



**Amazon supports increased control over international trade of mahogany:
the species' proposed listing on CITES Appendix II**

Amazon Institute of People and the Environment

Belém, Pará, Brazil

October 15, 2002

EXECUTIVE SUMMARY

Mahogany (*Swietenia macrophylla*, Meliaceae) has long been subjected to predatory logging throughout tropical America, including Brazil – that is, harvest rates of natural populations exceed natural replacement rates through growth and regeneration. To promote sustainable trade of mahogany, Guatemala and Nicaragua have proposed its inclusion on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This international treaty has regulated trade in animal and plant species since 1975. Brazil unilaterally lists mahogany on CITES Appendix III, which requires verification through export permits that internationally traded volumes are legally obtained. Appendix II listing would additionally require verification that harvests are not detrimental to mahogany's survival in its role in forest ecosystems. Mahogany's inclusion on Appendix II would benefit Brazil by strengthening current legal frameworks for regulating international trade. Under Appendix II, legally sourced and sustainably managed mahogany would not face unfair price competition from illegal supplies. Bilateral inclusion of mahogany on Appendix II would:

- Harmonize documentation for export volumes, requiring each range nation's CITES Management Authority to provide CITES export permits for internationally traded mahogany; at present, export permits are only required from range nations listing mahogany on Appendix III (including Brazil).
- Fortify the legal status of export volumes by investing each range nation's CITES Scientific Authority with the power to determine whether exported timber has been sustainably harvested; under Appendix III, no regulatory mechanism exists to challenge illegally obtained mahogany that is being legalized through CITES export permits.
- Provide a regulatory mechanism to combat illegal trade when illegal supplies compete unfairly with legal supplies requiring investment in forest management; this mechanism could be provided by a Significant Trade Review by the CITES Plant Committee.



The Brazilian government has recently taken measures to combat illegal logging and is preparing legislation that would promote rational management practices for mahogany in Amazonia. Mahogany's inclusion on Appendix II could further legitimize Brazilian mahogany supplies in international markets by ensuring their legal origin and sustainable management. We therefore recommend that the Brazilian government actively support mahogany's inclusion on CITES Appendix II.

INTRODUCTION

Mahogany's proposed listing on Appendix II of CITES will be debated and voted on in early November in Santiago, Chile¹. Occurring from Mexico through Central and South America as far south as Bolivia, mahogany is tropical America's most valuable timber species, selling for US\$1300/cubic meter FOB in 2001². As the range country with the largest historical and surviving natural stocks of commercial mahogany, Brazil's support for or opposition to the listing proposal will largely determine whether the proposal succeeds or fails. In this paper we describe CITES's regulatory function and review the current ecological, commercial, legal, and policy frameworks for mahogany within Brazil. We conclude by explaining why Brazil's support for listing mahogany on Appendix II would benefit Brazilian society and its forests by strengthening the legal mandate for sustainable forest management in Amazonia.

CITES AND APPENDICES FOR LISTING SPECIES OF CONCERN

CITES is an international treaty signed by 154 nations, including Brazil, that has regulated trade in animal and plant species since 1975³. Member nations can propose inclusion of species of concern on one of three Appendices, depending on the level of imminent or actual threat that international trade poses to a species' survival in its ecological role in the wild⁴.

¹ The joint proposal by Guatemala and Nicaragua is available at <http://www.cites.org/common/cop/12/prop/eng/E12-P50.pdf> (English version), or <http://www.cites.org/common/cop/12/prop/esp/E12-P50.pdf> (Spanish version). A scientific review of the proposal can be viewed at <http://www.iucn.org/themes/ssc/citescop12/cop12analyses.htm>.

² *ITTO Tropical Timber Market Report*, 16-31 December, 2001.

³ See CITES homepage, <http://www.cites.org/> for more information about the treaty.

⁴ CITES does not require threat of imminent biological or even commercial extinction for an Appendix listing. Rather, it treats species whose continued survival in their current role in the ecosystem is threatened. That is, the treaty attempts to maintain species' reproductive and regenerative capacity in the ecosystem through maintenance of population size and structure, so that interdependent relationships formed with other species are also maintained.

