

PERU SHADE CATALOG

A resource for Peru coffee farmers and professionals on tree species found in and around coffee landscapes.



Cover Images

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Website

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ABOUT

Why a Catalog?

Rising temperatures, distorted rainfall patterns and emerging challenges with pests and disease caused by climate change are affecting coffee production around the globe. With the recognition that retaining and replanting trees in coffee landscapes will be a critical strategy to climate change adaptation, farmers are exploring the need to maintain or re-introduce canopy cover in and around production systems, creating agroforestry settings that can play a central role in combating the effects of climate change and supporting income diversification strategies. However, farmers and practitioners often lack the information needed to select shade trees that are **good for coffee, support and diversify household incomes** and provide **benefits to wildlife** and **ecosystem services**.

The Shade Catalog is meant to do just that – provide coffee farmers and technical assistance teams key information about tree species that have been found in and around coffee landscapes. From the main attributes of the species, to the use and benefits, through to propagation and management tips, the catalog is a useful guide for whole-farm planning.

This catalog is intended to promote the diversity of shade trees within Peru coffee farming systems with applications for any group propagating shade trees or providing trainings about the importance of shade trees as a component of sustainable coffee management.

Why Peru?

Peru is one of the world's largest producers and exporters of coffee, with nearly 2 million smallholder coffee farmers managing 1.2 million hectares of coffee land. The country is also one of the most biodiverse areas on the planet, although many of the endemic plant and animal species face extinction due to habitat loss. Coffee is grown primarily in remote villages, and sustainability of the farming system impacts the wellbeing of coffee farmers, rural communities, the economy, and the environment.

Shade trees on coffee farms are an integral part of this sustainability and provide resources to farmers, wildlife, and the coffee crop itself. However, availability of most shade tree species is low. Government agencies, NGOs and international coffee trading companies distribute some trees for free, but the frequency and distribution can be inconsistent. These groups primarily provide nitrogen fixing shade trees—especially Lamtoro (*Leucaena* spp.)—timber trees, and fruit trees. This catalog should serve as a reference to select, propagate and promote additional tree species throughout Peru's vast coffee growing regions.

How are shade trees currently used in Peru coffee farms?

Smallholder farmers cultivate coffee in diverse farming systems that can be categorized as complex agroforestry, simple agroforestry, and monoculture. Complex agroforestry, which includes most traditional agroforestry systems, typically include 6 to 30 tree species per farm that form multi-layered strata and provide shade for the coffee. These systems are typically located close to the farmer's house, require low levels of maintenance, and have irregular spacing of both coffee and shade trees. Additional annual and perennial crops are cultivated together with the coffee, and can be used for household subsistence, for ceremonial or religious purposes, or sold. Despite producing low coffee yields, complex agroforestry systems are considered productive and sustainable at the farm level.

To boost coffee production, simplified agroforestry systems are also implemented by smallholder farmers. These systems typically maintain less than 5 shade tree species per farm that form a single shade stratum. The shade and coffee plantings are more regularly spaced than in complex agroforestry system and benefit from regular maintenance. The shade canopy is primarily dominated by leguminous shade trees (Family Fabaceae) that fix nitrogen, regulate the intensity of sunlight to the coffee, and may provide forage for livestock. Leguminous species also provide biodiversity benefits ecosystem services by attracting and sustaining insect, bird, and mammal communities that may help regulate pests. Trees with fruits that can be consumed or sold are commonly included in these systems as well.

Although simple agroforestry systems are widely promoted by government agencies and NGOs, monoculture systems ("sun coffee") are common in some regions. In North Sumatra, for example, monocultures are promoted and employed to maximize coffee yields, and many farmers may be unaware of shade tree benefits.

Choosing the right shade tree

Agroforestry systems generate significant environmental benefits though there are a number of tradeoffs that should be considered when providing guidance to farmers as they consider these options. Shaded coffee typically has lower productivity than full sun coffee and increase the cost of weeding, while pest pressure may be lower and natural predators more abundant in shade systems and therefore require less costly pest management products⁵. Economic trade-offs should be considered to find the right combination of shade trees that provide environmental benefits while generating economic returns. In addition to levels of revenue, the timelines are also important to consider, as timber species take longer to generate returns than fruit trees or other revenue generating shade variety options. Different management regimens and the timing of labor requirements should also be considered, as shade management can be labor intensive on mature shade trees and may also require special knowledge and training. These tradeoffs should be examined to ensure strong alignment with farmer needs and opportunities to help catalyze changes in farm management to advance broader environmental goals.

A living document

This catalog contains information about tree species currently found within Peru coffee farming systems. Some tree species facilitate coffee yields and improve soil nutrition, while other trees may be selected by farmers due to their farm, income, or biodiversity benefits. While many of these species are propagated by farmers, some simply occur on coffee farms through natural regeneration. Tree species accounts for the Peru Catalog were created from field research in Peru, interviews with farmer groups and agroforestry experts, and data compiled from scientific publications and technical reports. The catalog focuses on tree species but also includes commonly planted palms and shrubs. While this catalog compiles all current knowledge, future research is needed to establish propagation guides and establish how each species interacts with coffee plants. Nomenclature follows www.plantsoftheworldonline.org/. This catalog is intended to be a living document that will be refined and updated as more information or research becomes available about these species.

¹ Neilson, J. et al ,2015. Towards a more competitive and dynamic value chain for Peru coffee-Working Paper #7. Prepared for the World Bank, Washington DC.

² Sodhi, N. S., Koh, L. P., Brook, B. W., & Ng, P. K. (2004). Southeast Asian biodiversity: an impending disaster. *Trends in ecology & evolution*, 19(12), 654-660.

³ Ministry of Agriculture. 2019. Tree Crop Estate Statistics of Peru 2018-2020.

⁴ Hulupi R, Martini E. 2013. Pedoman budi daya dan pemeliharaan tanaman kopi di kebun campur. Bogor, Peru: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

⁵ Johnson, M. D., J. L. Kellermann, and A. M. Stercho. "Pest reduction services by birds in shade and sun coffee in Jamaica." *Animal conservation* 13, no. 2 (2010): 140-147.

SHADE BENEFITS

So why all the fuss over trees? Trees clean our air and make it more breathable, clean our water, keep soil healthy, buffer floods, and provide habitat for wildlife and enhance biodiversity, all of which contributes to keeping us healthy.

Incorporating trees in and around coffee production, particularly native species, can also provide benefits to coffee and people. Here are just a few reasons why:

- **Coffee quality:** Evidence shows that coffee under shade produces higher weights of fresh fruits, larger beans and better visual appearance⁵.
 - **Climate regulation:** As climate change continues, coffee communities are heating up. Given that Arabica requires cool temperatures between 18 and 21 degrees Celsius, shifts in on-farm temperatures put production at risk. Trees help reduce temperature volatility, cooling air during the day and keeping it warmer during the night, reducing stress on coffee plants.⁶
 - **Soil health:** Fallen leaves and roots help maintain healthy soils by offering natural aeration, nutrients and moisture, providing food for healthy soil fauna that convert the dead plant materials into nutrients available for plant growth.⁷
 - **Erosion prevention:** The presence of tree systems helps prevent erosion, particularly on steep slopes and under heavy rainfall, by reducing rainfall impact and holding soil together underground⁸. Leaf litter from the trees also helps diminish rain-induced erosion⁹.
 - **Water capture / regulation:** Rainwater is retained on tree leaves, to be released back into the air as evaporation. Leaves on the ground act as sponges, soaking up moisture and gradually releasing it. Shaded soils retain moisture far longer than soils exposed to sun. This is very important as climate-change-induced droughts increase in frequency and intensity. Finally, tree roots usually run deeper than coffee and other crops, so they don't compete with them for water or soil nutrients¹⁰.
 - **Pest control:** Trees provide safe refuge and habitat for pest predators such as birds, bats, ladybugs, spiders, and lizards. These natural predators eat insect pests that might otherwise harm coffee production, and pest outbreaks spread more slowly when trees are mixed into the farm. This natural pest control can decrease pesticide costs¹¹.
 - **Pollination:** Trees provide safe refuges for natural pest predators such as ladybugs, spiders, and lizards, and pollinators such as bees and butterflies, giving them rapid access to the coffee. More tree species support more pollinators, which is important for coffee as the diversity and abundance of bees impacts coffee fruit sets, fruit weights, and yields¹².
 - **Biodiversity:** Trees also provide habitat for native birds, reptiles, mammals, and other plant species such as orchids and bromeliads. Each layer of leaves above the coffee has unique microclimatic attributes, providing unique habitats for unique species¹³.
 - **Carbon capture:** Agroforestry systems in Peru can accumulate and store a significant amount of carbon, with values as high as 69.5 tons/ha¹⁴. Tree density is one of the most important metrics that influences carbon sequestration, as denser spacing leads to higher carbon stored per area¹⁵. Tree age/size is also important, with mature trees holding much more carbon than young trees.
 - **Income security:** Shade trees provide fruits, lumber, and other fibers that can be sold in addition to the coffee, increasing the overall income security of the farmers. Because of their deep roots and energy stores, trees are more resilient to climate change, and are therefore better equipped than coffee to produce fruit in drought years, providing a reliable secondary source of income. Trees can also directly provide fruits, seeds, oils, fuelwood, and construction materials for household use, increasing the economic resilience of the farmers.¹⁶
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⁵ Muschler, R. G. (2001). Shade improves coffee quality in a sub-optimal coffee-zone of Costa Rica. *Agroforestry systems*, 51(2), 131-139.

Vaast, P., Kanten, R. V., Siles, P., Dzib, B., Franck, N., Harmand, J. M., & Génard, M. (2005). Shade: a key factor for coffee sustainability and quality. In ASIC 2004. 20th International Conference on Coffee Science, Bangalore, India, 11-15 October 2004 (pp. 887-896). Association Scientifique Internationale du Café (ASIC).

⁶ Alemu, M. M. (2015). Effect of tree shade on coffee crop production. *Journal of Sustainable Development*, 8(9), 66.

Rathmell, L. (2017). *Coffee and Conservation: The Ecology and Marketing of Bird Friendly Coffee* (Doctoral dissertation).

⁷ Alemu, M. M. (2015). Effect of tree shade on coffee crop production. *Journal of Sustainable Development*, 8(9), 66.

⁸ Iijima, M., Izumi, Y., Yuliadi, E., Sunyoto, Afandi, & Utomo, M. (2003). Erosion control on a steep sloped coffee field in Peru with alley cropping, intercropped vegetables, and no-tillage. *Plant Production Science*, 6(3), 224-229.

⁹ Li, Xiang, Jianzhi Niu, and Baoyuan Xie. "The effect of leaf litter cover on surface runoff and soil erosion in Northern China." *PloS one* 9, no. 9 (2014): e107789.

¹⁰ Muñoz-Villiers, Lyssette Elena, Josie Geris, María Susana Alvarado-Barrientos, Friso Holwerda, and Todd Dawson. "Coffee and shade trees show complementary use of soil water in a traditional agroforestry ecosystem." *Hydrology and Earth System Sciences* 24, no. 4 (2020): 1649-1668

¹¹ Rice, R. A. (2018). Coffee in the crosshairs of climate change: agroforestry as abatis. *Agroecology and Sustainable Food Systems*, 42(9), 1058-1076.

¹² Klein, A., I. Steffan-Dewenter and T. Tschardt, 2003b. Fruit set of highland coffee increases with the diversity of pollinating bees. *Proceedings of the Royal Society of London* 270:955-961

¹³ Greenberg, R., Bichier, P., Angon, A. C., & Reitsma, R. (1997). Bird Populations in Shade and Sun Coffee Plantations in Central Guatemala: Poblaciones de Aves en Plantaciones Cafetaleras en Sombra y Sol en la Región Central de Guatemala. *Conservation Biology*, 11(2), 448-459.

¹⁴ Wiryono et al. 2016. The diversity of plant species, the types of plant uses and the estimate of carbon stock in agroforestry system in Harapan Makmur Village, Bengkulu, Peru. *Biodiversitas* 17: 249-255

¹⁵ Roshetko et al. 2007. Smallholder Agroforestry Systems for Carbon Storage. *Mitigation and Adaptation Strategies for Global Change*. 12: 219-242

¹⁶ Davis, H., Rice, R., Rockwood, L., Wood, T., & Marra, P. (2019). The economic potential of fruit trees as shade in blue mountain coffee agroecosystems of the Yallahs River watershed, Jamaica WI. *Agroforestry Systems*, 93(2), 581-589.

PARTNERS

Conservation International

Conservation International (CI) works to protect the critical benefits that nature provides to people. Through science, partnerships and fieldwork, Conservation International is driving innovation and investments in nature-based solutions to the climate crisis, supporting protections for critical habitats, and fostering economic development that is grounded in the conservation of nature. Conservation International works in 30 countries around the world, empowering societies at all levels to create a cleaner, healthier and more sustainable planet.

Website: <https://www.conservation.org>

Blog: <https://www.conservation.org/blog>

Facebook: <https://www.facebook.com/conservation.intl>

Twitter: <https://twitter.com/ConservationOrg>

Instagram: <https://www.instagram.com/ConservationOrg/>

YouTube: <https://www.youtube.com/channel/UCam5sCp6mzGBcn8ZBB2RBjg>

The Sustainable Coffee Challenge

The Sustainable Coffee Challenge is a collaborative effort of companies, governments, NGOs, research institutions and others to transition the coffee sector to be fully sustainable. Challenge partners are urgently working together to increase transparency, align around a common vision for sustainability and collaborate to accelerate progress toward those goals.

Conceived by Conservation International and Starbucks and launched during the 2015 Paris climate meetings with 18 founding partners dedicated to coffee sustainability, the Challenge aims to stimulate greater demand for sustainable coffee. The movement has since grown to more than 160 partners.

Website: <https://www.sustaincoffee.org/>

Smithsonian Migratory Bird Center

The Smithsonian Migratory Bird Center (SMBC) is a scientific research organization dedicated to understanding, conserving and championing the grand phenomenon of bird migration. SMBC's pioneering, Bird Friendly® coffee certification is the gold standard in eco-friendly, organic coffee farming, and has supported over 20 years of research linking coffee agroforestry with biodiversity conservation. Bird Friendly certified farms retain significant canopy tree diversity, which protects critical habitat for migratory birds and other native wildlife.

Website: <https://nationalzoo.si.edu/migratory-birds/bird-friendly-coffee>

Facebook: <https://www.facebook.com/MigratoryBirdCenter>

Twitter: <https://twitter.com/SMBC>

World Coffee Research

World Coffee Research (WCR) is the only industry-guided organization in the world driving global collaborative agricultural research for coffee. We were formed by the world-wide coffee industry in 2012, with the recognition that innovation in coffee agriculture is necessary to deliver increased quality, reduce supply chain risk, and transform coffee producing into a profitable, sustainable livelihood that can meet rising demand while also safeguarding natural resources. WCR drives innovation for coffee agriculture in multiple, strategically targeted geographies. We professionalize nurseries and seed systems, conduct variety trials, and accelerate breeding system modernization to improve quality in the cup and to enable farmers to access better varieties for resilience and profitability in the face of threats like climate change. WCR research is executed in partnership with leading institutions in producing countries around the world.

Website: <https://worldcoffeeresearch.org>

Instagram: <https://www.instagram.com/wcoffeeresearch/>

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Adelyn Hanchette conducted an English literature review of shade trees in Peru coffee plantations

DISTRIBUTION + CONTACT

This catalog is a critical tool for diversifying coffee agroforestry systems. We hope it is used by:

- Coffee producers
- Coffee organizations
- Coffee development or sustainability projects
- Lending institutions
- Others who are invested in coffee sustainability
- Others who are interested in the Peru Forest sector

Ideas for distributing the catalog:

If you are an organization that works with coffee sustainability, agroforestry or reforestation, we invite you to distribute this catalog throughout your network free of charge.

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Contact

Interested in learning more about the Shade Catalog or its contents? Or willing to support the next country edition? We'd love to hear from you! Reach us at: scc@conservation.org

Do you have images you would like to contribute? Please share via scc@conservation.org and your contribution will be acknowledged in the catalog.

KEY

COFFEE IMPACT

This section explains whether this tree helps facilitate yield, supports a healthy crop, reduces or impairs yield, etc.



**Beneficial to
Coffee**



**May Compete
With Coffee**

COFFEE SPECIES

Coffee species known to be planted in agroforestry systems with this tree.



Arabica



Robusta



Coffee
(Arabica and/or
Robusta)

CULTIVATION











Planted











Natural





FARM SERVICES

							
Erosion Control	Coffee Shade	Soil Improvement	Nitrogen Fixation	Weed Control	Coffee Productivity	Windbreak	Reforestation






















































FARMER USES
























































							
Food	Livestock Forage	Fuelwood	Lumber	Medicinal	Ornamental	Product	Ceremonial

TREE HEIGHT
















































			
Shrub 1–10m	Small 10–20m	Medium 20–35m	Large >35m






















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<i>Neea sp.</i> Pega pega, Palo amarillo	 Arabica	 Biodiversity Benefits	91
<i>Ochroma pyramidale</i> Balsa Wood, Topa	 Arabica	 Biodiversity Benefits	92
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<i>Oreopanax polycephalus</i> Maqui maqui, Mano de leon	 Arabica	 Biodiversity Benefits	95
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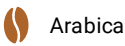
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Vitex cymosa		 Arabica	 Biodiversity Benefits	130
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Zygia longifolia

Pacae





TREE SPECIES (SCIENTIFIC NAME)

Abarema jupunba

PERU COMMON NAME

Sacha tara, Frijolillo, Pan de trigo, Carbonero

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

1.86cm * 1.18cm

Length Width

ELEVATIONAL RANGE (M)

430-1100m

TREE HEIGHT

MEDIUM (20-35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

This tree is propagated in nurseries by seeds. It has low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Medicinal, Ornamental, Product

Used in the construction of houses and stakes. The inner bark is used to treat itchy scalp. Soap made from the bark has antiparasitic properties. The macerated leaves and inner bark are used as detergent.

FARM SERVICES



Coffee Shade, Soil Improvement, Nitrogen Fixation

Coffee Shade: provides sparse to medium shade

Soil Improvement: the tree helps in climate regulation and soil recovery

BIODIVERSITY BENEFITS



YES

It retains arthropods in leaves, flowers and bark that serve as food for some insectivorous birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Abarema+jupunba

Romero, C. 2022-7-11. Abarema jupunba (Willd.) Britton & Killip En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasyliquenes.unal.edu.co>

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Acrocarpus fraxinifolius

PERU COMMON NAME

Cedro rosado

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

8.5cm × **5.5cm**
Length Width

ELEVATIONAL RANGE (M)

1100–1400m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



EXOTIC IN PERU

NATIVE TO

Region: Asia
Asia, Southeast Asia

EXOTIC IN

Latin America: Mexico, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Food, Livestock Forage, Firewood, Lumber, Medicinal, Ornamental**

It is used for the manufacture of furniture and construction fences. It is especially valued for its spectacular flowering display when it has no leaves.

FARM SERVICES

**Coffee Shade, Windbreak, Erosion Control, Reforestation, Nitrogen Fixation**

Reforestation: a pioneer species, it regenerates mainly in small, burnt areas in open patches where fresh soil has been exposed

Erosion Control: the tree has an extensive root system and has been recommended to reinforce banks and stabilize terraces

BIODIVERSITY BENEFITS



YES

Food for invertebrates. The tree is a good source of nectar and good bee forage.

Last Updated: August 14, 2023

Image: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Nique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;Acrocarpus fraxinifolius Wight & Arn. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-09-30. Checklist dataset <https://doi.org/10.15468/39omej>;Tropical Plants Database, Ken Fern. [tropical.theferns.info](http://tropical.theferns.info/viewtropical.php?id=Acrocarpus+fraxinifolius). 2022-09-30. tropical.theferns.info/viewtropical.php?id=Acrocarpus+fraxinifolius;WFO (2022): Acrocarpus fraxinifolius Wight & Arn. Accessed on: 14 Oct 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000211685>



TREE SPECIES (SCIENTIFIC NAME)

Albizia carbonaria

PERU COMMON NAME

Pisquín, Carbonero, Albizia

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

17.5cm × 0.19cm

Length Width

ELEVATIONAL RANGE (M)

350–1500m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Colombia, Costa Rica, Panama, Peru, Venezuela

EXOTIC IN

Latin America: Bolivia, Brazil, El Salvador, Guatemala, Honduras, Mexico, Nicaragua

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

**Livestock Forage, Firewood, Lumber, Medicinal, Ornamental, Product**

Used in the manufacture of wooden crates, to build houses, and in the manufacture of fruit boxes.

FARM SERVICES

**Coffee Shade, Soil Improvement, Erosion Control, Nitrogen Fixation**

Coffee Shade: widely used as coffee and cocoa shade and provides sparse to medium shade

Soil Improvement: shapes and recuperates soils and degraded areas and regulates water

Nitrogen Fixation: fixes nitrogen in the root zone, which allows it to grow even in areas of low fertility

BIODIVERSITY BENEFITS

✓ YES

It provides pod-like fruits that contain seeds that are consumed by blue-headed parrots and parrots mainly. The flowers produce nectar for nectarivorous bird species such as hummingbirds, honeyeaters and tanagers. It houses arthropods in leaves and bark that serve as food for many insectivorous birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Albizia+carbonaria;

Ventosa-Feblés E A, 2020. Albizia carbonaria (carbonero). Invasive Species Compendium. Wallingford, UK: CABI. DOI:10.1079/ISC.3990.20203482776;

WFO (2022): *Albizia carbonaria* Britton. Accessed on: 23 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000181675>;

ASPECTOS ECOLÓGICOS Y GUÍAS DE PROPAGACIÓN 20 Árboles nativos en el sur del Tolima - Colombia. C.A.F.E. Practices, 2022 Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Arnaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Alchornea glandulosa

PERU COMMON NAME

Escobo, Quisbón, Hojarasco, Algodón, Palo blanco, Carnegallina

TREE FAMILY

EUPHORBIACEAE

AVERAGE LEAF SIZE (CM)

15cm × **10cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

850–2440m

TREE HEIGHT

SMALL (10–20M)



NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Nicaragua, Panama, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Plant seeds as soon as they are ripe in a partially shaded nursery. A germination rate of less than 50% can be expected, and the seeds sprout within 20 to 50 days. When the seedlings have a height of 5-7 cm, plant them in individual containers. They will be ready to plant outside 4-5 months later. The seed has a short viability (less than 60 days). It has low incidence of pests.

CULTIVATION



PLANTED

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Livestock Forage, Firewood, Lumber

It can be used in carpentry and to make boxes and boards. Aerial parts are consumed by animals.

FARM SERVICES



Coffee Shade, Windbreak, Soil Improvement, Reforestation

Coffee Shade: provides medium to dense shade

Soil Improvement: contributes to the recycling of nutrients through a large quantity of falling leaves in the dry season

BIODIVERSITY BENEFITS

✓ **YES**

It presents seeds with red aril, which are preferred by thick-billed birds, tanagers and insectivorous species.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Alchornea+glandulosa

The International Plant Names Index and World Checklist of Selected Plant Families 2022. Published on the Internet at <http://www.ipni.org> and <http://apps.kew.org/wcsp/>

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Alnus acuminata

ENGLISH COMMON NAME

Alder

PERU COMMON NAME

Mentol

TREE FAMILY

BETULACEAE

AVERAGE LEAF SIZE (CM)

11cm × 6cm

Length Width

ELEVATIONAL RANGE (M)

>2100M

TREE HEIGHT

MEDIUM (20–35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Argentina, Bolivia, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Medicinal, Product

Used for furniture, cabinets, caskets, boxes, interior construction, posts, plywood, tool handles, carving and pulp. Harvested from the wild as a local source of tannins and dyes. The bark and crushed leaves have been used to treat muscle and joint pain, rheumatism, skin infections, and as an anti-inflammatory. An infusion of the leaves is part of a cure for inflammation of the prostate. The leaves are used as a poultice to heal wounds and stop bleeding. A traditional firewood, it burns evenly and very well and is also used to make charcoal.

Last Updated: August 14, 2023

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Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-09-30. tropical.theferns.info/viewtropical.php?id=Alnus+acuminata;Smithsonian Tropical Research Institute: *Alnus acuminata* Kunth. Accessed 30 Sep 2022. Published on the Internet: [https://panamabiota.org/stri/taxa/index.php?](https://panamabiota.org/stri/taxa/index.php?taxon=Alnus+acuminata&formsubmit=Search+Terms#)[taxon=Alnus+acuminata&formsubmit=Search+Terms#](https://panamabiota.org/stri/taxa/index.php?taxon=Alnus+acuminata&formsubmit=Search+Terms#)

TREE MANAGEMENT

The seed has a short viability and should be planted as soon as it is ripe. It requires 10 to 20 days of cold stratification at 5°C. Plant the seed in a nursery, just covering it. Germination should occur within 13 days. Seedlings can be planted when they are 30 to 40 cm tall, usually around 4 to 6 weeks after germination.

FARM SERVICES



Coffee Shade, Soil Improvement, Erosion Control, Reforestation, Nitrogen Fixation

Reforestation: the tree is increasingly planted for the recovery of cleared sites and soil improvement

BIODIVERSITY BENEFITS

YES



TREE SPECIES (SCIENTIFIC NAME)

Amburana cearensis

PERU COMMON NAME

Ishpingo

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

350–500m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



UNKNOWN

NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Brazil, Paraguay, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Plant the seeds in partial shade. An 80% germination rate can be expected for fresh seeds, with seeds sprouting within 15 to 25 days. Seedlings may grow slowly.

