

## Trees in the landscape, Part 3: *Corymbia torelliana*

Donald R. Hodel

**C**ORYMBIA TORELLIANA OR the blood-leaf gum is one of the most distinctive and unusual eucalypts and one of the few that occurs naturally in and around rain forests. An unusually handsome tree of typically fine conformation, it has an impressive, straight trunk covered with attractive, smooth, green bark on the upper portions and branches, and sports a stocking of dark, rough bark at the base. From a short distance it does not remind one of a eucalypt at all. Indeed, its large, lush, tropical-looking, bright green leaves and smooth bark conjure up images of a *Ficus*. However, the leaves are rough to the touch, nearly like a fine sandpaper, and close inspection reveals that this tree is a eucalypt, albeit a most unusual one at that.

The large, lush, green leaves lend a tropical motif to the blood leaf gum, but they are not adult leaves. In fact, adult leaves are rarely seen in the canopy (Boland 1984, Chippendale 1988, Elliot and Jones 1986, Hill and

Johnson 1995). Instead, larger, broader, bright green juvenile and intermediate leaves, not *Eucalyptus*-like at all, typically compose the canopy, even on reproductive trees. Adult leaves are typically narrower, more of a gray-green, and more *Eucalyptus*-like, but are infrequently seen. Only very old trees tend to have more adult leaves. The large, terminal clusters of white flowers, which can appear nearly year round but be especially profuse in summer months, are a perfect complement to the lush, green foliage.

Despite its tropical origins, the blood-leaf gum is an unusually adaptable species, tolerating some cold and performing well and making a handsome statement in the landscape. It does well near the coast and in the intermediate and inland valleys in southern California, and should probably be tried in the low deserts of the Southwest. It would likely excel in most places in Hawaii but could become a weed in moist and wet areas. It tolerates harsh conditions, including some cold, heat, wind, smog, and

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aridity although regular irrigation in the summer is probably necessary in the hotter interior areas.

Its strongly upright, broadly columnar habit, impressive and attractive trunk, tropical-looking foliage, and conspicuous if not showy flower clusters are sure to gain attention wherever it is grown and make the blood-leaf gum a superb and much admired street, park, lawn, and shade tree, specimen, accent, windbreak or screen.

*Corymbia torelliana*  
(F. Muell.) K. D. Hill  
and L. A. S. Johnson

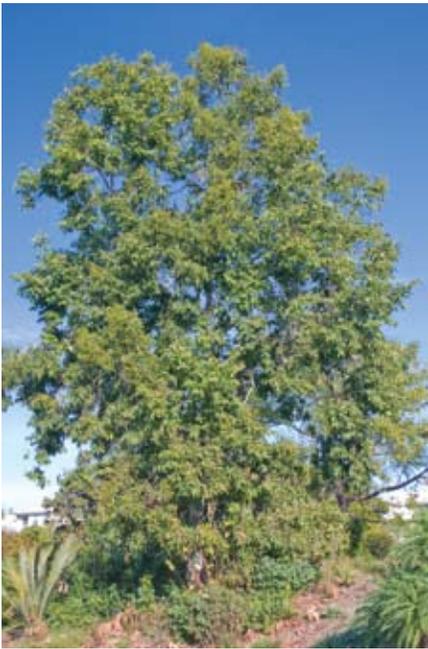


Figure 1. (Left) *Corymbia torelliana* is a handsome, solitary, medium to large, evergreen tree 45 to 90 feet tall. Unpruned and untrained trees in the open typically have branches and foliage nearly to ground (Fullerton Arboretum, Fullerton, CA).

Figure 2. (Center) The trunk of *Corymbia torelliana* is impressive, straight, moderately stout, and generally of good form. Note the rough, dark bark below and the smooth, green bark above (Fullerton Arboretum, Fullerton, CA).

Figure 3. (Right) Bark of *Corymbia torelliana* on the lower trunk is dark gray to black, persistent or flaky, fissured, and checkered (The Los Angeles County Arboretum and Botanical Garden, Arcadia, CA).

