

Malabar plum

Syzygium jambos



Steve Csurhes

First published 2011

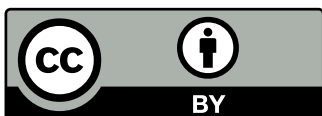
Updated 2016



Queensland
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Summary

Malabar plum (*Syzygium jambos*) is a shrub native to South-East Asia. It has a long history of cultivation as a source of fruit, resulting in a pan-tropical distribution. Dispersal is primarily via birds.

S. jambos has invaded wet lowland areas of Hawaii and there is concern that it could be replacing native plant species, even within relatively undisturbed forest. The species is also invasive in French Polynesia, Fiji, New Caledonia and the Galapagos Islands. On the island of Réunion (Indian Ocean), the species is among the most significant invasive plants affecting semi-dry riparian forest.

S. jambos appears to be in an early stage of population development in Queensland. Pest risk assessment presents evidence that it has the potential to become a significant invasive pest in coastal areas of Queensland. Habitats at risk include tropical and subtropical rainforests and riparian forests in drier areas. The species is a potential host for guava rust, a potentially devastating disease of Australian plants in the Myrtaceae family.

Introduction

Identity and taxonomy

Species identity: *Syzygium jambos* L. (Alston)

Synonyms: *Eugenia jambos* L., *Caryophyllus jambos* (L.) Stokes

Common names: Malabar plum, jambos, jamrosa, rose apple (latter also applied to other species)

Family: Myrtaceae

Description

A shrub or small tree 6–15 m tall with dense foliage and several stems arising from a single base. The leaves are oblong-lanceolate, 10–20 cm long and 2.5–5 cm wide. Petioles are about 10 mm long. Flowers are attractive, whitish-green and up to 8 cm in diameter with numerous stamens up to 5 cm long (see Figure 1). Fruits are globose, yellowish and 2.5–4 cm in diameter (see Figure 2). Each fruit contains 1–2 seeds (usually one) that are 2–2.5 cm in diameter.



Figure 1: Flowers of *Syzygium jambos* (photograph courtesy of B Navez, Wikimedia Commons)

There are several varieties, including some with pale green, yellow or red fruit.



Figure 2: Fruit of *Syzygium jambos* (photograph courtesy of F and K Starr, Wikimedia Commons)

Reproduction and dispersal

S. jambos reproduces from seeds that are dispersed by large frugivores, possibly including cassowaries and pigs. Plants first produce fruit at 4–5 years old.

Native range and global distribution

S. jambos is believed to be native to South-East Asia (exact native range is unknown), but has naturalised in numerous other countries across the tropics.

