Africa Biodiversity Collaborative Group
FY2012 Annual Report
Biodiversity Analysis and Technical Support (BATS)

USAID/Africa Award # RLA-A-00-07-00043

December, 2012

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TABLE OF CONTENTS

LIST OF TABLES & FIGURES

Tables

Figures

1

Introduction

With funding from the US Agency for International Development's (USAID) Biodiversity Analysis and Technical Support (BATS) program, the Africa Biodiversity Collaborative Group (ABCG) has made excellent progress towards our mission of tackling complex and changing conservation challenges by catalyzing and strengthening collaboration, and bringing the best resources from across a continuum of conservation organizations to effectively and efficiently work toward a vision of an African continent where natural resources and biodiversity are securely conserved in balance with sustained human livelihoods.

The BATS program is a multi-partner USAID Bureau for Africa effort that has included International Resources Group (IRG) under the Environmental Policy and Institutional Strengthening Indefinite Quantity Contract (EPIQ II), the USDA Forest Service International Programs under an interagency agreement, Environmental Law Institute (ELI), the Capitalizing Knowledge, Connecting Communities (CK2C) project of new partner Development Alternatives, Incorporated (DAI) and the Africa Biodiversity Collaborative Group (ABCG)[1] under a cooperative agreement. While all groups had separate funding and work plans, the three entities met regularly with USAID to coordinate their activities. This report details the activities of the BATS program over the period from October 2011 through September 2012.

ABOUT ABCG

ABCG is a coalition of the major US-based international conservation non-governmental organizations (NGOs) with field-based activities in Africa including African Wildlife Foundation (AWF), Conservation International (CI), the Jane Goodall Institute (JGI), The Nature Conservancy (TNC), Wildlife Conservation Society (WCS), World Resources Institute (WRI) and World Wildlife Fund (WWF). ABCG has extensive experience conducting analysis and sharing lessons learned on high priority conservation issues affecting Africa. ABCG's mission is to tackle complex and changing conservation challenges by catalyzing and strengthening collaboration, and bringing the best resources from across a continuum of conservation organizations to effectively and efficiently work towards a vision of an African continent where natural resources and biodiversity are securely conserved in balance with sustained human livelihoods.

[1] Additional resources available online: www.abcg.org.

ABCG's objectives are to:

- Promote networking, awareness, information sharing and experience among U.S. conservation NGOs working in Africa; to encourage information exchange and idea sharing with African partners
- Identify and analyze critical and/or emerging conservation issues in Africa as priorities for both future NGO action and donor support
- Synthesize collective lessons from field activities and share them with a broader multi-sector community in the United States and Africa.

By accessing the wide-ranging networks of our member organizations throughout Africa, ABCG is in a unique position to support USAID Africa Missions and help build the capacity of local and national NGOs, government agencies, universities, the private sector and local communities on key environmental and development issues for the African Continent.

PROJECT OVERVIEW

Through BATS, ABCG received a two-year $500,000 grant in 2008–2009 to provide technical support and share lessons learned to assist USAID/AFR/SD, Africa Missions and local and national organizations in Africa to increase their effectiveness to tackle major existing and emerging threats to Africa's biodiversity and contribute to sound development based on wise use of natural resources and maintenance of ecosystem services. ABCG proposed and was awarded a five-year, $2,500,000 extension to the BATS agreement for the period 2009–2014. In 2011, ABCG was invited to submit a $4,700,000 amendment to the BATS agreement, which was approved by USAID.

The BATS program develops practical documentation of USAID's biodiversity conservation experience and resulting best practices and policy considerations, describes extractive industries partnerships with conservation initiatives, provides technical assistance for biodiversity conservation programs in conflict and crisis states and highlights governance issues, conducts biodiversity and tropical forestry country-level assessments, and identifies and conducts analysis and outreach on emerging African conservation issues.

This project serves as a support facility that provides services to meet mission and partner needs in:

- Reviewing USAID/Africa's conservation history, lessons learned, and way forward (Task A)
- Managing extractive industry alliances for environmental gain (Task B)
- Addressing biodiversity conservation in states vulnerable to crisis, in crisis, or recovering from crisis (Task C)
- Supporting country-level 118/119 biodiversity and tropical forestry assessments, including threats, analysis, and actions necessary for biodiversity conservation (Task D)

- Supporting scaling up integration in land use planning as means to ensure a more comprehensive farming systems approaches linked to natural resources management with a focus on ecoagriculture, including bushmeat as an important element of incorporating protein into food security. (Task E)
- Investigating multiple approaches to global climate change, including scaling up climate change adaptation, evaluating tradeoffs in climate planning in woodlands ecosystems, improving grazing practices linked to carbon sequestration in grasslands, and scaling up clean energy practices. (Task F)
- Equipping governments, NGOs and partners to better address the intersections of global health challenges and biodiversity (Task G)
- Forecasting future conservation needs and opportunities in Africa by identifying selected critical and/or emerging conservation issues and linkages in Africa as priorities for future USAID and donor support in order to better prepare the conservation sector and in some cases follow up directly or catalyze actions by others (Task H)
- Conducting continued outreach on BATS products.

FY2012 ACCOMPLISHMENTS

(*NB: links below are for documents posted on the ABCG website; in the main text of this report, links will open full documents included in the report folder. If using Adobe Reader, you may consider opening cross-pdf documents in a new window: Go to* Edit⇒Preferences⇒Documents⇒Open Settings: *uncheck* 'Open cross-document links in same window')

- **Large thematic meetings and events** including: 1) Mining and Biodiversity in the DRC—Challenges and Opportunities DRC Mining meeting (Oct 11–12, 2011) and brown bag (Oct 12, 2011), co-hosted with CI; 2) **ABCG Adaptation Toolkit Planning Workshop** (April 11–12), co-hosted by WWF; 3) Public Health, Bushmeat and Nutrition event, featuring Dr. Christopher Golden, Cara Honzak (WWF), Steve Osofsky (WCS) and Nathalie Simoneau (WWF) (May 2, 2012); 4) A Holistic Approach to Climate Change Adaptation in Africa, including more than 40 representatives of development, conservation, humanitarian and donor organizations. (July 24–25, 2012)
- **Seventeen brown bag talks** and other events on various aspects of conservation that featured a range of experiences, including events focused on species (lions, bonobos, and elephants), the importance of working directly with women in community conservation projects, ecosystem services, and collaborations with faith communities. A full list may be found in Section 10 of this report. We continue to develop compelling discussions to engage ABCG members and partners in addressing emerging and high priority issues affecting biodiversity in Africa.
- **Policy Briefs**
    1. Artisanal and Small-Scale Mining in DRC: When Elephants Fight, it is the Grass that Suffers

2. Managing Land for Mining and Conservation in the Democratic Republic of Congo
3. Tradeoffs between Mining and Biodiversity in Democratic Republic of Congo (in preparation)
4. Linking Biodiversity Conservation and WASH (Water, Sanitation and Hygiene): Experiences from Sub-Saharan Africa