Species listed on Appendix I are banned from international trade due to the threat of extinction. An Appendix II listing regulates trade in species that could become threatened by unregulated harvests. It requires that trade be monitored through verification that harvests are of legal origin, and through verification that harvests are not detrimental to survival of the species in their role in the ecosystem. Listing on Appendix III requires that domestic laws protecting a species are enforced, and that exports are accompanied by CITES permits verifying that export volumes were legally obtained. These efforts by range nations are matched by consumer nations monitoring import documentation through domestic CITES authorities. Listing a species on Appendices I and II requires support of 2/3 of the voting parties (nations) at a CITES Convention of Parties (COP), which is held once every two years. Listing on Appendix III is a voluntary, unilateral act by range nations⁵. Nations can withdraw their listed populations from Appendix III at any time, but downlisting species from Appendices I and II requires 2/3 majority support by voting nations at a biennial COP.

Mahogany was proposed for listing on Appendix II at CITES COPs held in 1992, 1994, and 1997. At each COP, the proposal was either withdrawn before plenary vote or failed to garner the 2/3 majority required for adoption. Brazil supported the proposal for listing mahogany on Appendix II in 1992, but the proposal was withdrawn before reaching plenary vote. Brazil opposed the proposal in 1994 and abstained from the vote in 1997, stating that it would accept whatever decision the parties made. Since 1995, six range nations have listed mahogany on Appendix III, including Brazil and Bolivia in 1998. Two other American mahoganies occurring in Central America and the Caribbean, *Swietenia humilis* and *S. mahagoni*, have been listed on Appendix II since 1975 and 1992, respectively. Both species were essentially commercially extinct by the early 1900s due to centuries of overexploitation. However, small volumes of *S. mahagoni* are traded internationally under Appendix II regulations⁶.

There are currently seven timber species listed on CITES Appendix I, including Brazilian rosewood or pau brasil (*Dalbergia nigra*). Twelve timber species are listed on Appendix II, over half of these of Central American or Caribbean origin⁷. Appendix II listing has most frequently been applied where international demand has driven exploitation of high-value species beyond sustainable levels until natural populations approach commercial extinction. Mahogany's inclusion on Appendix II would mark the first case where a timber species still heavily traded internationally is listed in order to control unsustainable harvests which could result in commercial extinction. CITES Appendix II has more

⁵ See CITES treaty at <http://www.cites.org/eng/disc/text.shtm> ; also Blundell, A.G. & B.D. Rodan, 2002, Monitoring mahogany, *ITTO Newsletter, Tropical Forest Update* 12 (1), <http://www.itto.or.jp/newsletter/v12n1/4.html>.

⁶ Robbins, C.S., 2000, Mahogany Matters: the U.S. Market for Big-Leafed Mahogany and its Implications for the Conservation of the Species, unpublished report, TRAFFIC North America, Washington, DC, USA.

⁷ For a complete list see International Wood Products Association, <http://www.iwpawood.org/cites.html>

frequently been used to control heavily traded animal species such as alligators and crocodiles. In many cases, Appendix II listing has helped move trade towards sustainability by regulating overexploitation⁸.

MAHOGANY: ECOLOGY AND LOGGING

Mahogany is a long-lived, large forest tree. It tends to occur at low densities in natural forests, generally less than one adult tree per hectare, with distribution patterns shaped by natural disturbances – it requires forest gaps to successfully regenerate – and physiographic features on the landscape like topography, surface drainage, or soil type⁹. Under natural conditions successful regeneration is rare, occurring at intervals many years or even decades wide, often creating a situation where densities of juvenile trees are low compared to densities of adult trees¹⁰. Logging typically removes nearly all adult trees larger than 60 cm diameter and many sub-adult trees down to 30 cm diameter. Regeneration after logging is generally poor to non-existent¹¹ because¹²:

⁸ For examples, see <http://www.traffic.org/> on crocodylians (caiman species, American alligator, Nile crocodile), queen conch (*Strombus gigas*), Tegu lizards (*Tupinambis* spp), Cycads, American ginseng, and sturgeon/caviar.

⁹ Lamb, F.B., 1966, Mahogany of Tropical America: its Ecology and Management, University of Michigan Press, Ann Arbor, MI, USA.

¹⁰ Snook, L.K., 1993, Stand dynamics of mahogany (*Swietenia macrophylla* King) and associated species after fire and hurricane in the tropical forests of the Yucatan Peninsula, Mexico, Ph.D. dissertation, Yale University School of Forestry & Environmental Studies, New Haven, CT, USA; Gullison, R. E., S. N. Panfil, J. J. Strouse & S. P. Hubbell, 1996, Ecology and management of mahogany (*Swietenia macrophylla* King) in the Chimanes Forest, Beni, Bolivia, *Botanical Journal of the Linnean Society* 122: 9-34.

