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Tropical Forest Conservation & Industry Partnership

An Experience from the Congo Basin

Edited by Connie J. Clark
and John R. Poulsen

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Foreword

The conservation argument for working in managed landscapes has long been promulgated, and is compelling. In its broadest interpretation conservation is about maintaining the ecological systems that support life on earth, and that requires working across large-scale landscapes. That means seeking for conservation outcomes across the range of different land uses: where nature is protected, where natural resources are being harvested and extracted, where agriculture is the primary human activity and where human impacts are the most intense. That also means working with the full range of institutions, from local government to civil society organizations to multinational corporations.

In a narrower interpretation, conservation is about stewarding biodiversity, from wild species to natural communities. If conservation is to achieve even this narrower goal, it cannot restrict its aspiration to parks and protected areas. Parks and reserves in isolation are too small to protect many species, and ecosystems function at a scale much larger than even the largest protected areas.

Despite the broad consensus that conservationists need to work outside of protected areas and in the broader landscape, few conservationists have however picked up the gauntlet. Fewer still have engaged where it has meant working with extractive industries. This has been a challenge on forested lands in particular, and the typical relationship between conservationists and forestry companies has been one of antagonism. Less than 8% of the world's forests are in protected areas however; if large extents of forests are to be well managed and not converted into other land uses, then conservation organizations need to work with companies on lands that are being logged.

This book explores the successful collaboration between the Wildlife Conservation Society (WCS), an international conservation organization, and the Congolaise Industrielle des Bois (CIB), a European timber company which has been operating timber concessions in the north of the Republic of Congo (Brazzaville) since 1969. The collaboration did not begin especially auspiciously. In the early 1990s, WCS had a management presence in the Nouabalé Ndoki National Park. Surveys in 1989 had identified a forest block of unparalleled biological importance and, in 1993, the Government of Congo had established the park. Immediately to the south and west of the park, CIB had rapidly expanding forestry operations in three timber concessions: Kabo, Pokola and Loundougou. Associated with the forestry operations, the area had experienced dramatic in-migration. In the 1960s, when CIB inherited the small-scale forestry operations of the Société Forestiere du Sangha, the town of Pokola had a population of under 300. By the 1990s, the population had grown to over 11,000 and CIB was employing 1500 workers. Most of the animal protein consumed by the people came from the surrounding forest and there was an active commercial bushmeat trade, with meat being carried on logging trucks leaving the concessions. Hunting, emanating from the towns of Pokola and Kabo and from logging camps, was imperiling the wildlife across the whole landscape and increasingly threatening the park itself.

Difficult negotiations (led by Mike Fay on the WCS side and CIB president Heinrich Stoll) led to a consensus between WCS and CIB in 1995, and the signing of a *Protocole d'Accord* between CIB and leaders of local communities living in the concession areas. That protocol discouraged commercial hunting and established internal regulations prohibiting the transport of bushmeat on logging trucks. Putting operational teeth behind this general agreement was the job of Paul Elkan of WCS and, in 1999, the program

was officially launched by WCS, CIB and the Ministry of Forestry. Paul would become the first director of a program that focused on managing and localizing subsistence hunting, controlling the commercial bushmeat trade and providing alternative sources of animal protein. A brigade of eco-guards was recruited under the authority of the Ministry to provide enforcement and WCS assisted with management, fundraising and a program of ecological and law-enforcement monitoring. John Poulsen and Connie Clark, the editors of this volume, began working in the Nouabalé-Ndoki landscape in 2000 and would succeed Paul as WCS program directors in 2005, building on the original foundations.

The collaboration between the conservation organization, the timber company and the government was identified as a test case for conservation in a tropical production forest. The project received early support from the Global Environment Facility (GEF) through the World Bank, USAID's Central African Program for the Environment (CARPE) and the International Timber Trade Organization (ITTO). The project was also viewed with intense suspicion by many conservation and social justice advocates, however. CIB was accused of hiding behind ‘green’ window-dressing and continuing operations as usual. WCS was accused of being a ‘volunteer cheerleader for a billion-dollar industry of exploitation’. The conservation organization was charged with ‘selling out’ to the exploitative corporation, which itself was only interested in its own profits. Critics expressed concerns that forestry operations would open up the forest, allowing hunting and threatening the livelihoods of forest-dwelling people. Over the years the transaction costs of responding constructively to critics, incurred by all the collaborators, have been significant.

