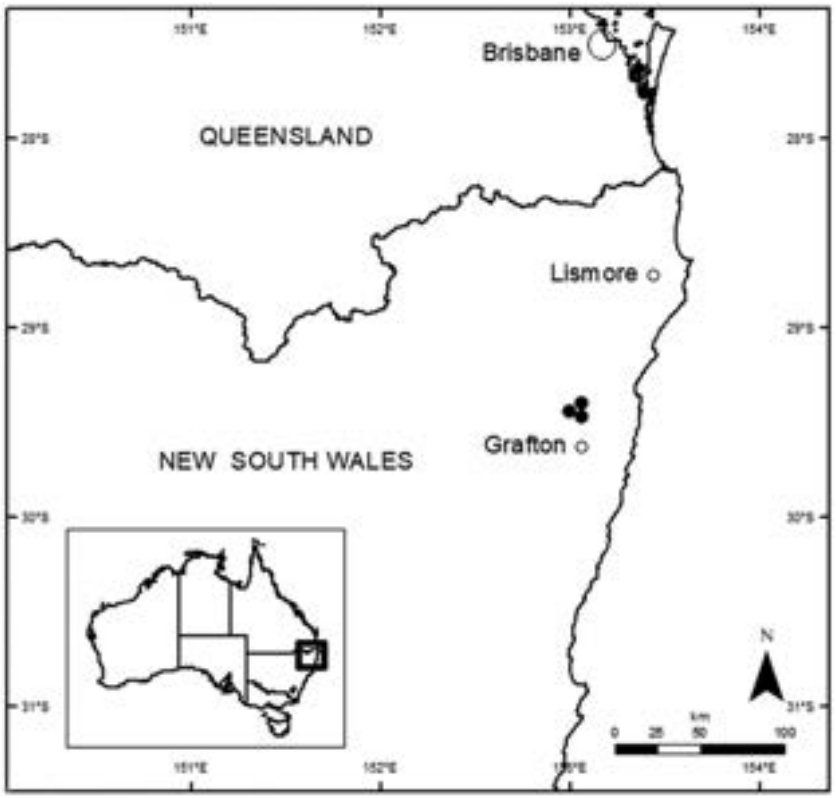

Fig. 4. Distribution of *Phebalium banyabba* (●).

Habitat and ecology: In Banyabba Nature Reserve, *Phebalium banyabba* grows in shrubby open forests and shrublands, along watercourses, cliff tops, and rock benches on outcropping sandstone of Grafton Formation (Geological Survey of New South Wales 1976). In Banyabba Nature Reserve, *Eucalyptus planchoniana* F.Muell. and *Corymbia gummifera* (Gaertn.) K.D.Hill & L.A.S.Johnson are dominant with associated species *Leptospermum microcarpum* (Maiden & Betche) Joy Thomps, *Notelaea ovata* R.Br., *Calytrix tetragona* Labill., *Baeckea diosmifolia* Rudge, *Cryptandra propinqua* A.Cunn. ex Fenzl, *Leucopogon recurvisepalis* C.T.White, *Acacia juncifolia* Benth., *Prostanthera sejuncta* M.L.Williams, Drinnan & N.G.Walsh, *Bursaria cayzerae* I.Telford & L.M.Copel., *Dodonaea crucifolia* I.Telford & J.J.Bruhl, *Themeda triandra* Forssk., *Entolasia stricta* (R.Br.) Hughes and *Philothrix deustum* (R.Br.) K.L.Wilson. At Wombat Creek, the vegetation is an open forest of *Angophora robur* L.A.S.Johnson & K.D.Hill, *Eucalyptus tindaliae* Blakely, *Eucalyptus psammitica* L.A.S.Johnson & K.D.Hill and *Corymbia gummifera* with *Allocasuarina littoralis* (Salisb.) L.A.S.Johnson, *Alphitonia excelsa, Persoonia stradbrokensis, Bursaria cayzerae* I.Telford & L.M.Copel, *Notelaea ovata* R.Br., *Lepidosperma laterale* R.Br., *Themeda triandra* Forssk., and *Aristida* sp.

