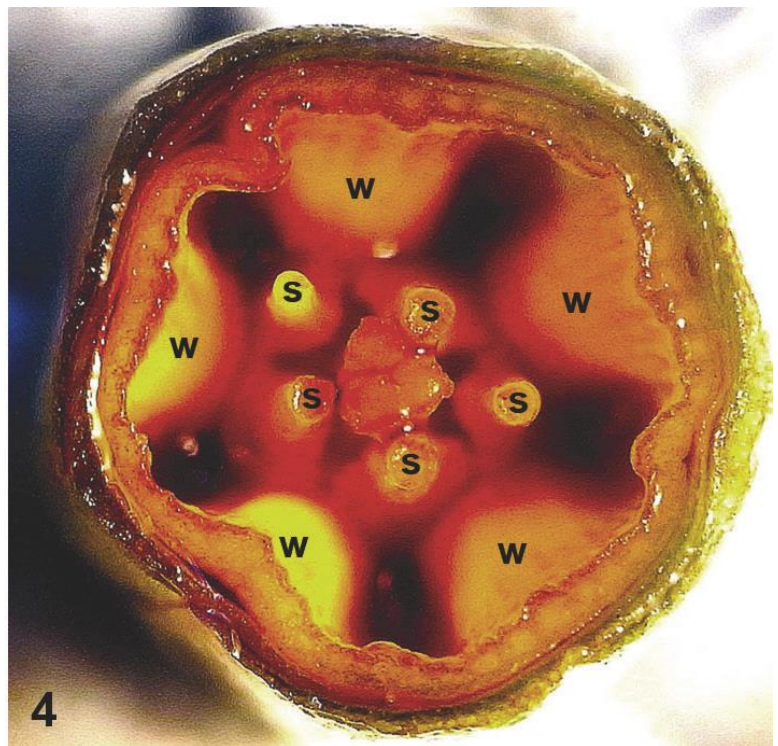




Figs. 3 & 4: **3.** Flower of *Justicia aurea*, cut longitudinally and opened out. **Sc**, fleshy triangular scales at base of lip; **sh**, slender style held in its sheath (concealed except towards the base); **s**, stamen filaments. Scale bar 5 mm. Same plant as in Fig. 1. **4.** Flower bud of *Reinwardtia indica*, cut transversely just above top of ovary. The cut filaments of five stamens (**s**) surround the base of the three styles. The adaxial swelling (**w**) at the base of each of the five petals has been made more apparent by the addition of iodine solution to the bud's interior. Bud is 5 mm diam. Same plant as in Fig. 2.

from the Auckland University gardens in 2004 and 2006 (AK 297055 & 297916) do include self-sown seedlings.

The plant at the Balmoral garden is a solitary one, and at the time of writing (August) has made some amount of fruit.

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Red-gum trees (*Eucalyptus* spp., Myrtaceae) in Auckland

Rhys Gardner

This article examines three closely related eucalypt species, *Eucalyptus blakelyi*, *E. camaldulensis* and *E. tereticornis*. They are rather uncommon members of Auckland's "urban forest" (Gardner 1987, 1989; Wilcox 2012) but do provide some points of discussion with respect to the genus as a whole.

History

In *Eucalyptus* the character of the bark is critically important. The bark of *E. blakelyi* is thin (except

right at the ground) and falls off more or less annually in strips or flakes. The trunk then is a smooth one, patterned in shades of grey, olive and yellow. Such a tree is said to be 'gum-barked', but why?

The reason lies right back with James Cook, who coined the name 'gum tree' for the eucalypts he and his botanists, Banks and Solander, saw in 1770 on the east coast of Australia (Hawkesworth 1774,

especially pp. 55, 60, 137). One of these, collected at Botany Bay, was the woodland species *Eucalyptus gummifera*. Its bark, rather thick, short-fibred and persistent, is often blotched by discharges of 'kino' from the sapwood. This dark red substance is, technically speaking, not a gum, but Cook thought it was, hence his term. With the publication of the Hawkesworth version of Cook's journal, and then other voyaging accounts, 'gum tree' became the earliest common name for the genus as a whole (Ramson 1988).

Gradually, as Australian colonists began to appreciate the group's diversity, they made a distinction between the smooth-barked 'gum trees' (perhaps mainly Sydney region's *E. saligna*) and those with 'rough, fixed bark'. The latter were divided into the 'stringy-barked', 'box-barked', and 'iron-barked' kinds (these including *E. crebra*, the other eucalypt collected on Cook's First Voyage). Trees which discharged kino, like *E. gummifera*, eventually came to be called 'bloodwoods'.