Fifteen years after the initiation of the project, the conservation outcomes are evident although the negative

social and environmental consequences of forestry operations in tropical forests need to be recognized. The Nouabalé-Ndoki National Park has been buffered and remains one of the great wildlife refuges in Central Africa. (CIB has sequestered parts of their concessions as strict nature reserves with no logging including, in 2001, the area adjacent to the park known as the ‘Goualougo Triangle’.) Within the CIB concessions, overall hunting pressure has been reduced and the commercial bushmeat trade is more controlled. Gorilla, chimpanzee and buffalo are common through the concession, in densities rivaling the park, and elephants still traverse the concession. Additionally, the CIB concessions have continued to strengthen their environmental and social responsiveness. CIB has drawn up an integrated forest management plan and continues to address social issues of forest-dwelling peoples. CIB has worked with Greenpeace and the Tropical Forest Trust, and has responded to recommendations of SGS Qualifor and Rainforest Alliance's Smartwood program to receive Forest Stewardship Council (FSC) certification for its concessions (the first in Africa).

Achieving this success has involved compromises. The collaboration has not been an easy one, as the interests of the partners are not identical and are often antithetical. The collaborators have had to step away from the ideal and engage pragmatically with what is possible. Nevertheless, from a conservation perspective, the net result has been very positive and conservation outcomes are at a scale that could not have been achieved by solely focusing on protected areas.

John G. Robinson

Chief Conservation Officer,

Wildlife Conservation Society

Preface

The idea for this book was conceived on the eve of the ten-year anniversary of a partnership between a government, an international conservation organization and a logging company. These unlikely partners were in the middle of realizing a remarkable achievement: a sustained collaboration to manage wildlife and conserve biodiversity in logging concessions surrounding one of the most pristine national parks in the world, the Nouabalé-Ndoki National Park in the Republic of Congo, Africa. After nearly a decade it had become clear that this new model of conservation, a partnership with the private sector, was making progress and showing discernible outcomes. No project is perfect, but promising results were emerging. The certification of the concessions created one of the largest tracts of tropical forest under management for sustainable timber production. Research showed that despite timber extraction the area still harbored remarkable densities of endangered apes and elephants and, despite challenges, the partners continued to persevere.

The goal of this book is to help to expand the conservation estate by promoting the replication of the partnership in other forests and with different partners. To do this, the book describes and analyzes the history, strategies, activities and management systems of the partnership and its creation, the Buffer Zone Project (BZP). In addition to discussing the principles of conservation and of partnership, and the lessons learned from nearly ten years of experience, the book provides the technical and methodological details to serve as a type of how-to manual. Of course, given the multi-disciplinary nature of biodiversity conservation and management, a real how-to manual would be encyclopedic in scope and encompass biology, economics, anthropology, administration and finance. We hope that this book provides a sufficiently detailed

framework for initiating similar projects. The expansion of extractive industries into tropical forest is not limited to the logging sector. The issues addressed, examples given and lessons learned from this initiative cut across industries and are relevant to other extractive industries including mining, oil and agriculture.

The project owes its success to three institutions with the vision to create a partnership and the dedication to keep it going: the Government of Congo (specifically, the Ministry of Forestry Economy or MEF); the Congolaise Industrielle des Bois (CIB) logging company; and the Wildlife Conservation Society (WCS), an American non-governmental conservation organization.

The project received its funding from the governments of Switzerland, Japan, United States and France through the Global Environment Facility, along with the International Tropical Timber Organization, the United States Agency for International Development's Central African Regional Program for the Environment, United States Fish and Wildlife Service, United States Forest Service, Liz Claiborne Art Ortenberg Foundation, Fonds Français pour l'Environnement Mondial, Columbus Zoo, WCS and CIB.

