

*Psidium guajava*  [简体中文](#) [正體中文](#)

**System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Myrtales	Myrtaceae

## Common name

bayawas (English, Batanes (Philippines)), guava (English, USA), jamphal (English, India), perala (English), guavenbaum (German), oi (English, Vietnam), guayaba (Spanish, Latin America, Galapagos, Spain), koejawal (English, South Africa), guayabilla (Spanish, Mexico), lemon guava (English), guayaba silvestre (English, Puerto Rico), ma-kuai (English, Thailand), ma-man (English, Thailand), araca (English, Brazil), banjiro (Japanese), bayabas (English, Philippines), dipajaya jambu (English), djamboe (Dutch), djambu (English), petokal (English), guyabas (English, Philippines), guyava (Spanish, Spain), biyabas (English, Brunei Darussalam), goejaba (English, Surinam), guabang (English, Palau), guave (English, Surinam), guwafah (Arabic), jambu batu (English, Brunei Darussalam), guayabo (Spanish, Latin America (tree)), jambu batu (English, Malaysia), jambu berase (English, Malaysia), guayavo (Spanish, Latin America (tree)), jambu biji (English, Indonesia, Malaysia), jambu kampuchia (English, Malaysia), jambu klutuk (English, Java), kautoga (English, Niue), kautoga tane (English, Niue), kautonga (English, Niue), kautonga tane (English, Niue), kuabang (English, Palau), kuafa (English, Chuuk), kuaupa (English, Pohnpei), kuawa (English, Hawai'i), kuawa ke'oke'o (English, Hawai'i), kuawa lemi (English, Hawai'i), kuawa momona (English, Hawai'i), kuhfahfah (English, Kosrae), kuma (Secoya, Ecuador), guyaaba (Dutch, Holland), kuwawa (English, Nauru), ngguava ni India (English, Fiji), kuava (English, Cook Islands, Fiji, Tonga), nguava (English, Fiji), pauwa (English, Hawai'i), quwawa (English, Fiji), si da (Lao, Laos), ku'ava (English, American Samoa, Tonga, Tuvalu, Fiji, Samoa), te kuava (English, Kiribati), te kuawa (English, Kiribati), tuava (English, French Polynesia), tu'ava (English, Samoa), tu'avu (English, French Polynesia, Cook Islands), tumu tuava (English, French Polynesia), sapari (English, India), tuvava (English, French Polynesia, Cook Islands), xalxocot (English, Mexico), gouyav (Seychelles Creole, Seychelles), guayave (German), tokal (English), goiaba (Portuguese, Brazil), goyavier (French, France), guahva (Pohnpeian, Pohnpei), apas (English, Saipan), goaibeira (Portuguese), gouyave (English), amarood (English, India), abwas (English, Saipan), goeajaaba (Dutch), amrut (Hindi, Fiji), goavier (English), farang (English, Thailand), trapaek sruk (Khmer, Cambodia), goyave (French, France), goiabeiro (Portuguese), abas (English, Guam, Saipan, Yap), jamrukh (English, India)

## Synonym

*Guajava pyrifera* , (L.) Kuntze  
*Myrtus guajava* , (L.) Kuntze  
*Myrtus guajava* , var. *pyrifera* (L.) Kuntze  
*Psidium guajava* , var. *cujavillum* (Burman) Krug and Urb.  
*Psidium guajava* , var. *guajava*  
*Psidium guava* , Griseb.  
*Psidium guayava* , Raddi  
*Psidium igatemyensis* , Barb. Rodr.  
*Psidium pomiferum* , L.  
*Psidium pumilum* , Vahl  
*Psidium pumilum* , var. *guadalupense*  
*Psidium pyrifera* , L.  
*Psidium cujavillus* , Burm. f.

*Psidium aromaticum*

## Similar species

*Psidium acutangulum*, *Psidium cattleianum*, *Psidium friedrichsthalianum*, *Psidium galapageium*, *Psidium guineense*, *Psidium x durbanensis*

## Summary

*Psidium guajava* is a tropical tree or shrub. It is native to central America from Mexico to northern South America. It has been introduced to most tropical and sub-tropical locations around the world for its edible fruit. In some countries the harvesting, processing and export of the fruit forms the basis of a sizeable industry. Due in part to its ability to grow on a variety of soils and across a range of climates, *P. guajava* has become invasive. Pastures and fields are overrun and native plants are outcompeted by this species, which has the ability to form dense thickets. This has led to its designation in many areas as a noxious weed to be controlled or eradicated. It is ranked by some authorities amongst the highest invasive categories.



