

Eucalyptus ferriticola and *E. pilbarensis* (Myrtaceae), two new species from the Pilbara region of Western Australia

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Abstract

Brooker, M.I.H. and Edgecombe, W.B. *Eucalyptus ferriticola* and *E. pilbarensis* (Myrtaceae), two new species from the Pilbara region of Western Australia. Nuytsia 5(3): 373-380 (1986). *Eucalyptus ferriticola* and *E. pilbarensis* (Myrtaceae), two new species occurring in the Pilbara region of Western Australia (*E. ferriticola* also occurs at Mt Augustus to the south-west of the Pilbara) are described and illustrated. *E. ferriticola* belongs in the informal subgenus *Blakella* Pryor and Johnson, its closest ally being *E. aspera* F. Muell., and *E. pilbarensis* belongs in the informal subgenus *Symphomyrtus* (Schauer) Pryor and Johnson, its closest ally being *E. trivalvis* Blakely.

Descriptions

1. *Eucalyptus ferriticola* Brooker and Edgecombe, sp. nov. (Figures 1 and 2)

Eucalypto asperae F. Muell. affinis a qua statura generaliter inferiore, cortice chlorino vel subroseo, foliis juvenilibus petiolatis, foliis in arbore summa adultis, laevibus, et habitatione rupestri differt.

With affinity to *E. aspera* F. Muell. from which it differs in its lower stature, greenish or pinkish bark, petiolate juvenile leaves, the development of smooth adult leaves in the mature crown and strong adaptation to harsh rocky sites.

Typus: Wittenoom Gorge (22° 17'S, 118° 19'E), 30 October 1983, M.I.H. Brooker 8314 and W.B. Edgecombe (holo: PERTH; iso: FRI, NSW, MEL, K).

Tree or *mallee* up to 8 m tall, bark smooth, greenish in winter, pinkish in early summer, lignotuberos. *Cotyledons* reniform, up to 0.8 x 1.2 cm. Seedling leaves opposite for 1 or 2 pairs, shortly petiolate, elliptical, up to 2 x 1 cm. *Juvenile leaves* opposite for an indefinite number of pairs, petiolate, ovate, up to 7 x 3 cm, dull, light green, with prominent, pinnate venation. *Seedling stems* and underside of midribs with bristle glands. *Adult leaves* alternating*, petiolate, narrow-lanceolate to lanceolate, up to 10 x 1.5 cm, dull grey-green, smooth, sometimes tapering to a long fine point. *Inflorescences* axillary, compound; rachis short, bearing crowded, many-flowered bud clusters. *Buds* shortly pedicellate, clavate, up to 0.5 x 0.4 cm; outer operculum thin, breaking into fragments and shed imperfectly during bud development leaving a ragged scar; inner operculum hemispherical. *Stamens* all fertile, inflexed in bud. *Antthers* versatile, dorsifixed, oblong, opening by longitudinal slits. *Ovary* 3-locular; ovules in up to 4 vertical rows. *Fruit* shortly pedicellate, cupular, cylindrical or slightly barrel-shaped, up to 0.9 x 0.7 cm, thin walled; rim thin; disc steeply descending, valves broad, sunken. Seed reddish brown, patelliform, thin; hilum ventral.

* Leaf arrangement is apparently alternate by elongation at the nodes (Jacobs 1955)