Descriptions

The three species here, along with about thirty others, form the 'red-gum' group, so named for their heavy, durable, dark-coloured heartwood. Their adult

leaves are concolorous (similar in colour and texture on each side) and have rather few and irregularly spaced side-veins (Boland et al. 1984).

They resemble one another as closely in their flowers and fruit-capsules as they do in bark and foliage. All have single (rather than paired), axillary, 7–11-flowered inflorescences, and flowers with stamen-enclosing operculum (fused petals) that is more or less conical and considerably longer than the hypanthium (Fig. 1). All three are said to be generous providers of pollen and nectar and produce a good-flavoured honey.

Fully-developed flower buds and mature capsules are best for telling the three species apart. The dimensions of these in the descriptions below are simplified from the data of Boland et al. (1984).

1. ***Eucalyptus blakelyi*** Maiden (Blakely's red gum) Operculum conical to horn-shaped (i.e., obtuse-tipped), 1.5–2.5 times as long as the hypanthium, the two together to c. 1.5 cm long. Capsules ovoid to globular-truncate, c. 7 mm diam., the disc broad and prominent, the usually 4 valves exerted. Seeds black, pitted. Named for Australian eucalypt specialist W.F. Blakely (1875–1941).

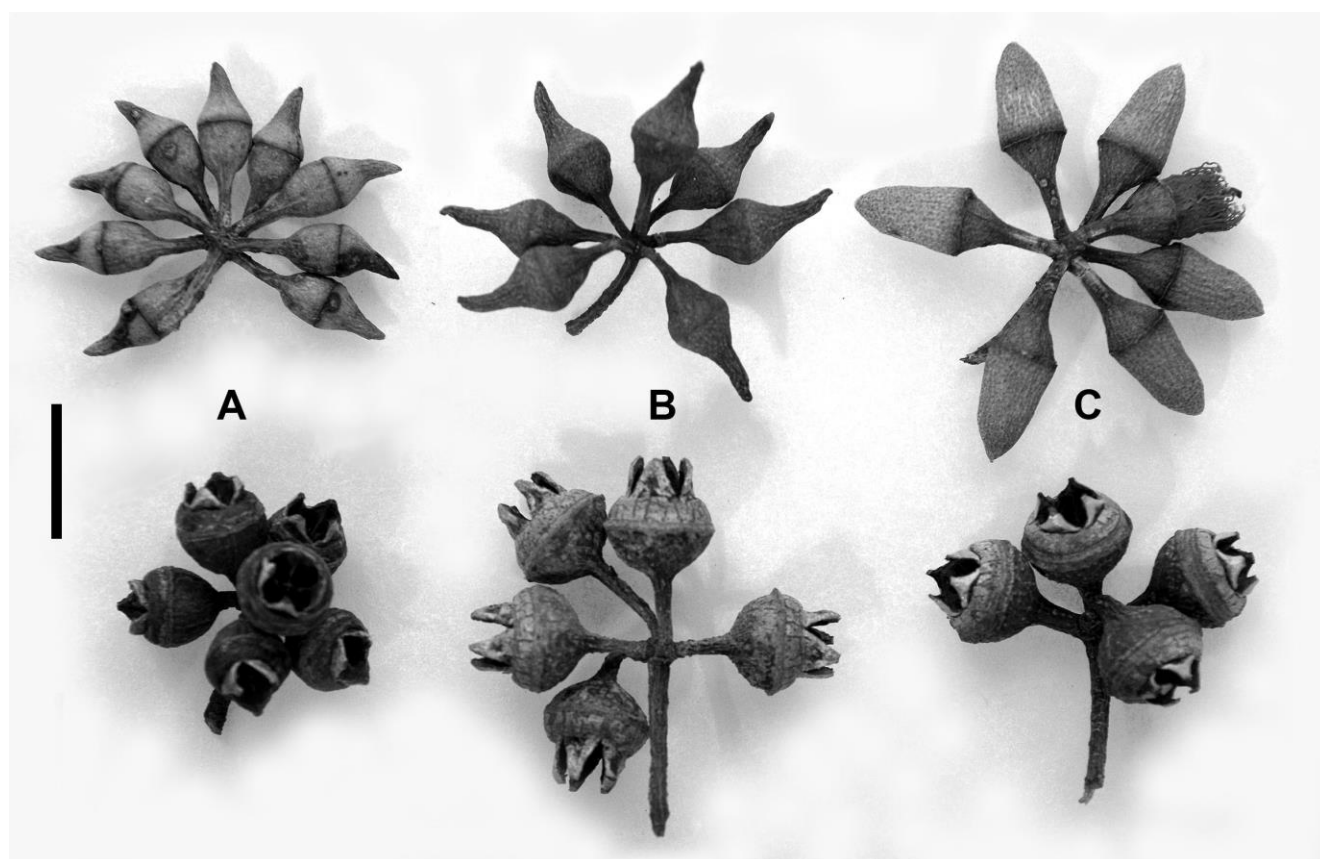


Fig. 1. *Eucalypt* species: mature buds and near-ripe capsules. Scale bar 1 cm. **A.** *E. blakelyi*. Buds (AK 340647), capsules (AK 340648). **B.** *E. camaldulensis*. Buds (AK 73593), capsules (AK 73587). **C.** *E. tereticornis*. Buds and capsules both from AK 180441.



Fig. 2. Herbarium specimen of *E. blakelyi* (AK 148850). Scale bar = 5 cm.

In its homeland this is said to be a medium-sized tree with a short thick bole and dense crown. It is one of the common eucalypts on the plains around Canberra, and does not occur on the New South Wales coast. A herbarium specimen is shown in Fig. 2. It is a good example of Canberra botanist Laurie Adams' professionalism: sheet-filling fertile material along with juvenile foliage, collected in duplicate, label notes neither cryptically short nor obsessively long.

In Auckland rather young trees can be found at Pt England Reserve and Madill's Farm, Kohimarama (Wilcox 2012: 155, 159).

2. *E. camaldulensis* Dehnh. (river red gum)

Operculum conical to sometimes merely hemispherical-apiculate, 1.5–2.5 times as long as the hypanthium, the two together to c. 1.5 cm long. Capsules ovoid-globular, truncate, c. 5 mm diam., the disc broad and prominent, the (3–)4(–5) valves strongly exerted. Seeds yellowish, smooth. The name refers to the garden of the Count of Camaldoli near Naples, where the species was cultivated in the 1830s from seed sent by Allan Cunningham; those trees provided the type specimen (see Wilcox 2008).