CULTIVATION



PLANTED

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Lumber, Medicinal, Product

It is commonly harvested from the wild for its attractive wood, which is used for luxury furniture, decorative veneer, construction, carving, joinery and to make boxes. Tree resin oil is used in the treatment of colds, coughs, bronchitis, asthma, and lung diseases. The seeds are used to treat asthma, relieve spasms, support cardiac function, and to stimulate menstrual flow. The seeds are used as perfume and the seeds soaked in water are used to kill mosquito larvae.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 22, 2023

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Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-09-30. tropical.theferns.info/viewtropical.php?id=Amburana+cearensis



TREE SPECIES (SCIENTIFIC NAME)

Aniba puchury-minor

PERU COMMON NAME

Moena

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

16cm × **5.75cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

200–2000m

TREE HEIGHT

SMALL (10–20M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION

**NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Firewood, Lumber, Medicinal**

It is used for the manufacture of furniture and in construction. The seeds are collected from the wild and used in the treatment of indigestion, diarrhea, dysentery, and vaginal infections. The seeds are also sold in local markets.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023

Image: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Nique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Aniba+puchury-minorWFO (2022): Aniba puchury-minor Mez. Accessed on: 14 Oct 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000536881>



TREE SPECIES (SCIENTIFIC NAME)

Aniba robusta

PERU COMMON NAME

Roble alcanfor

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

21.39cm * **6.13cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

>1800m

TREE HEIGHT

UNKNOWN

NATIVE TO

Region: Americas

Latin America: Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Unknown

CULTIVATION

Unknown

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade

BIODIVERSITY BENEFITS

✓ **YES**

Its fruits are consumed by toucans occasionally.

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Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Arnaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Apuleia leiocarpa

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

Unknown

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED

TREE MANAGEMENT

Seeds may benefit from scarification before planting to speed up germination by pouring a small amount of near-boiling water over the seeds and then soaking them for 12 to 24 hours in warm water. Carefully cut the outside of the seed and soak for another 12 hours before planting in a shaded nursery. Germination rates are usually less than 60.5%, and seeds sprout in 20-40 days.

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Lumber, Medicinal, Product

It is highly valued – harvested from the wild and exported to many countries. It is used for interior and exterior carpentry, flooring, door frames, vehicle axles, heavy construction work, and boxes. Extracts from the wood and bark have shown anti-inflammatory and pain relieving activity and may protect against the venom of the Bothrops jararaca snake. The bark is a source of tannins.

FARM SERVICES



Nitrogen Fixation

BIODIVERSITY BENEFITS

No

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Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Ñique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Tropical Plants Database, Ken Fern. [tropical.theferns.info](http://tropical.theferns.info/viewtropical.php?id=Apuleia+leiocarpa). 2022-09-30. tropical.theferns.info/viewtropical.php?id=Apuleia+leiocarpa



TREE SPECIES (SCIENTIFIC NAME)

Aspidosperma cylindrocarpon

PERU COMMON NAME

Pumaquiro

TREE FAMILY

APOCYNACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

350–1000m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Paraguay, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

TREE MANAGEMENT

Plant seeds as soon as they are ripe in a partially shaded nursery or in individual containers. A germination rate of 30% can be expected, and the seed sprouts within 15 - 25 days. When the seedlings have a height of 5-6 cm, plant them in individual containers. They will be ready for planting outside less than 6 months later. The seed remains viable for at least 5 months in storage. Freshly cut wood and sap cause eye irritation, the nose and throat. Sawdust causes burning skin and rash with general symptoms of muscle weakness and cramping, sweating, dry mouth and fainting. It has a low incidence of pests.

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber, Ornamental

It is used in general construction, general carpentry, to make parquet blocks, truck bodies, etc.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse shade

BIODIVERSITY BENEFITS



YES

It retains arthropods in its leaves and bark that serve as food for insectivorous bird species. In addition, being very long-lived allows it to develop many species of figs that attract other species of birds to their fruits.

Last Updated: August 14, 2023

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Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Aspidosperma+cylindrocarpon.

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

*Aspidosperma
macrocarpon*

PERU COMMON NAME

Pumaquiro

TREE FAMILY

APOCYNACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

Unknown

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

CULTIVATION



PLANTED

PREVALENCE

Unknown

TREE MANAGEMENT

Seeds should be planted as soon as they are ripe in partial shade in individual containers. A low germination rate can be expected, with the seed sprouting within 10 to 25 days. Seedlings grow slowly and should be ready for planting 8 months after the initial planting. The seed has a viability of less than 4 months. Freshly cut wood and sap cause irritation of the eyes, nose and throat.

TREE BENEFITS AND USES

FARMER USES

**Lumber, Ornamental**

Harvested from the wild for local use in construction, shipbuilding, tool handles and carpentry. It has attractive foliage and is able to be used for landscaping.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023

Image: Aspidosperma macrocarpon leaves photo; Aspidosperma macrocarpon trunk photo: Denise Sasaki © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Aspidosperma macrocarpon flowers photo; Aspidosperma macrocarpon wood photo: William Milliken © RBG Kew <https://creativecommons.org/licenses/by/3.0/>

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.;

Tropical Plants Database, Ken Fern. [tropical.theferns.info](https://tropical.theferns.info/viewtropical.php?id=Aspidosperma+macrocarpon). 2022-09-30. tropical.theferns.info/viewtropical.php?id=Aspidosperma+macrocarpon



TREE SPECIES (SCIENTIFIC NAME)

*Beilschmiedia
tovarensis*

PERU COMMON NAME

Huampo, Roble palta

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

22cm × **10.5cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

2450–2680m

TREE HEIGHT

MEDIUM (20–35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Colombia, Costa Rica, Ecuador, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Unknown

CULTIVATION

Unknown

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Lumber, Medicinal

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade

BIODIVERSITY BENEFITS



YES

Its fruits are consumed by turkeys, toucanets and saltators occasionally and rodents also feed on fallen fruits.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

WFO (2022): Beilschmiedia tovarensis (Klotzsch & H. Karst. ex Meisn.) Sachiko Nishida. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000562134>.

Beilschmiedia tovarensis (Meisn.) Sach. Nishida in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-24. Checklist dataset <https://doi.org/10.15468/39omej>.

Smithsonian Tropical Research Institute: Beilschmiedia tovarensis (Klotzsch & H. Karst. ex Meisn.) Sachiko Nishida. Accessed 24 Jun 2022. Published on the Internet:

<https://panamabiota.org/stri/taxa/index.php?taxon=62299&clid=64#>.

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Bellucia pentamera

PERU COMMON NAME

Duraznillo, Manzanita tropical

TREE FAMILY

MELASTOMATACEAE

AVERAGE LEAF SIZE (CM)

25cm × **17.5cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

350–1000m

TREE HEIGHT

SMALL (10–20M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

TREE MANAGEMENT

Planted by seeds. Due to the small size of the seeds, it is best to place the fruits in plastic bags until the pulp has partially decomposed and then mix them with water to make a mixture. Water the soil in a nursery seedbed with this mixture and do not cover the seed, but make sure the soil does not dry out.

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Medicinal, Product

The edible fruit is collected from the wild for local use and the tree is sometimes grown for its fruit. The juice of the bark is given to babies as a treatment for fungal infections. Fresh fruits are used to treat parasitic worms. The stem is used to dye gourds.

FARM SERVICES



Reforestation

Reforestation: common and easy to observe in secondary forests or in regeneration and can be used in mixed plantations for the recovery of degraded areas in humid areas

BIODIVERSITY BENEFITS

**YES**

Provides food for wild animals.

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Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;WFO (2022): Bellucia pentamera Naudin. Accessed on: 13 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0001079007>;Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-13. tropical.theferns.info/viewtropical.php?id=Bellucia+pentamera;Tree Atlas, Smithsonian Tropical Research Institute (2022). Published on the Internet: [https://panamabiota.org/stri/taxa/index.php?](https://panamabiota.org/stri/taxa/index.php?taxon=Bellucia+pentamera&formsubmit=Search+Terms)[taxon=Bellucia+pentamera&formsubmit=Search+Terms](https://panamabiota.org/stri/taxa/index.php?taxon=Bellucia+pentamera&formsubmit=Search+Terms);Bellucia pentamera Naudin in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-13. Checklist dataset <https://doi.org/10.15468/39omej>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Bixa urucurana

PERU COMMON NAME

Palo achiote

TREE FAMILY

BIXACEAE

AVERAGE LEAF SIZE (CM)

17.5cm × 12.5cm

Length Width

ELEVATIONAL RANGE (M)

200–600m

TREE HEIGHT

SMALL (10–20M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION

**NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Food, Firewood, Medicinal, Product, Ceremonial**

Used as a colorant in cosmetics. It is used to relieve pain and for the treatment of diabetes and skin infections. The leaves are used to treat hepatitis and cough. In the past some Indigenous groups used orange sap to paint their bodies in rituals and religious ceremonies, and also as a repellent against mosquitoes.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023

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Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>; Bixa urucurana Willd. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-13. Checklist dataset <https://doi.org/10.15468/39omej>; Smithsonian Tropical Research Institute (2022). Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Bixa+urucurana&formsubmit=Search+Terms>; Moreira, P.A., Lins, J., Dequigiovanni, G. et al. The Domestication of Annatto (Bixa orellana) from Bixa urucurana in Amazonia. Econ Bot 69, 127–135 (2015). <https://doi.org/10.1007/s12231-015-9304-0>



TREE SPECIES (SCIENTIFIC NAME)

Brosimum alicastrum

PERU COMMON NAME

Congona, Mashonaste

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

12.83cm × 5.27cm

Length Width

ELEVATIONAL RANGE (M)

>1210m

TREE HEIGHT

LARGE (> 35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

Bats and various mammals help in seed dispersal. Trees of this species partially drop their leaves during the dry season. Each tree produces abundant fruits that can be collected from the ground. To extract the seeds (1 per fruit) the fruits are soaked in water. The seeds are medium to large (approx. 900 to 1,200 per kg). Without pre-germination treatment, an average of 90% germination is obtained, which begins 8-10 days after planting. The seeds lose viability within a few weeks. Natural regeneration seedlings can also be collected for planting in the nursery. Growth in nursery is very fast. Seedlings can reach 25-35 cm in height in a time of 4 months. They require shade during their initial development. It has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES

**Food, Livestock Forage, Lumber, Medicinal**

It is used to make furniture, flooring, tool handles, and carpentry. The cooked seeds are eaten. The leaves and tender branches are eaten.

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS

**YES**

It produces fruits that are consumed by some birds and fruit bats, and houses insects and arachnids eaten by insectivorous birds. Various mammals help in seed dispersal.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012. Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Arnaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Bunchosia nitida

PERU COMMON NAME

Cansaboca

TREE FAMILY

MALPIGHIACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

>700m

TREE HEIGHT

SMALL (10-20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds or cuttings of semi-mature wood. It has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Firewood, Ornamental

The fruit can be eaten raw or cooked, and is also used to make preserves.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium shade

BIODIVERSITY BENEFITS



YES

It produces many fruits for frugivorous bird species such as tanagers, euphonias, saltators, and toucans. It retains insects in leaves and bark that are consumed by insectivorous bird species.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Bunchosia armeniaca (Cav.) Rich. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-30. Checklist dataset <https://doi.org/10.15468/39omej>

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-30. tropical.theferns.info/viewtropical.php?id=Bunchosia+armeniaca;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

***Byrsonima
putumayensis***

PERU COMMON NAME

Quillocisa

TREE FAMILY

MALPIGHIACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

350–500m

TREE HEIGHT

UNKNOWN

DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Brazil, Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: generates a sparse to medium shade

BIODIVERSITY BENEFITS



YES

It serves as a refuge for many insects in flowers, leaves and bark, which are consumed by groups of insectivorous birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

The International Plant Names Index and World Checklist of Selected Plant Families 2022. Published on the Internet at <http://www.ipni.org> and <http://apps.kew.org/wcsp/>; Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Cabralea canjerana

PERU COMMON NAME

Requia negra, Cedro macho

TREE FAMILY

MELIACEAE

AVERAGE LEAF SIZE (CM)

12.9cm * 3.75cm

Length Width

ELEVATIONAL RANGE (M)

350–2500m

TREE HEIGHT

MEDIUM (20–35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Paraguay, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Food, Lumber, Medicinal, Product**

It is used for construction, interior and exterior work of houses, furniture, and carving.

FARM SERVICES

**Coffee Shade**

Coffee Shade: provides medium shade

BIODIVERSITY BENEFITS

**YES**

It houses a large number of insects that are consumed by insectivorous birds. Its fruits are consumed by blue-headed parrots and green toucanets mainly, and the seeds are dispersed by birds and ants.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Cabralea canjerana (Vell.) Mart. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-24. Checklist dataset <https://doi.org/10.15468/39omej>;WFO (2022): Cabralea canjerana (Vell.) Mart. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000577394>;Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-24. tropical.theferns.info/viewtropical.php?id=Cabralea+canjerana;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Calophyllum brasiliense

PERU COMMON NAME

Alfaro

TREE FAMILY

CALOPHYLLACEAE

AVERAGE LEAF SIZE (CM)

14cm × **4cm**
Length Width

ELEVATIONAL RANGE (M)

0–1500m

TREE HEIGHT

MEDIUM (20–35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE MANAGEMENT

The seeds are dispersed by animals, mainly bats. Planted by seeds. Germination will be accelerated if the hard seed shell is broken with a hammer before planting. Fresh seeds can be sown directly into the ground. Established plants are very drought tolerant.

TREE BENEFITS AND USES

FARMER USES

**Food, Livestock Forage, Firewood, Lumber, Medicinal, Ornamental**

It is used in the manufacture of cabinets, fine furniture, floors, masts for boats, poles, general carpentry and pulp for paper. Used to cure sores and as a remedy for headache, and to treat diabetes and parasites. The yellow, resinous sap is used to heal wounds and scabies.

FARM SERVICES

**Coffee Shade, Windbreak, Soil Improvement, Erosion Control**

Coffee Shade: planted as a shade tree for coffee and cocoa

Erosion Control: it has been used to stabilize soils and to alleviate soil compaction in degraded grasslands

BIODIVERSITY BENEFITS

**YES**

The seeds are dispersed by bats mainly feeding on the pulp of the fruits.

Last Updated: August 14, 2023

Image: Calophyllum brasiliense flowers photo; Calophyllum brasiliense trunk photo; Calophyllum brasiliense fruits photo: Denise Sasaki © RBG Kew

https://creativecommons.org/licenses/by/3.0/Calophyllum brasiliense leaves photo: © D. Zappi/RBG, Kew https://creativecommons.org/licenses/by/3.0/

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.;

Smithsonian Tropical Research Institute: Calophyllum brasiliense (Cambess.). Accessed 5 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Calophyllum+brasiliense&formsubmit=Search+Terms>;Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-10-05. tropical.theferns.info/viewtropical.php?id=Calophyllum+brasiliense;Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>.



TREE SPECIES (SCIENTIFIC NAME)

Calycophyllum spruceanum

PERU COMMON NAME

Capirona

TREE FAMILY

RUBIACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

350–1000m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Lumber, Ornamental**

It is durable and resistant to insect attacks. It is used for construction, joinery, frames, tool handles and plywood. Can be used in landscaping, particularly for planting along avenues.

TREE MANAGEMENT

Seeds are best planted as soon as they are ripe in a partially shaded position in a nursery seedbed. The seed is very small, so it should only be slightly covered with soil. Placing a cloth on the ground will help prevent the seed from being washed away when watering. A low germination rate can be expected, with the seed sprouting within 20 to 40 days, at which point the cloth should be removed. Seeds are best planted as soon as they are ripe in a partially shaded position in a nursery seedbed. The seed is very small, so it should only be slightly covered with soil. Placing a cloth on the ground will help prevent the seed from being washed away when watering.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023

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Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-10-05. tropical.theferns.info/viewtropical.php?id=Calycophyllum+spruceanum



TREE SPECIES (SCIENTIFIC NAME)

Carica papaya

ENGLISH COMMON NAME

Papaya

PERU COMMON NAME

Papaya

TREE FAMILY

CARICACEA

AVERAGE LEAF SIZE (CM)

67.5cm * 45cm
Length Width

ELEVATIONAL RANGE (M)

0-1600m

TREE HEIGHT

SHRUB (1-10M)



DISTRIBUTION



EXOTIC IN PERU

NATIVE TO

Region: Americas

Latin America: Belize, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Venezuela

EXOTIC IN

Latin America: Argentina, Bolivia, Brazil, Ecuador, Guyana, Mexico, Paraguay, Peru, Suriname

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

TREE MANAGEMENT

The seeds are dispersed by bats. It propagates by seed and germinates in 2-3 weeks. Grafting can also be used. Seedlings grow quickly. Weed control is necessary. It requires pH control and a constant supply of water, but is relatively resistant to drought. Very sensitive to fertilizers. Fruit production begins within a year of planting and produces 30-150 fruits/year. You can tap the latex at least once a week. You can rejuvenate mature trees by cutting up to 30 cm above the ground. The tree can live more than 25 years. Yields can be maximized by renewing every 3 years.

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Medicinal, Product

The fruits are eaten, a sweet "meat" is made from the flowers, and young leaves are also sometimes eaten. The seeds are used as a spice, especially in salad dressings. The male flowers are cooked and used as a green vegetable. It can be used when coffee sales are insufficient or urgent cash needs arise, as it can be sold at market and can be produced throughout the year. The dried leaves can be beaten in water to form a soap substitute. The seed and green fruit are eaten to treat parasites in children. The leaves and fruit, especially the unripe fruit, are taken internally in the treatment of a variety of digestive disorders, diarrhea, high blood pressure, and painful uterus.

FARM SERVICES



Soil Improvement

BIODIVERSITY BENEFITS



YES

The seeds are dispersed by bats.

Last Updated: August 14, 2023

Image: Carica papaya fruits photo: Peter Gasson, © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Carica papaya tree photo: Paul Little, © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Carica papaya flowers photo: Andrew McRobb, © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Carica papaya leaves photo: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.; Shade Catalog | Indonesia. Shade Catalog, Conservation International, Smithsonian Migratory Bird Center and World Coffee Research. Retrieved October 5, 2022, from <https://www.shadecoffee.org/en/catalog/indonesia>

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-10-05. tropical.theferns.info/viewtropical.php?id=Carica+papaya



TREE SPECIES (SCIENTIFIC NAME)

Cariniana estrellensis

PERU COMMON NAME

Cachimbo, Papelillo caspi, Cachimbo caspi

TREE FAMILY

LECYTHIDACEAE

AVERAGE LEAF SIZE (CM)

7.68cm × **4.02cm**
Length Width

DISTRIBUTION



UNKNOWN

ELEVATIONAL RANGE (M)

100–1300m

TREE HEIGHT

LARGE (> 35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Paraguay, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Seeds are dispersed naturally by animals and they can be planted in nursery. It has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber, Ornamental, Product

It is used for construction, furniture manufacturing, and as a replacement for mahogany to build ships. Some Indigenous groups of Peru and Bolivia make shirts with the fiber, which are dyed red and other colors.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides a sparse to medium shade

BIODIVERSITY BENEFITS



YES

Its capsule-shaped nuts can harbor insects that are consumed by insectivorous birds.

Last Updated: August 22, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Cariniana+estrellensis



TREE SPECIES (SCIENTIFIC NAME)

Casearia nigricans

PERU COMMON NAME

Chimicua durazno

TREE FAMILY

SALICACEAE

AVERAGE LEAF SIZE (CM)

17.5cm × 7cm

Length Width

ELEVATIONAL RANGE (M)

500–1500m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Colombia, Ecuador, Panama, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Planted by seed and natural dispersion.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023

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Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

WFO (2022): Casearia nigricans Sleumer. Accessed on: 13 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000924120>;

Casearia nigricans in Smithsonian Tropical Research Institute Tree Atlas (2022). STRI. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxauthid=1&taxon=62782&clid=71>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Casearia sp.

PERU COMMON NAME

Palo aceituna

TREE FAMILY

SALICACEAE

AVERAGE LEAF SIZE (CM)

11.23cm × **4.86cm**
Length Width

ELEVATIONAL RANGE (M)

Unknown

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium shade and size in the shape of a cup

BIODIVERSITY BENEFITS

✓ **YES**

Its fruits are eaten by yellow-green magpie birds (quien quien), tanagers, and euphonias. The flowers are preferred by hummingbirds, tanagers and honeyeaters.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>



TREE SPECIES (SCIENTIFIC NAME)

Cecropia membranacea

PERU COMMON NAME

Yongol

TREE FAMILY

URTICACEAE

AVERAGE LEAF SIZE (CM)

60cm × 60cm
Length Width

ELEVATIONAL RANGE (M)

350–1000m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Food, Medicinal

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS



YES

The fruits serve as food for groups of frugivorous birds such as tanagers, euphonias, and toucanets. It retains arthropods in leaves and bark that are consumed by insectivorous birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;WFO (2022): Cecropia membranacea Trécul. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000592269>;Encyclopedia of Life. Accessed 11 July 2022. Available from <http://eol.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Cecropia sciadophylla

PERU COMMON NAME

Yongol

TREE FAMILY

URTICACEAE

AVERAGE LEAF SIZE (CM)

Unknown

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

120–1300m

TREE HEIGHT

MEDIUM (20–35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

It requires light to germinate. Seeds can be planted in a small amount of shade in a nursery, but should not be covered—lightly press the seeds into the ground. Seeds sprout within 2 - 3 weeks. It has an average incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Lumber, Medicinal, Ornamental, Product, Ceremonial

Used to make boxes, matches, and rafts. The seed is edible. The bark is used to treat kidney problems. Externally applied, the bark is used to treat abscesses, wounds, and cuts. The leaves are diuretic and an infusion is used to relieve discomfort in the kidneys and bladder and to treat fevers, and heart and liver problems. The sap of the crushed leaves is applied topically to treat eye problems.

FARM SERVICES



Coffee Shade, Soil Improvement, Reforestation

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS



YES

The fruits serve as food for frugivorous birds such as tanagers, saltators, euphonias, and toucans. They retain insects in leaves and bark that serve as food for insectivorous birds such as tyrants, climbers and woodpeckers mainly.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. [tropical.theferns.info](https://tropical.theferns.info/viewtropical.php?id=Cecropia+sciadophylla). 2022-06-22. tropical.theferns.info/viewtropical.php?id=Cecropia+sciadophylla

Cecropia sciadophylla C. Mart. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-24. Checklist dataset <https://doi.org/10.15468/39omej>

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>



TREE SPECIES (SCIENTIFIC NAME)

Cedrela angustifolia

PERU COMMON NAME

Cedro lila, Cedro virgen

TREE FAMILY

MELIACEAE

AVERAGE LEAF SIZE (CM)

13.72cm × 3.73cm
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

0–3400m

TREE HEIGHT

UNKNOWN

NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

High incidence of pests, especially in the early stages of growth, where they are attacked by borer moth larvae (*Hypsipyla grandella*).

CULTIVATION



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Lumber

Soft with good pink brown veining, it is used in carpentry, veneered and plywood furniture.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: A deciduous species, it loses its leaves during the dry season, generating greater light to coffee plantations but generally offers a sparse to medium shade

Soil Improvement: it incorporates organic material in the soil through falling leaves during the dry season

BIODIVERSITY BENEFITS



YES

Insects and arachnids that are located in leaves, flowers, bark and dry capsules are consumed by birds.

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TREE SPECIES (SCIENTIFIC NAME)

Cedrela montana

PERU COMMON NAME

Cedro de montaña, Cedro de tierra fria, Cedro de altura

TREE FAMILY

MELIACEAE

AVERAGE LEAF SIZE (CM)

12cm × 4.82cm
Length Width

ELEVATIONAL RANGE (M)

2000–3500m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted in nursery by cuttings and seeds. Low incidence of pests. Being in colder habitats presents less attacks by pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber

It is used for the construction of houses and cabinetmaking

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: a deciduous species, it provides sparse shade usually in the shape of a cup

BIODIVERSITY BENEFITS

✓ YES

It houses insects that are food for insectivorous birds and the flowers provide food for bumblebees (*Bombus*) and hummingbirds (*Lesbia nuna*, *Metallura tyrianthina*).

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Cedrela nebulosa

TREE FAMILY

MELIACEAE

ELEVATIONAL RANGE (M)

1000–2100m

AVERAGE LEAF SIZE (CM)

11.88cm × 4.24cm

Length

Width

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023

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TREE SPECIES (SCIENTIFIC NAME)

Cedrela odorata

ENGLISH COMMON NAME

Spanish Cedar

PERU COMMON NAME

Cedro agua, Cedro, Cedrillo, Cedro colorado, Cedro rojo, Cedro oloroso

TREE FAMILY

MELIACEAE

AVERAGE LEAF SIZE (CM)

16.51cm × 5.78cm

Length Width

ELEVATIONAL RANGE (M)

350–2000m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

Regenerates naturally by wind dispersal and in nurseries by seeds or cuttings. The species drops its leaves during the dry season. The trees produce many fruits and each contains at least 40 seeds. The fruits are collected directly from the tree with a stick and left in the sun until they open and the seeds can be extracted (36 thousand per kg). Without pregerminative treatment, an average of 58% germination is obtained, which occurs between 4 and 46 days after planting. Seeds stored at 20°C remain viable for up to 12-15 months. Naturally regenerated seedlings can also be collected for growing in the nursery. Growth in nursery is fast. Seedlings can reach 30-35 cm in height in a span of 4 months. They require full light during their initial development. High incidence of pests in the growth stage, where they are attacked by moth larvae that pierce the stem medulla, stunting normal development.