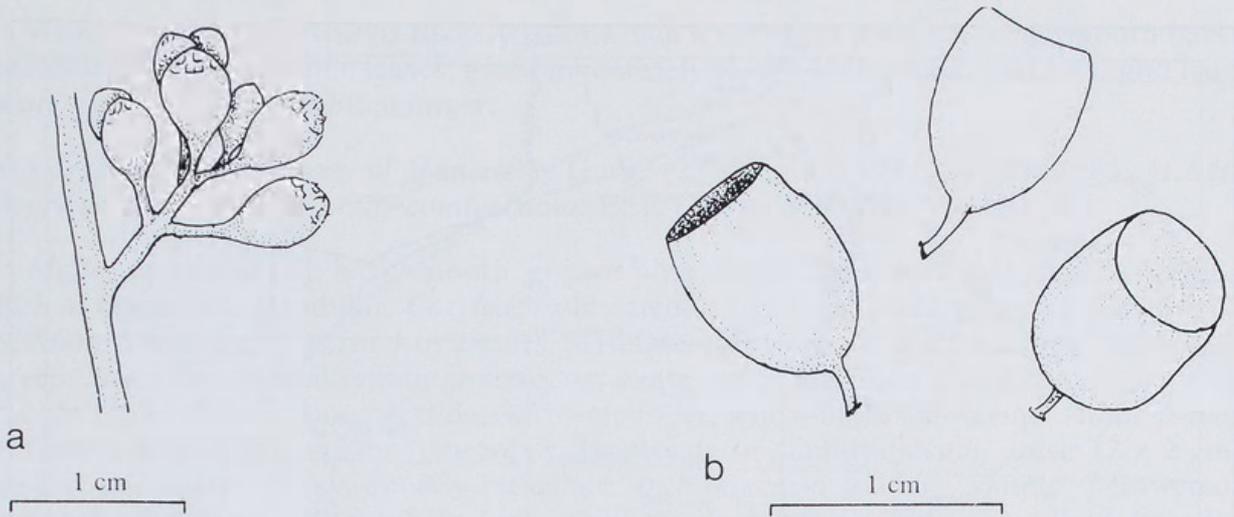


Figure 2. *Eucalyptus ferriticola*. a — Buds. b — Fruit.
From type collection.

Distribution. Hamersley and Ophthalmia Ranges, Mt Augustus, Western Australia (Figure 3).

Flowering period. Flowers November-December.

Other specimens examined. WESTERN AUSTRALIA: Hamersley Gorge (22°15'S, 118°00'E), 29 September 1969, *M.I.H. Brooker* 2169 (PERTH); Ophthalmia Range (23°17'S, 119°42'E), 4 July 1983, *M.I.H. Brooker* 8196 and *W.B. Edgecombe* (FRI, PERTH, NSW, MEL, DNA); Round Hill, west of Capricornia roadhouse (23°27'S, 119°46'E), 5 July 1983, *M.I.H. Brooker* 8199 and *W.B. Edgecombe* (FRI, PERTH, NSW, AD, Karratha College); north of Mt Newman (23°16'S, 119°33'E), 6 July 1983, *M.I.H. Brooker* 8212 and *W.B. Edgecombe* (FRI, PERTH, NSW, MEL, BRI); Hamersley Gorge (22°15'S, 118°00'E), 8 July 1983, *M.I.H. Brooker* 8233 and *W.B. Edgecombe* (FRI, PERTH, NSW, MEL, DNA); 1.7 km from Wittenoom-Tom Price road on road to Hamersley Gorge, 8 July 1983, *M.I.H. Brooker* 8237 and *W.B. Edgecombe* (FRI, PERTH, NSW, MEL, AD); Mt Augustus (24°20'S 116°51'E), 19 August 1983, *S.D. Hopper* 3146 (PERTH); Mt Nameless (22°43'S, 117°45'E), 31 October 1983, *M.I.H. Brooker* 8316 and *W.B. Edgecombe* (FRI, PERTH, NSW, MEL, Karratha College).

The Latin name refers to the habitat which characterises its distribution in the iron-rich Pilbara area.

Discussion. *Eucalyptus ferriticola* has a widespread though sporadic distribution in the Pilbara region, from Mt Nameless in the west to the Ophthalmia Range north of Newman in the east, a distance of about 200 km. It usually occurs as isolated trees and is almost wholly confined to gorges and more or less vertical slopes of mesas where it is often found anchored to and emerging from crevices of ironstone which are otherwise bare of vegetation.

At Mt Nameless it occurs near the top at about 1000 m elevation where the rock is from the Dales Gorge member of the Brockman Iron Formation.

