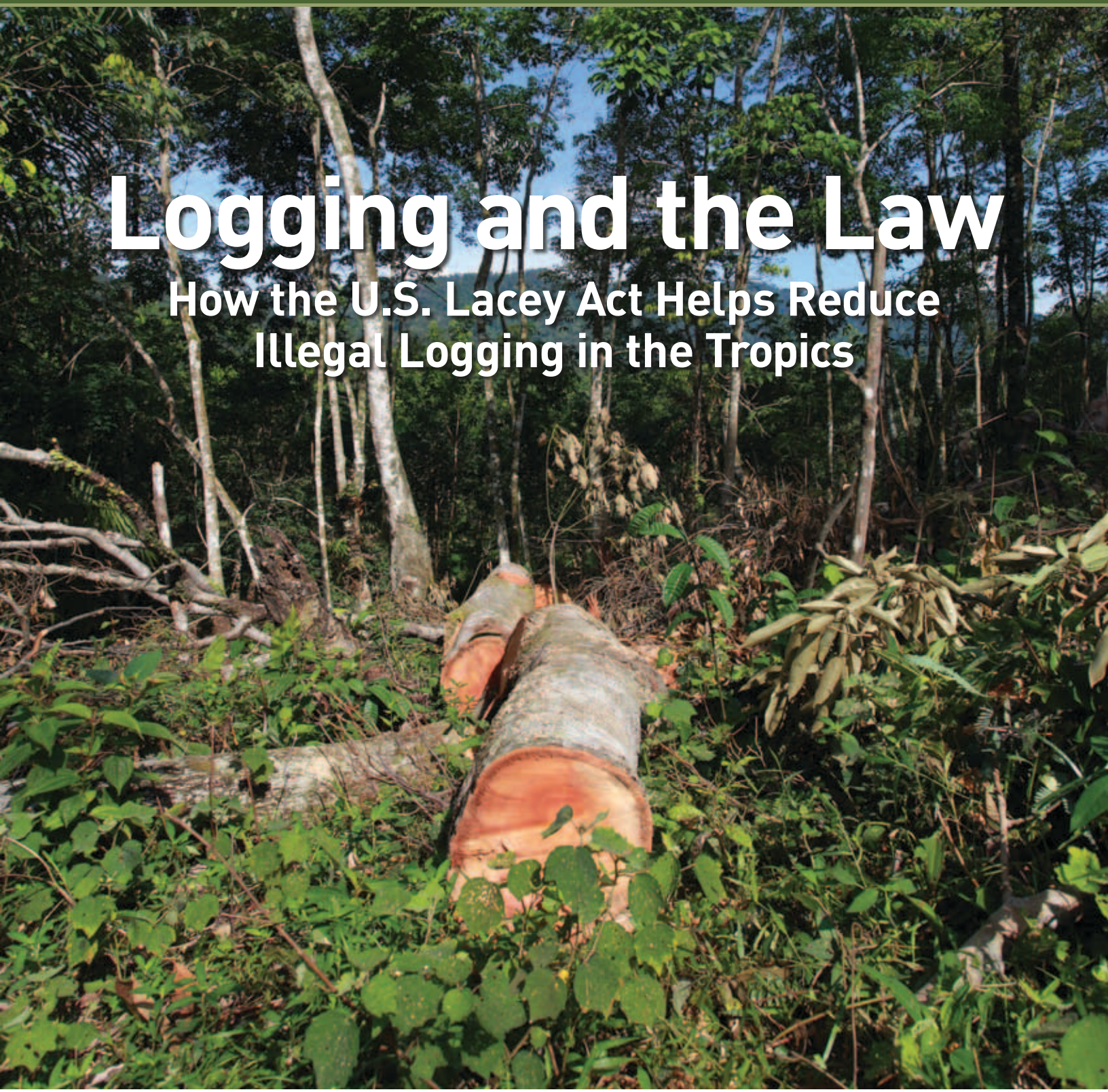


Logging and the Law

How the U.S. Lacey Act Helps Reduce Illegal Logging in the Tropics

Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

Logging and the Law

How the U.S. Lacey Act Helps Reduce Illegal Logging in the Tropics

Patricia Elias

Union of Concerned Scientists

APRIL 2012

Patricia (Pipa) Elias is a consultant to the Tropical Forest and Climate Initiative at the Union of Concerned Scientists, and is a former analyst/advocate in the program.

The Union of Concerned Scientists (UCS) is the leading science-based nonprofit working for a healthy environment and a safer world.

The UCS Tropical Forest and Climate Initiative analyzes and promotes ways to cut global warming pollution by reducing tropical deforestation.

More information about UCS and the Tropical Forest and Climate Initiative is available on the UCS website at *www.ucsusa.org/REDD*.

This report is available in PDF format on the UCS website (*www.ucsusa.org/publications*) or may be obtained from:

UCS Publications
2 Brattle Square
Cambridge, MA 02138-3780

Or, email *pubs@ucsusa.org* or call (617) 547-5552.

DESIGN: David Gerratt/NonprofitDesign.com
COVER PHOTO: © Rhett Butler/mongabay.com

Printed on recycled paper

Contents

Acknowledgments

This report was made possible by generous support from the ClimateWorks Foundation, a member of the Climate and Land Use Alliance.

The author would like to thank the following experts whose thoughtful and rigorous reviews were essential in shaping this report: Tuukka Castrén, Lisa Handy, Sam Lawson, Anne Middleton, Stuart Pimm, and Jack Putz.

I also thank Angela Anderson, Doug Boucher, Estrellita Fitzhugh, Lael Goodman, Calen May-Tobin, Kathleen Rest, and Sarah Roquemore at UCS for reviewing the report. Kerstin Canby, Barry Flaming, Adam Grant, Glenn Hurowitz, Danny Morris, and Mike Wolosin also provided useful comments and ideas that shaped this report.

Finally, this report would not have been possible without the tireless editing and production efforts of Heather Tuttle, and the meticulous and creative design work of David Gerratt. Thank you.

Please note that the reviewers are listed to convey my gratitude for their time and effort, and that the opinions and arguments expressed in this report are solely the responsibility of the author, not the reviewers.

Executive Summary

The world's tropical forests provide a home to countless wildlife species, purify the air and water, and store vast amounts of heat-trapping carbon dioxide within trees and soils. But deforestation and forest degradation are putting these valuable services in jeopardy. Millions of hectares of forestland are being totally cleared and replaced with agricultural fields, while others are being incrementally degraded to produce wood products (Boucher et al. 2011).

Illegal logging and the associated trade of illegally sourced products is a clandestine industry that threatens forests and economies alike.

Most people use wood-based products every day, including furniture, paper and newsprint, cardboard, and plywood and other building material. However, some of these products are made from wood taken from forests illegally. Illegal logging and the associated trade of illegally sourced products is a clandestine industry that threatens forests and economies alike. It not only involves cutting trees without permits or removing trees from protected areas, but also activities such as avoiding taxes or laundering illegal logs. While illegal logging occurs in many parts of the world, much of it is concentrated in the tropics, where prized hardwoods are taken to make items like furniture, cabinets, and other architectural woodwork and decor. (The global paper industry is sometimes fed by illegal logging in the tropics, but to a lesser degree.)

The U.S. economy is negatively affected by illegal logging and the associated trade in illegal wood. Illegal logging generates trade distortions by depressing world timber prices and reducing the competitive advantage of legal loggers and producers. Furthermore, these practices threaten the reputations of legitimate forestry producers and discourage sustainable

©iStockphoto.com/ranplett

Doug Boucher

Destruction of tropical forest leads to the loss of diverse and vital global ecosytems.

management practices. Illegal logging also harms the economies, societies, and environments of the countries in which it occurs. Policy measures are needed to enforce laws, reduce the ability for illegally sourced wood to enter the market, and create real disincentives for the wood's use, while developing incentives for sustainable forestry practices.