Multiple people contributed to the project in the field. Notably, Paul Elkan and Sarah Elkan of WCS founded the BZP. With help from their colleagues from MEF and CIB, they built a project from scratch, putting into place the majority of the existing project systems and activities and building the project infrastructure. Paul served as the Project Director from 1998–2003 and then directed the WCS-Congo program as the General Director from 2003–2007. Sarah was the project manager and then the WCS-Congo Financial Director over the same period.

From the WCS side, Mike Fay, John Robinson, Richard Ruggiero, Amy Vedder and Bill Weber all played a role in the development of the partnership. Over the twelve years of

the project (1998–2010), Philippe Auzel, Jim Beck, Connie Clark, Mark Dripchack, Antoine Moukassa, Richard Malonga, Germaine Mavah, Suzanne Mondoux, Colby Prevost, John Poulsen and Moise Zoniaba contributed to the management of the project. They were supported by the leadership of WCS-Congo, particularly Bryan Curran, Paul Elkan, Sarah Elkan, Jerome Mokoko-Ikonga and Paul Telfer.

From the CIB side, the management of the company, including Yves Dubois, Jaques Glannaz, Robert Hunink, Jean-Marie Mevellec and Heinrich Stoll supported the creation and maintenance of the initiative. Fred Glannaz, CIB Forest Management Planner, deserves particular credit for building the relationship between CIB, WCS and MEF and for working with WCS to develop the wildlife management principles at the beginning of the partnership. Later, several people from the forest management team had a hand in continuing the project operations and expanding the program, including Olivier Desmet, Dominique Paget, Jean-Michel Pierre and Lucas Van der Walt.

From the MEF side, Jean-Claude Dengui, Pierre Kama and Jean-Pierre Onday-Otsouma headed the project. Etienne Balenga, Delphin Essieni Elondza, Jean Eyana, Alphonse Ngangambé, Marcel Ngangoué and Pierre Ngouembé directed the law enforcement unit. Léon Embon served as the MEF envoy to the CIB forestry management unit. Many other MEF agents have served the project and the partnership in various technical capacities, and their contributions are greatly appreciated.

The Buffer Zone Project worked because of the dedication and labors of its Congolese staff. The list of employees is too long to name everyone, but the following people were among those who had a particularly strong impact on the project and its success: Cerylle Assobaum, Gervais Ikeba, Bienvenu Kimbembé, Jean Noel Langa-Langa, Calixte Makoumbou, Richard Malonga, Germain Mavah, Jean Claude

Metsampito, Antoine Moukassa, Yves Nganga, Albert Niamazock, Nestor Nianga and Moise Zoniaba. We apologize to the numerous others that we have neglected to mention.

Finally, many local people and communities participated in and contributed to the project, and others have actively engaged in the management of their forest resources.

As ever in an enterprise such as this, a large number of people have contributed to bringing this book to fruition. We are grateful to those who have contributed to chapters through data, writings and boxes, and for their good humor throughout. We also thank those who took the time to review chapters: some of the authors themselves, as well as Olivier Desmet, Paul Elkan, Liz Forest, Suzanne Mondoux, Dominque Paget, Jack Putz, Paul Telfer, John Waugh and David Wilkie.

Finally, it is our hope that this book will highlight the challenge of biodiversity conservation in a rapidly changing world where the human appetite for resources is always in potential conflict with conservation. We proffer one practical solution for mitigating the impacts of natural resource extraction, to bring us a step closer to securing the future of tropical forests and all their diversity.

List of Acronyms

BACIPS	Before-after-paired-control impact series (BACIPS)
BZP	Buffer Zone Project
CARPE	Central Africa Regional Program for the Environment (USAID)
CBD	United Nations Convention on Biological Diversity
CBFP	Congo Basin Forest Partnership
CBM	Community-based management
CFA	Central African franc (Coopération financière en Afrique centrale)
CM	Collaborative management
CIB	Congolaise Industrielle des Bois
DLH	Dalhoff Larsen and Horneman group
FMU	Forest management unit
FSC	Forest Stewardship Council
GIS	Geographic information system
GPS	Global positioning system
GOC	Government of Congo
INCEF	International Conservation and Education Fund
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
LCAOF	Liz Claireborne Art Ortenberg Foundation
LEM	Law enforcement monitoring
LTCR	Lac Télé Community Reserve
MDDEFE	Ministère de le Développement Durable, Economie Forestière, et de l'Environnement
MEF	Ministère de l'Economie Forestière
MOU	Memorandum of understanding
NGO	Non-governmental organization
NNNP	Nouabalé-Ndoki National Park
NP	National Park
NTFP	Non-timber forest product
PROGEPP	Projet de la Gestion des Ecosystèmes Périphériques au Parc
PSPC	Private sector partnership for conservation
PTA	Principal technical advisor