¹¹ See Stevenson, N.S., 1927, Silvicultural treatment of mahogany forests in British Honduras, *Empire Forestry Journal* 6: 219-227; Lamb 1966 *ibid*; Quevedo, L.H., 1986, Evaluacion del efecto de la tala selectiva sobre la renovacion de un bosque humedo subtropical en Santa Cruz, Bolivia, Masters thesis, Universidad de Costa Rica, CATIE, Turrialba, Costa Rica; Snook 1993 *ibid*.; Veríssimo, A., P. Barreto, R. Tarifa & C. Uhl, 1995, Extraction of a high-value natural resource in Amazonia: the case of mahogany, *Forest Ecology and Management* 72: 39-60; Gullison et al. 1996 *ibid*.; Saa, H.J., E. Alpizar, J. Ledezma, J. Tosi, R. Bolaños, R. Solórzano, J. Echeverría, P. Oñoro, M. Castillo & R. Mancilla, 1996, Estudio sobre el estado de regeneracion natural de *Swietenia macrophylla* King, "mara", en Santa Cruz, Bolivia, World Wildlife Fund, Santa Cruz, Bolivia; Dickinson, M.B. & D.F. Whigham, 1999, Regeneration of mahogany (*Swietenia macrophylla*) in the Yucatan, *International Forestry Journal* 1: 35-39; Jennings, S.B. & N.D. Brown, 2001, Ecology and silviculture of mahogany (*Swietenia macrophylla* King) in the state of Pará in the Brazilian Amazon, Report, DFID, Oxford, UK; Grogan, J.E., J. Galvão, L. Simões and A. Veríssimo, 2002, Regeneration of bigleaf mahogany in closed and logged forests of southeastern Pará, Brazil, pages 193-208 in A. Lugo & J.C. Figueroa, eds., *Mahogany Ecology, Genetics and Management*, Springer-Verlag, New York, NY, USA.

¹² Life history summary derived from Lamb 1966 *ibid*, Snook 1993 *ibid*, Gullison et al. 1996 *ibid*, and Grogan, J.E., 2001, Bigleaf mahogany (*Swietenia macrophylla* King) in southeast Pará, Brazil: a life history study with management guidelines for sustained production from natural forests, Ph.D. dissertation, Yale University School of Forestry & Environmental Studies, New Haven, CT, USA.

- Seed production varies widely from year-to-year and among trees. There is no seed bank in the forest soil because seeds only survive 3 to 6 months on the ground after dispersal.
- Trees are generally felled before seed dispersal during the mid- to late dry season, meaning no seeds (if produced) are on the ground when logging gaps are formed.
- Rare seeds that do disperse into logging gaps have lower survival rates than seeds dispersing into the forest understory. This is because germination rates are faster in moist understory conditions compared to drier logging gaps. Delayed germination increases seed exposure to pathogens and predators.
- Seedling survivorship and growth rates in logging gaps are generally low due to poor rooting and intense competition for light with other vegetation.
- Vegetation regrowth in gaps tends to fill overhead openings before mahogany seedlings can grow into the canopy.

Furthermore:

- Naturally established mahogany seedlings in the forest understory near adult trees respond poorly to canopy openings in logging gaps if they have grown in the shade for more than one year.
- Mahogany trees that survive logging tend to be small in size (<45 cm diameter) and to produce few seeds, if any, compared to commercial-sized trees.
- Post-logging seed production may be further reduced because of sharp reduction in population density, increasing distances that pollinators must travel between trees.

In short, mahogany logging typically resembles a mining operation in which adult populations are decimated, reproductive potential by surviving sub-adult trees is reduced, and seedling regeneration is rare or subsequently fails.

COMMERCIAL HISTORY

Mahogany has been commercially harvested in Mexico and Central America since the 16th Century¹³, but only in recent decades have changes in land use patterns and mechanized logging equipment opened previously remote primary forests to exploitation. Mahogany's extraordinary value places all natural populations at risk of exploitation, even those

¹³ Lamb 1966 *ibid.*; Weaver, P.L. & O.A. Sabido, 1997, Mahogany in Belize: a historical perspective, USDA Forest Service, International Institute of Tropical Forestry, General Technical Report IITF-2, Asheville, NC, USA.

nominally protected within parks, conservation areas or Indigenous Areas. International trade volumes of mahogany from Central America declined to less than 10,000 cubic meters/year of sawn timber by 2000¹⁴. The current proposal for listing on Appendix II by Guatemala and Nicaragua represents an effort by Central American governments to regulate illegal harvests by requiring producer nations to verify that trade volumes are of legal origin and sustainably harvested.

