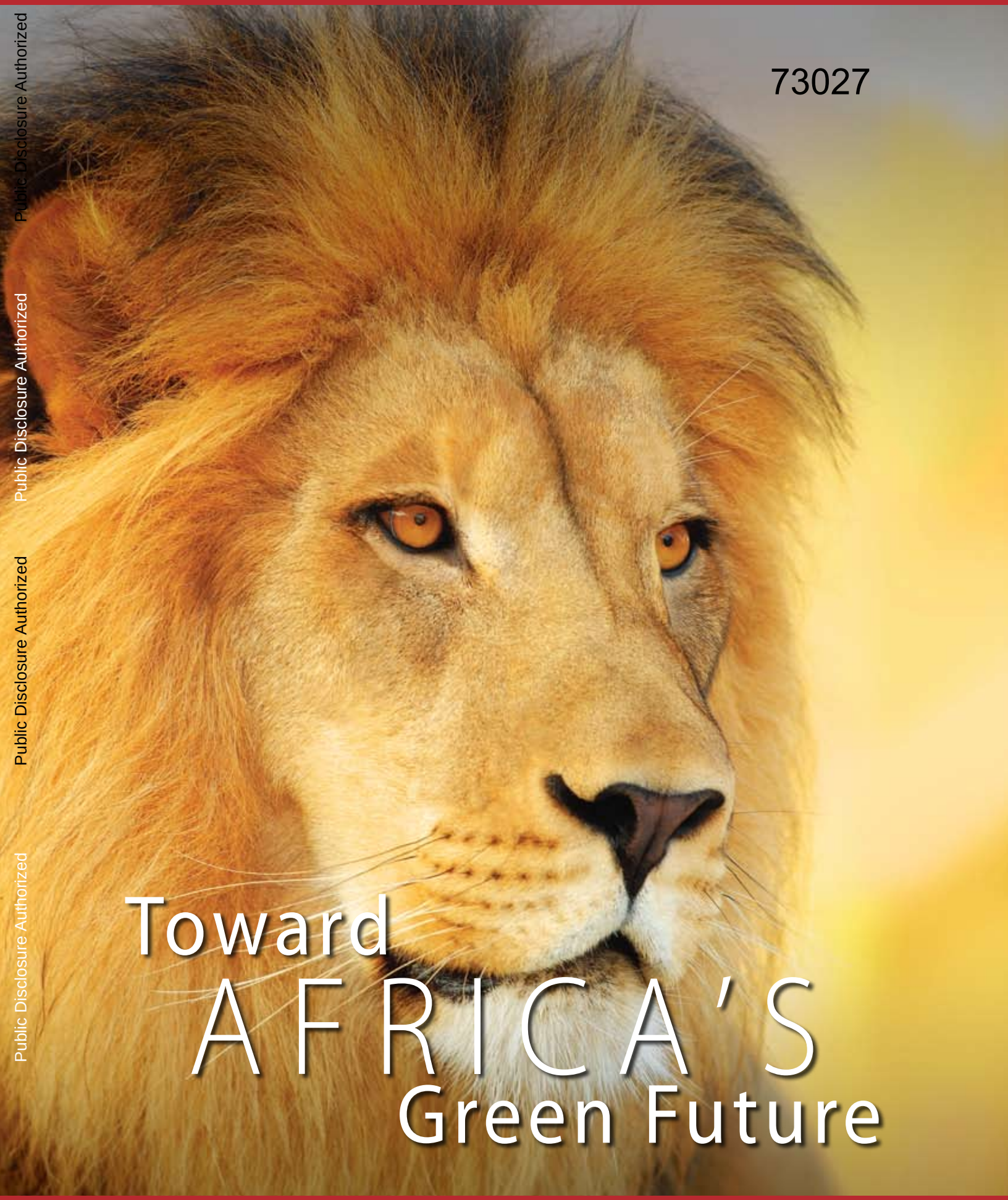
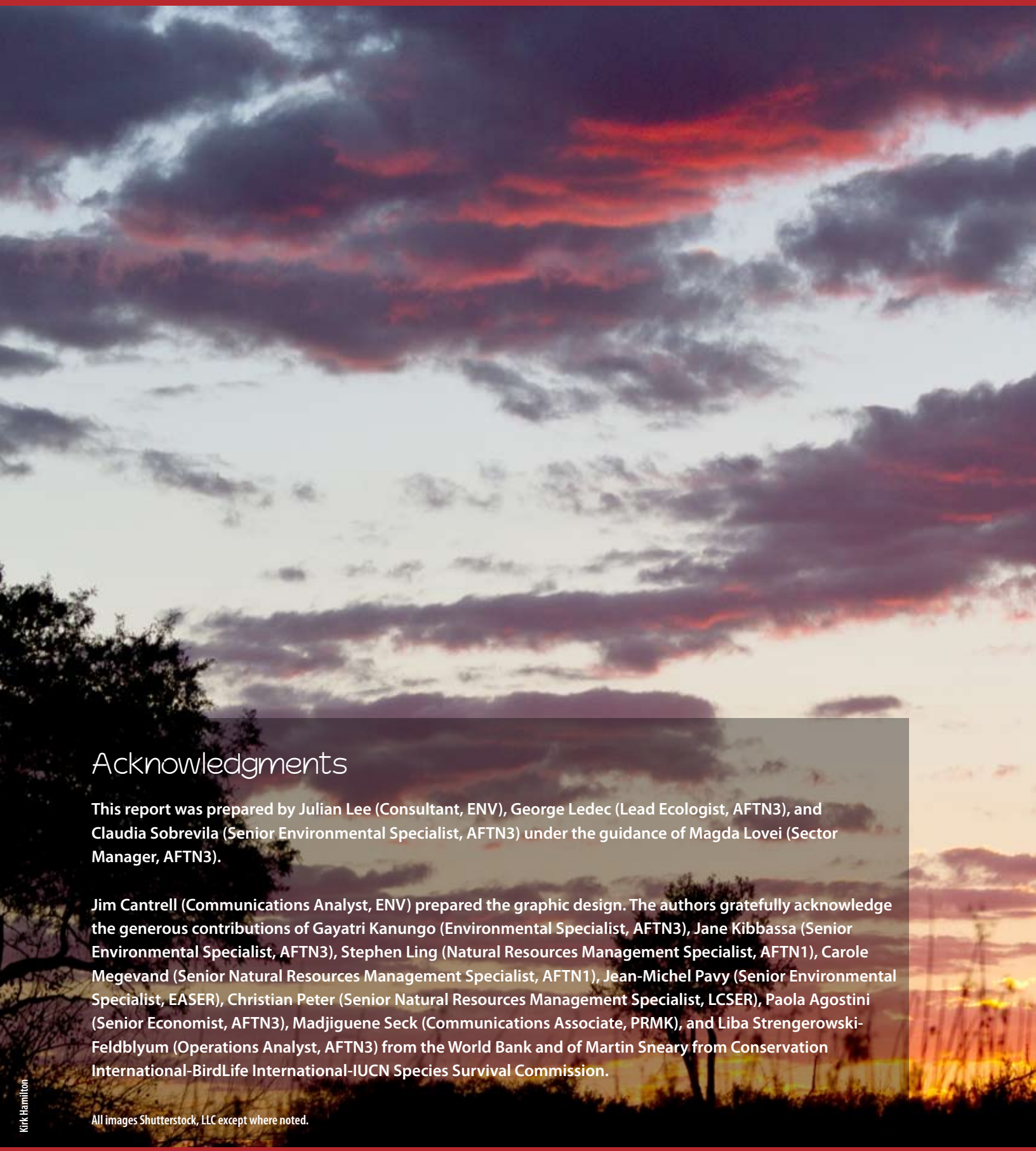


Toward AFRICA'S Green Future

WORLD BANK SUPPORT IN BIODIVERSITY CONSERVATION



Acknowledgments

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Jim Cantrell (Communications Analyst, ENV) prepared the graphic design. The authors gratefully acknowledge the generous contributions of Gayatri Kanungo (Environmental Specialist, AFTN3), Jane Kibbassa (Senior Environmental Specialist, AFTN3), Stephen Ling (Natural Resources Management Specialist, AFTN1), Carole Megevand (Senior Natural Resources Management Specialist, AFTN1), Jean-Michel Pavy (Senior Environmental Specialist, EASER), Christian Peter (Senior Natural Resources Management Specialist, LCSER), Paola Agostini (Senior Economist, AFTN3), Madjiguene Seck (Communications Associate, PRMK), and Liba Strengerowski-Feldblyum (Operations Analyst, AFTN3) from the World Bank and of Martin Sneary from Conservation International-BirdLife International-IUCN Species Survival Commission.

Kirk Hamilton

FOREWORD

From the world's highest mountain ranges to the lowland plains, and from the great oceans and coastal wetlands to agricultural landscapes, nations and communities rely on the bounty and services of natural ecosystems. Biological resources and the goods and ecosystem services they provide underpin every aspect of human life and livelihoods, from food and water security to general well-being and spiritual fulfillment. Sub-Saharan Africa is particularly well endowed by rich biodiversity resources that represent tremendous wealth at the local, regional, and international levels. Yet these resources are increasingly under pressure and threat due to land use change, rapid urbanization, poorly planned infrastructure development and resource extraction, illegal logging, wildlife poaching and trade, and other factors.

In Sub-Saharan Africa, the World Bank has been a major global funder and supporter of biodiversity conservation in the past decades. Projects and programs supported by the Bank—and often co-financed with the Global Environment Facility—span across 36 countries and more than 100 projects. They have helped establish and manage globally important protected areas, introduce policies and regulations for the sustainable management of resources, reform institutions, support communities' conservation and sustainable management efforts, develop innovative financing mechanisms, and mainstream biodiversity conservation within the production landscape and in economic sectors (such as forestry, fisheries, and tourism). In addition to its efforts in supporting country programs, the Bank has supported successful partnerships with non-government organizations to promote global and regional biodiversity initiatives.

This report reviews the World Bank support to biodiversity conservation in Sub-Saharan Africa over the past decade (2003-2012), and presents key lessons and directions for the Bank's future biodiversity-related investments. The Africa region is presently undergoing a fundamental transformation. With a firm focus on biodiversity as a component of inclusive green growth, the World Bank is well positioned to continue and strengthen its role as a leading supporter of African countries' conservation efforts.

Jamal Saghir
Director
Sustainable Development Department
Africa Region

EXECUTIVE SUMMARY

Sub-Saharan Africa's rich biodiversity endowment serves as the foundation for millions of livelihoods and for many local and national economies. Yet the decimation of habitats, plants and animals in the wild continues at an unprecedented pace. Given the centrality of natural resources to sustainable economic development in Sub-Saharan Africa, conserving this irreplaceable stock of species and ecosystems is of fundamental importance.

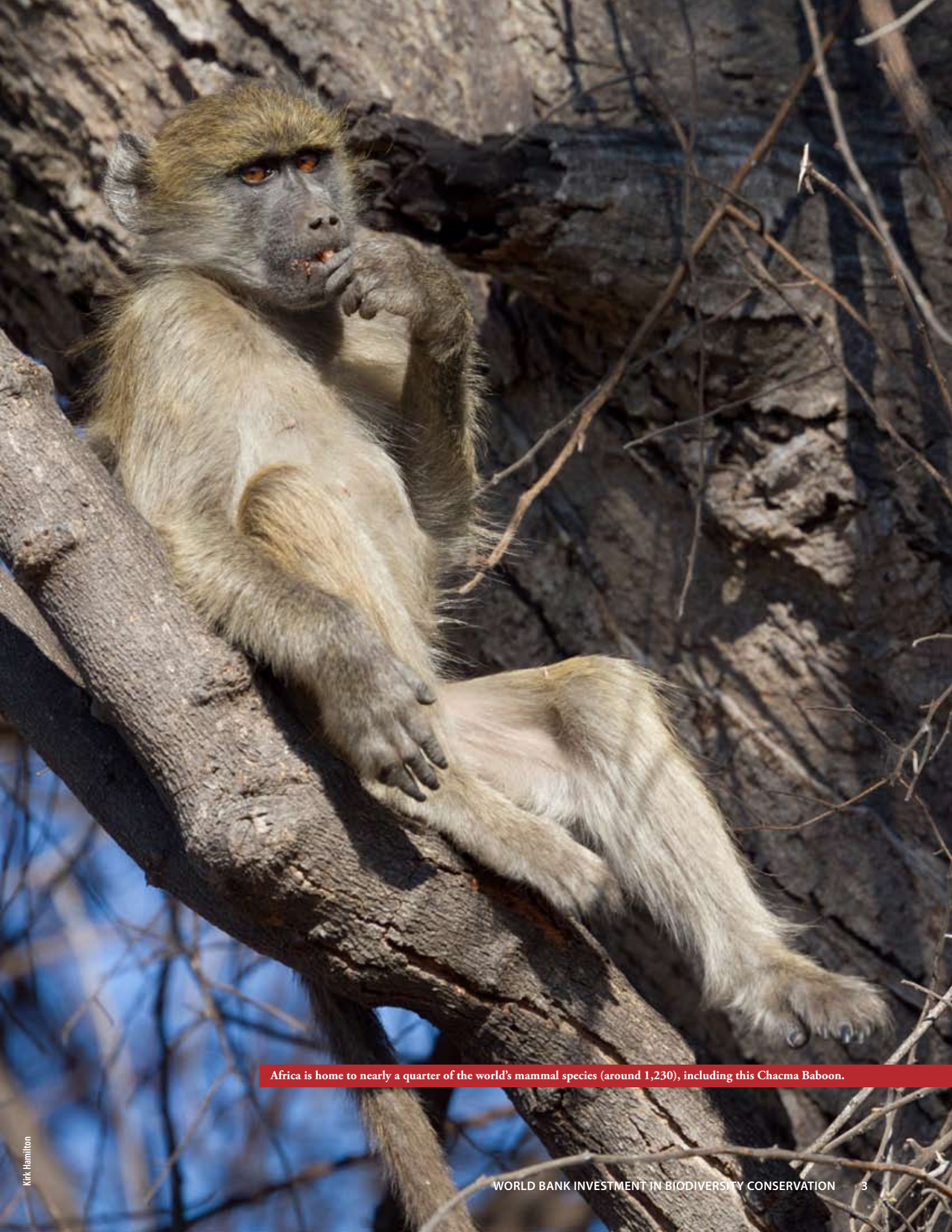
Many countries in the region have recognized the importance of turning the tide on habitats and species loss. During the past decade, the World Bank has supported their efforts through technical assistance and 124 biodiversity-related projects. It invested nearly $1 billion directly in biodiversity during this period, with a principal focus on protected areas and landscape management. The scale of this investment makes the World Bank the largest financier for biodiversity conservation in Africa.

Through these activities, the clients, partners and the World Bank have learned a number of important lessons.