REDD	Reducing Emissions from Deforestation and forest Degradation
RIL	Reduced-impact logging
ROC	Republic of Congo
SNBS	Société Nouvelle des Bois de la Sangha
SPTD	Semi-permanent transect design
STN	Sangha Tri-national Network
TFT	The Forest Trust
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USLAB	Unité de Surveillance de Lutte Anti-Braconnage
USFWS	United States Fish and Wildlife Services
WCS	Wildlife Conservation Society

Chapter 1

Introduction

Connie J. Clark and John R. Poulsen

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The end of an era

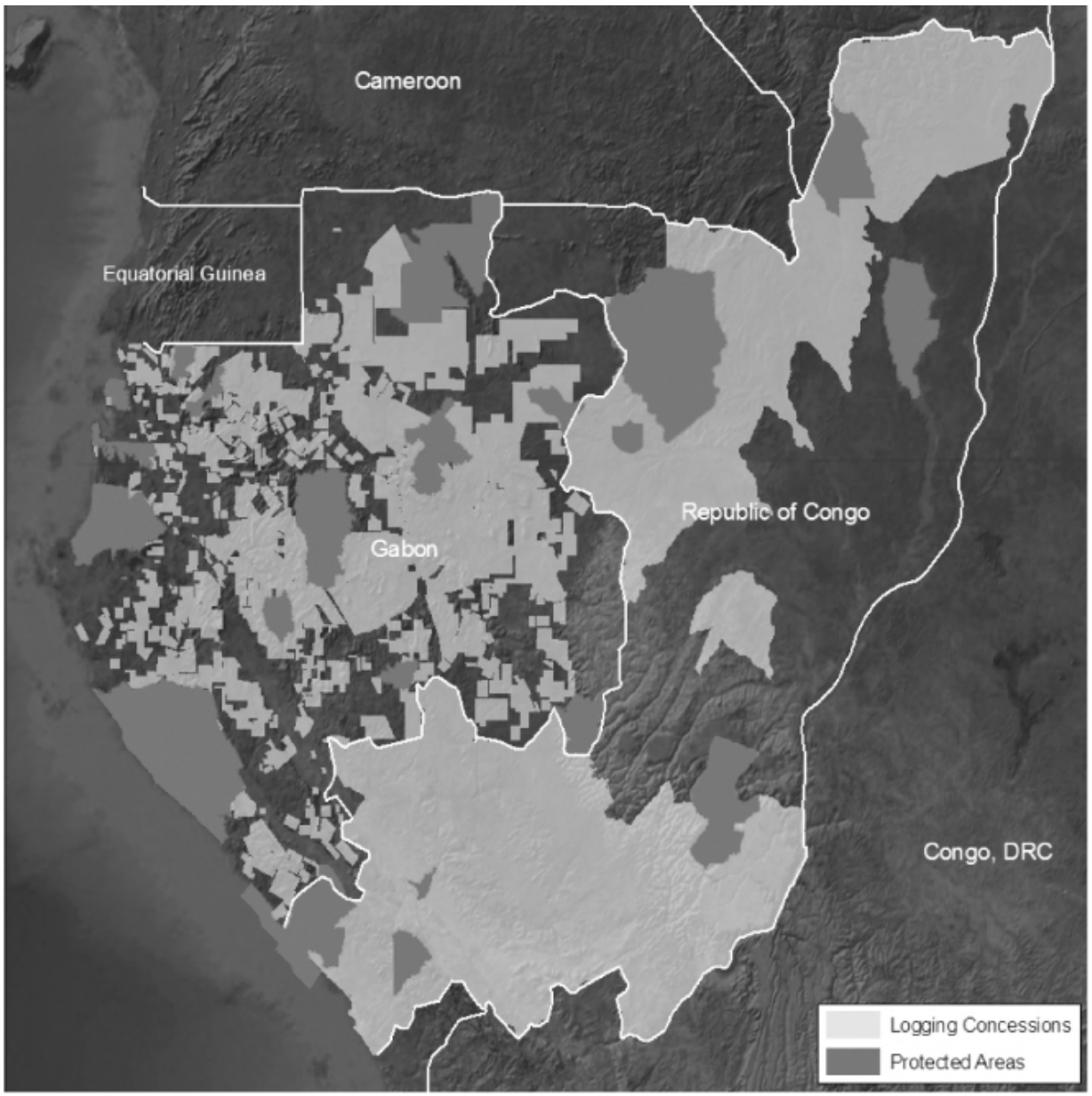
Tropical rainforests harbor roughly 50% of the world's biotic diversity and provide globally critical ecosystem functions, including 40–50% of the global net primary productivity of terrestrial vegetation (Malhi & Grace, 2000; Houghton, 2008). They also provide valuable products and services to support the livelihoods of rural people. More than 1.6 billion people depend on forests for their livelihoods (Eba'a Atvi *et al.*, 2009). Forest cover continues to decline at a rate of 11.5 million hectares per year however, an area larger than Iceland or Liberia (Hansen *et al.*, 2010). Deforestation and forest degradation are causing an unprecedented loss of biodiversity and ecosystem function (Chapin *et al.*, 2000; Thomas *et al.*, 2004) and are contributing 15–20% of the atmospheric CO_2 that is the primary driver of global climate change (IPCC, 2007).

