

Inclusion of the genus *Dalbergia* (populations of Madagascar) in Appendix II, and limited to logs, sawn wood and veneer sheets by an annotation

Proponent: Madagascar

Summary: *Dalbergia* is a large and very widespread genus of trees, shrubs and lianas; many of the species yield valuable timber traded under a variety of different names, most frequently as rosewood. There are 48 currently recognized species of *Dalbergia* in Madagascar, 47 of which are endemic and some of which produce rosewood. Malagasy *Dalbergia* species occupy a variety of habitats including humid and dry dense forests, semi-deciduous forests, thickets and savannas. Some species, including *D. aurea*, *D. brachystachya*, *D. davidii* and *D. histicalyx*, have restricted ranges, while others such as *D. baronii*, *D. greveana* and *D. trichocarpa* are more widespread. The conservation status of 43 Malagasy *Dalbergia* species was assessed by IUCN in 1998. Three species were reassessed in 2012, with two of these (*D. andapensis* and *D. humbertii*) being classified as Endangered and one, *D. chapelieri*, as Near Threatened. Of those not reassessed, 33 had been classified in 1998 as threatened (Endangered or Vulnerable using the categories valid at the time); these classifications are all recorded as in need of updating. Selective logging was noted as a threat for various species; others were recorded as having very small populations in areas where logging occurs. A further species (*D. peltieri*) was assessed for the first time in 2012 and was considered Least Concern.

Rosewood from Madagascar (and from *Dalbergia* species elsewhere) is highly sought after in international trade. There is a long tradition of export of the wood from Madagascar, but in recent years (since 2007) logging for international trade has risen dramatically, as a result of high demand and correspondingly high prices (notably in China) and political upheavals in Madagascar. Virtually all harvest in recent years has evidently been intended for export, with a very large proportion of exports apparently destined for China. The most valuable species are believed to include *Dalbergia abrahamii*, *D. bathiei*, *D. baronii*, *D. davidii*, *D. greveana*, *D. louvelii*, *D. maritima*, *D. mollis*, *D. monticola*, *D. normandii*, *D. purpurascens*, *D. trichocarpa*, *D. tsiandalana*, *D. viguieri* and *D. xerophila*. In addition *D. madagascariensis* is exported; this species lacks the typical lustre of rosewoods and is generally referred to in Madagascar as pallisandre. There is little information available on growth rates or regeneration potential of Malagasy *Dalbergia*, but growth of rosewood-producing trees in general is believed to be slow, with many years needed to produce the dense, lustrous wood that is most highly sought-after. Generation times for most species are likely to be measured in decades. A modelling exercise in 2010 concluded on the basis of hypothesized original distributions that eight economically important species (*D. bathiei*, *D. baronii*, *D. louvelii*, *D. mollis*, *D. monticola*, *D. purpurascens*, *D. tsiandalana* and *D. viguieri*) might have undergone long-term range reductions of between 54% and 98%. For two economically important species (*D. davidii* and *D. normandii*) data were insufficient to make any assessment.

The great majority of rosewood export appears to be in roundwood. In 2000-2001, exports were reported to be in the region of 5000 tonnes per year, declining to almost nothing for the period 2002-2006, increasing to nearly 14 000 tonnes in 2008 and to more than 36 000 tonnes in 2009, coinciding with the period of political upheaval. In May 2010 it was reported that, at a conservative estimate, some 1100 containers each carrying just over 100 rosewood logs had been exported since April 2009. More recently it has been claimed that there are as many as half a million rosewood logs stockpiled in Madagascar awaiting export.

It has been reported that the overwhelming majority of Madagascar rosewood exported in the period 2007-2010 was illegally logged within Masoala and Marojejy National Parks (which are part of the Rainforests of the Antsiranana UNESCO World Heritage Site), as well as Mananara-Nord Biosphere Reserve and the vast Makira Conservation Site.

