

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



Sixteenth meeting of the Conference of the Parties
Bangkok (Thailand), 3-14 March 2013

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Dalbergia retusa is proposed for listing in Appendix II of CITES in accordance with Article II, paragraph 2(a), of the Convention and Resolution Conf. 9.24 (Rev. CoP15) Annex 2 (a), Paragraph B.

Dalbergia granadillo is proposed for listing in Appendix II of CITES for look-alike reasons in accordance with Article II, paragraph 2(b), of the Convention and Resolution Conf. 9.24 (Rev. CoP15) Annex 2 (b), Paragraph A.

B. Proponent

Belize*

C. Supporting statement

1. Taxonomy

1.1 Class: Magnoliopsida

1.2 Order: Fabales

1.3 Family: Leguminosae (Fabaceae) Juss.1789

1.4 Genus, species or subspecies, including author and year: *Dalbergia retusa* Hemsley 1878
Dalbergia granadillo Pittier 1922

Note: Taxonomic circumscription of the genus is subject to much debate. The current estimate for total number of species is 250 (Lewis, pers. comm., 2012)

1.5 Scientific synonyms:

Synonyms of *Dalbergia retusa* (MOBOT, 2012): *Amerimnon lineatum* (Pittier) Standl.;
Amerimnon retusum (Hemsl.) Standl.;
Dalbergia cuscatlanica (Standl.) Standl.;
Dalbergia hypoleuca Pittier;
Dalbergia lineata Pittier;
Dalbergia pacifica Standl. & Steyerem; *Dalbergia retusa* var. *hypoleuca* (Pittier) Rudd;

* The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

Dalbergia retusa var. *lineata*
(Pittier) Rudd.

- 1.6 Common names: English: black rosewood, Nicaraguan rosewood, red foxwood, rosewood, yellow rosewood
French: palissandre cocobolo
Spanish: cocobola, cocobolo, cocobolo, ñambar, cocobolo negro, cocobolo prieto, funera, franadillo, granadillo, granadillo de Chontales, manarizoby, namba, nambar, nambar de Agui, nambar legítimo, nambaro, palisandro, palo negro, palo de rosa, prieto
German: cocoboloholz, Foseholz
In trade, *Dalbergia retusa* has the same common names as *D. granadillo*, and other *Dalbergia* spp. (Schmidt, 2006).
- 1.7 Code numbers: None

2. Overview

Dalbergia retusa is a hardwood leguminous tree, principally occurring in tropical dry forests (Section 3.2). This endangered ecosystem has been heavily exploited, with most of the land having been converted to other uses (Section 4.1). In addition to this pressure, *D. retusa* has been extensively felled, like many of the other tree species in the genus, to harvest the beautiful, dense and durable wood, which is prized for a wide range of uses (Section 6.1). There appears to be a high wastage of wood as the sapwood is of low value and there is a premium on the most highly patterned heartwood pieces (Section 6.3). The wood is used for carvings and presumably exported as personal items in the tourist trade (Section 6.1). The wood is also reported in trade outside the range States, particularly in the United States of America, where it appears to be imported as timber and then sold on as timber or small, high-value products such as pen-blanks and gun handles (Section 6.1). Some plantations of the species exist at various stages of maturity, and more are planned to attempt to fulfill demand for the timber (Section 8.4), although destructive harvest from the wild continues (Section 6.1). Little information is available on current abundance, but there are reports of heavy exploitation in the past, particularly in **Costa Rica** and **Panama** (Section 4.2). Reported difficulties in sourcing the wood (Section 4.2) suggest that it may already be commercially extinct in some wild areas.

Given the increasing importance of tourism in the region, the prominence of carvings in the tourist trade, the continuing demand for the wood for a range of uses internationally and the high level of wastage, the total trade may represent utilisation of a great many trees.

Dalbergia retusa meets the criteria for inclusion on Appendix II of CITES in accordance with Article II, paragraph 2(a), of the Convention and Resolution Conf. 9.24 (Rev. CoP15) Annex 2 (a), Paragraph B: *It is known, or can be inferred or projected, that regulation of trade in the species is required to ensure that the harvest of specimens from the wild is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences.* *Dalbergia granadillo* is also proposed for inclusion for look-alike reasons as the timber is also traded as “cocobolo” and the timber of the two species cannot be distinguished.

3. Species characteristics

3.1 Distribution

Dalbergia retusa occurs from **Mexico** to **Panama** (INBio, 2006) mainly in dry tropical forest. The distribution is likely to be highly fragmented due to the massive loss of this ecosystem (Section 4.1). The type location is Paraíso in Panama (INBio, 2006).

D. retusa has been reported from north-western **Colombia** (Record, 1942; Jimenez, 1999; Cordero y Boshier, 2003; TROPICOS, 2006), but, according to the Cardenas et al (2010) assessment, this species does not occur in Colombia. In **Costa Rica**, *D. retusa* occupies 13,697.7km². Its available habitat has been reduced by 61.5%, indicating that the species is exploited and rare. 6.2% of its habitat occurs within State protected areas. It occurs throughout the Nicoya Peninsula, and in the vicinity of Pozón-Orotina, San Pablo and San Pedro de Turraabares and Ciudad Colón, but is very scarce in the northern zone of Los Chiles (INBio, 2006; ITCR/EIF, 2006). It occurs principally within

the dry forests of Guanacaste province and in the driest areas of the Nicoya Peninsula within the province of Puntarenas. It generally grows in flat to moderately flat areas with slopes of less than 15% and occasionally in rocky areas (ITCR/EIF, 2006). Representative specimens have been reported from El Salvador (MOBOT, 2006). It is included in a list of principal forest species of Guatemala (INAB, 2006) and is reported from western Honduras (Record, 1942). It also occurs in south-western (Record, 1942) and south-eastern (ILDIS, 2005) Mexico. It is frequent in Nicaragua from the Pacific to the Atlantic coasts (Stevens *et al.*, 2001). In Panama, it is only found in the drier, southern parts of the isthmus, but is never common (Condit and Pérez, 2002). *Dalbergia granadillo* occurs in **El Salvador** and **Mexico** (Secretaría de Desarrollo Social, 1994). No representative specimens have been recorded from Belize but based on distribution elsewhere in the region it is likely that the species does occur in Belize. Taxonomic clarification is required to determine if trees referred to as '*Dalbergia* sp.' and/or 'rosewood' in the Chiquibul Forest Reserve, Belize are in fact *D. retusa* (Cho, pers. comm., 2012).

3.2 Habitat

D. retusa is a species of dry forest, woodland and scrub along central American Pacific coastal lowlands and slopes, occurring in wooded areas as well as rocky ground and pastureland (Jiménez Madrigal, 1993). In **Nicaragua**, the species is found in a range of habitats, including dry forests, humid forests, gallery forests and savannas (Stevens *et al.*, 2001).

D. retusa is found on flatlands or moderate slopes in tropical dry forests with an annual rainfall under 2000 mm and a temperature range of 24 - 30°C (Marín and Flores, 2003). It grows in soils of varying pH, texture, drainage and fertility, with a typical elevation range of 50 - 300m (INBio, 1999; Marín and Flores, 2003) and up to 800m in **Nicaragua** (Stevens *et al.*, 2001).

The species responds well to fire (Section 3.3). It is slow-growing (Americas Regional Workshop, 1998) but has shown a high rate of survival, for example in **Costa Rica**, in a tropical dry site (Piotto *et al.*, 2004) and on acid soils in a tropical humid site (Tilki & Fisher, 1998).