For the last century, forest conservation has focused largely on the establishment of protected areas where resource extraction is mostly prohibited. Although 113 million hectares has been protected, this amounts to only 8.6% of remaining tropical forests[1] (Nelson & Chomitz, 2009). By itself, the existing system of protected areas is

inadequate to prevent continued loss of biodiversity or to protect all ecosystem services (Pimm & Lawton, 1998; Soule & Sanjayan, 1998; Fagan *et al.*, 2006).

Outside of protected areas, the image of tropical forests as endless expanses of remote wilderness is, for the most part, an illusion. With few exceptions, tropical forests today are heterogeneous landscapes bisected by roads, dotted with villages and towns, and exploited by smallholders and big businesses for ranching, agriculture, mining, oil and logging (Figure 1.1). Most tropical and high biodiversity forests lie in developing nations whose governments are either unable or unwilling to manage the forest estate sustainably, particularly when large-scale extractive industries generate significant revenue (Barrett *et al.*, 2001; Milner-Gulland *et al.*, 2003; Smith *et al.*, 2003). When poor nations must rely on forest exploitation as a source of revenue to build their economies, the possibility of setting aside protected areas vanishes[2]. We must therefore extend conservation efforts beyond protected areas to include places where economic considerations prevail. An obvious place to start is that part of the forest estate dedicated to timber extraction.

Figure 1.1 Map of the Republic of Congo and Gabon with Protected Areas represented in dark gray and logging concessions represented in light gray. Data provided by WRI. Map created by Greg Fiske, WHRC.



Extending the conservation estate to production forests

In addition to protected areas, community forests and production forests are major land uses in tropical forests. Companies leasing logging concessions control significant areas of tropical forest. Managing production forests for biodiversity and ecosystem services could vastly increase

the conservation estate. Worldwide, nearly 30% (350 million hectares) of natural tropical forests are destined for logging. The demand for timber is expected to increase from 1.6 billion m^3 to 1.9 billion m^3 during 2010–2015 (Kirilenko & Sedjo, 2007). Demand for fuel wood is also expected to greatly increase pressure on forests in coming decades (Raunikar *et al.*, 2009). With timber plantations occupying only 3% of forested lands, demand for wood in the short term will entail opening up frontier forests (Laporte *et al.*, 2007) or intensifying harvest in already logged forests (FAO, 2009).