It occurs on similar rock formations in the Ophthalmia Range at about 500-550 m elevation where it is associated with *E. leucophloia* Brooker, *Ficus platypoda* (Miq.) Miq., *Astrotricha hamptonii* F. Muell. ("iron ore plant"), *Eremophila* sp. and *Triodia* sp. It also

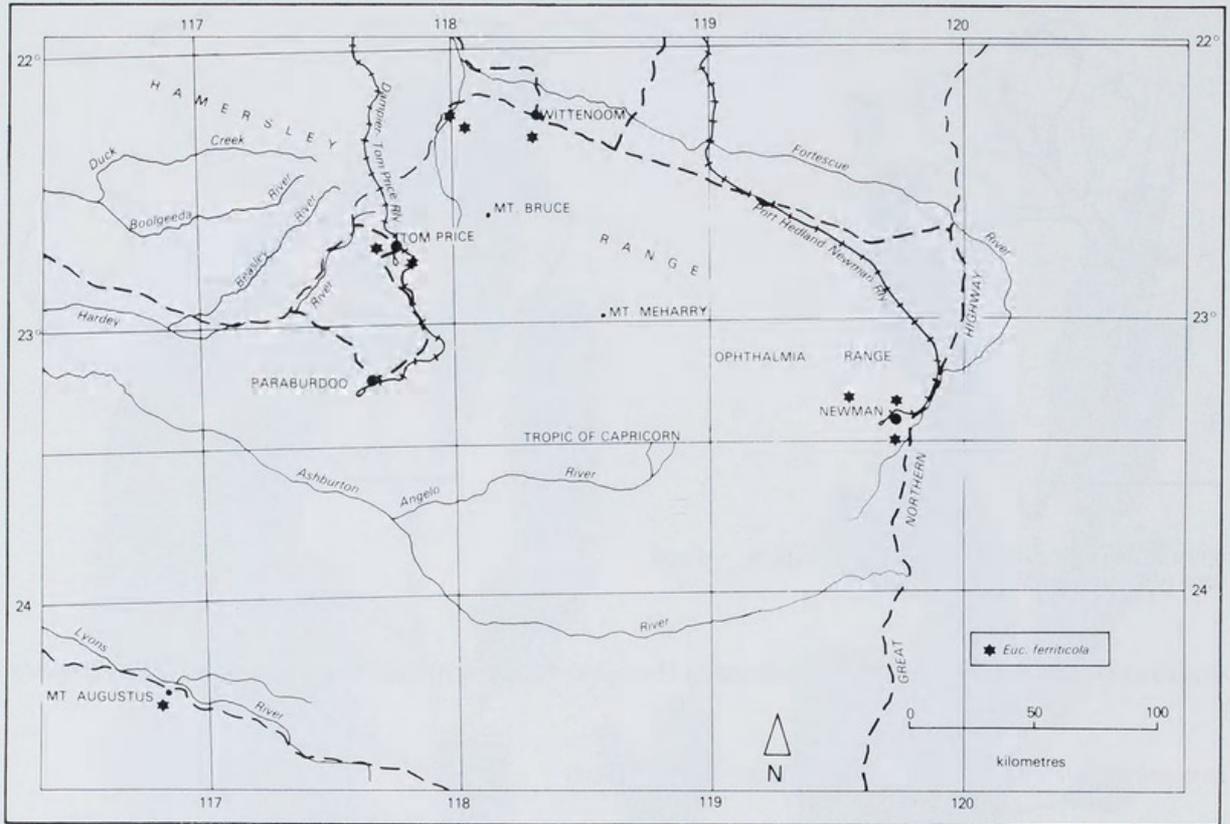


Figure 3. Distribution of *Eucalyptus ferriticola*.

grows on the steep upper slopes of mesas at about 700-800 m elevation between Hamersley Gorge and the Wittenoom-Tom Price road, where it occurs above a pure stand of *E. pilbarensis* Brooker & Edgecombe.

Hamersley Gorge itself has been formed by the south branch of the Fortescue River cutting through the Hamersley Range revealing the Mt Sylvania Formation and Wittenoom Dolorite. *Eucalyptus ferriticola* occurs as small trees on the rocky floor of the gorge with *E. camaldulensis* Dehnh. and *Melaleuca leucadendra* (L.) L. The upper extension of Hamersley Gorge to the south has been formed through a colluvium layer at least 40 m deep and the substrate is red clay/silt material with chert pebbles derived from Mt McRae shale and Dales Gorge member. Here the floor of the gorge and the lateral valleys running into it support well developed *E. ferriticola* to 8 m in height.

At Mt Augustus *E. ferriticola* occurs on lower and mid slopes and steep gullies on the northern and western sides at about 700-900 m elevation. The rock is granite and the associated tree species are *Acacia aneura* F. Muell. and *A. pruinocarpa* M. Tindale.