3.3 Biological characteristics

The trees flower between January and May after 4 to 5 years, with a second flush in August and September (INBio, 1999; Marín and Flores, 2003; Flores y Obando, 2003 and references therein). Flowers are insect-pollinated and seeds with intact fruits are wind-dispersed (Bawa and Webb, 1984). Flowers are arranged in racemes, clustered towards branching tips, appearing as terminal or axillary panicles; the pod is an indehiscent, one-seeded samara.

D. retusa appears to be self-incompatible and shows high levels of seed abortion. In a pollination study by Bawa and Webb (1984), only 8% of 560 open-pollinated flowers developed mature fruits, none of the 184 self-pollinated flowers set fruits and 64% of the 137 cross-pollinated flowers set fruits. Pollen is dispersed by bees (Frankie *et al.*, 2002) and seeds are dispersed by wind and water (Marín & Flores, 2003). Seeds are orthodox and remain viable for up to 5 years with 60% germination if stored at 6 - 8% moisture at 5° C (Marín & Flores, 2003). Up to 80% germination has been observed in nurseries (INBio, 1999).

Natural regeneration of the species is scarce, however saplings and juveniles are numerous in areas periodically exposed to fire (Jiménez Madrigal, 1993; Marín & Flores, 2003).

3.4 Morphological characteristics

The species grows to about 20m (Ricker & Daly, 1997) with a diameter of 40cm (INBio, 1999). The heartwood is surrounded by white sapwood. The sapwood, which is as dense as the heartwood, will vary in amount depending on the age of the tree and the conditions of its habitat. The poorly formed stems yield the most uniquely figured and highly prized wood (Cocobolo, 2006).

The wood is hard, heavy and lustrous in colour (Condit & Pérez, 2002). It has a basic specific gravity (oven dry weight/green volume) from 0.80 to 0.98 and the air-dry density is between 750-1000 kg/m³ (Marín & Flores, 2003). The heartwood varies from yellow to dark reddish-brown in colour, with a figuring of darker irregular markings. It is faintly fragrant (Titmuss and Patterson, 1988) with no distinctive taste (SCMRE, 2002). The amount of figure and contrasting colour varies widely from tree to tree. (Cocobolo, 2006). It has a fine to medium texture and a straight to irregular grain (Echenique-

Marique & Plumptre, 1990). The wood has a natural cold feel like marble (Titmuss & Patterson, 1988), with a high oil content and a high natural polish (Marín and Flores, 2003). Because of the oil content, it is easy to work and polish and is highly durable (Record, 1942). The oils offer a waterproofing property, which give it an esteemed position in the cutlery trade (SCMRE, 2002). Dust from working the material may produce a rash or dermatitis resembling ivy poisoning (Record & Hess, 1943).

Numerous photographs of the wood are available on the web (Hobbithouseinc, 2006).

3.5 Role of the species in its ecosystem

The species is associated with *Tabebuia ochracea*, *Astronium graveolens*, *Tabebuia impetiginosa*, *Sideroxylon capiri* and *Swietenia macrophylla* (Jiménez Madrigal, 1993).

D. retusa is a highly attractive bee plant in Costa Rica, where up to 60 species of bees visit the flowers (Frankie *et al.*, 2002). *Dalbergia* species form nitrogen-fixing nodules and therefore have an important role in enhancing soil fertility (Rasolomampianina *et al.*, 2005). Cutting of *D. retusa* trees for timber could mean that they will no longer provide these ecosystem functions

4. Status and trends

The CITES Working Group for Big leaf Mahogany and Other Neotropical Timber Species (WG BMONTS) reported on PC20 meeting (2012) the following:

On the conservation status the region informed:

- a) In El Salvador it is reported as Vulnerable (IUCN, 2010);
- b) Honduras, included it in the list of la “Species of Special Concern in Honduras” in the category VU A1 cd+2cd (vulnerable) according to IUCN categories;
- c) In Nicaragua, for its harvest all sustainable silvicultural criteria are applied and it has a good presence in open areas mainly outside of forests;
- d) In Costa Rica, the state of conservation is reported as good;
- e) In Guatemala, it was included in Category 2 of the List of Threatened Species of Guatemala, (which refers to species with distribution range restricted to one type of habitat) and in Appendix III of CITES. Its state of conservation has yet to be determined (data on population studies will be available shortly) as there are currently sufficient records;
- f) In México, a research project is being developed which will assist in determining the commercial and conservation status of the genus *Dalbergia*; there is no record of harvest inside Natural Protected Areas (PC20 Doc 19.1 Annex 3).

4.1 Habitat trends

The tropical dry forests of Central America, the main habitat for *D. retusa*, have been subject to human influences such as hunting and modification of the vegetation cover for a long as 11,000 years (Murphy and Lugo, 1995). Relatively high population densities have subjected dry forest ecosystems to massive disturbances, such that most, if not all, of the surviving forest has been affected by the harvesting of trees, as well as by grazing in the understory (Murphy and Lugo, 1995).

Conversion of tropical dry forest to agriculture and pasture is occurring at alarming rates (Manuel Maass, 1995) and it is considered to be the most endangered major tropical ecosystem, with less than 2% remaining intact (Janzen, 1988). Less than 0.1% of the original dry forest has conservation status in Pacific Mesoamerica (Manuel Maass, 1995).

In general, the rate and extent of deforestation in the range States is very high. FAO report that the annual rates of forest cover change between -0.4% (**Colombia**) and -4.6% (**El Salvador**) for the range States between 1990 and 2000 (Table 1; FAO 2005).

Large-scale dry forest restoration studies have been undertaken in Guanacaste, **Costa Rica**, with the goal of re-establishing 70,000 ha of dry forest and associated habitats (Murphy & Lugo, 1995).

Table 1. Forest cover change in *D. retusa* range States, according to FAO (2005)

Country	Forest cover change 1990-2000	
	Annual ('000 ha)	Annual rate (%)
Colombia	-190	-0.4
Costa Rica	-16	-0.8
El Salvador	-7	-4.6
Guatemala	-54	-1.7
Mexico	-631	-1.1
Honduras	-59	-1.0
Nicaragua	-117	-3.0
Panama	-52	-1.6
<i>Belize</i>	-36	-2.3

4.2 Population size

In 1979, *Dalbergia* was described as scarce, all accessible stands of the genus having long since been logged out (NAS). Much of the habitat that should be available to *D. retusa* has been destroyed or heavily exploited (Section 4.1). Some areas where the species was formerly widespread now hold populations which are almost completely exhausted (Americas Regional Workshop, 1998). This is most notable in **Costa Rica** (Americas Regional Workshop, 1998; Jiménez Madrigal, 1993). Continuing habitat destruction, the growth of cattle ranching and increasing fires have all contributed to the decline in the species (Americas Regional Workshop, 1998).

Cocobolo is so rare that very little of it reaches the world market; it has been heavily exploited and is now mainly harvested from private fincas (farms) where 80 to 100 year old trees have been able to mature (Cocobolo, 2006).

4.3 Population structure

Little information is available on the current status of population structure for the species. However, it is likely that many populations are of lower density than they would be in the absence of logging and that mature trees will have been preferentially felled for their greater amount of heartwood. The flowers of *D. retusa* are self-incompatible and dependent on pollination by bees (Section 3.3). It is therefore likely that a minimum population density is required for regeneration of the species and that this is at risk from excessive logging. The species is a heliophyte and deciduous, with a high regeneration percentage and is successful in clearings and open areas (Rivera and Viquez, 2010).

4.4 Population trends

The combination of habitat loss (Section 4.1) and cutting (Section 4.2) has resulted in a decline in the populations of the species. Exploitation as timber is intense and areas where the species was formerly widespread are almost completely exhausted; this is most notable in **Costa Rica**. Continuing reductions are caused through cattle ranching and burning (Americas Regional Workshop, 1998). Intensive commercial harvest of the timber for at least 100 years, combined with artisanal harvest and its distribution is thought to have made it a scarce resource in **Panama** (Velásquez Runk *et al.*, 2004).

