

New strategies for conserving tropical forests

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In an interval of just 1–2 decades, the nature of tropical forest destruction has changed. Rather than being dominated by rural farmers, tropical deforestation now is substantially driven by major industries and economic globalization, with timber operations, oil and gas development, large-scale farming and exotic-tree plantations being the most frequent causes of forest loss. Although instigating serious challenges, such changes are also creating important new opportunities for forest conservation. Here we argue that, by increasingly targeting strategic corporations and trade groups with public-pressure campaigns, conservation interests could have a much stronger influence on the fate of tropical forests.

Introduction

Tropical forests are the Earth's biologically richest ecosystems and play vital roles in regional hydrology, carbon storage and the global climate [1,2]. Yet destruction of tropical forests continues apace, with some 13 million hectares of forest felled or razed each year [3]. Although this rate has not changed markedly in recent decades [3], the fundamental drivers of deforestation are shifting – from mostly subsistence-driven deforestation in the 1960s through 1980s, to far more industrial-driven deforestation more recently [4–6]. This trend, we assert, has key implications for forest conservation.

From the 1960s to 1980s, tropical deforestation was largely promoted by government policies for rural development, including agricultural loans, tax incentives and road construction, in concert with rapid population growth in many developing nations [4–6]. These initiatives, especially evident in countries such as Brazil and Indonesia, prompted a dramatic influx of colonists into frontier areas and frequently caused rapid forest destruction. The notion that small-scale farmers and shifting cultivators were responsible for most forest loss [7] led to conservation approaches, such as Integrated Conservation and Development Projects (ICDP), that attempted to link nature conservation with sustainable rural development [8]. Many, however, now believe that ICDPs have largely failed because of weaknesses in their design and implementation and because local peoples typically use ICDP funds to bolster their incomes, rather than to replace the benefits they gain from exploiting nature [9–13].

More recently, the direct impact of rural peoples on tropical forests appears to have stabilized and could even

be diminishing in some areas. Although many tropical nations still have quite high population growth, strong urbanization trends in developing nations (except in Sub-Saharan Africa) mean that rural populations are growing more slowly, and in some nations are beginning to decline (Figure 1) [14,15]. The popularity of large-scale frontier-colonization programs has also waned in several countries [5,16,17]. If such trends continue, they might alleviate some pressures on forests from small-scale farming, hunting and fuelwood gathering [18].

At the same time, globalized financial markets and a worldwide commodity boom are creating a highly attractive environment for the private sector [5,6]. As a result, industrial logging, mining, oil and gas development and especially large-scale agriculture are increasingly emerging as the dominant causes of tropical forest destruction [6,19–22]. In Brazilian Amazonia, for instance, large-scale ranching has exploded, with the number of cattle more than tripling (from 22 to 74 million head) since 1990 [23], while industrial logging and soy farming have also grown dramatically [24,25]. Surging demand for grains and edible oils, driven by the global thirst for biofuels and rising standards of living in developing countries, is helping to spur this trend [19,26,27].

Although we and others are alarmed by the rise of industrial-scale deforestation (Figure 2), we argue here that it also signals emerging opportunities for forest protection and management. Rather than attempting to influence hundreds of millions of forest colonists in the tropics – a daunting challenge, at best – proponents of conservation can now focus their attention on a vastly smaller number of resource-exploiting corporations. Many of these are either multinational firms or domestic companies seeking access to international markets [6,19–22], which compels them to exhibit some sensitivity to the growing environmental concerns of global consumers and shareholders. When they err, such corporations can be vulnerable to attacks on their public image.

Confronting corporations

Today, few corporations can easily ignore the environment. Conservation groups are learning to target corporate transgressors, mobilizing support via consumer boycotts and public-awareness campaigns. For example, following an intense public crusade, Greenpeace recently pressured the largest soy crushers in Amazonia to implement a moratorium on soy processing, pending development of a tracking mechanism to ensure their crop is