Madagascar introduced a temporary ban on harvest, transport and export of precious woods in 2010, envisaged to be for between 2-5 years. *D. madagascariensis* ("pallisandre") is apparently not covered by this ban. As of late 2012 the ban reportedly remained in place. Despite the ban, logging of rosewoods was reported to be continuing in at least some protected areas (e.g. Masoala National Park) although not in others (e.g. Marojejy National Park).

In 2011, in response to the major increase in illegal logging that began in 2009, Madagascar requested the inclusion of five species of *Dalbergia* in Appendix III of CITES (*D. louvelii*, *D. monticola*, *D. normandii*, *D. purpurascens* and *D. xerophila*). CoP15 adopted a Decision directing Madagascar and the Plants Committee to review and gather further information on species (including tree species) that would benefit from CITES listing. Information on the taxonomy, distribution and conservation status of *Dalbergia* spp. was presented to the nineteenth meeting of the Plants Committee in April 2011 (Document PC19 Doc. 14.3).

Analysis: Information on populations of all *Dalbergia* species in Madagascar is scarce. Rosewood-bearing trees in the genus *Dalbergia* are known to have been subject to intensive, often uncontrolled and illegal, logging in recent years to supply the export market. Indications are that volumes of rosewood logged and exported from Madagascar in the period 2007-2010 were several times those recorded earlier in that decade. There is no information on volumes of individual species of rosewood harvested and traded, or comprehensive inventory data for any species. It is thus extremely difficult to determine whether any one species meets the criteria for inclusion in Appendix II set out Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15)*. However, some rosewood-bearing *Dalbergia* species are known to have restricted distributions in areas that have been subject to intensive logging in recent years. Given this, the generally long generation time of rosewood-bearing trees and the very large increase in logging and export of rosewood recorded recently, it is likely that some species at least meet these criteria in that regulation of trade in them is required to ensure that the harvest of specimens from the wild is not reducing their populations to a level at which their survival might be threatened by continued harvesting or other influences.

Experts are currently unable to accurately identify any given log of Malagasy rosewood to the species level and thus, if it is considered that one or more than one *Dalbergia* species meets the criteria in Annex 2 a, then other species would meet the criteria in Annex 2 bA of *Resolution Conf. 9.24 (Rev. CoP15)*.

Supporting Statement (SS)	Additional information
<u>Taxonomy</u>	
The Catalogue of Vascular Plants of Madagascar lists 48 species.	<i>Du Puy et al. (2002) list 42 endemic species and 1 non endemic (D. bracteolata) in Madagascar. Subsequently 5 new species have been described.</i>
<u>Range</u>	
47 species occur only in Madagascar, <i>Dalbergia bracteolata</i> occurs in Kenya; Madagascar; Mozambique; Tanzania.	
<u>IUCN Global Category</u>	
	<p><i>44 species of Madagascar Dalbergia spp. are included on the IUCN Red List of Threatened species as Endangered (20 species), Vulnerable (16 species) and Least Concern/Lower Concern/Near Threatened (eight species).</i></p> <p><i>Of the 44 species, 43 were assessed in 1998 for the first time. The IUCN Red List notes that the 1998 assessments “need updating”. In 2012, three species were reassessed (two remained endangered whilst the third was reassessed from Vulnerable to Near Threatened), and a fourth was assessed for the first time.</i></p>