[view this species on IUCN Red List](#)

## Species Description

A **shrub** or small **tree** to 10m high, occasionally to as much as 20m (CONABIO 2003), roots are shallow; **bark** smooth, light reddish-brown, with pubescent 4-angled young branches, bark peels off in large flakes, exposing greenish layer beneath; **trunk** normally attains a diameter of about 25cm, but can reach 60cm (CONABIO 2003), has a 'bony' appearance; **leaves** opposite, ovate-elliptic or oblong-elliptic, acute-acuminate, pubescent beneath, often rather brittle, prominently nerved, lateral nerves 10-20 pairs; blades mostly 7-15cm long and 3-5cm wide, rounded at base, dull green, downy on the underside, aromatic when crushed; **flowers**, hermaphroditic, solitary or 2-4 together in leaf axils, rather large (2.5cm wide); peduncle about 1-2cm long, pubescent; calyx 4-5-lobed (anthesis, not before) about 6-8mm long, petals white, 10-15mm long, fugacious, usually 4 or 5, obovate, slightly concave, stamens numerous (c. 200-250), white, about as long as petals; style 10-12mm long, stigma peltate; **fruit** begins fruiting a 3-4 years old (CONABIO 2003), fruits globose, ovoid, or pyriform, whitish-yellow or faintly pink, sweet-sour pulpy, many-seeded (100-500/fruit), 2.5-10cm long (in the Amazon can grow larger than a tennis ball); pulp granular-juicy; seeds yellowish, reniform. When immature and unripe, the fruit is hard, green, gummy and astringent. Longevity is 30-40 years (CONABIO 2003)

## Notes

A major invasive species in the Galapagos Islands, Hawai'i, New Zealand, and southern Africa (Cronk and Fuller 2001). A problem in the Marquesas (French Polynesia), New Caledonia and Fiji. Very invasive in Tonga, especially on 'Eua. Common, and in the future may well become even more widespread in the Cook Islands. Cultivated in gardens but often escaped and naturalized where introduced. The guava is said to produce more fruit in areas that have a distinct winter season, compared to tropical areas.

Naturalized in Florida by 1765, it is now spreading into hammocks and pinelands, and has become dominant in the understory of some cypress stands.

*P. guajava* is subject to a multitude of pests and diseases. In India there are over 80 insect species that will attack guava trees. The Mediterranean, Oriental, Mexican and Caribbean fruit flies cause major problems, in that they infest ripe fruit with their larvae, making them inedible. Various fungi and nematodes are also responsible for damage to trees and fruit. See Morton 1986

(<http://www.hort.purdue.edu/newcrop/morton/guava.html>) for detailed information.

## Lifecycle Stages

Flowers and fruits year-round. Seeds can remain viable for months, and has been reported for up to a year. Usual germination time is 2 to 3 weeks, but they can take up to 8 weeks. Trees grown from seed produce fruit in 2 to 4 years, with a life expectancy of 30 to 40 years.

## Uses

The fruit of the guava is highly valued and used in a number of different ways. It is very high in vitamin C, and also contains large amounts of vitamin A. The fruit can be eaten raw, but uncooked guavas are usually sliced and used in salads or desserts.

The most common way of preparing the fruit is through cooking, which eliminates the strong odour. The fruit can be stewed, canned, jellied, or made into guava paste and guava cheese. Guava juice and guava nectar are popular beverages, while guava syrup can be used to flavour desserts. Dehydrated, powdered guavas can be used for the same purpose, and breakfast flakes can be made by mixing guavas with cornmeal and other ingredients. Green guavas can also be used as a source of pectin, while small and overripe fruit are utilised as a source of ascorbic acid for various foods and drinks.

The wood of the guava tree is yellow to red, and is suitable for carpentry and turnery. It can also be used as a fuelwood, and to make charcoal. The wood also serves for use as fenceposts and tool handles on farm implements (MPTS Database).

The leaves and bark have a high tannin content. The bark is used for tanning hides, while the leaves produce a black dye.

When parasitised by the mistletoe (*Psittacanthus calyculatus*), the guava tree produces rosette-like malformations known as 'wood flowers'. These are sold as ornamental curiosities.

The medicinal uses of the guava are many and varied. Tea made from the leaves and/or bark is known to help cure diarrhea and dysentery, as well as treat stomach upsets, vertigo and regulate menstrual periods. Trees serve as shade/shelter for livestock and are used for erosion control (MPTS Database). A more comprehensive list of uses for guava can be found in the Rainforest Plant Database and in the Traditional Medicinal Plants of Samoa on-line database (<http://www.dittmar.dusnet.de/english/suche-e.php?term=Psidium>).