### Taxonomy and history

**Synonyms:** *Eucalyptus torelliana* F. Muell.

**Common names:** blood-leaf gum (new red growth). *Cadaga* and *cadaghi*, both of which are names of Aboriginal origin.

**Etymology:** The genus name *Corymbia* is derived from corym, a flower cluster generally common to the group where individual flower stalks arise from different levels on the twigs but all flowers are held in more or less the same plane. The specific epithet or species name *torelliana* honors Count Luigi de Torelli, a member of the Italian senate who promoted the use of eucalypts to dry up the malarial Pontine Marshes near Rome. Mueller named this species the year Torelli died to commemorate his life.

**History:** Australian botanist Ferdinand von Mueller (1825-1896) named and described this species as *Euca-*

*lyptus torelliana* in 1877, basing it on a collection that E. Fitzalan had made in Trinity Bay, Queensland, Australia. Australian botanists K. D. Hill and L. A. S. Johnson erected *Corymbia* and transferred *E. torelliana* to it in 1995.

### Description

The description is from several sources (Boland et al. 1984, Brooker and Kleinig 2004, Chippendale 1988, Elliot and Jones 1986, Hill and Johnson 1995, Kelly et al. 1983, Muller and Haller 2005) and from cultivated trees in southern California.

**Habit/Conformation:** solitary, medium to large, evergreen tree 45 to 90 feet tall, 15-40 feet wide, canopy mostly upright and broadly columnar, moderately dense, regularly to irregularly branched, unpruned and untrained trees in the open typically have branches and foliage nearly to ground (Fig. 1).

**Trunk:** impressive, straight, moder-

ately stout, generally of good form, to 3 feet in diameter, on older specimens bole to two-thirds of total height of tree (Fig. 2).

**Bark:** on lower 3-10 feet of trunk dark gray to black, persistent or flaky, fissured, checkered (Figs. 2-3); on upper trunk and branches deciduous or shedding in thin sheets to become smooth glossy green with slight glaucous bloom (especially on young but reproductive trees) in summer (Figs. 4-5), aging to slate-green or gray (especially on older trees) in winter before again shedding.

**Leaves:** simple; petiole to 1 inch long; new leaves often reddish and with reddish hairs (Fig. 6); juvenile and intermediate leaves frequently common in canopy of reproductive trees; juvenile briefly opposite then alternate, blade 2-8.5 × 2-5.5 inches, broadly ovate to ovate-lanceolate or elliptic-lanceolate, light to dark green above, conspicuously pale below,



Figure 4. (Upper left) Bark of *Corymbia torelliana* on the upper trunk and branches is deciduous or shedding in thin sheets to become smooth glossy green (The Los Angeles County Arboretum and Botanical Garden, Arcadia, CA).



Figure 5. (Upper center) Bark of *Corymbia torelliana* on the upper trunk and branches is smooth, glossy green, and sometimes with a light glaucous bloom (The Los Angeles County Arboretum and Botanical Garden, Arcadia, CA).

slightly hairy, rough to the touch; intermediate leaves alternate, 3.5-6.5 × 1.5-3.5 inches, ovate to broadly lanceolate, light to dark green above, slightly paler below, slightly hairy and rough to the touch but becoming glabrous (Figs. 7-8); adult leaves alternate, 3-5.5 × 0.5-1.75 inches, ovate

or lanceolate to narrowly or broadly lanceolate, glossy green to gray-green above, slightly paler below, long-pointed, venation conspicuous (Fig. 9).

**Flowers:** in 3 (-7)-flowered umbels arranged in large, conspicuous,

showy, terminal panicles to 2 × 2 feet (Fig. 10); peduncle 0.5-1.75 inches long; buds sessile, 0.2-0.35 × 0.1-0.25 inch, ovoid; operculum or lid 0.04-0.1 × 0.1-0.25, hemispheric or conic, dark brown; hypanthium or base greenish 0.25-0.3 × 0.15-0.3 inch, constricted proximally, urn-shaped; flower 0.8 inch wide when open, stamens ascending to spreading, white (Fig. 11); mostly spring to fall.

**Fruits:** sessile, 0.35-0.6 × 0.15-0.3 inch, mostly urn-shaped or ovoid to nearly globular, woody, smooth; rim thickened, disc sunken, valves 3, enclosed (Fig. 12); seeds red-brown.