Supporting Statement (SS)	Additional information
<p>Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)</p> <p><u>A) Trade regulation needed to prevent future inclusion in Appendix I</u></p> <p>The proposal lists 48 species of Dalbergia. Seven species of Dalbergia are the most commercialised outside of Madagascar.</p> <p>Some species are confined to restricted areas as is the case for <i>Dalbergia aurea</i>, <i>D. brachystachya</i>, <i>D. davidii</i>, and <i>D. histicalyx</i>. Others have a wide geographical distribution as <i>D. baronii</i>, <i>D. greveana</i> and <i>D. trichocarpa</i>. The geographical distribution of some species of Dalbergias is given in Appendix 3 of the supporting statement.</p> <p>In general, <i>Dalbergia</i> species have a relatively low rate of regeneration and the absence of certain classes of individual's diameter (10-20cm, 20-30cm) disrupts further regeneration. Selective cutting of exploitable individuals is the main cause of this disturbance.</p> <p>The structure of the population of the species of Dalbergia presents a disturbance marked by the absence of certain diameter classes both inside and outside protected areas. Individual seed trees with a DBH greater than 20 cm represented by large trees are increasingly rare. The natural regeneration rate is generally low and growth in thickness is slow (3 mm/yr).</p> <p>Dalbergia species show great variability in density from 10 to 320 individuals per hectare (Table below). In addition, the biovolume and basal area are low. This indicates that the majority of individuals are not usable.</p> <p>In the rain forest of Andohahela the observed density of exploitable Dalbergia is 12 individuals per hectare at 400 metres altitude. Densities of 2-5 individuals per hectare are recorded on lower western slopes in the Masoala plots. In 1994, 3 – 8 individuals per hectare were measured in low – medium altitude wet forests of Ranomafana.</p>	<p><i>Dalbergia</i> are very slow growing (Patel in litt., 2012).</p> <p>Loggers have selectively logged rosewood in up to 20 450 ha in the north east region to date (Barrett et al., 2010).</p> <p>Barrett et al. (2010) listed the following ten species as being economically important <i>D. bathiei</i>, <i>D. baronii</i>, <i>D. davidii</i>, <i>D. louvelii</i>, <i>D. mollis</i>, <i>D. monticola</i>, <i>D. normandii</i>, <i>D. purpurascens</i>, <i>D. tsiandalana</i> and <i>D. viguieri</i>. Based on various deforestation scenarios and hypothesised historical distributions they calculated long-term range reductions for all species except <i>D. davidii</i> and <i>D. normandii</i> to be between 54% and 98%. There was insufficient information for <i>D. davidii</i> and <i>D. normandii</i> to make any assessment.</p> <p>DBEV and WWF (2010) identified <i>Dalbergia abrahamii</i>, <i>D. baronii</i>, <i>D. greveana</i>, <i>D. louvelii</i>, <i>D. madagascariensis</i>, <i>D. mollis</i>, <i>D. monticola</i>, <i>D. normandii</i>, <i>D. purpurascens</i>, <i>D. trichocarpa</i> and <i>D. xerophila</i> as being traded internationally.</p> <p>Jenkins et al. (2012) state that the species which are particularly valued for trade include <i>D. baronii</i>, <i>D. louvelii</i>, <i>D. maritima</i>, <i>D. greveana</i> and <i>D. madagascariensis</i> (which lacks the typical lustre of rosewood, is generally referred to as pallisandre in Madagascar and is not covered by the 'unconditional' export ban of 2010).</p> <p>Eighteen species of threatened and Near Threatened species are recorded as being felled for timber on the IUCN Red List or in the document submitted to the nineteenth meeting of the CITES Plants Committee by the nomenclature specialist and Madagascar (Document PC19 Doc. 14.3). This documents also presents preliminary assessments using the IUCN Red List categories and criteria (version 3.1) undertaken by the IUCN/SSC Madagascar Plants Specialist Group that have not yet been published. These are included below.</p> <p>The following species have been identified by one of the sources above as being valuable for trade:</p> <ul style="list-style-type: none"> • Dalbergia abrahamii- (Endangered)-A tree known only from a few localities around Autsiranana and the Ankarana Massif. Much of the range is decreasing through forest destruction. Subpopulations are fragmented. The main threat comes from selective felling for timber and charcoal (Du Puy, 1998i). The extent of occurrence (E00) has been calculated at 637 km² (DBEV and WWF, 2010), though it is not clear what the basis for the estimate of extent of occurrence is and it is likely to be an underestimate. The same applies for the extent of