- **Reports and Analysis:**

1. L'Analyse de L'Experience de la Reforme du Secteur Forestier pour en Tirer des Lecons Necessaires et Contribuer au Processus de la Reforme du Secteur Minier en RDC (Analysis of the Forest Sector Reform Experience and Lessons Learned to Contribute to the DRC Mining Sector Reform Process)
2. A Global Review of National Guidance for High Conservation Value
3. Defining HCV Thresholds in Gabon: Year #1 Report: An Interim Report on Activities and Initial Results
4. Understanding the Ecological, Economic and Social Context of Conservancies in Zimbabwe
5. Extractives and Land Rights in Ghana, Liberia, Nigeria, Tanzania, Uganda and Kenya [*document available upon request*]
6. Increasing Agricultural Production, Conserving Natural Capital, and Strengthening Farmer Livelihoods: A Discussion of Landscape Management Options for Sub-Saharan Africa
7. Food Security Strategies in the Kazungula and Zambezi Heartlands and their Link with Conservation Impact and Climate Change
8. A Review of Monitoring and Evaluation Approaches for Ecosystem-Based Adaptation
9. Avoiding Conflict and Balancing Trade-offs: Biodiversity Conservation in the Context of Competing Land Uses
10. Review of Household Clean Energy Technology for Lighting, Charging and Cooking in East Africa—Kenya and Tanzania
11. Toolkit for Implementing Household Energy Projects in Conservation Areas
12. Vegetation monitoring database, Northern Kenya
13. Soil Carbon Dynamics in the Northern Rangelands Trust Member Conservancies, Kenya
14. Linking Biodiversity Conservation and WASH (Water, Sanitation and Hygiene): Experiences from Sub-Saharan Africa
15. Governance of Large-Scale Land Acquisitions in Uganda: The Role of the Uganda Investment Authority
16. Report on the Investment Environment and Safeguards Applicable to Large-Scale Agricultural Investments in Uganda
17. Due Diligence on Lands at Risk of or Subject to Land Acquisitions in Uganda

18. Modeling potential conflict between agricultural expansion and biodiversity in the Greater Mahale Ecosystem, Tanzania
19. Climate Change in the Western Indian Ocean: A Situation Assessment and Policy Considerations

- **Maps:**

1. High Conservation Value (HCV) maps of elephants and endemic plants; in: Defining HCV Thresholds in Gabon: Year #1 report
2. Land Management Plan for the Greater Mahale Ecosystem, Western Tanzania
3. Designated grazing blocks in Northern Kenya
4. Risk maps of Uganda and suitability for:
   a) Jatropha,
   b) Maize,
   c) Oil Palm and
   d) Sugar

- **Workshops Supported:**

1. Alliance of Religions and Conservation/Kenya Organization of Environmental Educators—Education for Sustainable Development resource and training workshop, Nairobi, Kenya (March 4–11, 2012)
2. Regional Workshop of the Western Indian Ocean-Coastal Challenge, Seychelles (13–14 March 2012)
3. Holistic Grazing Planning Trainer of Trainers Workshop, Westgate Community Conservancy, Kenya (1–5 May 2012)
4. Support for the Landscapes for People, Food and Nature (LPFN) Initiative's Nairobi 2012 International Forum (June 2012)
5. High Conservation Value forest assessments workshop in Gabon (June 2012)
6. A Holistic Approach to Climate Change Adaptation in Africa (24–25 July 2012)
7. Integrating adaptation and mitigation in agricultural landscapes to ensure food security, climate change mitigation and improve rural livelihoods (31 July–2 August 2012)
8. Nairobi Convention meetings on the Western Indian Ocean—Consortium, Maputo, Mozambique (1–10 August 2012)
9. Tools to make scientifically sound decisions about trade-offs between different actions: An example from the Murchison-Semliki Landscape (27–28 August 2012)
10. Many Heavens, One Earth, Our Continent conference of African Faith Leaders on Conservation Commitments, Nairobi, Kenya (18–20 September 2012)

a) Many Heavens, One Earth, Our Continent book: African Faith Commitments for a Living Planet

b) Celebration Timetable and Agenda

c) List of African Faith Commitments to conservation

d) ARC's video summary of the conference and faith commitments

e) Delegates List

11. Integrated General Land Management Planning Meeting in Greater Mahale Ecosystem, Western Tanzania (September 2012)

- **Draft reports and other documents:**
  1. Draft report/white paper: The Canadian Mining Sector and Biodiversity Impacts in Africa: The Role of Financial Disclosure and Securities Reform
  2. Draft report: Land and Natural Resource Rights in Africa
  3. Signed commitments against wildlife crime by Christian and Muslim faith leaders
     a) Christian Faith Statement Wildlife Conservation
     b) Muslim Faith Statement on Wildlife Conservation
     c) Muslim Faith Statement on Wildlife Trafficking

2

Task A: Dar Vision for the Future of Biodiversity in Africa

In the first phase of BATS, ABCG members contributed significantly to the process of learning lessons from 30 years of USAID/Africa's biodiversity conservation initiatives, including consultative workshops with biodiversity experts in Washington, DC; Dar es Salaam, Tanzania; and Accra, Ghana. From these discussions, a report on the Future of Biodiversity in Africa process was written, and fact sheets on the Dar Vision (in English, French and Portuguese) were produced and distributed to all ABCG members, USAID, US Fish and Wildlife Service, US Forest Service-International Programs, the Woodrow Wilson Center, and IUCN regional offices in the US and throughout Africa.

The Dar Vision for the Future of Biodiversity in Africa continues to be a critically important frame for ABCG's collaborative work. The Dar Vision is referenced in every ABCG brown bag, meeting and

workshop. While funding for Task A was not available in FY2012, we have continued to seek opportunities to raise the profile of the Dar Vision and its logical framework for success at events in Washington DC, Central Africa and other regions.

In FY2013, ABCG will continue to support the Future of Biodiversity in Africa work through support the of a 50-year retrospective of the impact of capacity building on wildlife management in Africa. We will achieve this in collaboration with the College of African Wildlife Management, Mweka, Tanzania as they prepare for their 50th Anniversary Conference in June 2013.

3

Task B: Managing Extractive Industries to Protect Biodiversity

B.1 MINING AND BIODIVERSITY IN DRC

ABCG members Conservation International (CI), Wildlife Conservation Society (WCS), World Resources Institute (WRI) and World Wildlife Fund (WWF) have worked together on several critical aspects of overlapping areas of mining interest and biodiversity concern in Democratic Republic of Congo (DRC). The total mineral wealth of the DRC is estimated to be $24 trillion—50 percent more than the United States Gross Domestic Product in 2011. Most mineral reserves are still untapped, but they could potentially make DRC the richest country in the world. DRC has the world's largest reserves of cobalt and columnite-tantalite (coltan), the world's second-largest reserves of copper (equivalent to 10% of the world's reserves), and significant reserves diamonds and gold[1]. As a result of a decade of war, civil unrest and instability, most mining operations are artisanal[2]. Since 2004, however, gradual improvements in security and state control over mining areas have allowed formal actors to re-enter the sector. In recent years, there has been an increase in the number of exploration and exploitation concessions granted by the DRC government. In January 2011, the Ministry of Mining listed 7,732 mineral permits covering 112,731,739 hectares, which represents 48 percent of the DRC territory. Between 2008 and 2011, the number of mining permits granted by the DRC government increased by 35%, covering an additional 14 million hectares (ha). In April of this year, the government announced that it plans to triple the size of the protected estate to reach 17% of the territory in protected areas.

[1] See http://uk.reuters.com/article/2008/08/14/uk-oil-congo-democratic-factbox-idUKGOR44204820080814 or http://www.vanguardngr.com/2011/10/africa%e2%80%99s-oil-scramble-heads-east-to-uncertain-waters/. In addition to its mineral wealth, DRC may also hold significant reserves of oil and gas.

[2] Artisanal exploitation is defined in Article 234 of the 2002 DRC Mining Code as "any activity by means of which a person of Congolese nationality carries out extraction and concentration of mineral substances using artisanal tools, methods and processes, within an artisanal exploitation area limited in terms of surface".

With the area under mining permits increasing rapidly, competition between mining and conservation interests can only intensify in the upcoming years.

Our goal is to develop and implement a model for engaging companies and governments on biodiversity conservation and stewardship in Central Africa, beginning a comprehensive approach in the DRC. The project identifies critical biodiversity areas as well as mining company explorations and operations (including small scale and artisanal mining hotspots) that need to be prioritized for conservation engagement.