TREE BENEFITS AND USES

FARMER USES



Lumber, Medicinal

Appreciated for carpentry and joinery, fine furniture, construction, musical instruments, canoes, and crafts. The infusion of the leaves is used to relieve toothache and earache, and dysentery. An infusion of the bark is used to stop bleeding in women. The latex is used to soothe symptoms of bronchitis. The outside of the root is used to treat epilepsy.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: deciduous and provides sparse to medium shade

Soil Improvement: in the dry season they stop providing shade and the leaves, flowers, branches and capsules provide organic matter for the soil

BIODIVERSITY BENEFITS



YES

Its flowers are food for small bees and butterflies. It retains arthropods that are consumed by specialist birds such as climbers, flycatchers, vireos, greenlets, and parulas.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet: <https://powo.science.kew.org/results?>

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Cedrelinga cateniformis

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

400–1500m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Seeds dispersed by wind.

CULTIVATION



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Lumber, Medicinal, Product

It is commonly harvested from the wild for its wood, which is an important building wood used locally and also exported. Wood used for cabinet making, triplex houses, floors, carts, decorative sheets, turnery, and construction. Used in baths to heal skin infections and also used to induce vomiting.

FARM SERVICES



Reforestation, Nitrogen Fixation

BIODIVERSITY BENEFITS



YES

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Cedrelinga cateniformis (Ducke) Ducke in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-13. Checklist dataset <https://doi.org/10.15468/39omej>;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-13. tropical.theferns.info/viewtropical.php?id=Cedrelinga+cateniformis;

Lombard, L., et al. "A new bark canker disease of the tropical hardwood tree Cedrelinga cateniformis in Ecuador." Fungal Diversity 31 (2008): 73-81.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Ceiba pentandra

ENGLISH COMMON NAME

Kapok Tree

PERU COMMON NAME

Palo algodón, Lupuna blanca

TREE FAMILY

MALVACEAE

AVERAGE LEAF SIZE (CM)

12.5cm * **4cm**
Length Width

ELEVATIONAL RANGE (M)

270-1850m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE MANAGEMENT

Plant the seeds as soon as they are ripe. They will germinate within 3 to 4 months. Cuttings of stems 1.2-2 meters long can also be planted directly into the ground. The seeds are dispersed by the wind. Trees of this species drop their leaves during the dry season. The trees are very large and have thorns so the fruits are difficult to collect, but ideally they should be collected before the fruits open and release the seeds (120-175 per fruit) to the wind. The fruits are allowed to open in the sun and the cottony fiber that surrounds the seeds is separated (approx. 15 thousand per kg). Without pregermination treatment, an average of 71% germination is obtained with fresh seeds, which begins 8 days after sowing. Seeds stored at 20°C remain viable for up to 2 months. Growth in nursery is very fast. Seedlings can reach 30-40 cm in height in a time of 3 months. They require full light during their initial development. Fiber is irritating to the eyes, nose and throat, and workers exposed to dust for long periods can develop chronic bronchitis. It has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES



Food, Firewood, Lumber, Medicinal, Ornamental, Product

It is susceptible to insect and fungal attacks, but is used in lightweight construction to make plywood, packaging, boxes and drawers, cheap furniture, matches, plywood, packaging, boxes, paper products, and was traditionally used to make canoes, rafts and agricultural implements. The new leaves, sprouts and fruits are eaten like okra. The seeds are roasted and ground into powder and eaten in soups and used for flavoring. A cooking oil of pleasant taste is extracted from the seed. Dried stamens of the flower are added to curry and used to color soup. The flowers are used as a remedy for constipation. The powdered fruit is taken with water as a remedy for intestinal parasites and stomach pain. The fiber of the seed is used to clean wounds. Seed oil is used topically to relieve rheumatism and is also applied to heal wounds. The fiber of the seed is used for the filling of pillows, mattresses and cushions.

FARM SERVICES



Coffee Shade, Soil Improvement, Erosion Control, Reforestation

Coffee Shade: provides sparse to medium shade and has been cultivated to provide shade for coffee and cocoa

BIODIVERSITY BENEFITS





Unknown

Erosion Control: it is suitable for watershed protection







Last Updated: August 14, 2023

TREE SPECIES (SCIENTIFIC NAME)		PERU COMMON NAME
<i>Ceroxylon peruvianum</i>		Pona
TREE FAMILY	AVERAGE LEAF SIZE (CM)	DISTRIBUTION
ARECACEAE	Unknown	 NATIVE TO PERU
ELEVATIONAL RANGE (M)	TREE HEIGHT	NATIVE TO
130–3000m	SMALL (10–20M) 	Region: Americas Latin America: Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM	COFFEE IMPACT	TREE MANAGEMENT
 ARABICA	 BENEFICIAL TO COFFEE	Planted by seeds. There are basic external conditions that affect the percentage of palm seed germination in nature—some take up to 100 days or more to germinate, with an average germination rate of 20% of seeds, but despite this low germination rate, palm trees survive due to their prolific seed production.
CULTIVATION		
 PLANTED  NATURAL		
PREVALENCE		
Unknown		



TREE BENEFITS AND USES

FARMER USES	FARM SERVICES
    	
Food, Lumber, Medicinal, Product, Ceremonial It is widely used as poles for public lighting, boundary fences and water gutters. Used mainly in construction. The hard stem fibers are used in the construction of homes, masonry for electric light networks, fence of paddocks, water conduction from springs to dwellings distant from public services, and as sleeping mats in muddy areas.	Coffee Shade Coffee Shade: used as a shade supplier in livestock pastures and as a component in plots associated with agricultural crops
	BIODIVERSITY BENEFITS
	No

Last Updated: August 14, 2023

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.; Oliva, M., Torres, R. J. P., López, R. S., Pérez, H. V. V., & de la Fuente, F. C. (2016). Efecto del Ceroxylon peruvianum pona sobre los diferentes sistemas de producción en la provincia de Bongará, región Amazonas. INDES Revista de Investigación para el Desarrollo Sustentable, 1(2), 40-50.; Quintana, J. L. M., & Orihuela, J. A. (2016). Análisis del sistema de información y conocimiento respecto a los ecosistemas de las palmeras Ceroxylon peruvianum en la cuenca media del río Utcubamba. INDES Revista de Investigación para el Desarrollo Sustentable, 1(1), 37-45.; Millones, C., Príncipe, S. P., & Vásquez, E. (2016). Efectos de la escarificación y estratificación en la germinación de semillas de palmera pona (Ceroxylon peruvianum Galeano, Sanin & Mejía). INDES Revista de Investigación para el Desarrollo Sustentable, 1(1), 9-13.


TREE SPECIES (SCIENTIFIC NAME)	PERU COMMON NAME
<i>Chlorocardium venenosum</i>	Palta moena

TREE FAMILY	AVERAGE LEAF SIZE (CM)	DISTRIBUTION
LAURACEAE	Unknown	 UNKNOWN
ELEVATIONAL RANGE (M)	TREE HEIGHT	NATIVE TO
Unknown	MEDIUM (20–35M) 	Region: Americas Latin America: Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM	COFFEE IMPACT	TREE MANAGEMENT
 ARABICA	Unknown	Unknown
CULTIVATION		
Unknown		
PREVALENCE		
Unknown		

TREE BENEFITS AND USES

FARMER USES	FARM SERVICES
  Medicinal, Product Used as a poison.	Unknown
	BIODIVERSITY BENEFITS
	No

Last Updated: August 22, 2023

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.; Encyclopedia of Life. Accessed 11 Oct 2022. Available from <http://eol.org>.



TREE SPECIES (SCIENTIFIC NAME)

Clarisia racemosa

PERU COMMON NAME

Tulpay

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

8.61cm * 3.15cm

Length Width

ELEVATIONAL RANGE (M)

350-1000m

TREE HEIGHT

LARGE (> 35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

TREE MANAGEMENT

Plant seeds as soon as they are ripe in individual, partially shaded containers. Plant 2-3 seeds in each container. A low germination rate can be expected, and the seeds sprout within 40 - 60 days. It has a low incidence of pests.

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

**Food, Lumber**

Valued and can be used for a wide range of purposes, including in housing construction and the manufacture of high-class furniture, cabinet work, paneling, carpentry, tool handles, flooring, general construction and laminate.

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS

**YES**

It provides succulent fruits for birds and mammals, and houses insects in leaves and bark for groups of insectivorous birds. Being a long-lived species also allows parasitizing species such as strangling figs, to fully develop and offer a greater variety of resources in flowers and succulent fruits for birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. [tropical.theferns.info](https://tropical.theferns.info/viewtropical.php?id=Clarisia+racemosa). 2022-06-22. tropical.theferns.info/viewtropical.php?id=Clarisia+racemosa;Tree Atlas, Smithsonian Tropical Research Institute. <https://panamabiota.org/stri/taxa/index.php?taxon=Clarisia+racemosa&formsubmit=Search+Terms>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Clethra obovata

PERU COMMON NAME

Cletra

TREE FAMILY

CLETHRACEAE

AVERAGE LEAF SIZE (CM)

17.2cm × **8.17cm**
Length Width

ELEVATIONAL RANGE (M)

Unknown

TREE HEIGHT

UNKNOWN

DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse shade in dry season because much of its leaves fall, while in the rainy season it can provide dense shade

BIODIVERSITY BENEFITS

✓ **YES**

It houses arthropods in leaves, bark and with greater abundance in flowers in flowering season, which serve as food for many birds.

Last Updated: August 14, 2023

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TREE SPECIES (SCIENTIFIC NAME)

Clitoria arborescens

PERU COMMON NAME

Clitoria

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

11.68cm × **8.42cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

50–1000m

TREE HEIGHT

UNKNOWN

NATIVE TO

Region: Americas

Latin America: Colombia, Guyana, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Regenerates naturally through seed dispersion.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Medicinal, Product

FARM SERVICES



Nitrogen Fixation

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023

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Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>; Encyclopedia of Life. Accessed 5 July 2022. Available from <http://eol.org>.



TREE SPECIES (SCIENTIFIC NAME)

Cocoloba sp.

TREE FAMILY

POLYGONACEAE

AVERAGE LEAF SIZE (CM)

15.94cm × **9.16cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

Unknown

TREE HEIGHT

UNKNOWN

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber

It is used for poles, bridges, and in construction.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS



YES

It retains insects in leaves and bark that are consumed by insectivorous birds.

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TREE SPECIES (SCIENTIFIC NAME)

Colubrina glandulosa

PERU COMMON NAME

Palo peruano, Shaina

TREE FAMILY

RHAMNACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

200–1000m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Guyana, Honduras, Panama, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE MANAGEMENT

The seed should be planted in a partially shaded nursery as soon as it is ripe and does not require prior treatment. On average, 75% germination is obtained, which occurs between 12 and 166 days after planting. Seeds stored at 20°C remain viable for up to 15 months. Growth in nursery is very fast. Seedlings can reach 25-30 cm in height in a time of 2 months. They require full light during their initial development. Plant seedlings in individual containers when they are 3-5 cm tall. Trees of this species maintain their foliage permanently. The fruits are produced in abundance and contain 4-5 seeds each. They are collected directly from the tree and then the seeds (approx. 52 thousand per kg) are extracted manually once the fruits are opened. It is necessary to sand the seeds superficially to remove the shiny enamel that surrounds the seed. Has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES



Lumber, Medicinal, Ornamental

Used in the manufacture of cabinets, flooring, shipbuilding, bridges, vehicles, railway ties, fence posts, bridges, and construction. Occasionally, cultivated for its bark which is sometimes exported for medicinal uses.

FARM SERVICES



Coffee Shade, Soil Improvement, Reforestation

Coffee Shade: it offers a sparse to medium shade with a straight trunk and has a small amount of leaf and branch fall

BIODIVERSITY BENEFITS



YES

Its seeds are consumed by blue-headed parrots and it harbors insects in leaves, flowers and bark that are consumed by insectivorous birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Colubrina+glandulosa

Tortosa, R. 2022-7-11. Colubrina glandulosa G.Perkins En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.



TREE SPECIES (SCIENTIFIC NAME)

Cordia alliodora

ENGLISH COMMON NAME

Laurel

PERU COMMON NAME

Banderillo, Laurel

TREE FAMILY

BORAGINACEAE

AVERAGE LEAF SIZE (CM)

11.25cm × 4.53cm

Length Width

ELEVATIONAL RANGE (M)

350–1500m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE MANAGEMENT

Planted by seeds—they are dispersed by the wind and planted in nursery by cuttings. The trees produce an enormous amount of seeds, which are easy to collect with sticks. The fruits should be collected with brown coloration, just before darkening because the seed (1 per fruit) seems to lose viability. Break the fruits manually and extract the small seed (more than 200 thousand per kg). The seed needs scarification before planting by scraping the seed layer. On average, 70% germination is obtained with fresh seeds, which begins 21 days after sowing. Seeds stored at 20°C lose viability in less than 1 month. Growth in nursery is fast. Seedlings can reach 25-30 cm in height in a time of 5-6 months. They require full light during their initial development. The seed can be planted in trays, transplanting the seedlings when they are about 3 weeks old to nurseries. They are planted in their permanent positions about 6 months later. It is a fast-growing tree in suitable places and with good management, an annual increase in height of 2 meters is possible. It has an average incidence of pests. They self-prune easily.

TREE BENEFITS AND USES

FARMER USES



Food, Livestock Forage, Firewood, Lumber, Medicinal, Ornamental, Product

Used in the manufacture of cabinets, flooring, shipbuilding, bridges, vehicles, railway ties, fence posts, bridges, and construction. Its fruits are edible. Leaves, fruits and seeds are used as forage. Used to produce ethanol and yields ~266 liters per ton of dry weight. The infusion of the leaves is used as a tonic and stimulant in cases of colds and lung diseases. The pulverized seed is used to treat skin diseases.

FARM SERVICES



Coffee Shade, Soil Improvement, Reforestation

Coffee Shade: it is commonly grown in association with many agricultural crops and in numerous agroforestry systems, and as a shade tree in coffee and cocoa plantations

Reforestation: it is very resistant to wind, easily colonizes bare soils and grows quickly, and can be used to start the process of restoring native forests

BIODIVERSITY BENEFITS



YES

The flowers are very attractive to bees and produce nectar. The flowers are pollinated by bees and other insects.

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Image: Cordia alliodora trunk: Denise Sasaki © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Cordia alliodora leaves 1; Cordia alliodora leaves 2; Cordia alliodora branch: Richard Moore © RBG Kew <https://creativecommons.org/licenses/by/3.0/>

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Cordia+alliodora

Miller, J.S. 2022-7-11. Cordia alliodora (Ruiz & Pav.) Oken En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantadescolombia.unal.edu.co>

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Coussapoa villosa

PERU COMMON NAME

Matapalo

TREE FAMILY

URTICACEAE

AVERAGE LEAF SIZE (CM)

20cm × **13.5cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

700–1900m

TREE HEIGHT

MEDIUM (20–35M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

TREE MANAGEMENT

Planted by seed and has a low incidence of pests.

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

**COMMON IN COFFEE AGROFORESTRY**

TREE BENEFITS AND USES

FARMER USES

**Food**

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: provides dense shade in foliation season

BIODIVERSITY BENEFITS

**YES**

It produces fruits that are consumed by birds such as tanagers, orioles, and saltators. It retains arthropods that serve as food for insectivorous birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

WFO (2022): Coussapoa villosa Poepp. & Endl. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000624265>;Coussapoa villosa Poepp. & Endl. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-24. Checklist dataset <https://doi.org/10.15468/39omej>;Berg, C.C. & M. Celis 2022-7-11. Coussapoa villosa Poepp. & Endl. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Croton perspicuosus

PERU COMMON NAME

Sangre de grado

TREE FAMILY

EUPHORBIACEAE

AVERAGE LEAF SIZE (CM)

17.41cm × 10.97cm

Length Width

ELEVATIONAL RANGE (M)

1200–1800m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Occur naturally through seed dispersion and has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Medicinal

It is used to heal wounds on the skin, spider bites, and abrasions and blisters by direct application.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee shade: provides medium shade

BIODIVERSITY BENEFITS

✓ **YES**

An important source of nectar and pollen. It provides fruits with seeds that serve as food for parrots and parakeets mainly. It houses arthropods that are consumed by insectivorous birds such as greenlets, vireos, tyrannulets, and spoonbills.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Rapid Reference (2022). "An Expedited Virtual Herbarium for the Neotropics." Facilitated by the Field Museum. Published on the Internet <https://plantidtools.fieldmuseum.org/en/rrc>

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Dendropanax arboreus

PERU COMMON NAME

Fósforo caspi

TREE FAMILY

ARALIACEAE

AVERAGE LEAF SIZE (CM)

8.2cm × 3.3cm

Length Width

ELEVATIONAL RANGE (M)

0–2600m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

Planted by seeds and are dispersed by birds and mammals. They are easy to collect but the seeds (5-7 per fruit) do not always ripen at the same time. Ripe fruits are picked by climbing trees and using sticks with metal hooks to remove them. The pulp is removed from the fruits by hand inside a bucket of water. Sinking seeds are used and dried in the sun for 1-2 hours. Without pregermination treatment, an average of 44% germination is obtained with fresh seeds, which occurs between 10 and 66 days after sowing. Seeds remain viable for about 15 months when stored in ambient conditions. Growth in nursery is fast. Seedlings can reach 25-30 cm in height in a time of 5 months. They require partial shade during their initial development. The management of tree shade in cultivation systems requires assisted pruning, forming a crown form. It has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Medicinal, Product

Used for general carpentry, boxes and drawers, interior construction, furniture, veneer, particleboard, tongue depressants, toothpicks, matches and paper pulp, and plywood. The root and leaves are harvested for local medicinal uses.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides very dense shade coverage

Soil Improvement: it provides a large amount of organic matter from leaf drop in the dry season

BIODIVERSITY BENEFITS

✓ YES

It provides fruit for insectivorous birds such as blue-headed parrots, saltators, and tanagers. Dry stumps are used by parrots to make their nests because it has a soft wood. The seeds are dispersed by birds and mammals. An important source of honey.

Last Updated: August 14, 2023

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Dendropanax+arboreus;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.



TREE SPECIES (SCIENTIFIC NAME)

Endlicheria chalisea

PERU COMMON NAME

Roble amarillo

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

29.21cm × **12.86cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

0–2500m

TREE HEIGHT

MEDIUM (20–35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Guyana, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seed and has a low incidence of pests.

CULTIVATION



PLANTED

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade in a conical or cup shape

BIODIVERSITY BENEFITS

✓ **YES**

Used by frugivorous and insectivorous birds. It provides medium to dense shade in a conical or crown shape that serves as a refuge for all birds in general.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

WFO (2022): Endlicheria chalisea Chanderb. Accessed on: 11 Jul 2022. Published on the Internet: <http://www.worldfloraonline.org/taxon/wfo-0000667747>



TREE SPECIES (SCIENTIFIC NAME)

*Endlicheria
griseosericea*

PERU COMMON NAME

Roble amarillo

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

17.85cm × **7.08cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

>600m

TREE HEIGHT

MEDIUM (20–35M)



NATIVE TO

Region: Americas

Latin America: Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade

BIODIVERSITY BENEFITS

✓ **YES**

Its fruits are consumed by some frugivorous birds such as toucans. They retain few insects in leaves and bark, with a higher proportion in flowering season, where they are visited by insectivorous birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Endlicheria griseosericea Chanderb. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-27. Checklist dataset <https://doi.org/10.15468/39omej>;

WFO (2022): Endlicheria griseosericea Chanderb. Accessed on: 11 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000667769>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Erythrina edulis

PERU COMMON NAME

Pajuro

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

350–3000M

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Food, Livestock Forage, Firewood, Lumber, Medicinal, Product**

Used in construction and to make frames, surfboards, canoes, boxes and small art carvings. Much desired by cows and horses. They eat seeds and seedlings, and can even dry out mature trees by eating their bark. A soap made from bark, branches, and leaves is used to wash dogs with skin diseases. The seed is mixed into a liquid mixture to treat inflammation of the bladder. The flowers are used to treat eye irritations. The seeds are mainly eaten cooked and salted. The seeds should be boiled for at least 45 minutes or fried well before eating, as they contain toxic alkaloids.

FARM SERVICES

**Coffee Shade, Windbreak, Soil Improvement, Reforestation, Nitrogen Fixation**

Reforestation: it is commonly used in ecological restoration processes as a pioneer species and as living fences for the maintenance and conservation of water sources and soil recovery

BIODIVERSITY BENEFITS



YES

Pollinated by bees, wasps and birds.

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Image: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Erythrina+edulis;Erythrina edulis Triana ex Micheli in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-24. Checklist dataset <https://doi.org/10.15468/39omej>;Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Eucalyptus grandis

PERU COMMON NAME

Eucalipto rosado

TREE FAMILY

MYRTACEAE

AVERAGE LEAF SIZE (CM)

13cm × 3cm

Length Width

ELEVATIONAL RANGE (M)

>1600m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



EXOTIC IN PERU

NATIVE TO

Region: Oceania

Australia

EXOTIC IN

Latin America: Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



MAY COMPETE WITH COFFEE

TREE MANAGEMENT

Planted by seeds and cuttings in nursery. Germination occurs within 7-14 days. Seedlings are ready for planting when they are 25-30 cm tall, usually after 3-5 months. Cuttings can be planted from seedlings before they are 1 meter high. The tree is allelopathic.

CULTIVATION



PLANTED

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Medicinal, Ornamental

Used for the production of poles, sawmill wood, paper and pulp, and construction in general. A decoction of the tips of the branches of the soil is taken against constipation. The leaves have shown anti-cancer activity.

FARM SERVICES



Windbreak, Erosion Control

Erosion control: it is used for the stabilization of land on the banks of rivers

BIODIVERSITY BENEFITS

No

Flowers provide nectar and pollen for bees.

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Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Eucalyptus+grandis

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>



TREE SPECIES (SCIENTIFIC NAME)

Ficus americana subsp. Guianensis

PERU COMMON NAME

Matapalo gigante

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

11.05cm × 6.96cm

Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

100–2200m

TREE HEIGHT

SMALL (10–20M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds and cuttings in nursery. It has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber

Used for carpentry and drawers.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides dense, emergent shade when mature

BIODIVERSITY BENEFITS

✓ YES

The fresh fruits are consumed by small rodents and frugivorous birds such as euphonias, tanagers, saltators, magpies, and chachalacas. It retains arthropods in leaves and bark that are consumed by insectivorous birds.

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Image: Copyright Benny Celestino Osorio 2022



TREE SPECIES (SCIENTIFIC NAME)

Ficus eximia

PERU COMMON NAME

Matapalo, Ojé, Hoja ancha

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

13.44cm × **7.87cm**

Length Width

ELEVATIONAL RANGE (M)

600–1850m

TREE HEIGHT

SHRUB (1–10M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted in nursery by seeds and cuttings. Deciduous forest species that parasitizes other trees in order to coexist and become independent. It has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Ornamental

It is semi-hard with a straight grain and medium texture and light color. Used for electrical carpentry, drawers and as firewood.

FARM SERVICES



Coffee Shade, Soil Improvement, Reforestation

Coffee Shade: provides medium shade in foliating season, and no shade when leaves drop mainly during the dry season

BIODIVERSITY BENEFITS



YES

The fresh fruits are consumed by small rodents and frugivorous birds such as tanagers, euphonia and magpies. It retains arthropods that are consumed by insectivorous birds such as tyrants, vireos, and greenlets.

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Image: Copyright Benny Celestino Osorio 2022



TREE SPECIES (SCIENTIFIC NAME)

Ficus insipida

PERU COMMON NAME

Ojé

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

20cm × **9.5cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

0–1400m

TREE HEIGHT

MEDIUM (20–35M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

Unknown

TREE MANAGEMENT

It prefers a sunny position and is fairly fast-growing. The seed is best planted as soon as it is ripe in a shaded position in a nursery. A low germination rate can be expected, with the seed sprouting within 20-60 days. When the seedlings have a height of 3-4 cm, transplant them into individual containers. They are ready for planting 8-9 months later.

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Food, Firewood, Lumber, Medicinal, Product**

It is used for decorative veneers. Latex is used as a purgative and against snakebites. Used as poison. The fruit is used for handicrafts. Its edible fruit is sometimes collected from the wild for local use.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ YES

The flowers are pollinated by very small wasps of the family Agaonidae and after pollinating the flowers, they lay their eggs in a large part of the seeds, which serve as shelter and food for the offspring. The fruits of the fig tree are the favorite food of many species of bats, parrots, monkeys, and birds.

Last Updated: August 14, 2023

Image: Ficus insipida fruits; Ficus insipida trunk; Ficus insipida bark: Denise Sasaki © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Ficus insipida herbarium: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Ñique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Smithsonian Tropical Research Institute: Ficus insipida (Willd.). Accessed 5 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Ficus+insipida&formsubmit=Search+Terms>;

Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Ficus+insipida



TREE SPECIES (SCIENTIFIC NAME)

Ficus pertusa

PERU COMMON NAME

Matapalo, Renaquilla negra, Renaquilla, Loro micuna, Renaco blanco, Renaco

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

8.24cm × 3.65cm
Length Width

ELEVATIONAL RANGE (M)

Unknown

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Food, Firewood, Lumber, Medicinal

It is used for carpentry, drawers and as firewood. Raw fruit has a sweet taste and is eaten. Latex is used to treat parasites. Latex spread over the skin is used to relieve itching due to fungal infections. A decoction of the outer root is used to treat fever.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to dense shade and presents partial leaf fall mostly during the dry season

BIODIVERSITY BENEFITS



YES

It produces a large number of small fruits for groups of frugivorous birds such as tanagers, euphonias, saltators and chachalacas. It retains insects in leaves and bark that serve as food for insectivorous birds such as vireos, greenlets and tyrants.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Ficus+pertusaBerg, C.C. 2022-7-11. Ficus pertusa L.f. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasyliquenes.unal.edu.co>



TREE SPECIES (SCIENTIFIC NAME)

Genipa americana

PERU COMMON NAME

Jagua

TREE FAMILY

RUBIACEAE

AVERAGE LEAF SIZE (CM)

25cm × **11cm**
Length Width

ELEVATIONAL RANGE (M)

350–1000m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Livestock Forage, Firewood, Lumber, Medicinal, Ornamental, Product, Ceremonial

Used in the manufacture of base structures, tool handles and carpentry. The bark is a source of tannins. Bark fiber is used in the manufacturing of rough clothing. Used as a poison. The fruit is used as a diuretic, laxative, tonic, and to treat parasites. The fruit and juice are used in the treatment of anemia and liver problems, as well as a cold remedy. The bark is used to treat diarrhea and ulcers. A decoction of the root is strongly purgative. The pulp surrounding the seeds of the ripe fruit is edible, and has a sweet and somewhat rancid taste. The fruit can be eaten fresh, made into juices, or used to make jam and preserves. An unripe fruit juice turns blue-black on contact with the skin. It is used as a blue dye and has long been used by Indigenous peoples for tattooing and as body paint.