Based on field observations (mostly by PRS: 2021; and by JJB: 2021), *P. banyabba* is an obligate seeding species. At Banyabba Nature Reserve, most adult plants were killed in the 2019 wildfires and recruitment was from seed. No resprouting from the base of burnt plants was seen. A few adults survived where the fire was less intense. The populations at Wombat Creek as of 2024 were composed of mature, flowering plants.

Phenology: Flowers recorded August–October. Fruit recorded September.

Conservation status: A conservation status of Endangered is recommended for *Phebalium banyabba* based on IUCN red book assessment criteria (IUCN Standards and Petitions Committee 2024), and as utilised in nomination forms of the New South Wales Threatened Species Scientific Committee (https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/nomination-assessment-public-exhibition-and-listing), and Australian Government (Department of Climate Change, Energy and Water 2026). The species qualifies under **Criteria 2- B1 and B2-** very restricted geographic distribution and only known from two locations in NSW. The first locality is in Banyabba Nature Reserve where a population of 466 plants is known. Only 77 mature individuals were recorded, the remainder were seedlings (observations by PRS: 1 Aug. 2021, 7 Aug. 2021, 25 Sep. 2021). The second location occurs at Wombat Creek where the population size is 502 mature individuals. *Phebalium banyabba* qualifies for **Criteria 3 c 2i**- less than >1000 individuals. Too frequent fires and small population size are threats to this species at Banyabba Nature Reserve. At Wombat Creek the plants are impacted by drought (Sep. 2023), and the area is grazed by cattle. Both locations burn frequently.

Etymology: Specific epithet from the First Nations Bandjalang people's name for the region to which the new species is endemic.

Selected additional specimens: NEW SOUTH WALES: North Coast: Banyabba Nature Reserve, Grafton district, 29 May 1971, *K. Grieves s.n.* (NSW126847*); Banyabba Nature Reserve, Aug. 2021, *P.R. Sheringham s.n.* (CANB!, NE113289!, NSW!); Banyabba Nature Reserve, 800 m E of Lardners Trail, 1.7 km N of intersection with Dilkoon Trail, 25 Sep. 2021, *P.R. Sheringham 163* (NE!, NSW!); Stockyard Creek, N of Copmanhurst, Aug. 1970, *K. Grieves s.n.* (NSW131653*); Whiskey-still Gully, near Stockyard Creek, Punchbowl via Copmanhurst, 27 Sep. 1970, *K. Grieves s.n.* (NSW247307*); Wombat Creek VCL; 8 km N of Copmanhurst on Stockyard Creek Rd, *A.G. Floyd s.n.* (CFSHB19601);Wombat Creek State Conservation Area, 10 Sep. 2023, *P.R. Sheringham s.n.* (NE116285!, NSW!); Upper Copmanhurst, Oct. 1909, *J.L. Boorman s.n.* (AD, MEL, NSW70173*).

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References

Albrecht D, Bruhl JJ, Lepschi BJ, Schmidt-Lebuhn AN, Telford IRH (2024) A new species of *Olearia* (Asteraceae: Astereae) from the Australian Capital Territory and adjacent New South Wales. *Telopea* 27: 23–28. DOI

Bruhl JJ, Wilson KL, Zhang X (2024) A taxonomic review of the austral genera *Asterochaete* and *Carpha* (Cyperaceae, Carpheae). *Australian Systematic Botany* 37: SB23015. DOI

Collins TL, Andrew RL, Bruhl JJ (2019) Morphological, phytochemical and molecular analyses define species limits in *Eucalyptus magnificata* (Myrtaceae) and lead to the discovery of a new rare species. *Australian Systematic Botany* 32: 12–28. DOI

Collins TL, Schmidt-Lebuhn AN, Andrew RL, Telford IRH, Bruhl JJ (2022) There's gold in them thar hills! Morphology and molecules delimit species in *Xerochrysum* (Asteraceae; Gnaphalieae) and reveal many new taxa. *Australian Systematic Botany* 35: 120–185. DOI

Collins TL, Schmidt-Lebuhn AN, Andrew RL, Telford IRH, Bruhl JJ (2025) More links in the daisy chain: morphology and molecules delimit two new species in *Coronidium* and two in *Leucozoma* (Asteraceae; Gnaphalieae). *Australian Systematic Botany* 38: SB24018. DOI