- Protected area management needs strengthening so that parks can reach the full potential of their intended conservation purposes.
- Where political boundaries divide ecosystems, transboundary conservation areas enable comprehensive conservation efforts that can create positive externalities for neighboring countries.
- Landscape-level planning and management extends biodiversity conservation beyond protected areas—which can only cover a limited area— into production systems.
- Resource users need incentives to conserve the biodiversity on their lands. Where such incentives are provided and communities are included in decision-making, resource users can change behavior and become powerful allies in conservation.
- Conservation funding needs to be structured for the long term. Beyond government budgetary resources, receipts from tourism can make an important difference. Innovative financing mechanisms, such as carbon finance and conservation trust funds (CTFs), also have a role to play. Where CTFs are used, special attention needs to be paid to yield projections and management costs.
- Biodiversity conservation needs to be further integrated into regular development planning and implementation. The scope for doing so remains considerable.

Recognizing the importance of biodiversity and ecosystems to economic growth and building on this past experience to support its African client countries, the World Bank, in its future programs, will make special efforts to:

- Incorporate biodiversity considerations more fully within its lending portfolio, through the application of good environmental management practices and policies in the planning and implementation of projects and programs.
- Place special emphasis on designing and monitoring of projects that demonstrate how biodiversity can be an engine of inclusive green growth and improved livelihoods, through greater economic valuation and payments of natural ecosystem services and enhanced opportunities for economic benefit-sharing.
- Increase its focus on landscape approaches to conservation that encompass biodiversity-friendly production systems and buffer zones, along with intact natural habitats within protected areas.
- Work with client countries and the private sector to ensure that good environmental practices and compensation schemes, such as conservation offsets, are in place in extractive industries and other development projects.
- Promote public private sector partnerships and facilitate the use of private sector resources to contribute to conservation efforts, in particular through the use of innovative instruments like nationally aggregated biodiversity offset schemes, green bonds, conservation banking, environmentally friendly "green" infrastructure and nature-based tourism.
- Assist client governments and international initiatives that seek to support more-effective law enforcement through partnerships and innovative approaches in order to address illegal taking of wildlife, fish, and timber resources, which is reaching crisis levels in some areas.



Africa is home to nearly a quarter of the world's mammal species (around 1,230), including this Chacma Baboon.

Kirk Hamilton

Jean-Michel Pavy

The Biodiversity Conservation Imperative in Africa

AFRICA'S BIODIVERSITY ENDOWMENT

Sub-Saharan Africa is a uniquely important region from a global biodiversity conservation standpoint, with many unusual and distinctive land-based and aquatic ecosystems. This region is home to nearly a quarter of the world's mammal species (1,230), more than a fifth of the world's bird species (2,000), and around 950 amphibian species. The African continent has between 40,000 and 60,000 plant species, of which at least 35,000 are found nowhere else (one-sixth of the world total in this category). Figure 1 shows the major natural vegetation zones of Sub-Saharan Africa.

Conservative estimates put Africa's freshwater fish species at more than 2,000—the highest in the world. The African continent also has around 40,000 km of coastline with high coastal and marine biodiversity (UNEP 2006). The continent is surrounded by large and small islands with extraordinary biodiversity wealth. Foremost among these is Madagascar, the world's fourth largest island, with more than 12,000 plant species—at least 81 percent of which occur nowhere else. Madagascar harbors so much unique flora and fauna that it is often called the Eighth Continent. Other, smaller island nations—including São Tomé and Príncipe, Comoros, Seychelles, Mauritius, and Cape Verde—also contain many animal and plant species found nowhere else. To date, Africa has lost less of its biodiversity in terms of species extinctions than other continents have. It is also unusual in that—unlike other continents—its large-mammal fauna is still largely intact.

Africa's biodiversity wealth is not uniformly distributed. For example, 62 percent of the terrestrial vertebrate and plant species can be found within key centers of diversity that cover only 1 percent of the Sub-Saharan land surface (UNEP 2006). Among these centers of diversity are eight biodiversity hotspots (out of 34 in the world)[1] (see Box 1). Sub-Saharan Africa also contains 42 of WWF's Global 200 Ecoregions that contain exceptional levels of biodiversity or feature unusual ecological or evolutionary phenomena (Olson and Dinerstein 1998; Olson et al. 2001). Figure 2 shows the distribution and large extent of these centers of biodiversity. Figures 3 and 4 display the diversity of plant and mammal species across Africa.

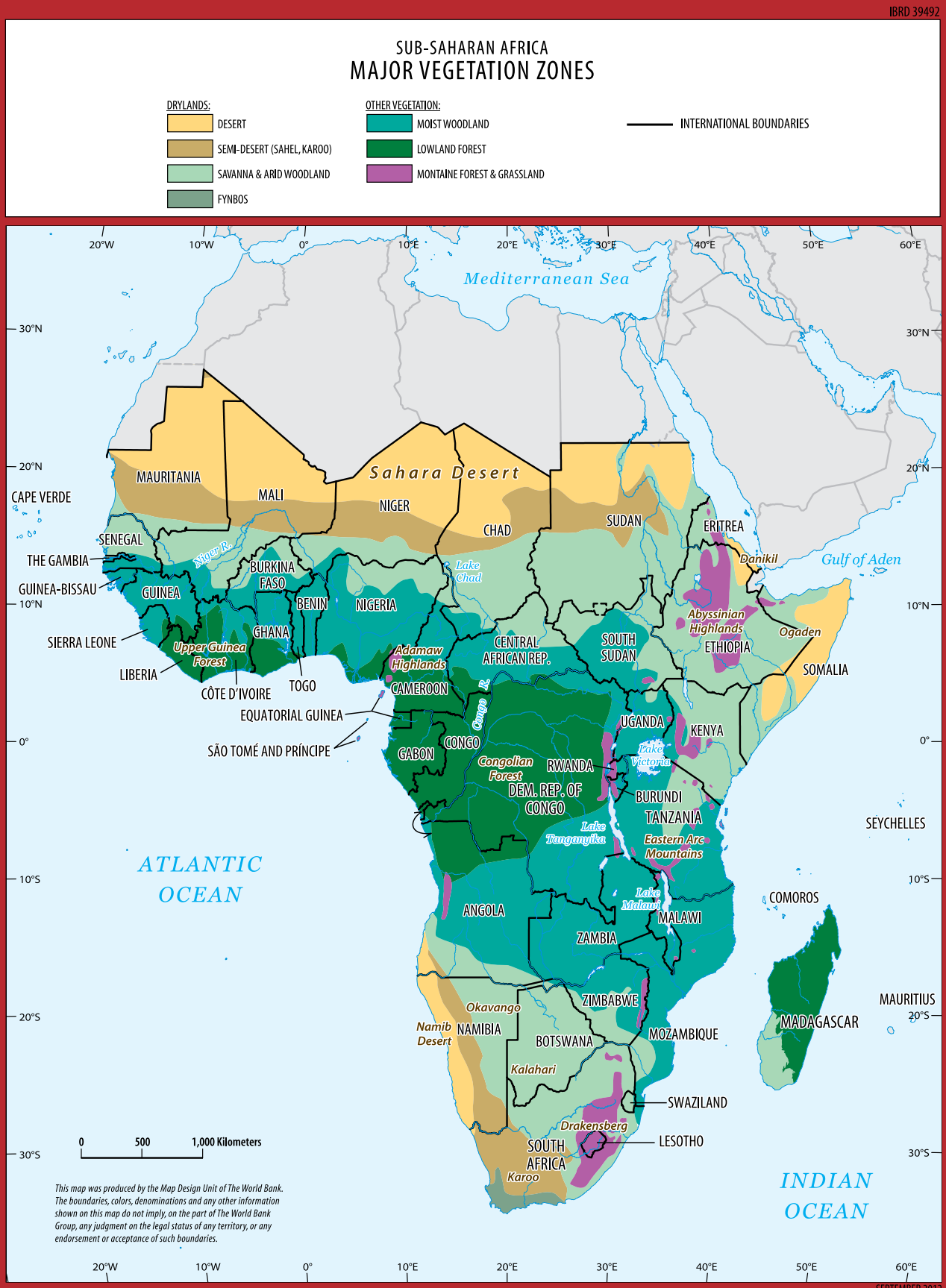
There is considerable variation in biodiversity endowments at the country level. The Democratic Republic of Congo, Madagascar, and South Africa have each been classified as "megadiverse" countries—the world's 17 most biologically diverse countries that together account for nearly 70 percent of global species diversity.

Table 1 ranks sub-Saharan African countries' biodiversity according to the Benefits Index for Biodiversity of the Global Environment Facility (GEF). This index is a composite of the total number of known species in each country, their threat status, and the diversity of habitat types in each country. Countries with scores of 5 or more are those with the highest amount of biodiversity.

Madagascar is in the top list of African countries when it comes to unique global biodiversity endowment, and the Bank and other donors have been supporting

1. Biodiversity hotspots are defined as areas with at least 1,500 species of vascular plants that have each lost at least 70 percent of their original habitat (Mittermeier et al. 2005).

Figure 1: Major Vegetation Zones of Sub-Saharan Africa



Source: **Sinclair and Ryan 2003; reproduced with permission from the publisher.**

Box 1: Biodiversity Hotspots in Sub-Saharan Africa

CAPE FLORISTIC REGION (South Africa)
These evergreen fire-dependent shrublands contain some 9,000 vascular plant species on 90,000 km2.
COASTAL FORESTS OF EASTERN AFRICA (Kenya, Mozambique, Somalia, Tanzania)
Though tiny and fragmented, the forest remnants that make up these forests contain remarkable levels of biodiversity.
EASTERN AFROMONTANE (Burundi, Dem. Rep. Congo, Eritrea, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, South Sudan, Sudan, Tanzania, Uganda, Zambia, Zimbabwe)
The mountains of the Eastern Afromontane hotspot are scattered along the eastern edge of Africa, from Eritrea in the north to Zimbabwe in the south.
GUINEAN FORESTS OF WESTERN AFRICA (Benin, Cameroon, Côte d'Ivoire, Equatorial Guinea, Ghana, Guinea, Liberia, Nigeria, São Tomé and Príncipe, Sierra Leone, Togo)
The lowland forests of West Africa are home to more than a quarter of Africa's mammals, including more than 20 species of primates.
HORN OF AFRICA (Djibouti, Eritrea, Ethiopia, Kenya, Somalia)
The arid Horn of Africa has been a renowned source of biological resources for thousands of years.
MADAGASCAR AND THE INDIAN OCEAN ISLANDS (Comoros, Madagascar, Mauritius, Seychelles)
These islands have an astounding total of eight plant families, four bird families, and five primate families that live nowhere else on Earth.
MAPUTALAND-PONDOLAND-ALBANY (Mozambique, South Africa, Swaziland)
This hotspot, which stretches along the east coast of southern Africa below the Great Escarpment, is an important center of plant endemism.
SUCCULENT KAROO (Namibia, South Africa)
This region boasts the richest succulent flora on Earth, as well as remarkable endemism in plants.

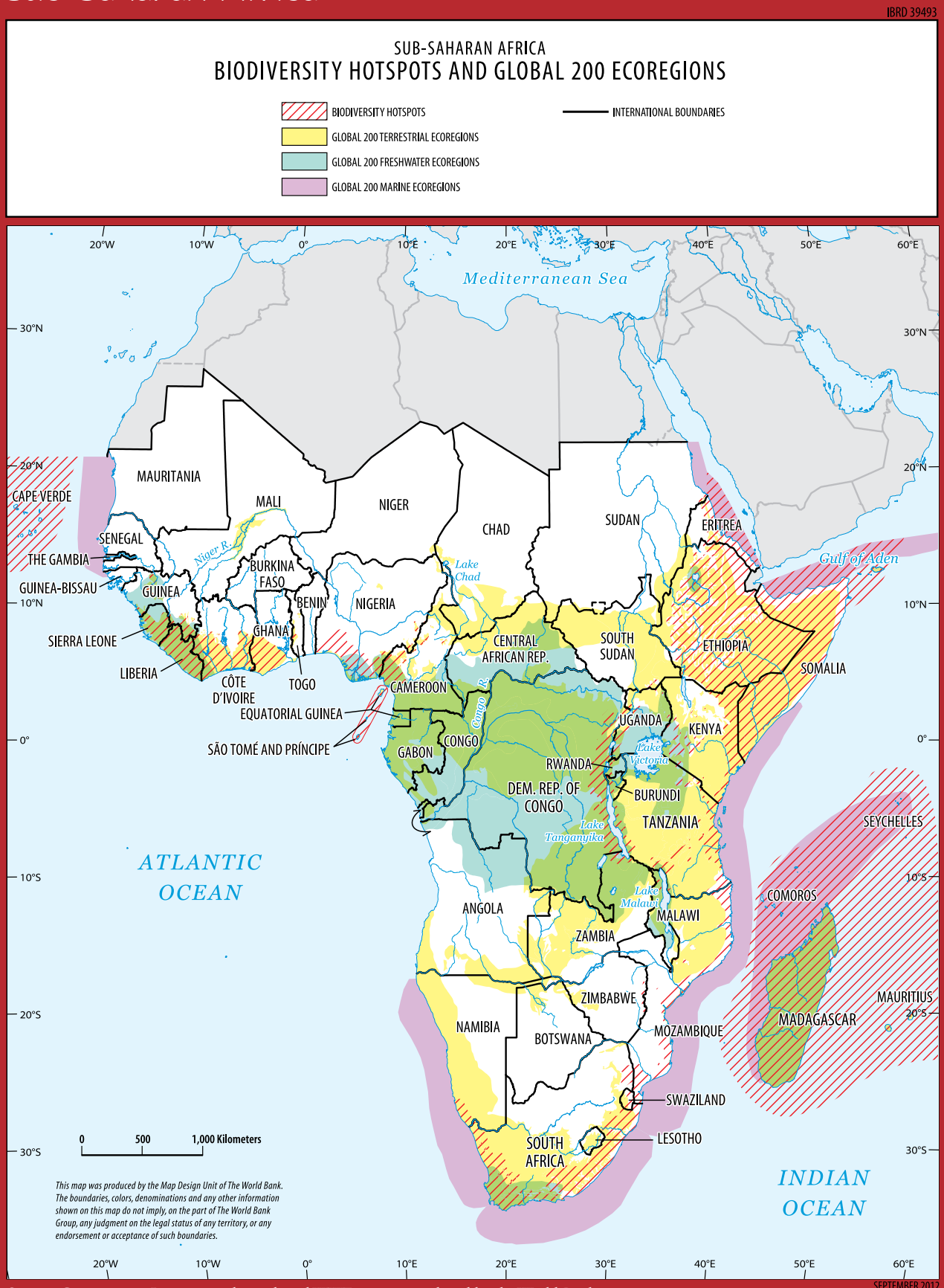
Source: Conservation International 2012a,b.

conservation projects in this country for three decades (see Box 2).

