Trees in the Landscape, Part 12: *Cassia brewsteri*

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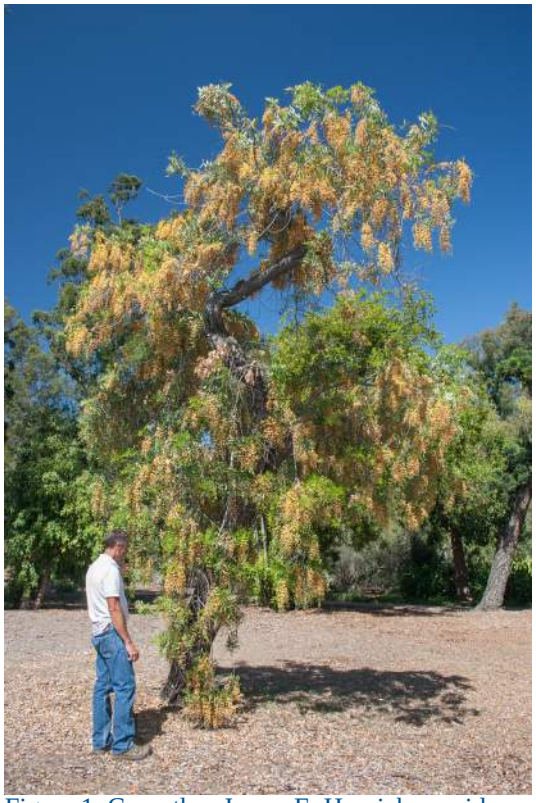

Figure 1. Co-author James E. Henrich provides scale for the handsome *Cassia brewsteri* at the Los Angeles County Arboretum and Botanic Garden in Arcadia, CA (*54-0605-P*).

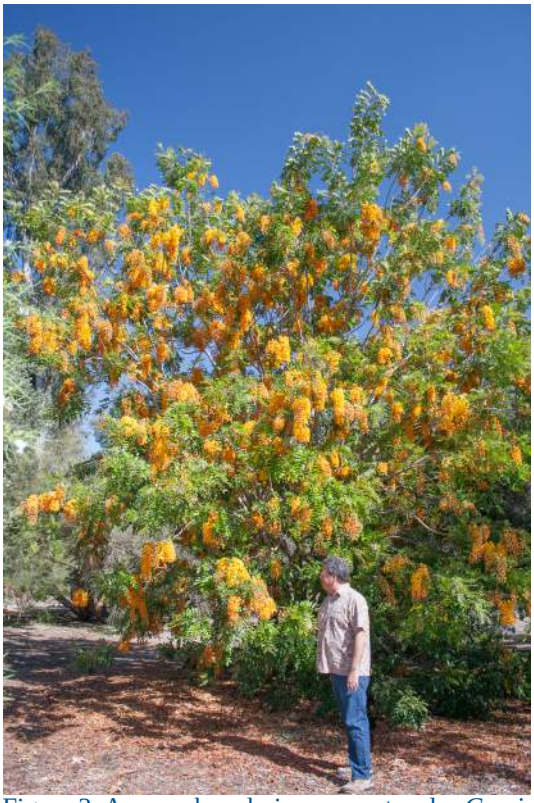

Figure 2. A passerby admires a spectacular *Cassia brewsteri* with orange-yellow flowers at the Huntington Library, Art Collections, and Botanical Garden in San Marino, CA (*92329*).

Cassia brewsteri (F. Muell.) Benth.

Unfortunately, we are unable to grow to their full glory and grandeur in southern California the queens of tropical flowering trees, *Cassia fistula*, *C. javanica*, and their hybrid *C.* × *nealiae*. However, the Australian native *C. brewsteri* is an admirable stand-in, and its profuse and spectacular floral displays make a stunning landscape statement (**Figs. 1-5**). A tree not to be overlooked in our never-ending quest for color in the sky, it makes a superb ornamental as a park, lawn, shade, and specimen, and even a street tree if pruned and trained properly. Tolerant of heat and aridity and likely low-water use, it surely has a home in our southern California landscape.

Figure 3. *Cassia brewsteri* typically produces profuse floral displays in the spring at the Arboretum (*54-0605-P*).

Taxonomy and History

Common Names: Brewster's cassia, Leichhardt bean, cassia pea, bean tree, bicoloured cassia.

Etymology: The Latin genus name *Cassia* is from the Greek *kasia*, which is itself derived from the Hebrew *qesiya* or *qetsioth*, meaning or referring to aromatic bark scraped off a tree in strips, for example especially cinnamon, and likely alludes to the medicinal uses of parts of the trees of several species of the genus. The specific epithet *brewsteri* honors Sir David Brewster (1781-1868), Scottish physicist, mathematician, astronomer, inventor, and science historian.

Figure 4. Incredible floral displays typify this *Cassia brewsteri* at the Huntington (*92329*).

Figure 5. A riot of yellows and oranges occurs on this *Cassia brewsteri* at the Huntington (*92329*).

History: Ferdinand Jacob Heinrich von Mueller (1825-1896), a German botanist who worked in Australia, New Caledonia, New Zealand, and Papua New Guinea, named and described this species as *Cathartocarpus brewsteri* in *Fragmenta Phytographiæ Australiae*, which was published in1858-1859, basing it on material that had been collected near the

Burdekin River in Queensland, Australia. Strangely, Mueller had actually proposed the name *Cassia brewsteri* several years earlier but had not validly published it. In 1864, George Bentham (1800-1884), an English botanist, transferred it from *Cathartocarpus* to *Cassia*, using the name that Mueller had originally suggested but never validly published.

Synonyms: *Cassia marksiana*, *C. tomentella*, *C. brewsteri* var. *marksiana*, *C. brewsteri* var. *tomentella*.

Description

The description is from Anderson (1993), ATRP (2015), Bailey (1900), Bentham and Mueller (1864), Elliot and Jones (1982), Mueller (1858), NSWF (2015), Randell and Barlow (1998, 2015), and supplemented from cultivated specimens in California.