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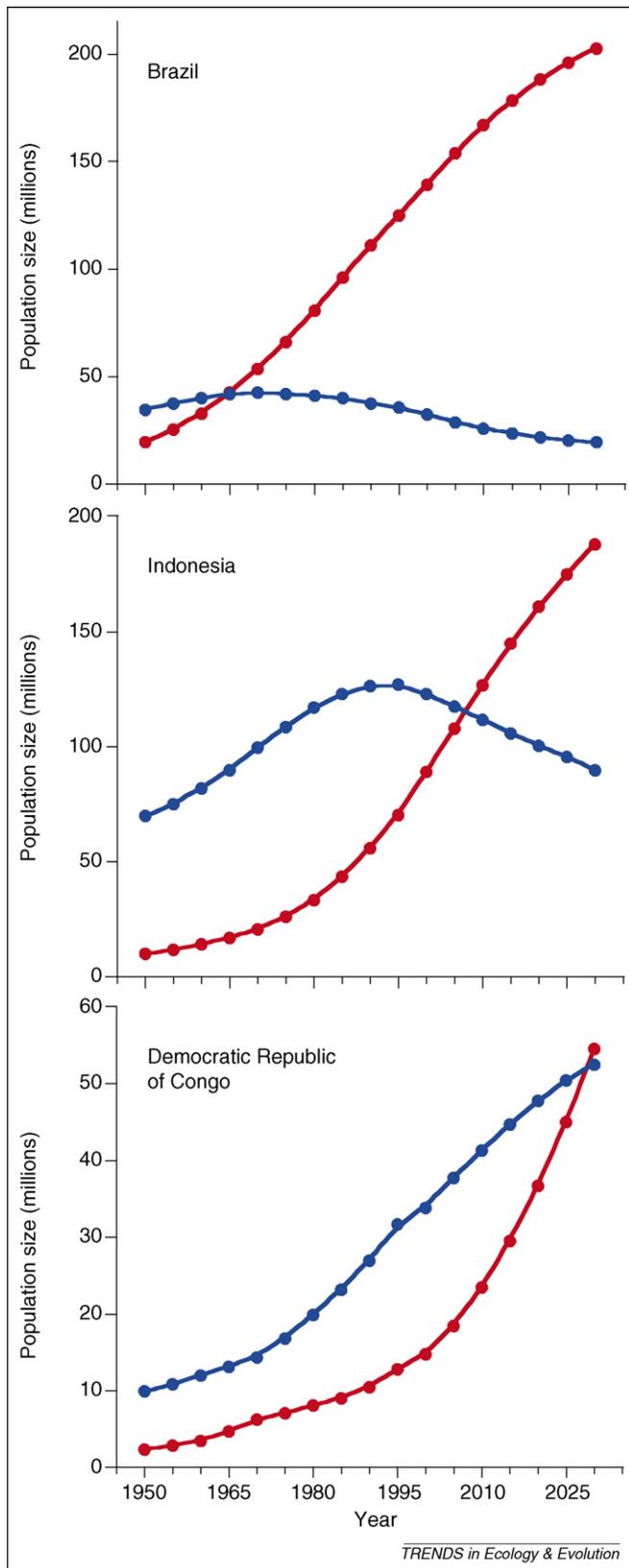


Figure 1. Changing urban (red) and rural (blue) populations in major Latin American, Asian and African tropical nations, respectively, from 1950 to 2030, using estimates and future projections from the UN Population Division [14].

coming from environmentally responsible producers [28]. Earlier boycotts by the Rainforest Action Network (RAN) prompted several major U.S. retail chains, including Home Depot and Lowe's, to alter their buying policies

to favor more-sustainable timber products [29]. Under threats of negative publicity, RAN has even convinced some of the world's biggest financial firms, including Goldman Sachs, JP Morgan Chase, Citigroup and Bank of America, to modify their lending and funding practices for forestry projects [30].

Recent trends are making it easier for conservation groups to sway resource-exploiting industries. Because of economies of scale, multinational corporations often find it more efficient to concentrate their activities in just a few large countries, thereby reducing the number of geographic areas that conservation groups must actively monitor. Moreover, many industries, motivated by fears of negative publicity, are establishing coalitions that claim to promote environmental sustainability among their members. Examples of such industry groups include *Aliança da Terra* for Amazonian cattle ranchers [31], the Roundtable on Sustainable Palm Oil in Southeast Asia and the Forest Stewardship Council for the global timber industry. Hence, rather than targeting hundreds of different corporations, conservationists can have a big impact by striking just a few industrial pressure points.

Corporations are also being swayed by carrots as well as sticks. Firms that buy into sustainability enjoy growing consumer preferences and premium prices for their eco-friendly products. According to industry sources [32], for example, 'green' timber products – those produced in an environmentally sustainable manner – accounted for \$7.4 billion in sales in the United States in 2005, and are expected to grow to \$38 billion there by 2010. Such rewards might have greater leverage with multinational corporations, which must attempt to keep their international consumers and shareholders happy, than with local firms operating solely in developing countries [33].

New challenges

The rising impact of corporate deforesters also has serious downsides. Industrialization can accelerate forest destruction, with forests that once were laboriously hand cleared by small-scale farmers now being quickly overrun by bulldozers. Moreover, industrial activities such as logging, mining and oil and gas developments promote deforestation not only directly but also indirectly, by creating a powerful economic impetus for forest-road building. Once constructed, such roads can unleash uncontrolled forest invasions by colonists, hunters and land speculators [20,21,24].