In Brazil, commercial harvests of mahogany began along western Amazonian tributaries of the Rio Solimões in the 1920s and 1930s. Vast *terra firme* commercial stocks in southeastern Pará and Rondônia were opened for exploitation in the 1970s by highways connecting previously inaccessible regions with port cities in the north and south of Brazil. Using small planes to locate merchantable trees, loggers opened roads hundreds of kilometers into primary forests to remove commercial mahogany populations. Ranchers and small-holder agriculturists followed logging roads into the interior, accelerating forest conversion rates to pasture and slash & burn crop systems. Between 1971 and 2000, approximately 5.7 million cubic meters of sawn mahogany were produced from the Brazilian Amazon, worth approximately US\$ 3.9 billion. By the mid-1990s, commercial populations of mahogany were nearly extinct in southeast Pará and Rondônia, and the logging front had moved into central and southwest Pará, northwest Mato Grosso, and southeast Amazonas, where mahogany occurs at lower densities in taller, more humid forests¹⁵.

LEGAL AND POLICY ENVIRONMENTS

The Brazilian federal government has attempted to increase its control over mahogany's illegal and predatory exploitation since 1990. This control has come through progressively lower export quotas, which fell from 150,000 to 30,000 cubic meters in 2001, and through moratoria on authorization of new management plans for mahogany since 1996 (Presidential Decree 1963/1996, renewed by Decree 2687/1998, Decree 2559/2000, and Decree 4335/2002)¹⁶.

From 1996 only 11 management plans for mahogany were allowed to continue functioning after field reviews by Ibama, the federal environmental regulatory agency, indicated widespread technical irregularities and fraud. By October 2001 it had become evident that transportation permits (ATPFs) from these management plans were being used by the

¹⁴ Robbins 2000 *ibid.*

¹⁵ Browder, J.O., 1987, Brazil's export promotion policy (1980-1984): impacts on the Amazon's industrial wood sector, *The Journal of Developing Areas* 21: 285-304; Schmink, M. & C. Wood, 1992, Contested Frontiers in Amazonia, Columbia University Press, New York, USA; Veríssimo *et al.* 1995 *ibid.*; Grogan, J., P. Barreto & A. Veríssimo, 2002, Mahogany in the Brazilian Amazon: Ecology and Perspectives on Management, Imazon, Belém, Pará, Brazil (see <http://www.imazon.org.br>).

¹⁶ Grogan *et al.* 2002 *ibid.*

logging industry to legalize mahogany harvested hundreds of kilometers from the nearest authorized management area. Ibama and the Federal Police therefore launched “Operation Mahogany” to confiscate mahogany logs extracted from within the “Terra do Meio” between the Xingu and Iriri Rivers in central Pará¹⁷. These 11 remaining management plans were suspended, and, after field reviews, 10 were suspended or canceled in December 2001 due to technical improprieties or fraud. Ibama furthermore prohibited export of mahogany attributed to these canceled management plans until proof of legal origin could be provided¹⁸. Although some logging companies were able to obtain court orders releasing sawn mahogany for export, the Brazilian government requested international assistance in halting imports into Europe and the United States. Based on mahogany’s inclusion on CITES Appendix III, which requires proof of legal origin for import, the European Commission’s Directorate of the Environment was able to support the Brazilian government by recommending in March 2002 that member nations halt imports of Brazilian mahogany¹⁹. As well, up to 10,000 cubic meters of Brazilian mahogany awaits legal clarification under CITES Appendix III in US ports by request of the Brazilian government²⁰.

At present, only two management areas have federal authorization to log mahogany within Brazilian Legal Amazonia, both of these at small scales in terms of volume. The moratorium on authorizing new management plans for mahogany was extended in August 2002 for an additional six months, until February 2003²¹. The Regional Commission on Environmental Legislation, an advisory board convened by the Ministry of the Environment, has appointed a Technical Working Group to draft legislation governing the sustainable management of mahogany in natural forests. Meanwhile tens of thousands of mahogany logs worth tens of millions of dollars remain impounded within the midwest portion of Pará State, the object of legal battles and potentially violent confrontation between legal authorities and the extra-legal logging sector. Illegal logging activities continue to be detected within Indigenous Areas and in remote regions such as northwest Mato Grosso²².

WHY APPENDIX II LISTING COULD BENEFIT BRAZIL

¹⁷ Greenpeace, 2001, Partners in mahogany crime: the Amazon at the mercy of ‘gentlemen’s agreements’, report, Greenpeace International, the Netherlands (see <http://www.greenpeace.org>).