Habit/Conformation: unusually variable, small to medium, rarely large, slowly to moderately growing, broad-leaf, evergreen or partly deciduous, unarmed, monoecious tree (**Figs. 1-2**); mostly to 30 feet tall and wide cultivated in California but reported to as tall as 100 feet in wet habitats in Australia; canopy variable and irregular but generally tending to be rounded to spreading, moderately dense to open; irregularly branched, often to the ground and then forming a large shrub.

Trunk: typically single, sometimes multiple, straight to irregular, to 15 inches DBH.

Bark: brownish to tan or gray, conspicuously roughly checkered to more or less smooth, with prominent whitish to tan lenticels (**Figs. 6-8**).

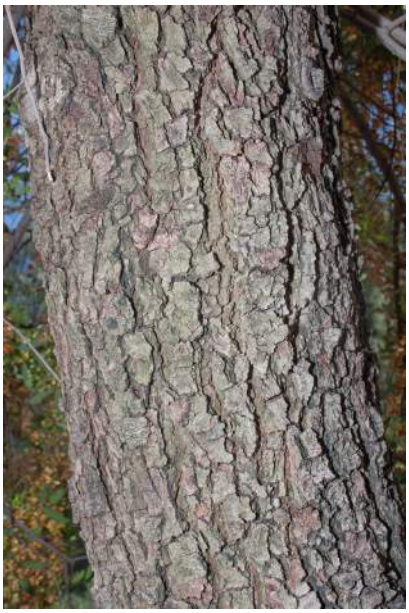

Figure 6. The bark on the *Cassia brewsteri* at the Arboretum is rough and checkered (*54-0605-P*).

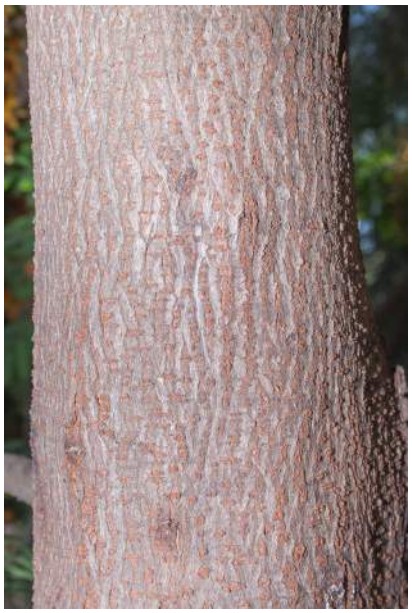

Figure 7. The bark of this *Cassia brewsteri* at the Huntington is tan and smooth (*92329*).

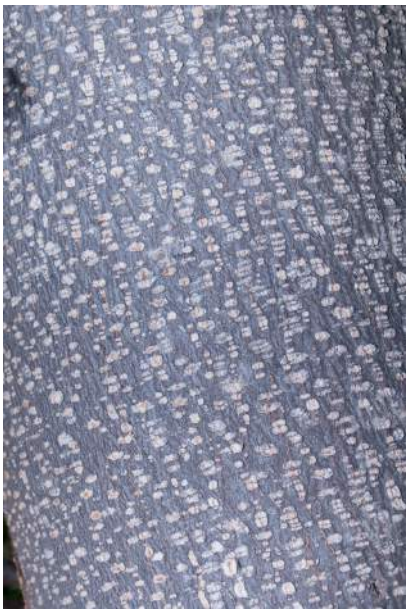

Figure 8. The bark of this *Cassia brewsteri* at Rancho Soledad Nursery in Rancho Santa Fe, CA is gray with conspicuous white lenticels.

Leaves: pinnate, alternate, variable, 4-10 inches long, glabrous or variously pubescent or tomentose (**Figs. 9-14**); stipules falling away; petiole 0.8-1.4 inches long; rachis 3.2-8 inches long; 2-9 pairs of pinnae, these closely to moderately to +/- remotely spaced, 0.8-4.5 × 0.6-1.2 inches, lanceolate to oblong, narrowly ovate, or obovate, discolorous, glossy green to gray-green adaxially (upper), paler abaxially (lower), medium texture, rounded to short acuminate, margins smooth.

Figure 9. Leaves of *Cassia brewsteri* are pinnate and, when new, glossy green, as on this specimen at the Huntington (*92329*).

Figure 12. The abaxial (lower) surface of the pinnae of the *Cassia brewsteri* at the Arboretum is grayish (*54-0605-P*).

Figure 10. Leaves of this *Cassia brewsteri* at Rancho Soledad Nursery are pinnate and glossy green.

Figure 13. Pinnae of this *Cassia brewsteri* at the Huntington are more closely spaced (*92329*).

Figure 11. Pinnae of the *Cassia brewsteri* at the Arboretum are well spaced and green adaxially (upper surface) (*54-0605-P*).

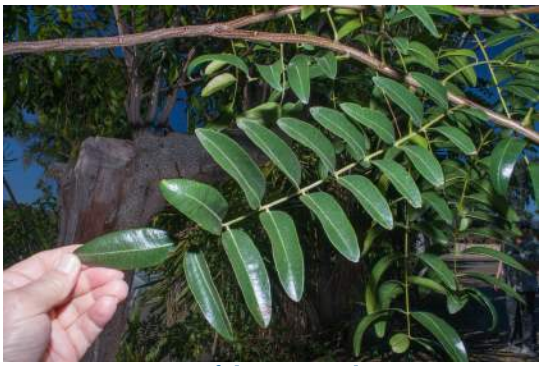

Figure 14. Pinnae of this *Cassia brewsteri* at Rancho Soledad Nursery are moderately spaced.

Figure 15. Flowers of this *Cassia brewsteri* at the Huntington occur in large, showy, pendulous racemes up to several feet behind the branch tip on old wood *(92329*).