The CITES Working Group on the Bigleaf Mahogany and Other Neotropical Timber Species (WG BMONTS) reported on PC20 meeting (2012) the following:

- a) El Salvador: distribution is restricted to the northwestern region; no data on size, cover, population density, vertical or horizontal structure or regeneration status. Plans of Territorial Regulation are being developed which regulate change of land use;

- b) Honduras: no data on status of populations; a Territorial Regulation Law (Decree 180-2003) is in place; in some municipalities they have territorial regulation plans;
- c) Nicaragua: the species is distributed across the country outside of forests in a density of 0.064 trees per hectare, regeneration is abundant and the species has no health problems or plagues. There are no Plans of Territorial Regulation for the species, there are general plans which establish adequate use of the land;
- d) Costa Rica: the species is distributed in northern Pacific from 0 – 300m; populations are fragmented but localized; no data on vertical or horizontal structure; good regeneration (tree has regrowth after cutting or burning); change of land use is forbidden;
- e) Guatemala: no sufficient records of population status; the only territorial regulations are the master plans of natural protected areas;
- f) México, there records of the distribution of the species in Chiapas and Oaxaca, no data on population status. In some cases there are regulation plans at the municipal level which determine land use. Forestry Law determines that land use changes are only issued by exception (PC20 Doc 19.1 Annex 3).

4.5 Geographic trends

The species is threatened in **Costa Rica** and has a high risk of becoming endangered due to the drastic decrease in its populations (INBio, 2006). Prohibition of cutting standing trees of this species has been proposed (Varela Jiménez and Rodríguez Coffre, 2005). Populations of a reasonable size remain in **Mexico** (Americas Regional Workshop, 1998). In **Nicaragua**, it was recently described as 'frequent' (Stevens *et al.*, 2001) and is considered a low-priority species in the Forestry Action Plan of Nicaragua (Ampié and Ravensbeck, 1994). Once considered plentiful in some parts of **Panama** (Standley, 1928), it is now endangered in the country (Melgarejo, 2005).

5. Threats

Felling of mature, reproducing individuals and the corresponding reduction in population size and population density threatens the capacity of *D. retusa* populations to regenerate (Section 4.3). Additionally, the habitat is under continuing pressure, particularly from increasing agriculture, cattle ranching and burning (Americas Regional Workshop, 1998; Section 4.1).

6. Utilization and trade

6.1 National utilization

Only the heartwood of *Dalbergia* timber species yields quality timber; the sapwood is of little value. The trees are slow in forming heartwood, so even large logs lose much of their volume when the sapwood is removed (NAS, 1979). Because of its scarcity and high value, *D. retusa* is used for its rare beauty rather than for its extreme strength or durability (Cocobolo, 2006). Most internationally traded timber now comes from plantations (Section 8.4), although historically large volumes of the wood were extracted from the wild. Standing trees are felled for artisanal use, with at least 50% of cocobolo extraction for commercial carving being via destructive harvest in Darién, Panama (Velásquez Runk *et al.*, 2004).

D. retusa is exceptionally good for marine use. The timber secretes compounds toxic to bacteria, fungi, algae, termites, mosquito larvae, confused flour beetles and marine borers (NAS, 1979).

The wood is used for inlay work, musical and scientific instruments, tool and cutlery handles and other crafts (Americas Regional Workshop, 1998; Echenique-Marique and Plumptre, 1990; Flynn, 1994; Ricker and Daly, 1997; SCMRE, 2002). It is also used for brush backs, butts of billiard cues (SCMRE, 2002), decorative and figured veneers, parquet floors, hunting bows, automobile dashboards (Cocobolo, 2006), jewellery boxes, canes, buttons and chessmen (Kline, 1978). In Costa Rica the species is considered a precious wood with a high commercial value. Previously it was used to make furniture, floors, tiles and visible beams, but because of its progressive disappearance its use has been reduced to handicrafts such as statues, picture frames, jewellery etc. Trade is very small and it is not exported (ITCR/EIF, 2006).

D. retusa is used for making woodwind instruments such as professional quality clarinets. Although most professional quality clarinets are made of African Blackwood (*D. melanoxylon*), *D. retusa* is said to produce a softer tone. Due to the stresses placed on woodwind instruments, a professional instrument has a lifespan of approximately six years. This means that even with a consistent number of players, there is a steady demand for the wood (Jenkins *et al.*, 2002). Guitar suppliers recommending cocobolo as a substitute for Brazilian Rosewood include: www.cbguitars.com; www.benjaminoguitars.co.uk, www.alliedlutherie.com

The Wounaan and Emberá indigenous peoples of Darién, **Panama**, have carved cocobolo commercially for about 30 years, although they have a longer tradition of carving the wood for personal household items (Velásquez Runk *et al.*, 2004). The shavings and sawdust create colour ranging from light brown to black (Velásquez Runk *et al.*, 2004), and the wood is used to produce a dye for local use in Ipeti and Nurna, (Dalle & Potvin, 2004) and in Darién province, Panama (Velásquez Runk *et al.*, 2004).

6.2 Legal trade

A search on eBay (United States of America) for “cocobolo” (<http://search.ebay.com>, 13 February 2006) listed 944 relatively small, high quality wood items and small quantities of sawn timber suitable for the production of high quality items (pens, gun handles etc.). Many of these items were being sold within the United States, demonstrating that international trade of the species into the United States occurs. It is a popular material for pens. A manufacturer in the United States of America of wooden handgun grips states that most of the cocobolo wood they use comes from **Nicaragua**.

At the time of writing very little trade data specifically relating to *D. retusa* was available. The USA reports that in 2008, one shipment of 15 cubic meters of wild Guatemalan-origin *Dalbergia retusa* sawn wood was imported into the United States from **Guatemala**.

ITTO (2004) does not report any export trade in *Dalbergia retusa*, although five of the range States (Colombia, Guatemala, Honduras, Mexico, Panama) are ITTO members. Similarly, ITTO does not report any import trade despite the evidence (see 6.1) of trade in the species in the United States, which is an ITTO member, but not a range State.

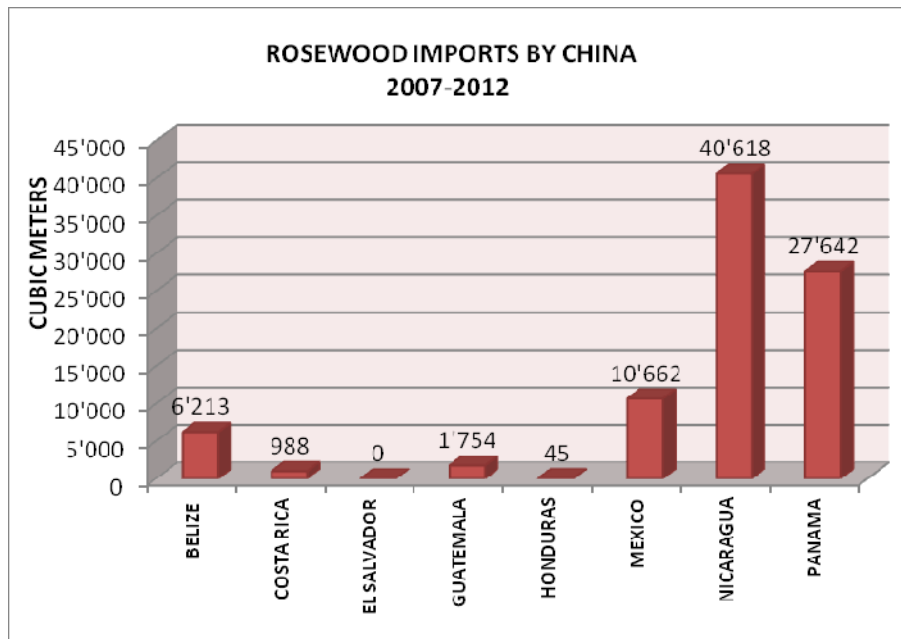
6.3 Parts and derivatives in trade

The heartwood is traded, but the sapwood is of little value (NAS, 1979). The species is traded as sawn wood and as finished items manufactured from timber in the range States. Usage is highly selective for the best-patterned pieces, with reports of only 2% being used (<http://www.esmeralda.cc>).

