Inclusion of *Dalbergia stevensonii* in Appendix II

Proponent: Belize

Summary: *Dalbergia stevensonii* is a species of rosewood known to occur in Belize, Guatemala and Mexico. It inhabits tropical broadleaf forests and has a restricted distribution, mainly concentrated in the Toledo district of southern Belize. In 2012 it was reported that commercially viable standing stock of *D. stevensonii* in Toledo had been assessed at approximately 140 000 m^3, believed to represent a decrease of around 13 % over three years. There is no information regarding the population size in any other range State. As well as logging, the species is reported to be affected by habitat loss. The human population of the Toledo district is increasing and previously remote areas are becoming accessible owing to road construction. The species has not been assessed by IUCN. Like other rosewood-producing trees it is believed to be slow growing, with a generation time measured in decades.

D. stevensonii appears to be of limited availability in trade, although it is very much sought after as a tonewood for musical instruments and increasingly over the past few years for furniture and cabinet-making in Asia, especially China. Export from Belize has taken place since the early 20th Century. Legislation was changed in 1996 to allow the export of raw timber (roundwood), causing exports to increase, and records from 1999 to January 2012 indicate around 26 000 m^3 rosewood exported from Belize in that period, the majority thought to be *D. stevensonii* with perhaps a small percentage other *Dalbergia* species. A moratorium on harvesting and export was declared in March 2012. A further 1378 m^3 was legally exported in the period February-July 2012 after the rosewood moratorium was declared. The date of the last legally permitted export was 24 August 2012. China is reported to have imported over 6000 m^2 of rosewood (species not specified) from Belize in the period 2010-2102, over half of this in 2012. In 2012 it was reported that illegal felling of the tree in forest reserves in Belize continued. Information on harvest of and trade in *D. stevensonii* in other range States is scarce, although there is a record of 254 m^3 of timber extracted in Guatemala and exported in 2004.

The species was proposed for inclusion in Appendix II at CITES CoP14. The proposal was withdrawn and a recommendation made for range and import states to take further measures to increase knowledge and regional information sharing on trade in the species and its population status and trends. Guatemala included *Dalbergia stevensonii* is Appendix III in 2008. No annotation is specified in the proposal.

Analysis: *Dalbergia stevensonii* is a rosewood tree from Central America that yields a highly valuable timber, in demand for the manufacture of musical instruments and furniture; the latter particularly in Asia where demand for rosewood in general has grown very significantly in recent years. It is thought that the main population is in southern Belize, where the harvest of trees has reportedly increased markedly in recent years, and from where exports to Asia are known to take place. In early 2012 a moratorium on felling and export was imposed in Belize, although illegal felling is still believed to take place and enforcement capacity within the country is limited. All recorded export is believed to be in timber from the wild. Given the exceptionally high demand for rosewood internationally, and the apparently limited distribution of species, it would appear likely that it meets the criteria for inclusion in Appendix II in that regulation of trade in it is required to ensure that the harvest of specimens from the wild is not reducing its population to a level at which its survival might be threatened by continued harvesting or other influences.

Supporting Statement (SS)	Additional information
Range	
Belize, Guatemala, Mexico, possibly Honduras (specimen may actually be referring to British Honduras now called Belize).	D. stevensonii *does not occur in Honduras as there is no suitable habitat / forest type (Pinelo,* in litt., *2012).*
IUCN Global Category	
	Not currently listed.