The history of logging is one of poorly organized operations and destructive harvests that leave behind a sea of residual damage, rendering forests susceptible to drought, fire and conversion to other uses (Holdsworth & Uhl, 1997; Nepstad *et al.*, 1999; Laurance, 2000; Putz *et al.*, 2000; Asner *et al.*, 2006). The extraction of large, commercially valuable trees creates gaps and modifies the structure of forests for decades to come. Timber harvest can cause widespread collateral damage to remaining trees, subcanopy vegetation, soils, and hydrological processes, resulting in increased erosion and fire, and decreased carbon storage, flora and fauna (Holdsworth & Uhl, 1997; Nepstad *et al.*, 1999; Laurance, 2000; Putz *et al.*, 2000; Asner *et al.*, 2006). Logging operations also open roads into once-remote forests (Figure 1.2). This allows hunters and slash-and-burn farmers to penetrate into forests, resulting in defaunation and further deforestion (Robinson *et al.*, 1999; Wilkie *et al.*, 2000; Asner *et al.*, 2006; Peres *et al.*, 2006; Poulsen *et al.*, 2009).

Many of the impacts of logging are obligate attributes of the industry (e.g., tree extraction, road and skid trail construction; Box 1.1). While they cannot be avoided, their impact can be reduced (e.g., Putz *et al.*, 2008). Indeed, a growing number of companies are committed to adopting

reduced-impact logging (RIL) techniques. RIL consists of technologies and practices that are designed to minimize the environmental impacts associated with industrial timber harvesting operations. These include, among other things, pre-harvest inventories and mapping of individual trees, the planning of roads, skid trails and landings and the use of controlled felling and bucking techniques. RIL is an essential component of sustainable timber harvesting prescriptions where operations occur on slopes of less than 40° (Putz *et al*., 2001; Sist & Ferreira, 2007). RIL can be both profitable and renewable, while maintaining much of the carbon stock and biodiversity (Asner *et al*., 2006; Azevedo-Ramos *et al*., 2006; Putz *et al*., 2000, 2008; Clark *et al*., 2009).

Box 1.1: Direct and indirect threats of logging

The threats of anthropogenic activities on the forest and on biodiversity are both direct and indirect. Direct threats are the result of the activity and include: (1) fragmentation of the forest by logging roads; (2) opening of canopy through timber extraction; (3) depletion of timber species; (4) removal of aboveground biomass; and (5) erosion from roads and skid trails.

Indirect threats are often unintended consequences of an activity (e.g., increase in hunting levels because logging roads open access to frontier forest). The indirect threats of logging are somewhat more diverse in their impact. They can be ecological: (1) changes in abundances of animals; (2) loss of biodiversity; and (3) changes in ecological functions (e.g., seed dispersal, regeneration dynamics, etc.). They can also include socio-economic impacts: (1) migration and population growth; (2) increase in levels of hunting and poaching; (3) development of markets for natural resources; (4) encroachment of agriculture; and (5) impacts on human health. The indirect threats that drive overhunting in the tropics are not unique to logging. Without active management, large-scale operations of other extractive industries such as mining, oil exploitation, and industrial agriculture can lead to overhunting, local extinction of some species and the loss of ecosystem services.

These direct and indirect threats combine to contribute to two linked phenomena: the harvest of bushmeat and the loss of biodiversity. The ‘bushmeat crisis’ refers to the enormous impact that commercial hunting for the meat of wild animals is having on wildlife populations around the

world. Commercial hunting has become the most significant immediate threat to the future of wildlife. This threat to wildlife is a crisis because it is rapidly expanding to countries and species which were previously not at risk. The bushmeat crisis is also a human tragedy: the loss of wildlife threatens the livelihoods and food security of rural populations dependent on wildlife as a staple or supplement to their diet. The related 'biodiversity crisis' refers to the rapid loss of species that make up biodiversity—the full complement of species that inhabit an area. Many biologists believe Earth is entering a sixth mass extinction event, one that is the direct consequence of human activities including over-exploitation, habitat destruction and introduction of alien invasive species and pathogens.