6.4 Illegal trade

D. retusa is poorly protected, with few of the range States including special legislation on the species (Section 7). It follows that trade in the species is neither monitored nor regulated. Illegal trade in *D. retusa* has increased considerably throughout its known range. Several shipments in Guatemala have been seized in 2011 with a total of 202.28 m³. All the shipments were destined for China.

The increase in the imports of timber generally referred to as ‘rosewood’ by China from the range States, especially in the last two years, has raised serious concerns within the region. For instance Belize reports a total of 1,377.87 cubic meters from February to July (see Table 2) after the rosewood moratorium was issued, but according to the General Administration of Customs of the People's Republic of China, China has imported 3,400 m³ of rosewood from Belize in the same period of time (see Annex 3 for detailed information of China's imports by country).



Source: based on "China Customs" (General Administration of Customs of the People's Republic of China)

6.5 Actual or potential trade impacts

Dalbergia retusa is used for its beautiful high value wood to make luxury items. There is some local use, but given the range States are all developing countries it seems likely that most timber or products made from timber of this species are traded internationally. International trade is therefore likely to be promoting exploitation of the species for timber.

7. Legal instruments

7.1 National

The national legislation reported by the range states on this species is as follows:

- a) El Salvador reports a Law of Wildlife Conservation;
- b) Honduras reports the Resolution GG-MP-104-2007, which establishes a ban for this species;
- c) Nicaragua has the Forestry Law 462 and its regulation 73-2003;
- d) Costa Rica reports Decree 27388 from 1998;
- e) Guatemala reports the Decree 4-89 "Law of Protected Areas", List of Threatened Species, Regulations specific for threatened species;
- f) Mexico has the Agrarian Law, Federal Law of Administrative Procedure, General Law of Sustainable Forestry Development and its regulation, General Law of Ecological Equilibrium and the Protection of Environment and its regulations in the matter of environmental impact and Natural Protected Areas, General Wildlife Law, Federal Law of Rights, Official Mexican Norm NOM-059-SEMARNAT-2010 that lists species at risk. (PC20 Doc 19.1 Annex3)

7.2 International

Guatemala and Panamá listed their populations of *Dalbergia retusa* on CITES Appendix III.

Note: *Dalbergia nigra* was included in CITES Appendix I in 1992.

8. Species management

8.1 Management measures

Extraction in **Guatemala** is regulated through management plans that comply with technical requirements and national legislation that guarantee the survival of the species (Szejner, 2005). The species has been investigated for reforestation in **Panama** (Wishnie *et al.*, 2002). It was included in a 10-year reforestation programme, commencing in 2003, for 4,000 ha of former pastures in **Nicaragua** (Anon, 2005).

With regard to measures that have been put in place in the region there are:

- a) In El Salvador there are no specific measures;
- b) Honduras established a ban for the species;
- c) In Nicaragua no measures are reported;
- d) In Costa Rica, management is regulated by Decree 27388 from 1998;
- e) In Guatemala, there is no ban, management of the species is done through specific regulations depending on whether the populations are in or outside the Guatemalan System of Protected Areas;
- f) In Mexico, the species has no established measures or bans, total or temporal, or any similar measures; and
- g) Belize has no measures in place since occurrence of the species in-country has not been confirmed (PC20 Doc 19.1 Annex 3).

8.2 Population monitoring

There are no population monitoring reports published for this species in any of the range States.

8.3 Control measures

8.3.1 International

The species was listed under CITES Appendix III by Panama in 2011, and by Guatemala in 2008.

8.3.2 Domestic

No domestic control measures were reported in time for inclusion in this proposal.

8.4 Artificial propagation

Dalbergia trees are slow growing, but due to the value of their timber, NAS (1979) recommend that efforts be made to extend their cultivation. During trials in a dry tropical region in **Costa Rica**, they exhibited good growth in height and good productivity when compared to six other native slow growth species that were also planted in pure and mixed plantations (Piotto *et al.*, 2004).

The Forest Stewardship Council lists two organisations that maintain plantations including *D. retusa* holding their certificate in forest management, in **Costa Rica** and **Nicaragua** (FSC, 2006).

Most of the cocobolo available today is not cut from the natural rainforest, but from privately owned fincas with trees planted 80 to 100 years ago (Cocolobo, 2006). Tropical American Tree

The Wounaan Indians now living at Gamboa in the **Panama** Canal Zone, who produce wooden carvings from Cocobolo harvested in Darien are planting *D. retusa* seedlings locally on their reserve at Gamboa for future use (Gillett, H.J. Pers. Comm. 2006). It has been planted for lumber around Hacienda Barú, **Costa Rica** (Costa Rica Link, no date).

Dalbergia retusa was included in plantation trials of native precious wood species in Costa Rica, which started in 1992 (Fonseca & Chinchilla, 2002; Fonseca *et al.*, 2002), and is noted as a second choice native species choice for reforestation in the central Pacific zone of **Costa Rica** (Torres & Luján 2002). In managed plantations, trees may reach 13 cm diameter breast height and 8 m in height after 17 years (Marín and Flores, 2003 and references therein). They have been found to grow at a rate of 1.1 m/year (Knowles and Leopold, 1997).

Seeds of *D. retusa* are available from the CATIE forest seed bank (CATIE, 2006) and commercial suppliers (Section 6.2).

Guatemala reports the plantation of 58ha of *D. retusa* between 1998-2004 (INAB, 2004).

8.5 Habitat conservation

Less than 0.1% of dry tropical forest of Pacific Mesoamerica, the most important ecosystem for *D. retusa*, has conservation status (Section 4.1). However, the species does occur in some protected areas. The size of the protected areas is greater than the habitat available to the species, as they often cover a range of habitat types.

D. retusa occurs in several conservation areas of **Costa Rica**: Huetar Norte, Guanacaste (including Santa Rosa (49,515 ha) and Guanacaste (84,000 ha) National Parks), Pacífico Central (including Vida Silvestre Curú Refuge), and Tempisque (including Palo Verde National Park (13,058 ha), Lomas Barbudal Biological Reserve (2,279 ha)) (INBio, 1999). It is present in the Parque Nacional Marino Las Baulas (445 ha, mainly of mangroves and coastline; Guía Costa Rica, no date).

It is frequent in the Domitila Private Wildlife Reserve in **Nicaragua** (Lezama-Lopez and Grijalva, 1999), which is composed of 230 ha of dry forest, the last patch of dry tropical forest at the shores of Great Nicaragua Lake (Mejía, pers. comm. 2006).

Found in the tri-national protected area of Montecristo (1,973 ha), which spans **Honduras, Guatemala** and **El Salvador** (Komar *et al.*, 2005).

8.6 Safeguards

No information available.

9. Information on similar species

A table listing other *Dalbergia* tree species of Central America is included in Annex 1.