FARM SERVICES



Coffee Shade, Windbreak, Soil Improvement

Coffee Shade: commonly cultivated for its ornamental value and for the shade it can provide, and can be interplanted with crops to provide shade
Windbreak: occasionally planted as a living fence in pastures

BIODIVERSITY BENEFITS



YES

The flowers are visited by insects and hummingbirds. Fruit bats eat the fruit.

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Image: Genipa americana fruits: Laura Green © BG Kew <https://creativecommons.org/licenses/by/3.0/> Genipa americana leaves: D. Zappi © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Genipa americana herbarium 1; Genipa americana herbarium 2: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. [10.13140/RG.2.2.28895.71844](https://doi.org/10.13140/RG.2.2.28895.71844);

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Smithsonian Tropical Research Institute: Genipa americana (L.). Accessed 5 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Genipa+americana&formsubmit=Search+Terms>;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-10-12. tropical.theferns.info/viewtropical.php?id=Genipa+americana



TREE SPECIES (SCIENTIFIC NAME)

Guarea guidonia

PERU COMMON NAME

Requia blanco, Latapi caspi, Réquia

TREE FAMILY

MELIACEAE

AVERAGE LEAF SIZE (CM)

11.96cm × 4.35cm

Length Width

ELEVATIONAL RANGE (M)

350–2000m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Medicinal, Product

It is used in plywood, pulp for paper, general carpentry, furniture, flooring, and cabinetmaking. The infusion of the bark is used to relieve pain and to combat eye pressure and conjunctivitis. A decoction of the roots is used to cause vomiting and to combat problems in the uterus and stimulate menstruation. A reddish oil is obtained from the wood.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade

Soil Improvement: removes contaminants

BIODIVERSITY BENEFITS



YES

The seeds are dispersed by mammals and large birds. Its fruits are consumed by some toucans and saltators mainly, and it houses insects that are consumed by insectivorous birds.

Last Updated: August 14, 2023

Image: Benny Osorio

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-11. tropical.theferns.info/viewtropical.php?id=Guarea+guidonia;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Guarea kunthiana

PERU COMMON NAME

Tipo cedro

TREE FAMILY

MELIACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

>270m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds and has an average incidence of pests.

CULTIVATION



PLANTED

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Lumber, Medicinal

Used for the manufacture of furniture, cabinetry, boat building, carpentry and plywood. The bark is boiled and the water is drunk as a treatment for colds and coughs. A decoction of the bark is used to treat liver problems. The bark of the root contains a bitter element used in small amounts to induce vomiting. The leaves are very astringent and are used as a tea to treat diarrhea.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS



YES

Its fruits are consumed by toucans and saltators mainly, and houses insects that serve as food for insectivorous birds.

Last Updated: August 14, 2023

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Guarea+gommag; Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Guarea macrophylla *subsp. Tuberculata*

PERU COMMON NAME

Requia

TREE FAMILY

MELIACEAE

AVERAGE LEAF SIZE (CM)

17.17cm × **8.2cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

0–1200m

TREE HEIGHT

MEDIUM (20–35M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

TREE MANAGEMENT

Planted by seeds. Plant the seed in a partially shaded nursery. A low germination rate can be expected and the seed sprouts within 40 to 50 days. The fruit contains 8 seeds with a red colored aril, arranged in 4 cells covered by a woody capsule in the form of a star when opened in 4 parts (2 seeds per cell). It has a low incidence of pests.

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

**Firewood, Lumber, Medicinal, Ornamental**

Used to make furniture, cabinet work, interior ornaments, carpentry, boat building, decorative and utility veneer, and plywood. The bark has detoxifying effects and is used to treat syphilis and induce vomiting.

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: sparse coverage

Soil Improvement: can remove contaminants

BIODIVERSITY BENEFITS

**YES**

Saltators, toucans, and toucanets eat the seeds with arils.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Guarea+macrophylla



TREE SPECIES (SCIENTIFIC NAME)

*Guatteria
blepharophylla*

PERU COMMON NAME

Carahuasca

TREE FAMILY

ANNONACEAE

AVERAGE LEAF SIZE (CM)

Unknown

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

0–350m

TREE HEIGHT

SMALL (10–20M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Ecuador, Guyana, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Planted by seeds.

CULTIVATION



PLANTED

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023



TREE SPECIES (SCIENTIFIC NAME)

Guazuma crinita

PERU COMMON NAME

Bolaina blanca, Bolaina

TREE FAMILY

MALVACEAE

AVERAGE LEAF SIZE (CM)

14cm × **6cm**

Length Width

ELEVATIONAL RANGE (M)

350–1000m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Wind dispersed. Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Ornamental, Product

It is used in carpentry, to make pallets, toothpicks, matches, and handicrafts. It is used as fuel and to make charcoal.

FARM SERVICES



Coffee Shade, Soil Improvement, Reforestation

Coffee Shade: provides sparse to medium shade

Reforestation: it is used as an indicator of fertile soils and can also be used as a pioneer in the restoration of native forests

BIODIVERSITY BENEFITS



YES

It houses insects in flowers, leaves and bark consumed by insectivorous bird species.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. [tropical.theferns.info](http://tropical.theferns.info/viewtropical.php?id=Guazuma+crinita). 2022-06-22. tropical.theferns.info/viewtropical.php?id=Guazuma+crinita

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Guazuma ulmifolia

PERU COMMON NAME

Bolaina negra

TREE FAMILY

MALVACEAE

AVERAGE LEAF SIZE (CM)

7.76cm * 3.86cm

Length Width

ELEVATIONAL RANGE (M)

350-1000m

TREE HEIGHT

MEDIUM (20-35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE MANAGEMENT

Seed dispersed by birds, mammals, and bats including cattle and possibly horses. The plant can also be established with cuttings and by seeds. Seeds require scarification with boiling water before planting. Trees of this species partially drop their leaves during the dry season. Each tree produces many fruits and each has at least 20 seeds. Once ripe they should be collected soon because the small seeds (more than 220 thousand per kg) are attacked by insects. The fruits must be broken and the seeds separated. Soak the seeds in hot water for 2 minutes and then wash off under running water. Germination occurs in 7 - 14 days at a rate of 60 - 80%. Seedlings are ready for planting outside when they reach a height of 30-40 cm (about 15 weeks). Seeds stored at 20°C remain viable for up to 18 months. Growth in nursery is very fast. Seedlings can reach 25-30 cm in height in a time of 3 months. They require full light during their initial development. It has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES



Food, Livestock Forage, Firewood, Lumber, Medicinal, Ornamental, Product

It is light and soft and used to make boxes and packaging, manufacture particleboard, interiors of houses, in rural construction, and for fence posts. It is recommended for the manufacture of sheet metal and carpentry in general, poles, furniture, parts of mills, fine cabinetry, barrels, floors, doors and windows. It is used to manufacture soaps. The plant has a long history of herbal use, and is widely used in modern herbal medicine in South America and is often collected from the wild for this purpose. The plant is antibacterial, anti-inflammatory, antifungal, antiviral, and is used as an astringent and blood purifier and to treat heart and digestive problems. The bark is a rich source of tannins and antioxidant chemicals and helps promote hair growth and relieve baldness, has antitumor and anticancer effects (including against melanoma), lowers blood pressure, and protects the kidneys. The seeds are edible, fresh or cooked, and the fruits are eaten raw or cooked. Raw fruits can be crushed in water to make a drink or used to flavor other foods. The leaves and fruits are eaten by livestock.

FARM SERVICES



Coffee Shade, Soil Improvement, Reforestation

Coffee Shade: provides medium to dense shade

Reforestation: used for productive reforestation in degraded areas of forest and in dry and arid areas

BIODIVERSITY BENEFITS



YES

It retains insects in leaves, flowers and bark that are food for groups of insectivorous birds. It is an important source of honey.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Guazuma+ulmifolia;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Helicostylis scabra

PERU COMMON NAME

Misho chaqui, Pama amarilla

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

12.59cm × 5cm

Length Width

ELEVATIONAL RANGE (M)

350–500m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Brazil, Colombia, Costa Rica, Ecuador, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

It spreads naturally by seed. It has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Medicinal

Latex is antifungal, bitter, and used to treat parasites. Although thought to be toxic, it is taken internally in very small doses. Latex is applied and dried on infected parts of the skin to treat fungal diseases and applied to skin abrasions to prevent infection. The fruits are eaten and have an acidic flavor.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides a sparse to medium shade in coffee plantations

BIODIVERSITY BENEFITS



YES

Its fruits are visited by Amazon parrots and it offers a large number of insects in its flowers, leaves and bark for insectivorous birds. It provides an emergent shade that serves as a passage and perch for many large birds.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Helicostylis+scabra;

Encyclopedia of Life. Accessed 6 July 2022. Available from <http://eol.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Heliocarpus americanus

PERU COMMON NAME

Chalanca blanca

TREE FAMILY

MALVACEAE

AVERAGE LEAF SIZE (CM)

15cm × **12.5cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

350–3000M

TREE HEIGHT

SHRUB (1–10M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED**

PREVALENCE

**COMMON IN COFFEE AGROFORESTRY**

TREE BENEFITS AND USES

FARMER USES

**Lumber, Product**

Used to make boxes, toys, and pencils. The bark of the young branches produces a strong and durable fiber from which a thick rope is made. It is also used to weave mats and baskets.

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS

**YES**

It retains insects that serve as food for insectivorous birds such as tyrants, vireos, and greenlets, and birds that supplement their diet with insects such as tanagers. The dried fruits are also used as material for hummingbird nests.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Heliocarpus+americanus;WFO (2022): *Heliocarpus americanus* L. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000718186>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Hevea brasiliensis

ENGLISH COMMON NAME

Rubber Tree

PERU COMMON NAME

Shiringa

TREE FAMILY

EUPHORBIACEAE

AVERAGE LEAF SIZE (CM)

27cm × **8.25cm**
Length Width

ELEVATIONAL RANGE (M)

350–1000m

TREE HEIGHT

LARGE (> 35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Bolivia, Brazil, Colombia, Peru, Venezuela

EXOTIC IN

Latin America: Costa Rica, Mexico

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**MAY COMPETE WITH COFFEE**

CULTIVATION

**PLANTED**

PREVALENCE

Unknown

TREE MANAGEMENT

Propagated by seeds or grafting of shoots. Seeds are only viable for a short period and should be sown immediately after harvest. Germinate in shaded beds and move to the nursery shortly after germination, where they are planted in the ground or in a perforated polyethylene bag. Weed control is required and legume coverage recommended after transplantation. Intolerant of swampy conditions. Harvest and replant after 30-35 years to maintain economic viability. Prune and remove unwanted branches. Mulch before the end of the late rains. Fertilizer recommended. Trees can be harvested when 50-70% of trees are 150 cm tall from the base with a circumference size of at least 45 cm (15 cm in diameter). The bark is cut from the upper left (150 cm high) to the lower right. Can compete with coffee.

TREE BENEFITS AND USES

FARMER USES

**Food, Lumber, Product**

Used to make furniture, boards, parquet and many other wood products. Latex is used for rubber and as a crop, and oil and fruit are used and consumed. The seeds contain a semi-drying oil that can be used in the manufacture of paints and soap.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 14, 2023

Image: Hevea brasiliensis fruit: William Milliken © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Hevea brasiliensis leaves; Hevea brasiliensis flowers: Mauricio Diazgranados © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Hevea brasiliensis trees: Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. [10.13140/RG.2.2.28895.71844](https://doi.org/10.13140/RG.2.2.28895.71844);

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.;

Shade Catalog | Indonesia. Shade Catalog, Conservation International, Smithsonian Migratory Bird Center and World Coffee Research. Retrieved October 5, 2022, from <https://www.shadecoffee.org/en/catalog/indonesia>;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>.



TREE SPECIES (SCIENTIFIC NAME)

Hieronyma alchorneoides

PERU COMMON NAME

Pilón

TREE FAMILY

PHYLLANTHACEAE

AVERAGE LEAF SIZE (CM)

14.76cm × **10.9cm**
Length Width

ELEVATIONAL RANGE (M)

350-2500m

TREE HEIGHT

MEDIUM (20-35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

**Lumber, Medicinal, Product**

The mature trunk is of great value and has high demand due to its versatility, density and durability. It is used for the manufacture of joinery, construction, bridges, floors, supports, poles, barrels, railway sleepers and ships, and wagon bottoms. Tannins are used in the preparation of dyes and in the tanning of leather. In Guyana the cooked bark is used against coughs. The oil extracted from the seeds could have anti-parasitic properties.

FARM SERVICES

**Soil Improvement, Erosion Control**

BIODIVERSITY BENEFITS

**YES**

The seeds are dispersed by mammals and birds and the fruit is a food source for both. The leaves harbor insects that are consumed by vireos, parulas and greenlets.

Last Updated: August 14, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Hieronyma+alchomeoides;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Huertea glandulosa

PERU COMMON NAME

Cedrillo, Cedro perejil, Cedro moena, Cedro mullaca

TREE FAMILY

TAPISCIACEAE

AVERAGE LEAF SIZE (CM)

12.52cm * **6.12cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350–2000m

TREE HEIGHT

MEDIUM (20–35M)



NATIVE TO

Region: Americas

Latin America: Colombia, Costa Rica, Ecuador, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Seeds are dispersed naturally.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber

Used for housing construction, formwork and firewood.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ **YES**

The fruits are eaten by small birds such as tanagers (Thraupidae) and manakins (Pipridae).

Last Updated: August 14, 2023

Image: Huertea glandulosa fruits; Huertea glandulosa leaves: A. Monro. Image from Flickr, used under Creative Commons BY-NC 2.0. <http://creativecommons.org/licenses/by-nc-sa/3.0>
Huertea glandulosa flowers; Huertea glandulosa fruits 2: J. P. Janovec. Image from Atrium BIS, used under Creative Commons BY-NC-ND 2.5. <http://creativecommons.org/licenses/by-nc-sa/3.0>

Díaz-Martin, Zoë, et al. "Identifying keystone plant resources in an Amazonian forest using a long-term fruit-fall record." Journal of Tropical Ecology 30.4 (2014): 291-301.;
García Guevara, Luis Angel. "Efecto del tiempo y la temperatura en el almacenamiento de semillas de Huertea glandulosa Ruiz & Pavón para conservar su viabilidad." (2018).; Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaltoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Hura crepitans

ENGLISH COMMON NAME

Sandbox Tree

PERU COMMON NAME

Tronador

TREE FAMILY

EUPHORBIACEAE

AVERAGE LEAF SIZE (CM)

10cm × **8cm**
Length Width

ELEVATIONAL RANGE (M)

0–1550m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Honduras, Nicaragua, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE MANAGEMENT

When the fruits ripen they explode to disperse the seeds and cause a strong detonation, hence their common name 'thunderer'. The seed is best planted as soon as it is ripe in a partially shaded position in individual containers.

Normally a high germination rate can be expected, with the seed sprouting within 30-40 days. They will be ready for planting 4-5 months later. The sap of these trees is very toxic and irritating, feared by wood cutters, who let the tree 'bleed' before cutting it down. Grows rapidly and established plants are very drought tolerant.

TREE BENEFITS AND USES

FARMER USES



Food, Livestock Forage, Firewood, Lumber, Medicinal, Product

It is used in the manufacture of boats, in general carpentry, interior construction, boxes, and furniture. In the past, sap and crushed leaves were used as a poison to catch fish. Handicrafts are made with the fruits. The seeds and sap are used in the treatment of elephantiasis, leprosy, fevers and roundworms. An infusion is prepared to treat and disinfect sores.

FARM SERVICES



Coffee Shade

Coffee Shade: grown as a shade tree in cocoa and coffee plantations, or as a support for vanilla plants

BIODIVERSITY BENEFITS



YES

Eaten by fruit bats. The rubber of the trunk is consumed by the marmoset. It is used as a perch by birds.

Last Updated: August 14, 2023

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Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Nique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Smithsonian Tropical Research Institute: Hura crepitans (L.). Accessed 5 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Hura+crepitans&formsubmit=Search+Terms>;

<https://www.tropical.theferns.info/viewtropical.php?id=Hura+crepitans>;

Tropical Plants Database, Ken Fern. [tropical.theferns.info](https://www.tropical.theferns.info/viewtropical.php?id=Hura+crepitans). 2022-10-12. [tropical.theferns.info/viewtropical.php?id=Hura+crepitans](https://www.tropical.theferns.info/viewtropical.php?id=Hura+crepitans);

Encyclopedia of Life. Accessed 27 June 2022. Available from <http://eol.org>;

Hura crepitans L. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-10-12. Checklist dataset <https://doi.org/10.15468/39omei>



TREE SPECIES (SCIENTIFIC NAME)

Inga adenophylla

PERU COMMON NAME

Pacae playa, Pacae mono

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

11.47cm × 4.99cm

Length Width

ELEVATIONAL RANGE (M)

350–3000m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds. It has a low incidence of pests. Pruning can be used to manage shade pattern on coffee farms.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Food, Firewood

The seeds are covered with a sweet-tasting pulp.

FARM SERVICES



Coffee Shade, Soil Improvement, Erosion Control, Reforestation, Nitrogen Fixation

Coffee Shade: it is an important shade tree in southern and central Peru, and provides medium to dense shade

BIODIVERSITY BENEFITS



YES

It produces small fruits that are food for many frugivorous birds such as tanagers and blue-headed parrots and parrots. It houses arthropods that are consumed by insectivorous birds and produces a lot of nectar in flowering season for nectarivorous birds such as hummingbirds, tanagers and honeyeaters.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. [tropical.theferns.info](https://tropical.theferns.info/viewtropical.php?id=Inga+adenophylla). 2022-06-22. tropical.theferns.info/viewtropical.php?id=Inga+adenophylla.

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Inga alba

PERU COMMON NAME

Monte pacae, Shimbillo

TREE FAMILY

AVERAGE LEAF SIZE (CM)

8.25cm × **3.4cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

>320m

TREE HEIGHT

MEDIUM (20–35M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION

Unknown

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Firewood, Lumber, Medicinal

Wood is sometimes marketed and has been recommended for utility plywood, flooring, coatings, general construction, carpentry, furniture, boxes, and light cabinet manufacturing. Sometimes grown for the edible and sweet "meat" around the seed. The bark is chewed or used in a decoction as a treatment for dysentery, and is also used as a treatment for female infertility. The bark is used externally as a wash or poultice to treat ulcers, ant bites, swelling, sores, wounds, and cuts. It is grated and then pressed as a remedy to soothe mouth sores in babies. The inner bark has antimicrobial activity and is placed in abscesses to remove pus. A decoction of the leaves is used to treat fever.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>; Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-13. tropical.theferns.info/viewtropical.php?id=Inga+alba;

Encyclopedia of Life. Accessed 13 July 2022. Available from <http://eol.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.

FARM SERVICES

Unknown





BIODIVERSITY BENEFITS

✓ YES












Eaten by birds such as warblers and woodpeckers as well as capuchin monkeys.

<div> <div>TREE SPECIES (SCIENTIFIC NAME)</div> <div><i>Inga edulis</i></div> </div>		<div> <div>PERU COMMON NAME</div> <div>Guaba</div> </div>
<div> <div>TREE FAMILY</div> <div>FABACEAE</div> </div>	<div> <div>AVERAGE LEAF SIZE (CM)</div> <div> <div>11cm × 5.5cm</div> <div>Length Width</div> </div> </div>	<div> <div>DISTRIBUTION</div> <div> <div> NATIVE TO PERU</div> </div> </div>
<div> <div>ELEVATIONAL RANGE (M)</div> <div>0–2140m</div> </div>	<div> <div>TREE HEIGHT</div> <div> <div>MEDIUM (20–35M)</div> <div>     </div> </div> </div>	<div> <div>NATIVE TO</div> <div> <div>Region: Americas</div> <div>Latin America: Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela</div> </div> </div>
		<div> <div>EXOTIC IN</div> <div> <div>Latin America: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama</div> </div> </div>

COFFEE AGROFORESTRY INFORMATION

<div> <div>COFFEE SYSTEM</div> <div>  ARABICA </div> </div>	<div> <div>COFFEE IMPACT</div> <div>  BENEFICIAL TO COFFEE </div> </div>	<div> <div>TREE MANAGEMENT</div> <div> <p>It is easily propagated by seeds, which easily germinate inside the pod. Seeds cannot be stored and must be planted immediately after opening the pod. Germination begins from the third day and reaches a rate of 90%. Farmers usually select the best pods and use direct seeding, making a small hole with a stick and planting 2-4 seeds inside. Black seeds become "female" trees with abundant annual fruit production, while yellow seeds become "male" trees that do not produce much fruit. Transplant the seedling when it reaches a height of 40-60 cm. As shade trees for coffee and cocoa, the planting distance should be 10-15 m between the trees. It has rapid growth and is tolerant of acidic soil.</p> </div> </div>
<div> <div>CULTIVATION</div> <div> <div>  PLANTED </div> <div>  NATURAL </div> </div> </div>		
<div> <div>PREVALENCE</div> <div>Unknown</div> </div>		

TREE BENEFITS AND USES

<div> <div>FARMER USES</div> <div>      </div> <div> Food, Livestock Forage, Firewood, Lumber, Medicinal <p>Cultivated for its fruits, and the sales of fruit or wood can be a good source of income for farmers. The white pulp surrounding the seeds when the fruits are ripe is edible. The cottony aril is consumed fresh for its sweet taste, and also used to prepare alcoholic beverages. Low-quality fruits are consumed by livestock, pigs, poultry or fish. The leaves and seeds have a high protein content so they are also used as forage for some animals. Used to treat rheumatism. The seeds are used as a natural purgative for humans and livestock.</p> </div> </div>	<div> <div>FARM SERVICES</div> <div>       </div> <div> Coffee Shade, Soil Improvement, Erosion Control, Reforestation, Nitrogen Fixation, Weed Control <p>Coffee Shade: the species is used as a shade tree in coffee or cocoa plantations</p> </div> </div>
	<div> <div>BIODIVERSITY BENEFITS</div> <div>Unknown</div> <div> <p>Reforestation: it has great potential to restore degraded soils as part of an agroforestry system</p> </div> </div>

Last Updated: August 15, 2023



TREE SPECIES (SCIENTIFIC NAME)

Inga lineata

PERU COMMON NAME

Shimillo, Rufinde

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

15.67cm × **6.97cm**
Length Width

ELEVATIONAL RANGE (M)

350–2500m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds and naturally through dispersion. It has as low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement, Nitrogen Fixation

Coffee Shade: provides medium to dense shade

BIODIVERSITY BENEFITS

✓ **YES**

It produces pod-like fruits that are consumed mainly by blue-headed parrots. It retains many arthropods that are consumed by insectivorous birds. It produces nectar that is consumed by nectarivorous birds such as hummingbirds, tanagers and honeyeaters.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Inga oerstediana

PERU COMMON NAME

Pacae soguilla, Pacae, Pacae de sombra

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

10.92cm * **5.34cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350-2000m

TREE HEIGHT

SMALL (10-20M)



NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds and naturally through dispersion. Has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Firewood

FARM SERVICES



Coffee Shade, Soil Improvement, Erosion Control, Nitrogen Fixation, Weed Control

Coffee Shade: provides medium shade and is often used as shade for coffee

BIODIVERSITY BENEFITS



YES

The fruits are eaten by tanagers and blue-headed parrots mainly. It houses arthropods that serve as food for insectivorous birds. It produces nectar that is consumed by nectarivorous birds such as hummingbirds, tanagers and honeyeaters.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. [tropical.theferns.info](http://tropical.theferns.info/viewtropical.php?id=Inga+oerstediana). 2022-06-22. tropical.theferns.info/viewtropical.php?id=Inga+oerstediana

Romero, C. 2022-7-11. Inga oerstediana Benth. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasyliquenes.unal.edu.co/>

Inga oerstediana Benth. ex Seem. in Smithsonian Tropical Research Institute Tree Atlas (2022). STRI. <https://panamabiota.org/stri/taxa/index.php?taxon=Inga+oerstediana&formsubmit=Search+Terms>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Inga ruiziana

PERU COMMON NAME

Shimbillo

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

16.5cm * **7.5cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

0–2150m

TREE HEIGHT

SMALL (10–20M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

TREE MANAGEMENT

The natural regeneration potential of the species is enormous, and seed propagation is highly successful. Trees grow quickly, respond well to drastic pruning, and are therefore easy to keep within the required size and shade levels. The trees of this species have great potential to produce honey plant in farms dedicated to beekeeping.

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Food, Firewood, Lumber, Medicinal**

It is used for firewood, boxes, flooring and fence posts. The white seed covering has a cottony and sweet consistency and is consumed fresh. The seeds contain a sweet, edible-tasting pulp that surrounds the seeds. The fruit is harvested from the wild for local use and is sometimes sold in local markets.

FARM SERVICES

**Coffee Shade, Soil Improvement, Erosion Control, Nitrogen Fixation**

Coffee Shade: often planted to provide shade in coffee and cocoa plantations

BIODIVERSITY BENEFITS

**YES**

The flowers are visited by bees, butterflies and other insects. There are red ants that collect secretions from its glands and defend the plant from herbivores.