Dema S (2024) Systematics of Eastern Australian *Phebalium* Vent. sect. *Phebalium* (Rutaceae; Zanthoxyloideae). PhD thesis, University of New England. (URL)

Dema S, Telford IRH, Andrew RL, Duval DJ, Bruhl JJ (2021) *Phebalium calcicola* (Rutaceae: Boronieae): a species

described as new, restricted to south-eastern South Australia, is proposed as Critically Endangered. *Swainsona* 35: 43–53. PDF

Department of Climate Change, Energy, the Environment and Water (2025) *Australia's bioregions (IBRA)*, IBRA7, Commonwealth of Australia. URL

Geological Survey of New South Wales (1976) Grafton 1:250000 geological map URL

IUCN Standards and Petitions Subcommittee (2017) Guidelines for using the IUCN Red List Categories and Criteria. Version 16. Gland, Switzerland. Available at URL (accessed 15 Aug. 2025).

Jones DL, Zimmer HC, Clements MA, Bruhl JJ, Christian J, Copeland LM, Hutton I, Andersen A, Wilson M (2024) Characterisation of *Adelopetalum argyropus* (Orchidaceae; Malaxideae) with the description of two related new species and two new combinations. *Phytotaxa* 678: 83–95. DOI

Kennedy HT, Telford IRH, Crayn D, Bruhl JJ, Andrew RL (2025) Morphological and molecular evidence for major re-circumscriptions in and eight new species of *Melichrus* R.Br. (Ericaceae subfam. Epacridoideae) in eastern Australia. *Australian Systematic Botany* 38: SB24031. DOI

Kennedy HT, Telford IRH, Crayn DM, Bruhl JJ (2020) Validation of two informally named species of *Melichrus* (Ericaceae subfam. Epacridoideae) from north-eastern New South Wales. *Telopea* 23, 87–196. DOI

O'Donnell RP, Bruhl JJ, Telford IRH, Wilson TC, Zimmer HC, Taseski GM, Andrew RL (2023) Molecular and morphological analyses support recognition of *Prostanthera volucris* (Lamiaceae), a new species from the Central Tablelands of New South Wales. *Australian Systematic Botany* 36: 1–20. DOI

Palsson RL, Andrew RL, Telford IRH, Miller RT, Bruhl JJ (2025) Towards resolution of the *Prostanthera ovalifolia* R.Br. assemblage (Lamiaceae: Prostantheroideae): clarification of *P. cineolifera* R.T.Baker & H.G.Sm. and description of three new species. *Australian Systematic Botany* 38: SB24003. DOI

PlantNET (2026) The NSW Plant Information Network System. Royal Botanic Gardens and Domain Trust, Sydney. URL, accessed December 30, 2025.

Telford IRH (2013) *Phebalium speciosum* (Rutaceae: Boronieae), an endangered, narrowly endemic new species of north-eastern New South Wales, Australia. *Telopea* 15: 51–55. DOI

Telford IRH, Copeland LM (2006) *Philotheca papillata* (Rutaceae), a new endangered species from north-eastern New South Wales. *Telopea* 11: 105–110. DOI

Telford IRH and Bruhl JJ (2020). *Dodonaea crucifolia* (Sapindaceae, Dodonaeoideae), a new species from north-eastern New South Wales, Australia. *Telopea* 23: 119–125. DOI

Telford IRH, Sadgrove NJ and Bruhl JJ (2019). Three new species segregated from *Phebalium squamulosum* subsp. *squamulosum* (Rutaceae) based on morphological and phytochemical data. *Muelleria* 38: 3–16. PDF

Thiers BM (2024) Index Herbariorum. A global directory of public herbaria and associated staff. [continuously updated] The New York Botanical Garden, New York. URL

Wilson, PG (1970). A taxonomic revision of the genera *Crowea*, *Eriostemon* and *Phebalium* (Rutaceae). *Nuytsia* 1: 3–155. PDF

Wilson PG (2013) *Phebalium* (Rutaceae). In: Wilson AJG (ed.), *Flora of Australia Volume 26. Meliaceae, Rutaceae, Zygophyllaceae*. pp. 458–480. Australian Biological Resources Study, Canberra and CSIRO Publishing, Melbourne. PDF