The axillary compound inflorescences, early loss of the outer operculum, inflexed stamens, oblong anthers, thin-walled fruit and patelliform seed clearly place *E. ferriticola* in the informal "*E. subgenus Blakella*" Pryor and Johnson (1971).

2. *Eucalyptus pilbarensis* Brooker and Edgecombe, sp. nov. (Figures 4 and 5)

Eucalypto trivalvi Blakely affinis a qua cortice semper laevi, foliis juvenilibus consistentem ovatis, adultis viridibus moderate nitidis, et alabastris fructibusque plus minusve sessilibus et saepe majoribus differt.

With affinity to *E. trivalvis* Blakely from which it differs in always having smooth bark, consistently ovate juvenile leaves, green moderately glossy adult leaves, and buds and fruit more or less sessile and often larger.

Typus: Base of mesa west of Hamersley Gorge (22° 15'S, 117° 59'E), 8 July 1983, *M.I.H. Brooker* 8236 and *W.B. Edgecombe* (holo: PERTH; iso: FRI, NSW, MEL, K).

Mallee up to 4 m tall; bark smooth, grey or pinkish grey or whitish grey; lignotuberous. *Pith* of branchlets glandular. *Cotyledons* bisected; lobes broad, diverging at a wide angle. *Seedling leaves* opposite for 1 or 2 pairs, petiolate, elliptical, up to 3.5 x 1.5 cm, dull blue-green. *Juvenile leaves* alternating, petiolate, ovate, up to 8 x 5 cm, dull green, many with purple pigmentation on underside, with imperfect, supra-basal side veins. *Adult leaves* petiolate, alternating, narrow-lanceolate, lanceolate or slightly falcate, up to 12 x 2 cm, green, moderately glossy, densely reticulate. *Inflorescences* axillary, simple, 7-flowered; peduncles flattened, up to 1.2 cm long. *Buds* sessile or very shortly pedicellate, broadly fusiform to clavate, up to 1.6 x 0.6 cm; operculum conical to hemispherical, outer operculum shed early and scar present. *Stamens* all fertile, variously flexed in bud or strongly inflexed. *Anthers* versatile, dorsifixed, oblong, opening by longitudinal slits. Ovary 3- or 4-locular. *Ovules* in 4 vertical rows. *Fruit* more or less sessile, cylindrical to obconical, up to 1.5 x 0.9 cm; rim moderately thin; disc steeply descending; valves sunken. Seed brown, ellipsoid to ovoid, slightly flattened, with shallow reticulum; hilum ventral.

Distribution. In the Hamersley Range at medium to high altitudes and also near Roy Hill, Western Australia (Figure 6).

Flowering period. Flowers in July.

Other specimens examined. WESTERN AUSTRALIA: Hamersley Gorge (22° 15'S, 118° 00'E), 28, 29 September 1969, *M.I.H. Brooker* 2152, 2153, 2154, 2162 (PERTH); 54 miles N of Shepherd's roadhouse towards Roy Hill, 21 April 1974, *M.I.H. Brooker* 4556, 4557 (FRI, PERTH); Mt Nameless (22° 43'S, 117° 45'E), 8 July 1983, *M.I.H. Brooker* 8221, 8222, 8223, 8229 and *W.B. Edgecombe* (FRI, PERTH, NSW, MEL, AD); Hamersley Gorge (22° 15'S, 118° 00'E), 8 July 1983, *M.I.H. Brooker* 8234, 8235 and *W.B. Edgecombe* (FRI, PERTH, NSW, DNA, Karratha College); Mt Nameless (22° 43'S, 117° 45'E), 31 October 1983, *M.I.H. Brooker* 8315 and *W.B. Edgecombe* (FRI, PERTH, NSW, Karratha College).

Discussion. *Eucalyptus pilbarensis* has a more restricted distribution than *E. ferriticola* and has only been found at Mt Nameless, near Hamersley Gorge, near Mt Brockman and near Roy Hill. Unlike *E. ferriticola* it occurs in small populations. On Mt Nameless it occurs on the slopes as well as the top at about 800-1000 m in elevation. The summit of Mt Nameless bears a remarkable number of eucalypt species, viz. *E. gamophylla* F. Muell., *E. affin. terminalis* F. Muell., *E. lucasii* Blakely, *E. kingsmillii* Maiden & Blakely, *E. socialis* F. Muell. ex Miq., *E. affin. patellaris* F. Muell., *E. leucophloia* Brooker, *E. affin. setosa* Schau., *E. striaticalyx* W. Fitzg., *E. ferriticola* Brooker & Edgecombe and *E. pilbarensis* Brooker & Edgecombe. *Cassia* sp. and *Triodia* sp. are also abundant.