Another important measure for biodiversity conservation is endemism—species found in a particular country that occur nowhere else in the wild. For example, the islands of São Tomé and Príncipe have the world's highest concentration of endemic birds (Melo and Ryan 2012). Many African countries harbor significant concentrations of unique and often threatened species and ecosystems; often, several countries share concentrated areas of high biodiversity.

The highly localized Kihansi Spray Toad lives only within a tiny portion of the Udzungwa Mountains of Tanzania, part of the Eastern Arc Mountains that have the highest diversity of endemic and threatened plants and animals in the region.

Figure 2: Hot Spots and Global 200 Ecoregions in Sub-Saharan Africa



Source: **Conservation International 2012b and WWF 2012; reproduced by the World Bank.**

Table 1: GEF Biodiversity Index for Sub-Saharan African Countries

GEF Biodiversity Index 5–30		GEF Biodiversity Index 1–5		GEF Biodiversity Index < 1	
Madagascar	29.2	Zambia	3.8	Rwanda	0.9
South Africa	20.7	Rep. Congo	3.6	Niger	0.9
DR Congo	19.9	Seychelles	3.5	Eritrea	0.8
Tanzania	14.8	Côte d'Ivoire	3.4	Guinea-Bissau	0.6
Cameroon	12.5	Gabon	3.0	Burkina Faso	0.3
Kenya	8.8	Uganda	2.8	Togo	0.3
Ethiopia	8.4	São Tomé & Príncipe	2.7	Burundi	0.3
Angola	8.3	Liberia	2.6	Lesotho	0.3
Mozambique	7.2	Cape Verde	2.4	Benin	0.2
Somalia	6.1	Guinea	2.3	Swaziland	0.1
Nigeria	6.0	Chad	2.2	Gambia	0.1
Namibia	5.2	Zimbabwe	1.9		
Sudan	5.1	Ghana	1.9		
		Equatorial Guinea	1.5		
		CAR	1.5		
		Mali	1.5		
		Botswana	1.4		
		Sierra Leone	1.3		
		Senegal	1.0		

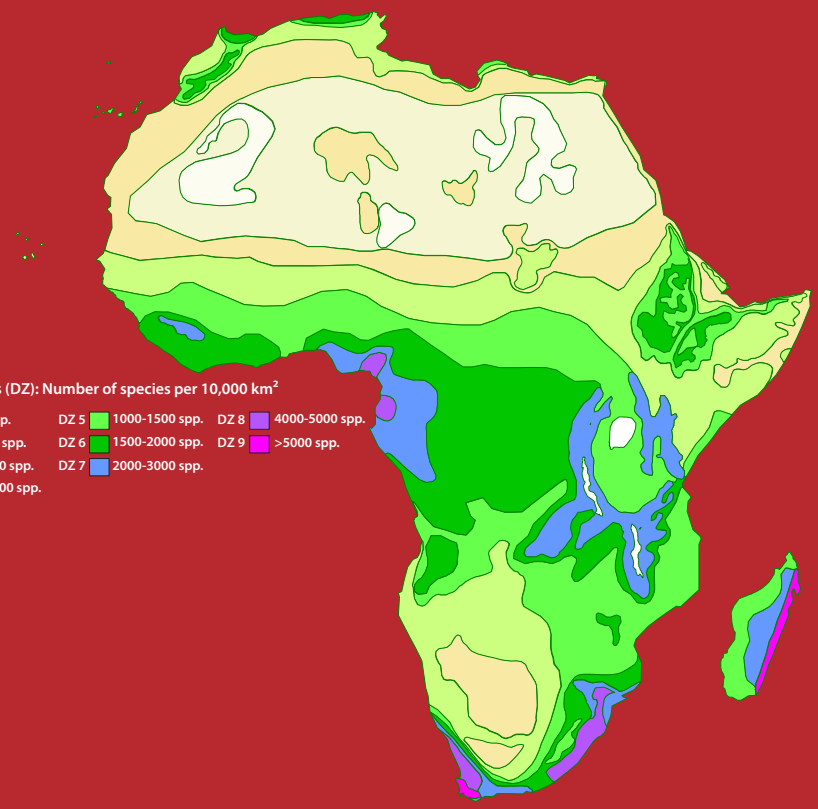
Note: The GEF Benefits Index for Biodiversity is a composite of (i) the total number of known species in each country, (ii) their threat status, and (iii) the diversity of habitat types in each country.
Source: World Bank 2012a.

Box 2: Madagascar: Biodiversity and Protected Areas

Madagascar's biodiversity is a unique, irreplaceable global public good representing 5 percent of the world's biodiversity on just 0.4 percent of the global landmass. Its uniqueness is clear: 99 percent of amphibians, 92 percent of reptiles, 95 percent mammals, 83 percent of plant species, and 93 percent of freshwater fish species are found nowhere else. There are over 1,000 known terrestrial vertebrate species, 6,000 coral reef species, over 12,000 identified terrestrial plant species, and an unknown number of species not yet described. Fifty new species of lemurs have been discovered during the last 20 years, bringing the number of known lemur species to 100. The protection of Madagascar's biodiversity is thus an international responsibility.

Triggered by the 2003 Presidential Declaration, which undertook to triple the surface of Madagascar's protected areas, the expansion of the network has been rapid and substantial. There are currently 144 protected areas covering 12 percent of the nation's territory, an increase in coverage from 2.9 percent in 2003. The protected area network in Madagascar covers approximately 6.9 million hectares and is managed by Madagascar National Parks and by Conservation International, the Wildlife Conservation Society, and WWF on behalf of the Ministry of Environment and Forests.

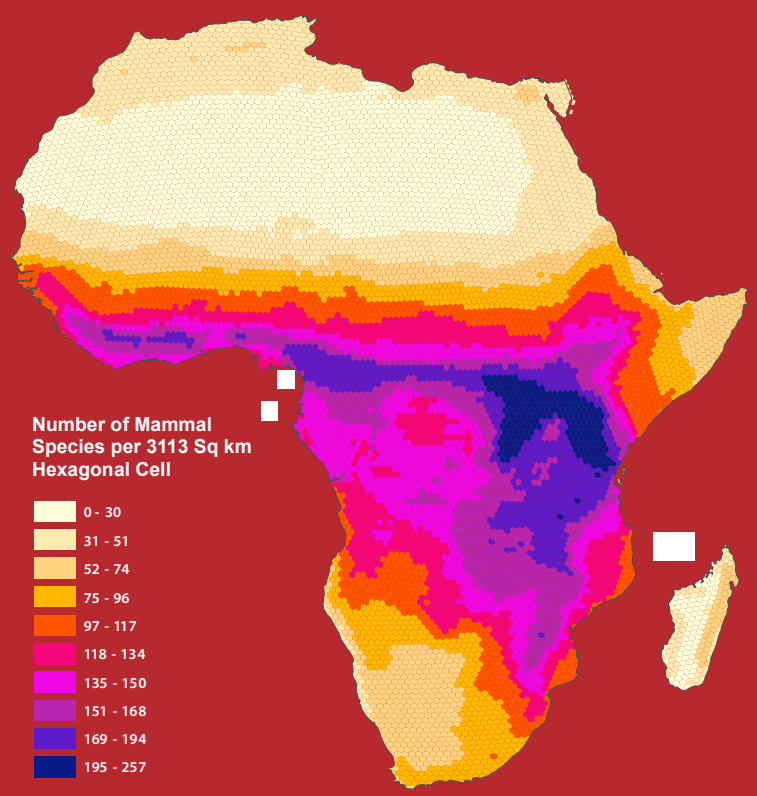
Figure 3. Species Numbers of Vascular Plants



Note: **This map shows plant species diversity per unit area of 10,000 km2. Plant species are particularly numerous in the Cape Floristic Kingdom of southern South Africa but also in the montane rainforests of the Gulf of Guinea (West Africa), Albertine Rift (eastern Central Africa), Eastern Arc Mountains (East Africa), and Madagascar.**

Source: **Barthlott et al. 2005 in UNEP 2006; reproduced with permission from the publisher.**

Figure 4. Mammal Species Diversity



Note: **This map shows the number of wild mammal species per 3,113 km2 unit area. In general, the diversity of mammal species is greatest near the equator, although important concentrations of large mammal species are also found in Southern Africa.**

Source: **UNEP 2006; reproduced with permission from the publisher. Data from IUCN Species Survival Commission; University of Virginia; Center for Applied Biodiversity and Science at Conservation International; Instituto di Ecologia Applicata, Rome; Zoological Society of London; and the African Mammals Databank.**

Many areas in Africa require integrated approaches to ensure that local communities benefit from biodiversity conservation.

Claudia Sobrevila

WHY BIODIVERSITY MATTERS

The sustainable use and conservation of biodiversity is essential for poverty reduction and sustainable development. For example, some 10 million Africans earn their livelihoods in the fisheries sector (World Bank 2009). Tourism—most of which is nature-based in Sub-Saharan Africa—accounts for an estimated 5.8 percent of employment in this region (WTTC 2012). Genetic diversity provides the basis for new breeding programs, improved crops, enhanced agricultural production, and food security. Ecosystems provide a number of environmental services that are vital to human welfare. Many rural communities depend on fish and other wild foods, timber, fuelwood, and medicinal plants from natural ecosystems for their food security and income. Biodiversity conservation is a key component of environmental sustainability, which is both a Millennium Development Goal and a central pillar of World Bank assistance.

The recent report *The Economics of Ecosystems and Biodiversity* (TEEB 2010) evaluated the costs of biodiversity loss and the associated decline in ecosystem services worldwide and compared them with the costs of effective conservation and sustainable use. The results indicated that human well-being is dependent upon ecosystem services provided by nature for free, such as the stability provided to the hydrological and climate systems, nutrient replenishment, water and air purification, pest control, and psychological and spiritual well-being. These services are needed for human well-being. They are predominantly public goods with no markets and no prices, so the current economic incentive system often does not detect their loss, which therefore continues unchecked. In order to better recognize and account for the value of these services, in 2011 the World Bank launched the Global Partnership for Wealth Accounting and the Valuation of Ecosystem Services, or WAVES. This program will help client countries establish a comprehensive wealth accounting system that focuses on the value of natural capital and the integration of "green accounting" in more conventional development planning analysis. Botswana, Madagascar, and Namibia have asked to be in the pilot phase.

IMPORTANT MEGA-TRENDS

Population Growth: Rapid population growth is intensifying human pressures on land and water resources, including biodiversity. Africa has the world's fastest-growing population, increasing at an annual rate of 2.53 percent in 2011, with population growth especially rapid in West and Central Africa. Population growth has important impacts on biodiversity, since in the absence of significant productivity gains, more land needs to be put into agricultural production, while the demand for resources such as timber, fuelwood, bushmeat, fisheries, and freshwater also rises.

Urbanization: Urban areas in Africa are growing rapidly, with mixed implications for biodiversity. On the one hand, urbanization reduces pressures to clear land for subsistence agriculture by providing alternative livelihoods. It also helps accelerate the demographic transition, since desired family sizes tend to be smaller in urban areas. On the other hand, African urbanization typically increases the demand for charcoal as a cooking fuel, which often leads to extensive forest and woodland degradation.

Globalized Demand for Commodities: An estimated 51 million hectares in Africa were the subject of land sales to foreign investors between 2001 and 2011, mostly for the commercial production of food and energy crops (The Economist 2011). Biodiversity can be lost when natural habitats are converted to extensive monocultures of commercial crops. Similarly, the global demand for wood products often leads to forest degradation and deforestation in Africa, particularly in the absence of adequate controls on logging, hunting, and road construction. In response to growing global demand for minerals, many African countries are experiencing a mining boom, often in sites of high biodiversity importance.

THREATS TO AFRICA'S BIODIVERSITY

Biodiversity the world over is in crisis, and Sub-Saharan Africa is no exception. Globally, species are being lost

at a pace as much as 1,000 times greater than in recent geological time (Millennium Ecosystem Assessment 2005). In the 2011 update of the IUCN Red List of Threatened Species, 1,377 fish, 729 mammal, 706 bird, 357 amphibian species, and 1,023 invertebrates are listed as threatened in Sub-Saharan Africa (IUCN 2011).

Habitat Loss and Degradation: Habitat loss and degradation are the most important threats to biodiversity in Africa. They are driven largely by rapidly growing human populations, coupled with inadequately planned and implemented development activities. The continent's deforestation rates have been increasing and are second only to those in Latin America and the Caribbean (UNEP 2012; FAO 2011). Across the continent, they average 0.49 percent per annum, but that average masks much higher rates in West and East Africa (1.12 percent and 1.01 percent, respectively). Not only forests are threatened, however: coastal ecosystems are in peril from development, urbanization, land conversion, and pollution, in particular in West and Southern Africa (Bryant et al. 1995; UNEP 2006). Rivers are undergoing major alterations due to dam construction, water abstraction, and pollution. The expansion of cropping is a significant threat to natural grasslands and shrublands, in particular the montane grasslands of Eastern and Southern Africa (Suttie, Reynolds, and Batello 2005). In addition, many habitats face fragmentation due to settlements, land conversion, or infrastructure developments.

Overexploitation: Overexploitation occurs when the overall rate of removal of a species exceeds its reproduction. Overfishing is a good example. It occurs frequently, but not exclusively, by illegally operating foreign vessels and threatens several fisheries, in particular in West Africa, where the livelihoods of more than 1.5 million local fishers are in peril (Vidal 2012). While much overexploitation is deliberate, it can also be incidental, such as the drowning of albatrosses and other rare seabirds, sea turtles, and marine mammals caught in commercial fishing gear (Oates 2011). In the plant realm, commercial timber logging (much of it illegal) and harvesting of fuelwood for personal use have been the major factors in deforestation in African's forested ecosystems. The overharvesting of medicinal plants in the remnant forests of Burundi is but one of many examples of unsustainable exploitation.

Illegal Wildlife Hunting and Trade: Illegal hunting and poaching—frequently fueled by the international trade in wildlife products—have decimated numerous species. The results can be stark: both the White and Black Rhinoceros populations had been recovering from previous declines, only to be brought back to the brink by a surge in demand from East Asia, where rhino horn trades at prices in the traditional medicine market greater than gold. In South Africa alone, some 400 rhinos were poached in 2011, with international criminal networks engaged in the trade (Gwin 2012). A few game farmers in South Africa advocate making rhino farming legal as a strategy to control the poaching, but this approach is still debated by larger conservation constituencies. Comparable fates have befallen tortoises in Madagascar, several of which are coveted by collectors. The widespread hunting of wild animals for commercial bushmeat markets also represents a significant threat to biodiversity, in particular in West Africa and the Congo Basin. In the latter, an estimated 1 million tons of elephants, great apes and other primates, duikers, crocodiles, and many other species are consumed every year (Bushmeat Crisis Task Force 2009). In West Africa, several monkey species have already become globally extinct or nearly so due to hunting for bushmeat (Oates 2011).