Ironically, some of the most devastating impacts of the logging industry on tropical forests are non-obligate and could be avoided with appropriate management practices, including the implementation of mitigation strategies. These secondary, non-obligate impacts of logging include: the unsustainable harvest of non-timber forest resources and, in particular, wildlife; the expansion of destructive slash-and-burn agriculture that results from access to previously inaccessible lands; inequitable distribution of wealth; and poor placement of roads, logging camps and sawmills (e.g., building them near ecologically sensitive areas). Mitigating these non-obligate impacts of logging are traditionally outside of the perceived responsibilities of logging companies, because they are not directly related to logging techniques and operations. Moreover, the conservation community has not pressed for mitigation.

Extending conservation efforts to production forests provides an opportunity to reduce numerous threats to tropical forests, biodiversity and ecosystem services (Box 1.2). In theory, given the large size and varied habitats of logging concessions, logging operations that mitigate both their obligate (direct) and non-obligate (indirect) impacts could help to protect and preserve forest integrity and biodiversity across a landscape. This strategy would contribute in particular to the conservation of wide-ranging

species that cannot be contained within the borders of protected areas (Sanderson *et al.*, 2002; Elkan *et al.*, 2006; Blake *et al.*, 2007, 2008; Clark *et al.*, 2009; Stokes *et al.*, 2010).

Box 1.2: Can forestry be conducive to biodiversity conservation?

A number of initiatives relating to improved forest management address biodiversity issues. In recent years, both the International Tropical Timber Organization (ITTO) and International Union for Conservation of Nature (IUCN) emphasized the importance of biodiversity by calling for: (1) an enhanced role for tropical production forests as components of multi-functional landscapes that contribute to biodiversity conservation at different spatial scales; (2) improved understanding of the impacts of forest management on biodiversity; (3) adaptation of forest management practices at all spatial scales to favor the conservation of native biodiversity; (4) improved ecological processes in tropical production forests provided by the presence of locally adapted native biodiversity; and (5) improved practical forest management at all spatial scales aimed at retaining native biodiversity (IUCN, 2006).

Perhaps the best model of forest management that explicitly addresses biodiversity conservation and the preservation of ecosystem functions is that of the Forest Stewardship Council (FSC). The FSC's set of Principles and Criteria for forest management includes ten principles illustrated by a number of criteria, several of which directly address the indirect impacts of logging on biodiversity and ecosystem function. For example, Principle 6, Criterion 2 states: “Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, trapping and collecting shall be controlled”.

While these initiatives emphasize the importance of biodiversity conservation and protection of ecosystem functions, they have been criticized for failing to specify standards or actions to mitigate biodiversity loss in production forests (Bennett, 2001; Poulsen *et al.*, 2009). Despite the development of principles and criteria that encourage the conservation of biodiversity and ecosystem processes in production forests, very few examples of well-managed forestry concessions exist in the Congo Basin.

A new paradigm: Private-sector partnerships for conservation

Extending conservation activities into production forests requires innovative strategies that look beyond a strict protection paradigm toward a conservation model that accommodates the resource needs and land-use practices of multiple stakeholders. These conservation strategies will need to integrate national governments, industry, conservation NGOs and local communities in partnerships that promote environmentally appropriate forest use and biodiversity conservation across multi-use landscapes.

It is our hope that this book will facilitate the development of partnerships to mitigate the non-obligate impacts of logging on biodiversity, ecosystem services and livelihoods of local populations, with particular emphasis on wildlife management. The processes, systems and methodologies presented in this book were developed and tested in forestry concessions in northern Republic of Congo, where the Congolaise Industrielle des Bois (CIB) logging company has concessionary rights over 1.3 million hectares of tropical forests adjacent to a protected area network (Figure 1.3). In 1999, the Wildlife Conservation Society (WCS), the Congo's Ministry of Forest Economy (MEF)[3] and the CIB formed a novel alliance to reduce the negative impacts of logging on wildlife and biodiversity in timber concessions adjacent to the Nouabalé-Ndoki National Park (Figure 1.3). The partnership was formally called the *Projet de la Gestion des Ecosystèmes Périphériques au Parc* (PROGEPP), which we have translated and shortened to the Buffer Zone Project (BZP). Throughout the development of the BZP, the partners sought to achieve seemingly contradictory goals: to conserve biodiversity and improve the livelihoods of rural people while promoting economic development though timber exploitation.