Near Hamersley Gorge *E. pilbarensis* occurs on scree slopes derived from shale and banded chert of the McRae and Mt Sylvania Formations respectively. The species occurs in more or less pure stands with *E. ferriticola* higher on the mesa cliff faces and with scattered trees of *E. leucophloia* on the surrounding slopes.

The simple axillary inflorescences, bi-operculate buds, oblong anthers, bisected cotyledons, glandular pith, non-waxy straight-sided fruit, and elliptical to ovate seed with



WESTERN AUSTRALIAN HERBARIUM
PERTH W.A.

E. K. CSIRO DIVISION OF FOREST RESEARCH - FBI
Yarragadee, Western Australia
part of the herbarium collection

Material: SP. NOV. aff. *E. pilbara* Diels

Collector: N. L. B. BROOKER & M. J. COOPER 8 July 1983

Determined: N. L. B. BROOKER

Lat. 22° 13' S Long. 115° 29' E Alt.

State: W.A. Locality: 20 km west of Bamersley, north

HOLOTYPE

CSIRO Division of Forest Research

Eucalyptus pilbarensis Brooker &
Edmond

10 Nov 1983

large, old mallee 4 m tall, very spreading,
smooth, grey and greenish white bark, stems on
S side of hill down to shoulder of sandy
scarp, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Figure 4. Photograph of holotype of *Eucalyptus pilbarensis*.