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Dalbergia stevensonii has a restricted distribution, mainly concentrated in the Toledo district of southern Belize. No information is available as to whether it was previously more or less widespread. It has been reported to be endemic in Belize and although it has been found in other countries since, this suggests that it has never been common elsewhere.	*It is restricted in distribution to Belize, Guatemala (Peten, Alta Verapaz and El Quiche) and Mexico (Chiapas). Within Belize, the species is mainly known from the south of the country, primarily within Toledo District, with scattered records from elsewhere (FFI, 2007; Gillett and Ferriss, 2005). Its presence in Panama is yet to be confirmed but is unlikely.*
Information is lacking on the population size of *D. stevensonii*, though it is likely to be small. In 1979, the genus *Dalbergia* was described as scarce as all accessible stands of the genus having long since been logged out.	*Little is known about the biology and status of* D. stevensonii. *It is however known that it is slow growing and requires ample seed for survival (Jenkins* et al., *2012).*
Changes in population size can be inferred from changes in habitat availability. High rates of deforestation in the range States imply that the population is likely to be decreasing (see Threats section) and selective logging will worsen the problem for valuable species such as *D. stevensonii*.	*The population surveyed in the forested areas in Toledo in 2007 showed 224 trees (a density of 5.07trees/ha) with DBH over 10cm and 326 seedlings (density of 8.33 seedlings / ha). The average density of commercial sized trees (DBH ≥ 25cm) was 1.85 trees/ha (83 trees) and an average of only 0.52 trees/ha with DBH ≥ 45 cm. (Gill* in litt., *2012).*
Anecdotal evidence from suppliers suggests that it is rare: “this premier wood for orchestral marimbas is rare and expensive”, “Limited quantities … can, however, be obtained at high prices from importers” “generally believed to be fairly scarce”, “difficult to obtain”. Reports of timber extraction and habitat loss indicate that populations of *D. stevensonii* are declining.	
Information on the breeding system of *D. stevensonii* is not available. However, some aspects of the reproductive biology of other species in the same genus have been studied. These studies show some common features for the genus: mass flowering but relatively few mature fruits have been observed, and high levels of seed abortion. Pollen is dispersed by bees and seeds dispersed by wind and/or water. It is likely that the above characteristics are shared by *D. stevensonii*.	

Supporting Statement (SS)	Additional information
Belize *Dalbergia stevensonii* may once have been locally common, it was described in 1962 as awaiting utilisation in 'large volumes' in Belize. Although confined to a small area, in Belize *D. stevensonii* had previously been reported to occur in fairly large patches within its habitat. A report in 2012, concludes that current commercial stocking of *D. stevensonii* in Toledo is approximately 142 091 m^3, after a reduction of around13 % over 3 years during 2010-2012. Since 2007, harvesting of *D. stevensonii* from the Toledo district has been steadily increasing. Given the sheer volumes of timber that have been exported, it is highly likely that selective logging of *D. stevensonii* in the Toledo district will have contributed to a decrease in population size. A high number of large, mature, seed-bearing trees have been removed. Guatemala, Honduras and Mexico do not have data on the status of their populations. No information is available on trends for the species in Guatemala or Mexico. In Honduras and Guatemala there is no data of potential area of distribution; in Mexico, based on data from the SNIB, REMIB and National Forestry Inventory of 2008 a map was created of potential distribution.	

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

The species is threatened by high levels of logging (legal and illegal). It is very much sought after, particularly as a tonewood for musical instruments, and increasingly by the Asian market for furniture and cabinet-making. There are no comprehensive reports of the levels of local or international trade in the species. The restricted growth area of the species limits the amount of trade and there is some difficulty in fulfilling demand. In spite of its rarity, there is a high level of wastage of up to 80%. Increased accessibility to its habitat and declining stocks of other rosewoods has led to growing pressure to turn to this species to meet demand. Over-harvesting may well have already seriously impeded regeneration of the species in the wild and this in turn will have an effect on genetic diversity. **Belize** Records of trade in the early 20th century indicate that during 1925-1933 361 tons were exported from Belize to the USA and Europe.	*The low regeneration is indicative of the removal of mature, large seed-bearing trees and failed attempts at propagation suggests it is unlikely that populations in Belize will be able to recover to meet the current demand without further significantly reducing wild populations (Gill* in litt., *2012).* *The average market value is USD77 471 m^3 (instrument blanks) and USD11 004 m^3 (sawn wood) (Jenkins* et al., *2012).* *The increase in the imports of timber generally referred to as 'rosewood' by China from the range States, has raised serious concerns within the region (see supporting statement for proposal CoP16 Prop. 61).* ***Belize*** *Between 2008 and 2011, 20 m^3 of sawn wood was reported by importing countries (China and Germany) as being exported from Belize (UNEP-WCMC CITES Database). All was reportedly from wild sources. In addition, 26 kg of sawn wood of Belizean origin (no source code) was re-exported from the USA to Slovakia in 2010.*

Supporting Statement (SS)

Maximum timber extraction from the forests of Columbia River Forest Reserve occurred between 1925 and 1960, and most *D. stevensonii* had been extracted when inventories were undertaken in 1978.

Records of trade from 1999 to January 2012 indicate 25 705 m^3 rosewood was exported from Belize, the majority of this is thought to be *D. stevensonii* with perhaps a small percentage being other *Dalbergia* species. Belize reports a total export of 1378 m^3 from February to July 2012 after the rosewood moratorium was issued (see below). China reported importing 6213 m^3 of rosewood (species unknown) from Belize between 2010 and 2012, importing 3400 m^3 in 2012 alone.