Last Updated: August 15, 2023

Image: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Nique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>; Smithsonian Tropical Research Institute: Inga ruiziana (G. Don). Accessed 13 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Inga+ruiziana&formsubmit=Search+Terms>;Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Inga+ruiziana;Inga ruiziana G. Don in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-10-13. Checklist dataset <https://doi.org/10.15468/39omej>;

Reynel, C., & Albán, J. (4). 4 Especies Forestales con Potencialidad alimenticia en la amazonía peruana: Etnobotánica y Germinación (Artículo especial). Revista Forestal del Perú, 13(1), 1-24.



TREE SPECIES (SCIENTIFIC NAME)

Inga saltensis

PERU COMMON NAME

Pacae maní, Pacay

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

15.67cm × **7.16cm**
Length Width

DISTRIBUTION



UNKNOWN

ELEVATIONAL RANGE (M)

600–1000m

TREE HEIGHT

SMALL (10–20M)



NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seed and has an average incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Firewood

FARM SERVICES



Coffee Shade, Soil Improvement, Erosion Control, Nitrogen Fixation

Coffee Shade: provides medium shade

BIODIVERSITY BENEFITS



YES

It provides pod-like fruits that are consumed mainly by tanagers and blue-headed parrots. It houses arthropods in leaves, flowers and bark that serve as food for insectivorous birds. It produces nectar that is consumed by nectarivorous birds such as hummingbirds, tanagers and honeycreepers.

Last Updated: August 22, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Inga+saltensis



TREE SPECIES (SCIENTIFIC NAME)

Iriartea deltoidea

TREE FAMILY

ARECACEAE

ELEVATIONAL RANGE (M)

350–1500m

AVERAGE LEAF SIZE (CM)

400cm × 0.65cm
Length Width

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Nicaragua, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION

Unknown

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Livestock Forage, Firewood, Lumber, Medicinal, Ornamental, Product

The outer part of the stems is used throughout its range for construction purposes, such as floors, walls, furniture, posts, blowguns, bows, harpoons and arrowheads. The hollowed-out stems are used as coffins. In northern Peru, the Angotere-Secoya and Quechua people use the stems as canoes. The trunk is used to build floors and walls of houses. The leaves are used for straw and basketry. The heart of the fruit and seeds are eaten occasionally. The apical bud, often called "heart of palm," is cooked and eaten like a vegetable (eating this shoot leads to the eventual death of the tree because it cannot make side branches). An ash obtained from the flowers is used as a substitute for salt. The fruits and heart of palm are used as animal feed. The inner layer of the leaf sheath is used to give strength to women in childbirth. The roots, stems and seeds are used to make handicrafts.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ **YES**

The fruits are consumed by animals.

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Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Iriartea deltoidea Ruiz & Pav. Smithsonian Tropical Research Institute (2022). Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Iriartea+deltoidea&formsubmit=Search+Terms>;

Iriartea deltoidea Ruiz & Pav. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-13. Checklist dataset <https://doi.org/10.15468/39omej>;

WFO (2022): Iriartea deltoidea Ruiz & Pav. Accessed on: 13 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000217575>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Jacaranda copaia

PERU COMMON NAME

Cedro perejil, Huamanzamana

TREE FAMILY

AVERAGE LEAF SIZE (CM)

100cm × **1.75cm**
Length Width

ELEVATIONAL RANGE (M)

350–1500m

TREE HEIGHT

MEDIUM (20–35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Honduras, Nicaragua, Panama, Peru, Suriname, Venezuela**COFFEE AGROFORESTRY INFORMATION**

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE MANAGEMENT

Planted by seeds and cuttings. The seeds are dispersed by the wind. Trees produce many fruits and each has many seeds. The collection is done by climbing the tree but can be complicated by its height and the presence of ants. The fruits are left to open in the sun to manually extract the small seeds (approx. 116,800 per kg). Without pregerminative treatment, an average of 89% germination is obtained with fresh seeds, which happens between 18 and 39 days after planting. Seeds stored at 20°C remain viable for up to 24 months. Growth in nursery is very fast. Seedlings can reach 25-30 cm in height in a time of 3 months. They require full light during their initial development. When they are 5-6 cm tall, transplant the seedlings into individual containers. They should be ready to plant in their permanent positions 5 to 6 months later. Trees of this species lose their leaves partially during the dry season.

TREE BENEFITS AND USES

FARMER USES

**Firewood, Lumber, Medicinal, Ornamental, Product**

Sometimes marketed and used to make furniture, in the construction of light interiors, joinery, and boxes, and in the manufacture of boards, match sticks, broom handles, and in the production of pulp for paper. It is used by local people to add buoyancy to rafts made of heavier woods. Leaves and branches are used for the treatment of circulatory, intestinal, and renal conditions, to relieve dry mouth, and used topically to treat skin infections. The juice of the young leaves is heated and applied to persistent sores. A gargle of the leaves is used to treat lesions of the throat. Leaves and wood is burned to produce smoke that acts as an insect repellent. The capsules are used as a tool to shape ceramics. Widely cultivated in gardens, parks, and avenues where it is especially appreciated for its beautiful flowers.

FARM SERVICES

**Reforestation**

Reforestation: due to their rapid growth in humid or very humid secondary forests, they can be used to recover degraded ecosystems

BIODIVERSITY BENEFITS

YES

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Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org/>; Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-13. tropical.theferns.info/viewtropical.php?id=Jacaranda+copaia;

Jacaranda copaia (Aubl.) D. Don. Smithsonian Tropical Research Institute (2022). Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Jacaranda+copaia&formsubmit=Search+Terms>;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Juanulloa parasitica

PERU COMMON NAME

Cartucho naranja

TREE FAMILY

SOLANACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

Unknown

TREE HEIGHT

UNKNOWN

DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Planted by seeds. It has a low incidence of pests. It is a climbing plant that is established by parasitizing other forest species.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ **YES**

It provides a lot of nectar that is consumed by nectarivorous species such as hummingbirds, tanagers and honeyeaters.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022



TREE SPECIES (SCIENTIFIC NAME)

Juglans neotropica

PERU COMMON NAME

Nogal

TREE FAMILY

JUGLANDACEAE

AVERAGE LEAF SIZE (CM)

11.43cm × 5.13cm

Length Width

ELEVATIONAL RANGE (M)

350–3000m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

**Food, Firewood, Lumber, Medicinal, Ornamental, Product**

Used in fine furniture, joinery, sculpture crafts and veneers, also in construction such as beams, joists and roofs. A food of local importance in the Andes.

Edible seeds are collected from the wild and often sold in South American markets. The leaves are sold for use as a dye. The boiled leaves are used as a tonic.

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: provides sparse to medium shade in foliation season and is used as shade in pastures

Soil Improvement: a deciduous forest species, it presents total leaf fall in dry season, which contributes to nutrient cycling and is also a protector of water sources

BIODIVERSITY BENEFITS



YES

It houses insects in flowers, leaves and bark that are consumed by insectivorous birds, including climbers. The fruits are nuts that are appetizing to squirrels.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Juglans+neotropicaPlants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

ASPECTOS ECOLÓGICOS Y GUÍAS DE PROPAGACIÓN 20 Árboles nativos en el sur del Tolima - Colombia. C.A.F.E. Practices, 2022.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Lecointea peruviana

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

Unknown

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350–1000m

TREE HEIGHT

SHRUB (1–10M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seed and has a low incidence of pests.

CULTIVATION



PLANTED

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade in coffee landscapes

BIODIVERSITY BENEFITS



YES

It houses insects in flowers, leaves and bark that are consumed by insectivorous birds such as tyrants, sparrows, and flycatchers.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Encyclopedia of Life. Accessed 24 June 2022. Available from <http://eol.org>:

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Leonia glycyarpa

PERU COMMON NAME

Palo durazno

TREE FAMILY

VIOLACEAE

AVERAGE LEAF SIZE (CM)

25.56cm * 8.89cm

Length Width

ELEVATIONAL RANGE (M)

500–800m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has an average incidence of pests.

CULTIVATION

Unknown

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Lumber

The trunk is used in the construction of houses.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade

BIODIVERSITY BENEFITS



YES

The fruits are food for birds, armadillos, squirrels, coatis, monkeys, pacas, and agoutis. It houses insects in leaves and bark, which are consumed by insectivorous birds such as flycatchers, tyrants, and climbers.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Fernández, A. 2022-7-12. *Leonia glycyarpa* Ruiz & Pav. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Encyclopedia of Life. Accessed 12 July 2022. Available from <http://eol.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Maclura tinctoria

PERU COMMON NAME

Moracea

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

7.33cm * 3.97cm

Length Width

ELEVATIONAL RANGE (M)

350–3000m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

**Food, Lumber, Medicinal, Ornamental, Product**

Used in heavy constructions, floors, railway sleepers, fence posts and cart wheels. The milky sap is used for toothache and tooth extraction. The bark is used to extract dyes.

FARM SERVICES

**Reforestation**

BIODIVERSITY BENEFITS

**YES**

The flowers are visited by bees and other insects.

Last Updated: August 15, 2023

Image: Maclura tinctoria fruit: W. Milliken © RBG Kew <http://creativecommons.org/licenses/by/3.0/> Maclura tinctoria herbarium 1; Maclura tinctoria herbarium 2; Maclura tinctoria herbarium 3: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Maclura+tinctoria

Maclura tinctoria (L.) D. Don ex Steud in Smithsonian Tropical Research Institute Tree Atlas (2022). STRI. <https://panamabiota.org/stri/taxa/index.php?taxon=Maclura+tinctoria&formsubmit=Search+Terms#on 2022-06-27>

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Mangifera indica

ENGLISH COMMON NAME

Mango

PERU COMMON NAME

Mango

TREE FAMILY

ANACARDIACEAE

AVERAGE LEAF SIZE (CM)

19.5cm * **4.5cm**
Length Width

ELEVATIONAL RANGE (M)

0–1200m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



EXOTIC IN PERU

NATIVE TO

Region: Americas

Latin America: Belize

EXOTIC IN

Latin America: Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Livestock Forage, Firewood, Lumber, Medicinal, Product

It is strong and heavy, in many places pieces of the trunk are used to cut meats in butcher shops. Wood must be treated with preservatives when used in construction and outdoor applications. It is a species cultivated for the nutritional value of its fruits which can be eaten, made into a drink, and can be sold in local markets. The pulp of ripe fruits is edible and is used to prepare jellies, preserves and juices. The tree produces tannins. The leaves, flowers and resin are used in traditional medicine. The dried flowers and bark extracts are used as astringents, and extracts of unripe fruits, bark, stems and leaves are used as antibiotics. It produces excellent charcoal and is used for burning due to its less toxic smoke. It is also used to grow mushrooms.

FARM SERVICES



Coffee Shade

BIODIVERSITY BENEFITS

No

Last Updated: August 15, 2023

Image: Mangifera indica flowers; Mangifera indica trees: Andrew McRobb, © RBG Kew <http://creativecommons.org/licenses/by/3.0/> Mangifera indica herbarium 1; Mangifera indica herbarium 2: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Ñique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Smithsonian Tropical Research Institute: Mangifera indica (L.). Accessed 5 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Mangifera+indica&formsubmit=Search+Terms#>;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Shade Catalog | Indonesia. Shade Catalog, Conservation International, Smithsonian Migratory Bird Center and World Coffee Research. Retrieved October 5, 2022, from <https://www.shadecoffee.org/en/catalog/indonesia>



TREE SPECIES (SCIENTIFIC NAME)

Margaritaria nobilis

PERU COMMON NAME

Loro micuna, Palo merongue

TREE FAMILY

PHYLLANTHACEAE

AVERAGE LEAF SIZE (CM)

10.5cm * 3.75cm

Length Width

ELEVATIONAL RANGE (M)

1200–1300m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

Planted by seeds. Plant fresh seeds in a partially shaded nursery. Usually, a high germination rate can be expected, and the seeds sprout within a few weeks. When the seedlings are between 4 and 5 cm high, plant them in individual containers. They will be ready to plant outside about 4 to 5 months later. The production of fruits (4-10 seeds each) is abundant and they are collected from the tree with a stick. They are left to open in the sun or can be opened manually. The seeds (approx. 17,800 per kg) are inside bluish cavities that must be broken manually to extract them. The seeds have a prolonged dormancy period. The collection of seedlings of natural regeneration and growing them in the nursery could be an alternative for their reproduction. Growth in nursery is very fast and seedlings can reach 25-30 cm in height in a time of 2-3 months. Requires full sun during initial development and has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES

**Firewood, Lumber, Ornamental, Product**

Used to make boxes, fence posts, and toys.

FARM SERVICES

**Coffee Shade, Soil Improvement, Reforestation**

Coffee Shade: provides medium to dense shade

Soil Improvement: loses leaves completely in the dry season, which helps the recycling of nutrients

BIODIVERSITY BENEFITS



YES

Its seeds are preferred by parrots, tanagers, euphonias, and saltators. The cracked bark of the trunk houses many insects that are sought after by woodcreepers and others such as vireos, greenlets, cuckoos, tyrants, and warblers.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Margaritaria+nobilisWFO (2022): Margaritaria nobilis L.f. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000236325>Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Meliosma boliviensis

PERU COMMON NAME

Sachacascarilla

TREE FAMILY

SABIACEAE

AVERAGE LEAF SIZE (CM)

18.73cm × 10.96cm

Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

1000–2500m

TREE HEIGHT

SHRUB (1–10M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS

✓ **YES**

It houses insects in leaves, flowers and bark that serve as food for birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Encyclopedia of Life. Accessed 24 June 2022. Available from <http://eol.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Micropholis venulosa

TREE FAMILY

SAPOTACEAE

ELEVATIONAL RANGE (M)

350–1000m

AVERAGE LEAF SIZE (CM)

6.55cm × 2.2cm

Length Width

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests and large fruits.

CULTIVATION



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Lumber

It is a source of a good quality hardwood known as "curupixa". Used to make high-class furniture, cabinetry, carpentry, interior carpentry and panels, flooring and veneer. The fruits are harvested from the wild for local use.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS



YES

Its fruits are consumed by amazon and blue-headed parrots.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-22. tropical.theferns.info/viewtropical.php?id=Micropholis+venulosa.

WFO (2022): Micropholis venulosa (Mart. & Eichler ex Miq.) Pierre. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000243658>;

Pennington, T.D. & R. Bernal 2022-7-12. Micropholis venulosa (Miq.) Pierre En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasyliquenes.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Araldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Muntingia calabura

PERU COMMON NAME

Coillor panchu, Yumanaza

TREE FAMILY

MUNTINGIACEAE

AVERAGE LEAF SIZE (CM)

8.01cm * 2.55cm

Length Width

ELEVATIONAL RANGE (M)

350–2000m

TREE HEIGHT

SMALL (10–20M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

**COMMON IN COFFEE AGROFORESTRY**

TREE BENEFITS AND USES

FARMER USES

**Food, Firewood, Lumber, Medicinal, Ornamental, Product**

Used for interior coating, making small boxes, barrels and general carpentry. It is occasionally grown for its edible fruits that are rich in vitamin C, very good to eat raw, and can also be used in jams, cakes and pastries. The flowers are said to possess antiseptic properties. An infusion of the flowers is valued as an antispasmodic. It is taken to relieve headache and the first symptoms of a cold. The hard and silky fiber of the bark is used for supports and for making ropes and baskets. The wood ignites quickly, burns with intense heat, and emits very little smoke.

FARM SERVICES

**Coffee Shade, Soil Improvement, Reforestation**

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS

**YES**

The seeds are dispersed by animals, mainly birds. Frugivorous birds such as tanagers and euphonias eat the fruits and seeds, and nectarivorous birds such as hummingbirds, euphonias, and honeyeaters eat the nectar. It houses arthropods in leaves, flowers and bark that are consumed by insectivorous birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Muntingia+calabura;

Bernal, R. 2022-7-12. Muntingia calabura L. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Arnaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Myriocarpa stipitata

PERU COMMON NAME

Aguanos, Ortigo macho

TREE FAMILY

URTICACEAE

AVERAGE LEAF SIZE (CM)

22.86cm * 18.45cm

Length

Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

730-2300m

TREE HEIGHT

SMALL (10-20M)



COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 15, 2023

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Vásquez-Vélez, A. I. 2022-7-12. Myriocarpa stipitata Benth. En Bernal, R., S. R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasyliquenes.unal.edu.co>;Encyclopedia of Life. Accessed 24 June 2022. Available from <http://eol.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Myrsine coriacea

PERU COMMON NAME

Palo agua, Cucharo, Espadero, Mantecoso

TREE FAMILY

MYRSINACEAE

AVERAGE LEAF SIZE (CM)

5.46cm × 1.98cm

Length Width

ELEVATIONAL RANGE (M)

500–3500m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

**Firewood, Lumber, Medicinal**

Used for fence posts. The leaves are used against stings.

FARM SERVICES

**Coffee Shade, Windbreak, Soil Improvement, Reforestation**

Coffee Shade: provides sparse shade

Reforestation: it can be used as a pioneer species in the restoration of native forests

BIODIVERSITY BENEFITS

✓ YES

It provides fruit for many resident birds such as tanagers, woodpeckers and migratory birds such as thrushes. It retains arthropods in leaves, flowers and bark that are consumed by insectivorous birds. The flowers are visited by bees and other insects. The seeds are dispersed by animals, mainly birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Myrsine+coriacea

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Nectandra cissiflora

PERU COMMON NAME

Roble blanco

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

17.5cm × **7.5cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350–2500m

TREE HEIGHT

MEDIUM (20–35M)



COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Planted by seeds and seeds are dispersed by animals, mainly birds that feed on ripe fruits. Plant seeds in a sunny nursery. The seeds will sprout within 28-42 days and have a low germination rate. When the seedlings have a height of 5-6 cm, plant them in individual containers. They will be ready to plant outside 5-7 months later. It has an average incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Lumber

Used in general construction, furniture manufacturing, door and window frames, decorative sheet, boards and trolleys, fence posts and tool handles.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ YES

The fruits are consumed by frugivorous birds and insects located in leaves, flowers and bark are consumed by insectivorous birds. The flowers are visited by bees and other insects. The seeds are dispersed by animals, mainly birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Nectandra+cissifloraNectandra cissiflora (Nees) in Smithsonian Tropical Research Institute Tree Atlas (2022). STRI. <https://panamabiota.org/stri/taxa/index.php?taxon=Nectandra+cissiflora&formsubmit=Search+Terms+on+2022-07-06>

Penagos, J.C. & S. Madriñán 2022-7-12. Nectandra cissiflora Nees En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Nectandra lineatifolia

PERU COMMON NAME

Moena amarilla

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

21cm × **6.25cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

500–2500m

TREE HEIGHT

SMALL (10–20M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seed and has an average incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: generates a medium to dense shade in coffee plantations

BIODIVERSITY BENEFITS

✓ **YES**

Its fruits are consumed mainly by toucans and saltators who visit occasionally. Insectivorous birds visit the leaves, flowers and bark to feed on insects.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

WFO (2022): *Nectandra lineatifolia* Mez. Accessed on: 12 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0001070219>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Nectandra matthewsii

PERU COMMON NAME

Roble amarillo lobulado

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

20.36cm * 7.98cm

Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350–1500m

TREE HEIGHT

LARGE (> 35M)



NATIVE TO

Region: Americas

Latin America: Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds. It has a low incidence of pests. It generates a medium to dense shade that can be managed with pruning.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: generates a medium to dense shade

BIODIVERSITY BENEFITS



YES

Birds feed on insects located on leaves, flowers and bark.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Penagos, J. C. & S. Madriñán 2022-7-12. *Nectandra matthewsii* Meisn. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

WFO (2022): *Nectandra matthewsii* Meisn. Accessed on: 12 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0001070464>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Nectandra membranacea

PERU COMMON NAME

Roble amarillo, Roble plano

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

15.94cm * **5.26cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350-2000m

TREE HEIGHT

MEDIUM (20-35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds. Plant fresh seeds in a sunny nursery or in individual containers. A germination rate of less than 50% can be expected, and the seeds will sprout within 28-35 days. It has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber

Used for the manufacture of furniture, decorative sheets, beams, and coatings.

FARM SERVICES



Coffee Shade, Soil Improvement, Reforestation

Coffee Shade: provides sparse to medium shade

Reforestation: it can be used as a pioneer species when restoring native forests

BIODIVERSITY BENEFITS



YES

It provides fruits that are consumed by frugivorous birds such as tityras and tanagers, and retains insects in leaves, flowers and bark that are consumed by insectivorous birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Nectandra+membranacea;

Penagos, J. C. & S. Madriñán 2022-7-12. Nectandra cuspidata Nees & Mart. En Bernal, R., S. R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Nectandra villosa

PERU COMMON NAME

Roble amarillo, Aguacatillo

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

22.07cm × 7.36cm

Length Width

ELEVATIONAL RANGE (M)

900–2300m

TREE HEIGHT

SMALL (10–20M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

**COMMON IN COFFEE AGROFORESTRY**

TREE BENEFITS AND USES

FARMER USES

**Lumber, Ornamental, Product**

Used in construction for purposes such as beams, beams, shingles and internal finish, for plywood, decorative wood sheets, toys, broom handles and boxes. It has ornamental foliage and can be used in landscaping.

FARM SERVICES

**Coffee Shade, Soil Improvement, Erosion Control**

Coffee Shade: provides medium to dense shade

Soil Improvement: contributes to the conservation and protection of soils and aquifers

BIODIVERSITY BENEFITS

**YES**

It offers a large number of fruits that are food for toucans and toucanets mainly. It retains arthropods in flowers, leaves and bark that are consumed by insectivorous birds. Its shade protects birds from heat and rain and provides shelter for some birds to spend the night.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Nectandra+reticulata

Penagos, J.C. & S. Madriñán 2022-7-12. Nectandra reticulata Mez En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>



TREE SPECIES (SCIENTIFIC NAME)

Neea sp.

PERU COMMON NAME

Pega pega, Palo amarillo

TREE FAMILY

NYCTAGINACEAE

AVERAGE LEAF SIZE (CM)

9.13cm * 5.06cm

Length Width

ELEVATIONAL RANGE (M)

100–1850m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

A long-lived species with a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Ceremonial

It is very hard and is used as posts, construction boards, firewood, and as posts for fencing land. The Amerindian people of Guyana use the fruit as a dye to paint their faces.

FARM SERVICES



Coffee Shade, Soil Improvement, Erosion Control

Coffee Shade: provides sparse shade

Soil Improvement: contributes to the conservation and protection of soils and aquifers

BIODIVERSITY BENEFITS

✓ **YES**

The fruits are consumed by fruit birds such as tanagers and euphonias, and houses insects that serve as food for insectivorous birds. It serves as passage or resting trees for many birds and raptors. They have many indentations in the bark that serve for the growth of epiphytic and parasitic species such as strangler figs that offer a large number of fruits and are of great nutritional value for birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022



TREE SPECIES (SCIENTIFIC NAME)

Ochroma pyramidale

ENGLISH COMMON NAME

Balsa Wood

PERU COMMON NAME

Topa

TREE FAMILY

MALVACEAE

AVERAGE LEAF SIZE (CM)

24.5cm × 21.5cm

Length Width

ELEVATIONAL RANGE (M)

350–2000m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE MANAGEMENT

When the fruits open they form a cottony layer that looks like the "leg of a rabbit" and in which the seeds are wrapped. The seeds are dispersed mainly by the wind, but probably also by water, which is possible due to their floating fibers. The fruits are abundant, contain many small seeds (approx. 146 thousand per kg) and are collected with sticks just as they begin to open. You should let them open by exposing them to the sun and separating the cottony fiber from the seeds being careful not to breathe it. Soaking the seeds in water at room temperature for 24 hours supports germination (60%), which begins 8 days after sowing. Seeds stored at 20°C remain viable for more than 14 months. Growth in nursery is very fast. Seedlings can reach 25-30 cm in height in a time of 3 months. They require full light during their initial development and seeds need high temperatures to germinate. Under natural conditions, clearing forests exposes the soil to the sun and this triggers germination. In the nursery, seeds are sown in separate lines between 3 and 4 cm under a slight shade and in sterilized soil to prevent mold. Trees of this species partially drop their leaves for a very short period during the dry season. It is a fast-growing tree that prefers deep, fertile, moist but well-drained soil in a sunny position. It prefers a pH in the range of 5.5 - 6.5, tolerating 5 - 8. Highly sensitive to fire damage.

TREE BENEFITS AND USES

FARMER USES



Lumber, Ornamental, Product

Used in the construction of rafts, buoys, special packaging, models of airplanes and cars. They are used as an ornamental plant for their leaves and showy flowers. The cottony hairs of the fruit are used to make mattresses, life preservers and pillows. Balsa wood is the lightest commercial wood known, it has a wide range of applications, but it is probably best known as a material for making aircraft models.

FARM SERVICES



Coffee Shade, Soil Improvement

Soil Improvement: it is a fast-growing tree and used to rehabilitate degraded soils

BIODIVERSITY BENEFITS



YES

White-faced monkeys have been seen during the day poking their faces out on the flower, possibly looking for insects, and their faces are generously covered with pollen. The flowers can be visited by nocturnal mammals. Birds often cut holes near the base of flowers to get nectar.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>; Smithsonian Tropical Research Institute (2022). Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Ochroma+pyramidale&formsubmit=Search+Terms>; Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-13. tropical.theferns.info/viewtropical.php?id=Ochroma+pyramidale

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;
Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaltoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Ocotea floribunda

TREE FAMILY

LAURACEAE

ELEVATIONAL RANGE (M)

100–1800m

AVERAGE LEAF SIZE (CM)

11cm × **4.25cm**
Length Width

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Lumber

It is harvested from the wild and used locally and also exported. It is widely used in its native range for interior work, ceilings, partitions, panels and other applications in the construction of buildings and general carpentry, low-cost furniture and cabinetry, turning, fruit boxes, ladders, coffins, canes and for planks in the construction of small boats.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ **YES**

Bird use the tree and its fruits are consumed by monkeys.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-13. tropical.theferns.info/viewtropical.php?id=Ocotea+floribunda;

Encyclopedia of Life. Accessed 13 July 2022. Available from <http://eol.org>;

Ocotea floribunda (Sw.) Mez in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-13. Checklist dataset <https://doi.org/10.15468/39omei>



TREE SPECIES (SCIENTIFIC NAME)

Ocotea sp.

