

Statement of

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Regarding

H.R. 1497, Legal Timber Protection Act

For the

US House of Representatives Committee on Natural Resources
Subcommittee on Fisheries, Wildlife, and Oceans

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I welcome this opportunity to provide a statement supporting H.R. 1497, Legal Timber Protection Act, legislation that would amend the Lacey Act Amendments of 1981 to prohibit trade in the United States in timber harvested illegally from any domestic or international source.

I received a PhD in Forest Ecology from Yale University's School of Forestry & Environmental Studies in 2001. I have spent a total of 12 years conducting fieldwork in the Brazilian Amazon, five of those years researching my doctoral dissertation, "Bigleaf Mahogany (*Swietenia macrophylla* King) in Southeast Pará, Brazil: A Life History Study with Management Guidelines for Sustained Production from Natural Forests." I have also participated in the policy debate about mahogany's commercial and conservation status by providing technical advice to the forest products industry, the Brazilian government, and the international community through CITES Working Groups on Mahogany.

In my view, the proposed amendment to the Lacey Act would provide a powerful mechanism for preventing illegally sourced supplies of high-value Amazonian timber from entering the US market. This would: 1) protect highly vulnerable natural timber populations from commercial extirpation and encourage the transition to sustainable forest management systems; 2) reduce pressure on unlogged primary forests, thereby slowing rates of deforestation and associated emissions of greenhouse gases; and 3) reduce conflict between loggers and indigenous peoples facing illegal incursions into their territories.

I began my study of mahogany after the unsuccessful 1994 proposal to list mahogany on CITES Appendix II. While relatively little was known at that time about the natural history of mahogany or its ecology, there was agreement in the field that an accurate assessment of the commercial and conservation status of mahogany would require this information. Consequently, I went to Brazil looking for field sites to study mahogany. The USDA Forest Service's International Institute of Tropical Forestry was the principal funder for my doctoral research. Since beginning this work I have published numerous scientific and technical articles on mahogany and related topics. A copy of my curriculum vita is attached to this statement.

International demand for high-value tropical timbers like mahogany, Spanish cedar (*Cedrela odorata*), ipê (*Tabebuia* spp.), and ramin (*Gonystylus* spp.) is the root cause of continued illegal exploitation of these species from ever more remote American, African, and Asian tropical forests. But illegal logging contravenes forest laws in all producer nations meant to protect renewable natural resources from uncontrolled, unsustainable exploitation. Further, by allowing illegal supplies into our markets, we undermine the business model of legal producers by sustaining demand for cheaper, destructively harvested supplies.

The impact of illegal logging on natural populations

Being highly sedentary creatures, timber trees are especially vulnerable to illegal exploitation – there is little hiding a mahogany tree worth thousands or even tens of thousands of dollars in finished lumber, no matter how remote its forest habitat. Plants are at least as vulnerable to population collapse after illegal harvests as animals and fish, and in my view should be afforded the same protections under the Lacey Act.

Tropical trees typically occur at extremely low densities across large areas. In the densest commercial stands of big-leaf mahogany recorded in Brazil, one commercial tree occurred in every five acres of forest, while more common densities were one commercial tree in 20 acres. Facing no constraints on harvest intensity or methods, illegal loggers locate and fell 95% or more of trees that can pay their way out of the forest, including trees smaller than legal minimum diameter felling limits. While adult and sub-adult populations are removed at extremely high rates, seedlings and saplings are rarely in place in closed forest at the time of logging to replace harvested trees. In combination, this means that population recovery after logging will take a century or more, if it will be possible at all, assuming that logged forests can be left to recover without further intervention.

As timber species become commercially extirpated at local scales, illegal loggers shift their activities deeper into unlogged primary forests in search of fresh supplies, and local zones of commercial exhaustion coalesce into regional and then national zones where future harvests are imperiled. This has been the pattern for big-leaf mahogany in Latin America for over two hundred years now, but especially in recent decades in South America. This pattern currently continues in Peru in spite of mahogany's 2002 listing on CITES Appendix II, and is being repeated for other high-value species in the Amazon such as Spanish cedar, ipê, and jatobá (*Hymenaea courbaril*).

