Priority Actions for Sustainable Forest Management in the International Year of Forests

DOMINICK A. DELLASALA,* JOHN M. FITZGERALD,† BENGT-GUNNAR JONSSON,‡
JEFFREY A. MCNEELY,§ BENJAMIN DELALI DOVIE,** †† MARTIN DIETERICH,‡‡ PATRICIA
MAJLUF, §§ SIMON C. NEMTZOV, *** OWEN T. NEVIN, ††† E. CHRISTIEN M. PARSONS,‡‡‡
AND JAMES E.M. WATSON§§§,

*Geos Institute, 84–4th St., Ashland, OR 97420, U.S.A., email dominick@geosinstitute.org
†Society for Conservation Biology, 1017 O St., NW, Washington, D.C. 20001, U.S.A.
‡Department of Natural Sciences, Engineering and Mathematics, Mid Sweden University, SE-85170 Sundsvall, Sweden
§International Union for Conservation of Nature (IUCN), 28 Rue Mauverney, 1196 Gland, Switzerland
∗∗School of Animal, Plant and Environmental Sciences, Wits University, Wits 2050, South Africa
††Regional Institute for Population Studies, University of Ghana, Legon, Ghana
‡‡Institute for Landscape and Vegetation Ecology (320), University of Hohenheim, D-70593 Stuttgart, Germany
§§Center for Environmental Sustainability, Cayetano Heredia University, Armendáriz 445, Lima 18, Peru
***Israel Nature and Parks Authority, 3 Am Ve’Olamo Street, Jerusalem 95463, Israel
†††National School of Forestry, University of Cumbria, Penrith, CA11 0AH, United Kingdom
‡‡‡Department of Environmental Science & Policy, George Mason University, Fairfax, VA 22030, U.S.A.
§§§Global Conservation Programs, Wildlife Conservation Society, 2300 Southern Blvd. Bronx, NY 10460, U.S.A.
∗∗∗∗The University of Queensland, The Ecology Centre, QLD 4072, Australia

Introduction

The United Nations General Assembly (2007) proclaimed 2011 the International Year of Forests to “raise awareness at all levels to strengthen the sustainable management, conservation and sustainable development of all types of forests for the benefit of current and future generations.” Despite ongoing efforts to control the loss of forests globally (e.g., UN Programme on Reducing Emissions from Deforestation and Forest Degradation [REDD +], Conference of the Parties to the UN Framework Convention on Climate Change [UNFCCC]), this call by the UN signals that forest sustainability challenges remain substantial. The Society for Conservation Biology (SCB) is positioned to influence progress toward sustainability aspirations of the UN and others through discussions, such as the one presented in this paper, and through a related declaration on forests submitted by the regional sections of SCB (2011) to UN delegates. Our objectives here are to review broad trends in forest status, suggest improvements to forest monitoring, and suggest priority actions for advancing the sustainable management, conservation, and sustainable development of forests.

Status and Trends

Deforestation has slowed globally, but estimates of deforestation need improvement. The global deforestation rate for the past decade (2000–2010) averaged 13 million ha annually, which is less than previous decades but still substantial (FAO 2010). Net forest losses were especially concentrated in South America, Africa, Oceania, and Central America. However, estimates of deforestation in Amazonia need to be improved through high-resolution imagery and new technologies that can detect different extents of human activities (Peres et al. 2006) and monitoring needs to be coordinated to reduce disparities in methods of data collection and data quality among nations (Laurance & Venter 2010). Furthermore, although North America, Europe, and Asia reported stable or increasing forest cover, these estimates included plantations of nonnative species (e.g., India, China) and incomplete information on forest quality (as measured by the amount of intact or primary forests in a given area). Some country-specific reports to the Food and Agriculture Organization (FAO 2010) of the United Nations show high deforestation levels (e.g., Indonesia and Malaysia) not reflected in regional reports, and other countries either did not report (e.g., Burma...
Old-growth and intact forests continue to decline globally and regionally. Although governments track estimates of reforestation and afforestation, planting trees does not mitigate reductions in biological diversity when old-growth (late successional stage) or intact forests at any successional stage are replaced by tree farms. For instance, comprehensive regional inventories show major declines in old forests in the U.S. Pacific Northwest (Strittholt et al. 2006); most of the world’s large intact forests are gone (Bryant et al. 1997); the contiguous United States (Heilman et al. 2002) and Australia (Watson et al. 2009) have few intact areas; and most of Europe (outside Russia) has no intact forests (Wesolowski 2005; DellaSala et al. 2011). Rates of these losses appear to be accelerating globally (Potapov et al. 2008), yet few governments monitor these losses.

Anthropogenic environmental stressors are accumulating globally and are a major cause of forest declines. Country reports on forest losses from disease, insect outbreaks, and wildfires (FAO 2010) do not include how such disturbances can be amplified by human-induced stressors, including mechanized fire suppression (Kauffman 2004); simplification of forest structure, ecosystem processes, and species composition by industrial logging (Lindenmayer & Franklin 2002); road building (Birdsall et al. 2011); unsustainable hunting and trapping of wild animals (Paquet et al. 2006); climate-change-induced tree mortality (van Mantgem et al. 2009); and unsustainable harvest of medicinal plants (Ndangalasi et al. 2007).