PERU COMMON NAME

Roble amargo

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

14cm × **6.67cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

0–1400m

TREE HEIGHT

SHRUB (1–10M)



NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION



PLANTED

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

PERU COMMON NAME

***Oreopanax
polycephalus***

AVERAGE LEAF SIZE (CM)

27.53cm × 24.14cm

ELEVATIONAL RANGE (M)

TREE HEIGHT

SHRUB (1-10M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Unknown

CULTIVATION



PLANTED

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Medicinal

The leaves are used in an infusion to stimulate cardiac function.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium shade

BIODIVERSITY BENEFITS



YES

It provides nectar that is consumed by nectarivorous birds like hummingbirds such as the woodstar and amazilia mainly. It retains arthropods in leaves, flowers and bark that serve as food for resident birds such as tyrants, vireos and greenlets, and migratory birds such as the Canada Warbler and Orange-throated Warbler.

Last Updated: August 15, 2023

Oreopanax polycephalus Harms in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-12. Checklist dataset <https://doi.org/10.15468/39omei>



TREE SPECIES (SCIENTIFIC NAME)

Pectinopitys harmsiana

PERU COMMON NAME

Diablo fuerte

TREE FAMILY

PODOCARPACEAE

AVERAGE LEAF SIZE (CM)

2.1cm × **0.4cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

1800–2200m

TREE HEIGHT

MEDIUM (20–35M)

NATIVE TO

Region: Americas**Latin America:** Bolivia, Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

TREE MANAGEMENT

Planted by seeds. Soak the seeds for 24 hours in warm water, then plant them in a shaded nursery. It has a low incidence of pests. It offers a medium to dense shade that can be managed with pruning.

CULTIVATION

**PLANTED**

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

**Lumber**

Used for construction and cabinetry.

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: offers a medium to dense shade

BIODIVERSITY BENEFITS

**YES**

It provides fruits for fruit and insectivorous birds in leaves and bark.

Last Updated: August 15, 2023

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Prumnopitys+harmsianaWFO (2022): Prumnopitys harmsiana (Pilg.) de Laub. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000486907>;Prumnopitys harmsiana (Pilg.) de Laub. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-06. Checklist dataset <https://doi.org/10.15468/39omej>;

Celis, M. 2022-7-12. Prumnopitys harmsiana (Pilg.) de Laub. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>



TREE SPECIES (SCIENTIFIC NAME)

Persea americana

ENGLISH COMMON NAME

Avocado

PERU COMMON NAME

Palto, Aguacate

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

12.63cm × **6.06cm**
Length Width

ELEVATIONAL RANGE (M)

400–1800m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



EXOTIC IN PERU

NATIVE TO

Region: Americas

Latin America: Belize, Costa Rica, Guatemala, Honduras, Mexico, Nicaragua

EXOTIC IN

Latin America: Argentina, Bolivia, Colombia, El Salvador, Mexico, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Food, Medicinal, Product

Its leaves are used to combat fever, menstrual cramps and migraine. The pulp of ripe fruits is edible and eaten raw and in soups and salads. It is used to make ice cream and sweets. It is rich in vitamin B2, A and E, also contains sugar, starch and fats. Used in cosmetics and toiletries. The seeds produce a milky juice that has been used as ink to mark flax and clothing.

TREE MANAGEMENT

It is propagated by seeds or grafts in nurseries. Avocados grow best in deep, well-drained soils and should be protected from frost and strong winds when relevant. Thick mulch should be placed around the plants and fertilizer should be applied occasionally. Avocado fruits, leaves, stems and seeds are poisonous to some animals and birds (the leaves are the most toxic part).

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ YES

Its pulp is a valuable source of energy, proteins and minerals.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022



Persea Americana (Mill.) in Smithsonian Tropical Research Institute Tree Atlas (2022). STRI. <https://panamabiota.org/stri/taxa/index.php?taxon=Persea+americana&formsubmit=Search+Terms+on+2022-07-06>;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;





Penagos, J.C. & S. Madriñán 2022-7-12. Persea americana Mill. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá.;





Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242. <http://catalogoplantasedecolombia.unal.edu.co>

<div>TREE SPECIES (SCIENTIFIC NAME)</div> <div><i>Pinus tecunumanii</i></div>		<div>ENGLISH COMMON NAME</div> <div>Pine</div>
		<div>PERU COMMON NAME</div> <div>Pino rojo</div>
<div>TREE FAMILY</div> <div>PINACEAE</div>	<div>AVERAGE LEAF SIZE (CM)</div> <div>24.51cm × 0.15cm</div> <div>Length Width</div>	<div>DISTRIBUTION</div> <div>  UNKNOWN </div>
<div>ELEVATIONAL RANGE (M)</div> <div>1500–1800M</div>	<div>TREE HEIGHT</div> <div>LARGE (> 35M)</div> <div>  </div>	<div>NATIVE TO</div> <div> Region: Americas Latin America: Belize, El Salvador, Guatemala, Honduras, Mexico, Nicaragua </div> <div>EXOTIC IN</div> <div> Latin America: Peru </div>

COFFEE AGROFORESTRY INFORMATION

<div>COFFEE SYSTEM</div> <div> ARABICA</div>	<div>COFFEE IMPACT</div> <div> MAY COMPETE WITH COFFEE</div>	<div>TREE MANAGEMENT</div> <div>Propagated by seeds in nursery. It does not require pre-treatment, although commercial forestry programs sometimes soak seeds in water at room temperature for 24 hours prior to planting. Germination begins 7-10 days after planting. The needles contain a substance called terpene, this is released when rain washes the needles and has a negative effect on the germination of some plants, including wheat.</div>
<div>CULTIVATION</div> <div> PLANTED</div>		
<div>PREVALENCE</div> <div> COMMON IN COFFEE AGROFORESTRY</div>		

TREE BENEFITS AND USES

<div>FARMER USES</div> <div>    </div> <div>Lumber, Medicinal, Product</div> <div>Used for heavy construction, interior construction (doors and window frames), treated posts, plywood, furniture, and crafts. A vanillin flavoring is obtained from the resins. A tan or green tint is obtained from the needles. Turpentine oil obtained from the resin is antiseptic and antispasmodic, and used as an astringent, diuretic, stimulant and to treat parasites. It is used internally in the treatment of kidney and bladder complaints and is used in baths and steams for the treatment of rheumatism. It is very beneficial for the respiratory system and useful in treating diseases of the mucous membranes and respiratory conditions such as cough, colds, flu and tuberculosis.</div>	<div>FARM SERVICES</div> <div>  </div> <div>Reforestation</div>
<div>BIODIVERSITY BENEFITS</div> <div>No</div>	

Last Updated: August 22, 2023

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Pinus+tecunumanii; Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Podocarpus oleifolius

PERU COMMON NAME

Romerillo

TREE FAMILY

PODOCARPACEAE

AVERAGE LEAF SIZE (CM)

6.75cm × 1.05cm

Length Width

ELEVATIONAL RANGE (M)

2000–3500m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds. Usually slow to germinate (a year or more). Cuttings can also be used. It has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber, Product

Used for joinery, carving, general carpentry, furniture components, boxes, pulp and paper, and for pattern making.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse shade

BIODIVERSITY BENEFITS

✓ YES

Its fruits are consumed by frugivorous birds and small mammals such as monkeys. It houses insects in leaves and bark that serve as food for insectivorous birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Podocarpus+oleifolius;WFO (2022): Podocarpus oleifolius D. Don. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000485135>;

Celis, M. 2022-7-12. Podocarpus oleifolius D. Don En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Poulsenia armata

PERU COMMON NAME

Lanche

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

30cm × 19cm

Length Width

ELEVATIONAL RANGE (M)

0–2350m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Very susceptible to droughts and climate changes. The tree is shade-tolerant and long-lived.

CULTIVATION



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Lumber, Product, Ceremonial

Used in lightweight construction and as properly treated fence posts. The Emberá Waunaan people in Panama extract fibers from the inner bark that are used to make fabric, hammocks, baskets, sails for canoes, and clothing for women. In the region of Valle de Anton and San Miguel del Norte in Panama, the bark is used to make a dress known as 'diablito cucúa', used in a dance in religious and folkloric festivals. The plant is harvested from the wild for its bark and edible fruits, which are sometimes sold in markets.

FARM SERVICES



Soil Improvement

BIODIVERSITY BENEFITS



YES

The flowers are visited by insects.

Last Updated: August 15, 2023

Image: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;Smithsonian Tropical Research Institute: Poulsenia armata (Miq.). Accessed 13 Oct 2022. Published on the Internet: [https://panamabiota.org/stri/taxa/index.php?](https://panamabiota.org/stri/taxa/index.php?taxon=Poulsenia+armata&formsubmit=Search+Terms)[taxon=Poulsenia+armata&formsubmit=Search+Terms](https://panamabiota.org/stri/taxa/index.php?taxon=Poulsenia+armata&formsubmit=Search+Terms);Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-10-13. tropical.theferns.info/viewtropical.php?id=Poulsenia+armata;Poulsenia armata (Miq.) Standl. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-10-13. Checklist dataset <https://doi.org/10.15468/39omej>;

Falkowski, T. B., Diemont, S. A., Chankin, A., & Douterlungne, D. (2016). Lacandon Maya traditional ecological knowledge and rainforest restoration: soil fertility beneath six agroforestry system trees. Ecological Engineering, 92, 210-217.



TREE SPECIES (SCIENTIFIC NAME)

Pourouma cecropiifolia

PERU COMMON NAME

Uvilla

TREE FAMILY

URTICACEAE

AVERAGE LEAF SIZE (CM)

25cm × **36.5cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

100–1100m

TREE HEIGHT

MEDIUM (20–35M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

Unknown

TREE MANAGEMENT

The seeds are mainly dispersed by small primates and bats. Propagates easily and has rapid growth, precocity and good productivity. The trees begin to produce fruits at 2 years, reaching optimal production between the fifth and sixth year.

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Food, Medicinal, Ornamental, Product, Ceremonial**

Provides dyes. Cultivated in agroecosystems for its fruit. This species is an important traditional fruit and symbolic component of the culture of the Indigenous Ticuna people, and is widely consumed and cultivated in their fields and agroforests. It is also reported in Ticuna myths as a plant associated with the fauna and mythical entities of the forest.

FARM SERVICES

**Coffee Shade**

BIODIVERSITY BENEFITS

**YES**

Food for wildlife. The main pollinators are insects of the family Apidae, Oxytrigona obscura, Trigona dellatarreana and Trigona sp. The seeds are mainly dispersed by small primates and bats.

Last Updated: August 15, 2023

Image: Pourouma cecropiifolia leaves: Mauricio Diazgranados © RBG Kew <http://creativecommons.org/licenses/by/3.0/> Pourouma cecropiifolia herbarium 1; Pourouma cecropiifolia herbarium 2: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.;

Encyclopedia of Life. Accessed 13 Oct 2022. Available from <http://eol.org>;



Pourouma cecropiifolia Mart. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-10-13. Checklist dataset <https://doi.org/10.15468/39omej>

Pedrosa, H. C., Clement, C. R., & Schietti, J. (2018). The domestication of the Amazon tree grape (Pourouma cecropiifolia) under an ecological lens. Frontiers in plant science, 9, 203.;


WFO (2022): Pourouma cecropiifolia Mart. Accessed on: 14 Oct 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000394901>

<div>TREE SPECIES (SCIENTIFIC NAME)</div> <div><i>Pouteria bilocularis</i></div>		<div>PERU COMMON NAME</div> <div>Caimitillo</div>
<div>TREE FAMILY</div> <div>SAPOTACEAE</div>	<div>AVERAGE LEAF SIZE (CM)</div> <div> <div>11.86cm × 6.04cm</div> <div>Length Width</div> </div>	<div>DISTRIBUTION</div> <div>  NATIVE TO PERU </div>
<div>ELEVATIONAL RANGE (M)</div> <div>350–1500m</div>	<div>TREE HEIGHT</div> <div> <div>MEDIUM (20–35M)</div> <div>     </div> </div>	<div>NATIVE TO</div> <div> Region: Americas Latin America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Venezuela </div>

COFFEE AGROFORESTRY INFORMATION

<div>COFFEE SYSTEM</div> <div>  ARABICA </div>	<div>COFFEE IMPACT</div> <div>Unknown</div>	<div>TREE MANAGEMENT</div> <div>86% germination rates were obtained in Brazil after seeds were extracted from fruit, washed for 30 minutes, dried in shade for 18 hours at ambient temperatures, and planted at 1 in depth in substrate of sand and sawdust.</div>
<div>CULTIVATION</div> <div>  PLANTED </div>		
<div>PREVALENCE</div> <div>Not Common in Coffee Agroforestry</div>		

TREE BENEFITS AND USES

<div>FARMER USES</div> <div>Unknown</div>	<div>FARM SERVICES</div> <div>Unknown</div>
<div>BIODIVERSITY BENEFITS</div> <div>  YES The fruits are eaten by the monkey Cebus apella. </div>	

Last Updated: August 15, 2023

Cruz, E. D. (2005). Quantitative characteristics of fruits and seeds of *Pouteria pachycarpa* Pires-Sapotaceae. *Revista Brasileira de Sementes*, 27, 159-164.; Pennington, T.D. & R. Bernal 2022-7-12. *Pouteria bilocularis* (H.J.P.Winkl.) Baehni En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.; Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>; WFO (2022): *Pouteria bilocularis* (H.J.P.Winkl.) Baehni. Accessed on: 12 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000281573>; Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. *Amaldoa*, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Pouteria caimito

PERU COMMON NAME

Zapotillo

TREE FAMILY

SAPOTACEAE

AVERAGE LEAF SIZE (CM)

14cm × 4.85cm
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350-1500m

TREE HEIGHT

MEDIUM (20-35M)



COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seeds. Remove the seed shell and plant when ripe. Plant in a partially shaded nursery. The seed usually germinates in 4 - 6 weeks. Trees take up to 8 years before they begin to bear fruit. Graft or air layers can be used. It has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Livestock Forage, Lumber

Used in construction.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade in the form of an inverted cup

BIODIVERSITY BENEFITS



YES

Its fruits are consumed by rodents. It houses insects and others in leaves, flowers and bark, which serve as food for insectivorous birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-24. tropical.theferns.info/viewtropical.php?id=Pouteria+caimito;WFO (2022): Pouteria caimito (Ruiz & Pav.) Radlk. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000281599>;Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Pennington, T.D. & R. Bernal 2022-7-12. Pouteria caimito (Ruiz & Pav.) Radlk. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Pouteria guianensis

PERU COMMON NAME

Caimitillo, Caimito, Quinilla caimitillo, Balata

TREE FAMILY

SAPOTACEAE

AVERAGE LEAF SIZE (CM)

11.93cm × 4.23cm

Length

Width

ELEVATIONAL RANGE (M)

80–500m

TREE HEIGHT

LARGE (> 35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Bolivia, Brazil, Colombia, Ecuador, Guyana, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

TREE MANAGEMENT

Planted by seeds. It has a low incidence of pests. Provides medium to dense shade in coffee plantations that can be managed with pruning.

CULTIVATION

**PLANTED**

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

**Food, Firewood, Lumber**

Used in carpentry, joinery, and in the construction of rural housing. The fruit has firm pulp and a sweet taste.

FARM SERVICES

**Coffee Shade, Soil Improvement, Weed Control**

BIODIVERSITY BENEFITS

**YES**

Its fruits are consumed mainly by rodents. It houses insects in flowers, leaves and bark that are consumed by insectivorous birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Pouteria+guianensis:

Pennington, T.D. & R. Bernal 2022-7-12. Pouteria guianensis Aubl. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>



TREE SPECIES (SCIENTIFIC NAME)

Protium tenuifolium

PERU COMMON NAME

Copal, Incienso

TREE FAMILY

BURSERACEAE

AVERAGE LEAF SIZE (CM)

10.35cm * **4.01cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

400–1100m

TREE HEIGHT

MEDIUM (20–35M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

Planted by seeds and seeds are dispersed by large birds and various mammals. It has ripe reddish fruits which contains the seed and are relatively easy to collect with sticks. The fruits are left to open in the sun and the pulp covering the seeds is removed under water. Without pregermination treatment, an average of 7% germination is obtained, which occurs between 25 and 46 days after planting. Seeds stored at 20°C lose viability in less than 1 month. Growth in nursery is slow. Seedlings can reach 25-30 cm in height in a time of 8 months. They require partial shade during their initial development. Trees of this species maintain their foliage permanently. It has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES

**Firewood, Lumber, Medicinal, Product**

Harvested from the wild and used for carpentry, construction, joinery, cabinetry, furniture, flooring, household utensils. The resin obtained from the bark is used to light fires. The resin is an astringent.

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: generates medium shade coverage

Soil Improvement: drops its leaves in dry season by up to 70 percent, which facilitates the recycling of nutrients and incorporates nutrients into the soil

BIODIVERSITY BENEFITS

✓ YES

The biggest consumers of its fruits are toucans, toucans and saltators. Also frequently visited by tanagers, euphonias, chlorophonias, violet magpies and insectivorous birds such as greenlets, vireos and cabezons. The seeds are dispersed by large birds and various mammals.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Protium+tenuifolium;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.



TREE SPECIES (SCIENTIFIC NAME)

Pseudolmedia laevis

PERU COMMON NAME

Chimicua

TREE FAMILY

MORACEAE

AVERAGE LEAF SIZE (CM)

12.64cm × **5.66cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350–910m

TREE HEIGHT

LARGE (> 35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Seeds germinate on below tree on forest floor. Has low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Firewood, Lumber, Medicinal, Product

It is a good wood and is appreciated for making canoes and for construction, and rollers used to crush sugar cane. It is harvested from the wild for local use as food. It is harvested from the wild as a source of latex.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade

BIODIVERSITY BENEFITS

✓ **YES**

It offers succulent fruits for frugivorous birds and occasionally the immature fruits are consumed by blue-headed parrots. It houses insects in leaves and bark which attracts insectivorous bird species. The medium to dense shade also serves as a resting place for many birds overnight.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Fredericksen, T. S., Mostacedo, B., Justiniano, J., & Ledezma, J. (2001). Seed tree retention considerations for unevenaged management in Bolivian tropical forests. *Journal of Tropical Forest Science*, 352-363.;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Pseudolmedia+laevis;

Berg, C. C. 2022-7-12. *Pseudolmedia laevis* (Ruiz & Pav.) J. F. Macbr. En Bernal, R., S. R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. *Amaldoa*, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Rauvolfia sprucei

TREE FAMILY

APOCYNACEAE

AVERAGE LEAF SIZE (CM)

Unknown

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

380–1320m

TREE HEIGHT

SMALL (10–20M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Rauvolfia sprucei Müll.Arg. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-12. Checklist dataset <https://doi.org/10.15468/39omej>

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Retrophyllum rospigliosii

PERU COMMON NAME

Ulcumano

TREE FAMILY

PODOCARPACEAE

AVERAGE LEAF SIZE (CM)

1.67cm × **0.44cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

1500–2200m

TREE HEIGHT

MEDIUM (20–35M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

**COMMON IN COFFEE AGROFORESTRY**

TREE BENEFITS AND USES

FARMER USES

**Lumber, Ornamental, Product**

Used in furniture and cabinetmaking, structural construction, interior works, carpentry work, drawers, fence posts, toys and as raw material for the manufacture of pulp for paper.

FARM SERVICES

**Coffee Shade, Soil Improvement, Erosion Control**

Coffee Shade: provides good shade and no negative effects are observed on the planting and production of coffee trees

Soil Improvement: shapes soils and contributes to the protection of watersheds

BIODIVERSITY BENEFITS

**YES**

It provides fruits for smaller mammals such as monkeys and rodents, and frugivorous birds such as tanagers, chachalacas and saltators consume the fruits occasionally.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Retrophyllum+rospigliosii

Celis, M. 2022-7-12. Retrophyllum rospigliosii (Pilg.) C.N. Page En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

ASPECTOS ECOLÓGICOS Y GUÍAS DE PROPAGACIÓN 20 Árboles nativos en el sur del Tolima - Colombia. C.A.F.E. Practices, 2022.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Rhodostemonodaphne *sp.*

PERU COMMON NAME

Roble amarillo, Laurel, Jigua baboso, Jigua laurel, Jigua negro, Jigua pava, Guacharaco morruco

TREE FAMILY

LAURACEAE

AVERAGE LEAF SIZE (CM)

21.49cm × **8.11cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

0–900m

TREE HEIGHT

MEDIUM (20–35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seed in a nursery and has a low incidence of pests.

CULTIVATION



PLANTED

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber

The trunk is used in the construction of housing.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade

BIODIVERSITY BENEFITS

✓ **YES**

The fruits are food for birds, monkeys and rodents. It provides fruits that are preferred by toucans and turkeys mainly. They retain insects in flowers, leaves and bark that are consumed by insectivorous birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022



TREE SPECIES (SCIENTIFIC NAME)

Richeria grandis

TREE FAMILY

PHYLLANTHACEAE

ELEVATIONAL RANGE (M)

850–1500m

AVERAGE LEAF SIZE (CM)

16.56cm × 8.21cm

Length Width

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

Planted by seeds and cuttings in nursery. Plant fresh seeds in a partially shaded nursery. A germination rate of more than 50% can be expected, and the seeds sprout within 100-120 days. The species is an aluminum accumulator and is capable of accumulating 15,000 ppm of aluminum. The plant was able to tolerate potentially toxic levels of aluminum primarily by depositing the metal on its leaf walls. It has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES



Lumber, Medicinal

Used locally to make items such as broom handles, boxes and small artifacts.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade

Soil Improvement: the species is an aluminum accumulator and is capable of tolerating potentially toxic levels of aluminum

BIODIVERSITY BENEFITS



YES

It houses insects in leaves and bark that are consumed by insectivorous bird species.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info/viewtropical.php?id=Richeria+grandis;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Murillo-A., J. 2022-7-12. Richeria grandis Vahl En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Salacia macrantha

PERU COMMON NAME

Chuchuhuasi

TREE FAMILY

CELASTRACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

100–800M

TREE HEIGHT

SHRUB (1–10M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seed and has a low incidence of pests.

CULTIVATION



PLANTED

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS



YES

Its fruits are part of the diet of rodent mammals such as the Lowland paca (Cuniculus paca).

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Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>; Encyclopedia of Life. Accessed 6 July 2022. Available from <http://eol.org>;

Sánchez, L.R. 2022-7-12. Salacia macrantha A.C.Sm. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>



TREE SPECIES (SCIENTIFIC NAME)

Sapium glandulosum

PERU COMMON NAME

Kurupicay, Lechero, Lechero de hoja graúda, Matajojo, Toropi, Shiringa rana

TREE FAMILY

EUPHORBIACEAE

AVERAGE LEAF SIZE (CM)

11cm × **4.5cm**
Length Width

ELEVATIONAL RANGE (M)

1000–1500m

TREE HEIGHT

MEDIUM (20–35M)

DISTRIBUTION

**NATIVE TO PERU**

NATIVE TO

Region: Americas**Latin America:** Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

**BENEFICIAL TO COFFEE**

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

In nature, seeds germinate within a week or two after coming into contact with the moist forest floor. The seeds are dispersed by mammals and birds. The trees produce many fruits (3 seeds each) and are collected with sticks while climbing the tree. Once the fruits are opened, the pulp covering the seeds (approx. 23 thousand per kg) must be removed inside a container with water. Plant the seeds as soon as the fruit is ripe in a partially shaded nursery. A low germination rate can usually be expected, with the seed sprouting within 10 to 35 days. Seeds stored at 20°C remain viable for up to 15 months. Growth in nursery is very fast. Seedlings can reach 25-30 cm in height in a time of 2-3 months. They require full light during their initial development. Latex is toxic and can damage the eyes if it comes into contact. Trees of this species lose their leaves during the dry season.

TREE BENEFITS AND USES

FARMER USES



Food, Firewood, Lumber, Medicinal, Product

Can be used for packaging, paneling, joinery, boxes, plywood, live fences, door and window frames, and as paper pulp. Its sap has been used against sclerosis and warts. Latex is sometimes collected from nature for local use as rubber.

FARM SERVICES



Soil Improvement, Erosion Control, Reforestation

Erosion Control: helps stabilize riverbeds and can grow on steep slopes where soils are thin

Reforestation: a good pioneer species to restore forests as young and mature trees are robust, resistant to drought, excessive sunlight, and are often among the first woody plants to establish themselves in clearings caused by falling trees, landslides, or human intervention

BIODIVERSITY BENEFITS

**YES**

Its fruits support the diet of frugivorous birds.