Report: L'Analyse de L'Experience de la Reforme du Secteur Forestier pour en Tirer des Lecons Necessaires et Contribuer au Processus de la Reforme du Secteur Minier en RDC (Analysis of the Forest Sector Reform Experience and Lessons Learned to Contribute to the DRC Mining Sector Reform Process) (WWF)

In 2001, as peace gradually returned to DRC after many years of conflict and war, the DRC undertook an ambitious plan of political, economic and institutional reform. The Forestry Code and Mining Code were promulgated in 2002, leading to a phase of renewal and reform that promoted sustainable management of these sectors for sustainable development while preserving forest ecosystems and forest biodiversity. The implementation of the Mining Code has shown certain weaknesses; 10 years after the promulgation of this Code, DRC has not yet taken advantage of its huge mineral resources for its development. As with the forest sector, the mining sector is undermined by fraud and corruption, losing large sums of money meant for socio-economic development. In addition, the Mining Code does not adequately address environmental concerns and is not well harmonized with other sectors where environmental issues are a factor (forestry, land, agriculture and conservation).

This report identifies and analyzes the progress made in the reform of the forestry sector that can be applied to a reform of the mining sector. Advances have been made in the forestry sector, but we have also identified negative points. One of the points of concern is that small scale logging comprises 90% of timber exploitation in the country, according to some estimates.

DRC environmental civil society has submitted proposed amendments to the Ministry of Mines as part of the Mining Code reform process. Their recommendations integrated those from WWF's forestry sector analysis.

Policy Brief: Managing land for Mining & Conservation

This policy brief, authored by Anne-Gaelle Javelle and Peter Veit of WRI, presents the legal and regulatory background for mining and conservation in DRC. In recent years, there has been an increase in the number of exploration and exploitation concessions granted by the DRC government. In January 2011, the Ministry of Mining listed 7,732 mineral permits covering 112,731,739 hectares, which represents 48 percent of the DRC territory[1]. The re-entry of industrial investments is encouraging in terms of economic development, but it has also resulted in overlapping land uses, highlighting the need to clarify the balance between mining and conservation. In contrast with the well-publicized case of petroleum exploration in the Virunga National Park, mining concessions in protected areas have

[1] This figure includes all types of mining permits listed in the DRC Mining Code: large-scale, small scale, artisanal, exploitation and exploration, as well as geological research zones.

received considerably less attention by the popular media and civil society. According to WRI's analysis, more than 3.5 million hectares under mining permits are located inside protected areas.

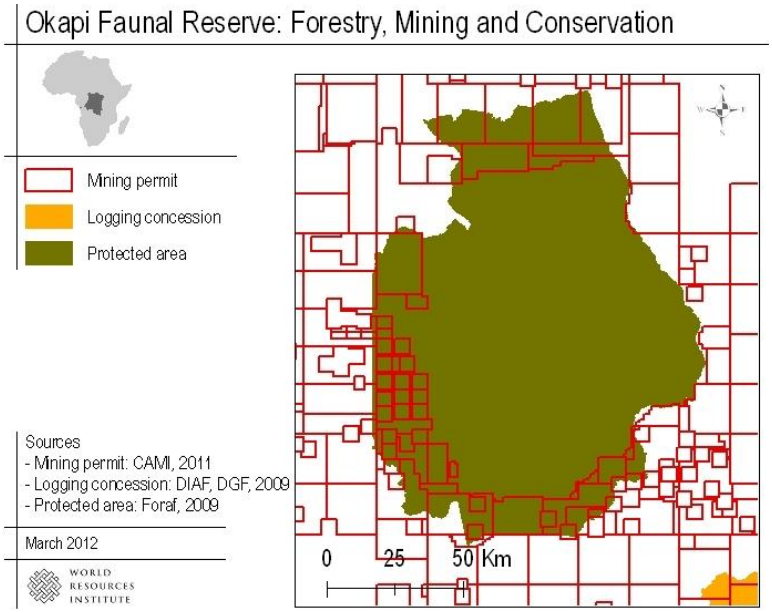

Figure 3-0. 76 mining permits, including 17 exploration permits, overlapped with the Okapi Reserve in January 2011. **Photo:** TNC.

This brief lists the ten companies holding the largest area of mining permits within the DRC protected estate. WRI also obtained an updated list of mining permits in DRC, and analyzed trends between 2011 and 2012 with regards to overlaps with protected areas. WRI developed a map of DRC showing overlaps between 2012 mining permits and areas of important biodiversity identified by the Ministry of Environment with WWF support. The brief also includes a list of companies holding titling in protected areas and in areas of important biodiversity, including companies listed with the SEC.

Table 3-1. Top-10 Companies as Measured by Total Permit Area in DRC's Protected Estate

Permit holders	Total area of overlap (ha)	Information on permit holders
Ressources Minieres Du Congo	301,167	Fully owned by Affinor Resources Inc, a Canadian company listed on the Canadian Stock Exchange
Entreprise Miniere De Kisenge	275,619	Public company controlled by the DRC government
Diamond Mines Australia	258,353	Subsidiary of Gravity Diamonds Ltd, a fully-owned subsidiary of Mwana Africa , a company listed in the UK (London Stock Exchange's Alternative Investment Market) and South Africa (http://www.mwanaafrica.com)
Banro Congo Mining	232,758	Fully-owned subsidiary of Banro Corporation, a Canadian gold company listed on the Toronto Stock Exchange and the New York Stock Exchange (http://www.banro.com)
Siméon Tshisangama	146,973	Natural person
De Beers DRC Exploration	139,667	Fully-owned subsidiary of the De Beers group, based in Luxemburg. De Beers announced in 2009 a halt in DRC operations but still holds a large number of exploration permits. Anglo American Plc owns 45% of De Beers, the Oppenheimer family owns 40%, and the government of Botswana the rest. (Source: http://www.miningreview.com/node/15316)
Loncor Resources Congo	110,843	Fully -owned subsidiary of Loncor Resources Inc., a Canadian gold exploration company. The US mining corporation Newmont holds a 17% interest in Loncor

Permit holders	Total area of overlap (ha)	Information on permit holders
		(www.loncor.com)
KGL-ERW	76,615	Joint-venture between Kilo Goldmines Ltd, a Canadian gold exploration and development company listed on the Toronto and Frankfurt Stock Exchanges, and Rio Tinto Group, listed in the UK and Australia.
Gecamines	60,029	Public company controlled by the DRC government
SOCOMEX Congo	57,327	No information was found on this company

Finally, the authors examine the loopholes available in the DRC Mining Code that allow for some mining operations inside the protected estate and spell out their recommendations for addressing the overlaps between mining and conservation areas. DRC's contradictory laws, inconsistent information and weak inter-governmental coordination create confusion, uncertainty, and misunderstandings for government agencies, rural populations, and companies. The authors recommend that a minimum, the government of DRC should: 1) harmonize the Mining Code and environmental laws regarding exploration and exploitation in high biodiversity areas, including protected areas; 2) develop national and local land-use policies and plans that recognize communities, conservation and concessions; and 3) build institutional capacity and provide sufficient funding to ensure effective implementation and enforcement of these laws. In the absence of these reforms, companies committed to meeting social and environmental standards should double-check their information on protected areas to ensure they are operating within the law and outside the protected estate.