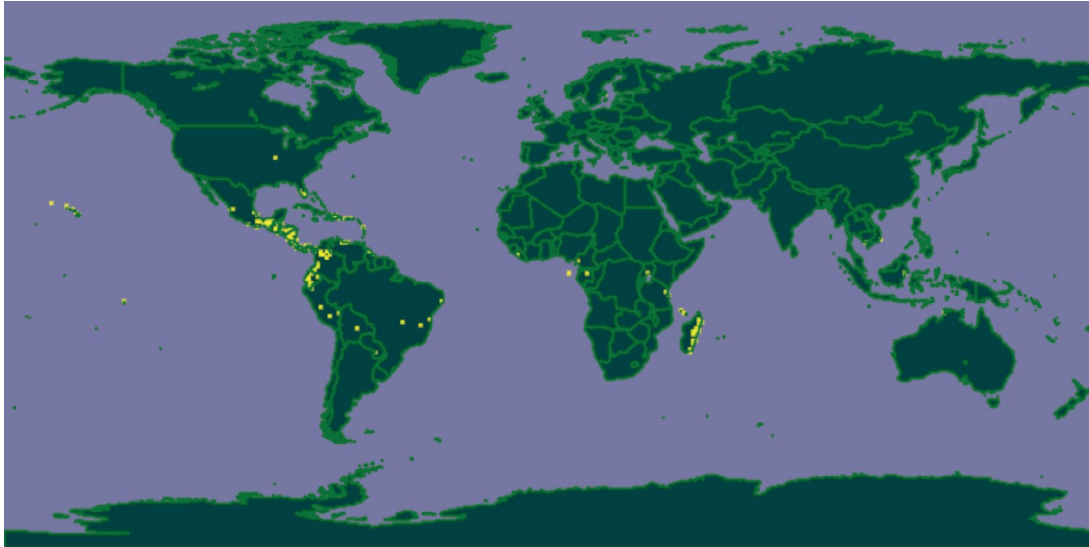


Figure 3: Global distribution of *Syzygium jambos* (GBIF undated)

Current distribution and impact in Queensland

S. jambos is being sold as a garden ornamental and is occasionally reported as a 'new' potentially-invasive species in Queensland. A number of specimens have been collected in Queensland (see Figure 4). At present, the species has no impact.

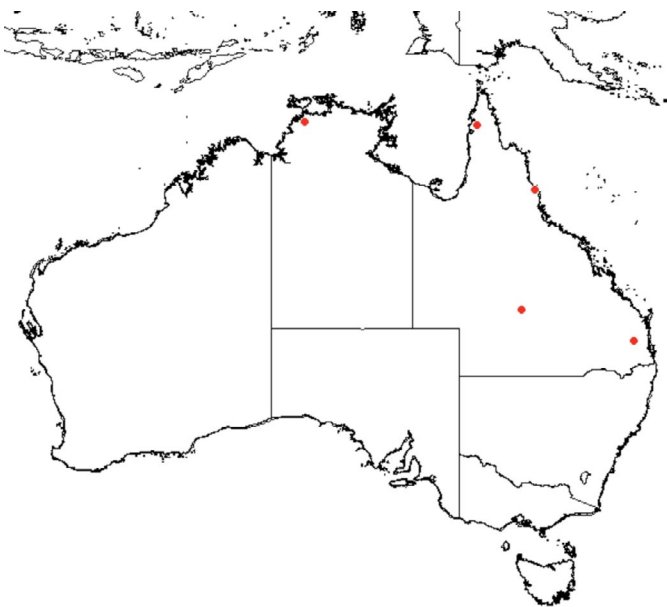


Figure 4: Distribution of *Syzygium jambos* in Australia (specimen data reproduced from Australia's Virtual Herbarium (AVH 2010) with permission of the Council of Heads of Australasian Herbaria Inc.)

Preferred habitat and climate

Climatically, *S. jambos* prefers high-rainfall, tropical areas. In Hawaii, it grows in lowland areas up to an elevation of about 500 m (Smith 1985). Similarly, it grows in areas up to 100 m above sea level in French Polynesia.

In its native range, preferred habitats are mountain slopes and riparian forests (Weber 2003).

History as a weed elsewhere

S. jambos has formed thickets in wet lowland areas of Hawaii and there is concern that it could be replacing native plant species, even within relatively undisturbed forest (PIER 2010) (see Figure 5). The species is also invasive in forests in French Polynesia, Fiji, New Caledonia and the Galapagos Islands (PIER 2010). On the island of Réunion (Indian Ocean), *S. jambos* is among the most significant invasive plants affecting seasonally dry riparian forest, where it forms dense, almost pure stands (MacDonald et al. 1991; Csurhes and Edwards 1998). Brown et al. (2006) report that *S. jambos* has become a dominant species in tropical forests in the Luquillo Mountains in Puerto Rico, in mature forest as well as areas that were subject to historical clearing for agriculture. In Hong Kong, the species has invaded riparian habitats and is of 'possible conservation concern' (Leung et al. 2009). Vos (2004) listed *S. jambos* among 16 'main invasive woody plant species' on the Comoros Archipelago. The species can invade relatively undisturbed habitats, reducing their conservation value (Smith 1985, in McDonald et al. 1991).