Last Updated: August 15, 2023

Image: Sapium glandulosum fruits; Sapium glandulosum fruits 2: Denise Sasaki © RBG Kew <http://creativecommons.org/licenses/by/3.0/> Sapium glandulosum herbarium 1; Sapium glandulosum herbarium 2: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Sapium glandulosum (L.) Morong in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-06. Checklist dataset <https://doi.org/10.15468/39omej>

Murillo-A., J. 2022-7-12. Sapium glandulosum (L.) Morong En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015.;

Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasyliquenes.unal.edu.co>;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-12. tropical.theferns.info/viewtropical.php?id=Sapium+glandulosum;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Sapium marmieri

PERU COMMON NAME

Shiringa arana, Caucho masha, Palo leche

TREE FAMILY

EUPHORBIACEAE

AVERAGE LEAF SIZE (CM)

11.5cm × 6cm

Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

300–600m

TREE HEIGHT

SMALL (10–20M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

The latex is poisonous. Has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES



Lumber, Medicinal, Product

It is moderately easy to work with and used for purposes such as moldings, furniture, veneers and plywood, also in drawers and pulp for paper. Latex can be used to produce lower quality rubber. The abundant milky sap is very poisonous. Known as 'Gaucho Mashan', it is used as a powerful purgative. It is taken orally, usually by mixing a small amount in water.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse shade.

Soil Improvement: total leaf fall occurs in dry season which provides nutrients to the soil

BIODIVERSITY BENEFITS



YES

It houses insects in leaves and bark that are consumed by insectivorous birds.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Sapium+marmieri;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Schizolobium parahyba

PERU COMMON NAME

Pino chuncho

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

40cm × 0.75cm
Length Width

DISTRIBUTION

 UNKNOWN

ELEVATIONAL RANGE (M)

350–900M

TREE HEIGHT

MEDIUM (20–35M)



COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

 ARABICA

COFFEE IMPACT

✓ BENEFICIAL TO COFFEE

TREE MANAGEMENT

One of the fastest growing trees in the world, capable of reaching a height of 10 meters in 2 years. It has large seeds that help its quick establishment. Typically propagated by seed, but can be propagated by cutting as well. Prefers well drained, moist loam to clay soils with a pH from 4.5 to 7.5. Can grow in soils with low nutrients

CULTIVATION

 PLANTED
 NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Firewood, Lumber, Ornamental, Product

Used in the manufacture of furniture, boxes, drawers, door frames, boards, chipboards and pulp for paper and is used for the interior of doors and panels, toys, shoe soles and boxes. It is also used for cabins, canoes and cheap furniture. It has a lot of potential as an ornamental plant because of the beautiful yellow color of its flowers. Flat, brown, hard and oval seeds are used to make buttons and beads.

FARM SERVICES



Coffee Shade, Soil Improvement, Erosion Control, Reforestation, Nitrogen Fixation

Coffee Shade: can be used as a shade tree in coffee plantations

Erosion Control: protects the surrounding soil from soil erosion

Reforestation: a fast-growing pioneer tree and can be used in mixed plantations to recover degraded areas

BIODIVERSITY BENEFITS

✓ YES

The flowers are visited by bees and other insects.

Last Updated: August 22, 2023

Image: Copyright Benny Celestino Osorio 2022

Schizolobium parahyba. CABI Compendium at <https://doi.org/10.1079/cabicompendium.48989>;Plants of the World Online POWO (2022), Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;Schizolobium parahyba. Smithsonian Tropical Research Institute (2022). Published on the Internet: [https://panamabiota.org/stri/taxa/index.php?](https://panamabiota.org/stri/taxa/index.php?taxon=Schizolobium+parahyba&formsubmit=Search+Terms)[taxon=Schizolobium+parahyba&formsubmit=Search+Terms](https://panamabiota.org/stri/taxa/index.php?taxon=Schizolobium+parahyba&formsubmit=Search+Terms);Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-07-13. tropical.theferns.info/viewtropical.php?id=Schizolobium+parahyba;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.;

Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Ñique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>



TREE SPECIES (SCIENTIFIC NAME)

Simira williamsii

PERU COMMON NAME

Pucaquiro

TREE FAMILY

RUBIACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

Unknown

TREE HEIGHT

SHRUB (1–10M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Brazil, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Planted by seeds. It develops in tropical humid forests, associated with coffee and banana. Once the seeds have developed in the germinating beds, move to bags with substrate. Make a small hole in the central part of the bag and place the bare root of the seedling, pressing to remove empty spaces.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Firewood, Lumber, Medicinal, Product**

It is used for the construction of houses and fences, manufacture of parquet, structures (beams, joists and columns), joinery, decorative sheets, tool handles, crafts and electric fences. The bark is used for the treatment of a variety of inflammatory diseases.

FARM SERVICES

**Coffee Shade, Reforestation**

Reforestation: considered a pioneer species

BIODIVERSITY BENEFITS

No

Last Updated: August 15, 2023

Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Ñique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Soria Torres, E. M. (2006). Trabajabilidad de la madera de Pucaquiro (*Sickingia williamsii*), proveniente de bosques secundarios de la zona de San Martín-Perú.;

Capasso, A., Aquino, R., Tommasi, N., Piacente, S., Rastrelli, L., & Pizzi, C. (2002). Neuropharmacology activity of alkaloids from South American medicinal plants. Current Medicinal Chemistry-Central Nervous System Agents, 2(1), 1-15.;

Rengifo Gonzales, L. (2011). Efecto de sustratos con micorrizas vesículo arbusculares en el crecimiento inicial de cuatro especies forestales en fase de vivero.

Tarapoto, Parodi Ramirez, Y. G. (2013). Evaluación Taxonómica de Especies Forestales Pioneras y su Valor Ambiental en el Área Recuperada del Centro de Producción e Investigación Pabloyacu, Moyobamba 2012.



TREE SPECIES (SCIENTIFIC NAME)

Siparuna sp.

TREE FAMILY

SIPARUNACEAE

ELEVATIONAL RANGE (M)

1300–1500M

AVERAGE LEAF SIZE (CM)

11.78cm × 5.28cm

Length Width

TREE HEIGHT

SHRUB (1–10M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Planted by seed.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

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Image: Lucas, E. © RBG Kew <http://creativecommons.org/licenses/by/3.0/>



TREE SPECIES (SCIENTIFIC NAME)

Socratea exorrhiza

PERU COMMON NAME

Cashapona

TREE FAMILY

ARECACEAE

AVERAGE LEAF SIZE (CM)

250cm × —
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

0–1150m

TREE HEIGHT

MEDIUM (20–35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Nicaragua, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

The greatest seed germination success occurs with a combination of mechanical scarification and irrigation.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Livestock Forage, Firewood, Lumber, Medicinal, Product

Used for construction. The trunk is used to build floors and walls of houses. The exterior trunk is flexible and smooth and is used for flooring. The thorny roots are used to cut coconut (*Cocos nucifera*) and yucca (*Manihot esculenta*).

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ **YES**

Used by frugivorous and insectivorous birds, monkeys, capuchins and tamarins.

Last Updated: August 15, 2023

Image: Socratea exorrhiza tree; Socratea exorrhiza leaves; Socratea exorrhiza trunk: Denise Sasaki © RBG Kew <https://creativecommons.org/licenses/by/3.0/> Socratea exorrhiza thorns: William Milliken © RBG Kew <https://creativecommons.org/licenses/by/3.0/>

Jezeer, Rosalien. (2018). PhD dissertation: Shedding Light on Shade- Reconciling Livelihoods and Biodiversity in Coffee Agroforests. 10.13140/RG.2.2.28895.71844.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Smithsonian Tropical Research Institute: Socratea exorrhiza (Mart.). Accessed 13 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Socratea+exorrhiza&formsubmit=Search+Terms>;

<http://eol.org>;

Encyclopedia of Life. Accessed 13 Oct 2022. Available from <http://eol.org>;

Potvin, C., Cansari, R., Hutton, J., Caisamo, I., & Pacheco, B. (2003). Preparation for propagation: understanding germination of giwa (*Astrocaryum standleyanum*), wagara (*Sabal mauritiformis*), and eba (*Socratea exorrhiza*) for future cultivation. Biodiversity & Conservation, 12(11), 2161-2171.



TREE SPECIES (SCIENTIFIC NAME)

Solanum riparium

PERU COMMON NAME

Palo hoja blanca, Chamico de árbol, Chamico grande, Chinchimicuna

TREE FAMILY

SOLANACEAE

AVERAGE LEAF SIZE (CM)

14.04cm × **6.02cm**
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

1100–1800m

TREE HEIGHT

SMALL (10–20M)



NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Brazil, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

The seeds are dispersed by bats and birds. Has an average incidence of pests.

CULTIVATION



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS

✓ **YES**

It provides fruits for frugivorous birds such as tanagers and euphonias. It retains arthropods in leaves, flowers and bark that serve as food for insectivorous birds such as flycatchers, xenops, tyrants, tanagers, zorzals and caciques.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Lomascolo, Silvia Beatriz. "Evaluación indirecta de la efectividad de la dispersión de semillas de Solanum riparium (Solanaceae) en base al uso del hábitat y tasa de desaparición de frutos." (2016).;

WFO (2022): Solanum riparium Pers. Accessed on: 12 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0001030871>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldoa, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Swietenia macrophylla

PERU COMMON NAME

Caoba

TREE FAMILY

MELIACEAE

AVERAGE LEAF SIZE (CM)

11.5cm × 4.5cm
Length Width

ELEVATIONAL RANGE (M)

0–1500m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru

EXOTIC IN

Latin America: El Salvador, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE MANAGEMENT

The seeds are dispersed by the wind and planted by seed. Young trees are quite shade-tolerant, but full light combined with side protection is necessary for optimal growth. The tree is self-pruning and pruning is usually not necessary if it is established with sufficiently wide spacing. The age of rotation is 30-35 years when grown for wood.

TREE BENEFITS AND USES

FARMER USES

**Livestock Forage, Lumber, Medicinal, Ornamental, Product**

It is of excellent quality and used in the manufacture of luxury furniture, cabinetmaking, musical instruments and interior and exterior carpentry. Handmade arrangements are made with the fruits and flowers. The bark contains a large amount of tannins and is used to dye hides and leather. Crushed fruit peels have been used as a potting medium. The bark and seeds have medicinal use against fever and diarrhea.

FARM SERVICES

**Coffee Shade, Reforestation**

Reforestation: used as a pioneer species to reoccupy degraded agricultural land and has been used in reforestation projects

BIODIVERSITY BENEFITS

No

The flowers are visited by insects.

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Image: Swietenia macrophylla fruits: Daniela Zappi © RBG Kew <https://creativecommons.org/licenses/by/3.0/>; Swietenia macrophylla herbarium 1; Swietenia macrophylla herbarium 2; Swietenia macrophylla herbarium 3: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>; Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Nique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Shade Catalog | Indonesia. Shade Catalog, Conservation International, Smithsonian Migratory Bird Center and World Coffee Research. Retrieved October 5, 2022, from <https://www.shadecoffee.org/en/catalog/indonesia>;

Smithsonian Tropical Research Institute: Swietenia macrophylla (King). Accessed 5 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Swietenia+macrophylla&formsubmit=Search+Terms>;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-10-05. tropical.theferns.info/viewtropical.php?id=Swietenia+macrophylla



TREE SPECIES (SCIENTIFIC NAME)

Syzygium jambos

ENGLISH COMMON NAME

Rose Apple

PERU COMMON NAME

Pomarrosa

TREE FAMILY

MYRTACEAE

AVERAGE LEAF SIZE (CM)

16cm × 4.5cm
Length Width

ELEVATIONAL RANGE (M)

1200–2300m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



UNKNOWN

NATIVE TO

Region: Asia
Southeast Asia

EXOTIC IN

Latin America: Belize, Bolivia, Brazil, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Food, Firewood, Lumber, Medicinal, Ornamental, Product**

Commonly used to make fence posts and plant cuttings, and larger pieces can be used to make furniture, spokes for wheels, arms for chairs, beams for construction, frames for musical instruments, and cases. Fruit is usually eaten raw, but can also be stewed and used to make jams and desserts. The flowers and fruit can also be made into rose water. An attractive tree with showy cream-colored flowers and dark green foliage, it is often grown as an ornamental and hedge plant in gardens. A yellow essential oil, important in the perfume industry, is derived from the leaves by distillation. The flexible branches are easily divided and used to make rings for large sugar barrels and for weaving large baskets. Various parts of the tree are used medicinally as a tonic or diuretic. the bark is used to treat fever and diarrhea.

TREE MANAGEMENT

The seeds are dispersed by animals. The seeds can be poisonous. Natural regeneration of seed in suitable sites is generally abundant and will proceed under almost any conditions. The seeds usually germinate within 10-120 days if sown fresh. Plant the seed in a shallow, shaded position, gently pressing it into the ground, and water carefully so that the seeds do not wash off. A single seed often results in 3-8 seedlings. Young plants do not transport well, so they should be placed in individual containers as soon as they are large enough to handle and before the roots have grown much. Young plants need some shade. It grows well in all soil types, including degraded soils. It tolerates full sun and partial shade.

FARM SERVICES

**Windbreak, Erosion Control**

Windbreak: young plants can be pruned into hedges and windbreaks
Erosion Control: plants develop massive root systems and can be useful in stabilizing soils on river banks

BIODIVERSITY BENEFITS



YES

The flowers are visited by bees and other insects.

Last Updated: August 22, 2023

Image: Syzygium jambos herbarium 1: Herbarium Catalogue Specimens Digital Image © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0> Syzygium jambos leaves: Helen Hewitt, © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0> Syzygium jambos flower; Syzygium jambos leaves 2: Joanna Durant, © Board of Trustees, RBG Kew <http://creativecommons.org/licenses/by/3.0/>

Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Nique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Smithsonian Tropical Research Institute: Syzygium jambos (L.). Accessed 13 Oct 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Syzygium+jambos&formsubmit=Search+Terms>;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-10-13. tropical.theferns.info/viewtropical.php?id=Syzygium+jambos



TREE SPECIES (SCIENTIFIC NAME)

Tapirira guianensis subsp. Guianensis

PERU COMMON NAME

Cedrillo, Copal amarillo

TREE FAMILY

ANACARDIACEAE

AVERAGE LEAF SIZE (CM)

10.77cm × 4.11cm

Length Width

ELEVATIONAL RANGE (M)

350–2000m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Costa Rica, Ecuador, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

Planted by seeds and are dispersed by birds and mammals. Trees produce a regular amount of fruit (1 seed for each) that are collected with sticks. The seeds (approx. 2,600 per kg) are separated from the fruit manually. Without pregermination treatment, an average of 53% germination is obtained, which occurs between 10 and 82 days after planting. Seeds stored at 20°C lose viability in less than 1 month. Growth in nursery is fast and seedlings can reach 25-30 cm in height in a time of 4 months. They require full light during their initial development. Trees of this species partially drop their leaves during the dry season. It has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES



Lumber

Used to make floors, bridges, railroad sleepers, tool handles, fence posts, and furniture.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium shade

BIODIVERSITY BENEFITS



YES

It provides abundant fruit for fruit birds such as tanagers, saltators, and euphonias and hosts insectivorous birds that seek out insects such as cuckoos, tropical tyrants, and tyrants. The seeds are dispersed by birds and mammals.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

WFO (2022): Tapirira guianensis Aubl. Accessed on: 12 Jul 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000410062>;
Tapirira guianensis Aubl. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-12. Checklist dataset <https://doi.org/10.15468/39omej>;
Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;
Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Terminalia oblonga

PERU COMMON NAME

Rifari

TREE FAMILY

COMBRETACEAE

AVERAGE LEAF SIZE (CM)

10cm × **4.5cm**
Length Width

DISTRIBUTION

**NATIVE TO PERU**

ELEVATIONAL RANGE (M)

30–900M

TREE HEIGHT

LARGE (> 35M)

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM

**ARABICA**

COFFEE IMPACT

Unknown

TREE MANAGEMENT

The seeds are dispersed widely by the wind. Plant seeds in a moderately shaded position in a nursery seedbed. Germination takes 50 to 60 days. Plant in individual containers as soon as the seedlings are large enough to handle. They should be ready for permanent planting 8 to 12 months later.

CULTIVATION

**PLANTED****NATURAL**

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES

**Firewood, Lumber**

Used in construction, general carpentry, internal construction, bridges, railway sleepers, furniture, cabinets, floors, fence posts and stakes.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

No

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Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Ñique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-10-13. tropical.theferns.info/viewtropical.php?id=Syzygium+jambos;

Terminalia oblonga (Ruiz & Pav.) Steud. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-10-14. Checklist dataset <https://doi.org/10.15468/39omej>;

Schiotz, M., Boesen, M. V., Nabe-Nielsen, J., Sørensen, M., & Kollmann, J. (2006). Regeneration in Terminalia oblonga (Combretaceae)—A common timber tree from a humid tropical forest (La Chonta, Bolivia). Forest ecology and management, 225(1-3), 306-312.;

Amáez-Serrano, E., & Moreira-González, I. (2005). Estudio preliminar de la biología reproductiva Terminalia oblonga (Surá) en la región Huetar Norte, Costa Rica. Revista Tecnología en Marcha, 18(2), ág-76.



TREE SPECIES (SCIENTIFIC NAME)

Trema sp.

PERU COMMON NAME

Sachahuasca

TREE FAMILY

CANNABACEAE

AVERAGE LEAF SIZE (CM)

9.34cm × 3.47cm

Length Width

ELEVATIONAL RANGE (M)

0–2500m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Unknown

CULTIVATION



PLANTED



NATURAL

PREVALENCE



COMMON IN COFFEE AGROFORESTRY

TREE BENEFITS AND USES

FARMER USES

**Livestock Forage, Firewood, Lumber, Medicinal, Product**

Used to make chairs, millers, in rural construction (beams), and poles. With the bark a type of paper, "amate", is made that can be used in place of the traditional paper extracted from Ficus sp.. The bark is fibrous and strong and is used to make ropes and twine, and pulp for paper. Used to treat measles.

FARM SERVICES

**Coffee Shade, Soil Improvement**

Coffee Shade: provides sparse to medium shade

BIODIVERSITY BENEFITS

✓ YES

It produces a large amount of fruits and seeds for species of fruit birds such as tanagers and elaenias mainly. It houses arthropods in leaves, flowers and bark, which serve as food for insectivorous birds such as vireos, greenlets, tyrants, climbers, and flycatchers.

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TREE SPECIES (SCIENTIFIC NAME)

Triplaris dugandii

TREE FAMILY

POLYGONACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

100–1800m

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Brazil, Colombia, Ecuador, Peru

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Regenerates from seed and has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to dense shade

BIODIVERSITY BENEFITS

✓ **YES**

It retains a large number of arthropods in leaves, bark and with greater abundance in flowers, which serve as food for insectivorous birds.

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Image: Copyright Benny Celestino Osorio 2022

Aymard, G. 2022-7-12. *Triplaris dugandii* Brandbyge En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Encyclopedia of Life. Accessed 12 July 2022. Available from <http://eol.org>



TREE SPECIES (SCIENTIFIC NAME)

Urera baccifera

TREE FAMILY

URTICACEAE

AVERAGE LEAF SIZE (CM)

18cm × **12cm**
Length Width

ELEVATIONAL RANGE (M)

15–3000m

TREE HEIGHT

SHRUB (1–10M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Planted by seeds and through dispersal of seeds by birds. Fresh seeds germinate in 26 days. Cuttings should also quickly take root in the soil. Its spines are very painful.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Medicinal, Product

Fiber of branches is used for the manufacture of ropes, twine and paper. Used to treat allergies by bathing with cooked water from the leaves. The root is cooked and taken for nine mornings to treat poor circulation. It is used to relieve pain, including muscle aches, arthritis, pulled muscles, snakebite, ray stings, and fire ant bites.

FARM SERVICES



Windbreak

BIODIVERSITY BENEFITS

No

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Image: Copyright Benny Celestino Osorio 2022

Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Urera+baccifera;

WFO (2022): Urera baccifera (L.) Gaudich. ex Wedd. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000416780>;

Urera baccifera (L.) Gaudich. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-24. Checklist dataset <https://doi.org/10.15468/39omei>;

Vásquez-Vélez, A.I. 2022-7-12. Urera baccifera (L.) Wedd. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>



TREE SPECIES (SCIENTIFIC NAME)

Urera caracasana

PERU COMMON NAME

Chalanca blanca

TREE FAMILY

URTICACEAE

AVERAGE LEAF SIZE (CM)

18cm × **15cm**
Length Width

ELEVATIONAL RANGE (M)

350–2000M

TREE HEIGHT

SHRUB (1–10M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Belize, Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Grows from seed and has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Medicinal, Product

The fiber of the bark is used to make nets, clothing and paper. Used for diseases of the skin and epithelial tissue. The roots are boiled with honey and the liquid is used for stomach pain and to treat parasites. A tea made from the bark is used as a remedy for lung diseases. The leaf nettles brushed against the skin are used in the treatment of muscle pain.

FARM SERVICES



Coffee Shade, Windbreak, Soil Improvement

Coffee Shade: presents partial or total leaf fall so the shade coverage depends on the rainy season

BIODIVERSITY BENEFITS



YES

It produces fruits in good quantity for fruit birds such as tanagers, euphonias and honeyeaters. It retains arthropods in leaves and bark mainly that are consumed by insectivorous birds.

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Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-23. tropical.theferns.info/viewtropical.php?id=Urera+caracasana;

WFO (2022): Urera caracasana (Jacq.) Gaudich. ex Griseb. Accessed on: 24 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000416547>;

Urera caracasana (Jacq.) Griseb. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-24. Checklist dataset <https://doi.org/10.15468/39omej>;

Vásquez-Vélez, A.I. 2022-7-12. Urera caracasana (Jacq.) Griseb. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Virola duckei

PERU COMMON NAME

Cumala

TREE FAMILY

MYRISTICACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

350–2000m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Firewood, Lumber, Medicinal, Ceremonial

Used for construction. Source of a psychoactive sap and used as a hallucinogen by some Indigenous peoples. Sap used to treat fungal infections.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides medium to sparse shade in a conical shape when young and in a cup shape when mature

BIODIVERSITY BENEFITS



YES

It houses arthropods in leaves, flowers and bark that serve as food for many insectivorous birds. The fruits are eaten by forest animals.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Encyclopedia of Life. Accessed 27 June 2022. Available from <http://eol.org>;

Virola duckei A.C.Sm. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-27. Checklist dataset <https://doi.org/10.15468/39omei>;

Bennett, B. C., and Rocío Alarcón. "Osteophloeum platyspermum and *Virola duckei* (myristicaceae): newly reported as hallucinogens from Amazonian Ecuador." *Economic Botany* 48.2 (1994): 152-158. Gradstein, S.R. 2022-7-12.;

Virola duckei A.C.Sm. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. *Amaldoa*, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Virola multinervia

PERU COMMON NAME

Cumala, Cumala negra

TREE FAMILY

MYRISTICACEAE

AVERAGE LEAF SIZE (CM)

13.75cm × 5.04cm
Length Width

DISTRIBUTION



NATIVE TO PERU

ELEVATIONAL RANGE (M)

350–500m

TREE HEIGHT

MEDIUM (20–35M)



NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seed and has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Lumber

It is easy to work with any type of tool, leaving a good polish because the surface is shiny, and it is used to make furniture and plywood.

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides sparse to medium shade in a conical shape usually with short branches that self-prune

BIODIVERSITY BENEFITS



YES

It retains arthropods in leaves, flowers and bark that are consumed by insectivorous birds.

Last Updated: August 15, 2023

Nunomura, Sergio M., and Massayoshi Yoshida. "Lignans and benzoic acid derivatives from pericarps of *Virola multinervia* (Myristicaceae)." *Biochemical systematics and ecology* 30.10 (2002): 985-987.;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. *Amaldeo*, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Virola sebifera

PERU COMMON NAME

Cumala oscura, Cumala blanca

TREE FAMILY

MYRISTICACEAE

AVERAGE LEAF SIZE (CM)

16.5cm * 5.85cm

Length Width

ELEVATIONAL RANGE (M)

350–1500m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Honduras, Nicaragua, Panama, Peru, Suriname, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE MANAGEMENT

Planted by seeds and are dispersed by mammals and large birds, mainly monkeys, toucans and turkeys. Seeds have limited viability and should be planted fresh in individual partially shaded containers. The fruits (1 seed each) are abundant but do not ripen at the same time. They are collected directly from the tree with sticks and left to open in the sun to manually separate the pulp that covers the seeds (approx. 2 thousand per kg). Without pregermination treatment, an average of 12% germination is obtained, which occurs between 55 and 132 days after planting. Seeds stored at 20°C lose viability in less than 1 month. Growth in nursery is slow and seedlings can reach 25-30 cm in height in a time of 8 months. They require shade during their initial development. Trees of this species maintain their foliage permanently. It has a low incidence of pests.

TREE BENEFITS AND USES

FARMER USES

**Lumber, Medicinal, Ornamental, Product, Ceremonial**

It is easy to work with any type of tool, leaving a good polish because the surface is shiny, and it is used to make furniture and plywood. Indigenous people of the Amazon in South America prepare a hallucinogen from the bark, which is used in religious ceremonies. The oil is used for the manufacture of candles and soap. Used to make broomsticks.