Policy Brief: When Elephants Fight, it is the Grass that Suffers: Artisanal Mining & Conservation in the DRC

This brief is authored by Micha Hollestelle (Advisor to Gabon Mining, ZAGA Consultancy), Asher Sarah Smith (Estelle Levin, Ltd.) and Kirsten Hund (formerly WWF). Conservation efforts in DRC are severely affected by critically poor governance and the environmental impacts of uncontrolled artisanal mining of minerals often linked with rebel groups and criminal networks. As such, mineral resources are believed to be a driver of the on-going lawlessness in key conservation zones leading to unequalled depletion of biodiversity. Yet, while leading developmental NGOs and donors have embraced the issue, conservation NGOs have seemingly steered clear of the issue. The authors argue that doing so is at the peril of the unique wildlife and plant species found in DRC. This policy brief sheds light on the various issues to be tackled: direct environmental impact, poaching and other indirect impacts, criminal networks, and legality and enforcement.

The World Bank describes the DRC's ASM sector as "*the most important segment of the mining sector*" and estimates 10 million people, or 16% of the DRC's population, "either mine directly or are dependent on artisanal mining for their livelihood" and the number of people seeking to work in this sector is expected to rise dramatically over the next ten years (World Bank, 2008). Artisanal and small-scale mining has been operating in protected areas with little to no government control for decades, resulting in significant damage to wildlife and biodiversity in these areas. ASM currently takes place in about 40% of DRC's protected areas and is increasing in prevalence (IUCN, 2010). Scrambling for resources,

miners and their families rely on their natural surroundings for their survival, e.g. by hunting, fishing and logging. With mining camps often situated deep in the forest, and contributing to the organization of transport links between these camps and the outside world, a poaching problem becomes inevitable for meeting subsistence needs through bushmeat or for commercial gain, such as with the illegal ivory trade.

Without question, the involvement of armed groups in the mineral supply chain originating from protected areas is a critical factor in determining the feasibility of future engagement by conservation organizations as the tragic recent events in Epulu underline. By broadening the discussion from armed conflict alone to threats to human security including depletion of natural resources, a more holistic picture emerges revealing links between conservation, development, artisanal and large scale mining (ASM & LSM), and conflict. These links need to be untangled and cohesively addressed before proper management of protected areas can evolve in earnest. TRAFFIC, the wildlife trade monitoring network, aims at curbing illegal wildlife trade and has acknowledged these critical links. WWF-US has voiced its ambition to enhance knowledge on the fact and workings of the intertwined criminal networks which sustain illegal mining and trade while also supporting poaching and the ivory trade. Conservation organizations should consider joining this initiative by adding their field-based knowledge and thus providing a conservation perspective to the vast amount of existing experience, policy and literature on illegal and conflict-related trade. These perspectives are still lacking. For instance, no study dedicated solely to the correlation between small arms proliferation and poaching exists.

In conclusion, one of the major issues that binds development and conservation is rule of law, and law enforcement. As the overwhelming amount of artisanal mining *outside* of official artisanal mining zones and *inside* of national protected areas demonstrates, further efforts to enforce national laws are futile until those institutions involved in upholding the law and in punishing perpetrators are under-capacitated at best or downright criminal at worst.

Workshop on Artisanal and Small Scale Mining in Protected Areas and Critical Ecosystems

As a follow-up to the ASM-PACE (Artisanal Small-Scale Mining – Protected Area Critical Ecosystem) Project, WWF completed a pilot study on artisanal and small-scale gold mining within the Itombwe Nature Reserve in eastern DRC to better understand mining in the Reserve, identify lessons learned from previous efforts, and identify opportunities for case studies and field programs. In addition, WWF held a first validation workshop in Bukavu September 21, 2012 and another national workshop is planned in November. These education and awareness-raising workshops allow stakeholders to contribute to recommendations on the best solutions for the future of protected areas.

Mapping: WRI and WWF updated and added new layers to the maps it developed in FY2011 presenting overlaps between mining concessions and areas of high biodiversity. They made these maps available to a broader audience through the Moabi website. CI, working with their partner Birdlife International, shared Important Bird Area (IBA) GIS data for the DRC with the Moabi website as well.

Draft policy brief "Some Considerations on Tradeoffs between Biodiversity Conservation and Mining Exploitation Laws in the DR Congo" (CI)

This draft brief explores the best ways to engage the mining sector in DRC to ensure that biodiversity and forests are not sacrificed in mineral extraction. CI's analysis shows that there is little to no legal guidance in cases of overlap between mining titles or quarrying permits and forest concessions. Recommendations include reducing mining activities in protected areas, addressing contributing factors to deforestation, mitigating the threat of violent conflict, and building peace. Critically important is harmonization of laws, terminologies and concepts used in mining, forestry and conservation sectors.

This draft brief continues to be developed and will be completed in FY2013.

Draft Report: The Canadian Mining Sector and Biodiversity Impacts in Africa: The Role of Financial Disclosure and Securities Reform (2 policy briefs to be developed in FY13) (WCS & WRI)

Although solutions to oft-mentioned "resource curse" of DRC and other Central African countries must necessarily be multi-faceted, one avenue is through financial disclosure and securities reform. For example, an important concern regarding all these matters is that little information—on payments to host governments, on environmental impacts, on displaced people, etc.—is available to the public and other stakeholders. Disclosure of government and company information on minerals and mining is important because it can help promote accountability and ensure compliance with the law. Disclosure can also protect government and corporations from being falsely accused of wrongdoings. Access to financial information (e.g., contracts, payments, revenues, etc.) allows citizens and other stakeholders to know how much a government receives for its natural resources and to monitor how public revenues are managed and used.

Many mining and oil companies recognize that the disclosure of financial information may help citizens achieve benefits and ameliorate risks from exploitation of natural resources. For example, a number of extractive resource companies have joined the Extractive Industries Transparency Initiative (EITI)—a coalition of governments, companies and civil society organizations committed to a global standard for transparency in oil, gas and mining. The EITI standard calls for companies to publish what they pay and governments to disclose what they receive from companies. The United States has gone one step further by passing legislation that mandates this disclosure in a section of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Developing countries rich in natural resources are also changing their laws to provide for more access to government-held information. More than 100 countries around the world have enacted comprehensive Freedom of Information Acts (FOIAs) to help implement the right of access to information enshrined in their constitutions. Further, some natural resource laws specifically recognize the need for publicly-traded companies to disclose financial information on payments to host governments in their reporting to financial regulators.

Mining and exploration companies incorporated in Canada comprise a significant proportion of those operating in developing countries around the world. Complaints about their behavior overseas are also

not uncommon; a study[1] carried out by the Canadian Centre for the Study of Resource Conflict (commissioned by a mining industry association) revealed that one-third of 171 reported violations of corporate social responsibility between 1999–2009 implicated Canadian companies. It is therefore of interest to explore the instruments by which their conduct is overseen or regulated by Canada, with particular attention to financial disclosure. The overall goal of this document is to provide background information to this issue as it relates to Canadian companies operating in Africa. The specific objectives are to:

1. Analyze the global dominance of the Canadian mining
2. Assess the Canadian securities regulations regarding natural resource extraction and disclosure requirements
3. Explore other mechanisms that can potentially be leveraged to improve practices of Canadian mineral exploration and mining companies outside of Canada with a view to reducing biodiversity impacts in areas of high conservation value.

Work continues on this white paper, and two policy briefs will be developed from it in FY2013.

Planned workshop on Large Scale Mining in DRC: In collaboration with WWF-DRC and CI-DRC, WCS planned a Large Scale Mining stakeholder workshop for July 2012 in Bunia in Eastern DRC that also planned to address artisanal mining issues in the region. However the workshop was postponed because of civil unrest and the attack on the ICCN headquarters at the Okapi Wildlife Reserve in Epulu. WCS has resumed planning for the workshop which will be implemented in the first half of FY 2013.