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<p>Table: Characteristics of some species of <i>Dalbergia</i> in Madagascar</p> <table border="1"> <thead> <tr> <th>Species</th> <th>Density (ind / ha)</th> <th>Basal area (m² / ha)</th> <th>Biovolume (m³ / ha)</th> </tr> </thead> <tbody> <tr> <td><i>Dalbergia abrahamii</i></td> <td>120</td> <td>1.9</td> <td>6.6</td> </tr> <tr> <td><i>Dalbergia baronii</i></td> <td>10</td> <td>1.5</td> <td>5.7</td> </tr> <tr> <td rowspan="2"><i>Dalbergia greveana</i></td> <td>270</td> <td>4.2</td> <td>16.6</td> </tr> <tr> <td>310</td> <td>4.7</td> <td>34.7</td> </tr> <tr> <td><i>Dalbergia madagascariensis</i></td> <td>250</td> <td>4.1</td> <td>16.5</td> </tr> <tr> <td rowspan="2"><i>Dalbergia mollis</i></td> <td>210</td> <td>4.8</td> <td>44</td> </tr> <tr> <td>220</td> <td>2, 6</td> <td>24.7</td> </tr> <tr> <td><i>Dalbergia trichocarpa</i></td> <td>300</td> <td>11.1</td> <td>40.3</td> </tr> <tr> <td><i>Dalbergia louvelii</i></td> <td>200</td> <td>0.3</td> <td>4</td> </tr> <tr> <td><i>Dalbergia monticola</i></td> <td>200</td> <td>3.2</td> <td>12.9</td> </tr> <tr> <td><i>Dalbergia normandii</i></td> <td>260</td> <td>4.3</td> <td>11.4</td> </tr> <tr> <td rowspan="3"><i>Dalbergia purpurascens</i></td> <td>240</td> <td>7.1</td> <td>18.7</td> </tr> <tr> <td>100</td> <td>7.2</td> <td>37.3</td> </tr> <tr> <td>320</td> <td>6</td> <td>50</td> </tr> <tr> <td><i>Dalbergia xerophila</i></td> <td>240</td> <td>3.7</td> <td>36.1</td> </tr> </tbody> </table>				Species	Density (ind / ha)	Basal area (m ² / ha)	Biovolume (m ³ / ha)	<i>Dalbergia abrahamii</i>	120	1.9	6.6	<i>Dalbergia baronii</i>	10	1.5	5.7	<i>Dalbergia greveana</i>	270	4.2	16.6	310	4.7	34.7	<i>Dalbergia madagascariensis</i>	250	4.1	16.5	<i>Dalbergia mollis</i>	210	4.8	44	220	2, 6	24.7	<i>Dalbergia trichocarpa</i>	300	11.1	40.3	<i>Dalbergia louvelii</i>	200	0.3	4	<i>Dalbergia monticola</i>	200	3.2	12.9	<i>Dalbergia normandii</i>	260	4.3	11.4	<i>Dalbergia purpurascens</i>	240	7.1	18.7	100	7.2	37.3	320	6	50	<i>Dalbergia xerophila</i>	240	3.7	36.1	<p>occurrence calculated for the following species. DBEV and WWF (2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.</p> <ul style="list-style-type: none"> • D. baronii- (<i>Vulnerable</i>) A widespread species confined to the lowland plains of eastern Madagascar. This fine rosewood timber species grows in lowland rainforest, often in marshy areas and near mangroves. (Du Puy, 1998a). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Vulnerable. • D. bathiei- (<i>Endangered</i>) A tree confined to a few small areas of lowland, evergreen, humid forest, mainly along river margins. This species is a fine rosewood and is traded nationally and locally. As a result of selective exploitation, this species is now very rare (Du Puy, 1998j). The extent of occurrence has been calculated as 11 965km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Critically Endangered. • D. davidii- (<i>Endangered</i>) Occurs in an area where <i>Dalbergia</i> species are being selectively felled for the export market. Despite its presence in Ankarafantsika Natural Reserve, the species is still under threat from logging (Du Puy, 1998k). The extent of occurrence has been calculated as <100 km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Critically Endangered. • D. greveana- (<i>Lower Risk/near threatened</i>) Still widespread in western Madagascar, but population numbers have declined over the entire range. This species occurs in deciduous, seasonally dry forest and woodland up to 800 m. Trees are sought after and selectively felled for the high-quality wood which forms the bulk of timber wood exports from western Madagascar. Some localities are protected in Ankarafantsika Nature Reserve and in Ankarana Special Reserve (Du Puy, 1998d). The extent of occurrence has been calculated as 423 423 km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Least Concern. • D. louvelii- (<i>Endangered</i>) Eastern Madagascar. Populations of this rare rosewood species are now severely fragmented. A species confined to the drastically reduced lowland, humid forest (Du Puy, 1998b). The extent of occurrence has been calculated as 5358 km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.
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	<ul style="list-style-type: none"> • D. madagascariensis- (<i>Vulnerable</i>) <i>A widespread species found in humid, evergreen forest. The extent of the forest is in decline and trees are selectively felled for the timber (Du Puy, 1998). The extent of occurrence has been calculated as 195 960 km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Least Concern.</i> • D. maritima- (<i>Endangered</i>) <i>A lowland tree restricted to humid, evergreen, coastal forest. This type of forest has been almost completely destroyed. The remaining forests are seriously threatened by exploitation and clearing. Selective felling for export, fragmented subpopulations and titanium mining activities threaten this endemic species (Du Puy, 1998c).</i> • D. mollis- (<i>Lower Risk/near threatened</i>). <i>The extent of occurrence has been calculated as 285 208km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Least Concern.</i> • D. monticola- (<i>Vulnerable</i>) (<i>Appendix III</i>) <i>Extensive distribution along the eastern escarpment of Madagascar, including areas with extensive forest cover. This much sought-after rosewood is selectively felled for export and mature trees are considered rare. Although it was said that many localities received protection in Perinet/Andasibe, Zahamena, and Ranomafana Protected Areas (Du Puy, 1998e). The extent of occurrence has been calculated as 122 991 km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Vulnerable or Least Concern.</i> • D. normandii- (<i>Endangered</i>) (<i>Appendix III</i>) <i>A very rare species known from only two localities, Antalaha and the Isle Sainte Marie in north-east Madagascar. This tree has been severely exploited for the excellent quality of its rosewood. (Du Puy, 1998f). The extent of occurrence has been calculated as <5000km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.</i> • D. purpurascens- (<i>Vulnerable</i>) (<i>Appendix III</i>), <i>Widespread in east, west and south-west Madagascar, where it was locally common (in 1998). This species produces a notably attractive high-quality rosewood which is selectively felled, seriously reducing populations. (Du Puy, 1998g). The extent of occurrence has been calculated as 480 363 km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Least Concern.</i> • D. tsiandalana- (<i>Endangered</i>) <i>Very restricted, this poorly known species occurs around Soalala and Mahajanga in western Madagascar. The habitat of this species is very reduced and fragmented. This good-quality rosewood is selectively felled (Du Puy, 1998m). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.</i>