## Habitat Description

Grows in both humid and dry climates. Lives at altitudes from 0 to 2740 m. (MPTS database). Drought-tolerant, but prefers annual rainfall between 1000-2000mm (Samson 1986) although rainfall to 5000mm tolerated. (CONABIO 2003). Indiscriminate as to soil type. Grows well on heavy clay, marl, light sand, gravel bars or limestone ranging from pH 4.5-9.4 (CONABIO 2003, Morton 1987). Is salt-tolerant to a certain degree. Tolerates wet areas, but prefers locations with good drainage. Trees die back if summer temperatures average less than 15°C, and they are also intolerant of intense daytime heat. Survives only light frost (Yadava 1996). Prefers full sun but will grow in semi-shade.

## Reproduction

The seeds are dispersed by frugivorous birds as well as monkeys, rats and feral pigs. Honeybees (*Apis mellifera*) are the chief pollinators. In the Galapagos, cattle and giant tortoises disperse seeds and feral pigs promote invasion into National Park areas. The average winter crop for a guava tree in India is around 450 fruits per tree, but grafted or layered trees have been reported to have produced up to 2000 fruits amounting to about 300kg. In Colombia, wild trees were estimated to bear around 40kgs of fruit each per year.

## Nutrition

Tolerates a pH range of 4.5 - 9.4., but prefer a range of 5-7 (CRFG website). Under cultivation, for optimal productivity mature trees require 0.5kg. N/year (CRFG website)

## General Impacts

Invades disturbed, and to a lesser degree undisturbed, sites and forms dense thickets. Its adaptability makes it a serious weed in many tropical areas. There is the potential for this species to be a seed contaminant.

## Management Info

**Preventative measures:** A [Risk Assessment of \*Psidium guajava\*](#) for Hawai'i and other Pacific islands was prepared by Dr. Curtis Daehler (UH Botany) with funding from the Kaulunani Urban Forestry Program and US Forest Service. The alien plant screening system is derived from Pheloung *et al.* (1999) with minor modifications for use in Pacific islands (Daehler *et al.* 2004). The result is a score of 21 and a recommendation of: "Likely to cause significant ecological or economic harm in Hawai'i and on other Pacific Islands as determined by a high WRA score, which is based on published sources describing species biology and behaviour in Hawai'i and/or other parts of the world."

**Physical:** Extensive stands of young trees can be controlled through burning, as cutting results in regrowth with multiple stems (Morton 1987). On the other hand, in the Galapagos, burning, manual cutting and even bulldozing have resulted in exacerbated invasion. Regeneration from underground parts by suckering limits the effectiveness of manual control (Cronk and Fuller 2001).

**Chemical:** Guava is sensitive to foliar applications of triclopyr, dicamba and 2,4-D at 1 lb/acre, and to cut surface applications of concentrates of these herbicides; very sensitive to basal bark treatments of triclopyr ester and 2,4-D ester at 2% and 4% respectively, in diesel or crop oil; very sensitive to soil-applied tebuthiuron at 2 lb/acre. Very sensitive to very-low volume basal bark applications of 20% triclopyr ester product in oil. A small-leaved shrubby form of guava appears to be tolerant of foliar applied herbicides but sensitive to tebuthiuron (PIER).

**Biological:** Goats and sheep can be used for control, as they graze leaves and strip the bark. Goats have been successfully used in Hawai'i.

## Pathway

Introduced to many locations as a fruit tree. Sold as a fruit tree for home gardeners.

**Principal source:** [Pacific Islands Ecosystems at Risk, \(PIER, 2002\)](#)

**Compiler:** Scott Henderson, Charles Darwin Research Station, Galapagos Islands & IUCN/SSC Invasive Species Specialist Group (ISSG)