B.2 HIGH CONSERVATION VALUE FOREST ASSESSMENTS

With the current scramble for natural resources in Africa, expansion of industrial activities (palm oil, industrial-scale agriculture, logging, transport infrastructure and mining) are an increasing threat to biodiversity. These impacts can be reduced or prevented by a careful process of land-use planning that identifies sensitive areas. The High Conservation Value approach identifies types of high conservation values and provides guidelines for how they should be evaluated. Such information is important for both the conservation community and extractive industries. The HCV approach is referred to by the major certification schemes (developed by the Forest Stewardship Council, but also valued by others, including Roundtable on Sustainable Palm Oil & Climate and Community & Biodiversity Alliance) and leading development bank safeguards (e.g. IFC Performance Standard 6).

The government of Gabon is engaged in a process of land use planning. As part of this process, they will define the likely destination of future plantation development, notably palm oil, rubber and eucalyptus. There is growing scientific consensus that the effective conservation of biodiversity in agricultural landscapes depends more on 'land sparing' than on management actions within individual

[1] The Canadian Centre for the Study of Resource Conflict. 2009. "Corporate Social Responsibility: Movements and Footprints of Canadian Mining and Exploration Firms in the Developing World", October 2009, Commissioned by the Prospectors and Developers Association of Canada. http://www.resourceconflict.org/ccsrc_report_0906.pdf.

concessions[1,2]. This means future land development should be guided by information on priorities for conservation. In instances where land suitable for plantation uses conflicts with biodiversity conservation priorities, industry stakeholders require this information before land is allocated for forest conversion.

HCV criteria established by the certification schemes are generic. For example,

- HCV 1 'Concentrations of biological diversity including endemic species, and rare, threatened or endangered species that are significant at global, regional or national levels.
- HCV 3 'Rare, threatened, or endangered ecosystems, habitats or refugia'

In order for these attributes to be mapped, ***limits and thresholds*** for these HCVs need to be defined and agreed at the national level. For each HCV criteria, it is necessary for stakeholders to agree *when* a given value will be considered an HCV. Key to the process is setting the ***limits and thresholds*** in a way that is scientifically robust, based on a transparent process and repeatable.

Application of the HCV approach in Africa is problematic because in many areas there is a lack of accurate data on flora and fauna, limited experience in conservation planning, and no consensus on how to set thresholds of significance consistent with the concept of High Conservation Value. ABCG is undertaking a two-level approach to improving the use of the HCV approach in the Congo Basin. The aim of this project is to establish a model approach to setting these thresholds for certain HCV attributes. The HCV attributes considered for this project are those for which a reasonable amount of data exists, and those which will contribute added value to the process of land use planning currently underway in Gabon. This year, we have analyzed available ecological data for the coastal forest in Gabon, with a focus on elephants and endemic plants, considering ways to set thresholds of significance for these values to define HCV areas.

Activities and Outcomes:

Report: A Global Review of National Guidance for High Conservation Value

This report, authored by Rachel Neugarten and Conrad Savy of Conservation International, reviews existing approaches to threshold setting for conservation planning in data-poor contexts and their potential applicability to a stakeholder-led HCV decision making process. Global guidance for identifying, delineating and managing HCV areas has been developed and nineteen countries have developed national interpretations. To date, there has not been a systematic review of national HCV guidance.

The authors reviewed existing toolkits and other guidance material, looking for shared themes and examples that could represent best practice with the potential for developing consistent national guidelines. HCV guidance from all or nearly all of the countries reviewed adhered to best practices related to incorporating stakeholder consultation, referring to international standards such as the IUCN Red List of Threatened Species, and including management recommendations (Figure 3-2). Guidance

[1] Streubig (2010) Renewable and Sustainable Energy Reviews 14 (2010) 2443–2444,

[2] Edwards et al (2010) Conservation Letters 3 (2010) 236–242

from relatively few countries adhered to other best practices such as describing detailed methods for mapping HCV, identifying multiple overlapping values, conducting both preliminary and full assessments, including sample survey instruments, or recommending peer review of HCV assessments. Guidance from different countries was inconsistent in its definition of threatened species, definitions of protected areas, and treatment of primary, secondary, and plantation forests. There were also inconsistencies related to minimum qualifying areas for HCV 2 (large intact ecosystems); different quantitative thresholds for erosion prone areas, buffer zones, and basic needs of local communities; and different management recommendations for maintaining or enhancing HCV values.

The authors recommend aligning national and global guidance with identified best practices to improve consistency across national HCV interpretations. Guidelines should be developed for any currently missing HCV values, particularly HCV 5 and 6. Areas of inconsistency should be revisited to ensure that different standards are appropriate given the local context rather than simply a byproduct of diverse processes. The authors also recommend requiring peer review of HCV assessments and conducting independent, regular monitoring of identified HCV areas to build up a repository of documentation to support adaptive management and ensure that outstanding values continue to support ecosystem health and human well-being.

An executive summary of the report is available here.

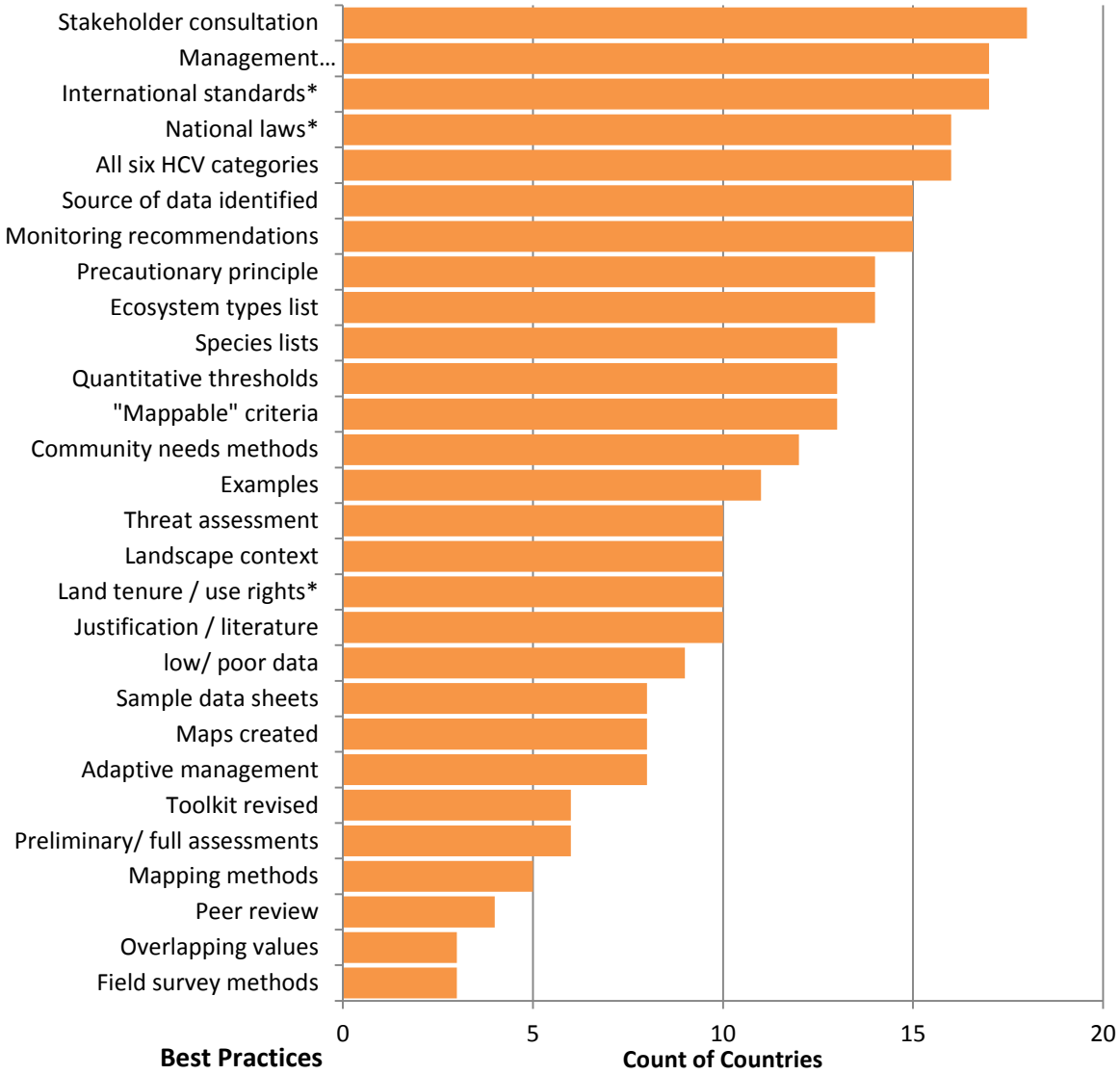

Figure 3-1. Count of countries with HCV guidance that adhered to each best practice.