The timber of *Dalbergia granadillo* (range States El Salvador and Mexico) is not distinguishable from that of *D. retusa* (Record and Hess, 1943; Richter, 2006). Although it has the common name “granadillo”, it is often traded under the name “cocobolo” (Richter, 2006). Inclusion of this species in CITES Appendix II is therefore proposed for look-alike reasons.

D. retusa wood is denser and stronger than Brazilian rosewood *Dalbergia nigra* (SCMRE, 2002).

10. Consultations

Consultations were sent to Mexico, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama. Comments received were added to this proposal.

11. Additional remarks

This proposal was developed as a consequence of a series of activities, dating back to 1998, to identify timber trees in international trade of conservation concern, and to recommend appropriate long-term strategies to ensure their sustainable use (see Decision 13.54). Initial activities are outlined in document PC13 Doc. 14.2 (Rev. 1), and later reported in the Summary Record (item 11.2) of the 14th meeting of the Plants Committee. The first workshop for Mesoamerica was subsequently held in 2005 and the outcome included the suggestion that *Dalbergia retusa* should be considered for inclusion in CITES Appendix II (UNEP-WCMC, 2005).

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DALBERGIA TREE/SHRUB SPECIES OF MESOAMERICA

Species	Common names	Notes	Threat status	BZ	CR	SV	GT	HN	MX	NI	PA	Habit
<i>D. brownei</i> (Jacq.) Urb.	Coin vine; Brown's Indian rosewood (a confusing name - the species is confined to American continent).	Occurrence reported in the Caribbean, Meso-America, North America, South America and the United States [9] [13]. <i>D. brownii</i> and <i>D. brownei</i> (Jacq.) Schinz are synonyms of <i>D. brownei</i> [6]. Possibly in international trade [12].		x	x	x	x	x	x	x	x	Woody vine/shrub [13].
<i>D. calderonii</i> Standl.		Occurrence reported in Mesoamerica only [9]. Species with two varieties, var. <i>calderonii</i> and var. <i>molinae</i> . The var. <i>molinae</i> occur in Honduras and Nicaragua [10] [13]. No evidence of international trade.				x		x	x	x		Tree [13].
<i>D. calycina</i> Benth	Granadillo [9]; cahuirica (Mexico), calyxlike rosewood, palissandre à faux calice [15].	Occurrence reported in Mesoamerica only [9] [13]. No evidence of international trade.			x	x	x	x	x	x		Tree [13].
<i>D. chontalensis</i> Standl. & L.O. Williams		Occurrence reported in Mesoamerica only [9] [13].			x	x	x	x		x		Shrub [13].
<i>D. congestiflora</i> Pittier	Camatillo rosewood, campinchirán [17].	Occurrence reported in Mesoamerica only [9] [13]. In international trade [11][12][1].	In danger of extinction [24]						x			Tree [13].
<i>D. cubilquitzensis</i> (Donn. Sm.) Pittier	Granadillo [9].	Occurrence reported in Mesoamerica only [9] [13]. In international trade [11].			x				x	x		Tree [13].
<i>D. cuscatlanicum</i> Standl.	Cuscatlán retuse rosewood, palissandre rétus de Cuscatlán [15].	Occurrence reported in Mesoamerica only [9]. Other author regard this as <i>D. retusa</i> var. <i>cuscatlanica</i> (Standley) Rudd [10].			x		x		x		x	Tree [9].
<i>D. ecastaphyllum</i> (L.) Taub.	Bejuco de peseta, bugi, clous, maraimaray, maray-maray, marmeleiro-da-praia, marmelo, palo de pollo [9]. For more common names refer to [15].	Widespread species that occur in Africa, Asia, Caribbean, North America, Mesoamerica, South America and India [9] [13]. No evidence in international trade.	Not threatened [9].	x	x		x	x	x	x	x	Woody vine/shrub [13].
<i>D. frutescens</i> (Vell.) Britton	Brazilian tulipwood, kingwood, tulip wood, bois de rose, bahia rozehout, violet wood, pinkwood, pau rosa [16].	Mainly S. America [14]. In international trade [1] [12].			x							Woody vine/shrub [13].

Species	Common names	Notes	Threat status	BZ	CR	SV	GT	HN	MX	NI	PA	Habit
<i>D. funera</i> Standl.	Funera rosewood, palissandre funera, ébano, funera (El Salvador) [15].	Occurrence reported in Mesoamerica only [9]. The wood is of wide importance in carpentry and construction [4]. Threatened by agriculture, logging, land conversion and invasive species [4].	Endangered GT [2] and SV [3], DD [4].			x	x					Tree [9].
<i>D. glabra</i> (Mill.) Standl.	Logwoodbrush rosewood, logwood brush (Belize), palissandre glabre, mayagua (Guatemala), cibix (Maya, Belize and Guatemala), ixcipix, muc (Maya, Guatemala), muk (Maya, Belize) [15].	Occurrence reported in Mesoamerica only [9] [13]. No evidence of international trade.		x	x	x	x	x	x	x		Woody vine/shrub [13].
<i>D. glomerata</i> Hemsl.	Glomerate rosewood; palissandre à glomérules [15].	Occurrence reported in Mesoamerica only [9][13].	VU A1c [4].				x	x	x			Tree [13].
<i>D. granadillo</i> Pittier	Granadillo [5].	Occurrence reported in Mesoamerica only [9] [13]. In international trade [18][19][11].	Threatened [5]. Species in danger of extinction [24]			x			x			Tree [13].
<i>D. intibucana</i> Standl. & L.O. Williams		Occurrence reported in Mesoamerica only [9] [13].	CR C2a [4].					x				Tree [13].
<i>D. melanocardium</i> Pittier	Blackheart rosewood, palissandre à cœur noir; chapulaltapa; ebano [15].	Occurrence reported in Mesoamerica only [9] [13].			x	x	x	x	x			Tree [13].
<i>D. monetaria</i> L.f.	Bejuco de Peseta, clous, membrillo, money bush, palo de brasilete [13].	Occurrence reported in the Caribbean, Mesoamerica and South America [9] [13].		x	x		x	x	x	x	x	Woody vine/shrub [13].
<i>D. palo-escrito</i> Rzed.	Palo escrito [20].	Occurrence reported in Mesoamerica only [9] [13]. In international trade [20].							x			Tree [13].
<i>D. retusa</i> Hemsl.	See <i>D. retusa</i> proposal.	See <i>D. retusa</i> proposal.	VU A1acd [4].	x	x	x	x	x	x	x	x	Tree [13].
<i>D. stevensonii</i> Standl.	See <i>D. stevensonii</i> proposal.	See <i>D. stevensonii</i> proposal.		x			x		x			Tree [13].
<i>D. tilarana</i> N. Zamora	Tilarán rosewood, palissandre de Tilarán [15].	Occurrence reported in Mesoamerica only [12] [13].			x					x	x	Tree [13].
<i>D. tucurensis</i> Donn. Sm.	Granadillo [21] [22] [23].	Occurrence reported in Mesoamerica only [9] [13]. Certified wood available in Nicaragua [7]. In international trade [21] [22] [23].		x	x	x	x	x	x			Tree [13].



Manual práctico para la identificación de especies estratégicas protegidas CITES



Caoba, cedro y rosúl



Manual para la identificación de especies estratégicas CITES.

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Pecíolo: Parte de la hoja que une el limbo con el tallo. Se inserta en el centro de la base del limbo. Normalmente, es cilíndrico y estrecho. Por el interior de éste transcurren los vasos conductores. La hoja que carece de éste se le denomina **sésil**.

Estípula: Son apéndices que tienen una forma diversa, situados sobre la base foliar.

Vaina: Punto de unión del pecíolo con el tallo. Ésta puede rodear el tallo, muy claramente, o no existir. Ésta es más ancha que el pecíolo.

Ápice: Extremo superior de la hoja.