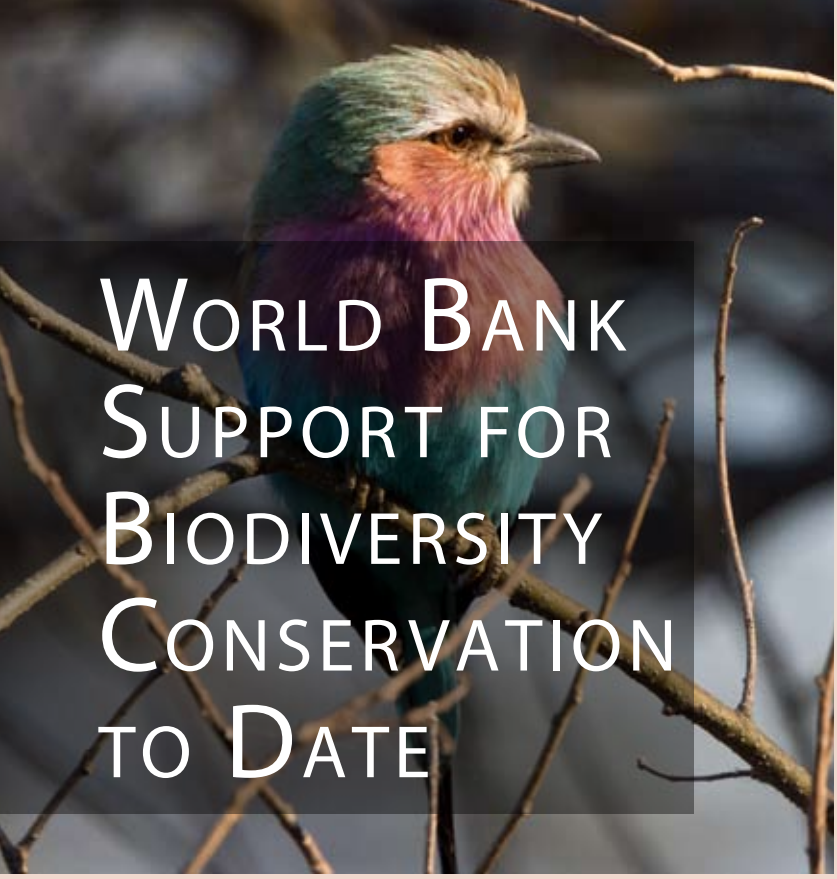
Invasive Alien Species (IAS): IAS are harmful to biodiversity when they outcompete native species and thereby alter the ecosystem. They affect virtually all of Africa's countries and ecosystems. Africa is home to hundreds of plant and animal IAS with varying impacts, many of which are listed among the 100 worst globally. The Water Hyacinth, Nile Perch, and Cane Toad are but three of the best known examples (UNEP 2006). Some invasives have been deliberately introduced—such as pine trees in the forestry sector—while others are the result of unintended introductions. Small islands and freshwater ecosystems are especially vulnerable to IAS,

which represent the primary cause of biodiversity loss in some of the latter (including in Lake Victoria).

Climate Change: Intensifying climate change poses a significant future threat to biodiversity in Africa, since it can drastically affect available habitats, ecosystem functions, and natural resource uses. It may become the most serious global threat to biodiversity and ecosystem integrity later in the twenty-first century, with potentially enormous economic and social consequences. In addition to increasing temperatures and changing rainfall regimes, climate change can boost other environmental stresses such as land degradation, pollution, invasive species, and overexploitation to magnify the impacts on biodiversity and livelihoods. Also related to global carbon emissions, the acidification of ocean waters—as they absorb increased quantities of carbon dioxide—threatens many species of marine life. Although these complex interactions and effects are still poorly understood, the alteration of ecosystems is likely to reduce the services they deliver and to foreclose development options.

Kirk Hamilton

Springbok inhabit the dry inland areas of southern and southwestern Africa.



Kirk Hamilton

World Bank Support for Biodiversity Conservation to Date

The World Bank plays two distinct roles in biodiversity conservation. First, it is among the world's largest sources of financing for biodiversity conservation projects in developing countries, due in no small part to its role as a major implementing agency for the Global Environment Facility. It plays a key role through lending and grant support to developing countries, as well as through a range of partnerships intended to support conservation at the local, national, regional, and global levels.

Second, the Bank is a multilateral development agency that faces the numerous and diverse challenges of addressing biodiversity issues within its broader agenda for international development and poverty reduction. These challenges can involve win-wins but also trade-offs between biodiversity conservation and other development objectives; these trade-offs are subject, however, to certain minimum standards embedded within the Bank's Safeguard Policies. The new *World Bank Group Environment Strategy 2012–2022* (World Bank Group 2012) recognizes the crucial role of biodiversity conservation and traces a path forward (see Box 3).

Box 3: Biodiversity in the World Bank Group's Environment Strategy

The World Bank Group's new Environment Strategy, *Toward a Green, Clean, and Resilient World for All: A World Bank Group Environment Strategy 2012–2022*, explicitly includes biodiversity conservation as a key part of its "green" pillar in the Bank's quest to pursue a "green, clean, and resilient world for all." The strategy considers both how growth can become more sustainable and how investing in the environment can stimulate growth. It commits the World Bank to:

- Establishing the true value of biodiversity through its Wealth Accounting and Valuation of Ecosystem Services partnership
- Expanding its lending program for biodiversity and conservation in the pursuit of improved protected area and landscape management
- Devoting more attention to funding partnerships, learning, improved data, and innovative finance for biodiversity
- Maintaining the conservation and sustainable use of forests, biodiversity, and other natural assets as a priority during development planning
- Providing technical and financial assistance to countries to become "ready for reducing emissions from deforestation and forest degradation (REDD+)"
- Developing the "wildlife premium" (accounting for biodiversity along with carbon storage benefits) as part of its climate finance activities
- Supporting governance and institutional reforms for improved natural resource management and biodiversity protection
- Addressing wildlife crime in collaboration with partners
- Strengthening the planning, monitoring, and evaluation of environmental progress in client countries.

OVERVIEW OF WORLD BANK INVESTMENTS 2003–12

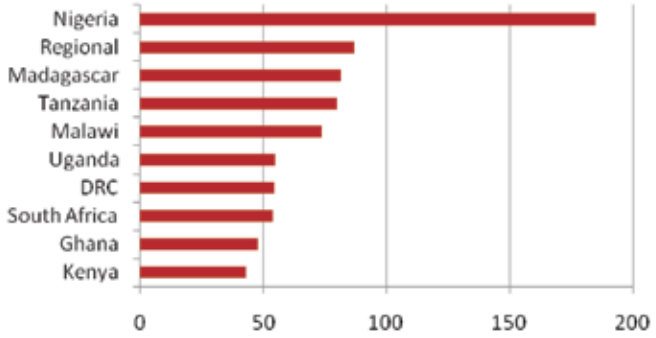
This report includes a review of the 10-year period covered by fiscal year (FY) 2003 through FY 2012 (July 1, 2002, through June 30, 2012). All investment projects that were active during this time and that had a biodiversity component were taken into account. Projects without a significant link to biodiversity, including those primarily geared to sustainable land or natural resource management or climate change were excluded. The Annex lists the World Bank–supported projects that were included.

World Bank financing for biodiversity conservation in Sub-Saharan Africa includes loans, credits, and grants through the International Bank for Reconstruction and Development (IBRD); the International Development Association (IDA), the World Bank's concessional financing facility for low-income countries; and the GEF. Some biodiversity-related funding is also provided through carbon finance mechanisms. The funds that the World Bank disburses frequently leverage co-financing from project partners. These include client governments at local, regional, and national levels; bilateral donors; regional development banks; United Nations organizations; nongovernmental organizations (NGOs); and local communities.

Over the 10 years considered, the World Bank supported 124 projects involving biodiversity conservation in Sub-Saharan Africa. These projects benefited 36 of the region's 48 countries; 15 of the projects were regional in nature. Figure 5 shows the 10 largest recipients of World Bank biodiversity funding in Sub-Saharan Africa.

The World Bank's biodiversity investment portfolio includes local-level activities, such as protecting strategically important natural habitats with communities and indigenous peoples, programs to establish and manage national protected areas and national environmental and protected areas trust funds, and regional and global initiatives to increase awareness and the capacity of stakeholders to join forces in conserving natural resources. Furthermore, the Bank is integrating biodiversity conservation into its investment projects in sectors such as energy and infrastructure.

Figure 5: Top 10 African Countries Receiving World Bank Biodiversity Support 2003-12 (million US$)*



Note: *The large figure for Nigeria stems mainly from the Nigeria Erosion and Watershed Management Project, which alone accounted for $166 million.

The scale of this investment is testimony to the Bank's ongoing commitment to biodiversity conservation in Sub-Saharan Africa: the World Bank had a total active biodiversity portfolio of $1.081 billion during this 10-year period. However, these funds leveraged an additional $806 million, for a Bank-to-co-financing ratio of 1:0.75. In other words, for every dollar the Bank committed to biodiversity, it was able to leverage another 75 cents from other sources. Biodiversity commitments only formed part of total project commitments, as many projects also had other components. The total investment for these projects was $4.53 billion, of which the Bank-funded portion was $2.76 billion, or 61 percent. This implies that the Bank raised more co-financing for the biodiversity portions of these projects than for the projects' overall budgets (see Figure 6).

Figure 6: Total WB and Co-Financing Investments in Biodiversity Funding

While the co-financing ratio fluctuates from year to year, no real upward or downward trend is discernible over the time period under investigation (see Figure 7). Similarly, World Bank funding commitments for biodiversity have shown no statistically significant trend over time.

Among the 124 projects, the majority of project funding (58 percent) went to non-biodiversity activities. However, this picture is somewhat skewed by the inclusion of two project commitments of $1.7 billion with relatively small biodiversity components. Without their inclusion, the biodiversity commitments constitute a majority (55 percent).

The World Bank's funds came from a variety of sources (see Figure 8). In aggregate, the GEF represented the largest source for the 124 projects that are subject to this review, followed by IDA. The IBRD (with market-based World Bank loans) and carbon finance mechanism played comparatively minor roles, with only one project receiving IBRD funding. This suggests that there is room for growth in mainstreaming biodiversity into IBRD-funded infrastructure projects and forest carbon projects.

Figure 7: Trends in Biodiversity Commitments and Co-financing Ratio over the Years

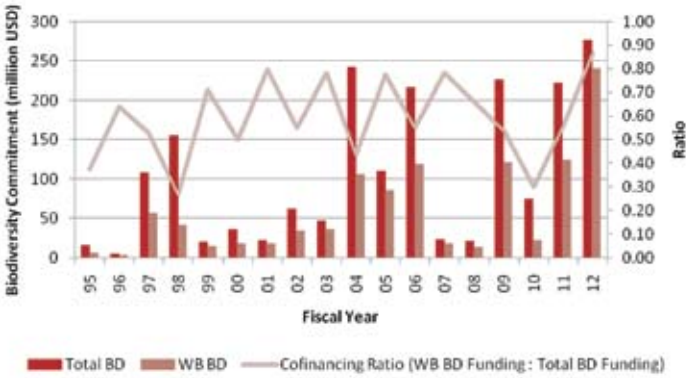
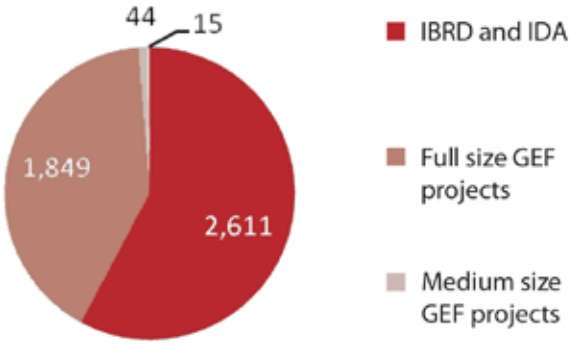


Figure 8: World Bank Africa Region Biodiversity Investments by Funding Source, 2003-12 (US$ million)



The Biodiversity Significance of IDA: With respect to the World Bank's role in financing biodiversity conservation, GEF has appropriately received a large share of the attention. However, it is important not to overlook the role of funding from IDA, which supports projects in most African countries. During 2003–2012, IDA provided $367 million in direct funding for biodiversity-focused projects and leveraged a much larger amount of co-financing. One particularly significant example of IDA funds (along with GEF's) making a real difference on the ground is in Mozambique (see Box 4).

Box 4: Example of IDA, GEF, and Trust Fund Support to Mozambique Transfrontier Conservation and Tourism Project

The Mozambique Transfrontier Conservation Area and Tourism Development project (known as TFCA II) is the second phase of a three-phase program. The project aims to achieve growth in community and private sector–led environmentally and socially sustainable tourism in TFCAs as well as to increase the area, connectivity, and effectiveness of biodiversity conservation in selected areas. The Bank has contributed $20 million from IDA sources, $10 million from GEF, and $3.7 million from trust funds. The project is implemented by the Ministry of Tourism in close coordination with several partners, including the IFC and the Peace Park Foundation.

TFCA II is transforming the policy, legal, and institutional landscape for conservation—testing new planning instruments such as "integrated district development planning" and improving the design, connectivity, and management of five conservation areas (Maputo Special Reserve; Limpopo, Banhine, and Zinave National Parks; and Chimanimani Reserve), as well as piloting a Community Equity Facility (CEF) that aims to stimulate community-private partnerships between tourism investors and communities. The CEF funded a number of private-community joint ventures, two of which are operational: the Dzu Camp in Chimanimani and the Chemucane Camp in Limpopo National Park. Several other camps and lodges are approved, and construction will start soon.

Finally, TFCAII helped several districts develop a Tourism Master Plan. The project has helped to create 1,300 new tourism-related jobs in communities around conservation areas, mobilized $1 million in private sector funds (including IFC) for community-private joint venture, doubled the revenues of the targeted conservation areas, and added 91,800 hectares under conservation area management. The country has adopted a new Conservation Policy and created a new institution, the Agencia Nacional de Areas de Conservacão, that is to manage all conservation areas. A Conservation Bill is ready to be submitted to parliament. All of these positive outcomes flow from a combination of Bank funding and strong supervision on the ground.

More than 80 percent of Africa's rhinos are in South Africa where they are increasingly being poached for their horn.

Non-Lending Services: In addition to the portfolio of projects described above, the World Bank has been able to mobilize trust funds endowed by donor governments and partnerships with countries to support research and other non-lending services for biodiversity conservation in Africa. This has led to a number of pioneering reports on, for example, economic analysis of protected areas in Madagascar, economic and poverty alleviation potential of wildlife and protected areas in Zambia, strategic environmental assessment of the mining sector in West Africa, landscape approaches to conserving biodiversity and promoting ecosystem resilience in South Africa, lessons learned from projects that combine biodiversity and ecosystem conservation, socioeconomic benefits and climate change adaptation outcomes in African countries, and, more recently, the status and conservation opportunities for great apes in Africa.