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	<ul style="list-style-type: none"> • D. viguieri- (<i>Vulnerable</i>) A poorly known rosewood tree that is restricted to broadleaved transition forest in north-east Madagascar. The species is known from only three rapidly diminishing sites, all of which are fragmented and isolated (Du Puy, 1998n). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered. • D. xerophila- (<i>Endangered</i>) (Appendix III). This species has a very restricted distribution in south-east Madagascar. (Du Puy, 1998h). The extent of occurrence has been calculated as 1859 km² (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.

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

Market demand for the timber of the species is seriously threatening *Dalbergia* spp. in Madagascar.

On the national and international market, precious woods are more expensive especially rosewood (about 6000 euros per ton) which results in illegal exploitation becoming more numerous and occurring even in protected areas.

In 2009 at least 52 000 tonnes of precious wood (approximately 100 000 feet of rosewood and ebony) was harvested; more than 60 000 feet from protected areas. It has been estimated that rosewood from Madagascar is worth 400 000 euros per day on international markets.

Between 2000 - 2001 (prior to 2002 political turmoil) rosewood exports amounted to almost 5000 tonnes annually, declining to almost nothing for 5 - 6 years, and then increasing to 2385 in 2007. Exports then increased to almost 14 000 tonnes in 2008 (prior to the current political turmoil) and increased further to more than 36 000 tonnes in 2009. The figures presented for 2007 and 2008 mostly pertain to rosewood seized by the state and sold by auction to a single buyer. The Forestry Administration estimated a further reserve of 15 600 tonnes awaiting export in 2009. This does not include containers smuggled out of Madagascar (Randriamalala and Liu, 2010).