**Distribution and ecology**

*Corymbia torelliana* is endemic to Queensland, Australia where it occurs in a narrow band 30 to 50 miles wide stretching from north of Cairns south nearly to Townsville, from 16 to 19 degrees south latitude and from 100 to 2,500 feet elevation (Boland et al. 1984). The climate is warm-humid tropical with a distinct summer maximum rainfall pattern. Mean annual rainfall is about 60 inches with the maximum summer monthly rainfall about 16 inches. Mean maximum temperature for the warmest summer months is about 86 F while the mean minimum in the coolest winter months is 54 to 59 F. Humidity is usu-

Figure 6. (Lower left) New leaves of *Corymbia torelliana* are often reddish and with reddish hairs (The Huntington Library, Art Collections, and Botanic Gardens, San Marino, CA).

Figure 7. (Lower right) Intermediate leaves of *Corymbia torelliana* are relatively large, dark green above and pale below (The Los Angeles County Arboretum and Botanical Garden, Arcadia, CA).





Figure 8. (Upper left) Intermediate leaves of *Corymbia torelliana* are slightly hairy and rough to the touch but become glabrous and glossy (The Fullerton Arboretum, Fullerton, CA).



Figure 9. (Upper right) Infrequently seen adult leaves of *Corymbia torelliana* are ovate or lanceolate to narrowly or broadly lanceolate, glossy green to gray-green, and long-pointed (East Alameda Plaza Park, Santa Barbara, CA).

ally always high and frosts are rare but occur in more inland and higher elevations of the range.

*Corymbia torelliana* frequents moist forests in and on the margins of rain forests on the seaward slopes from the coastal plains up to the top of the mountains to the west. Soils are relatively deep, sandy loams with good drainage, adequate soil moisture, and good moisture retention (Boland et al. 1984). Companion trees include several other eucalypts, such as *Eucalyptus tereticornis* (forest red gum), and numerous rain forest species.

#### Propagation and growth rate

*Corymbia torelliana* is readily propagated from seeds, which germinate in one to two weeks (Elliot and Jones 1986). Select seeds from fully mature capsules (fruits), which typically attain maturity within one year of flowering. Immediately after collection sow seeds by scattering lightly over a pre-moistened, clean, disease-free (pasteurized), well drained seed or potting mix. Keep evenly moist at a temperature of 70 to 80 F and protect from wind, dryness, and extreme cold and heat. Transplant into individual containers when

seedlings are sufficiently large to be handled easily. Grow seedlings in light shade but acclimate to full sun quickly. Eucalypt seedlings and young plants typically grow quickly, so move them up to larger containers regularly to prevent kinked, circling, girdling, or otherwise poor root systems that can be problematic later in the landscape. Peat pots/strips and fluted gallon (and larger) containers can help to prevent such poor root characteristics.

A relatively fast-growing species, especially when young, *Corymbia torelliana* can attain about 50 feet in

Figure 10. (Lower left) Flowers of *Corymbia torelliana* occur in 3-(-7)-flowered umbels arranged in large, conspicuous, showy, terminal panicles (The Los Angeles County Arboretum and Botanical Garden, Arcadia, CA).

Figure 11. (Lower right) Individual flowers of *Corymbia torelliana* are 0.8 inch wide when open and have white, spreading stamens (The Los Angeles County Arboretum and Botanical Garden, Arcadia, CA).



height in 13 years in southern California's Mediterranean climate. Plants grown from seeds sown in 1998 at The Los Angeles County Arboretum and Botanic Garden in Arcadia, California are now 45 to 55 feet tall, 25 to 35 feet wide, and have trunks 11 to 14 inches in diameter. Trees of similar size and age are at several botanical gardens and parks in Southern California. Growth rates in warmer, tropical areas, like Hawaii, would likely be even faster. Trees planted as windbreaks in Florida attained about 60 feet in height after 20 years (Andreu et al. 2009).

