Department of **Agriculture and Fisheries**
Biosecurity Queensland

Invasive plant risk assessment

Coastal silver oak

Brachylaena discolor
var. *discolor*

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Contents

Summary

Brachylaena discolor var. *discolor* (coastal silver oak) is a small tree native to the coastal dunes of South Africa.

A naturalised population was detected for the first time in Queensland on the Gold Coast in 2006. Further surveillance is likely to reveal additional populations as the species is being promoted as a garden ornamental. Regardless, the species appears to be in its very early stages of population development in Queensland.

B. discolor var. *discolor* does not appear to have a history as an invasive pest overseas. However, it is a locally dominant component of coastal dune vegetation in South Africa (together with bitou bush). Therefore, it seems reasonable to predict it could become abundant, and perhaps dominant, in comparable habitat in South East Queensland.

Based on the evidence collected in this assessment, *B. discolor* var. *discolor* appears to be a high-risk species and a worthy candidate for preventative control.

Introduction

Identity and taxonomy

Species: *Brachylaena discolor* DC

Common names: coastal silver oak, coast silver oak

Family: Asteraceae

The taxonomy of the species is not clear, with two distinct varieties mentioned in the literature: var. *discolor* and var. *transvaalensis* (forest silver oak or Natal silver oak) (syn. *B. uniflora*). The latter appears sufficiently distinct, in terms of its morphology and preferred habitat, to be treated as a separate species. This risk assessment is focused on var. *discolor*.

Description and biology

B. discolor var. *discolor* is a fast-growing shrub, usually 2–4 m tall but up to 10 m tall (Figures 1 and 2).

Figure 1. *B. discolor* var. *discolor* in coastal dune vegetation at Southport, Queensland (Photo by Barry Whyte, Biosecurity Queensland)

Figure 2. Shrub-like morphology of *B. discolor* var. *discolor* in coastal dune vegetation at Southport (Photo by Barry Whyte, Biosecurity Queensland)

Leaves are 5–11 cm long, dark green above, with distinctive silvery-grey undersides, similar to locally native coastal banksia (*Banksia integrifolia*). Flowers are creamy-white and arranged in dense terminal panicles (Figure 3). The tiny seeds are tipped with tufts of yellowish hairs. The plant is evergreen.

Figure 3. Dry (mature) seed heads of *B. discolor* var. *discolor* (Photo by Barry Whyte, Biosecurity Queensland)

In contrast, *B. discolor* var. *transvaalensis* is a taller tree (up to 27 m) with different leaf morphology (Figure 4).

Figure 4. Leaves of *B. discolor* var. *discolor* (left) and *B. discolor* var. *transvaalensis* (right) (Photo used with permission, M. Purves, Wikipedia Commons, http://en.wikipedia.org/wiki/File:Brachylaena_discolor_Brachylaena_uniflora.JPG)

Reproduction and dispersal

Reproduction is from seeds (Figure 5). Visual observation suggests each tree produces thousands of seeds each year. Seeds mature in summer and are wind-dispersed. This study was unable to find published data on seed production or longevity.

Figure 5. Seeds of *B. discolor* var. *discolor* (Photo by Barry Whyte, Biosecurity Queensland)

Origin and distribution

The two varieties of *B. discolor* are native to South Africa, southern Mozambique and Zimbabwe (Figure 6). Var. *discolor* is common in the coastal vegetation of KwaZulu-Natal (eastern part of South Africa).

Figure 6. Locations where *B. discolor* (both varieties) has been collected in Africa (Global Biodiversity Information Facility n.d.)

Preferred habitat

In its native range, *B. discolor* var. *discolor* is most abundant in coastal vegetation (e.g. coastal sand dunes, around river mouths and margins of mangroves) where climate is subtropical. *B. discolor* var. *transvaalensis* grows further inland in mid-altitude (1000–1600 m) forests.

B. discolor var. *discolor* has been recorded as a component of early successional habitats on coastal sand dunes in South Africa (Ferreira and van Aarde 1997). Moreover, where coastal dune forest of KwaZulu-Natal (South Africa) has been disturbed by urban development, '*Brachylaena discolor*, *Strelitzia nicolai*, and/or *Chrysanthemoides monilifera* tend to dominate the secondary vegetation' (World Wildlife Fund 2010).

Preferred soil types are sands and sandy loams.

History as a weed elsewhere

This study was unable to find evidence that *B. discolor* var. *discolor* is a weed elsewhere.