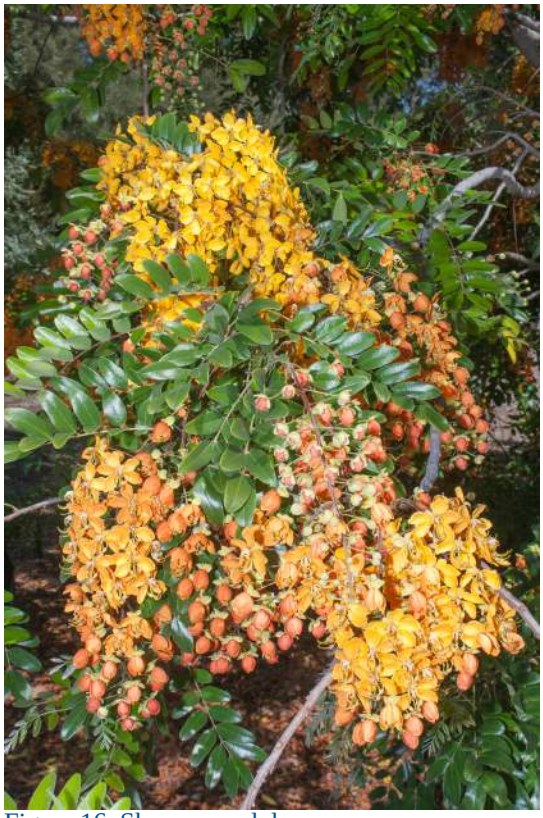

Figure 16. Showy, pendulous racemes characterize this *Cassia brewsteri* at the Huntington (*92329*).

Flowers: in conspicuous to showy, pendulous, moderately dense racemes 2.75-10 inches long, comprised of 10-50 flowers, first blooming proximally then progressing distally, inflorescences emerge from old wood up to several feet proximally of branch tips (**Figs. 15-21**);

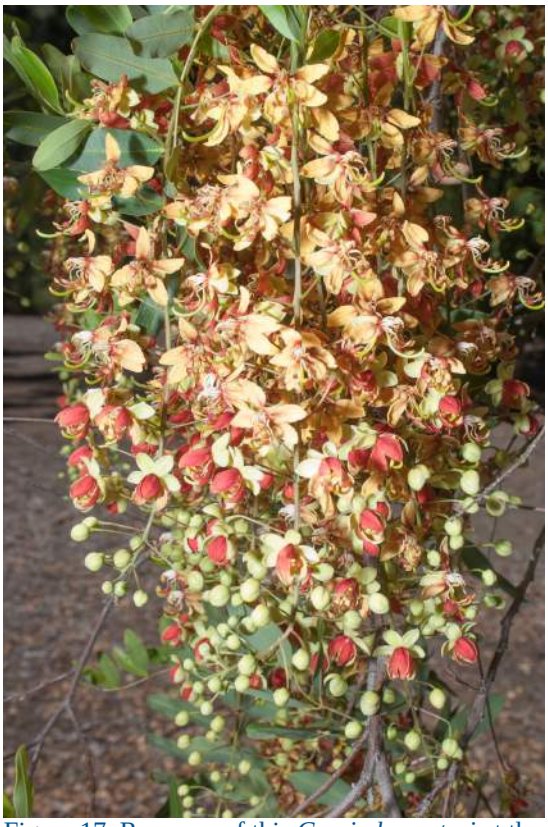

Figure 17. Racemes of this *Cassia brewsteri* at the Arboretum have flowers that open first proximally (base of the raceme) and then progressively open distally (toward the tip of the raceme) (*54-0605-P*). Note the flowers at anthesis above with fully opened petals showing their tan adaxial (upper) surface; flowers in partial bud in the middle showing their petals with reddish abaxial (lower) surface and greenish white sepals; and flowers in bud below.

individual flowers 0.4-1.1 inch wide (**Figs. 22-24**); pedicels 0.8-1.2 inches long; bracts and bracteoles persisting until anthesis; sepals 5, 0.2-0.3 inch long, ovate, green to light greenish to cream-colored aging to tan, hairy abaxially; petals 5, 0.2-0.6 inch long, ovate, erect then spreading, on a short stalk, +/- orange to reddish abaxially aging to yellow, yellow tan to rich yellow or orange-yellow adaxially; stamens 7 (3 long and 4 short), filaments unequal, shortest ones 0.1-0.3 inch long, longest ones 0.6 inch long, s-shaped with a swelling above

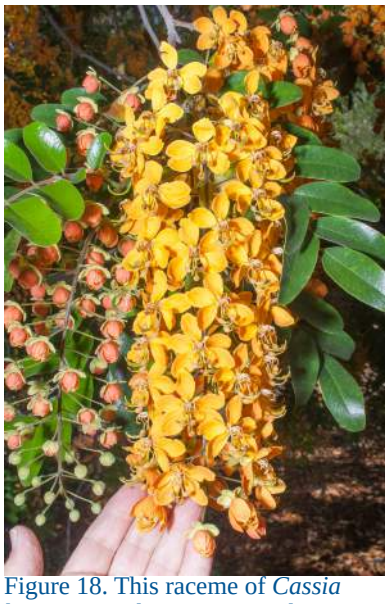

Figure 18. This raceme of *Cassia brewsteri* at the Huntington has flowers at anthesis showing the orange-yellow adaxial (upper) surface of the petals (*92329*). Note the raceme at the left, which is at a slightly later developmental stage with the flowers still in partial bud and the abaxial (lower) surface of the unfurled petals showing brick red.

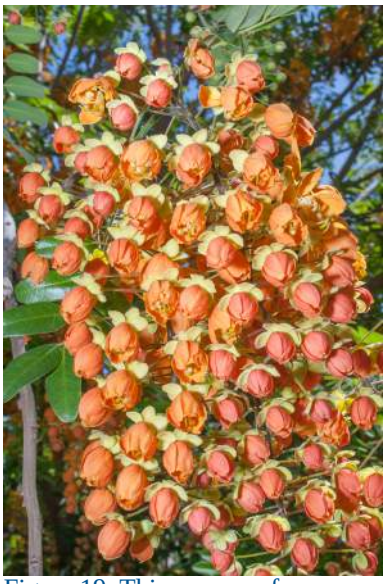

Figure 19. This raceme of *Cassia brewsteri* at the Huntington has flowers still in partial bud with the abaxial (lower) surface of the unfurled petals showing brick red in contrast to the greenish white sepals (*92329*).