### Environmental tolerances

There is little information about *Corymbia torelliana* and its environmental tolerances; thus, we need to extrapolate information from its native habitat and the few places where it grows in southern California. It is not listed in Sunset (Brenzel 1995) but appears adapted to Sunset Zones 18 through 24 in southern California and perhaps Zone 13 (low desert) in southwestern California, eastern Arizona, and extreme southern Nevada. In northern California hard freezes and/or lack of summer heat might restrict growth but it should be evaluated in Zones 15 through 17 in the Bay Area. It might also perform adequately for many years in Zone 12 in Arizona, gaining sufficient size before a hard freeze, like the one of 2011, seriously damages or even kills it. Much of this area in the southwestern United States falls within USDA Zones 9 to 11. It is likely to excel in most places in Hawaii if there is adequate rainfall or irrigation. Indeed, its potential to become weedy would be a serious concern there, (see below).

Despite its tropical origins, *Corymbia torelliana* is amazingly cold tolerant, having withstood temperatures in the middle 20s F with little or no damage in the January 2007 freeze

in southern California. However, it might be intolerant of lower temperatures and this extreme cold will likely limit where it can be grown successfully.

Another drawback of *Corymbia torelliana* might be its water requirements. Elliott and Jones (1986) reported that it thrived in well irrigated situations and that regular irrigation and fertilizers promoted fast growth. They also noted that *C. torelliana* suffered in poor, clayey, shallow soils and performed much better on deep, well drained soils. However, trees of this species in coastal and intermediate valleys in southern California have performed adequately in a wide variety of soils and with moderate, if not irregular, irrigation. Regular



**Figure 12.** Fruits of *Corymbia torelliana* are mostly urn-shaped, woody, smooth, and have a thickened rim (The Los Angeles County Arboretum and Botanic Garden, Arcadia, CA).

irrigation, especially in the growing season, though, would likely be more critical in the hotter interior valleys and low deserts.

A fairly tough and rugged species, it appears to tolerate some harsh conditions, including heat, wind, smog, and aridity. Its fast growth rate enables quick recovery during the growing season if damage does occur.

There is no information about how *Corymbia torelliana* would perform in turf grass or groundcovers where it might be over-irrigated and -fertilized. However, regular water and

fertilizer would likely be beneficial. Perhaps through judicious, measured applications of fertilizers and irrigation growth could actually be retarded without losing quality.

### Uses

*Corymbia torelliana* would fill a variety of uses in the urban forest and landscape and would be especially useful as a street tree, park tree, shade tree, specimen, accent, and windbreak or screen. Its impressive, straight, upright trunk and relatively broadly columnar conformation make for a superb street tree, while its rapid growth and dense canopy make it useful as a park and shade tree and as a windbreak. For street-tree use minimum parkway width and cut-out size are probably five to six feet and trees must have lower branches removed to raise the canopy for vehicular and pedestrian clearance. Maintaining an elevated canopy also allows the handsome trunk with its smooth, green, attractive bark to be easily admired and appreciated. The impressive trunk, attractive bark, and large, dark green, lush, tropical-looking leaves make *C. torelliana* a striking, if not eye-catching specimen and accent in the landscape. The flowers, which can be profuse and cover nearly the entire canopy, attract

nectar-feeding birds and bees (Elliott and Jones 1986).

### Pruning/management

*Corymbia torelliana* has a strong tendency for straight, upright growth and retention of lower branches and likely needs little training and pruning in the nursery and landscape. Even if the leader is broken, it will readily form a new leader and continue upright growth. Provide adequate space in the nursery and retain lower branches to encourage maximum trunk caliper. Because of strong, straight, upright growth, staking is probably mostly

unnecessary if trees are given adequate space. Nursery trees might only need light pruning to reduce canopy density and, when nearing readiness for sale, to remove lower branches to elevate the canopy if desired. Once in the landscape only judicious thinning out to reduce canopy density might be necessary.

Trees would benefit from regular irrigation and fertilizer (Elliot and Jones 1986), especially during the growing season, but once established appear to perform adequately in turf or non-turf areas with occasional irrigation and no fertilizer. However, regular irrigation might be critical in hot interior valleys and the low desert.

#### Problems/litter

*Corymbia torelliana* is largely free of serious problems. Its hard, dense wood is not prone to breakage, even in high winds. Indeed, trees in San Marino and Arcadia, areas hard hit by the great wind storm of November 30-December 1, 2012, were mostly defoliated yet had little or no branch breakage. Old, mature trees can produce an abundance of flowers and subsequent fruits. Because fruits are woody, hard, and rounded, like those of many other eucalypts and other species, they may be problematic on smooth hard-scape surfaces like driveways and sidewalks.