In 2008 Congress passed amendments to the Lacey Act, a 100-year-old law that combats trafficking in illegal plants and wildlife. The amendments extend the law's jurisdiction to plants and plant products, including wood, thus closing the entire U.S. market to illegally sourced wood. The Lacey Act amendments marked the world's first-ever law prohibiting trade of illegally logged wood products. Under this law, all trade in plant products that are illegally sourced from any U.S. state or foreign country is prohibited. This includes trees and wood products that have been stolen, logged from protected areas, logged without authorization, or for which appropriate taxes, fees, and transport regulations have not been paid or met. The U.S. Department of Interior's Fish and Wildlife Service (FWS) enforces the Lacey Act by requiring certain importers to declare the country of harvest, genus, and species of wood in imported products. This requirement, gradually being phased in, will ultimately help businesses ensure they know where their wood is coming from and protect the legal forestry industry in the United States.

The Lacey Act will ultimately help businesses ensure they know where their wood is coming from and protect the legal forestry industry in the United States.

This report details the negative effects of illegal logging and associated trade on U.S. businesses and tropical forest communities and ecosystems, and the ways in which the Lacey Act addresses these problems. By providing evidence of the legislation's benefits—both in the United States and abroad—to economies, the environment, and forest communities, we show why its full and effective implementation should be a priority.

CHAPTER ONE

Introduction

Wood is an important player in the global economy. This multibillion-dollar-per-year market includes logs, lumber, paper, furniture, and many other wood-based products. In 2004, wood products accounted for 3.7 percent of the world trade in commodities (United Nations Environment Programme 2009). That same year, the United States imported about $17 billion in solid wood products and $19 billion of wood fiber products (Daniels 2008). These products come from both plantations and natural forests in developed and developing countries.

The demand for forest and agricultural products, however, has a significant impact on our world's forests, especially in the tropics. The rate of tropical deforestation is alarming: about 32,000 hectares every day, or an area the size of Pennsylvania every year. This threatens biodiversity and the livelihoods of communities that depend on the forests, and generates heat-trapping emissions that cause climate change. In total, tropical deforestation accounts for about 15 percent of total global heat-trapping emissions. Forest clearing often occurs so land can be used for crops or pasture. Generally, logging is not a major direct driver of deforestation in the tropics, though it is a larger player in Southeast Asia than Latin America or Africa (Boucher et al. 2011). Logging is, however, a significant source of forest degradation, which maintains some forest cover but causes carbon to be released from disturbed soils and from damaged trees. The unique species of the tropics are especially vulnerable to illegal logging, as marketable trees are often selectively removed from the forest. The supply of wood products from the tropics is expected to increase over

The World Bank estimates that illegal logging and associated wood trade costs governments and businesses at least $10 billion to $15 billion per year.

Truck carrying logs out of the Malaysian forest

TABLE 1. The Tropical Timber Supply Chain

	Producing Countries	Processing Countries	Consuming Countries
Major players	Brazil, Burma, Indonesia, Laos, Papua New Guinea, Peru	China, Laos, Malaysia, Thailand, Vietnam	European Union, Japan, United States
Forestry activity	• Tree cutting • Log transport • Export	• Import • Log processing • Product manufacturing • Export	• Import • Distribution • Purchase
Common illegal actions during forestry activities	Cutting and transport: *Theft, bribery* Export: *Falsification, bribery*	Import and export: *Falsification, bribery* Log processing and manufacturing: *Laundering*	Import, distribution, and purchase: *Falsification, bribery*

the next few decades (Boucher et al. 2011), putting these forests at even greater risk.

ILLEGAL LOGGING AND ASSOCIATED TRADE

Illegal logging and illegal wood trade take many forms. The World Bank estimates these practices cost governments and businesses at least $10 billion to $15 billion in lost revenue per year (World Bank 2004).

Illegal activities can include:

- Illegal cutting
  - Removing trees from protected areas
  - Cutting protected species
  - Removing more trees than permitted
  - Removing trees without licensing or under false intentions
- Stealing wood from forests owned by others
- Falsifying documents and purposeful mislabeling
  - Failing to pay or underpaying taxes/fees for wood or wood products
  - Laundering illegal material (by faking declarations of origin and/or species)

Table 1 shows where these activities occur along the supply chain. Table 2 (p. 6) provides a more detailed description of these activities.

There is evidence that illegal logging has decreased over the past few years as a result of stronger enforcement and policies in consuming countries (Lawson and Macfaul 2010). However, wood production and consumption are projected to increase, raising doubt about its legality and sustainability in the future. This underscores the importance of efforts such as the Lacey Act to improve international markets and reduce these threats.

CAUSES OF ILLEGAL LOGGING AND TRADE

Fundamentally, illegal logging and the trade of illegal wood products happen because there is a market for the product. However, it is more prevalent in some areas than others and, among commercial sectors, forestry is especially ripe for corruption.

Governance failures in countries with high rates of illegal logging can range from inadequate enforcement, government instability, and lack of resources, to local and regional conflicts.

Weak governance and poor policies facilitate illegal logging. Governance failures in countries with high rates of illegal logging can range from government instability, inadequate enforcement, and lack of resources, to local and regional conflicts (Abugre and Kazaare 2010; Innes 2010; Alemagi and Kozak 2010; Blaser et al. 2011). Furthermore, government collusion and corruption, or a general lack of support for legal community forest use, create an atmosphere of acquiescence in illegal activities (Abugre and Kazaare 2010; Alemagi and Kozak 2010).

Poor policies and economic structures can further facilitate, or even incentivize, illegal logging. For example, indigenous communities may live in and

sustainably manage forests, but current laws do not recognize their rights to natural resources; thus, any community forest use is deemed automatically illegal (Abugre and Kazaare 2010). Furthermore, policies that make legal logging too complicated or expensive can leave local, community-based timber enterprises unable to legally compete with large logging companies. Illegal logging is also linked to poverty, since in some countries there is little development of legal industries to provide jobs and income (Alemagi and Kozak 2010), and very little of the income from illegal logging stays at the local level (Felbab-Brown 2011).

However, individuals and small communities are not the main problem. Instead, the majority of large-scale illegal logging is driven by big corporations with the capital to remove, transport, and sell illegally sourced wood (Felbab-Brown 2011). These companies operate in countries that often have conflicting and inconsistent laws, creating pressure on forests rather than promoting sustainable practices. For example, Brazilian law requires land speculators to show they occupy a forested area in order to receive title to the land, and until recently deforestation was one of the easiest ways to prove occupation. And while environmental laws prohibit owners from clearing more than 20 percent of their forest if it is located in the Amazon region, the laws are rarely followed (Lawson and Macfaul 2010; Alemagi and Kozak 2010).

In addition to the governance weaknesses and failures that facilitate illegal logging and wood trade, the wood sector itself is particularly susceptible to corruption. Among the many commodities traded globally, wood is especially easy to obtain and trade illegally because (Brown 2010):

- it comes from sparsely populated areas, far from enforcement;
- it is a fungible, replaceable product that is easy to launder;
- it moves within a long global supply chain, which provides for many points of corruption;
- wood is often taken from poorer countries, where enforcement is difficult;
- demand within a trillion-dollar industry provides a strong incentive for logging; and
- complex systems for legal timber extraction motivate working around them.

In addition, strong financial and political interests work to maintain the status quo. Some companies benefit from illegal logging, as do middlemen and those receiving bribes, and thus do not challenge the prevalence of illegally sourced wood products.

Many of the major benefits of forests—clean air and water, wildlife habitat, carbon sequestration—are threatened by illegal logging.

Strong financial and political interests work to maintain the status quo. Some companies benefit from illegal logging, as do middlemen and those receiving bribes, and thus do not challenge the prevalence of illegally sourced wood products.

TABLE 2. Where Illegal Forestry Activities Occur along the Supply Chain

Step	Actors	Example of Illegal Activity
The table is purchased from a distributor and sold to a customer	Sellers	Paying lower taxes by falsifying documentation about the value of the table
The table is shipped from the manufacturer to a U.S. retailer	Distributors	Importing a protected species by falsifying documentation about the wood used to make the table
A manufacturing plant buys the wood to be made into a table	Manufacturing plants	Laundering illegal wood into the regulated furniture market
The log is sent to the sawmill to be cut	Shippers	Shipping uncut logs out of countries where export is prohibited
The tree is cut down and pulled out of the forest	Loggers	Cutting more trees from an area than allowed
An area of tropical forest is targeted for cutting	Landowners*	Intruding into a national park by falsifying their land boundaries

* The term "landowners" must be used loosely here, due to the multitude of illegal activities that involve cutting trees without rightful ownership.