**Review:** Scott Henderson (Charles Darwin Research Station, Galapagos Islands).

**Publication date:** 2010-08-16

## ALIEN RANGE

<b>[1]</b> ALGERIA	<b>[1]</b> AMERICAN SAMOA
<b>[1]</b> ANGUILLA	<b>[5]</b> ARGENTINA
<b>[1]</b> ARUBA	<b>[3]</b> AUSTRALIA
<b>[1]</b> BAHAMAS	<b>[1]</b> BERMUDA
<b>[6]</b> BOLIVIA	<b>[6]</b> BRAZIL
<b>[1]</b> BRITISH INDIAN OCEAN TERRITORY	<b>[1]</b> BRUNEI DARUSSALAM
<b>[1]</b> BURUNDI	<b>[1]</b> CAMBODIA
<b>[1]</b> CAMEROON	<b>[3]</b> CAYMAN ISLANDS
<b>[1]</b> CENTRAL AFRICAN REPUBLIC	<b>[1]</b> CHINA
<b>[10]</b> COLOMBIA	<b>[2]</b> CONGO, THE DEMOCRATIC REPUBLIC OF THE
<b>[1]</b> COOK ISLANDS	<b>[1]</b> COSTA RICA
<b>[1]</b> CUBA	<b>[2]</b> DOMINICAN REPUBLIC
<b>[25]</b> ECUADOR	<b>[1]</b> EGYPT
<b>[1]</b> EL SALVADOR	<b>[1]</b> FIJI
<b>[1]</b> FRANCE	<b>[1]</b> FRENCH POLYNESIA
<b>[1]</b> GABON	<b>[1]</b> GERMANY
<b>[1]</b> GHANA	<b>[1]</b> GUAM

[1] GUYANA	[1] HAITI
[1] HONDURAS	[1] HONG KONG
[1] INDIA	[2] INDONESIA
[1] ISRAEL	[2] JAPAN
[1] JORDAN	[2] KENYA
[1] KIRIBATI	[1] LAO PEOPLE'S DEMOCRATIC REPUBLIC
[2] MADAGASCAR	[1] MALAYSIA
[1] MAYOTTE	[1] MEXICO
[4] MICRONESIA, FEDERATED STATES OF	[1] NAURU
[1] NEPAL	[1] NEW CALEDONIA
[2] NEW ZEALAND	[2] NIGERIA
[1] NIUE	[1] NORFOLK ISLAND
[2] NORTHERN MARIANA ISLANDS	[1] PALAU
[1] PAPUA NEW GUINEA	[24] PARAGUAY
[10] PERU	[1] PHILIPPINES
[1] PITCAIRN	[2] PUERTO RICO
[1] REUNION	[2] SAINT HELENA
[1] SAMOA	[1] SENEGAL
[1] SINGAPORE	[2] SOUTH AFRICA
[1] SPAIN	[1] SUDAN
[1] SWAZILAND	[1] TAIWAN
[6] TANZANIA, UNITED REPUBLIC OF	[1] TONGA
[1] TUVALU	[19] UNITED STATES
[1] VANUATU	[1] VENEZUELA
[1] VIET NAM	[1] VIRGIN ISLANDS, U.S.
[1] WEST INDIES	[1] ZIMBABWE

**Red List assessed species 6: CR = 3; EN = 1; VU = 2;**

[Chamaesyce herbstii](#) **CR**

[Lippia salicifolia](#) **VU**

[Phyllodactylus leei](#) **VU**

[Labordia cyrtandrae](#) **CR**

[Mimus melanotis](#) **EN**

[Pteris adscensionis](#) **CR**

## BIBLIOGRAPHY

**19** references found for *Psidium guajava*

### Management information

Daehler, C.C.; Denslow, J.S.; Ansari, S and Huang-Chi, K., 2004. A Risk-Assessment System for Screening Out Invasive Pest Plants from Hawaii and Other Pacific Islands. Conservation Biology Volume 18 Issue 2 Page 360.

**Summary:** A study on the use of a screening system to assess proposed plant introductions to Hawaii or other Pacific Islands and to identify high-risk species used in horticulture and forestry which would greatly reduce future pest-plant problems and allow entry of most nonpests.

[IUCN/SSC Invasive Species Specialist Group \(ISSG\), 2010. A Compilation of Information Sources for Conservation Managers.](#)

**Summary:** This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.

[PIER \(Pacific Island Ecosystems at Risk\), 2003. \*Psidium guajava\*](#)

**Summary:** Ecology, synonyms, common names, distributions (Pacific as well as global), management and impact information.

Available from: [http://www.hear.org/pier/species/psidium\\_guajava.htm](http://www.hear.org/pier/species/psidium_guajava.htm)

[Soria, M. C.; M. R. Gardener and A. Tye., 2002. Eradication of potentially invasive plants with limited distributions in the Galapagos Islands.](#)

[In Turning the tide: the eradication of invasive species: 381-388. Veitch, C.R. and Clout, M.N.\(eds\). IUCN SSC Invasive Species Specialist Group. IUCN. Gland. Switzerland and Cambridge. UK.](#)

**Summary:** Eradication case study in Turning the tide: the eradication of invasive species.

Swaziland s Alien Plants Database., Undated. *Psidium guajava*

**Summary:** A database of Swaziland s alien plant species.

[Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.](#)

**Summary:** This database compiles information on alien species from British Overseas Territories.

Available from: <http://www.jncc.gov.uk/page-3660> [Accessed 10 November 2009]



West., C. J., 2002. Eradication of alien plants on Raoul Island, Kermadec Islands, New Zealand. In *Turning the tide: the eradication of invasive species*: 381-388. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland.