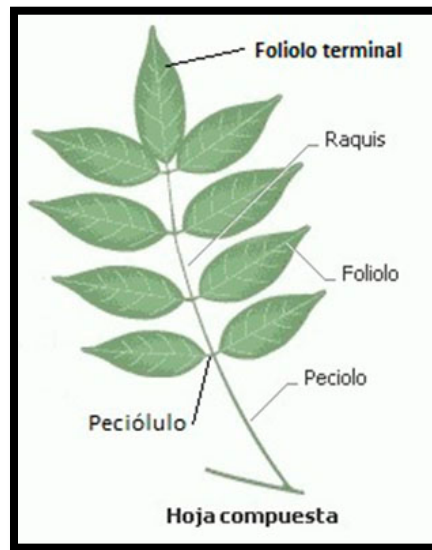
Base: Extremo inferior de la hoja, la cual ésta se une al pecíolo y de donde se extiende el nervio principal o nervios principales.

Folíolo: Cada una de las piezas separadas que forman parte del limbo en las hojas compuestas.

Folíolo terminal: Folíolo que se encuentra más al ápice en las hojas compuestas imparipinnadas (con un número de folíolos impar).

Peciólulo: Pecíolo de cada folíolo en las hojas compuestas.

Raquis: Estructuras lineares que forman el nervio principal en las hojas compuestas o inflorescencias en forma de espiga. Ésta une los diferentes peciólulos con su folíolo, en este tipo de hojas.



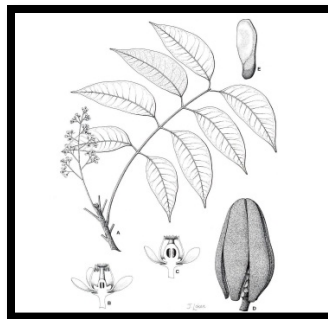
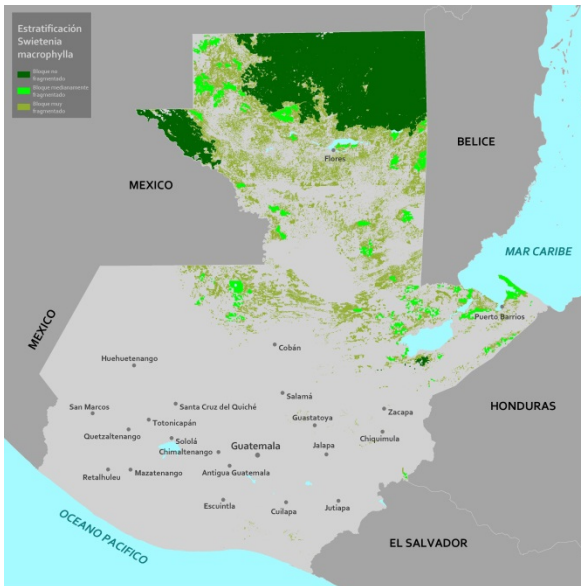
Fuente: http://bionaturalist.blogspot.com/2010_06_27_archive.html

Los términos que se describen en la figura anterior son muy importantes y básicos para diferenciar las 2 especies de caoba y las dos especies de rosúl.

***Swietenia macrophylla* King**

Caoba de hoja ancha

Estrato de la especie en el territorio nacional (Fuente: Inventario nacional Fase I)



Fuente: Pennington



Árbol que puede alcanzar hasta 35-40 m de altura

Tronco recto y cilíndrico, sin ramas hasta aproximadamente 25 m.

La corteza es reticulada, marrón grisáceo a menudo con marcas rojizas.

Foto: Hedy Godínez

Hojas compuestas, agrupadas en el extremo de las ramas, usualmente paripinnadas.

Raquis glabro. Foliolos opuestos a sub-opuestos

Con peciolo de 0,5 hasta 1,2 cm de largo, 2 a 8 pares,

Ambas superficies de los foliolos (hojas) son glabras (sin vello), de color verde oscuro brillante.



Fuente: Inventario Nacional/M.Manzanero

Flores unisexuales, inflorescencias axilares o subterminales, por lo general más cortas que las hojas, glabras.

Fruto en cápsula erecta, elongado a elongado.

Diferencias con la Caoba del Sur

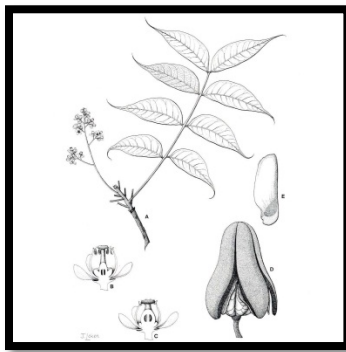
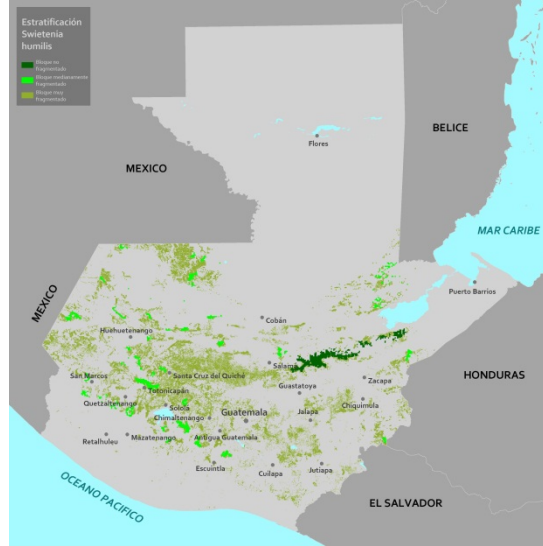
La caoba del norte tiene peciólulo y la del sur carece de estos, los foliolos (hojas) están unidos directamente al peciolo.

Los ápices de la caoba del norte son agudos o muy acuminados, bases irregulares y los foliolos (hojas) de la caoba del sur son caudados a largamente acuminado y la base redondeada a aguda, observar los dibujos de Pennington.

Swietenia humilis

Caoba del Sur

Estrato de la especie en el territorio nacional (Fuente: Inventario nacional Fase I)



Fuente: Pennington

Hojas agrupadas en las terminaciones de las ramas más finas, paripinnadas, de 12 a 30 cm de longitud,

El Raquis es glabro. Foliolos opuestos o subopuestos, de 2 hasta 7 pares.

No tiene peciólulo.

Flores unisexuales, inflorescencias axilares aunque a veces subterminales.

Fruto en cápsula erecta, ovoide algunas veces elongado ovoide de color marrón grisáceo.

Vive en bosques semidecíduos secos y sabanas desde 0-1200 m s.n.m.

Diferencias con la Caoba del Norte

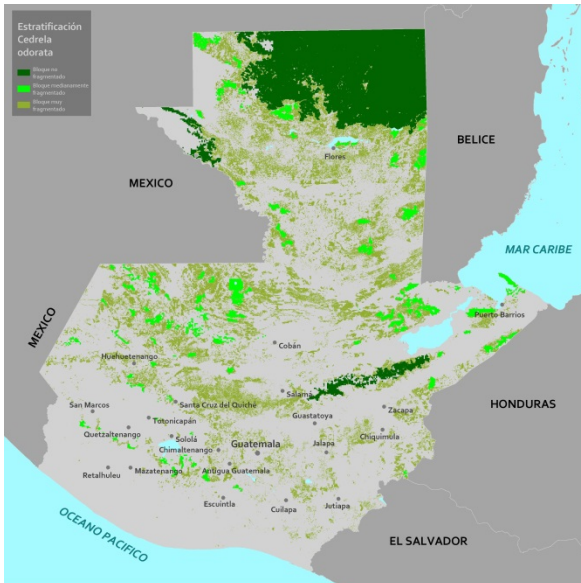
La caoba del sur no tiene peciólulo, lo contrario a la caoba del norte que si posee, los foliolos (hojas) están unidos al peciolo por el peciólulo

Los ápices de la caoba del norte son agudos o muy acuminados, mientras que los de la caoba del sur son largamente acuminados, observar los dibujos de Pennington.