Many activities occur between the moment a tree is cut down in a forest and the moment you purchase a product (say, a coffee table) made from that tree and bring it home. While it is difficult to know if a product you purchase is made from illegally sourced wood, understanding the supply chain can help you ask questions that inform your decision making.

prevalence of illegally sourced wood products (Kishor and Damania 2007).

Ultimately, however, the main driver of illegal logging and wood trade is a market for the products. Global demand for these products continues, and consumers expect prices to stay low. Demand exists not only for protected species (like mahogany), which in total make up a small proportion of illegally sourced wood material (Felbab-Brown 2011), but also for hardwoods in general. For example, in 2008 the United States imported almost $1 billion worth of wood furniture products from Vietnam. A recent investigation demonstrated that, in that same year, 16 percent of Vietnam's log imports were from Laos, even though Laos prohibits the export of whole logs (Environmental Investigation Agency 2011).

Logging in Guyana

CHAPTER TWO

Impacts of Illegal Logging

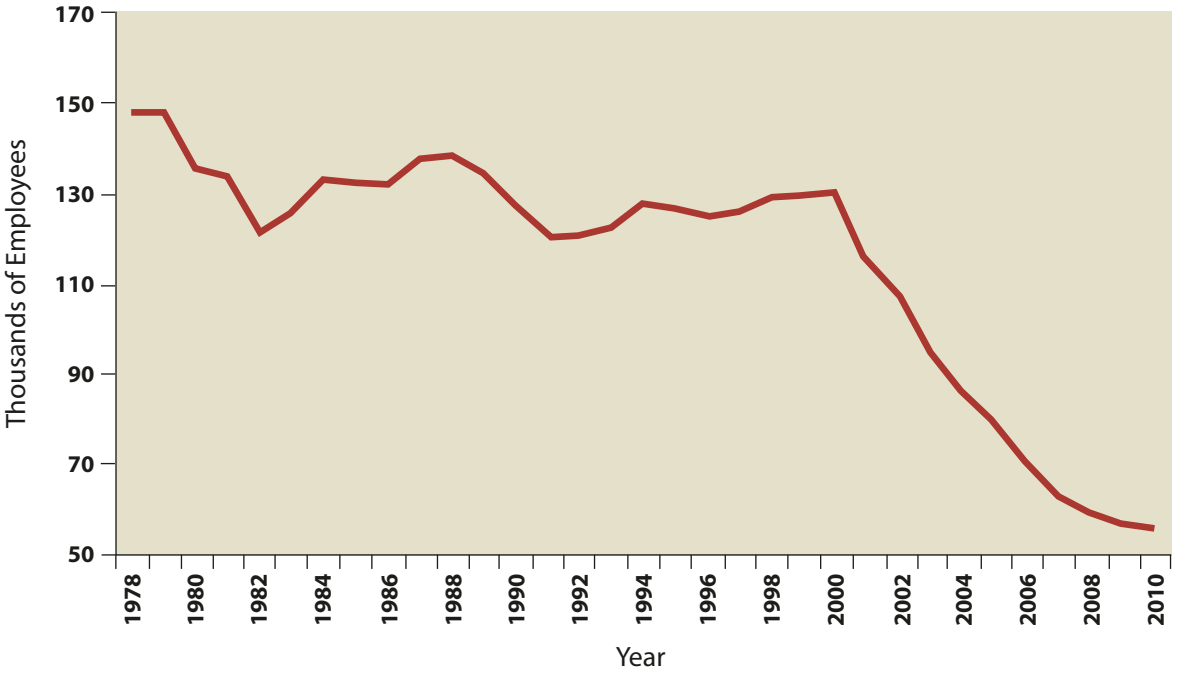
ECONOMIC IMPACTS IN THE UNITED STATES

An increasingly globalized wood market has significantly changed the U.S. hardwood industry over the past couple of decades. Shifts in production and processing have caused an alarming downturn of the domestic wood industry. For example, between 2004 and 2008, the average prices of Appalachian region red oak, poplar, cherry, and maple all dropped (Jones 2010). During the same period, employment levels in the wood container, household furniture, kitchen cabinet/countertop, and millwork/flooring industries also decreased. In the wood household furniture industry alone, U.S. employment has declined approximately 60 percent since the late 1970s (see Figure 1). While there are many interacting reasons for this decline, globalized competition is a main factor (Buehlmann et al. 2007).

The global wood market is highly integrated, so changes in price anywhere affect logging rates in other countries (Chimeli, Boyd, and Adams 2011). Illegal logging generates trade distortions (Kishor and Damania 2007); because this wood can be offered at a lower price than legal wood, it depresses worldwide prices by an estimated 16 percent (Snow 2009). The U.S. hardwoods industry, primarily based in the East and Southeast, is especially affected because the vast majority of illegal logging is of hardwoods (Felbab-Brown 2011). Tropical wood directly competes with U.S. hardwoods for decking, flooring, furniture, cabinets, and architectural woodwork such as moldings and other décor (Goetzl and Ekström 2007).

Wood products manufacturing represents 2.8 percent of U.S. manufacturing GDP (Goetzl and Ekström 2007). In a 2005 survey, manufacturers of Appalachian hardwood lumber identified globalization issues

FIGURE 1. Employment in the U.S. Wood Household Furniture Industry, 1978–2010



Source: Howard and McKeever 2011

as having some of the greatest impact on the hardwood supply chain and markets (Buehlmann et al. 2007). Other concerns included lumber costs, labor costs, increasing imports, and overseas competition. The manufacturers in this study were sawmills from Georgia, Kentucky, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia, each with an average of 169 employees. In total, they represented more than 5,400 employees in the manufacturing sector. Since that survey, the United States Forest Service has determined that a combination of both the global recession and competition from inexpensive imports has negatively affected the hardwood industry over the past few years (Howard and McKeever 2011).

The U.S. furniture industry, in retreat since 1999, continued declining in 2010 as low-cost furniture imports and the global economic recession continued to erode the domestic industry market share.

(Howard and McKeever 2011)

Although the downturn of the U.S. hardwood industry cannot be fully attributed to illegally sourced wood, policies to reduce the threat of illegal wood products on the U.S. market are supported by many businesses.* In addition to economic incentives to eliminate these products from the market, businesses understand that illegally sourced wood undermines the credibility of responsible producers (Snow 2009), which can reduce both investor and consumer confidence.

LANDSCAPE IMPACTS IN PRODUCING COUNTRIES

Logging can have many negative effects on the forest ecosystems in which it occurs. Generally, there are two types of logging: clear-cutting and selective logging. Clear-cutting removes almost all trees from the area being logged. Selective logging removes only some—usually the most valuable—trees from the forest and is a common practice in the tropics. Selective logging is especially attractive to illegal loggers because only the high-value species are extracted from the forest (Lawson and Macfaul 2010).

© Rhett Butler/mongabay.com

Even removal of just a few trees can change the forest ecosystem.

Although the removal of just a few trees from a diverse forest may not sound like a bad practice, it can, in fact, have many long-term negative effects on the ecosystem. There are methods to reduce the environmental impact of selective logging, but illegal loggers, who exploit the forest through unsustainable and unmanaged selective logging, have no reason to put any effort into practicing these sustainable approaches.

Unsustainable Selective Logging

Without planned sustainable management of the ecosystem, selective logging causes forest damage and

* For example, see the membership of the Forest Legality Alliance, online at *http://www.forestlegality.org/about/membership*.

ecosystem impoverishment, loss of biodiversity and carbon, changes in soil nutrients, and increased susceptibility to clearing.

Both the short- and long-term impacts of selective harvesting reflect the fundamental damages that logging causes; these are due to road building, gaps from falling trees, trails to drag logs out of the forest, and the large areas needed to gather logs before they are trucked away (Asner et al. 2009). The impacts of each of these will depend on how much wood is removed and the methods for cutting the trees and taking the logs out of the forest.