Legislation was changed in 1996 to allow the export of raw lumber. Since this time, there has been a steady rise in harvesting of the species, fuelled primarily by demand from the Asian market.

Since 2007, harvesting of *D. stevensonii* from the Toledo district of Belize has been steadily increasing reaching a peak in February 2012. Given the sheer volumes of timber that have been exported, it is highly likely that selective logging of *D. stevensonii* in the Toledo district will have contributed to a decrease in population size over the last 5 years. A high number of large, mature, seed-bearing trees have been removed.

In the last 5 years, by far the greatest threat to the species in Belize has come from very high levels of selective logging. A moratorium on harvesting and export was issued in March 2012. If harvesting had continued at the current rate without a moratorium, *D. stevensonii* would have been wiped out (commercially) from Belize by 2033.

Further indication of the increasing value of the species came in 2011 when the Belize Forest Department received a request for permission to uproot and export stumps of logged trees but this was declined.

Illegal logging in Belize occurs even within protected areas, when permits or licences are obtained often the volume of timber is greater than the allowance and lumber is often transported without the official Forest Department stamp.

Guatemala

In 2004, 254 m^3 *D. stevensonii* timber was extracted from outside protected areas in Guatemala and exported to Japan, El Salvador, USA, Germany, Belize and Netherlands, valued at USD381 390.

Additional information

Data on D. stevensonii *production and export provided by the Belize Forest Department (FFI, 2007):*

	Rosewood production			Rosewood Export
YEAR	No of Logs	Tonnage Volume (m^3)		Volume (m^3)
2005	3428	373.62	194.31	72.37
2006	1282	122.43	63.68	71.38

The discrepancy between production and exports for 2006 is probably due to factors such as late submission of inspection reports, incomplete data entry, illegal harvesting and import of rosewood from Guatemala (FFI, 2007).

Overall the timber does not appear to be readily available internationally but where companies do offer D. stevensonii *on the international market its origin is reported to be from Belize. Illegal felling and cross border trade are problems. The moratorium came into place in March 2012 following widespread clearance for the Asian market (Jenkins* et al., *2012).*

The Ya'axché Conservation Trust observed the felling of an exceptionally large number of mature trees being extracted from community lands in Belize likely destined for export. A survey in Belize 2007 showed a low density (0.52 trees per ha) of mature trees. The Ya'axché Conservation Trust also observed increasing number of non-mature individuals being extracted over time, an indication that larger individuals were starting to disappear. Illegal logging in forest reserves has been observed by the Ya'axché Conservation Trust's ranger (Gill in litt,, *2012).*

There are concerns for the current level of illegal extraction in Toledo and it is possible that this species will completely disappear from community lands in the near future (Jenkins et al., *2012).*

Guatemala

Importing countries (China, European countries, Japan and the USA) reported importing 182 m^3 of sawn wood from Guatemala between 2008 and 2011, all from wild sources. In addition, the USA, Germany and Spain reported re-exporting 470 078 m^3 and 30 632 kg of sawn wood/logs during the same period, originally from Guatemala and from wild sources (or 'o' code- Pre-Convention species).

Supporting Statement (SS)	Additional information
A total of 12 shipments of 67 m^3 of wild Guatemalan sawn wood were imported into USA from Guatemala between 2008 and 2011. In addition, 1372 kg of Guatemalan-origin logs were imported into the USA from Germany. Between 2007 and 2012 rosewood (logs reported as 'rosewood'/ 'padauk' but species unknown) imports by China were1754 m^3.	*Guatemala reported the export of over 250 m^3 in 2004 valued at USD380 000 to a range of countries including Japan, USA, Germany and the Netherlands (Jenkins* et al., *2012).* *In February 2012 seizures of illegally trafficked timber in Guatemala suggest there is an organised smuggling ring to transport large quantities of the wood, authorities seized three shipping containers in November and December 2011 each containing 58.28 m^3 of Dalbergia species (Jenkins* et al., *2012).* *There is only one major exporter of finished rosewood products that has Export Processing Zone status and can thus import rosewood from Guatemala for re-export. However, the species also supports a significant local wood-carving industry, largely for the tourist market, so further exports of finished carvings are likely to be occurring (FFI, 2007).*
Honduras Between 2007 and 2012 rosewood (species unknown) imports by China were negligible.	***Honduras*** *There are no reports of exports from Honduras in the CITES trade database. Between 2007 and 2012 rosewood (species not specified) imports by China from Honduras were 45 m^3 (see supporting statement for proposal CoP16 Prop. 61). As there is no record of this in the CITES trade database, it seems likely that the species of rosewood imported were not* D. stevensonii.
Mexico Between 2007 and 2012 rosewood (species unknown) imports by China amounted to 10 662 m^3.	***Mexico*** *There are no reports of exports from Mexico in the CITES trade database.*
General ITTO does not report any export or import trade in *D. stevensonii* from their member States (Guatemala and México) and commented that "We haven't seen any official export reports on these species from our members in the region (Guatemala, Honduras, Mexico, Panama) for the past decade. This can mean zero or insignificant levels of exports are occurring (or that "unofficial" exports are occurring that aren't captured by official statistics.)" Belize is not a member of the ITTO. In September 2012, 62 items for Honduras Rosewood were available on Ebay. *Dalbergia stevensonii* is recommended as an acceptable, even superior substitute for Brazilian Rosewood (*D. nigra*) in the manufactureof guitars and is used as a substitute following listing of *D. nigra* in CITES Appendix I (1992*)* despite its limited availability, increasing pressure on this species.	