Cedrela odorata

Cedro

Mapa del estrato de la especie en el territorio nacional (Fuente: Inventario Nacional Fase I)



Fuste: recto, bien formado,

Corteza: externa amarga y de color rojizo, profundamente fisurada Interna color rosada.

Posee olor a ajo y sabor amargo (Salas, 1993).

Hojas: compuestas, alternas paripinnadas y grandes, hasta de 1 m de largo (Salas, 1993).

Peciolos de 8 – 10 mm. de largo, delgados,

Foliolos 10-30 opuestos, oblicuamente lanceolados, comúnmente de 4.5 a 14 cm (Salas). de largo y 2.0 (Salas) a 4.5 cm. de ancho,

Glabros o más o menos glabros o puberulentos en las venas del envés (Aguilar, 1992).

Flores: Masculinas y femeninas en la misma inflorescencia.

Frutos: en cápsulas con dehiscencia longitudinal septicida en estado inmaduro, poseen un color verde y al madurar se tornan café oscuro (PROSEFOR, 1997).



Fuente: Inventario Nacional/M.Manzanero

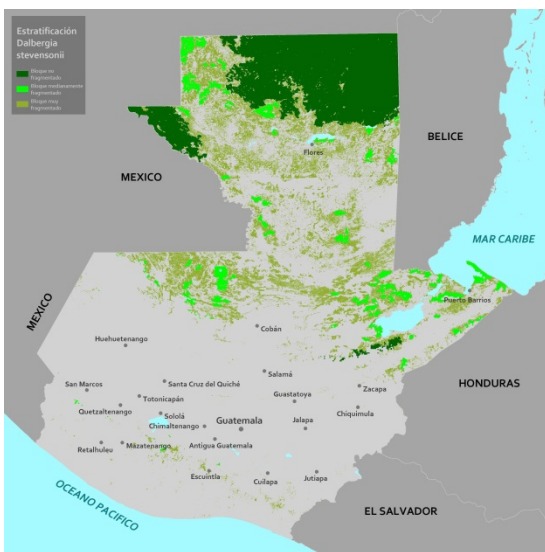


Fuente: Inventario Nacional/M.Manzanero

Dalbergia stevensoni

Rosúl

Mapa del estrato de la especie en el territorio nacional (Fuente: Inventario Nacional Fase I)



El envés de las hojas no tiene vellosidad

Un árbol grande o mediano tamaño 15-30 metros de altura.

Hojas 5-7, con peciódulos de 4-5 mm. largo, elípticas u oblongo-elípticas, 3.5-5.5 cm. largo, 2.5-3 cm.

Obtuso de ancho, o redondeadas en el ápice, a veces emarginado,

Color verde oscuro por encima, brillante, más pálido glabro (sin vellosidad),

El envés densamente pero minuciosamente leonado-seríceo (con pelos o vellos cortos que tienen un brillo como de seda).

Las ramas muy escasamente puberulentos (cubierto con pelos cortos); cáliz casi glabro (sin vellos); pétalos glabros (sin vellos)



Fuente: Inventario Nacional/J. Castillo

Fuente: Inventario Nacional

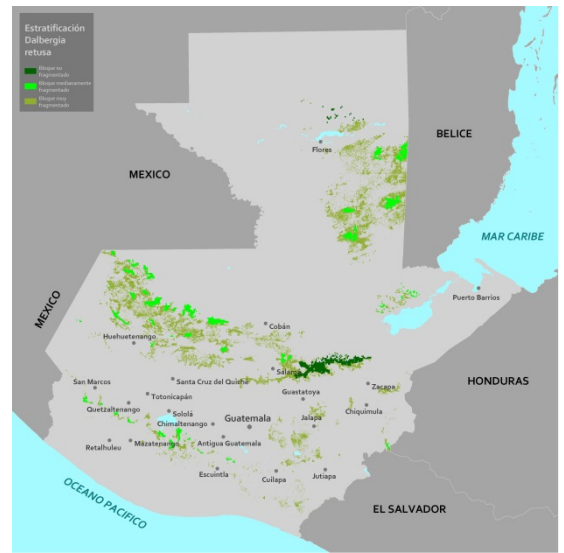


Fuente: Inventario Nacional

Dalbergia retusa

Rosúl

Mapa de distribución de la especie en el territorio nacional (Fuente: Inventario Nacional Fase I)



Conocido también como granadillo y cocobolo.

El fuste rugoso, color pardo, cascarudo.

El envés de las hojas presenta vellosidad o casi limpio (pubescente)

La hoja es imparipinada de 7 a 15 hojitas, de 4 a 7 cms de largo cada una.

Su floración es en los meses de febrero y marzo.

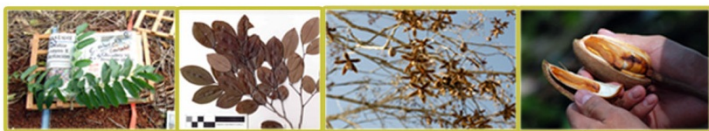
Las flores son de color blanco de 1,5 cm de largo.

El fruto es una vaina de 7 a 15 cm de largo.