¹⁸ Ibama, 2001, Normative Instruction n° 22, December 05.

¹⁹ Grogan *et al.* 2002 *ibid.*

²⁰ US District Court of the District of Columbia, Castlewood Products LLC *et al.* vs. Norton *et al.*; Civil Action No. 1:02CV01457(TPJ).

²¹ Presidential Decree 4335/2002.

²² Jornal do Brasil, 27/August/2002, Roubo de mogno é combatido na divisa entre AM e MT, <http://jbonline.terra.com.br/>



The proposal by Guatemala and Nicaragua to list mahogany on CITES Appendix II comes at a time when Brazilian civil society has demonstrated a desire to legitimize forest management practices in the Amazonian logging industry. To restore credibility to Brazilian mahogany traded internationally, two steps must be taken:

- 1) sustained-yield management systems must be implemented in future management areas based on technical knowledge of mahogany's life cycle and regeneration ecology in natural forests; and
- 2) the legal origin and sustainable management of mahogany harvested from Amazonian forests must be verifiable.

Listing mahogany on CITES Appendix II would support this agenda by creating a legal mechanism for tracking (through verification of legality) and controlling (through statement of non-detriment) mahogany harvested within Brazil. This mechanism would reinforce but not supersede measures currently being undertaken by the Brazilian government.

The principal differences between Appendix II and Appendix III listing are as follows:

- Each range nation's CITES Management Authority would issue CITES export permits verifying that exports were legally obtained. Under Appendix III, only nations unilaterally listing mahogany must issue export permits, while exports from non-listing nations may be accompanied by less rigorous certificates of origin. Appendix II would harmonize documentation among both exporting and importing nations, eliminating cost differences and improving accuracy in international trade data.
- Each range nation's CITES Scientific Authority would verify that exported timber has been sustainably harvested through a statement of non-detriment. This would fortify the legal status of export volumes by creating a regulatory mechanism – the Scientific Authority – that could be invoked to investigate allegations that illegally obtained mahogany is being legalized through CITES export permits. Non-detriment findings²³ are not required under Appendix III. For this reason, apparently valid CITES export permits

²³ According to CITES, the form that a non-detriment finding takes is at the discretion of each nation's Scientific Authority. Brazil's CITES Scientific Authority for timber, the Department of Forest Resources (DEREF/DIREN) within Ibama, would retain control over issuance of non-detriment findings for mahogany under Appendix II listing. In mahogany's case, this could be based on a professional forest management plan that is confirmed by Ibama through field verification to be under active, legitimate management. Brazilian national legislation regulating forest management plans, if properly implemented and enforced, already provide for sustainable production of timber from Amazonian forests. Additional management guidelines currently being drafted by the Regional Commission on Environmental Legislation's Technical Working Group on Mahogany will further strengthen legislation for forest management of mahogany. In fact, Bolivia already requires a non-detriment finding for all mahogany traded internationally even though Bolivia only lists mahogany on Appendix III. This finding is based on provision of a professional management plan approved by the Superintendency of Forestry (see the listing proposal, footnote 1).

are difficult to challenge legally under Appendix III once mahogany reaches foreign ports, even when the legal origin of these exports is in question. This situation recently occurred when court orders allowed mahogany to be exported from Brazil under CITES export permits even as the Brazilian government was indicating that these export volumes were not legally obtained²⁴.

- If illegal and or unsustainable harvests persist over time, either through circumvention of or failure by a range nation's CITES Authorities, Appendix II provides for a Significant Trade Review by the CITES Plant Committee whose authority derives from all treaty member nations. In extreme cases a Significant Trade Review could lead to censure and a ban on mahogany exports by range nations (similar to the current situation in Brazil). That is, external national governments could invoke CITES Appendix II listing to assist the Brazilian government in combating illegal trade.

All mahogany range states currently face sharp reductions in export volumes due to decades or centuries of overexploitation. Continued business-as-usual logging could soon extinguish remaining commercial supplies of mahogany while undermining efforts within range states to legalize natural forest management systems for mahogany. For example, management costs of legal Brazilian mahogany mandated by Ibama could price Brazilian mahogany out of international markets if illegal or unsustainable supplies from other range states remain available. As the range state with by far the largest remaining stocks of commercial mahogany in natural forests, Brazil could seize the leadership role in legalizing internationally traded mahogany by supporting the current listing proposal put forth by Central American range states.

²⁴ Gazeta Mercantil, 15/May/2002, EUA combatem mogno ilegal.