**Summary:** Eradication case study in Turning the tide: the eradication of invasive species.

Zavaleta, E.S., 2002. It's often better to eradicate, but can we eradicate better? In *Turning the tide: the eradication of invasive species*: 381-388. Veitch, C.R. and Clout, M.N.(eds). IUCN SSC Invasive Species Specialist Group. IUCN. Gland. Switzerland and Cambridge. UK.

## General information

Barthelat, F. 2005. Note sur les espèces exotiques envahissantes à Mayotte. Direction de l'Agriculture et de la Forêt. 30p

**Summary:** Tableau synthétique des plantes exotiques de Mayotte classées en fonction de leur niveau d'envahissement.

Bingelli, P. & Starmer, J. 1997. Pitcairn Island. Aliens 6 (Newsletter of the IUCN Invasive Species Specialist Group). In: Varnham, K. (2005)

Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough, United Kingdom.

Centre des ressources biologiques. Plantes tropicales. INRA-CIRAD. 2007.

**Summary:** Available from: <http://collections.antilles.inra.fr/> [Accessed 31 March 2008]

Conservatoire Botanique National De Mascarin (BOULLET V. coord.) 2007. - *Psidium guajava* Index de la flore vasculaire de la Réunion (Trachophytes) : statuts, menaces et protections. - Version 2007.1

**Summary:** Base de données sur la flore de La Réunion. De nombreuses informations très utiles.

Available from: <http://flore.cbnm.org/index2.php?page=taxon&num=05b0afd266cc205432b8dad3f3413c28> [Accessed 9 April 2008]

Florence J. Chevallotte H. Ollier C. & Meyer J.-Y. 2007. *Psidium guajava* Base de données botaniques Nadeaud de l'Herbier de la Polynésie française (PAP).

**Summary:** Base de données sur le flore de Polynésie Française.

Available from: [http://www.herbier-tahiti.pf/Selection\\_Taxonomie.php?id\\_tax=2787](http://www.herbier-tahiti.pf/Selection_Taxonomie.php?id_tax=2787) [Accessed 9 April 2008]

Fournet, J. 2002. Flore illustrée des phanogames de guadeloupe et de Martinique. CIRAD-Gondwana éditions.

Gargominy, O., Bouchet, P., Pascal, M., Jaffre, T. and Tournieu, J. C. 1996. Consequences des introductions d'espèces animales et végétales sur la biodiversité en Nouvelle-Calédonie. Rev. Ecol. (Terre Vie) 51: 375-401.

**Summary:** Consequences to the biodiversity of New Caledonia of the introduction of plant and animal species.

ITIS (Integrated Taxonomic Information System), 2005. Online Database *Psidium guajava*

**Summary:** An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from:

[http://www.cbif.gc.ca/pls/itiscat/taxastep?king=every&p\\_action=containing&taxa=Psidium+guajava&p\\_format=&p\\_ifx=plgt&p\\_lang=](http://www.cbif.gc.ca/pls/itiscat/taxastep?king=every&p_action=containing&taxa=Psidium+guajava&p_format=&p_ifx=plgt&p_lang=) [Accessed March 2005]

Langeland, K.A. and Burks, K. C (Eds) 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. *Psidium guajava*

**Summary:** Information on plants that pose threats to natural resource areas in Florida.

Available from: [http://www.fleppc.org/ID\\_book/psidium%20guajava.pdf](http://www.fleppc.org/ID_book/psidium%20guajava.pdf) [Accessed 30 December 2004]

Meyer, J.-Y. 2004. Threat of invasive alien plants to native flora and forest vegetation of eastern Polynesia. Pacific Science, 58, 357-375

**Summary:** Dans cet article, la menace croissante des plantes exotiques envahissantes est discutée et les espèces les plus envahissantes sont décrites. Des hypothèses sur l'invasibilité des îles sont présentées à la lumière des observations et des données récoltées.

Meyer, J.-Y. 2007. Conservation des forêts naturelles et gestion des aires protégées en Polynésie française. Bois et forêts des tropiques, 291 (1), 25-30.