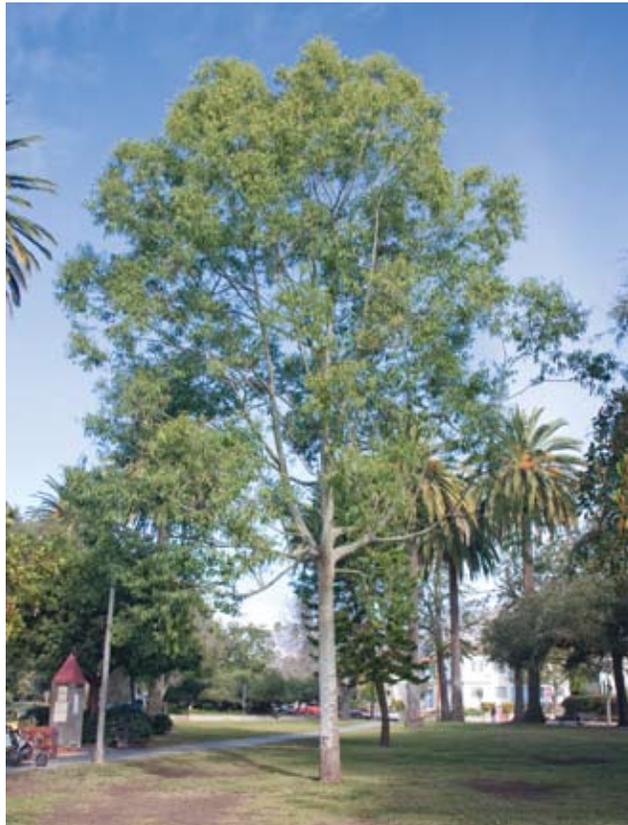
#### Pests and diseases

*Corymbia torelliana* mostly has no serious pests and diseases. Pests, such as psyllids and *Eucalyptus* tortoise beetles, which plague species of the related *Eucalyptus* and *Corymbia*, are unknown or little seen on *C. torelliana* in California. For example, I observed no damage from either of these two pests on *C. torelliana* in Balboa Park,

San Diego yet an adjacent *C. citriodora*, with foliage intermingled with that of *C. torelliana*, was heavily infested with both pests.

#### Weed/invasive species risk

*Corymbia torelliana* has become weedy in Australia outside its natural range



**Figure 13.** Of unknown age, this specimen of *Corymbia torelliana* in East Alameda Plaza Park with an atypical, open canopy composed of mostly adult leaves is about 50 feet tall, 30 feet wide, and has a trunk 12 inches DBH.

(Hill and Johnson 1995) and in Florida (Matt Ritter pers. comm.), and is considered weedy in some of its introduced range, mostly places with a warm, humid climate. Thus it is unlikely to become weedy in places with a Mediterranean or arid climate like California, Arizona, and Nevada. However, its weed risk is likely high in Hawaii, especially in areas of higher rainfall, although its current, official weed risk assessment for Pacific Islands, including Hawaii, requires further evaluation (HEAR 2011, PIER 2011).

#### Availability

Despite its many attributes and popularity in other parts of the world, *Corymbia torelliana* is unknown in the nursery industries in California, Arizona, Nevada, and Hawaii. However, it is easily propagated by seeds, which can be procured from trees in southern California (see below) or from mail-order suppliers.

#### Trees in California and Hawaii

*Corymbia torelliana* is uncommon in southern California. A specimen of unknown age in East Alameda Plaza Park in Santa Barbara with an atypical, open canopy composed of mostly adult leaves is about 50 feet tall, 30 feet wide, and has a trunk 12 inches dbh (Fig. 13). The Huntington Library, Art Collections & Botanical Gardens in San Marino has two trees, the largest of which was grown from seed in 1983 and now is about 50 feet tall, 30 feet wide, and has a trunk 15 inches dbh. The Los Angeles County Arboretum and Botanic Garden in Arcadia has four specimens, three grown from seeds in 1998 and one from seed in 1993; they are 40 to 55 feet tall, spread 15 to 35 feet, and have trunks 11 to 14 inches dbh (Fig. 14). A single tree grown from seeds in 2001 is now about 50 feet

tall, 25 feet wide, and has a trunk 11 inches dbh at the Fullerton Arboretum at California State University in Fullerton. A tree of unknown age near the Balboa Park Carousel in Balboa Park, San Diego is about 40 feet tall, 12 feet wide, and has a trunk 12 inches dbh (Fig. 15).