Figure 20. This raceme of *Cassia brewsteri* at the Huntington has rich, orange-yellow flowers at anthesis (*92329*).

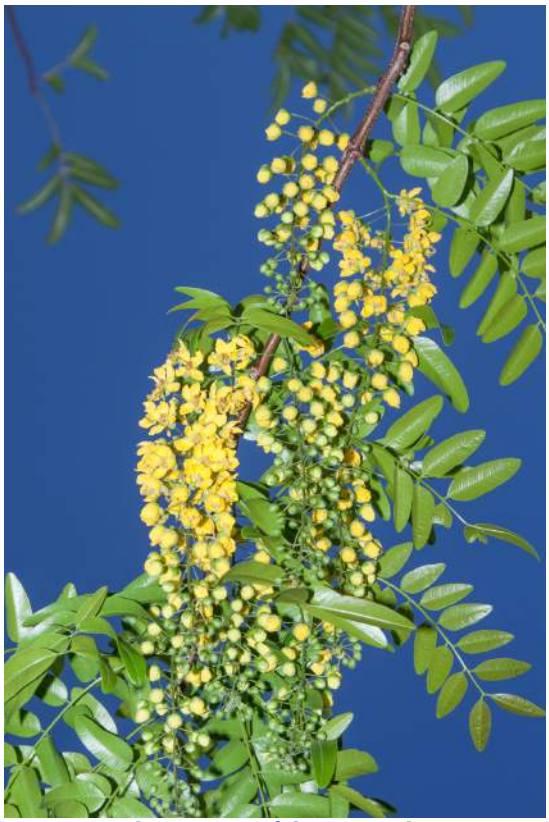

Figure 21. This raceme of the *Cassia brewsteri* at Rancho Soledad Nursery has yellow flowers.

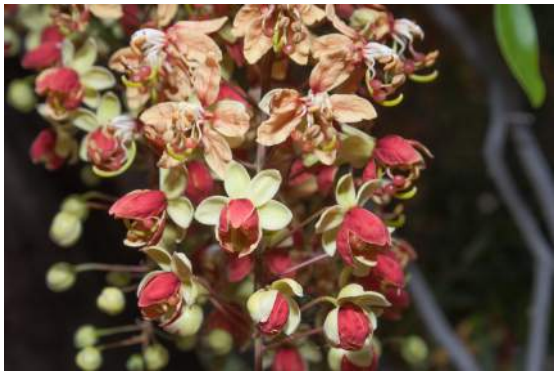

Figure 22. Flowers of the *Cassia brewsteri* at the Arboretum are at anthesis (above) with fully opened petals showing their tan adaxial (upper) surface while flowers are in partial bud (below) showing their petals with reddish abaxial (lower) surface and greenish white sepals, giving the bi-colored look (*54-0605-P*).

midpoint; anthers subequal, 0.08-0.1 inch long; staminodes 3, slightly shorter than the shortest stamens, 0.25 inch long; pistil ca. equaling the longest stamens, .0.6-0.7 inch long, green, curved, longitudinally 4-ribbed or -angled.

Figure 23. Flowers of the *Cassia brewsteri* at the Huntington are at anthesis showing the rich orange-yellow adaxial (upper) surface of the petals (*92329*).

Figure 24. Flowers of the *Cassia brewsteri* at Rancho Soledad Nursery are yellow.

Fruits: a pod, 6-18 × 0.4-1.2 inches diam., cylindric (**Figs. 25-26**), sometimes compressed or flattened, variously transversely ribbed between seeds, glabrous to minutely pubescent, green ripening dark brown to nearly black; **seeds** +/- flat, 0.3 × 0.3 inch, dark brown to tan, glossy, embedded in a wafer- or coin-like structure 0.7 inch wide (**Fig. 27**) .

At least three forms of Brewster's cassia are currently cultivated in southern California. One, likely the typical variant of the species and illustrated as such in Randell and Barlow (1998), has rough, checkered bark and bicolored flowers (reddish corolla sitting on a greenish white to tan calyx) (**Figs. 6, 17, 22**), the latter of which are likely the namesake for the common name "bicoloured cassia." The corolla with reddish petals is a striking contrast to the calyx with greenish white sepals. The second form

Figure 25. Fruits of the Cassia brewsteri at the Huntington are glossy brown when mature (*92329*).

Figure 26. Fruits of the *Cassia brewsteri* at the Arboretum are shorter, somewhat compressed, and green when immature and black when mature (*54-0605-P*).

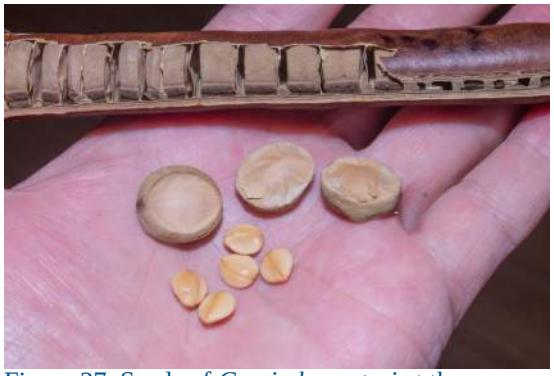

Figure 27. Seeds of *Cassia brewsteri* at the Huntington are flat, tan, glossy, and embedded in a wafer- or coin-like, structure (*92329*).

has smooth, brown bark and bright, rich orange-yellow flowers (**Figs. 7, 18-20, 23**). The third form has smooth, grayish brown bark and yellow flowers (**Figs. 8, 24**).