The impact of illegal logging on forests

Illegal logging is driven by market demand creating prices high enough to offset risk associated with unlawful activities in remote forest regions. Illegal loggers open roads extending hundreds of miles from frontier sawmill processing centers into unlogged forests. Researchers at the Instituto do Homem e Meio Ambiente da Amazonia (IMAZON), my institutional affiliation in Brazil, estimate that mahogany could be profitably – if currently illegally – logged within up to 99% of its natural range in Brazil, including some of the most remote southwestern Amazon forests remaining in the states of Amazonas and Acre. As has been well documented, these roads open previously inaccessible regions, including Indigenous Lands and protected areas, to agribusiness, cattle ranchers, and small-holder agriculturists, initiating large-scale deforestation and land-use transformation. By occurring rapidly and without planning, this process is generally chaotic, destructive, and frequently marred by violence.

The impact of illegal logging on people

Illegal logging brings with it a host of unavoidable negative consequences for forest communities. In the Amazon, indigenous peoples generally have few resources to defend against loggers illegally extracting high-value timbers from their territories. Indigenous Lands were exploited throughout Brazil during the 1980s and 1990s for mahogany, with or without consent from indigenous communities, often by violent means costing indigenous lives. This occurred as well in Bolivia and Ecuador, and continues today in Peru. As logging fronts penetrate deeper into primary rainforests, bringing land-use changes and market centers with them, indigenous communities must cope with deforested border areas prone to frequent fires, and with repeated incursions by loggers, ranchers and settlers into their territories.

Rather than building a trained labor force capable of planned, best-practices forest management in regions with vast potential for long-term sustainable timber production, illegal loggers provide low-wage employment for unskilled workers under extreme and exploitative working conditions. I have seen many of these operations in the field; disease, injury, and even fatality from logging accidents are common, in sharp contrast with legal logging outfits that comply with forest and labor laws, producing timber under current best-practices management systems.

How H.R. 1497 would help curtail illegal logging

Big-leaf mahogany's eventual listing on CITES Appendix II in 2002 was in large measure an international response to widespread illegal logging in Brazil during the 1990s. But this response came very slowly, after nearly a decade of wrangling among nations, and only after the Brazilian timber sector specializing in mahogany – and its principally North American clients who underwrote their activities – essentially got what it wanted, which was time enough to exploit Brazil's remaining high-density stands before the gates closed against illegal supplies. No legal mechanism existed in the US, destination for more than 90% of internationally traded volumes of mahogany during that period, to address widespread illegality in the trade that was

acknowledged by industry and government sources alike. This problem has persisted with Peruvian mahogany even after the 2002 CITES listing.

H.R. 1497, the Legal Timber Protection Act, the proposed amendment to the Lacey Act, would combat and curtail illegal logging by creating a powerful mechanism to challenge the legal status of timber supplies arriving in the US, the largest market in the world for timber products, where demand for high-value timber drives illegal and unsustainable logging practices in many tropical regions. Such a mechanism could have been used to halt imports of illegally harvested mahogany from Brazil during the 1990s, to the benefit of natural populations that would today be available for sustained-yield management, of vast forested regions where deforestation rates would have been much slower (and greenhouse gas emissions from burned forests much lower), and of forest communities for having fewer conflicts and high-value forest resources preserved for future use.

The Legal Timber Protection Act could halt the entry of illegal timber supplies into the US market. By doing so, it could as well slow the current rapid loss of high-value timber populations, reduce rates of deforestation in the tropical world with associated greenhouse gas emissions, and prevent conflicts between loggers and indigenous peoples.

I thank the Subcommittee on Fisheries, Wildlife, and Oceans for this opportunity to comment on the proposed change in US federal legislation.

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EDUCATION

Yale University, School of Forestry & Environmental Studies, New Haven, Connecticut.

Ph.D. in Forest Ecology 2001, "Bigleaf mahogany (*Swietenia macrophylla* King) in southeast Pará, Brazil: a life history study with management guidelines for sustained production from natural forests." Advisors: Mark Ashton, Graeme Berlyn, John Gordon.

Yale School of Forestry & Environmental Studies, New Haven, Connecticut.

Master of Forest Science in Forest Ecology 1991.

University of Freiburg, Freiburg, West Germany.

German Academic Exchange Service (DAAD) 1981 – 1982.

University of North Carolina, Chapel Hill, North Carolina.

Bachelor of Arts in Zoology & European History 1981. Morehead Scholar, Phi Beta Kappa.

EMPLOYMENT

Postdoctoral Associate & Research Associate, Yale University, School of Forestry & Environmental Studies. From July 2001. Objectives: continued research on bigleaf mahogany in Brazil with technical extension; implementation of a management project for sustained production of mahogany from natural forest in the western Amazonian state of Acre; silvicultural research on sustained-yield management systems for the Brazilian Amazon; publication of dissertation results. Funded by USDA Forest Service, International Institute of Tropical Forestry & International Programs.