Creating Degraded Forests

Logging activities change the structure of the forest and reduce the biomass of the forest for decades. One study comparing primary forests with selectively logged areas in Indonesia found that it took 5 to 15 years for a selectively logged forest to recover the number of trees of a comparable primary forest, and 10 to 20 years to recover the number of species (Slik, Verburg, and Keßler 2002). Selective logging practices can also lead to a 17 to 70 percent loss of carbon storage in forest ecosystems as a result of tree species loss (Bunker et al. 2005).

Selective logging changes how much light reaches the forest floor, which changes the nature of the ecosystem. Without careful management, this often allows other tree species with unmarketable wood to grow back in the areas where old, slow-growing trees were removed. Unsustainable and unmanaged selective logging can also change nutrients available to the remaining forest (Asner et al. 2009). Any exposed soil, like that on poorly constructed roads and logging decks, can quickly erode, taking away precious soil nutrients and polluting nearby rivers.

Selective logging also increases what is known as the "edge effect," through which forest fragmentation and disturbance increase the ratio of edge-to-forest area. The long-term risks associated with the edge effect include increased susceptibility to wildfire, tree mortality, changes in plant and animal species, and increased human use of the land (e.g., for hunting) (Broadbent et al. 2008). In the Amazon, these risks are even more pronounced next to land cleared for agriculture or pastures. In addition to those agriculture-forest boundary edges, logging in the Brazilian Amazon generated about 20,000 square kilometers of interior edges between 1999 and 2002. This is caused by logging activities extending deep into intact forests (Broadbent et al. 2008) and creating self-contained edges (like a donut hole) within forests.

Because logging entails all of these activities, it means that selective logging causes some collateral damage to the remaining forest. And in the worst cases, unmanaged selective logging can cause six tons of wood to rot or burn in the damaged forest for every one ton of wood exported (Asner et al. 2009). However, with careful management, planning, and implementation, the sustainability of selective logging can be improved.

Selective logging practices can lead to a 17 to 70 percent loss of carbon storage in forest ecosystems as a result of tree species loss.

Reduced-Impact Logging

The problems associated with unsustainable selective logging can pertain to both illegal and legal actors. Loggers who are not violating the law often use selective logging, but legal logging does not necessarily mean it is sustainable (See "Environmental Benefits"

In areas that used to be covered with trees, forest edges increase next to both small and large clearings.

Doug Boucher

Reduced-impact logging practices include vine cutting. Since a single vine can spread across multiple trees, cutting these prevents the vine from pulling down trees that should remain standing.

in Chapter 4 for more information). However, when logging is legal and managed, policies and incentives can promote more sustainable practices.

Reduced-impact logging (RIL) is the implementation of multiple practices to reduce the environmental impact of selective logging (Putz et al. 2008; Lentini, Zweede, and Holmes 2009). These practices include modifying the number of trees left in the forest, leaving trees of certain sizes to grow into a mature forest, harvesting during seasons that will not damage the soil, establishing no-cut zones in steep terrain or close to water, and avoiding damage to the trees left in the forest.

RIL practices often require investments, logger education, and long-term planning—none of which illegal loggers have any incentive to pursue. Furthermore, some RIL practices are threatened by illegal activities. Some landowners feel their forests will be cut by illegal loggers if they practice RIL (Durst and Enters 2001). For example, if the legal owner decides to implement RIL and leave trees on his or her land, the trees become susceptible to poaching. Additionally, because illegally sourced wood products depress timber value, RIL is at a competitive disadvantage because it often requires more up-front costs that are not recouped until well into the future (Durst and Enters 2001).

Causing Complete Deforestation

Unmanaged selective logging can also lead to forest degradation—and, ultimately, complete deforestation—even beyond the immediate area. Poor practices leave the ecosystem damaged for decades, reducing the land's productive capacity. This causes logging activities to move into new areas of pristine forest, thus increasing degradation and deforestation. Furthermore, degraded forests are more likely to be completely lost to land use conversion; they dry up and are easier to burn and replace with fields, and logging creates roads into the areas. In the Brazilian Amazon, areas that have been selectively logged were four times more likely to be completely deforested than areas that were not disturbed (Asner et al. 2006).

While the majority of illegal harvesting is selective logging, in some cases whole forests are cleared. For example, some industries falsely use timber harvesting permits to clear land for agricultural crops, leading to complete loss of the forest ecosystem (Contreras-Hermosilla, Doornbosch, and Lodge 2007; Lawson and Macfaul 2010).

ECONOMIC AND SOCIETAL IMPACTS IN PRODUCING COUNTRIES

In addition to environmental impacts, illegality anywhere along the wood chain of custody can also negatively affect people and economies. In producing countries, illegal logging results in lost tax revenue and less development of the economic sectors related to the logging industry (Asner et al. 2009). Investments made in sustainability and forest management programs are undercut, partially wasting those government expenditures (Richards et al. 2003). Political capital spent on forest protection can also be eroded by illegal logging. Harvesting in protected areas is illegal because these areas are set aside for forest preservation. When the public becomes aware that logs are being removed from these areas illegally, the ecological rationale for setting these areas aside (e.g., protecting habitat, preserving species) is undermined, potentially decreasing political and economic interest

Degraded forests are more likely to be completely lost to land use conversion; they dry up and are easier to burn and replace with fields, and logging creates roads into the areas. In the Brazilian Amazon, areas that have been selectively logged were four times more likely to be completely deforested than areas that were not disturbed.

and investment in creating and maintaining such areas. Lastly, very little of the profit from illegal logging and associated trade remains in the local community. In one example, experts estimated that only 2.2 percent of the total product value was held locally by those who illegally logged the forest; the rest went to middlemen such as brokers, buyers, manufacturers, and exporters (Kishor and Damania 2007).

Illegal logging activities can generally weaken the rule of law, provide opportunities for money laundering, and generate trade distortions. There is evidence that illegal logging and associated trade is so corruptive that it is often accompanied by other forms of organized crime, such as arms smuggling and human and drug trafficking (Richards et al. 2003; Kishor and Damania 2007). There are also accounts of indigenous people being intimidated into allowing logging on their land, and loggers organizing mini-armies prepared to fight rural or union leaders or human rights workers (Chimeli and Soares 2011). It has even been said that "illegal logging and armed conflict frequently go hand-in-hand" (Alemagi and Kozak 2010).

Illegal logging and trade can also negatively affect social norms and structures. Unregulated black-market jobs lead to higher risks for workers, lower benefits, and conflicts between loggers and communities (Asner et al. 2009). Evidence from Brazil shows the illegal mahogany market is linked to violence among black-market actors, since they cannot use the judicial system to resolve disputes—a common characteristic of illicit markets (Chimeli and Soares 2011).

THE ROLE OF PROCESSING COUNTRIES

Recently, there have been changes in the markets for both wood production and wood processing. China currently has the largest wood import-export market (Felbab-Brown 2011); 20 percent of its overall imports are estimated to be of illegal origin (Lawson and Macfaul 2010). Most imports to China come from the Asia-Pacific region. In the future, more of China's imports are expected to come from Africa and Latin America—areas also susceptible to illegal logging.

Vietnam is also one of the largest manufacturers of wood furniture, a sector that uses 80 percent imported materials. Experts estimate that the import of illegal timber tripled in Vietnam between 2000 and 2007 (Lawson and Macfaul 2010). Other countries that have historically sourced their wood from domestic markets, especially those in Southeast Asia (i.e., Cambodia, Laos, Malaysia, and Thailand), are also key players in processing.

Orangutans are native to Southeast Asia where illegal logging and other forest destruction threatens their habitats.

CHAPTER THREE

U.S. Actions against Illegal Logging

Over the past few decades, U.S. imports of wood and wood products from Latin America, Asia, and Oceania have increased, though currently the majority of U.S. wood imports are not from the tropics (Daniels 2008). Nevertheless, illegal logging in the tropics has a negative impact on the U.S. economy, a problem that prompted the United States to enact the world's first ban on the trade of illegally sourced wood products. This ban was part of the 2008 amendments to the Lacey Act.