Project Report: Defining HCV Thresholds in Gabon: Year #1 Report: An Interim Report on Activities and Initial Results

This report, authored by Tim Rayden of WCS, includes contributions from WWF and the Missouri Botanical Garden, who are also participating in efforts related to this task. Key accomplishments and a summary of each are listed below.

- Development of methods for the identification of **forest types** and land units, to facilitate the planning process

There is no accurate classification of forest types in Gabon. It is currently impossible to estimate the rarity of the different forest types or to carry out representational analyses. ABCG members have created a method to classify forest types, based on forest inventory data that is available from the

private sector. This method allows the identification of forest types that are widespread and those that are rare. This method was successfully tested during two projects funded by USAID and GEF, and the results were applied at the scale of forestry concessions. The aim is to use this approach at the national scale, combining data from the forest inventories of several different companies.

WCS and the Missouri Botanical Garden (MBG) have obtained a large amount of inventory data through collaborative agreements with different forestry companies. The first phase of the work is to complete this data set through the acquisition of additional data from certain strategic locations. Agreements with the relevant companies have been secured. Forest inventory data (usually in excel format) is entered into a dedicated Access data base. Each individual inventory plot (100s by concession) and each species with the plot has a unique geographical reference location.

The second phase of the work is statistical analysis of inventory plot data. It allows different forest types to be defined by mapping the alpha and the beta diversity from logging inventories. Different statistical approaches are used that correct for uneven sampling, and give more weight to abundant species. In order to identify forest vegetation types, tree species turnover is analyzed using Non-Symmetric Correspondence Analysis (NSCA).

The final stage is the mapping of the different forest types. In order to interpret the variation in tree species composition spatially, the scores along the NSCA axes are mapped. Vegetation types can then be identified using a similarity matrix and the Ward clustering method. Results from NSCA are used to check the clustering approach and to document the different vegetation types identified.

- Identification and modeling of **endemic plant hotspots**

In a parallel programme of work, existing herbarium records of endemic species collections were collated. The known locations of a set of endemics were mapped using species modelling. These maps were then overlaid to identify areas that appear to represent concentrations of endemic species. These maps can be combined with forest type maps to seek correlations between forest type and endemicity, and to orientate land use decisions.

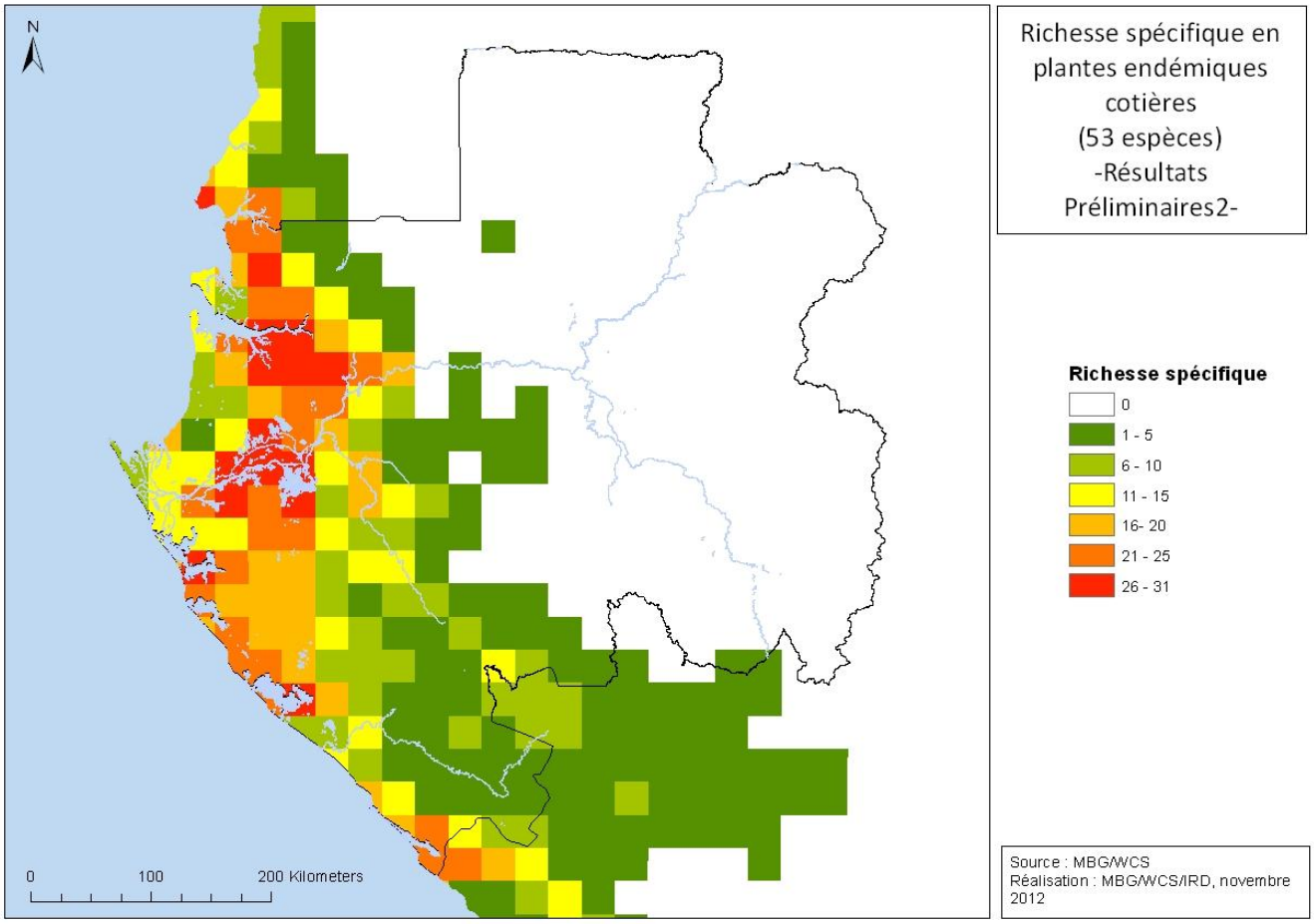

Figure 3-2. Initial results map showing the overlap of the predicted presence of 53 plant species endemic to the coastal zone of Gabon.

- Refining the work done so far on **population mapping** of great apes and elephants to have:
  - A method for identifying priority areas (size, intactness, population viability etc.)
  - Coarse scale maps of priority areas
  - Interpolation maps that facilitate the testing of thresholds *within* these zones

The modelling and mapping of elephant population concentrations at the regional level has recently been completed by WCS (Maisels *et al* in review). The model, based on survey data from several national parks and park peripheral areas, represent the current best estimate of elephant distribution and abundance at the national level.