In Hawaii a number of trees of *Corymbia torelliana* were planted in the Waiakea Forest Reserve on the Big Island in 1959 and a few might be in public or private gardens but little is known about them (F. Starr pers. comm.).



**Figure 14.** (Left) This specimen of *Corymbia torelliana* at The Los Angeles County Arboretum and Botanic Garden in Arcadia, CA was planted from seed in 1998 and is now 50 feet tall, spreads for 35 feet, and has a trunk about 14 inches DBH. Note the foliage nearly all the way to the ground.



**Figure 15.** (Center) This specimen of *Corymbia torelliana* of unknown age near the carousel in Balboa Park, San Diego, CA is about 40 feet tall, spreads for 12 feet, and has a trunk about one foot DBH.

### Notes

The eucalypts include about 700 species comprising three genera, *Eucalyptus* (ca. 600 species), *Angophora* (seven species), and the recently segregated *Corymbia* (ca. 100 species). *Angophora* differs from *Eucalyptus* and *Corymbia* in its adult leaves oppositely arranged on the twigs and flowers having bristly glands interspersed with white hairs and distinct sepal and petal lobes but lacking an operculum (cap or lid formed by sepals and petals that falls off as the flower opens). *Corymbia* differs from *Eucalyptus* in its flowers arranged in corymbs, a structure where individual flower stalks arise from different levels on the twigs but all flowers are held in more or less the same plane.

*Corymbia torelliana* is widely cultivated in warm areas around the world for timber, windbreaks, and ornament, including Nigeria, Papua New Guinea, Taiwan, China, Fiji, Marquesas Islands in French Polyne-

sia, Hawaii, California, Florida, and Australia (Andreu et al. 2009, ATRP 2011, Ellis and Brown 1984, Hill and Johnson 1995, PIER 2011, Weeds Australia 2011). In Australia it is one of the most commonly cultivated eucalypts in Brisbane and surrounding suburbs (Elliot and Jones 1986).

Although *Corymbia torelliana* is often found in rain forests, it may not be a true rain forest species. It is thought that rain forest species have invaded or advanced into adjacent *Eucalyptus* forest where *C. torelliana* was growing (ATRP 2011, Boland 1984).

Hybrids between *Corymbia torelliana* and *C. citriodora*, the latter one of the most common eucalypts in California, have been reported in Nigeria and Papua New Guinea (Ellis and Brown 1984). Hybrids between *C. torelliana* and *C. henryi*, *C. tessellaris*, and *C. citriodora* have been reported in Australia, the latter when it was planted for timber near native stands of *C. torelliana* (Hill and Johnson

1995, Abasolo et al. 2011). Because it hybridizes with *C. citriodora*, *C. torelliana* will likely also hybridize with *C. maculata*.

The wood of *Corymbia torelliana* is hard, heavy, pale brown, and straight grained but subject to gum veins, and finds use in general construction (Elliott and Jones 1986, Penfold and Willis 1961). In Australia it once had commercial timber value but the tree is now too scarce. The flowers are attractive to bees and are useful for honey production (Elliot and Jones 1986).

### Acknowledgements

Several people shared information with me or showed me living specimens of *Corymbia torelliana* in southern California, including Kathy Musial, curator of living plants at The Huntington Art Collections, Library, and Botanical Gardens in San Marino; Susan Eubank, librarian, and James E. Henrich, botanist, both at the Los Angeles County Arboretum and Botanic Garden in Arcadia; Matt Ritter, author and botany professor at California Polytechnic State University at San Luis Obispo and a well versed and accomplished student of the eucalypts; Ken Greby, an unusually knowledgeable arborist; and Chris Barnhill, curator of living collections at the Fullerton Arboretum. Robert Hobdy, Forest Starr, and Joshlyn Sand provided information about *C. torelliana* in Hawaii. Matt Ritter, James E. Henrich, and Ken Greby critically reviewed the manuscript and offered valuable suggestions.

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