Foreign exports of Madagascar rosewood occurred at "low" levels (1000 to 5000 tonnes) between 1998 and 2007. Approximately 10 280 tonnes of illegally logged rosewood is believed to remain stockpiled in numerous locations in north-eastern Madagascar, such as the ports of Vohemar and Antalaha as well as private residences in those cities and Sambava, Ampanifena, Ambohitralana, and others (National Geographic, 2010).

Prior to September 2009 13 authorized exporters were identified, concentrated in Antalaha, but following the publication of Order No. 38244/2009 in September 2009, this rose to 23 authorized exporters by December 2009. In 2009 the number of rosewood trees in protected areas was estimated at 3-5 trees per hectare. In 2009 100 000 rosewood trees were felled in the SAVA region and Analanjirofo (Randriamalala and Liu, 2010).

As logging after March 2009 increased, loggers moved south (Randriamalala, 2012b).

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	<p><i>Exports of rosewood from China to Madagascar rose by 340% in one year reaching 22 000 m³ in 2010. This is by far the largest threat to the species and rainforests of Madagascar (EIA, 2012). Of exports from Madagascar, 95% go to China and the remaining 5% to USA or Europe (Patel in litt., 2012).</i></p> <p><i>Barrett et al. (2010) reported that a conservative estimate of 1137 containers, each carrying 114 rosewood logs each on average, and with a value in excess of USD227.4 million, had been exported since April 2009.</i></p> <p><i>Patel in litt. (2012) reported that there were 500 000 logs stockpiled. Cutting continues in Masoala National Park and Mananara-Nord at least, but there has been no cutting in Marojejy in last 24 months (Patel in litt., 2012).</i></p> <p><i>Each 150-kilogram log has an approximate market value of USD1300 (National Geographic, 2010).</i></p> <p><i>A report by Randriamalala (2012a) based on press clippings, cargo manifests and eye-witness accounts indicates that traders are covertly reducing rosewood stockpiles accumulated during a spate of logging in the aftermath of the 2009 regime change. Rosewood logs are reportedly ferried by small boats to "mother ships" anchored from beaches in northeastern Madagascar.</i></p> <p><i>It has been claimed that the overwhelming majority of exported Madagascar rosewood is illegally logged within Masoala National Park and Marojejy National Park (which are part of the Rainforests of the Antsiranana UNESCO World Heritage Site), as well as Mananara-Nord Biosphere Reserve and the vast Makira Conservation Site) (Jenkins et al., 2012).</i></p> <p><i>In 2010 UNESCO added the Madagascan World Heritage Site Rainforests to its list of 'World Heritage in Danger', the vast quantities being felled have been valued at several hundred million dollars worth extracted in 2009 (Jenkins et al., 2012).</i></p> <p><i>Import to Europe and USA have not ceased as several rosewood species are readily available for sale from specialist timber traders on the internet. A brief search on the internet shows various companies selling guitars and other products made of Madagascan Rosewood.</i></p> <p><i>A wide range of timber sizes has been found by EIA Investigations suggesting indiscriminate felling of rosewood trees of any age and size. Very little, if any rosewood logging is legal (National Geographic, 2010).</i></p>