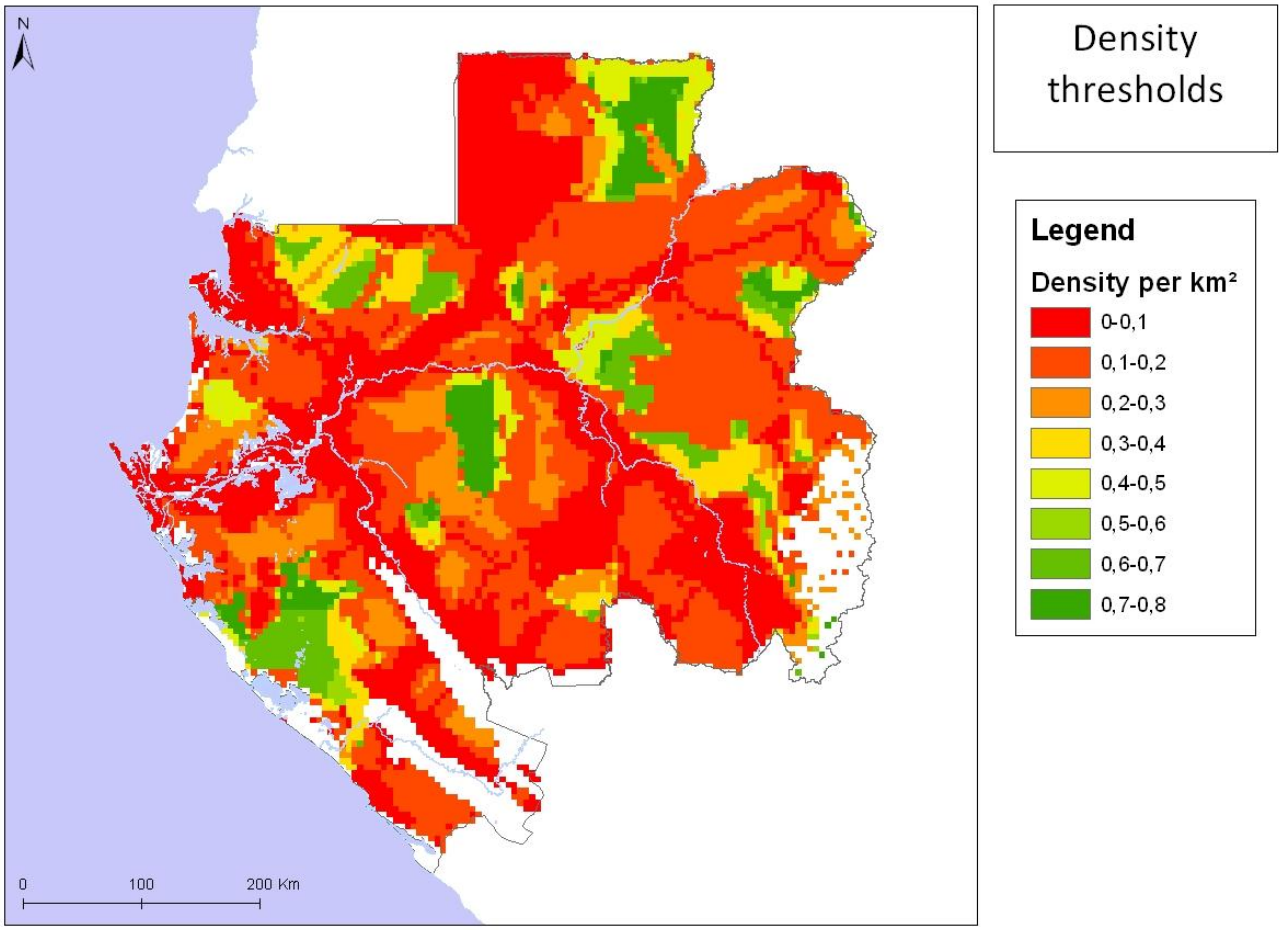

Figure 3-3. Elephant density prediction (individuals per km sq) shown in density classes. The model predicts much higher population densities in protected areas and well managed forest concessions.

The outputs from the modelling exercise can be displayed as a density grid, where each point corresponds to a predicted elephant density. This facilitates the identification of areas that are expected to support concentrations (or higher densities) of elephants. However, the decision about when a concentration becomes nationally significant requires the definition of a threshold value.

This part of the project used the model data to consider different ways to visualise the results and enable a threshold value to be agreed upon by stakeholders. Various approaches were considered and tested.

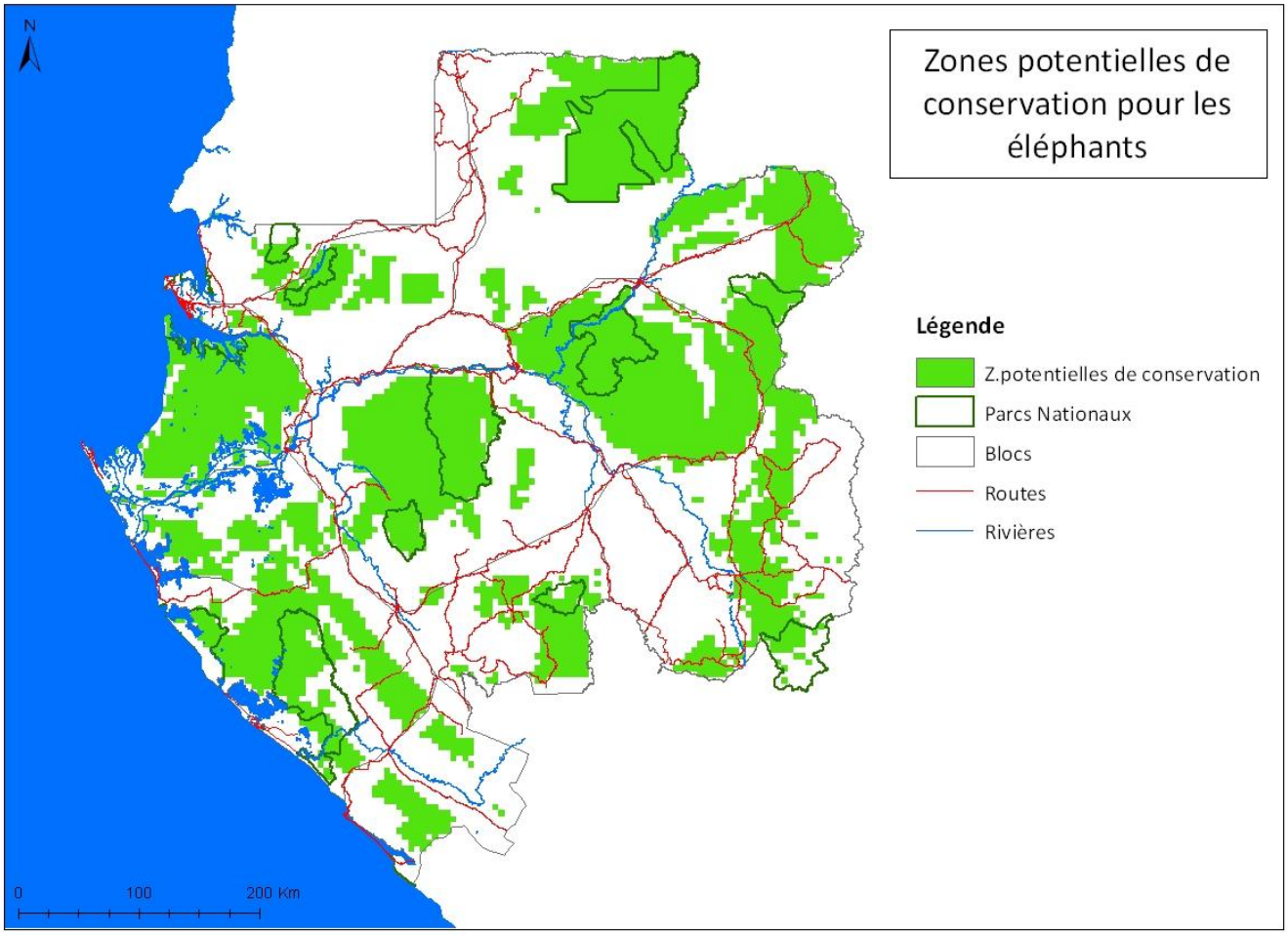

Figure 3-4. The initial outputs from ZONATION showing the areas required to meet the weighted targets.
Note: These results are for demonstration purposes only.