<http://fm2.fieldmuseum.org/plantguides/view.asp?chkbox=3363>

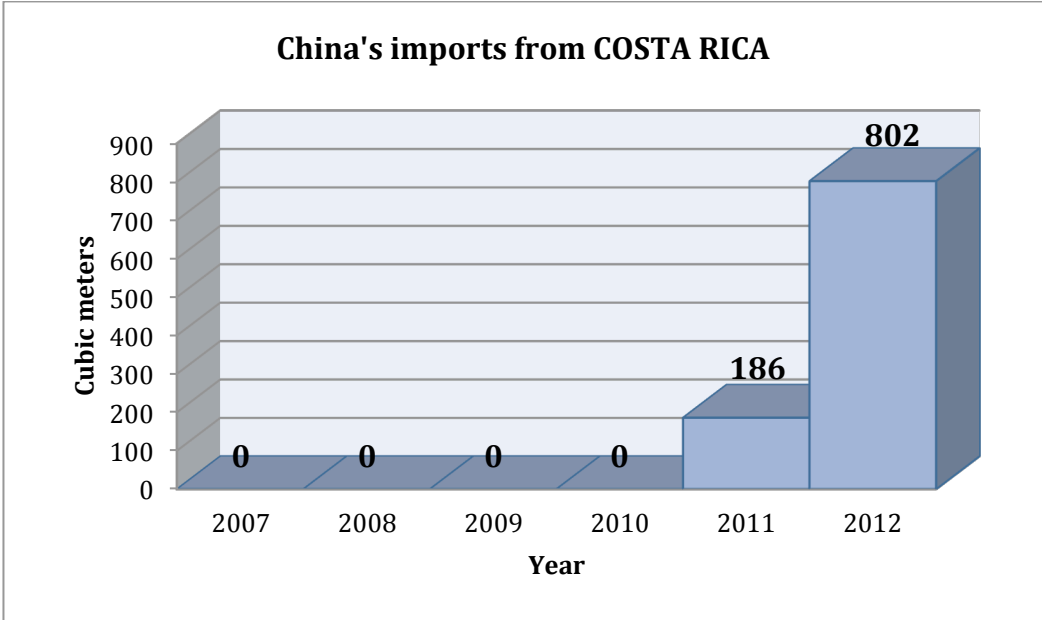
Guatemala 2012



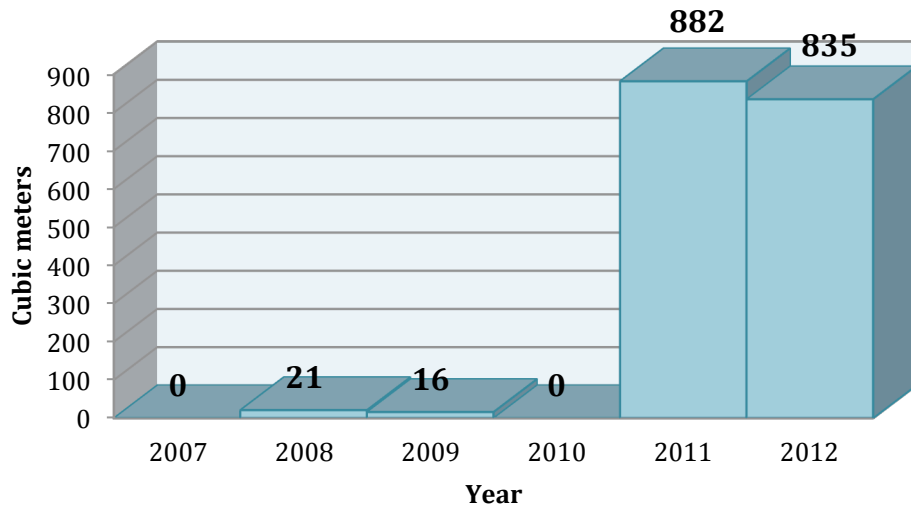
<http://fm1.fieldmuseum.org/vrrc/?language=esp&page=results&genus=Dalbergia&PHPSESSID=8cad2d5de1ba1c5e69b28ea190d02471&rpn=3&PHPSESSID=8cad2d5de1ba1c5e69b28ea190d02471>

China's data on imports of logs from Central American countries

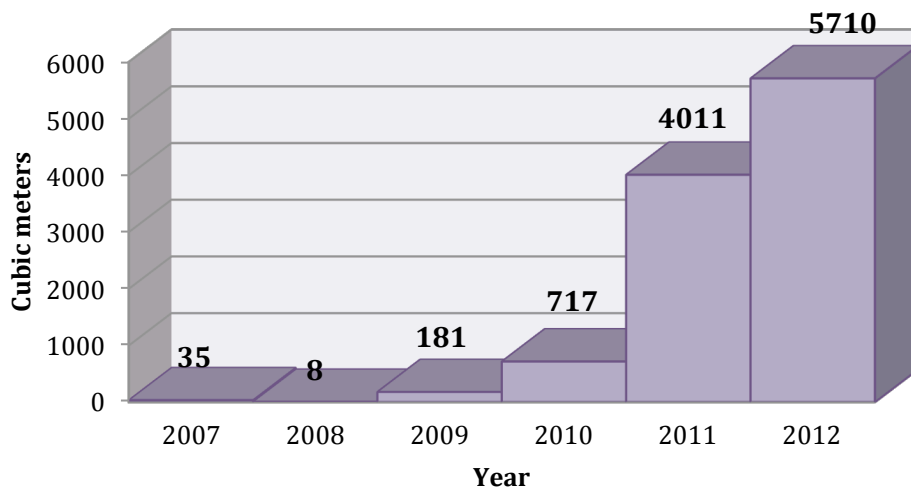
Source: based on 'China Customs' (General Administration of Customs of the People's Republic of China).
Data should not be cited to more than two significant figures.
Data is for logs reported as 'rosewood' / 'padauk' code number 44039930



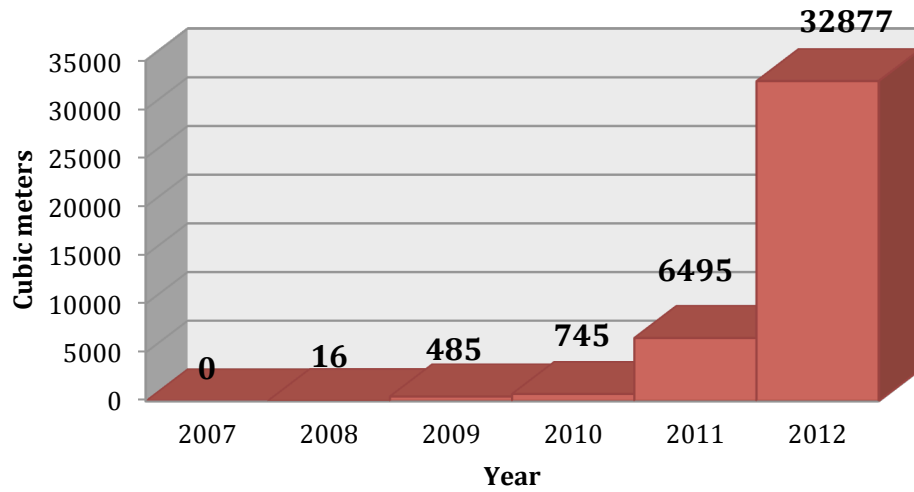
China's imports from GUATEMALA



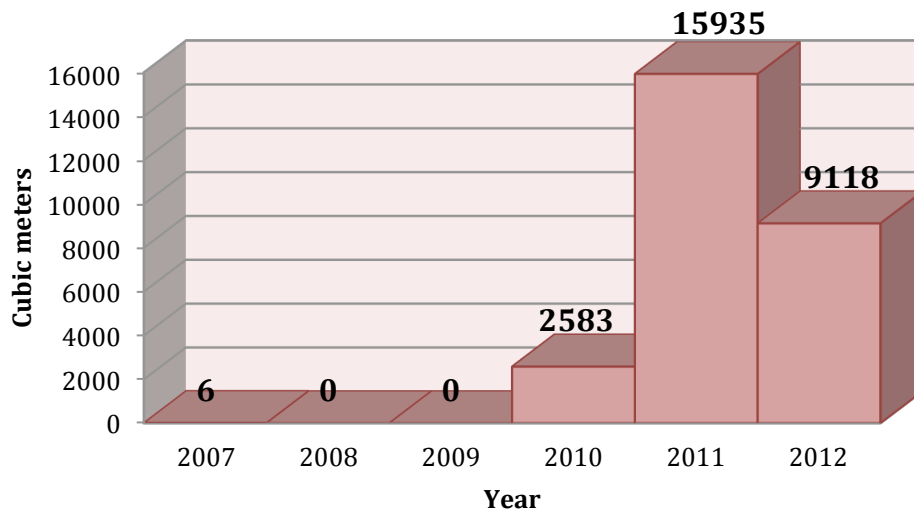
China's imports from MEXICO



China's imports from NICARAGUA



China's imports from PANAMA



Negligible quantities recorded for El Salvador and Honduras.

WCMC Data on *Dalbergia retusa*

Taxon	Importer	Exporter	Origin	Imp Quantity	Imp Unit	Imp Term	Imp Purpose	Imp Source	(Re)Exp Quantity	(Re)Exp p Unit	(Re)Exp Term	(Re)Exp Purpose	(Re)Exp Source
<i>Dalbergia retusa</i>	US	GB	XX	1			carvings	P	O				
<i>Dalbergia retusa</i>	ES	GT		8.8	CUM		sawn wood	T	W				
<i>Dalbergia retusa</i>	US	GT		15	CUM		sawn wood	T	W				
<i>Dalbergia retusa</i>	DE	US	MX	824.11	KIL		sawn wood	T	W				
<i>Dalbergia retusa</i>	AU	DE	CR						2		sawn wood	S	O