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<p>Other information</p> <p>In addition to the damage caused by illegal exploitation of <i>Dalbergia</i> species, habitat destruction is exacerbated by shifting cultivation and fires.</p>	<p style="text-align: center;"><u>Threats</u></p> <p><i>Original forest extent was 70-90% land cover, in 2000 it was 16% (Patel in litt., 2012).</i></p> <p><i>Illegal logging has emerged as the most severe threat to Madagascar's dwindling north-eastern rainforest. Documented long-term ecological consequences of selective logging in Madagascar include invasion of persistent, dominant non-native plant species, impaired habitat for animals, and a diminution of endemic mammalian species richness (WWF, 2012). <i>Dalbergia</i> species which are not internationally traded for high quality wood are also felled for charcoal and fuel for local use and has caused fragmentation and degradation of vegetation and habitats (Du Puy et al., 2002).</i></p> <p><i>According to a WWF study the number of species found in Andranopasy (Southwest Madagascar) is far less than what is expected based on previous inventories in the same area (18 species were inventoried at Mikea forest in 2005). The plausible explanation of this is that their overexploitation resulted in their extirpation from Andranopasy. Most mature individuals in both sites are gone due to illegal logging and the stock of trees with exploitable size is very low in both sites, with almost zero stock for Andranopasy. Ongoing selective logging activities and forest conversions were still being recorded in both sites during the study (WWF, 2012).</i></p>
<u>Conservation, management and legislation</u>	
<p>The Government of Madagascar plans to increase the size of protected areas as a means to contribute to the conservation of species of <i>Dalbergia</i>.</p> <p>Madagascar listed 5 species in Appendix II.</p> <p>Rosewoods occur primarily outside protected areas which contain 10 – 25% of the total population.</p>	<p><i>Five species were listed in CITES Appendix III (Madagascar) at the end of 2011: D. louvelii, D. monticola, D. normandii, D. purpurascens and D. xerophila. These species were included in CITES after illegal trade increased by 25% in 2009 and approximately 25 000 m³ of rosewood were exported. D. madagascariensis lacks the typical lustre of rosewood and is not covered by the 'unconditional' export ban of 2010 (Jenkins et al., 2012).</i></p> <p><i>Rosewoods are virtually exclusively found inside protected areas (Patel in litt., 2012).</i></p> <p><i>The Government legalised export in December 2009, then on 24 March 2010 Decree 2010-121 was issued which unconditionally bans all harvest, transport or export of rosewood in Madagascar for the next 2-5 years (Barrett et al., 2010). It is unclear if this ban is still in place. In May 2010 the Prime Minister issued a service note permitting export of 79 containers which had been impounded for export under Inter-ministerial Order 38409/2009 (Global Witness and Environmental Investigation Agency, 2010).</i></p> <p><i>The illegal logging peaked during 2009 and 2010 and then slowed due to an unconditional export ban in 2010 with heavier penalties being introduced in 2011. However, the order was lifted in January 2012, re-authorising export which is currently</i></p>

Supporting Statement (SS)	Additional information
	<p><i>under review due to pressures from foreign traders, tourism and conservation groups. A report in the L'Express de Madagascar (15 March 2012) stated that the decree 2010-141 has been reinstated banning the harvest, transport and export of Rosewood (Jenkins et al., 2012). Illegal logging of this has heavily impacted some reserves such as Betampona Natural Reserve (National Geographic, 2010).</i></p> <p><i>The precious timber trade was so widespread it appeared legal. In September 2009, 50% of villagers around the Masoala National Park were at any given time away in the forest harvesting. The situation in 2012 has improved, loggers are being imprisoned and trucks with logs confiscated. However, Rosewood containers are still being exported under false customs declarations (Patel in litt., 2012).</i></p> <p><i>The Lacey Act prohibits the import of illegal Malagasy wood into the United States.</i></p>
<u>Other comments</u>	
	<p><i>Two species listed in the IUCN Red List as occurring in Madagascar are not included in the Annex to the proposal: D. hutibertii (VN) and D. catipenonii (VN).</i></p> <p><i>Further recommendations that should be implemented include sustainable land use planning strategies, species management policies, chain-of-custody timber tracking and log DNA barcode (Barret et al., 2010). Research is being carried out to obtain DNA samples for bar coding Dalbergia species (Hassold, S. 2012).</i></p> <p><i>Due to the lack or poor quality of roads the logs are transported by boat it is estimated that for 100 000 trees logged, at least 500 000 additional trees were felled (e.g. Dombeya spp) to make rafts – on average five high buoyancy trees are required to float one log, as well as tens of thousands of vines for binding the rafts were cut (Randriamalala and Liu, 2010).</i></p>

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