THE 2008 LACEY ACT AMENDMENTS

The Lacey Act is more than 100 years old, and was originally enacted to prohibit transport of poached game across state boundaries. It has been amended several times, and in 2008 the Lacey Act was again amended to make trade of illegally sourced plant products unlawful in the United States.*

The Lacey Act (specifically the 2008 amendments) addresses illegal logging in a number of ways. First, the Lacey Act prohibits all trade in plant products that are illegally sourced from any U.S. state or foreign country; illegally sourced plant products are defined as furniture, paper, lumber, and other products logged, manufactured, and/or traded in violation of any country's law. Illegally sourced plant products include those that have been stolen, logged from protected areas, logged without authorization, or for which appropriate taxes, fees, and transport regulations have not been paid or met.

Second, the Lacey Act requires importers to declare the scientific names of tree species used in a product, the country of harvest, the quantity and measure of the product, and the value of the product. This declaration, which is being gradually phased in, is used to provide basic information to help businesses ensure they know where their wood is coming from and to enable the U.S. government to enforce the law.

Finally, the Lacey Act establishes penalties for violation of the terms of the law. These penalties include fines, forfeiture of goods and vessels, and potential jail time.

The primary agencies involved in implementing the Lacey Act are the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) and the Fish and Wildlife Service (FWS). APHIS is responsible for processing import declarations, but shares responsibility for investigating violations with the FWS. Other agencies that help with implementation include the Department of Homeland Security and its Customs and Border Protection staff, the Department of Justice, the Department of State, and the U.S. Agency for International Development (USAID).

The Lacey Act both reduces financial incentives for illegal logging and associated trade and, if adequately enforced, actively creates a disincentive for participating in any part of the illegal wood trade.

Why the Lacey Act Approach Is Effective

The most effective way to reduce illegal logging is to reduce its financial incentives (Kishor and Damania 2007). By completely closing a market to illegally sourced wood and creating criminal penalties for breaking the law, the Lacey Act both reduces financial incentives for illegal logging and associated trade and, if adequately enforced, actively creates a disincentive for participating in any part of the illegal wood trade.

* A majority of the information in this section is from the Environmental Investigation Agency (2008). More detailed information on the 2008 Lacey Act amendments can be found in publications by the Forest Legality Alliance (*http://www.forestlegality.org*).

The expansion of the Lacey Act to ban all illegal plant materials is critical, as production *and* processing have shifted to foreign countries. For example, in 1990 China accounted for only 13.9 percent of global imports of tropical logs, but by 2007 its share had increased to 68.2 percent (Kaplinsky, Terheggen, and Tijaja 2010). Between 2000 and 2008, the amount of U.S. imports of illegally sourced wood arriving via third-party processing countries increased from 32 percent to 76 percent (Lawson and Macfaul 2010). By demanding that *all* parts of the supply chain be legal, the Lacey Act encourages all processing and production countries to promote and enforce legal activities.

OTHER U.S. GOVERNMENT EFFORTS

In addition to enacting the groundbreaking amendments to the Lacey Act, the U.S. government engages in other ongoing efforts to reduce illegal logging through trade and development programs.

Among the hundreds of existing free trade agreements under the World Trade Organization, the only one specifically to address illegal logging is the United States-Peru Trade Promotion Agreement (Van Dam and Savenije 2011). The United States also has memorandums of understanding with China and Indonesia to address illegal logging. Though none of these agreements have been found to significantly affect the behavior in producing or processing countries (Brack and Buckrell 2011), most were made before changes to the Lacey Act, and government-to-government agreements are still important efforts. For example, the U.S. government recently took a leadership role in launching the Asia-Pacific Economic Cooperation Expert Group on Illegal Logging and Associated Trade. The goal of the group is to enhance efforts to promote trade in legally harvested forest products and support capacity building in member economies (APEC Senior Officials 2011).

USAID also supports programs, such as the Forest Legality Alliance, that promote forest governance and combat illegal logging (USAID 2011). The U.S. Forest Service also participates in interagency coordination on the Lacey Act, and its technical expertise on wood identification assists with implementation (U.S. Forest Service International Programs 2000).

U.S. BUSINESS EFFORTS

"Due care" is one of the fundamental elements of the Lacey Act. This means it is the importer's responsibility to exercise appropriate actions to minimize the risk of buying an illegally sourced product. A number of U.S. companies offer services to help importers identify where their products are coming from. Integration Point, Tradestone Software, and OnPoint Solutions Group are just a few examples of U.S. companies that provide Lacey Act compliance and chain-of-custody services.

Sustainability certification programs, like the one managed by the Forest Stewardship Council (FSC), require products to be legally sourced.

The Lacey Act does not accept any certification program as a proxy for compliance; however, importers believe that certification will be critical for legitimizing trade in certain tropical species that are especially prone to illegal logging (Goetzl and Ekström 2007). Furthermore, because two of the world's largest certification programs—the Forest Stewardship Council and the Sustainable Forestry Initiative—already require that products bearing their label be legally sourced (Forest Stewardship Council 1996; Sustainable Forestry Initiative 2010), these programs are already prepared to provide compliance-related services to wood and wood product importers seeking to meet Lacey Act requirements. Experts expect this will increase participation in private certification and legality verification systems that help importers apply due care principles (Forest Stewardship Council 2010; Brack and Buckrell 2011).

CHAPTER FOUR

Global Benefits of the Lacey Act

Improved governance can help ensure that local companies and individuals can legally participate in logging activities.

Creating substantial changes in the forestry sector and promoting an environment of forest conservation, legal logging, and sustainable management are tasks that will require the participation and commitments of multiple stakeholders, including governments, consumers, local communities, the forest industry, and wood product businesses (Van Dam and Savenije 2011). Ultimately, all of these groups will benefit from legal logging and forest conservation. Governments of producing, processing, and consuming countries can capture revenue from forestry markets. Consumers can be confident their purchases are not leading to the destruction of tropical forests. Local communities can create prosperous economies over the long term based on sustainable forest practices. Working against illegal logging and trade, while promoting sustainable forest practices, will benefit all these stakeholders.

ECONOMIC BENEFITS

Increasing Competitiveness of Legal Products

It will take time for the global market to respond fully to policies such as the Lacey Act (Li et al. 2008); however, economic models show that this effort will yield significant benefits.

Li et al. (2008) modeled the effects that eliminating illegal logging between 2007 and 2011 would have on the global wood market in 2020. They found that the impacts on markets in different countries will vary depending on their initial use of illegally logged materials. The United States and nations that currently have little domestic illegal logging would benefit by getting more value for their timber, supplying more wood to the global market, and producing more wood panels and paper. By helping to end illegal logging, the Lacey Act plays an important role in strengthening the U.S. economy. While the model predicts decreased exports and production from countries that currently have high rates of illegal logging or illegal

wood use (like China, India, and Indonesia), little of the financial gain from illegal logging remains in communities (Kishor and Damania 2007) or produces revenue for producing country governments. Shifting to legal practices will benefit the environments and economies of producing countries over the long term.

In this model, one of the largest impacts on the U.S. wood market was seen in sawn wood (i.e., lumber). The results show that the United States is expected to import 13 to 30 percent less sawn wood (the amount projected to stop coming from illegal sources), and use domestic supplies to fill that gap. As a result of eliminating illegal logging, the model projects global consumer expenditures for wood products to increase only 1 to 2 percent; however, in the United States, this would strengthen the economy overall since domestic wood producers would see a large increase in revenue. A similar model evaluated the effects of different policy measures to reduce imports of illegally sourced wood in the European Union (Moiseyev et al. 2010); it found that any policy that reduces illegal logging worldwide increases harvests in the United States.

Signs of Economic Progress

The Lacey Act amendments addressing illegal logging have only been in place since 2008, and a comprehensive assessment of its impacts on the United States and producing and processing countries has not yet been done. However, there is reason to believe the Lacey Act and other demand-side policies have already changed practices in the tropics.