ACHIEVEMENTS AND LESSONS LEARNED

The World Bank's support for biodiversity in Africa has taken many forms but has focused particularly on strengthening national environmental policies, establishing and strengthening protected areas, promoting biodiversity-friendly production systems, and improving the use of conservation trust funds (CTFs). Efforts to achieve conservation success through participatory processes that reflect the needs and aspirations of local communities are a typical feature of Bank-supported projects.

Strengthening National Environmental Policies: During this last decade African countries have become aware that natural resources and the environment are the basis for sustained green growth and that they need

Box 5: The Namibian Coast Conservation and Management Project (NACOMA)

Namibia's coastline extends some 1,570 km. The ocean has one of the highest primary production rates in the world. Endemic dolphins, breeding Southern Right Whales, foraging sea turtles, and many globally threatened seabird species are common. Diverse, uniquely adapted plants and animals inhabit three globally significant terrestrial hyper-arid biomes along the coast. Rich estuarine fauna and a high diversity of migratory waterfowl and shorebirds use several internationally important coastal wetlands.

Increasing economic development and human activities along the coast and in the marine environment could lead to unprecedented mining extraction and in-migration, bringing an increase in industrial coastal and marine pollution, unsustainable agricultural practices, a worsening of water regimes for coastal wetlands, and other land and water degradation. The lack of an adequate and functioning National Coastal Policy could lead to a development approach that threatens ecosystem integrity, biodiversity conservation, and functioning in the coastal ecosystems.

Aware of the value of coastal natural resources for economic development, in 2005 the government of Namibia requested a $4.9 million grant from the GEF and the Bank to support NACOMA. The project has established a strong platform for governance of the broader coastal land- and seascape and for development of a National Policy on Coastal Management. The National Policy was approved by the Cabinet on September 13, 2012.

Claudia Sobrevila

The recently approved Namibia National Policy for Coastal Management will ensure that biodiversity and ecosystem values are mainstreamed within development planning.

to be protected. In many countries, the Bank's support has included establishing stronger environmental institutions, drafting and passing new environmental legislation, and increasing government capacity to enforce environmental laws and regulations. Namibia presents an excellent example of building the policy and institutional framework to manage rich coastal resources (see Box 5).

Establishing and Strengthening Protected Areas: Although they vary widely in terms of management and allowable human uses, protected areas are intended primarily to conserve key natural and cultural resources for the long term. As such, protected areas—including national parks, forest reserves, wildlife refuges, and protected landscapes—represent a major pillar of biodiversity conservation. In line with national priorities, many World Bank–funded projects support the establishment and improved management of protected areas. More than half of the World Bank's GEF investments have gone toward protected area projects, including support for activities in park buffer zones. Many of those parks protect important watersheds or provide other critical ecosystem services, such as coastal protection for flood control. To help ensure more sustainable funding, the Bank has supported the establishment of conservation trust funds to underpin park operations and provide livelihood opportunities for the communities that live in and around those conservation areas. This investment has made a substantial contribution toward one of the Convention on Biological Diversity's targets: the worldwide increase of terrestrial protected areas to 17 percent of Earth's land surface.

Within Sub-Saharan Africa, the coverage of protected areas does not yet encompass the estimated one-third

of the continent's total area that would be needed in order to protect the habitats of all the region's vertebrate and plant species (UNEP 2006). While several countries have placed significant portions of their land area under legal protection (see Table 2), this is not uniformly the case: 20 countries have less than 10 percent of their land within any type of protected area (World Bank 2012a).

The World Bank has supported efforts by African government to establish new protected areas throughout Sub-Saharan Africa, as well as to strengthen and expand existing ones in countries such as Benin, Democratic Republic of Congo, Gabon, Guinea-Bissau, Kenya, Liberia, Madagascar, Namibia, Seychelles, South Africa, and Uganda. One good example is from Namibia. In 2009 the government there established the Namibian Islands Protected Area and in 2010, the Dorob National Park. With these two areas, the government has been able to set aside in protected areas a "mega park," the Namib Skeleton Coast National Park covering 10,754 million hectares—the sixth largest terrestrial park in the world and the largest in Africa.

In Guinea-Bissau, the Coastal & Biodiversity Management Project helped strengthen the institutional framework and management capacity for biodiversity and protected areas (see Box 6).

Table 2: Percentage of Land Area Protected in African Countries

Land Area Protected > 20%		Land Area Protected 10–20%		Land Area Protected < 10%	
Seychelles	42.0	Equatorial Guinea	19.2	Rep. Congo	9.4
Zambia	36.0	Ethiopia	18.4	Chad	9.4
Botswana	30.9	CAR	17.7	Cameroon	9.2
Zimbabwe	28.0	Guinea-Bissau	16.1	Niger	7.1
Tanzania	27.5	Mozambique	15.8	South Africa	6.9
Senegal	24.0	Gabon	15.1	Guinea	6.8
Côte d'Ivoire	22.6	Namibia	14.9	Eritrea	5.0
		Ghana	14.7	Sierra Leone	4.9
		Burkina Faso	14.2	Burundi	4.8
		Nigeria	12.8	Sudan	4.2
		Angola	12.4	Madagascar	3.1
		Kenya	11.8	Swaziland	3.0
		Togo	11.3	Cape Verde	2.5
		Uganda	10.3	Mali	2.4
		DR Congo	10.0	Liberia	1.8
		Rwanda	10.0	Gambia	1.5
				Benin	1.4
				Somalia	0.6
				Lesotho	0.5
				São Tomé and Príncipe	0

Source: World Bank 2012a.

Box 6: Strengthening the Institutional Framework for Protected Areas in Guinea-Bissau

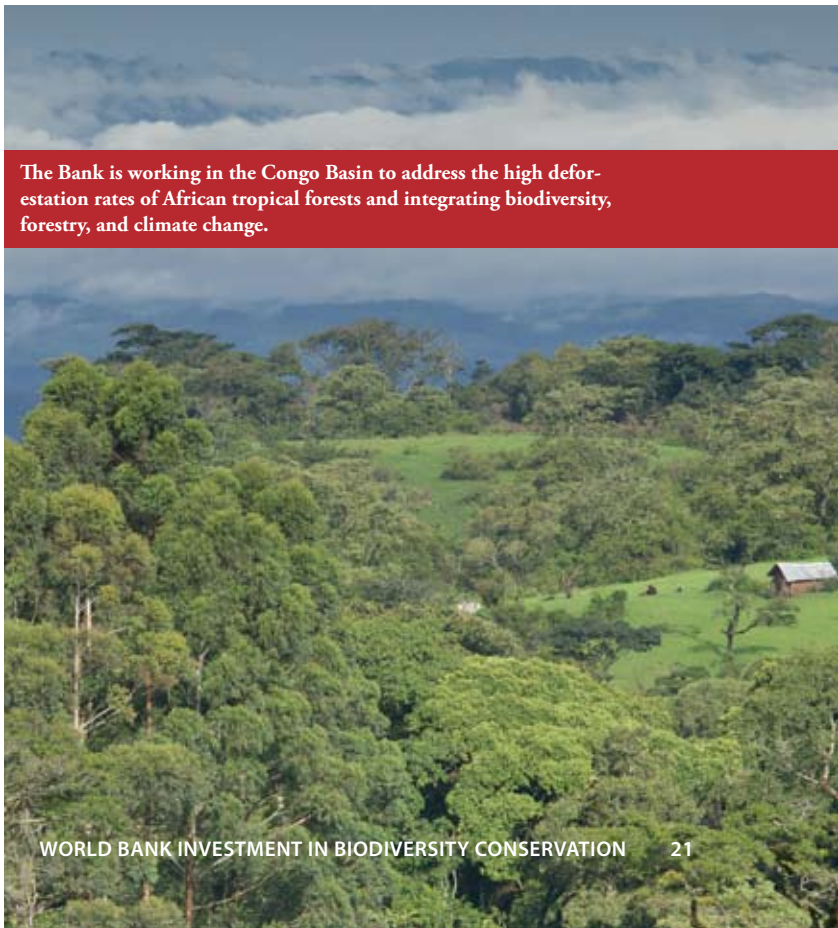
The Coastal & Biodiversity Management Project, which closed in March 2011, financed the strengthening of the institutional framework and management capacity for biodiversity and protected areas by establishing a financially and administratively semi-autonomous entity, the Institute for Biodiversity and Protected Areas (IBAP), to manage the country's network of protected areas and endangered species. The project helped conserve 480,000 hectares of its coastal zone (13 percent of the territory), together with local communities. These protected areas are considered national assets and are intended to form the backbone of a future tourism industry. In four of the five protected areas established, the effectiveness of park management increased by at least 15 percent from 2005 to 2010, based on the GEF Protected Areas Management Effectiveness Tracking Tool.

The project also financed the establishment and implementation of an environmental safeguards framework supporting policies, procedures, and capacity building to ensure the incorporation of environmental and social concerns into development decision making. A new Unit for Environmental and Social Safeguards was created to build national capacity to evaluate and monitor the environmental and social implications of development proposals.

To ensure that these protected areas are sustainably financed, partners and stakeholders are now supporting the creation of the private Bio-Guinea Foundation (FBG), a financing mechanism aiming to support the operational costs of IBAP managing the protected areas system. Through a second Bank-supported project (that became effective on 21 June 2011), the FBG was legally established, registered in the United Kingdom, and granted charity status in March 2012. A comprehensive capitalization strategy is being developed, but due to the attempted coup d'état in April 2012 it was not possible to move forward with the initial capitalization of the FBG.

In addition to the creation of new protected areas, the World Bank is also focusing on the need to strengthen the management of existing protected areas, including so-called paper parks that have been legally established but still lack on-the-ground protection and management. A case in point is Gabon's protected areas system (see Box 7).

Landscape-level Planning and Management: Effective ecosystem management considers the whole ecosystem, including its inhabitants. An "ecological corridor" is defined as a space where various categories of protected areas and their complementary landscapes (private or community-based) are managed through strategic alliances to enhance ecological connectivity, reduce threats more effectively, and contribute to climate change mitigation and adaptation. Ecological corridors build upon existing social and institutional



The Bank is working in the Congo Basin to address the high deforestation rates of African tropical forests and integrating biodiversity, forestry, and climate change.

Box 7: Consolidating the Protected Areas System of Gabon

With forest covering 85 percent of its territory, Gabon accounts for approximately 15 percent of the Congo Basin rainforest. Gabon contains a unique combination of exceptionally abundant and diverse natural resources with a low population density—the perfect ingredients for reconciling economic development and environmental preservation in ways that will benefit local populations as well as the global community. Yale University's 2012 Environmental Performance Index named Gabon the most environmentally sustainable nation in Africa, based on the relatively intact status of the country's biodiversity, the proportion of its territory under environmental protection, and the resulting low risk of experiencing major environmental deterioration in the short and medium term.

In 2002 the government created a network of 13 national parks covering 2.8 million hectares, some 10.6 percent of the country's territory. An interministerial government committee was established to ensure effective management of the network, and the National Park Agency (ANPN) was created. The World Bank, through GEF financing, strengthened ANPN through the $10 million Strengthening Capacity for Managing National Parks and Biodiversity Project. After five years, ANPN had put in place a strong team and robust management systems. The PARCS Project also stimulated new forms of partnerships with NGOs, with a clearer distribution of roles and responsibilities.

arrangements in order to ensure the fulfillment of conservation and local benefit objectives. Work within ecological corridors emphasizes the need to complement national parks with other management and conservation strategies (regional and municipal protected areas) while promoting the sustainable use of biodiversity and local development through benefit sharing and use agreements with local communities and private owners. Examples of this approach include the Ghana Northern Savanna Biodiversity and the Burkina Faso Partnership for Ecosystem Management projects, which have created biological corridors to enable the free movement of wildlife between the two countries. Within these corridors, the projects have expanded the use of biodiversity-friendly production systems, including agroforestry, beekeeping, shea butter production, medicinal plant cultivation, and ecotourism.

A major challenge for integrating biodiversity conservation within economic development at a landscape level or within a corridor is to provide key biodiversity information for planning and decision making. This includes the site selection and design of proposed new infrastructure, as well as allocating land areas and freshwater resources to particular uses. These types of development decisions are still frequently made without sufficient reference to biodiversity or sustainable natural resources management. Very often, this happens because development planners lack convenient access to relevant and usable information on threatened species, critical natural habitats, the value of ecosystem services, or alternative development options. To help overcome this constraint within South Africa's biologically unique Cape Floristic Region, a project helped ensure that biodiversity information was put to good use in development planning and policy formulation (see Box 8).

Transboundary Conservation Areas: Transboundary natural resource policies strengthen integrated management of shared land and marine ecosystems, minimize biodiversity loss, and improve climate change mitigation and adaptation (UNEP 2012). Such policies generally produce positive externalities for neighboring countries. As an example, the Liberia Protected Areas Project is strengthening the management of two existing protected areas (Sapo National Park and Nimba Forest Reserve) and establishing three new ones, including a cross-border Peace Park with Sierra Leone. The project helps ensure that biodiversity considerations are not overlooked as the country emerges from its protracted

Box 8: The CAPE Biodiversity Conservation and Sustainable Development Project

The Cape Floristic Region is a global biodiversity hotspot because of its exceptional flora and fauna (including more than 9,500 native plant species, many endemic) and the high degree of threat, especially to lowland ecosystems that are under pressure for conversion to agriculture and urban development. Using GEF resources, the project successfully promoted innovative approaches for conserving biodiversity both within protected areas and in broader production landscapes. The project also helped to incorporate biodiversity more fully within the government's economic planning and poverty reduction programs.

The project's achievements included expanding the public and private land area under long-term conservation to more than 900,000 hectares; increasing by 282 percent the area of the most highly threatened lowland ecosystems under conservation; enabling the signature of 58 new conservation stewardship contracts with large private landowners; incorporating fine-scale biodiversity planning into municipal land use planning processes; integrating biodiversity-friendly practices (natural habitat corridors, sustainable harvesting, and non-persecution of wild predators) into the production of wine, potatoes, rooibos tea, native cut flowers, seafood, lamb, and honey; spurring job creation through the use of labor-intensive public works programs to remove invasive plant species and for fire management; and establishing a municipal fee rebate and a national tax deduction for qualifying landowners who practice biodiversity stewardship.

A key lesson of this project is that improving a country's economy and infrastructure and conserving its environmental assets do not have to be in conflict.

The Cape Floristic Region in South Africa is renowned for its exceptional concentration of unique plant species.

period of conflict. The World Bank has also applied transboundary approaches in the Maloti-Drakensberg ecosystem of Lesotho and South Africa as well as in the five countries that are the watershed for Lake Victoria and elsewhere. A good example of transboundary conservation areas is the Ghana project (see Box 9).