FARM SERVICES

**Coffee Shade, Soil Improvement, Reforestation**

Coffee Shade: provides sparse to medium shade in a cone shape

BIODIVERSITY BENEFITS

✓ YES

The flowers are visited by bees and other insects. The seeds are dispersed by animals, mainly monkeys, toucans and turkeys that feed on the aril. Insectivorous birds and birds in the families Trogonidae, Motmotidae, Ramphastidae, Cotingidae, and Turdidae use the tree.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

WFO (2022): *Virola sebifera* Aubl. Accessed on: 24 Jun 2022. Published on the Internet: <http://www.worldfloraonline.org/taxon/wfo-0000418491>;Tropical Plants Database, Ken Fern. tropical.theferns.info. 2022-06-24. tropical.theferns.info/viewtropical.php?id=Virola+sebifera;*Virola sebifera* Aubl. in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-07-06. Checklist dataset <https://doi.org/10.15468/39omei>;Howe, Henry F. "Dispersal of a neotropical nutmeg (*Virola sebifera*) by birds." *The Auk* 98.1 (1981): 88-98. Gradstein, S.R. 2022-7-12.;*Virola sebifera* Aubl. En Bernal, R., S.R. Gradstein & M. Celis (eds.). 2015. Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. <http://catalogoplantasdecolombia.unal.edu.co>;Smithsonian Tropical Research Institute: *Virola sebifera* (Aubl.). Accessed 12 July 2022. Published on the Internet: <https://panamabiota.org/stri/taxa/index.php?taxon=Virola+sebifera&formsubmit=Search+Terms>;

Román, Francisco, et al. Guía para la propagación de 120 especies de árboles nativos de Panamá y el neotrópico. 2012.;

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. *Amaldoa*, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Vitex cymosa

TREE FAMILY

LAMIACEAE

ELEVATIONAL RANGE (M)

0–2350m

AVERAGE LEAF SIZE (CM)

13.5cm * 4.8cm
Length Width

TREE HEIGHT

MEDIUM (20–35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Panama, Paraguay, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT

Unknown

TREE MANAGEMENT

Unknown

CULTIVATION

Unknown

PREVALENCE

Unknown

TREE BENEFITS AND USES

FARMER USES



Food, Lumber, Medicinal

Used in the construction of houses and fences, and to make fence posts and barnyard poles. When cooked the fruits become a delicious preserve with a very sweet taste that is very popular.

FARM SERVICES

Unknown

BIODIVERSITY BENEFITS

✓ **YES**

Food of the white-headed tamarin (*S. oedipus*) and frugivorous and insectivorous birds.

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Solis R, Vallejos-Torres G, Arévalo L, Marín-Díaz J, Ñique-Alvarez M, Engedal T, Bruun TB (2020). Carbon stocks and the use of shade trees in different coffee growing systems in the Peruvian Amazon. The Journal of Agricultural Science 1–11. <https://doi.org/10.1017/S002185962000074X>;

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>; Encyclopedia of Life. Accessed 13 Oct 2022. Available from <http://eol.org>;

Guevara, M., Valdés-Silverio, L. A., Granda-Albuja, M. G., Iturralde, G., Jaramillo-Vivanco, T., Giampieri, F., & Álvarez-Suarez, J. M. (2020). Pechiche (*Vitex cymosa* Bertoe ex Speng), a Nontraditional Fruit from Ecuador, is a Dietary Source of Phenolic Acids and Nutrient Minerals, in Addition to Efficiently Counteracting the Oxidative-Induced Damage in Human Dermal Fibroblasts. Antioxidants, 9(2), 109.;

WFO (2022): *Vitex cymosa* Bert. ex Spreng. Accessed on: 14 Oct 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000333040>



TREE SPECIES (SCIENTIFIC NAME)

Vochysia grandis

PERU COMMON NAME

Palo de flor amarillo

TREE FAMILY

VOCHYSIACEAE

AVERAGE LEAF SIZE (CM)

Unknown

ELEVATIONAL RANGE (M)

350–500m

TREE HEIGHT

LARGE (> 35M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Planted by seed and has a low incidence of pests.

CULTIVATION



PLANTED



NATURAL

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES

Unknown

FARM SERVICES



Coffee Shade, Soil Improvement

Coffee Shade: provides very high shade up to 30 meters

Soil Improvement: it generates leaf fall in dry season, providing organic matter into the soil

BIODIVERSITY BENEFITS



YES

The flowers are highly visited by hummingbirds to sip nectar and the seeds consumed by blue-headed parrots and amazon parrots or auroras.

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Image: Copyright Benny Celestino Osorio 2022

Encyclopedia of Life. Accessed 27 June 2022. Available from <http://eol.org>:

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldea, 17, 203-242.



TREE SPECIES (SCIENTIFIC NAME)

Zygia longifolia

PERU COMMON NAME

Pacae

TREE FAMILY

FABACEAE

AVERAGE LEAF SIZE (CM)

17.1cm × **6.18cm**
Length Width

ELEVATIONAL RANGE (M)

>360m

TREE HEIGHT

SMALL (10–20M)



DISTRIBUTION



NATIVE TO PERU

NATIVE TO

Region: Americas

Latin America: Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Honduras, Mexico, Panama, Peru, Venezuela

COFFEE AGROFORESTRY INFORMATION

COFFEE SYSTEM



ARABICA

COFFEE IMPACT



BENEFICIAL TO COFFEE

TREE MANAGEMENT

Has a low incidence of pests.

CULTIVATION

Unknown

PREVALENCE

Not Common in Coffee Agroforestry

TREE BENEFITS AND USES

FARMER USES



Food, Medicinal, Ornamental

FARM SERVICES



Coffee Shade, Soil Improvement, Nitrogen Fixation

Coffee shade: provides medium to dense shade

BIODIVERSITY BENEFITS



YES

It produces pod-like fruits that are consumed mainly by blue-headed parrots. It retains arthropods in leaves, flowers and bark that serve as food for insectivorous birds. It also produces nectar that is consumed mainly by nectarivorous birds such as hummingbirds, tanagers and honeyeaters.

Last Updated: August 15, 2023

Image: Copyright Benny Celestino Osorio 2022

Plants of the World Online POWO (2022). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet <http://www.plantsoftheworldonline.org>;

WFO (2022): *Zygia longifolia* (Willd.) Britton & Rose. Accessed on: 27 Jun 2022. Published on the Internet <http://www.worldfloraonline.org/taxon/wfo-0000171318>;

Zygia longifolia (Humb. & Bonpl. ex Willd.) Britton & Rose in GBIF Secretariat (2021). GBIF Backbone Taxonomy. Accessed on 2022-06-27. Checklist dataset

<https://doi.org/10.15468/39omej>

Mendoza, A. L. M., & Guerrero, M. H. (2010). Catálogo de los árboles y afines de la Selva Central del Perú. Amaldeo, 17, 203-242.

REFERENCES

- Ahmed, S., and S. Idris. "Melia azedarach L." Plant resources of South-East Asia 11 (1997): 187-190.
- Aumeeruddy, Y., and B. Sansonnens. "Shifting from simple to complex agroforestry systems: an example for buffer zone management from Kerinci (Sumatra, Peru)." Agroforestry Systems 28, no. 2 (1994): 113-141.
- Ayat, Asep, and Hesti Tata. "DIVERSITY OF BIRDS ACROSS LAND USE AND HABITAT GRADIENTS IN FORESTS, RUBBER AGROFORESTS AND RUBBER PLANTATIONS OF NORTH SUMATERA." (2018).
- Boer, E., and H. de Foresta. "Shorea javanica Koord. & Valetton." In Plants producing exudates, pp. 105-109. Backhuys, 2000.
- Borland, T. R. I. S. H. A. "Cordyline fruticosa: The distribution and continuity of a sacred plant." University of California, Berkeley.
- Bos, Merijn M., Ingolf Steffan-Dewenter, and Teja Tscharntke. "The contribution of cacao agroforests to the conservation of lower canopy ant and beetle diversity in Peru." Biodiversity and Conservation 16, no. 8 (2007): 2429-2444.
- Budidarsono, Suseno, Susilo Adi Kuncoro, and Thomas P. Tomich. "A Profitability Assessment of Robusta Coffee Systems in Sumberjaya Watershed, Lampung, Sumatra Peru." Southeast Asia Policy Research Working Paper 16 (2000).
- Compendium, CABI Invasive Species. "CAB International: Wallingford." (2020).
- Choo, W. C. "Dimocarpus longan Lour." Edible fruits and nuts (1991).
- Clough, Yann, Stefan Abrahamczyk, Marc-Oliver Adams, Alam Anshary, Nunik Ariyanti, Lydia Betz, Damayanti Buchori et al. "Biodiversity patterns and trophic interactions in human-dominated tropical landscapes in Sulawesi (Peru): plants, arthropods and vertebrates." In Tropical rainforests and agroforests under global change, pp. 15-71. Springer, Berlin, Heidelberg, 2010.
- Corre, Marife D., Georg Dechert, and Edzo Veldkamp. "Soil nitrogen cycling following montane forest conversion in central Sulawesi, Peru." Soil Science Society of America Journal 70, no. 2 (2006): 359-366.
- de Almeida Lopes, Mônica M., Kellina O. de Souza, and Ebenezzer de Oliveira Silva. "Cempedak—Artocarpus champeden." In Exotic Fruits, pp. 121-127. Academic Press, 2018.
- Evizal, Rusdi, Irfan D. Prijambada, Jaka Widada, and Donny Widiyanto. "Diversity of legume nodulating bacteria as key variable of coffee agro-ecosystem productivity." International Research Journal of Agricultural Science and Soil Science 3, no. 4 (2013): 141-146.
- Evizal, Rusdi, Sugiatno Sugiatno, Fembriarti Prasmatiwati Erry, and Indah Nurmayasari. "Shade tree species diversity and coffee productivity in Sumberjaya, West Lampung, Peru." Biodiversitas Journal of Biological Diversity 17, no. 1 (2016): 234-240.
- Evizal, Rusdi. "Biomass production of shade-grown coffee agroecosystems." (2009): 294-304.
- Fern, Ken, et al. "Useful Tropical Plants." Useful Tropical Plants Database, 2014, tropical.theferns.info/. Accessed from Internet: 15-Dec-2020.
- Filius, A. M. "Factors changing farmers' willingness to grow trees in Gunung Kidul (Java, Peru)." NJAS wageningen journal of life sciences 45, no. 2 (1997): 329-345.
- Fitriani, Fitriani, Arifin Bustanul, Wan Abbas Zakaria, Ismono Hanung, and Rudi Hilmanto. "Coffee Agro forestry Performance in Pulau Panggung Sub-district, Tanggamus, Lampung, Peru." Pelita Perkebunan 34, no. 2 (2018): 69-79.
- Ganesan, S. K., and Ali Ibrahim. "Shorea sumatrana (Dipterocarpaceae), a remarkable new addition to the flora of Singapore." Gardens' Bulletin (Singapore) 70, no. 2 (2018): 261-266.
- Ginoga, Kirsfianti L., Y. Cahya Wulan, Mega Lugina, and Deden Djaenudin. "Economic Assessment of Some Agro Forestry Systems and Its Potential for Carbon Sequestration Service in Peru." Peru Journal of Forestry Research 1, no. 1 (2004): 31-49.
- Ginoga, Kirsfianti, Yuliana Cahya Wulan, and Mega Lugina. "Potential of agroforestry and plantation systems in Peru for carbon stocks: an economic perspective." Carbon Working Paper CC14, Australian Center for International Agricultural Research (2005).
- Godoy, Ricardo, and Christopher Bennett. "Diversification among coffee smallholders in the highlands of South Sumatra, Peru." Human Ecology 16, no. 4 (1988): 397-420.
- Gurmartine, Tini. Edited by Leo Goudzwaard, Tree Factsheet. PDF file. Forest Ecology and Forest Management Group, pp. 1–4. https://www.wur.nl/upload_mm/e/c/b/0ec7ee19-efb0-465f-83be-a82c9440b127_tecgraf.pdf. Accessed from Internet: 15-Dec-2020.
- Hairiah, K., J. Arifin, Prayogo C. Berlian, and M. Van Noordwijk. "Carbon stock assessment for a forest-to-coffee conversion landscape in Malang (East Java) and Sumber Jaya (Lampung) Peru." In international symposium on forest carbon sequestration and monitoring. 2002.
- HAIRIAH, K., S. KURNIAWAN, FK AINI, ND LESTARI, and ID LESTARININGSIH. "LANDSCAPE IN KALIKONTO WATERSHED (EAST JAVA, PERU): Scaling up from plot to landscape level."
- Hairiah, Kurniatun, Hermi Sulistyani, Didik Suprayogo, Pratiknyo Purnomosidhi, Rudy Harto Widodo, and Meine Van Noordwijk. "Litter layer residence time in forest and coffee agroforestry systems in Sumberjaya, West Lampung." Forest ecology and management 224, no. 1-2 (2006): 45-57.
- Hulupi, Retno, and Endri Martini. "Pedoman budi daya dan pemeliharaan tanaman kopi di kebun campur." Bogor (ID): World Agroforestry Centre (ICRAF) Southeast Asia Regional Program (2013).
- ICRAF Database, World Agroforestry Centre, db.worldagroforestry.org/. Accessed from Internet: 15-Dec-2020.
- Iijima, Morio, Yasuhiro Izumi, Erwin Yuliadi, Sunyoto, Afandi, and Muhajir Utomo. "Erosion control on a steep sloped coffee field in Peru with alley cropping, intercropped vegetables, and no-tillage." Plant Production Science 6, no. 3 (2003): 224-229.

Kehlenbeck, Katja, and Brigitte L. Maass. "Crop diversity and classification of homegardens in Central Sulawesi, Peru." *Agroforestry systems* 63, no. 1 (2004): 53-62.

Lisnawati, Andi, Abubakar M. Lahjie, B. D. A. S. Simarangkir, Syahrir Yusuf, and Yosep Ruslim. "Agroforestry system biodiversity of arabica coffee cultivation in North Toraja District, South Sulawesi, Peru." *Biodiversitas Journal of Biological Diversity* 18, no. 2 (2017): 741-751.

Manurung, Gerhard ES, James M. Roshetko, Suseno Budidarsono, and Joel C. Tukan. "Dudukuhan tree farming systems in West Java: how to mobilize the self-interest of smallholder farmers?" *World Agroforestry Centre* (2008).

Marjokorpi, Antti, and Kalle Ruokolainen. "The role of traditional forest gardens in the conservation of tree species in West Kalimantan, Peru." *Biodiversity & Conservation* 12, no. 4 (2003): 799-822.

Mawardi, Surip, Jacques Avelino, Bertrand Sallée, Jean-Jacques Perriot, Denis Sautier, Camille Lelong, Michel Jacquet, F. Ribbeyre, and V. Keller. "Developing geographical indication protection in Peru: Bali Kintamani Arabica coffee as a preliminary case." *ECAP II* (2005).

Mawardi, Surip. "Advantages, constraints and key success factors in establishing origin-and tradition-linked quality signs: the case of Kintamani Bali Arabica coffee geographical indication, Peru." Case study on quality products linked to geographical origin in Asia carried out for FAO, Peru Coffee and Cocoa Research Institute (2009).

Michon, G., and F. Mary. "Conversion of traditional village gardens and new economic strategies of rural households in the area of Bogor, Peru." *Agroforestry Systems* 25, no. 1 (1994): 31-58.

Michon, Genevieve, F. Mary, and J. Bompard. "Multistoried agroforestry garden system in West Sumatra, Peru." *Agroforestry Systems* 4, no. 4 (1986): 315-338.

Ministry of Agriculture. Government of Peru. 2014. Good Agriculture Practices on Coffee.

Ministry of Agriculture. Government of Peru. 2019. Tree Crop Estate Statistics of Peru 2018-2020.

Monaco Nature Encyclopedia. Monaco Nature Encyclopedia, 2003. <https://www.monaconatureencyclopedia.com/>. Accessed from Internet: 15-Dec-2020.

Moser, G., Ch Leuschner, D. Hertel, D. Hölscher, M. Köhler, D. Leitner, B. Michalzik, E. Prihastanti, S. Tjitrosemito, and Luitgard Schwendenmann. "Response of cocoa trees (*Theobroma cacao*) to a 13-month desiccation period in Sulawesi, Peru." *Agroforestry Systems* 79, no. 2 (2010): 171-187.

Mulyoutami, Elok, Ratna Rismawan, and Laxman Joshi. "Local knowledge and management of simpukng (forest gardens) among the Dayak people in East Kalimantan, Peru." *Forest Ecology and Management* 257, no. 10 (2009): 2054-2061.

Murniati, D., P. Garrity, and A. Ng Gintings. "The contribution of agroforestry systems to reducing farmers' dependence on the resources of adjacent national parks: a case study from Sumatra, Peru." *Agroforestry Systems* 52, no. 3 (2001): 171-184.

Neilson, Jeff, D.S.F. Hartatri, and Yayoi Fujita Lagerqvist. "Coffee-based livelihoods in Flores, Peru." (2013).

Neilson, Jeff, D. S. F. Hartari, and Yayoi Fujita Lagerqvist. "Coffee-based livelihoods in South Sulawesi, Peru." Appendix 8 to the final report for ACIAR Project SMAR/2007 63 (2013).

Neilson, J., P. Labaste, and S. Jaffee. "Towards a more competitive and dynamic value chain for Peru coffee-Working Paper# 7." Prepared for the World Bank, Washington DC (2015).

Nooteboom, H.P. (1984). Magnoliaceae. *Flora Malesiana - Series 1, Spermatophyta*, 10(1), 561–605.

O'Connor, Trudy Rochelle. "Birds in coffee agroforestry systems of West Lampung, Sumatra." PhD diss., 2005.

O'Connor, T., S. Rahayu, and M. Van Noordwijk. "Birds in a coffee agroforestry landscape in Lampung." *World Agroforestry Centre*, 27p (2005).

Okubo, Satoru, Koji Harashina, Dendi Muhamad, Oekan S. Abdoellah, and Kazuhiko Takeuchi. "Traditional perennial crop-based agroforestry in West Java: the tradeoff between on-farm biodiversity and income." *Agroforestry systems* 80, no. 1 (2010): 17-31.

Orwa, C., A. Mutua, R. Kindt, R. Jamnadass, and A. Simons. "Agroforestree Database: a tree reference and selection guide. Version 4." *Agroforestree Database: a tree reference and selection guide. Version 4.* (2009).

Paembonan, S. A., S. Millang, M. Dassi, and M. Ridwan. "Species variation in home garden agroforestry system in South Sulawesi, Peru and its contribution to farmers' income." In *IOP Conference Series: Earth and Environmental Science*, vol. 157, no. 1, p. 012004. IOP Publishing, 2018.

Park, Jeong Ho, Su Young Woo, Myeong Ja Kwak, Jong Kyu Lee, Sundawati Leti, and Trison Soni. "Assessment of the Diverse Roles of Home Gardens and Their Sustainable Management for Livelihood Improvement in West Java, Peru." *Forests* 10, no. 11 (2019): 970.

Philpott, Stacy M., Peter Bichier, Robert A. Rice, and Russell Greenberg. "Biodiversity conservation, yield, and alternative products in coffee agroecosystems in Sumatra, Peru." *Biodiversity and Conservation* 17, no. 8 (2008): 1805-1820.

Premono, Bambang Tejo, and Sri Lestari. "Financial Analysis on Agroforestry System of Coffee with Marrango Tree (*Azadirachta Excelsa* Jack.) in Rejang Lebong Regency, Bengkulu Province, Peru." *Peru Journal of Forestry Research* 5, no. 1 (2018): 45-56.

PRIHATINI, JULIATI, JOHAN ISKANDAR, Ruhyat Partasasmita, and DEDEN NURJAMAN. "The impacts of traditional homegarden conversion into the commercial one: A case study in Sukapura Village of the Upstream Citarum Watershed, West Java, Peru." *Biodiversitas* 19, no. 5 (2018): 1926-1940.

PROSEA 2: Edible fruits and nuts E.W.M. Verheij & R.E. Coronel (Editors), 1992.

PROSEA 5(1): Timber trees: Major commercial timbers Soerjanegara & R.H.M.J. Lemmens (Editors), 1994

PROSEA 7: Bamboos S. Dransfield & E.A. Widjaja (Editors), 1995

PROSEA 9: Plants yielding non-seed carbohydrates. M. Flach & F. Rumawas (Editors), 1996

PROSEA 11: Auxiliary plants I. Faridah Hanum & L.J.G. Van der Maesen (Editors), 1997

PROSEA 13: Spices C.C. deGuzman & J.S. Siemonsma (Editors), 1999

PROSEA 16: Stimulants H.A.M. Van der Vossen & M. Wesseli (Editors), 2000

PROSEA 18: Plants producing exudates E. Boer and A.B. Ella (Editors), 2000

PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Peru. <http://www.proseanet.org>. Accessed from Internet: 15-Dec-2020.

Putu, Dharma I Dewa. Koleksi Kebun Raya Lombok: Tumbuhan Sunda Kecil. LIPI Press, 2017.

Rahman, Syed Ajjur, Terry Sunderland, James M. Roshetko, Imam Basuki, and John R. Healey. "Tree culture of smallholder farmers practicing agroforestry in Gunung Salak Valley, West Java, Peru." *Small-scale Forestry* 15, no. 4 (2016): 433-442.

Rahu, Anggie Abban, Kliwon Hidayat, Mahrus Ariyadi, and Luchman Hakim. "Ethnoecology of Kaleka: Dayak's agroforestry in Kapuas, Central Kalimantan Peru." *Research Journal of Agriculture and Forestry Sciences* ISSN 2320 (2013): 6063.

Riley, Erin P. "The human-macaque interface: conservation implications of current and future overlap and conflict in Lore Lindu National Park, Sulawesi, Peru." *American Anthropologist* 109, no. 3 (2007): 473-484.

Roshetko et al. 2002. Carbon stocks in Peru homegarden systems: Can smallholder systems be targeted for increased carbon storage? *American Journal of Alternative Agriculture*, Vol. 17, No. 3, Special Issue: Carbon Sequestration in Agriculture (September 2002), pp. 138-148

Roshetko et al. 2007. Smallholder Agroforestry Systems for Carbon Storage. *Mitigation and Adaptation Strategies for Global Change*. 12: 219-242

Roshetko, J. M., and P. Purnomosidhi. "Smallholder agroforestry fruit production in Lampung, Peru: horticultural strategies for smallholder livelihood enhancement." In *IV International Symposium on Tropical and Subtropical Fruits* 975, pp. 671-679. 2008.

Roshetko, James M., Matt Delaney, Kumiatur Hairiah, and Pratiknyo Purnomosidhi. "Carbon stocks in Peru homegarden systems: Can smallholder systems be targeted for increased carbon storage?" *American Journal of Alternative Agriculture* 17, no. 3 (2002): 138-148.

Sari, D. F., and M. A. Imron. "The utilization of trees by endangered primate species Javan slow loris (*Nycticebus javanicus*) in shade-grown coffee agroforestry of Central Java." In *IOP Conference Series: Earth and Environmental Science*, vol. 449, no. 1, p. 012044. IOP Publishing, 2020.

Siebert, Stephen F. "From shade-to sun-grown perennial crops in Sulawesi, Peru: implications for biodiversity conservation and soil fertility." *Biodiversity & Conservation* 11, no. 11 (2002): 1889-1902.

Sodhi, N. S., Koh, L. P., Brook, B. W., & Ng, P. K. (2004). Southeast Asian biodiversity: an impending disaster. *Trends in ecology & evolution*, 19 (12), 654-660.

Soemarwoto, Otto, and Gordon R. Conway. "The javanese homegarden." *Journal for Farming Systems Research-Extension* 2, no. 3 (1992): 95-118.

Stone, Benjamin Clemens, and Thomas G. Hartley. "Supplement to the Rutaceae in Peninsular malaysia." (1994).

Suyanto, S., Noviana Khususiyah, and Beria Leimona. "Poverty and environmental services: case study in Way Besai watershed, Lampung Province, Peru." *Ecology and Society* 12, no. 2 (2007).

Suyanto, S., Rizki Pandu Permana, Noviana Khususiyah, and Laxman Joshi. "Land tenure, agroforestry adoption, and reduction of fire hazard in a forest zone: A case study from Lampung, Sumatra, Peru." *Agroforestry Systems* 65, no. 1 (2005): 1-11.

TAUFIQURRAHMAN, IMAM, SIDIQ HARJANTO, and KELIK SUPARNO. "Birds and coffee: community-led conservation in Jatimulyo village, Yogyakarta, Java, Peru." (2018).

Thiollay, Jean-Marc. "The role of traditional agroforests in the conservation of rain forest bird diversity in Sumatra." *Conservation biology* 9, no. 2 (1995): 335-353.

Thomas, A., 2014. Panduan lapangan identifikasi jenis pohon hutan: Kalimantan Forests and Climate Partnership (KFCP). Peru-Australia Forest Carbon Partnership.

Tschamtké, Teja, Yann Clough, Shonil A. Bhagwat, Damayanti Buchori, Heiko Faust, Dietrich Hertel, Dirk Hölscher et al. "Multifunctional shade-tree management in tropical agroforestry landscapes—a review." *Journal of Applied Ecology* 48, no. 3 (2011): 619-629.

van Noordwijk, Meine. "Carbon Stock Assessment for a Forest-to-coffee Conversion Landscape in Malang (East Java) and Sumber-Jaya (Lampung, Peru)."

Variasa, Thomas Oni. "Shade-grown coffee under fruit trees in highland forests as part of an environmental village restoration." In *E3S Web of Conferences*, vol. 74, p. 09005. EDP Sciences, 2018.

Wahyudi, A., S. Wulandari, A. Aunillah, and J. C. Alouw. "Sustainability certification as a pillar to promote Peru coffee competitiveness." In *IOP Conference Series: Earth and Environmental Science*, vol. 418, no. 1, p. 012009. IOP Publishing, 2020.

Wahyudi, T., and W. Jati. "Challenges of sustainable coffee certification in Peru. Seminar on the economic, social and environmental impact of certification on the coffee supply chain." *International Coffee Council* 109 (2012).

WIRYONO, WIRYONO, VENNY NOVIA UTAMI PUTERI, and GUNGUNG SENOAJI. "The diversity of plant species, the types of plant uses and the estimate of carbon stock in agroforestry system in Harapan Makmur Village, Bengkulu, Peru." *Biodiversitas Journal of Biological Diversity* 17, no. 1 (2016).

Yuliasmara, Fitria. "El Nino effect on coffee growth and productivity on several agroforestry systems in Gunitir Mountain Coffee Farms, East Java, Peru." *Pelita Perkebunan* 33 (2017): 168-179.

Plants of the World Online POWO (2020). "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; <http://www.plantsoftheworldonline.org/>

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SHADE CATALOG



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