Research Associate, Instituto do Homem e Meio Ambiente da Amazônia (IMAZON), Belém, Pará, Brazil. From July 2001. IMAZON is a non-governmental policy research organization specializing in forest resource issues in the Brazilian Amazon.

Consultancy, Secretariat of Forestry & Extractivism, State Government of Acre, Brazil. September – November 2000. Assessment of distribution patterns, population structures, and impacts of extraction on surviving populations of bigleaf mahogany in Acre. Resulting proposal for forest management funded by USAID-Brazil, US Forest Service, WWF-Brazil, and Brazilian Ministry of the Environment.

Instructor, Ecosystem Measurement, introductory field training module for incoming Masters students, Yale School of Forestry & Environmental Studies. August 1994 & 1995. Forest mensuration, vegetation/wildlife sampling skills, statistical analysis.

Teaching Assistant, Yale School of Forestry & Environmental Studies. 1994 – 1995. Silviculture with Mark Ashton; Growth & Development of Forest Stands with Bruce Larsen.

Researcher, Fazenda Vitoria, Paragominas, Pará, Brazil. May – July 1994. Field studies of secondary vegetation community responses to fire in the eastern Amazon Basin. With the Woods Hole Research Center, Massachusetts.

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EMPLOYMENT (cont.)

Forest Ecologist, Lambir National Park, Sarawak, Malaysia. March – July 1993. Field collection and identification of trees >10 cm diameter on the Lambir 50-hectare long-term forest research plot. With the Sarawak Forest Department, Harvard Institute for International Development (HIID), and Dr. Peter Ashton of the Arnold Arboretum, Harvard University.

Forest Ecologist, Huai Kha Khaeng Wildlife Sanctuary, Thailand. September 1991 – January 1993. Field studies of community-level phenology, forest structure, and *Ficus* community. With the Royal Thai Forest Department, HIID, and Dr. Peter Ashton (see previous).

PUBLICATIONS

Grogan, J., Schulze, M. In review. Estimating the number of trees and forest area necessary to supply internationally traded volumes of tropical timber species: the case of big-leaf mahogany (*Swietenia macrophylla*) in Amazonia. *Environmental Conservation*.

Grogan, J., Jennings, S., Landis, R.M., Schulze, M., Baima, A., Carmo, J., Norghauer, J., Oliveira, R., Pantoja, F., Pinto, D., Silva, J., Vidal, E., Zimmerman, B. In press. What loggers leave behind: impacts on big-leaf mahogany commercial populations and potential for recovery in the Brazilian Amazon. *Forest Ecology & Management*.

Grogan, J., Galvão, J. 2006. Physiographic and floristic gradients across topography in transitional seasonally dry evergreen forests of southeastern Amazonia, Brazil. *Acta Amazonica* 36: 483-496.

Grogan, J., Galvão, J. 2006. Factors limiting post-logging seedling regeneration by big-leaf mahogany (*Swietenia macrophylla*) in southeastern Amazonia, Brazil and implications for sustainable management. *Biotropica* 38: 219-228.

Grogan, J., Vidal, E., Schulze, M. 2005. Apoio científico para os padrões de manejo de madeira na floresta amazônica – a questão da sustentabilidade. *Ciência & Ambiente* 32: 103-117.

Grogan, J., Barreto, P. 2005. Big-leaf mahogany on CITES Appendix II: big challenge, big opportunity. *Conservation Biology* 19: 973-976.

Grogan, J., Landis, R.M., Ashton, M.S., Galvão, J. 2005. Growth response by big-leaf mahogany (*Swietenia macrophylla*) advance seedling regeneration to overhead canopy release in southeast Pará, Brazil. *Forest Ecology & Management* 204: 399-412.

Grogan, J. 2004. Mogno (*Swietenia macrophylla*, Meliaceae). In: Shanley, P., Medina, G. (Eds.), *Frutíferas e Plantas Úteis na Vida Amazônica*, pp. 115-122. Mulheres da Mata/Imazon: Belém, Pará, Brazil.

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Grogan, J., Galvão, J., Simões, L., Verissimo, A. 2003. Regeneration of big-leaf mahogany in closed and logged forests of southeastern Pará, Brazil. In Lugo, A., Figueroa Colón, J.C., Alayón, M. (Eds.), *Big-Leaf Mahogany: Genetics, Ecology, and Management*, pp. 193-208. Springer-Verlag: New York, NY, USA.