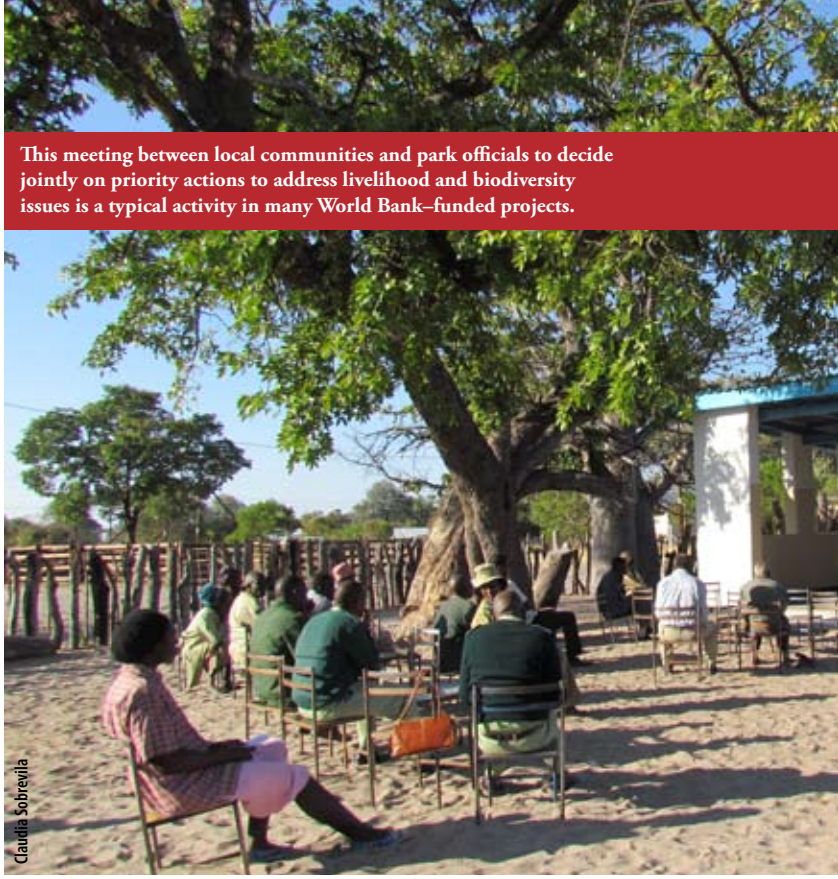
Box 9: Ghana: Northern Savanna Biodiversity Conservation Project

The savannah woodlands in Ghana provide valuable environmental services, including a critical refuge for native biodiversity, protection of soil and water resources, and a natural barrier to the desiccating Saharan winds, thus helping to maintain a favorable micro-climate for agricultural production. With GEF resources, the World Bank implemented the Northern Savanna Biodiversity Conservation Project, which designed components addressing the issues of biodiversity conservation in protected areas, forest reserves, and biological corridors; sustainable agriculture activities in degraded land; and medicinal plant plots—making this a truly multidisciplinary project.

This project led to the establishment of two biological corridors in Northern Ghana: a Western Corridor extending from the Nazinga Game Ranch and community-owned wildlife areas in Burkina Faso (totaling about 1,850 sq km) to the Mole National Park in Ghana (of about 4,800 sq km) and an Eastern Corridor running from the Kaboré Tambi National Park (1,550 sq km) in Burkina Faso extending down along the Red Volta River to the Gambaga escarpment situated about 58 km south into Ghana. Wildlife and water management are tightly linked in African savannahs due both to wildlife need for water and to historical development patterns that avoided riverine environments previously infested with onchocerciasis. Activities are now focusing on integrating community protection of riparian wildlife corridors with sustainable land management in the surrounding watersheds. Protection of natural riparian habitats will contribute greatly to watershed function, while investments in biodiversity corridors will be buffered by more sustainable management of surrounding lands.

The Grey Crowned Crane lives in dry savannahs and open wetlands; it faces threats to its habitats due to drainage, overgrazing, and pesticide pollution.

Community-based Natural Resources Management: Many countries in Africa work effectively in community-based environmental and biodiversity management. Projects in Ghana, Burkina Faso, Namibia, Botswana, and South Africa, to name a few, have developed activities within biodiversity projects that help poor rural communities generate revenues from activities such as payments for removing invasive alien species that decrease water availability in water-stressed areas, support for livelihood activities such as craft and honeybee production, and the sustainable utilization of wildlife. The Namibia Integrated Community-Based Ecosystem Management project (ICEMA) and the Burkina Faso Sahel Integrated Lowland Ecosystem Management project (SILEM) are good examples of projects that supported biodiversity objectives and improved local community livelihoods (see Boxes 10 and 11).


Claudia Sobrevila

This meeting between local communities and park officials to decide jointly on priority actions to address livelihood and biodiversity issues is a typical activity in many World Bank–funded projects.

Box 10: Community-Based Ecosystem Management in Namibia

Most of the rural population in Namibia lives on communal land formally owned by the government. Conservancies are established under the Nature Conservation Amendment Act and constitute a structure through which rural communities can maintain users' rights for the ownership and use of game. At present, there are more than 50 registered conservancies in Namibia. Their formation has become a social development movement, as well as an accepted and holistic approach to conservation. Together with the U.S. Agency for International Development's LIFE program, the Bank and GEF have provided support to conservancies for participatory land use planning, development, and extension of community wildlife management and monitoring. This support has facilitated the strategic introduction of wildlife in conservancies with low game densities and diversified income generation opportunities to increase nonfinancial benefits and new income to households.

Between 2005 and 2009, the total revenues for all the conservancies —including cash (salaries, jobs from the tourism sector, and various payments) and proceeds from other sources (such as meat sold and consumed, plants utilized and sold)—increased substantially from $1.4 million to $3.5 million (NACSO 2010). Also, the increase in the number of registered conservancies established since the start of ICEMA (from a baseline of 42 in 2005 to 59 in 2010) indicates that the community-based natural resource management (CBNRM) initiative has gained growing popularity over the years at both national and international levels.

The CBNRM program in Namibia has already demonstrated the effectiveness of devolving management authority over wildlife to landholders as a conservation mechanism; the model could be replicated in neighboring countries such as Botswana. Local and regional forums to improve community coordination and management of conflicts between people and wildlife will further enhance conservation efforts.

Box 11: Burkina Faso: Sahel Integrated Lowland Ecosystem Management Project

Located in the heart of West Africa, Burkina Faso is endowed with natural habitats such as gallery forest, sacred forests, nature reserves, and wetlands. Particularly notable sites include the Pics de Sindou, the Karfiguela Waterfall, the Sacred Dafra Pond, and the Tengréla Lake. In addition, the Hippopotamus Pond and the Oursi Pond have been established as Ramsar sites. Some of Burkina Faso's threatened species include panthers, elephants, crocodiles, and pythons.

The Sahel Integrated Lowland Ecosystem Management project (SILEM) focused on lowland areas in selected sub-watersheds in Burkina Faso to demonstrate how communities can improve productive capacity of rural resources through sustainable conservation of biological and agricultural diversity, as well as the rehabilitation of soil and water resources in target watersheds. SILEM allowed the introduction of a landscape dimension and the concept of Integrated Ecosystem Management in Burkina Faso. The project pioneered the concept of biodiversity in production landscape and has helped communities establish important livelihood assets that also generated environmental benefits, notably including 7,500 hectares of native forest designated for conservation.

Incentives for Resource Users: Natural resource users are most likely to conserve the ecosystems they rely upon when they have specific incentives to do so. Payments for environmental services (PES) are one type of incentive scheme; they provide recurrent payments to qualifying landholders who maintain specified areas of natural vegetation or follow other approved environmentally friendly practices. PES can be an effective biodiversity conservation tool, particularly when the specific conservation objectives can be fully met while still maintaining farmers or other PES recipients on the landscape, when the payments (in conjunction with the landholders' other revenue streams) are sufficient to cover the opportunity costs of not developing the resources more intensively, and when adequate funding can be secured to cover the recurrent costs of payments.

Market-based incentives can also conserve biodiversity. Examples include the certification and niche marketing of biodiversity-friendly products, such as shade-grown coffee, sustainably harvested seafood, and meat from game ranching. Government policies—including tax breaks, technical assistance, and other incentives—can also promote biodiversity-friendly land management practices by individual as well as community landholders (see Box 12).

Box 12: Conservation Incentives Maintain Wildlife Populations around Nairobi National Park

The Kenya Wildlife Conservation Leasing Demonstration Project has been successful in helping to ensure the long-term ecological viability of Nairobi National Park by allowing wildlife to use areas adjacent to the park. A total of 388 households with some 22,000 hectares of land have signed up to the project. These families receive rent for not fencing off their land and allowing wildlife to roam it. Families use some 80 percent of the rental income for school fees, with the balance invested in human health and livestock production. The government is negotiating with the local Maasai community to permanently designate for cattle and wildlife a 1,200-hectare parcel of land adjacent to the park. Wildlife numbers have increased significantly over the project's four-year lifespan. The project demonstrates the value of economic incentives as a tool to promote biodiversity conservation, particularly in production landscapes.

Sustainable Funding Mechanisms: The World Bank has been instrumental in the growth of CTFs in Africa. It helped establish one of the first ones in 1995, Uganda's Bwindi-Mgahinga Conservation Trust, and another three in the mid-2000s in Madagascar, Malawi, and Tanzania. It has also introduced trust funds to support long-term conservation offset management under three large energy projects: the Chad-Cameroon Oil Pipeline and the Bumbuna (Sierra Leone) and Lom Pangar (Cameroon) hydropower projects. More recently, the Bank has been helping to address the legal challenges to establishing CTFs in francophone countries. Grants to establish CTFs in the form of United Kingdom–registered charities are currently under preparation in the Democratic Republic of Congo and Guinea-Bissau; the Bank has also supported dialogues on CTFs in Burkina Faso and Côte d'Ivoire. Overall, the Bank has directly contributed $34 million to CTF endowments, leveraging over $30 million in co-financing. The GEF has been the largest single donor to African CTFs; most of its funding for this purpose has flowed through the World Bank.

CTFs have provided more sustainable financial support for conservation than routine lending operations, and the earliest World Bank–supported CTFs in Africa are all still functioning. GEF country allocations typically limit initial CTF contributions from projects to a few million dollars—too little to provide sufficient economy of scale for efficient trust fund management. Hence, CTFs have usually been established with an explicit objective of raising additional funds. Achievements in this regard have been substantial, but they are also dependent on the vagaries of donor preferences and the level of fundraising effort. Where CTFs are used to manage offsets, special care is needed to ensure that the conservation authority actually receives the promised income streams derived from the operating revenues from pipeline, hydroelectric, or other energy or infrastructure projects.

Among the key conditions for the success of CTFs are adequate capitalization to provide sufficient annual revenues for long-term operation; good governance of the fund administration, including transparent management and secure safekeeping of the capital; and low-cost fund management, so that sufficient resources are available for implementation.

Conservation Partnerships: In 2000, the World Bank facilitated the creation of the Critical Ecosystems Partnership Fund (CEPF), a funding partnership between the Bank, Conservation International, GEF, the French development agency, the John D. and Catherine T. MacArthur Foundation, and the government of Japan. Since then the CEPF has provided nearly $221 million in grant funding and technical assistance to conservation efforts in biodiversity hotspots.[2] The fund's grants are awarded to civil society groups and have enabled a range of important activities. Grants are awarded only after stakeholders and specialists have written and discussed an ecosystem profile. These profiles frequently serve as strategy documents for wider conservation efforts. In Sub-Saharan Africa, they have been prepared for the eight biodiversity hotspots.

Biodiversity and Nature-based Tourism: Africa's tourism potential will continue to grow through attracting new markets and developing new products. Safari tourism, nature tourism, and cultural tourism are all booming and are generating employment and significant revenues. The Bank has many successful stories engaging with the tourism sector in Uganda, South Africa, Mozambique, Zambia, Namibia, and Botswana. (Boxes 13, 14, and 15 provide examples.) In most of these

Forest-dwelling people in Africa are some of the poorest and more marginalized people who require particular attention and support.

Kyle O'Donoghue

2. CEPF grants have not been included in this portfolio analysis.

Box 13: The Greater Addo Elephant National Park Project

The Greater Addo Elephant National Park Project proved that conservation can be an engine of local economic growth. The $5.5 million project supported the expansion, improved management, and ecological rehabilitation of the Addo Elephant National Park (AENP) and leveraged $14.5 million in private sector investment. The AENP is one of the most ecologically diverse conservation areas in Southern Africa, with five different terrestrial biomes as well as rich marine ecosystems. The project expanded the Greater AENP from about 140,000 hectares to over 170,115 hectares on land, along with a new Marine Protected Area of 7,414 hectares. Through a locally run composting business, it has removed non-native vegetation from 75,000 hectares, enabling native species to return and improving local water availability. The AENP's most threatened large mammal species, the Black Rhinoceros, increased in number from 41 in 2004 to 67 in 2010. Last, improvements in park infrastructure and associated private ecotourism facilities resulted in substantially increased tourist numbers (from 94,700 per year to 135,100) and employment (from 1,228 to 1,842 jobs).

projects, evidence shows that by improving protected areas management, economic benefits can result from nature-based tourism activities that take place in the better-managed parks.

Mainstreaming Biodiversity within Sustainable Economic Development: In addition to supporting dedicated biodiversity conservation projects, the World Bank is incorporating biodiversity conservation within its broader development agenda. This includes mainstreaming biodiversity considerations within climate change mitigation and adaptation, development policy


Kirk Hamilton

The highest elephant losses in a decade occurred in 2011 with 10,000 animals poached and their ivory smuggled out of Africa.

advice, and development projects in productive sectors, such as agriculture, forestry, fisheries, energy development, transport infrastructure, and extractive industries. Box 16 provides one example of integrating biodiversity with fisheries management and Box 17, an example of integrating biodiversity with forest management.

With climate change already well underway, and further change unavoidable, adaptation is gaining significantly more focus in Africa. The Bank is engaged in many activities to mitigate carbon emissions through deforestation (REDD), promote energy efficiency, pilot renewable energy resources, and adapt to climate change. Thus far, only a few operations have harnessed the synergies between climate change and biodiversity since REDD+ became a major component of international climate change negotiations in 2009. A project in Madagascar is a good example of how climate change funding to reduce deforestation has also supported biodiversity conservation (see Box 18).

Box 14: Transforming a Biodiversity Asset into a Tourism Asset: Zambia's Kafue National Park

Zambia's Kafue National Park (KNP) is one of the largest national parks in the world; it encompasses some 2.3 million hectares, with another 4.2 million hectares in surrounding Game Management Areas (GMAs). Its proximity to Victoria Falls allows it to tap into a strong tourism market. By the late 1990s, however, wildlife had severely declined and infrastructure had deteriorated. Zambian Wildlife Authority (ZAWA) staff were insufficiently trained and had poor working conditions and inadequate transportation and equipment.