In 2009, researchers surveyed five producing, two processing, and five consuming countries for indicators of action to address illegal logging (Lawson and Macfaul 2010). They found that in Cameroon, demand-side measures seemed to be more effective than national policies at reducing deforestation over the past few years. The governments of China and Vietnam, two of the largest processing countries, have taken some steps to address illegal logging, which the survey attributes in part to pressure from consuming-country governments. China is working to improve enforcement of its existing laws, but is still lacking specific legislation relevant to illegal logging. Vietnam is taking more serious measures, creating a partnership with the European Union to reduce illegal logging, and joining the United States and others in the recent Trans-Pacific Partnership, which will likely require all participating countries to prohibit illegal logging (Office of the United States Trade Representative 2011).

Demand-side measures such as the Lacey Act provide signals to producing, processing, and consuming countries that stopping illegal logging and associated trade are worth their effort. This appears to be the most influential factor in changing practices in China and Vietnam. The Lacey Act and other U.S. government efforts put political and financial pressure on producing countries, which can spur them to enact their own strict laws against illegal logging. The Lacey Act may also change ongoing investment choices. For example, central Africa has had a recent influx of Chinese companies (both public and private) involved in mining, agriculture, and forestry. The extent to which these companies comply with local laws varies (Putzel et al. 2011); however, the expectation that any illegally logged products will not be saleable to the United States would encourage appropriate practices during this era of rapid expansion.

As a result of eliminating illegal logging, global consumer expenditures for wood products are projected to increase only 1 to 2 percent; however, in the United States, this would strengthen the economy overall since domestic wood producers would see a large increase in revenue.

SOCIETAL BENEFITS

Conflict over forest resources can increase poverty, threaten lives, destroy forests, and decrease public security. Actions to improve forest governance can help reduce illegal logging and other illegal activities, thereby mitigating or eliminating these problems (USAID 2006). In countries aiming to comply with the Lacey Act, significant governance reforms will be needed, such as providing local communities with legal tenure of their land, increasing government transparency, and building democracy (Alemagi and Kozak 2010). Forest law reforms also provide the opportunity to incorporate local communities, ensuring they are represented and benefit from local land-use decisions.

Another example of improved governance for promoting legal logging is an open and fair bidding

process for timber companies to log on government land (Lawson and Macfaul 2010). This will increase competition and ensure that inappropriate bidders, such as those currently under investigation for illegal logging, are excluded. There are two key elements of improving bidding systems. First, the system should be timely and straightforward, so as not to prohibit local communities and individuals from participating.

Some export markets are increasingly requiring evidence that imported timber is legal. . . . In some countries, especially in Africa, these demands appear to be having an effect on forest management.

(Blaser et al. 2011)

Second, it should be structured so that companies or individuals that have been caught violating *any* law are excluded or disadvantaged from obtaining revenue from logging. This is especially important because rogue funds from illegal logging are sometimes used to fund other illegal activities, and even armed conflicts (USAID 2006).

Brokers and buyers of illegal wood are often knowledgeable about the illegality of the product they are moving. These middlemen garner huge revenues from laundering illegal products. One study estimates that middlemen obtained about 70 percent of the sale price of the illegally sourced product (Kishor and Damania 2007). Working against illegal production, especially through governance reforms, may create more just economic systems.

ENVIRONMENTAL BENEFITS

Illegal logging degrades ecosystems and increases susceptibility to total deforestation. Creating the governance and enforcement conditions that reduce illegal logging can go even further and promote sustainable forestry. If forest owners know their land is protected from illegal poaching and that they will still own it many years down the road, they may be more willing to invest in sustainable practices such as RIL. In addition to policies like the Lacey Act that will reduce illegal logging and trade, appropriate policies that adequately value forests are also needed to influence the timber community to improve sustainability (Merry et al. 2006). Experts believe that there is a link between environmental and economic benefits. Appropriate logging and forest management techniques can enable an economically sustainable industry that lasts, a necessary condition for long-term development in many tropical countries (Dauber, Fredricksen, and Peña 2005). Ultimately, businesses, consumers, and governments should each promote sustainable production that does not cause deforestation.*

ADDRESSING AND REDUCING LEAKAGE

Closing off an entire market like the United States to illegally sourced wood will not prevent all illegal activities; illegal wood products can go somewhere else (a phenomenon known as "leakage"). Analyses of policies based on voluntary agreements between countries show some leakage within regions (Moiseyev et al. 2010). However, in these models, international leakage does not occur in response to more comprehensive policies like the Lacey Act, where all incoming wood—independent of the source country—is required to be legal. These models also show that without specific actions in producing countries to reduce illegal logging, leakage may still occur.

The Lacey Act as a Global Model

Leakage concerns highlight the need for broad participation from multiple countries, businesses, and consumers. Since enactment of the Lacey Act, other consuming countries have also taken steps to address illegal logging and associated trade, which also help address leakage.

The European Union's Forest Law Enforcement, Governance and Trade program is designed to prevent illegally sourced wood from entering the European Union. That means another large market for these materials has been closed. In late 2011, the Australian government introduced the Illegal Logging Prohibition Bill 2011. This bill is intended to restrict import and sale of illegally logged timber within Australia. If other large consuming countries like Japan and China follow suit, the market for illegally sourced wood will continue to shrink, making the risk of leakage—and the environmental and economic impacts associated with illegal logging—much lower (Lawson and Macfaul 2010).

* The Union of Concerned Scientists has analyzed business solutions for creating deforestation-free supply chains. These analyses are available online at *http://www.ucsusa.org/deforestationfree*.

CHAPTER FIVE

Policy Recommendations

The United States has already taken a huge step toward reducing illegal logging and trade by passing, implementing, and enforcing the 2008 Lacey Act amendments. In addition to funding Lacey Act implementation, the U.S. government should also continue other activities against illegal logging, such as the international forestry activities of USAID. Below, we outline additional policy approaches to support these efforts.

LAW ENFORCEMENT-BASED APPROACHES

The U.S. government should promote on-the-ground work to address illegal logging activities by supporting improved and expanded enforcement of natural resource laws in tropical countries. For example, the United States could provide funding for prevention and enforcement capacity and promote participatory approaches to addressing the issue in each country (FAO 2005).

Generally, there is a lack of data on forest ownership in tropical countries (Blaser et al. 2011), making it difficult to enforce forest laws. Many U.S.-based businesses already possess the tools that will aid in enforcing laws against illegal logging, and the U.S. government should create opportunities for sharing this technical capacity. Countries working to reduce illegal logging can benefit from expertise in remote sensing, chain-of-custody systems, data gathering, timber fingerprinting, material flow analyses, and cross-governmental coordination. By providing technical support for these efforts, the United States can help countries improve their enforcement systems (Contreras-Hermosilla 2011).

Preparing logs to be trucked out of the forest in Honduras

MARKET-BASED APPROACHES

Because the Lacey Act is one of the best ways to ensure that illegally sourced wood is not allowed to enter the U.S. market, the U.S. government must adequately fund its effective implementation and enforcement, providing agencies with the resources needed to do so. The markets need time to adjust to policies aimed at reducing illegal logging, so measures such as the Lacey Act must be given sufficient opportunity to create positive change (Li et al. 2008).

The U.S. government should also promote international policies and partnerships aiming to adequately and sustainably meet global wood demand. If demand for wood is higher than supply of legal wood, it is likely that illegal materials will fill the gap. This can happen, for example, if production rates cannot keep up with processing capacity—as is the case in Indonesia, where the legally allowable limit on how much wood can be cut is only about 22 percent of the country's processing capabilities (Kishor and Damania 2007). The U.S. government can share technical expertise on creating plantations on degraded lands, which would allow businesses to meet wood demands without causing new deforestation.

Any strategy aimed at addressing the problem of illegal activities needs to be holistic and include a wide range of policy, legal, institutional and technical options in order to discourage illegal activities and facilitate legal behavior.

(FAO 2005)

Doug Boucher

International efforts to reduce illegal logging can help avoid problems such as the edge effect (shown above), which increases forests' vulnerability to wildfires and biodiversity loss.

INCENTIVE-BASED APPROACHES

Illegal loggers and wood traders will only stop their activities if they are assured that illegal activities are less profitable than legal ones (Ebeling and Yasué 2009). Therefore, policy changes that affect the incentives for illegal logging, rather than simply addressing the symptoms (such as bribery), will ultimately be the most effective (Kishor and Damania 2007). By creating strict and expensive fines, the Lacey Act is working toward this end. The U.S. government should also encourage producing, processing, and consuming nations to create policies that make it easier to identify and catch illegal loggers and wood traders, and to impose expensive fines on them.