Sepal and petal color can vary with age and, especially in the bicolored variant, position of the petals. Initially petals are erect and display color from the abaxial (lower) surface (brick red to orange) but as they age and spread they display a different color from the adaxial (upper) surface (tan to yellow to orange-yellow) (**Figs. 17-20, 22-23**).

Distribution and Ecology

Brewster's cassia is endemic to Australia, where it occurs in a variety of habitats, from moist to wet forests to open woodland and dry scrubland, in eastern and southern Queensland and adjacent northern New South Wales, from about 19 to 30 degrees south latitude and from 300 to 2,000 feet elevation (Anderson 1993, ATRP 2015). NSWE & H (2015) notes that Brewster's cassia occurs in moist littoral and gallery forests, forest patches, farmland, and even along roadsides; the on-line site provides detailed descriptions of the vegetation types of these areas.

The climate ranges from warm-humid tropical or tropical savanna with a distinct, seasonal, summer-maximum rainfall pattern in the north to a humid subtropical with rainfall less seasonal and more evenly distributed throughout the year in the south. Rainfall varies, and generally tends to be from 30 to 65 inches annually in the south and 30 to 45 inches annually in the north (AGBM 2015). Mean minimum and mean maximum temperatures range from 60 to 90 F in the north to 50 to 80 F in the south. Frosts are rare but occur in more inland and higher elevations of the range.

Soils are variable and range from slightly acid to neutral, well structured and well drained sandy loams to alkaline, stony, heavy clays (Anderson 1993; Williams 1979, 1999). Sometimes the permeable sandy loams are over a layer of impermeable heavy clay.

Propagation and Growth Rate

Brewster's cassia can be extremely variable and considerable opportunities exist for selection and propagation of desired forms through air-layering and grafting. It can also be readily propagated by seeds, which are typically available in mid to late summer in California. Seeds germinate readily within a few weeks but they can also take longer, up to several months or more, and it is best to scarify and/or treat them with boiling water prior to planting (Elliot and Jones 1982; pers. observ.). Scarification seems to accelerate germination; in a simple study two lots of seeds of Brewster's cassia (65 and 33 seeds total) were divided in half, and half were scarified and half were not. All were then soaked in water for 24 hours. Nearly

100% of scarified seeds germinated within five days while only 20% of unscarified seeds germinated within the same time although after several weeks differences between scarified and unscarified were negligible.

Germinated seeds and seedlings are touchy and susceptible to damping off diseases (Elliot and Jones 1982; pers. overv.). After treating, sow seeds in a clean, moist, well drained and aerated medium and maintain the temperature at about 70 to 80°F. Start seedlings in light shade but acclimate them to full sun after about a year. At least in California, developing fruits must be protected from squirrels and other similar herbivores, which are strongly attracted to the seeds.

Brewster's cassia is generally somewhat slow to moderately growing in southern California, especially when young although Elliot and Jones (1982) report that it is very fast growing. Unfortunately, we have few specimens upon which to judge growth rate here. Forty to sixty year-old trees at The Los Angeles County Arboretum & Botanic Garden in Arcadia (the Arboretum) and at the Huntington Library, Art Collections, and Botanical Gardens in nearby San Marino (the Huntington), both of the "bicoloured" type, are about 20 feet tall and 10 to 15 feet wide; however, the Arboretum tree was somewhat stressed for several years from insufficient water while encroaching and overtopping trees partially shade the Huntington tree. A younger tree at the Huntington with rich, orange-yellow flowers and planted out in 2007, is about 15 feet tall and 20 feet wide.

The growth rate in coastal southern California might best be described as on the slow side of moderate, attaining 15 feet in height after ten years from seed. Growth would likely tend to slow in older plants with trees in California typically growing to 20 feet in 15 years, 30 feet in 30 years, and 40 feet after 40 years.

Environmental Tolerances

Although experience with Brewster's cassia is unusually limited, it appears surprisingly tolerant and adaptable. It is unlisted in The *Sunset Western Garden Book* (Brenzel 1999) but performs well in interior valleys of southern California and would likely also do well in coastal plains and valleys and even into the low desert, meaning it is likely adapted to *Sunset* Zones 18 through 23 (coastal and interior) and 13 (low desert). It is likely intolerant of seacoast exposure but would likely perform adequately away from the immediate coast in Zone 24, especially on the lee side of a building or other structure that would block prevailing ocean breezes. Cold intolerance likely precludes its use in colder areas, such as the high desert and central and northern California; however, Brewster's cassia has survived temperatures in the low to middle 20s F on several occasions, most recently in 2007, 1990, and 1987. Its U. S. D. A. Cold Hardiness ranking is probably zones 9a to 13b. Elliot and Jones (1982) noted that it is cold sensitive but has been grown in protected situation in Melbourne, Australia, which has a climate similar to that of San Francisco.

Brewster's cassia appears tolerant of heat and aridity and a wide variety of soils, light or heavy, acid or alkaline,

especially if irrigation is managed appropriately. Although not well investigated, Brewster's cassia, like many of our common landscape plants, is likely more drought tolerant than thought, especially if planted, cared for, and irrigated properly. Indeed, its natural range in Australia, where it is frequently found in seasonally dry scrub forest and open woodland, suggests that it is likely a low-water use plant. Although quite drought tolerant, Brewster's cassia responds to irrigation during the dry season (Elliot and Jones 1982). Thus, an occasional but thorough and deep irrigation, perhaps every two to three weeks in the summer, is adequate on established trees.

Landscape Uses

Brewster's cassia makes a superb ornamental as a park, lawn, shade, and specimen, and even a street tree if pruned and trained properly. The conspicuous and showy flowers are sure to attract attention. When not in flower the dark green pinnate leaves are unusually handsome.

Pruning/Management

Although as a forest tree Brewster's cassia tends to grow upright with a more developed central leader, trees in the open tend to grow as a multi-trunked large shrub or tree with branches and foliage to the ground or nearly so. Thus, nursery trees and young trees in the landscape will likely need judicious pruning and training to develop and maintain a well established central leader. Provide adequate space in the nursery and retain lower branches to encourage maximum trunk caliper. 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 and light structural pruning might be necessary.