This is Australia's most widespread eucalypt but being an inland, riverine species is not especially well-suited to our climate. It forms a stout-boled tree with a dense crown of spreading heavy limbs.

An old river red gum once grew near the shore at the end of Rosebank Road, Avondale (AK 184469, coll. 1987); it no longer stands. Mike Wilcox has told me of the magnificent tree at the Gate 2 entry to the Countdown warehouse on Portage Road, Mt Wellington-Otahuhu, and of another fine specimen at 29 Mahoe Avenue, Remuera. Neither is on the Notable Trees Schedule of Auckland Council.

3. *E. tereticornis* Smith (forest red gum)

Operculum conical to horn-shaped (i.e., obtusely tipped), 2–7 times as long as the hypanthium, the two together reaching c. 2 cm long. Capsules globular-truncate, c. 5 mm diam., the disc broad (sometimes exceeding the hypanthium) and prominent, the 4(–5) valves strongly exerted. Seeds

black, pitted. The specific epithet refers to the horn-shaped operculum.

Having the most extensive latitudinal distribution of all eucalypts, forest red gum ranges from the south-eastern coast of Victoria to the base of the Cape York peninsula and then across to south-eastern New Guinea. In comparison with the other two gums it has a long trunk and limbs that do not spread greatly, that is, it is a tree of forest rather than woodland.

In addition to the large individuals hidden away on the southern side of the reserves at Cox's Creek (see Specimens below) there are a dozen or so of various sizes on the overgrown slopes on the west side of Onepoto Basin. There are also several at Taurima Reserve, Point England (Wilcox 2012: 155).

Specimens

Eucalyptus blakelyi

Madill's Farm Reserve, Kohimarama, three [two as of 2019; ROG] handsome healthy specimen trees, *M.D. Wilcox*, May 2011 [near-mature buds], AK 340647. Near Omaru Creek, Point England Reserve, several handsome healthy trees, *M.D. Wilcox*, May 2011 [seed-filled capsules], AK 340648. Near Marrabunda, Canberra, Australia, *L.G. Adams*, 22 Jun 1967, AK 148850.

Eucalyptus camaldulensis

Close to Karangahape Road on property lately owned by Mr Nathan [i.e., top of Myer's Park], *J. H. Simmonds* 628, Dec 1920 [mature buds], AK 73592. "Penrose" (W. Perry property), Masterton [immature buds and old capsules], herb. Simmonds, *s.d.*, AK 73587.

Eucalyptus tereticornis

Cox's Creek (old Edgar Creek inlet), two or three 20 m tall 1 m dbh trees and numerous smaller trees on clay slopes, coll. ROG, Nov 1987 [mature buds, old capsules], AK 180441.

Acknowledgements

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