Businesses need market signals that encourage investment to ensure their part of the supply chain is legal. Policies and incentives that promote good management practices are critical. Companies and individuals who believe their forests are an investment will take better care of them (Felbab-Brown 2011). Supporting certification systems, funding policies to reduce deforestation, and promoting deforestation-free businesses are all critical for protecting tropical forests. Therefore, all businesses in the supply chain (see Table 2, p. 6) should demand legal wood.

CONCLUSION

The United States' leadership in enacting the Lacey Act was an important step forward in helping to end devastation of the world's tropical forests, improve the livelihoods of forest-dependent communities, increase consumer confidence that their purchases are legal, and bolster the competitiveness of the U.S. wood producing and processing markets. Congress can sustain the U.S. wood industry, reduce destructive logging practices, and help Americans make sustainable consumer choices by supporting and funding implementation of the Lacey Act.

References

APEC Senior Officials. 2011. APEC Experts Group on Illegal Logging and Associated Trade: Terms of Reference. Finalized September 25.

Abugre, S., and F.P. Kazaare. 2010. Trends and status of illegal timber logging in three forest districts of the Brong-Ahafo Region of Ghana. *Ghana Journal of Forestry* 26:89–100.

Alemagi, D., and R.A. Kozak. 2010. Illegal logging in Cameroon: Causes and the path forward. *Forest Policy and Economics* 12(8):554–561.

Asner, G.P., E.N. Broadbent, P.J.C. Oliveira, M. Keller, D.E. Knapp, and J.N.M. Silva. 2006. Condition and fate of logged forests in the Brazilian Amazon. *Proceedings of the National Academy of Sciences* 103(34):12947–12950.

Asner, G.P., M. Keller, M. Lentini, F. Merry, and C.J. Souza. 2009. Selective logging and its relation to deforestation. In *Amazonia and Global Change*, edited by the American Geophysical Union, Geophysical Monograph Series 186. Washington, DC.

Blaser, J., A. Sarre, D. Poore, and S. Johnson. 2011. *Status of tropical forest management 2011*. ITTO Technical Series No. 38. Yokohama, Japan.

Boucher, D., P. Elias, K. Lininger, C. May-Tobin, S. Roquemore, and E. Saxon. 2011. *The root of the problem: What's driving tropical deforestation today?* Cambridge, MA: Union of Concerned Scientists.

Brack, D., and J. Buckrell. 2011. Controlling illegal logging: Consumer-country measures. Chatham House briefing paper. Updated March 15.

Broadbent, E., G. Asner, M. Keller, D. Knapp, P. Oliveira, and J. Silva. 2008. Forest fragmentation and edge effects from deforestation and selective logging in the Brazilian Amazon. *Biological Conservation* 141(7):1745–1757.

Brown, M.L. 2010. Limiting corrupt incentives in a global REDD regime. *Ecology Law Quarterly* 37(237):237–266.

Buehlmann, U., M. Bumgardner, A. Schuler, and M. Barford. 2007. Assessing the impacts of global competition on the Appalachian hardwood industry. *Forest Products Journal* 57(3):89–93.

Bunker, D.E., F. Declerck, J.C. Bradford, R.K. Colwell, I. Perfecto, O.L. Phillips, M. Sankaran, and S. Naeem. 2005. Species loss and aboveground carbon storage in a tropical forest. *Science* 310(5750):1029–1031.

Chimeli, A., R.G. Boyd, and D.M. Adams. 2011. International timber markets and tropical deforestation: The evidence from prices. *Applied Economics* 44(10):1–12.

Chimeli, A.B., and R. Soares. 2011. *The use of violence in illegal markets: Evidence from mahogany trade in the Brazilian Amazon.* Bonn, Germany: Institute for the Study of Labor.

Contreras-Hermosilla, A. 2011. People, governance and forests—The stumbling blocks in forest governance reform in Latin America. *Forests* 2(1):168–199.

Contreras-Hermosilla, A., R. Doornbosch, and M. Lodge. 2007. *The economics of illegal logging and associated trade*. Paris, France: Organisation for Economic Co-operation and Development.

Daniels, J.M. 2008. *United States trade in wood products, 1978–2005*. General Technical Report. PNW-GTR-738. Portland, OR: U.S. Forest Service.

Dauber, E., T. Fredericksen, and M. Peña. 2005. Sustainability of timber harvesting in Bolivian tropical forests. *Forest Ecology and Management* 214(1–3):294–304.

Durst, P.B., and T. Enters. 2001. Illegal logging and the adoption of reduced impact logging. Presented at the Forest Law Enforcement and Governance: East Asia Regional Ministerial Conference, September 11–13. Denpasar, Indonesia.

Ebeling, J., and M. Yasué. 2009. The effectiveness of market-based conservation in the tropics: Forest certification in Ecuador and Bolivia. *Journal of Environmental Management* 90(2):1145–1153.

Environmental Investigation Agency. 2011. *The illicit timber trade between Laos and Vietnam*. London, UK.

Environmental Investigation Agency. 2008. *The U.S. Lacey Act: Frequently asked questions about the world's first ban on trade in illegal wood.* London, UK.

Felbab-Brown, V. 2011. *Not as easy as falling off a log: The illegal logging trade in the Asia-Pacific region and possible mitigation strategies.* Washington, DC: Brookings Institution.

Food and Agriculture Organization (FAO). 2005. *Best practices for improving law compliance in the forestry sector*. Rome, Italy.

Forest Stewardship Council. 2010. *Illegal timber practices, impacts and legislation*. Bonn, Germany.

Forest Stewardship Council. 1996. *FSC Principles and Criteria for Forest Stewardship*. Bonn, Germany.

Goetzl, A., and H.C. Ekström. 2007. *Report on the review of the US market for tropical timber products*. Prepared for the International Tropical Timber Organization, Committee on Economic Information and Market Intelligence. Port Moresby, Papua New Guinea.

Howard, J.L., and D.B. McKeever. 2011. *U.S. forest products annual market review and prospects, 2007–2011*. Washington, DC: U.S. Forest Service.

Innes, J.L. 2010. Madagascar rosewood, illegal logging and the tropical timber trade. *Madagascar Conservation & Development* 5(1):6–10.

Jones, M. 2010. *Bulletin of hardwood market statistics: 2009*. Newtown Square, PA: U.S. Forest Service.

Kaplinsky, R., A. Terheggen, and J. Tijaja. 2010. *What happens when the market shifts to China? The Gabon timber and Thai cassava value chains.* Washington, DC: The World Bank.

Kishor, N., and R. Damania. 2007. Crime and justice in the Garden of Eden: Improving governance and reducing corruption in the forestry sector. In *The Many Faces of Corruption: Tracking Vulnerabilities at the Sector Level*, edited by J.E. Campos and S. Pradhan. Washington, DC: The World Bank.

Lawson, S., and L. Macfaul. 2010. *Illegal Logging and Related Trade: Indicators of the global response*. London, UK: Chatham House.

Lentini, M.W., J.C. Zweede, and T.P. Holmes. 2009. *Case studies on measuring and assessing forest degradation: Measuring ecological impacts from logging in natural forests of the eastern Amazonia as a tool to assess forest degradation*. Forest Resources Assessment Working Paper 165. Rome, Italy: Food and Agriculture Organization.

Li, R., J. Buongiorno, J. Turner, S. Zhu, and J. Prestemon. 2008. Long-term effects of eliminating illegal logging on the world forest industries, trade, and inventory. *Forest Policy and Economics* 10(7–8):480–490.

Merry, F., G. Amacher, D. Nepstad, E. Lima, P. Lefebvre, and S. Bauch. 2006. Industrial development on logging frontiers in the Brazilian Amazon. *International Journal of Sustainable Development* 9(3):277–296.

Moiseyev, A., B. Solberg, B. Michie, and A.M.I. Kallio. 2010. Modeling the impacts of policy measures to prevent import of illegal wood and wood products. *Forest Policy and Economics* 12(1):17–23.