Because the flowers appear out of old wood, typically well back of the branch tips and inside of the canopy periphery where they are often somewhat hidden, heading back branch tips prior to blooming in the spring (but after buds appear) might make them much more visible and enhance their esthetic value.

Trees would benefit from regular irrigation and fertilizer until established, especially during the growing season, but once established appear to perform adequately with occasional irrigation and no fertilizer.

Problems/Litter

Brewster's cassia is largely problem free; significant litter and structural issues are unknown. Little is known of its life span but trees growing somewhat thriftily are nearly 60 years old. The tree has no known health hazards.

The few trees we have seen in southern California over the last several years mostly have thinned out canopies and some die back, likely from insufficient rain and irrigation during the drought. Although established trees in coastal southern California can probably tolerate inadequate water for several years without much damage, it seems that regular but infrequent and thorough

irrigation is critical in warmer and drier inland southern California.

Pests and Diseases

Serious pests and diseases of Brewster's cassia are unknown in California. The Polyphagous Shot-Hole Borer and the *Fusarium* disease complex it vectors might be problematic; yet the few specimens of Brewster's cassia we have observed are in prime areas for this borer and disease and more or less surrounded by infested and infected trees but show only an occasional borer entry/ exit hole and no disease symptoms (**Fig. 28**).

Figure 28. *Cassia brewsteri* is mostly pest and disease free in southern California. Although this tree at the Huntington has been attacked by the polyphagous shot-hole borer, the damage is minor and the tree does not now appear susceptible to the Fusarium disease that the borer vectors (*92329*).

While Anderson (1993) notes that animals do not eat Brewster's cassia, we have observed that the introduced, non-native eastern fox squirrel severely ravages young, immature fruits, tearing them apart to get at the seeds, which they rapaciously devour. Indeed, it is rare to find any intact pods with seeds of Brewster's cassia on the tree by the end of the fruiting period; however, scores of eaten-out pods litter the ground under the tree (**Fig. 29**).

Figure 29. The introduced, non-native eastern fox squirrel severely ravages young, immature fruits of *Cassia brewsteri*, tearing them apart to get at the seeds, which they rapaciously devour, as here at the Huntington *(92329*).

Weed/Invasive Species Risk

Anderson (1993) states that Brewster's cassia can become a problematic woody weed, one that can produce root suckers. We have not observed seedlings of this species under or near parent trees and have seen only one unusually small plant about eight inches tall and three feet away from the trunk that is a likely root sucker on one of the Huntington's trees. Thus, Brewster's cassia is likely not an invasive species risk in California.

Availability

Unfortunately, Brewster's cassia is rarely in the trade in California. Australian Native Plants Nursery in Ventura sometimes offers it for sale. Seeds are rarely available here on the few existing trees because of marauding squirrels; thus, people interested in growing this handsome ornamental would likely have to import seeds from Australia if they were unable to procure plants locally. The best selections of the few existing trees here could be propagated by air layering or grafting and distributed to interested parties.

Trees in California

We are aware of only four or perhaps five mature trees in California. The Arboretum in Arcadia (**Fig. 1**) and the Huntington in San Marino (**Fig. 30**) each have one old original specimen of the typical "bicoloured" variant of Brewster's cassia with dark checkered bark and bicolored flowers. Each of these trees is irregularly branched, about 15 feet tall and wide with a trunk about eight inches DBH. The Arboretum's tree (*54-0605-P*) was obtained as a plant in 1954 while The Huntington's tree (*30720*) was grown from seed obtained in 1973. The Huntington also has a second, younger tree of a variant with smooth, brown bark and bright, rich orange-yellow flowers (*92329*) (**Fig. 2**). This spectacular tree, obtained as a plant from Fairhill Native Plants in Queensland, Australia in 2004 and planted out in November, 2007, is about 15 feet tall and wide with two trunks, the larger about six inches DBH. Rancho Soledad Nursery in Rancho Santa Fe has two or three trees of a variant with smooth, grayish brown bark and yellow flowers but is not currently offering it for sale; they are about 25 feet tall, 15 feet wide, and have trunks about eight inches DBH.

Figure 30. In addition to the Arboretum, the Huntington has one specimen of the typical "bicoloured" variant of *Cassia brewsteri* with rough, checkered bark and bicolored flowers (*30720*).

Notes

As currently defined, *Cassia* is a pantropical genus of about 30 species of mostly trees and shrubs in the Fabaceae (bean or pea) family. Formerly more broadly defined and including about 400 species (Neal 1965,) a recent treatment narrowed the scope of the genus considerably and many species once

included in the genus are now placed in other genera, especially *Senna* (Irwin and Barneby 1982).

Cassias are widely cultivated as ornamentals in tropical and subtropical regions where they are much prized for their glorious and stunning floral displays and handsome foliage. Notable tropical species, which are commonly called shower trees because of their profuse and gorgeous, often fragrant flowers that seem to "rain" color in the landscape, include, among others, *Cassia fistula* (golden shower), *C. grandis* (coral shower), *C. javanica* (pink-and-white shower), and *C. roxburghii* (Roxburgh's shower). A hybrid of *C. fistula* and *C. javanica*, *C.* × *nealiae* (rainbow shower), is the most popular shower tree in Hawaii, where it is widely grown for its multi-colored flowers and nearly fruitless habit. In California, these tropical species and hybrid are rarely if at all found and when they are grown here they tend to struggle and decline, never attaining the grandeur of their tropical counterparts. *Cassia leptophylla* (gold medallion tree), an Arboretum introduction, is the most common cassia in southern California and makes an adequate if not handsome small to medium tree with showy yellow flowers for much of the summer.