Supporting Statement (SS)	Additional information

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Dalbergia nigra was included in CITES Appendix I in 1992.

Other information

Threats

Belize
Deforestation is impacting the species throughout its range. Forest cover in Belize in 1927 was reported to be 87%. This has declined to 79% according to a report published in 1994 and 63% in 2010. The deforestation rate between 1980 and 2010 is expected to be under 25 000 acres (100 km^2) annually.

Southern Belize has escaped major deforestation for a long time due to its inaccessibility and distance from population centres. However, the area is now subject to a high rate of settlement by colonists practicing agriculture. The extremely high rate of human population growth and increased accessibility to southern areas is putting additional pressure on *Dalbergia* habitats in Belize. Core populations of the species exist in Toledo in Belize, one of the poorest districts in the country with little funding to manage protected areas and enforce environmental regulations

Village farms are expanding at a very fast rate in the Maya Mountain North Forest Reserve and towards Bladen Nature Reserve, both areas known to contain *D. stevensonii*.

Guatemala
Forest cover in Guatemala was reported to be 26.3% of land area in 2000 and the annual deforestation rate in 1999-2000 was 54 000 ha (540 km^2) (-1.7%). Cattle ranching and slash and burn agriculture methods are destroying the forest of Petén in Guatemala. Based on trends observed between 1986-1995 using remote sensing imagery, it was predicted that only 2% of the Petén's forest would survive by 2010.

Mexico
Forest cover in Mexico was 28.9% of land area in 2000 and the annual deforestation rate in 1999-2000 was 631 000 ha (-1.1%). It is highest in Chiapas, with 70 000 ha being lost each year.

Belize
Much of the logging on or around community lands was done via petty permits / short term licences which are notoriously difficult to monitor and manage. In 2011-12 there seems to have been a free-for-all to extract as much rosewood as possible and monitoring this seems to have been beyond the capacity of the Forestry Department (Gill in litt., *2012).*

Another cause for decline of this species is devastation from hurricanes. In 2001 populations were damaged in northern Toledo District by Hurricane Iris. Following this the Forest Department granted permits for 'salvage logging' of damaged trees with no restrictions on size or number (FFI, 2007).

Guatemala
Significant threats at the Maya Biosphere Reserve (where D. stevensonii *occurs) include building of airstrips to transport drugs, development of huge cattle ranches and organized crime groups moving their illegal logging network toward the reserve to supply Asian markets with prime tropical hardwoods (Allen, 2012).*