Office of the United States Trade Representative. 2011. *USTR green paper on conservation and the Trans-Pacific Partnership*. Washington, DC.

Putz, F.E., P. Sist, T. Fredericksen, and D. Dykstra. 2008. Reduced-impact logging: Challenges and opportunities. *Forest Ecology and Management* 256:1427–1433.

Putzel, L., S. Assembe-Mvondo, L. Bilogo Bi Ndong, R.P. Banioguila, P. Cerutti, J. Chupezi Tieguhong, R. Djeukam, N. Kabuyaya, G. Lescuyer, and W. Mala. 2011. *Chinese trade and investment and the forests of the Congo Basin*. Working Paper 67. Bogor Barat, Indonesia: Center for International Forestry Research.

Richards, M., A. Wells, F. Del Gatto, A. Contreras-Hermosilla, and D. Pommier. 2003. Impacts of illegality and barriers to legality: A diagnostic analysis of illegal logging in Honduras and Nicaragua. *International Forestry Review* 5(3):282–292.

Slik, J.W.F., R.W. Verburg, and P.J.A. Keßler. 2002. Effects of fire and selective logging on the tree species composition of lowland dipterocarp forest in East Kalimantan, Indonesia. *Biodiversity and Conservation* 11:85–98.

Snow, M.S. 2009. *Environmental policies, illegal logging, trade and the US hardwood industry*. Presented at the "Remaining Competitive in the Wood Components Industry" workshop, Princeton, WV, April 21–22.

Sustainable Forestry Initiative. 2010. *Requirements for the SFI 2010–2014 program*. Washington, DC.

United Nations Environment Programme. 2009. *Vital forest graphics*. Nairobi, Kenya.

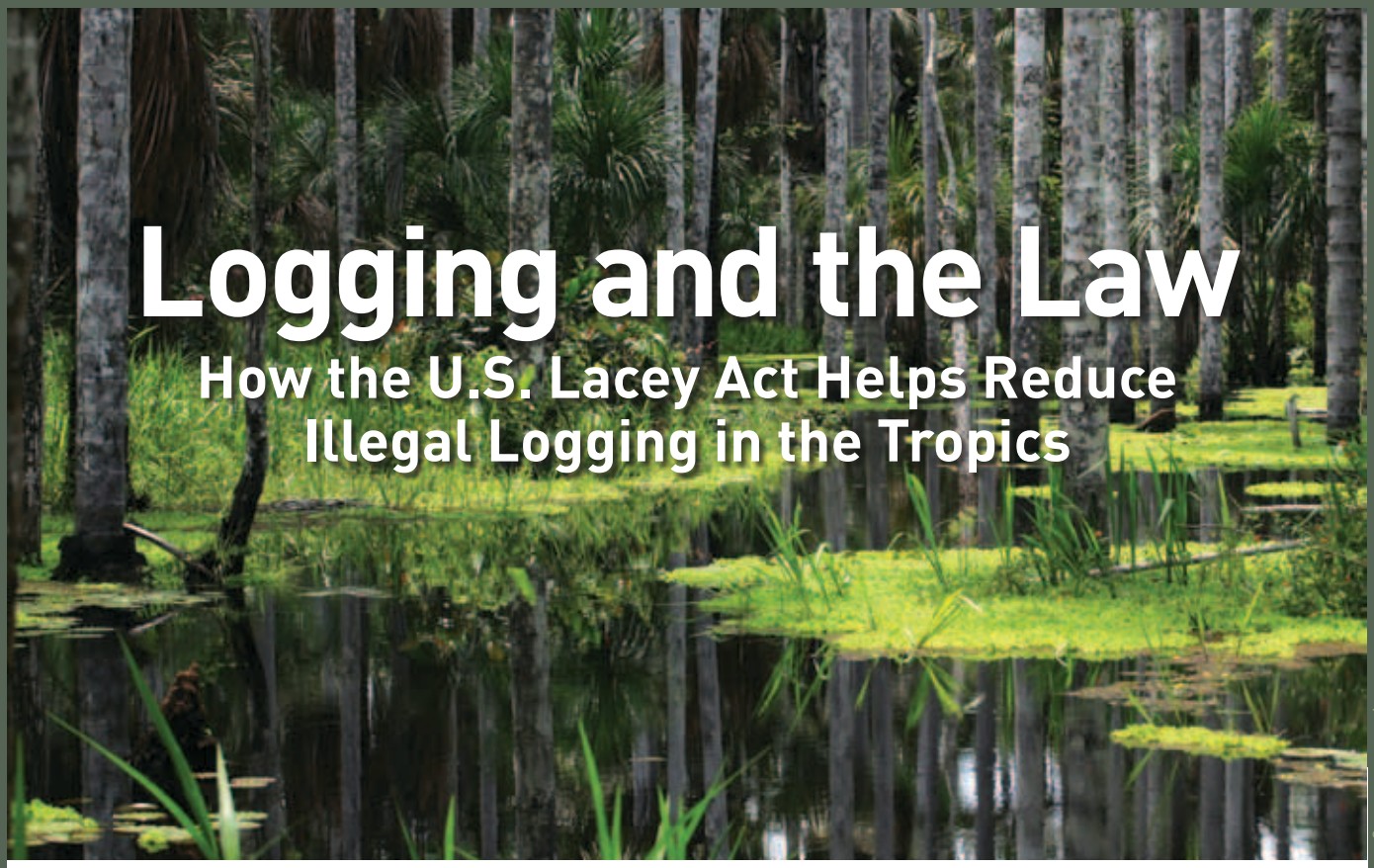
U.S. Agency for International Development (USAID). 2011. *Forests for peace: Conflict prevention and recovery*. Washington, DC.

U.S. Agency for International Development (USAID). 2006. *Seeking peace and saving forests: Forest conflict in Asia*. Washington, DC.

U.S. Forest Service International Programs. 2000. Illegal Logging. Online at *http://www.fs.fed.us/global/topic/illegal_logging/welcome.htm*.

Van Dam, J., and H. Savenije. 2011. *Enhancing the trade of legally produced timber: A guide to initiatives*. Wageningen, the Netherlands.

World Bank. 2004. *Sustaining forests: A development strategy*. Washington, DC.



Logging and the Law

How the U.S. Lacey Act Helps Reduce Illegal Logging in the Tropics

Illegal logging and the associated trade of illegal wood products is a clandestine industry that threatens forests and economies. It can degrade forest ecosystems and increase vulnerability to complete deforestation. Illegal logging generates trade distortions by depressing world timber prices and reducing the competitive advantage of legal loggers and producers. Furthermore, these practices threaten the reputations of legitimate forestry producers and discourage sustainable management practices.

In 2008, Congress passed amendments to the Lacey Act to extend the law's jurisdiction to illegal plants and plant products, including wood. By closing the U.S. market to illegal wood products, the Lacey Act plays an important role in strengthening economic opportunities for legal and legitimate wood producers—both in the United States and abroad. This law helps lay the groundwork for additional reforms that reduce illegal logging, promote sustainable forestry, improve forest management decisions in local communities, and create long-term development opportunities.

The Lacey Act amendments marked the world's first-ever law prohibiting trade of illegally logged wood products. Supporting the implementation and enforcement of the Lacey Act is critical to promoting an environment of forest conservation, legal logging, and sustainable management worldwide.

Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

Printed on recycled paper using vegetable-based inks

The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world.

This report can be found online (in PDF format) at *www.ucsusa.org/illegallogging*.

National Headquarters
Two Brattle Square
Cambridge, MA 02138-3780
Phone: (617) 547-5552
Fax: (617) 864-9405

Washington, DC, Office
1825 K St. NW, Suite 800
Washington, DC 20006-1232
Phone: (202) 223-6133
Fax: (202) 223-6162

West Coast Office
2397 Shattuck Ave., Suite 203
Berkeley, CA 94704-1567
Phone: (510) 843-1872
Fax: (510) 843-3785

Midwest Office
One N. LaSalle St., Suite 1904
Chicago, IL 60602-4064
Phone: (312) 578-1750
Fax: (312) 578-1751