Aware of the relationship between nature-based tourism and development, Zambia's government requested assistance from the Bank, the GEF, and Norway to reverse biodiversity erosion in KNP and its surrounding areas and help diversify Zambia's sources of growth. Between 2004 and 2011, the Support for Economic Expansion and Diversification project increased or stabilized the number of large mammals. Staff are now properly housed, most of the park is accessible year-round, and most of it is regularly patrolled. Investors responded to improved park management by increasing accommodations by a factor of 3.5 and increasing visits from 4,600 in 2004 to 7,300 in 2010. Park revenues rose tenfold during this period, and safari hunting proceeds in adjacent GMAs, which are split 50:50 with surrounding communities, increased from $756,000 to $1.3 million. Overall, ZAWA retained $1.5 million in revenues from the greater KNP in 2011.

The project highlighted the importance of helping the commercial success of existing safari operators as drivers of tourism growth and financial sustainability. It also underscored the importance of attracting new investors by addressing the investment climate, the attractiveness of the park, market research, marketing, and contract management. Nevertheless, challenges remain: the park is still far from financially self-sustaining, park management can still be improved, and the threats of poaching and encroachment by surrounding populations persist.

Existing protected areas frequently need support to reach their full economic potential.

Effective enforcement has led to the resurgence of Mountain Gorilla populations in Uganda, Rwanda, and the Democratic Republic of Congo.

Box 15: Protecting the Mountain Gorilla

Since the mid-1990s, wildlife conservation projects in the mountainous regions of Uganda have played a pivotal role in protecting the Mountain (Eastern) Gorilla and its habitat, creating thousands of new conservation and tourism jobs. Prior to that time, poaching was rampant and institutional capacity was weak. Beginning in 1995 with the Bwindi Impenetrable National Park and Mgahinga National Park Conservation project, and continuing in 1999 with the $35-million Protected Areas Management and Sustainable Use (PAMSU) Project, the Bank and GEF provided the financial foundation for a long-term program of sustainable biodiversity conservation.

The Bwindi Trust is now considered a model of innovative conservation finance and management; its original endowment of $4 million has generated income that assisted communities with alternative livelihoods and has underwritten core operating expenses of the gorilla protected areas. Thanks in large part to the Bwindi and PAMSU projects, poaching has been all but eliminated in Bwindi. Gorilla populations, tourist visits, and revenues have all climbed steadily. Across Uganda, the 1,300-member staff of the Uganda Wildlife Authority (UWA) is well trained and equipped for the first time in living memory. PAMSU has delineated park boundaries in all 23 of Uganda's protected areas. It has also provided critical infrastructure such as roads and staff housing to the priority areas. PAMSU has been instrumental in helping communities form co-management partnerships with UWA that promote conservation and provide alternative livelihoods and social services such as education and health clinics.

The PAMSU project left a legacy of successful partnerships among World Bank, GEF, and Ugandan stakeholders. A new project in the Democratic Republic of Congo (DRC) has just begun to support management in the neighboring Mikeno sector of the Virunga National Park, an important habitat for Mountain Gorillas. Since some of the gorilla groups cross back and forth from DRC to Uganda and Rwanda, protecting this charismatic species in each of the three countries has positive externalities for the other countries, driving economic growth in otherwise remote areas.

Box 16: Integrating Biodiversity Management with Fisheries Management in Tanzania's Coastal Waters

Since environmental challenges are frequently intrinsically interconnected, there often is an opportunity to address several with a single initiative. The Marine and Coastal Environment Project in Tanzania is an effort toward synergy and interdependence between two thematic areas: biodiversity and fisheries management. The biodiversity element of this project aims to develop an ecologically representative and institutionally and financially sustainable network of marine protected areas. The fisheries element aims to build the government's capacity to monitor and manage transboundary fish stocks with the aim of reversing the unsustainable depletion patterns of commercial fisheries. With GEF financing, the World Bank is contributing investment, policy assistance, and partnership building. This project's cross-sectoral, multi-dimensional approach is an effective response to the breadth of problems that Tanzania's coastal ecosystem faces. Marine protected areas serve as a nursery for fish stocks that are essential to the fishing industry.

Box 17: Liberia — Consolidation of Protected Area Network Projects

Liberia is endowed with the major share (43 percent) of the remaining Upper Guinean Tropical Rainforest, a recognized hotspot for biodiversity that is considered a global priority for conservation. Liberia's forests house a range of important biodiversity, including some 240 tree species, 2,000 flowering plants, 125 mammal and 590 bird species, 74 reptiles and amphibians, and over 1,000 insect species. In May 2003, sanctions imposed on Liberia by the UN Security Council in 2001 were extended to include a ban on timber production and export based on evidence that suggested that the country's forestry stocks were being vastly overexploited and used primarily to finance the civil conflict. To spur the lifting of the sanctions, an ambitious forests sector reform process was launched in 2004, led by the establishment of the Liberia Forests Initiative (LFI).

The process of defining the LFI resulted in a more balanced and integrated development of Liberia's forests for commercial, community, and conservation uses—the 3 Cs approach. These 3Cs became the key driving principles for the new forest policy. The World Bank, through a GEF grant, has recently financed the establishment of an effective park management process in the Sapo National Park, recognized as the most pristine tract of forest in West Africa and home to the endangered Pygmy Hippopotamus. It also financed the expansion of a protected areas network that will encompass five protected areas in the country's western region, including a transfrontier Peace Park with Sierra Leone, and sustainable community livelihoods activities around Liberia's protected areas.

Environmental Performance Standards: The World Bank's Environmental and Social Safeguard Policies often provide a useful entry point for addressing biodiversity considerations while planning infrastructure and other development projects. In particular, the Bank's Operational Policy (OP) 4.04 on Natural Habitats and the closely related OP 4.36 on Forests preclude World Bank support for projects that would lead to the significant loss or degradation of any critical natural habitats, which are defined to include legally protected areas, those officially proposed for protection, or areas that are unprotected but of known high conservation value.

Box 18: REDD+ Payments to Conserve Biodiversity: A Biodiversity Corridor in Madagascar

The Ankeniheny-Zahamena Biodiversity Corridor (CAZ) Conservation Project aims to reduce deforestation and forest degradation of primary Malagasy forests through the creation of a 386,000-hectare protected area in the eastern humid rainforest of the country. This area, the core of the remaining fragments of the Malagasy rainforest, has long been regarded as one of Madagascar's top conservation priorities due to its extreme biodiversity wealth: it includes over 2,000 plant species (85 percent of which are endemic), 15 species of lemurs, and 30 other mammal species, as well as 129 species of amphibians and 89 bird species. However, much of the area is already severely deforested.

CAZ is being managed by the government of Madagascar in partnership with Conservation International. The project is innovative in demonstrating how carbon finance can be used as a source of funding to support long-term protected area management and provide direct incentives and alternative livelihood opportunities for communities living around the forest corridor.

The protected area has been developed based on an entirely new model for Madagascar, with strong co-management with local communities. Some of the activities implemented on the ground include community natural resource management (including establishment or renewal of management contracts, securing land tenure, and building capacity), a PES scheme that compensates local communities for avoiding slash-and-burn agriculture and stopping illegal wood harvesting, and a small grants program for NGOs to administer at a local scale. The program has also supported aquaculture for fish production, small-scale reforestation using native species, and forest patrols. The project is already generating important lessons for REDD+, including for benefit-sharing arrangements and for national policy for REDD+ transactions in the country. The project is expected to issue carbon credits under Verified Carbon Standard certification in 2013.

Moreover, Bank-supported projects that would cause significant loss or degradation of other—non-critical—natural habitats require acceptable mitigation measures, typically including conservation offsets such as compensatory protected areas (World Bank 2012b). An interesting case of a conservation offset for large-scale infrastructure is Cameroon's Lom Pangar Hydroelectric Project (see Box 19).

Box 19: More Infrastructure, More Conservation — Cameroon's Lom Pangar Hydroelectric Project

A complex project from an environmental as well as social standpoint, the Lom Pangar Hydroelectric Project enables increased power generation through the construction of a large regulating dam in an ecologically sensitive area of Cameroon's eastern woodlands and forests. The project involves flooding wooded lands, relocating communities, and disrupting natural habitats. The Bank advised the government of Cameroon on ways to adhere to Bank standards during project planning, construction, and operation. Assured that environmental and social safeguards were being applied, the Bank agreed in March 2012 to help finance the project. To offset the inevitable damage to natural habitats from the project, the Bank helped the government establish the 58,000-hectare Deng Deng National Park, providing unprecedented protection for numerous local wildlife species, including a population of Western Lowland Gorillas and other primates. The recurrent costs for managing the new park are expected to be covered through a water tariff derived from the sale of hydroelectric power.

The Way Forward

Claudia Sobrevila

Biodiversity as an Engine of Green Growth: Biodiversity conservation in Africa will need to take place in the context of rapid human population growth, increased local and international demand for natural resources, and new large-scale infrastructure projects. The World Bank Group's new Environment Strategy emphasizes the concept of "green growth," in which renewable natural resources are sustainably managed and conserved to improve livelihoods and ensure food security and in which biodiversity is protected as an economically critical resource. Going forward, it will be particularly important to demonstrate to the governments and people of Africa how biodiversity can be an engine of inclusive green growth and improved livelihoods, through greater appreciation of natural ecosystem services and enhanced opportunities for economic benefit-sharing.

Enhanced and Diversified Funding: In light of ongoing natural resource degradation, sustaining Africa's unique biodiversity over time will require even greater financial resources than have been mobilized to date. To continue making an important difference for biodiversity conservation in the region, the World Bank will seek to optimize the use of available GEF resources; enhance the use of IDA and IBRD funding for biodiversity, particularly by mainstreaming conservation within projects such as tourism, infrastructure, agriculture, and disaster risk management when there are clear linkages, such as maintaining ecosystem services or using conservation offsets; and integrate biodiversity considerations within climate change–related activities, including REDD. Several recently established multidonor climate investment funds provide exciting new opportunities to further protect biodiversity while addressing climate change mitigation and adaptation.

Scaling up Landscape Approach: Even though protected areas are a key pillar of biodiversity conservation, they are not sufficient to provide the minimum needed habitat for many species. Recognizing this, a landscape (and seascape) approach to biodiversity conservation encompasses biodiversity-friendly production systems as well as intact natural habitats within protected areas across terrestrial, freshwater, and coastal and marine systems. The World Bank will increase its focus on landscape approaches to conservation that encompass biodiversity-friendly production systems and buffer zones, along with intact natural habitats within protected areas.

Leveraging Public-Private Partnerships: Successful biodiversity conservation stems from the efforts of a wide range of institutions, including local communities, national and local governments, civil society, national and international NGOs, private firms, academia and scientific institutions, and bilateral and multilateral development organizations. To maximize its future effectiveness at promoting biodiversity conservation in Africa, the World Bank will concentrate its efforts in areas where it has a comparative advantage. These include, among other areas, mobilizing the financing of large biodiversity initiatives, providing policy advice to member governments, and exercising its convening power to bring together a broad range of stakeholders to address specific problems.

The Bank's leadership and coordinating role within the donor community, complemented by access to trust funds and lending resources, can help introduce

biodiversity within national agendas as a critical part of sustainable development. It can also facilitate dialogue between client countries and other stakeholders on matters such as loss of ecosystem resilience, forest law enforcement and governance, wildlife trade, and overharvesting of natural resources. At the same time, it is important to engage the private sector directly in conservation activities, particularly in tourism-related activities. The World Bank can facilitate the use of private sector resources to contribute to conservation efforts, in particular through private investments in nature-based tourism.

Strengthening Environmental Performance Standards: Due to the increased local and international demand for natural resources and the wealth of natural resources in Africa, it will be imperative to ensure that extractive industries contracts follow the highest international standard. The Bank is committed to working with client countries to strengthen their capacity to apply good environmental and social practices in extractive industries and other development projects. As part of this process, one particularly important area for increased collaboration is to work with private industries in mobilizing the additional resources needed for biodiversity conservation. For example, there is now considerable interest in the private sector (including large, well-capitalized international firms) in more systematic use of large-scale conservation offsets to address the cumulative ecological impacts of multiple new investments in infrastructure, extractive industries, and commercial agriculture.

Strengthening Enforcement Capacity to Combat Wildlife Crime: Although effective biodiversity conservation largely involves collaboration and compromise between stakeholders, the importance of environmental law enforcement and improved governance should not be overlooked. Effective law enforcement is a key enabling condition for sustaining the public and private investments made in conservation, as well as reducing the elite capture of biodiversity-related benefits.

As an example, many African coastal nations do not have the resources to properly patrol their territorial waters or exclusive economic zones. Law enforcement to counter poaching and trafficking in wildlife products similarly suffers from weak governance structures. Even where the legal tools are in place, effective enforcement relies on human resources and technologies that are frequently absent. For these reasons, the World Bank has focused increased attention in recent years on the complex problems of environmental law enforcement and combating wildlife crime and illegal trade in threatened species. The Bank assists member governments and international initiatives that seek to support more-effective law enforcement through partnerships and innovative approaches in order to address illegal taking of wildlife, fish, and timber resources, which is reaching crisis levels in some areas.

Future Prospects: Notwithstanding the rapid changes that will take place in Africa, there are still major opportunities to "get development right"—protecting and sustainably managing biodiversity and ecosystem services. Sizable tracts of natural habitats remain in Africa. Moreover, much of the continent's basic infrastructure is not yet in place; the potential still exists for it to be developed with due concern for biodiversity, thereby avoiding some of the environmental mistakes that have frequently been made elsewhere. While burgeoning economic and population pressures threaten Sub-Saharan Africa's biodiversity, its value—and the importance of the ecosystem services it supports—is increasingly being realized.