Uses

B. discolor var. *discolor* is planted as a garden ornamental and often promoted as a windbreak for beachside gardens. Its wood is hard, durable and suitable for boatbuilding, fence posts and numerous other uses. Parts of the plant have been used for traditional medicine in Africa.

Pest potential in Queensland

Current distribution and impact in Queensland

In 2006, the first naturalised population of *B. discolor* var. *discolor* in Queensland was detected in coastal dune vegetation adjacent to a park at Southport on the Gold Coast. As the plant has been promoted as a garden ornamental, it is likely to exist elsewhere.

Potential distribution and impact in Queensland

Climate-matching software called Climatch (Bureau of Rural Sciences 2009) was applied to predict areas of Queensland where climate is similar to that experienced across the native range of *B. discolor* var. *discolor*. Coastal South East Queensland appears highly suitable (Figure 7).

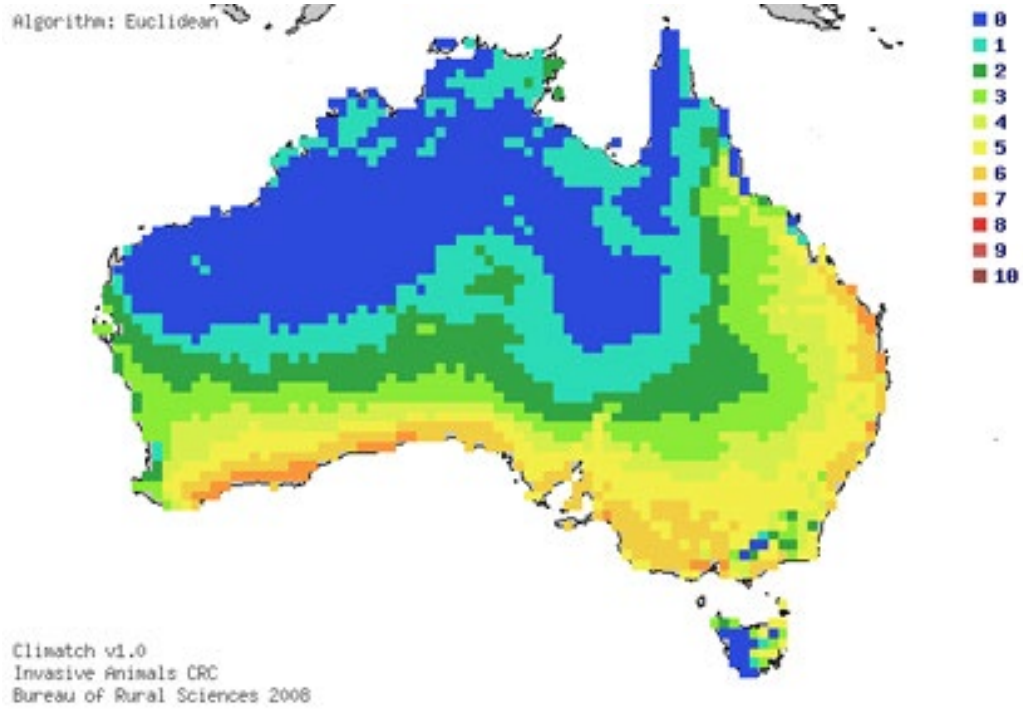

Figure 7. Areas of Australia where climate appears suitable for *B. discolor* var. *discolour*. Red and dark orange indicate areas that are highly suitable, light orange and yellow are marginally suitable, and green and blue are unsuitable. Map produced using Climatch computer software (Bureau of Rural Sciences 2009)

It is important to note that *B. discolor* var. *discolor* can dominate secondary vegetation in disturbed coastal dunes within its native range (World Wildlife Fund 2010). This reference also notes that the same habitat is dominated in some areas by *Chrysanthemoides monilifera* (bitou bush/boneseed), a major weed of coastal dunes (and a Weed of National Significance) in Australia. Hence, it could be speculated that the two species have comparable pest potential.

This assessment suggests that *B. discolor* var. *discolor* is currently in its very early stages of population development in Queensland. Habitats at risk of invasion in the long term appear to be coastal dune vegetation in South East Queensland. Potential impacts could include replacement of native plant species and interference with natural succession. Loss of native vegetation can reduce or change the abundance of native wildlife.

Feasibility of eradication in Queensland

The only known population of *B. discolor* var. *discolor* on the Gold Coast can be readily eradicated (it is currently subject to control action by local and state government agencies). However, since the species has been promoted as a garden ornamental, it is likely to exist elsewhere.

References

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