Another big problem is that not all markets respond to environmental priorities. In many developing nations, environmental concerns are being swamped by burgeoning demands from a growing middle class. For instance, Asian consumers have so far shown little interest in eco-certified timber products [34], unlike consumers in North America and especially Europe. Moreover, as prices for raw materials soar, an all-out scramble for natural resources could ensue, rendering environmental sustainability a mere afterthought to meeting growing needs.

Finally, even an abundance of eco-conscious consumers cannot guarantee good corporate behavior (see Box 1). Many corporations have been accused of 'greenwashing' – producing ostensibly green products that actually have



Figure 2. Changing drivers of deforestation: small-scale cultivators versus industrial road construction in Gabon, central Africa (photos by W.F.L.).

little environmental benefit. In the tropical timber industry, for instance, some dubious, industry-sponsored groups have tried to compete with legitimate eco-certification bodies such as the Forest Stewardship Council [35]. Tracking products from the forest to final consumers – via chains of middlemen, manufacturers and retailers – can also be maddeningly difficult. For example, Greenpeace [36] recently revealed that food giants such as Nestlé, Procter and Gamble, and Unilever were using palm oil grown on

recently deforested lands, despite assurances to the contrary from the Roundtable on Sustainable Palm Oil. Such complications reward cheaters and diminish the benefits for corporations that make a good-faith effort toward sustainability.

The future

Despite such complications, conservationists must learn to deal effectively and forcefully with the corporate drivers of tropical deforestation. Such drivers will certainly increase in the future because global industrial activity is expected to expand 300–600% by 2050, with much of this growth in developing countries [37]. For their part, an increasing number of corporations are realizing that environmental sustainability is simply good business. In light of such trends, we see much need for dialogue and debate among industrial, scientific and conservation interests in the tropics.

Aside from the influence of environmental groups, the impacts of industry will also be mediated by government policies and by international agreements, such as the UN Framework Convention on Climate Change and the Convention on Biological Diversity. For instance, massive U.S. government subsidies for corn ethanol are currently creating market distortions that promote deforestation in the Amazon [23], whereas international carbon trading could eventually slow rapid forest destruction in certain countries [38,39]. Because such policies can change rapidly and have far-reaching implications, conservationists ignore them at their peril.

Change is upon us. On the one hand, rapid globalization and industrial farming, logging, mining and biofuel production are emerging as the dominant drivers of tropical deforestation. On the other hand, growing public concerns about environmental sustainability are creating important new opportunities for forest protection. By targeting strategic industries with consumer-education campaigns, conservation interests could gain powerful new weapons in the battle to slow harmful forest destruction.

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Box 1. Challenges for eco-certification

In the tropics, as elsewhere, eco-certification schemes face some tall hurdles. Even when customers favor eco-friendly products, eco-certification can be hampered by corruption and weak governance, ineffective measures to ensure environmental sustainability and leakage of noncertified products into markets.

For instance, the Forest Stewardship Council (FSC), often viewed as the gold standard for certification of wood products, has been heavily criticized by some environmental groups [40]. Critics say FSC certification of products from ‘mixed sources,’ such as furniture derived only partly from certified wood, hurts its credibility. Certification of some dubious timber schemes, such as plantation monocultures on former forest lands, has also harmed the label [40]. Last year an inquiry by the *Wall Street Journal* forced the FSC to effectively revoke certification of the Singapore-based Asia Pulp and Paper Company because of its environmentally damaging activities on the Indonesian island of Sumatra [41].

Corruption and fraud are also concerns. Collaboration with corrupt officials allows some companies to falsely certify their products, whereas other firms have claimed to have certification when they do not. A recent report on illegal logging in Southeast Asia, for instance, revealed that at least two major furniture firms were marketing products as eco-certified when they had no such label [42].

Another challenge is properly evaluating the sundry activities of international timber corporations. Eco-certifiers have been accused of focusing too narrowly on logging operations inside core conservation areas while ignoring damaging operations elsewhere [40]. In addition, timber corporations frequently buy timber from various sources and subcontract to other firms, and it can be very difficult to determine whether these subsidiaries and partners are engaged in damaging logging [36].

Finally, some critics argue that even eco-certified timber operations are rarely sustainable in the long term. Repeated logging of old-growth forest can reduce carbon stocks and degrade habitat for forest specialists, thereby threatening biodiversity [1]. Further, logged forests are more vulnerable to desiccation, fires and deforestation than are unlogged areas [24,43].

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