The amount of protected forest is insufficient for achieving broad conservation goals, and enforcement of laws that safeguard protected forests is lacking. Thirteen percent of the world’s forests are legally protected and 54% are managed for timber harvest and multiple uses (FAO 2010). Ongoing reductions in ecosystem services and biological diversity will accelerate without a globally representative network of reserves (Noss et al. 2012), enforcement of laws governing existing ones (Tang et al. 2010), and reductions in logging in the surrounding matrix (Lindenmayer & Franklin 2002). The new strategic plan adopted by the Parties to the Convention on Biological Diversity (CBD 2011) for the Aichi biological diversity targets (2011–2020) calls for 17% of the land base to be placed in “ecologically representative” reserves. Although a step forward, this target falls far short of achieving ecological-representation goals (Noss et al. 2012). The type of protection needs to be clearly defined and enforced, and reserves need to be connected and integrated over larger extents (i.e., landscapes) to be most effective.

The carbon richness of most forests remain underappreciated. Carbon stores in the world’s forests are estimated at 289 gigatons (FAO 2010). Although much of this is stored in tropical rainforests, temperate rainforests in North America and Australia are among the most carbon-dense ecosystems globally (Keith et al. 2009); boreal forests store extensive carbon because they cover considerable area (Wells et al. 2010); old-growth forests in general account for exceptional stores (Luyssaer et al. 2008); and wetland forest ecosystems (peatlands, mangroves) contain more carbon than previously thought (Donato et al. 2011). The global focus on slowing deforestation in developing countries through mechanisms such as REDD+ should not distract attention from the degradation of carbon-dense forests in developed countries. The recent Canadian Boreal Forest Agreement (2010), designed to protect >76 million ha, is a noteworthy example in this regard.

Role of Organized Conservation Professionals

Many developing countries often fall short of their legal requirement to present annual forest reports, and developed countries provide incomplete reports. Conservation professionals can, therefore, provide independent global and regional monitoring of forest degradation and deforestation (Laurance & Venter 2010) to national agencies and the FAO through the use of, for instance, landscape-change detection methods, high-resolution monitoring of forest cover, and improved methods for monitoring stocks of forest carbon in both developed and undeveloped countries.

Enforcing existing laws is important for protecting species listed in the Appendices of the Convention on International Trade in Endangered Species (CITES), or categorized as threatened by the International Union for Conservation of Nature. To help enforce limits on trade, conservation professionals can urge parties to CITES to list imperiled species on Appendix III, which requires other countries to reject products that lack export permits or certificates of origin from the listing country. Voluntary partnership agreements under the European Union’s Forest Law Enforcement, Governance, and Trade Action Plan and the trade-licensing system and legal verification of licensing schemes established under the U.S. Lacey Act (2008 as amended) may reduce demand for illegally sourced wood products (Environmental Investigation Agency 2011). To combat corrupt or outdated permitting processes, conservation professionals can help ensure that the definition of legally harvested encompasses full compliance with international and domestic laws.

Conservation professionals seeking to promote sustainable forest management also need to be aware of ownership and tenure issues because forest-dwelling peoples in many developing countries have no formal ownership of forests they occupy and are easily victimized by logging and other companies granted concessions by governments. Although some forest dwellers
may be willing to sell the forests where they live, others may wish to continue benefiting from the traditional goods and services of the forest. Conservation professionals can provide examples of cases in which access to and benefit sharing of forest resources, consideration of human rights, and enforcement of laws have effectively protected people from losing their forest homes. Conservation professionals can also make a compelling case for why protecting ecosystem services is in the public’s best interest. The contributions that well-managed protected areas make to regional economic development (e.g., livelihoods) through which financial benefits are passed to local communities is essential for building a bigger support base for conservation (Balmford et al. 2009). Kumar (2008), for instance, highlights the close link between poverty and the loss of biological diversity and associated ecosystem services. As such, some forest losses may be avoided by financial compensation to landowners who forego use of their forested lands. Such a scheme is currently being negotiated under the UNFCCC and related REDD+ programs (Venter et al. 2010). Whether the money reaches forest-dependent landowners or residents may depend partly on legal ownership, hence the importance of tenure. Nevertheless, offsetting deforestation in high-priority areas is estimated to be within reach of conservation financing. For example, the estimated cost of offsetting deforestation in the Brazilian Amazon is $7–18 billion (or <1% of Brazil’s 2010 gross domestic product) (Nepstad et al. 2009). Campaigns of conservation groups (e.g., Forest Ethics) that expose links between product consumption and environmental damage also have been effective at shifting consumption away from forests with high rates of deforestation and improving corporate social and environmental behavior. Conservation professionals cannot solve the global problems of deforestation and forest degradation alone. However, conservation professionals can work to a greater degree with those in other disciplines, such as lawyers, economists, anthropologists, social scientists, local communities, and politicians to better imbue ecological knowledge in the social and economic and government realms, where conservation takes place. Ultimately, unless conservation professionals engage in policy decisions, they will remain on the sidelines documenting the ongoing demise of the planet’s forests.

Acknowledgments

We thank members of SCB’s Science and Publications Committee, SCB Global Policy Committee, three anonymous reviewers, W. Laurance, and M. Vale for manuscript reviews and assistance. D.D. was supported by a grant from Wilburforce Foundation.

Literature Cited