Three varieties of *Cassia brewsteri* are sometimes recognized (var. *brewsteri*, var. *marksiana*, var. *tomentella*), the latter two of which have sometimes even been treated as separate species. The *Flora of Australia*, both the print and on-line versions, recognizes these three varieties but the more recent *Australian Plant Census* treats them as a single species. The *Flora of Australia* distinguishes the three varieties as follows:

Leaves finely tomentose abaxially; pods densely minutely pubescent . . . . . var. *tomentella*

Leaves glabrous or sparsely pubescent abaxially; pods glabrous.

Pods weakly ribbed transversely; pinnae green and glabrous abaxially . . . . . .var. *marksiana*

Pods distinctly ribbed transversely; pinnae pubescent or infrequently glabrous abaxially . . . . . var. *brewsteri*

Nonetheless, considering its rather wide range in a variety of habitats and the numerous intermediate forms, it is likely best to treat *C. brewsteri* as one highly variable species. While numerous segregates can rather easily be picked out that differ in flower and leaf color, division, and size; degree of hairiness; and pod characters, there are so many intermediate forms that attempting to apply names to them quickly turns into a lesson in futility and frustration. Furthermore, these differences are more in degree rather than substance. Australian botanist John Dowe (pers. comm.), who has worked extensively in Queensland and New South Wales and has much experience with *C. brewsteri* in the wild and an appreciation for its variability, concurs with this assessment. Perhaps the best nomenclatural approach in horticulture would be to identify and select desirable forms, propagate them vegetatively, and then market them under cultivar or trade names.

Another name, *Cassia queenslandica*, must figure in this discussion. It, too, differs solely in degree from *C. brewsteri* and might not be distinct; indeed, the distinguishing characters between the two species actually overlap. The *Flora of Australia* distinguishes them as follows:

Flowers 10-50 per raceme; petals 5-15 mm long . . . . . *C. brewsteri*
Flowers 50-80 per raceme; petals 15-20 mm long . . . . . *C. queenslandica*

The Huntington has a handsome plant with long, pendulous, tress- or curtain-like racemes of yellow flowers, which appear and hang as much as six feet back of the branch tip on old wood, that it received as *Cassia tomentella* (*92331*) (from Fairhill Native Plants in Queensland, Australia) and that was planted out in November, 2009; however, it cannot be this taxon because the leaves are glabrous and the racemes contain well more than 50 flowers each, sometimes to as many as 70, putting it in the range of *C. queenslandica*. In all other characters (**Figs. 31-41**), though**,** this plant is similar to and perhaps not distinct from the variable *C. brewsteri*.

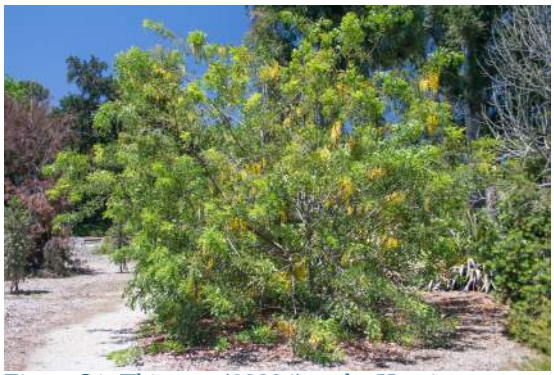

Figure 31. This tree (*92331*) at the Huntington was obtained as *Cassia tomentella* but might be *C. queenslandica*, which is close to and perhaps not distinct from *C. brewsteri*.

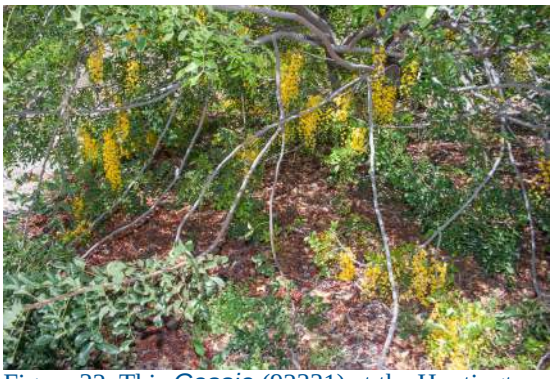

Figure 32. This *Cassia* (92331) at the Huntington has spreading, low branches to the ground.

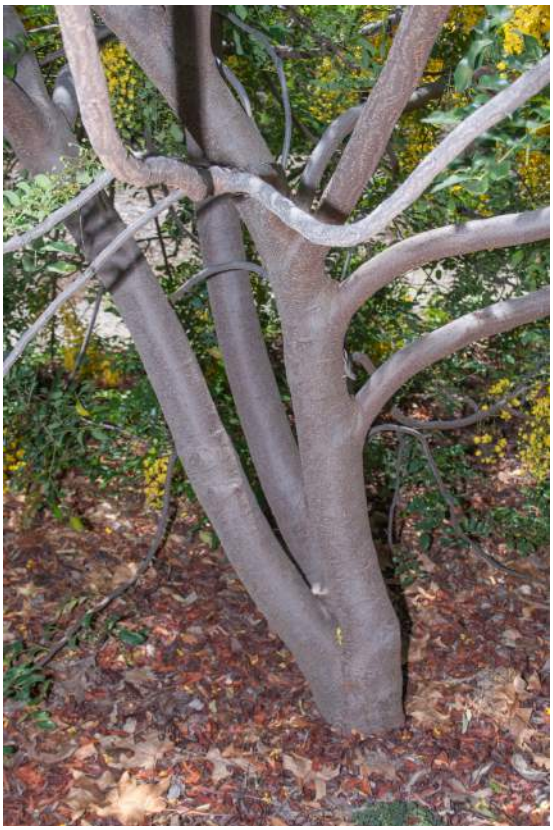

Figure 33. This *Cassia* (*92331*) at the Huntington has multiple trunks.