Annex: Active World Bank–Supported Biodiversity Projects, 2003–12

Country	Project Name	FY	Source of Funds	Total (USD million)	Total BD (USD million)	WB BD (USD million)
Benin	National Parks Conservation and Management Project	00	GEF	24.2	24.2	6.8
Benin	Forests and Adjacent Lands Management Project	06	GEF	27.0	27.0	6.0
Benin	Community-Based Coastal and Marine Biodiversity Management Project	08	GEF	11.6	11.6	4.3
Benin	Support to Protected Areas Management	11	GEF	7.3	7.3	7.3
Benin	Support to Protected Areas Management	11	IDA	5.0	5.0	5.0
Botswana	Northern Botswana Human Wildlife Coexistence Project	10	GEF	20.5	20.5	5.5
Burkina Faso	Partnership for Natural Ecosystem Management	02	GEF	13.6	13.6	7.5
Burkina Faso	Sahel Integrated Lowland Ecosystem Management	04	GEF	4.9	1.4	1.3
Cameroon	Cameroon Petroleum Environment Capacity Enhancement	00	IDA	5.8	0.6	0.6
Cameroon	Cameroon Forest & Environment Sector Program	06	GEF	10.0	10.0	10.0
Cameroon	Forest and Environment Development Program	06	IDA	41.8	12.4	5.0
Cameroon	Lom Pangar Hydropower Project	12	IDA	494.0	8.0	0.7
Cameroon	Ngoyla Mintom Project	12	GEF	3.5	3.5	3.5
Cameroon	Biodiversity Conservation and Management Project	95	GEF	16.0	16.0	6.0
Chad	Community-Based Ecosystem Management Project	05	GEF	94.5	45.8	45.8
Côte d'Ivoire	Ivory Coast Protected Area Management Project	09	GEF	2.5	2.5	2.5
DRC	Forest and Nature Conservation Project	09	IDA	81.0	20.0	10.0
DRC	Rehabilitation and Participatory Management of Key Protected Areas in the DRC	09	GEF	70.0	70.0	70.0
DRC	Support to the ICCN's Program for the Rehabilitation of the National Parks Network	09	GEF	55.6	55.6	7.0

Country	Project Name	FY	Source of Funds	Total (USD million)	Total BD (USD million)	WB BD (USD million)
DRC	Environmental and Social Portfolio Review	10	TA	0.1	0.0	0.0
DRC	Support to Implementation of Forestry Code and Mainstreaming with I-PRSP priorities	11	TA	0.0	0.0	0.0
Eritrea	Assessment of Capacity Building Needs for Biodiversity, Participation in Clearing House Mechanism & Preparation of 2nd National Rep.	02	REA	0.2	0.2	0.2
Ethiopia	Conservation and Sustainable Use of Medicinal Plants Project	01	GEF	1.8	1.8	1.8
Ethiopia	Conservation and Sustainable Use of Medicinal Plants Project	01	IDA	3.4	3.4	0.8
Ethiopia	Humbo and Soddo Community-Based Natural Regeneration Project	08	CO	1.3	0.0	0.0
Gabon	Natural Resources Management Development Policy Loan	06	IDA	31.5	7.9	7.9
Gabon	Strengthening Capacity for Managing National Parks and Biodiversity	06	GEF	40.7	40.7	10.0
Gambia	Gateway Project	02	IDA	18.1	0.4	0.3
Gambia	Integrated Coastal and Marine Biodiversity Management Project	04	GEF MSP	1.0	1.0	1.0
Gambia	Strengthening Integrated Biodiversity Management	11	GEF MSP	2.2	2.2	0.9
Ghana	Northern Savanna Biodiversity Conservation Project	02	GEF	28.1	28.1	7.7
Ghana	Community-Based Integrated Natural Resource Management	04	GEF MSP	1.5	1.5	0.8
Ghana	Natural Resource and Environmental Governance DPO	09	IDA	40.0	7.2	1.8
Ghana	Natural Resource and Environmental Governance DPO	10	IDA	40.0	7.2	0.2
Ghana	Sustainable Land and Water Management	11	GEF	16.0	16.0	8.2
Ghana	Forest Biodiversity SIL	98	GEF	8.9	8.9	8.9
Ghana	Natural Resource Management Project	98	IDA	53.5	53.5	20.0
Guinea	Coastal Marine and Biodiversity Management	06	GEF	23.5	16.7	16.7
Guinea	Community-Based Land Management Project	06	GEF	7.0	2.5	2.5
Guinea-Bissau	Coastal and Biodiversity Management Project	05	IDA	4.4	4.4	1.5
Guinea-Bissau	Coastal and Biodiversity Management Project	05	GEF	7.3	4.8	4.8
Guinea-Bissau	Biodiversity Conservation Project	11	IDA	2.0	2.0	2.0
Guinea-Bissau	Biodiversity Conservation Trust Fund Project	11	GEF MSP	5.6	3.8	2.9
Kenya	Lewa Wildlife Conservation Project	00	GEF MSP	0.8	0.8	0.8
Kenya	Western Kenya Integrated Ecosystem Management Project	05	GEF	7.7	7.7	4.1

Country	Project Name	FY	Source of Funds	Total (USD million)	Total BD (USD million)	WB BD (USD million)
Kenya	Greenbelt Movement	07	CO	2.2	2.2	2.2
Kenya	Nairobi National Park Ecosystem Wildlife Conservation Lease Project	09	GEF MSP	1.2	1.2	0.7
Kenya	Coastal Development Project	11	GEF	40.0	35.0	5.0
Kenya	Coastal Development Project	11	IDA	41.5	41.5	17.9
Kenya	Lake Victoria Environment Project	97	IDA	12.9	3.4	2.0
Kenya	Lake Victoria Environment Project	97	GEF	9.8	9.8	9.8
Kenya	Tana River Primate National Reserve Conservation Project	97	GEF	6.2	6.2	6.2
Lesotho	Maloti-Drakensberg Transfrontier Conservation and Development Project	02	GEF	8.5	8.5	7.4
Liberia	Sapo National Park	06	GEF MSP	2.4	2.4	1.0
Liberia	Development Forestry Sector Management Project	07	SF	2.0	1.1	1.1
Liberia	Establishment of Protected Areas	08	GEF MSP	7.4	7.4	7.4
Liberia	Expansion of Protected Areas Network - II	11	GEF MSP	2.0	1.0	1.0
Madagascar	Third Environment Program Support Project	04	GEF	9.0	9.0	9.0
Madagascar	Third Environment Program Support Project	04	IDA	148.9	71.5	31.5
Madagascar	Andasibe-Mantadia Biodiversity Corridor	07	CO	11.5	11.5	7.5
Madagascar	Support to Madagascar's Foundation for Protected Areas and Biodiversity	11	GEF	57.5	57.5	34.5
Madagascar	Second Environment Program Support Project	97	GEF	8.1	8.1	8.1
Madagascar	Second Environment Program Support Project	97	IDA	134.2	56.0	12.5
Malawi	Mulanje Mt. Biodiversity Conservation Project	01	GEF	8.0	8.0	6.8
Malawi	Participatory Development and Management of the Nkhotakota Wildlife Reserve	12	GEF MSP	2.4	2.4	1.0
Malawi	Shire River Basin Management Program	12	IDA	145.6	58.2	50.0
Malawi	Shire River Basin Management Program	12	GEF	131.6	13.2	13.2
Malawi	Environmental Management Project	97	IDA	13.7	2.6	2.3
Mali	Mopti Area Biodiversity	04	TA	0.0	0.0	0.0
Mali	Gourma Biodiversity Conservation Project	05	GEF	9.1	9.1	5.5
Mauritius	Round Island Project	01	GEF MSP	1.4	1.4	0.8
Mauritius	Biodiversity Restoration Project	96	GEF	1.2	1.2	1.2
Mozambique	Coastal and Marine Biodiversity Management Project	00	GEF	4.1	4.1	4.1
Mozambique	Coastal and Marine Biodiversity Management Project	00	IDA	6.4	6.4	5.6
Mozambique	Transfrontier Conservation Areas and Tourism Development Project	06	GEF	10.0	10.0	10.0

Country	Project Name	FY	Source of Funds	Total (USD million)	Total BD (USD million)	WB BD (USD million)
Mozambique	Transfrontier Conservation Areas and Tourism Development Project	06	IDA	23.7	21.4	15.0
Mozambique	Transfrontier Conservation Areas Pilot and Institutional Strengthening Project	97	GEF	8.1	8.1	5.0
Namibia	Integrated Community-Based Ecosystem Management	04	GEF	32.4	11.3	7.1
Namibia	Namibian Coast Conservation and Management Project	06	GEF	29.1	29.1	4.9
Niger	Community-based Integrated Ecosystem Management	03	GEF	43.8	6.0	2.5
Nigeria	Local Empowerment and Environmental Management Project	04	GEF	91.3	9.8	8.0
Nigeria	Second National Fadama Development Critical Ecosystem Management Project	06	GEF	11.5	5.0	5.0
Nigeria	Nigeria Erosion and Watershed Management Project	12	GEF	291.8	116.7	116.7
Nigeria	Nigeria Erosion and Watershed Management Project	12	IDA	650.0	65.0	50.0
Regional	Indian Ocean Coral reef Monitoring project	01	GEF MSP	1.0	1.0	1.0
Regional	Africa Medicinal Plants	03	TA	0.1	0.1	0.1
Regional	Building Local Capacity for Natural Resource Management at Ecosystem Level	07	TA	0.3	0.1	0.1
Regional	South West Indian Ocean Fisheries Project	07	GEF	22.7	8.5	7.4
Regional	Open Africa North-South Tourism Corridor Project	08	GEF MSP	1.2	0.6	0.6
Regional	Lake Victoria Environmental Management Project II	09	GEF	97.0	57.3	20.0
Regional	Lake Victoria Environmental Management Project II	09	IDA	114.8	7.0	7.0
Regional	Lake Victoria Environmental Management Project II APL 2	11	IDA	31.5	31.5	30.0
Regional	Nyika Transfrontier Conservation Area Project	11	GEF	11.1	11.1	4.8
Regional	SPWA - Scaling Up The Impacts of Good Practices in Linking Poverty Alleviation and Biodiversity Conservation	11	GEF MSP	0.9	0.9	0.9
Regional	WAPP: The First Phase of the Inter-Zonal Transmission Hub Project of the WAPP	11	IDA	111.0	2.0	0.8
Regional	Capacity Building for Regional Coordination of Sustainable Forest Management in the Congo Basin under the GEF Program for the Congo	12	GEF MSP	1.9	0.2	0.1
Regional	Enhancing Institutional Capacities on REDD issues for Sustainable Forest Management in the Congo Basin	12	GEF	16.0	3.2	2.6

Country	Project Name	FY	Source of Funds	Total (USD million)	Total BD (USD million)	WB BD (USD million)
Regional	West Africa Pilot Community-Based Natural Resources & Wildlife Management Project	96	GEF	13.2	4.0	2.1
Regional	REIMP	98	GEF	16.7	2.2	0.5
Republic of Congo	Forestry and Economic Diversification Project	12	IDA	32.6	6.5	2.0
Rwanda	Integrated Management of Critical Ecosystems Project	05	GEF	5.3	2.7	2.2
Senegal	Integrated Marine and Coastal Resources Management Project	05	GEF	5.0	5.0	5.0
Senegal	Integrated Marine and Coastal Resources Management Project	05	IDA	11.5	11.5	2.5
Senegal	Sustainable Management of Fish Resources	09	GEF	25.5	5.0	2.4
Seychelles	Marine Ecosystem Management Project	00	GEF MSP	1.0	0.3	0.3
Seychelles	Improving Sustainability of Private and NGO-Managed Nature Reserves	04	GEF MSP	0.8	0.8	0.8
Seychelles	Environment and Fisheries Dialogue	07	TA	0.0	0.0	0.0
Sierra Leone	Bumbuna Hydroelectric Environmental and Social Management Project	05	IDA	91.8	3.7	0.5
Sierra Leone	Biodiversity Conservation Project	10	GEF	23.8	23.8	7.0
Sierra Leone	Wetlands Conservation Project	11	GEF	5.2	5.2	2.8
South Africa	Conservation Planning for Biodiversity Project	00	GEF MSP	0.7	0.7	0.7
South Africa	Namaqualand Project	01	GEF MSP	0.8	0.8	0.8
South Africa	Maloti-Drakensberg Transfrontier Conservation and Development Project	02	GEF	7.9	1.6	1.6
South Africa	C.A.P.E.: Biodiversity Conservation and Sustainable Development Project	04	GEF	55.1	55.1	9.0
South Africa	Greater Addo National Park	04	GEF	39.9	39.9	5.5
South Africa	Richtersveld Community Biodiversity Conservation Project	04	GEF MSP	2.5	2.5	0.9
South Africa	Environment Policy Review & Dialogue	07	TA	0.0	0.0	0.0
South Africa	Development, Empowerment and Conservation in the Greater St Lucia Wetland Park and Surrounding Region	10	GEF	21.7	21.7	9.0
South Africa	Cape Peninsula Biodiversity	98	GEF	91.2	91.2	12.3
South Africa	Conservation Farming Project	99	GEF MSP	0.8	0.2	0.2
Tanzania	Lower Kihansi Environmental Management Project	01	IDA	6.4	6.4	6.3
Tanzania	Forest Conservation and Management Project	02	IDA	40.0	9.3	9.0
Tanzania	Lake Victoria Environmental Management Project - Supplemental Credit	02	IDA	5.1	0.3	0.3

Country	Project Name	FY	Source of Funds	Total (USD million)	Total BD (USD million)	WB BD (USD million)
Tanzania	Eastern Arc Forests Conservation and Management Project	04	GEF	38.7	38.7	31.1
Tanzania	Lake Victoria Environmental Management Project Second Supplemental Credit	05	IDA	3.6	0.8	0.8
Tanzania	Wildlife and Livestock Utilization	05	GEF MSP	0.9	0.9	0.9
Tanzania	Marine and Coastal Environment Management	06	IDA	52.8	25.5	20.0
Tanzania	Marine and Coastal Environmental Management Project	06	GEF	10.0	5.7	4.9
Tanzania	Lower Kihansi Environmental Management Project 2	08	IDA	3.5	1.8	1.8
Tanzania	Lake Victoria Environment Project	97	IDA	12.9	3.0	1.8
Tanzania	Lake Victoria Environment Project	97	GEF	10.3	3.0	3.0
Togo	Biodiversity Strategy Project	00	REA	0.2	0.2	0.2
Togo	National Environmental Action Plan Support	04	TA	0.1	0.1	0.1
Uganda	Lake Victoria Environmental Management Project - Supplemental Credit	03	IDA	4.6	2.7	2.6
Uganda	Protected Areas Management and Sustainable Use GEF	03	GEF	8.0	8.0	8.0
Uganda	Protected Areas Management and Sustainable Use Project	03	IDA	30.0	30.0	23.4
Uganda	Lake Victoria Environment Project	97	IDA	12.9	3.8	2.4
Uganda	Lake Victoria Environment Project	97	GEF	12.9	3.8	3.8
Uganda	Institutional Capacity Building for Protected Areas Management and Sustainable Use Project	99	GEF	2.0	2.0	2.0
Uganda	Institutional Capacity Building for Protected Areas Management and Sustainable Use Project	99	IDA	18.3	18.3	12.4
Zambia	Management of Miombo Woodland Ecosystem	02	GEF MSP	1.4	0.3	0.3
Zambia	Support for Economic Expansion and Diversification (SEED)	05	GEF	4.0	4.0	4.0
Zambia	Support for Economic Expansion and Diversification (SEED)	05	IDA	28.2	10.2	8.0
Zambia	Kasanka and Lavushi Manda National Parks Sustainability Enhancement Project	10	GEF MSP	1.9	1.9	0.8

GEF = Global Environment Facility
IBRD = International Bank for Reconstruction and Development
IDA = International Development Association (a World Bank concessional financing window)
MSP = Mid-sized GEF project
TA = Technical Assistance
SF = Special Financing

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October 2012