Supporting Statement (SS)	Additional information
Conservation, management and legislation	
Belize *Dalbergia stevensonii* is listed in the First Schedule of the Belize Forests Act 2003, which specifies that no person shall convert the wood without first having obtained a licence. Additionally, a licence is required to cut or otherwise injure any tree within forest reserves, national land and private land to which the Act has been applied. The export of raw lumber was prohibited until 1992 when only finished or semi-finished products could be exported. In 1996 legislation changed to allow export of raw lumber. Since this time, there has been a steady rise in harvesting of the species. A moratorium on cutting and export was issued in March 2012. Exports were permitted for a limited time period after the moratorium was issued in order to move large quantities of raw lumber that would have otherwise gone to waste. Exports of raw *D. stevensonii* lumber from Belize ceased altogether in August 2012. The date of the last legally permitted export was 24 August 2012. The logging season reopened on 15 October 2012 and no permits have been authorised by the Chief Forest Officer. The moratorium overrides any existing long-term forest licenses or concessions that previously included permission to cut *D. stevensonii.* The species occurs in several protected areas in Belize. The eastern side of Bladen Nature Reserve has a high level of protection but there is increasing concern for illegal extraction on the western side of the reserve, owing to cross border incursions from Guatemala. The species is managed in community lands complicated by land tenure issues. Only two of these communities have forest management plans in place and as a result, in the last 12 months vast quantities of *D. stevensonii* were extracted from many of these areas with no consideration given to sustainable management. Disappearance of the species from community lands is putting increased pressure on populations in protected areas and on private land.	
Guatemala *Dalbergia stevensonii* was listed on CITES Appendix III by Guatemala in 2008. The listing applies only to lumber coming from Guatemala. *Dalbergia stevensonii* is listed in Category 3 of CONAP (*Consejo Nacional de Áreas Protegidas*) to prevent the species from becoming in danger of extinction.	***Guatemala*** *It has been assessed in the Guatemala National Red List as Endangered A2cd;B2ab(ii,iii) and proposed Global Category as Vulnerable A2cd, which notes the export of sawn wood as a major threat (Vivero* et al., *2006).* *In 2011 Guatemala announced a crackdown on 'eco-trafficking' to enforce stricter security measures at airports but not seaports, the main method of trade.*

Supporting Statement (SS)	Additional information
It is included in Category 2 of the List of Threatened Species of Guatemala. There is no ban on harvesting the species, and management is carried out through specific regulations if the populations are in or outside the Guatemalan System of Protected Areas. The northern forests of the Petén have been protected by the Maya Biosphere reserve since 1995.	
Honduras It is listed as a 'Species of Special Concern in Honduras (IUCN VU A1cd+2cd). Honduras reported the Resolution GG-MP-104- 2007, which establishes a ban for this species.	***Honduras*** *Honduras has a ban on exporting (PC19 Doc. 16.1 (Rev. 1), 2011).*
Mexico This species range occurs in the Montes Azules Biosphere Reserve, Mexico. In Mexico the species has no established measures of bans total or temporal or any similar measures. Research is being developed in Mexico to assess the population and conservation status of the species.	***Mexico*** *It is not listed in the Mexican Red List of Threatened Species.*
General There are no suppliers of *D. stevensonii* with FSC certification listed on the Forest Stewardship Council database.	*The majority of exports are destined for the Chinese market. Imports and exports are banned in the USA under the Lacey Act.*

Captive Breeding/Artificial Propagation

Dalbergia stevensonii does not appear to be widely grown in plantations although it may be suitable for commercial growth. The stumps of the trees sprout freely, quickly producing heartwood, and that with careful attention and selective thinning valuable timber should be obtainable in a fairly short time.	D. stevensonii *is not easy to cultivate which has implications for the sustainable management and exploitation of the species (FFI, 2007). There is potential for regrowth from stumps although this would take many years to be commercially viable again and will also lead to reduced genetic diversity (Gill* in litt., *2012).*
There are no known plantations in Belize. In Guatemala, there is no available data on area planted nor of volume harvested from plantations, these are of pure stands and mixed and in Mexico no plantations carry the species.	D. stevensonii *is known to be slow growing and requires ample seed for survival due to high seed abortion rates. It is not known to be growing commercially in plantations although it has been used in at least one tree planting scheme in Belize. (Jenkins* et al., *2012).*
Following hurricane Iris in 2001 in Belize a tree planting scheme was established by the Ya'axche Conservation Trust but has had little success raising from seeds which are becoming more difficult to acquire and becoming very rare.	*In Guatemala the species is reported to exist in single-species and mixed plantations but no data is available on potential harvestable volume (PC19 Doc. 16.1 (Rev. 1), 2011).* *It is not currently recorded in any botanic gardens or* ex situ *propagation (Plantsearch, 2012).*

Supporting Statement (SS)	Additional information
	Other comments
Dalbergia tilarana can be confused with *D. stevensonii*.	*The proposal mentions El Salvador and Nicaragua but these are not range states for this species. The species can be confused with* Dalbergia tucurensis*, a closely related species that also grows in Belize but is not protected by logging bans. The two species can be distinguished by density tests (Wiemann and Ruffinatto, 2012). Central American Dalbergia species included in CITES Appendix III in addition to the Guatemalan population of* D. stevensonii *are:* Dalbergia darienensis *(Panama) and* Dalbergia retusa *(Guatemala and Panama).*

Reviewers: D. Gill, S. Oldfield, G. Pinelo, G. Scott.

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