The wood of Brewster's cassia was once used as a general purpose hardwood and for cabinets. It is pale pink with pale yellowish sapwood, closely grained and nicely marked. Ludwig Leichardt, a namesake for one of the common names wrote: "The seeds, when

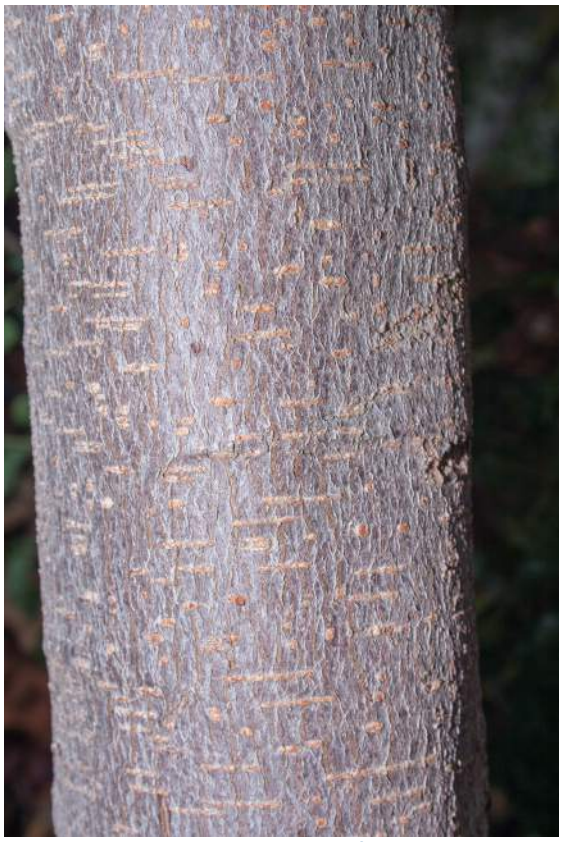

Figure 34. The bark of this *Cassia* (*92331*) at the Huntington is grayish with whitish lenticels.

Figure 35. Leaves of this *Cassia* (*92331*) at the Huntington have glossy, moderately close pinnae.

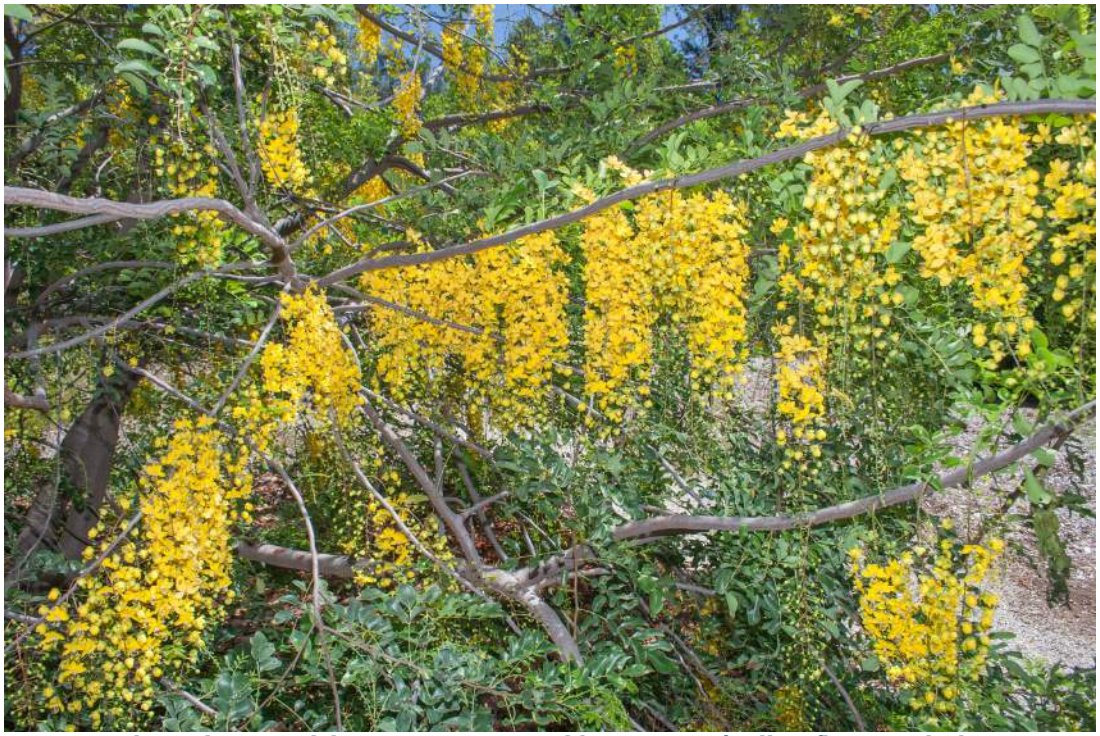

Figure 36. Showy, long, pendulous, tress- or curtain-like racemes of yellow flowers, which appear and hang as much as six feet back of the branch tip on old wood, characterize this *Cassia* (*92331*) at the Huntington.

Figure 37. Tress- or curtain-like, pendulous racemes of this *Cassia* (*92331*) at the Huntington are conspicuous and showy.

Figure 38. The showy, yellow racemes of this *Cassia* (*92331*) at the Huntington are well back of the branch tips on old wood.

young, had an agreeable taste, and the tissue, when dry, was pleasantly acidulous, and was eaten by some of my companions without any ill effects, whilst others, with myself, were severely purged" (Anderson 1993).

Figure 39. The racemes of this *Cassia* (*92331*) at the Huntington can have well more than 50 flowers, putting it in range of *C. queenslandica*.

Figure 40. The fruits of this *Cassia* (*92331*) at the Huntington are long, cylindrical, and green when immature.

Figure 41. Seeds of this *Cassia* at the Huntington are flat, tan, glossy, and embedded in a wafer- or coin-like, structure (*92331*).

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Susan Eubank, librarian, of the Los Angeles County Arboretum and Botanic Garden in Arcadia helped find supporting literature about Brewster's cassia. Jessie Villalvazo of Rancho Soledad Nursery in Rancho Santa Fe helped with Brewster's cassia at their nursery.

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