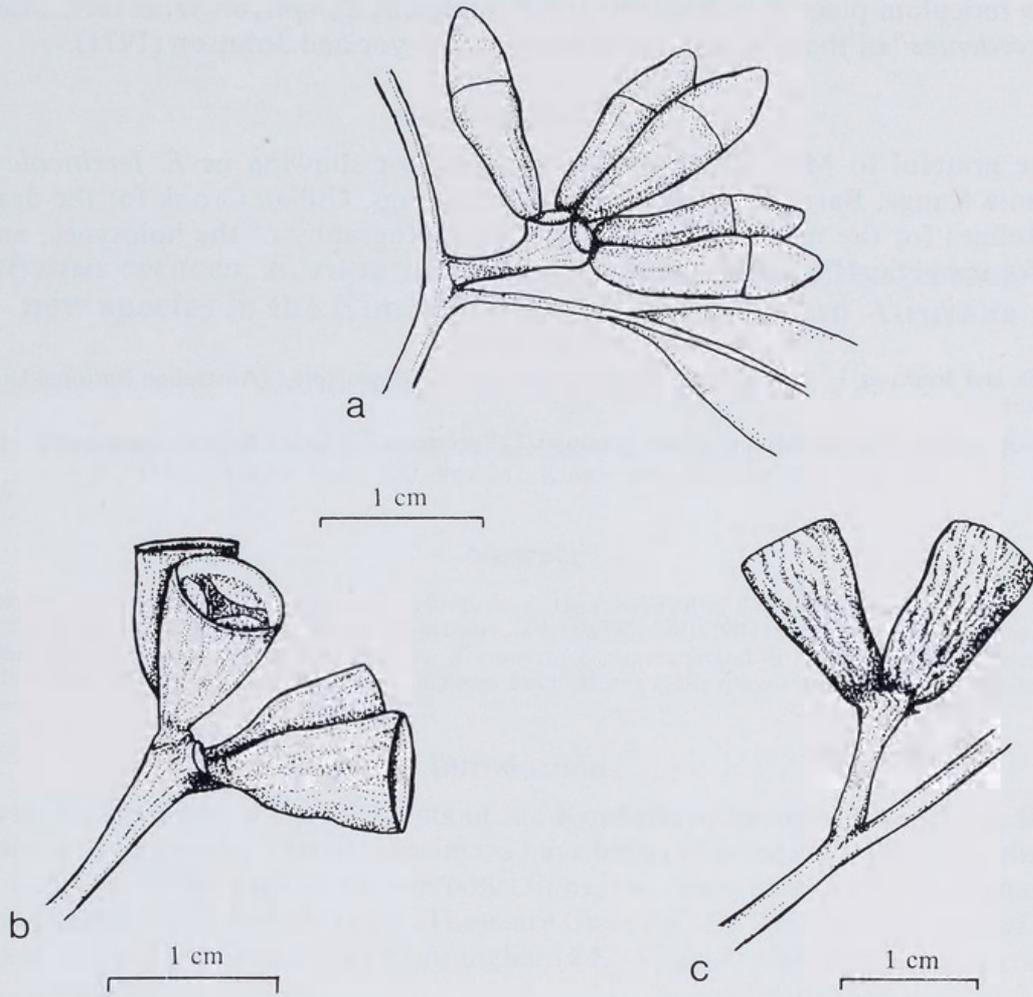


Figure 5. *Eucalyptus pilbarensis*. a — Buds. b and c — Fruit. a and b from holotype. b from *Brooker* 8221.

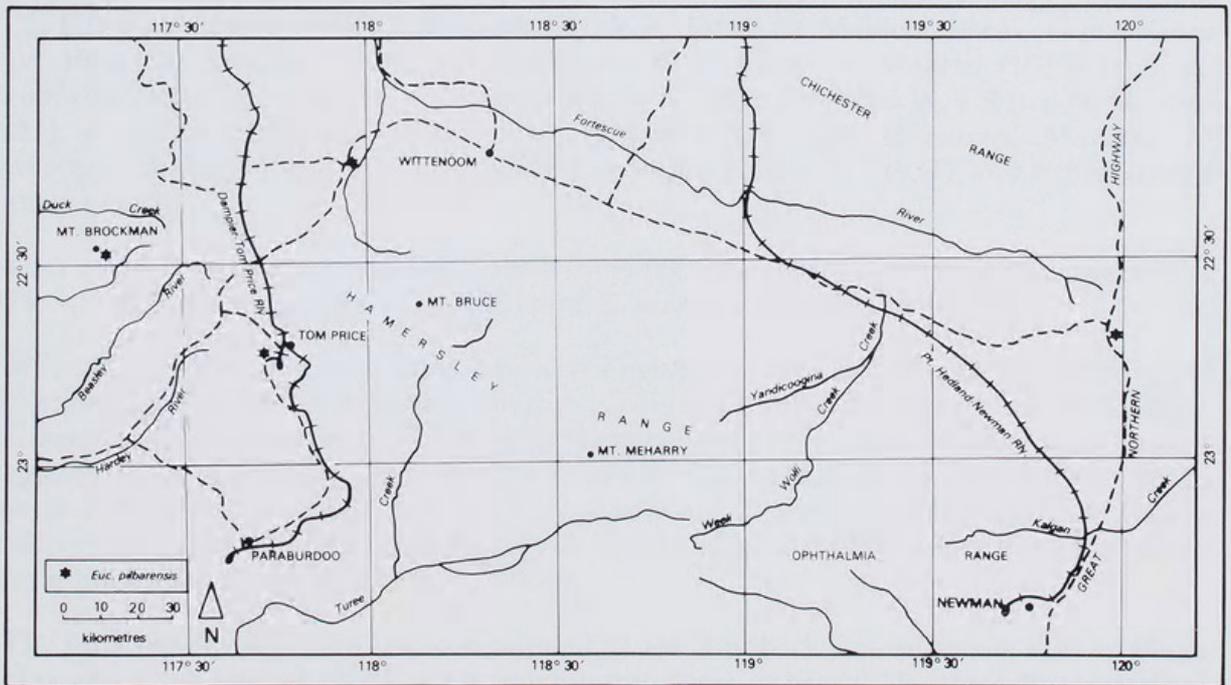


Figure 6. Distribution of *Eucalyptus pilbarensis*.

a shallow reticulum place *E. pilbarensis* in "*E.* subgenus *Symphyomyrtus* sect. *Bisectaria*, series *Accedentes*" of the informal classification of Pryor and Johnson (1971).

Acknowledgements

We are grateful to Mary Deighton of Newman for showing us *E. ferriticola* in the Ophthalmia Range, Barry Rockel for growing seedlings, Gillian Crook for the drawings, David Holmes for the maps, Bill van Aken for photography of the holotypes, and Ken Walker for supplying flowering material.

References

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