Figure 5: *Syzygium jambos* in Hawaii (photograph courtesy of F and K Starr)

Use

S. jambos is cultivated as a source of fruit and as a garden ornamental. It was probably grown (and traded) as a fruit for centuries and this may explain its pan-tropical distribution.

Potential distribution and impact in Queensland

Climate-matching software called 'Climatch' (BRS 2009) was applied to predict areas of Queensland where climate is similar to that experienced across the overseas range of *S. jambos*. Coastal and subcoastal areas of Queensland appear suitable (see Figure 6).

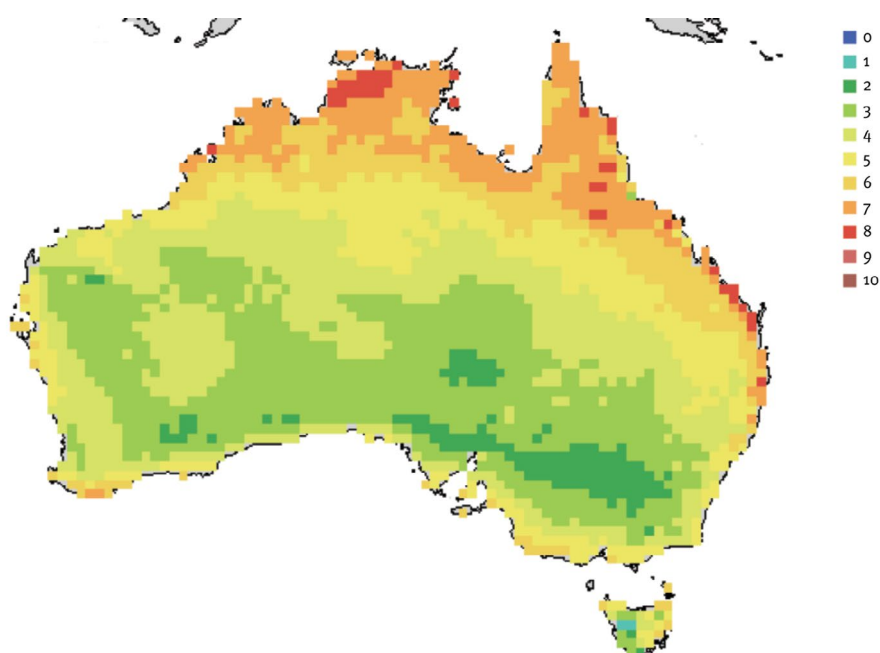


Figure 6: Areas of Australia where climate appears suitable for survival of *Syzygium jambos*. Red and orange indicates areas where climate is highly suitable; yellow indicates area where climate is marginally suitable. Green and blue indicates areas where climate is considered unsuitable for this species.

The evidence collected in this risk assessment suggests there is a high likelihood that *S. jambos* will continue to spread in Queensland. It seems reasonable to expect that its impact will increase over time and that its long-term impact could be comparable to that experienced overseas.

S. jambos is shade-tolerant and has the potential to invade tropical and subtropical rainforests in high-rainfall areas and riparian forests in drier parts of Queensland. It is not expected to become a significant pest of grazing or cropping land. Unless the species is controlled while in its early stages of spread within conservation areas, it could compete with native plants and interfere with natural ecological processes.

S. jambos is a host for various rust diseases that affect the plant family Myrtaceae, including myrtle rust and guava rust. For example, guava rust *Puccinia psidii*, affects the species in Florida (see Figures 7, 8 and 9). This rust could prove disastrous for native Australian plant species, including eucalypts, bottlebrushes, lilly pillys and various rainforest genera in the Myrtaceae, species that are dominant in many Australian plant communities.



Figure 7: Guava rust (*Puccinia psidii*) on *Syzygium jambos* in Florida (photograph courtesy of Wikimedia Commons)



Figure 8: Large stand of *Syzygium jambos* damaged by the rust (*Puccinia psidii*) in Hawaii (photograph courtesy of F and K Starr)



Figure 9: Stand of *Syzygium jambos* damaged by the rust (*Puccinia psidii*) in Hawaii (photograph courtesy of F and K Starr)

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