Grogan, J. 2002. Some simple management guidelines could help the sustainable management of bigleaf mahogany in the neotropics. *Tropical Forest Update, ITTO Newsletter* 12(4): 22-23.

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PUBLICATIONS (cont.)

Grogan, J., Barreto, P., Verissimo, A. 2002. Mogno na Amazônia Brasileira: Ecologia e Perspectivas de Manejo (Mahogany in the Brazilian Amazon: Ecology and Perspectives on Management). Imazon: Belém, Pará, Brazil. 58 pp. (pdf in English and Portuguese at www.imazon.org.br)

PUBLICATIONS (co-authored)

Schulze, M., Grogan, J., Landis, R.M., Vidal, E. In review. How rare is too rare to harvest? Management challenges posed by low-density timber species in the Brazilian Amazon. *Forest Ecology & Management*.

André, T., Lemes, M.R., Grogan, J., Gribel, R. In press. Post-logging loss of genetic diversity in a mahogany (*Swietenia macrophylla* King) population in Brazilian Amazonia. *Forest Ecology & Management*.

Martinez, M., Blundell, A.G., Gullison, R.E., Grogan, J. (Eds.) In press. Historic range and current status of big-leaf mahogany (*Swietenia macrophylla*) in South America. Center for Applied Biodiversity Science – Conservation International, Washington, DC, USA.

Schulze, M., Grogan, J., Vidal, E. In press. Certification in Amazonia: standards matter. *Oryx*.

Schulze, M., Grogan, J., Vidal, E. In press. National Forests in the Brazilian Amazon: not just a policy issue. *Journal of Sustainable Forestry*.

Ward, S., Boshier, D., Grogan, J. (Eds.) In press. Introduction to the Special Issue on the Meliaceae. *Forest Ecology & Management*.

Lemes, M.R., Grattapaglia, D., Grogan, J., Proctor, J., Gribel, R. 2007. Flexible mating system in a logged population of mahogany (*Swietenia macrophylla* King, Meliaceae): implications for the management of a threatened neotropical tree species. *Plant Ecology* 192: 169-180.

Valle, D., Phillips, P., Vidal, E., Schulze, M., Grogan, J., Sales, M. 2007. Adaptation of a spatially explicit individual tree-based growth and yield model and long-term comparison between reduced-impact and conventional logging in eastern Amazonia, Brazil. *Forest Ecology & Management* 243: 187-198.

Valle, D., Schulze, M., Vidal, E., Grogan, J., Sales, M. 2006. Identifying bias in stand-level growth and yield estimations: a case study in eastern Brazilian Amazonia. *Forest Ecology & Management* 236: 127-135.

Schulze, M., Vidal, E., Grogan, J., Zweede, J., Zarin, D. 2005. Madeiras nobres em perigo: práticas e leis atuais de manejo florestal não garantem a exploração sustentável de madeira. *Ciência Hoje* 214: 66-69.

Cornelius, J., Wightman, K., Grogan, J., Ward, S. 2004. *Swietenia* (American mahogany). In: Burley, J. (Ed.), Elsevier Encyclopedia of Forest Sciences. Elsevier Science Publishers B.V., Amsterdam, the Netherlands, pp. 1720-1726.

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TECHNICAL ADVISOR

International Workshop of Experts on Non-Detriment Findings on Bigleaf Mahogany (*Swietenia macrophylla*), Cancun, Quintana Roo, Mexico, April 10-13, 2007.

2nd Mahogany Working Group, Convention on International Trade in Endangered Species of Fauna and Flora (CITES), Belém, Pará, Brazil, October 2003.

Working Group on Mahogany, Brazilian Ministry of the Environment (MMA), Brasilia, DF, Brazil, March – May 2003.

Working Group on Mahogany, Brazilian Environmental Protection Agency (IBAMA), Brasilia/Belém, Brazil, September – October 2002.

Steering Committee on Mahogany Inventory Initiative, Conservation International, Washington, DC, USA, 2001 – 2003.

JOURNAL REVIEWS

Biotropica
Conservation Biology
Ecology and Society (formerly *Conservation Ecology*)
Environmental Conservation
Forest Ecology & Management
Forest Science
Journal of Applied Ecology

LANGUAGES

Portuguese	fluent
Spanish	written & spoken understood
Indonesian	formerly fluent
German	formerly fluent
Thai	formerly conversant