For example, Key Biodiversity Area selection methodologies (IUCN) describe applying thresholds to select areas with a large proportion of the national population of the species. Endemic bird areas are selected on the basis that they contain a threshold of 5% of the global population of the species.

WCS is undertaking a similar population modelling exercise for great apes, based on the same survey data. This modelling work is a prediction of great ape population abundance across the whole sub-region, based on habitat parameters, human population, and the history of Ebola outbreaks.

The same approach will be applied to this data in Gabon to that which is described for elephants (above). This would involve the definition of major habitat units, and the testing of different high conservation value threshold setting approaches.

- Using a biotic index of fresh water systems to identify **important river catchments**

In order to collect data on watershed systems, WWF is working together with a specialist consultant on aquatic ecosystems, Yves Fermon, who has started to collect data on all the geo-referenced scientific

fish capture to elaborate a map on watershed fish biodiversity and endemism. This includes a meta analyses on fish species distribution per watershed, based on published literature and grey literature. A first list of 5,000 point-capture is available.

- Workshop on integrating findings on HCV into HCV standard setting process

It is hoped that the HCV definitions derived from this project can be directly incorporated into a National Interpretation of HCV criteria. A draft of such criteria was produced for Gabon in 2008, at a time when no plantation development was taking place. The definitions proposed in the earlier draft now need to be reviewed in the context of significant habitat loss through plantation development.

In parallel to this project, WWF is facilitating a process of National Interpretation of the RSPO Principles and Criteria for use in Gabon. The two companies producing or planning to produce palm oil in Gabon, Siat and Olam have committed to adhere to the RSPO Principles and Criteria (P&Cs). WWF has been working with the two companies in Gabon to kick-start this process.

In June 2012 WWF organised a 2 day workshop for all relevant stakeholders (including industry NGO and government officials) to raise awareness of the criteria development process and the need to define HCVs. During the workshop it was agreed that 4 thematic working groups would be formed to carry the process forward. Participant at the RSPO workshop were invited to sign up to one or more of the working groups.

Each of these working groups will concentrate on one thematic area of the RSPO as follows:

- Land rights and traditional use rights (including issue of Free, Prior and Informed Consent)
- Pesticides and best practice use for growers
- Rights of workers
- Biodiversity and HCV

A coordination group of RSPO members has been formed to supervise the work of these 4 working groups and develop Terms of References. The members of this Pilot Group are Siat Gabon, Olam, ZSL and WWF (as members of the RSPO) and the Ministry of Agriculture and the Ministry of Environment.

It was agreed that the 4th working group, on HCV and Biodiversity, will use the work of WCS and WWF derived from the ABCG project as the basis for criteria development. The parameters and thresholds under test by WCS and others (described in the above report) will be reviewed by the thematic working group on Biodiversity (the report includes an annex with a list of all participants to the RSPO workshop in 6-7 June). Therefore, in the second year, the work done in the RSPO working group on Biodiversity will be an important component of the project, as it will lead towards a final workshop around March 2013, where thresholds will be set and adopted by stakeholders.

4

Task C: Land Use Management Tools for Conservation

To address the challenge of conserving biodiversity outside protected areas, conservation organizations have begun to assess the range of land and natural resource-use management tools on land outside the protected estate, especially on individual private property and community-managed common property, to achieve biodiversity conservation. Among these tools are zoning ordinances, environmental easements, land purchases and long-term leases, and measures to secure tenure for rural populations. Many of these approaches have yielded positive conservation outcomes in the U.S. and elsewhere and hold promise for wildlife management in Africa. The application of these new land-use management tools and approaches on privately-held lands depend in large measure on the law and practice of land tenure and natural resource property rights in the individual countries.

Weak land tenure governance adversely affects economic development, social stability and sustainable natural resource utilization. Conversely, sound governance engenders accountability, consistency and helps instill confidence in stakeholders (particularly agrarian rural communities) that their various land use rights are recognized, thus enabling an attitude of stewardship for the land and biodiversity.

In the past year, ABCG member organizations including AWF, JGI, TNC and WRI have collaborated to review land tenure issues in key countries including Kenya, Tanzania and Zimbabwe; analyzed communal conservancies and related strategies in several countries; and examine the law and practice of private land-use restrictions and assess their usefulness in achieving biodiversity conservation outside the protected estate. Much progress has been achieved in illuminating land use constraints, and uncovering opportunities for intervention as a first step in tackling poverty, biodiversity loss and conflict resolution. This paves the way to helping communities and governments at all levels implement a knowledge-based strategy integrating biodiversity conservation into local, regional and national development plans.

Development of integrated Management Plan for the Greater Mahale Ecosystem (GME), Tanzania (JGI & TNC)

ABCG members the Jane Goodall Institute and The Nature Conservancy are working together with the Frankfurt Zoological Society (FZS) to assist local governments and citizen in general land management planning in the Greater Mahale Ecosystem of Western Tanzania.

Data collection: Mpanda District will gather existing data on village land use plans, critical water sources, and Wildlife Management Areas (WMA) proposed boundaries that the district will use to inform the integrated land use planning process (re-surveying of village and general land boundaries needed for accurate land tenure data). The process was delayed due to a new Government financial system, but has been resolved as of September 2012. The district technical team is now implementing the planned activities to identify and demarcate the general land within Mpanda district.

Workshop: TNC, JGI, and Frankfurt Zoological Society jointly organized and held a two-day stakeholders' workshop September 28–29, 2012. Participants included 35 District technical and high-level executive staff, as well as Council chairpersons from Kigoma and Mpanda District councils, who gathered to to identify priority conservation sites and reach consensus regarding the conservation status for each of those site within the GME, including catchment forests, Local Authority Forest Reserves, or Village Forest Reserves. The workshop also agreed on a number of strategies to strengthen a Steering committee which will take forward the recommendations of the stakeholders' workshop.

Outreach: Field visits and meetings were held with 35 councilors and 10 district officers from Mpanda district with the aim of increasing their understanding on the extent of encroachment taking place within the general land and discuss an intervention that can stop or reverse this trend. The discussion brought up issues of weaknesses in provision of permits to cattle keepers and the need to develop general management plans that establish mechanisms to protect general lands and especially those of high biodiversity. This process also mobilized political support to reinforce district by-laws for conservation and harmonize their implementation. Districts will hold meetings with villages to discuss priorities and needs.

Mapping: Maps were developed using satellite imagery to identify deforestation rates from 2001 to 2007 and 2011. Information from biodiversity surveys in the region and mapping species distribution (funded through USFWS) and from on the ground data collectors (forest monitors), was incorporated into the maps.

Maps showing forests identified as priority conservation areas within the general land were developed using satellite imagery to identify deforestation rates from 2001 to 2007 and 2011 and used during the general management plan workshop. We integrated findings from regional biodiversity surveys funded through USFWS, and incorporated information collected from forest monitors patrolling the forests.

Figure 4-3. JGI's Emmanuel Mtiti presents at ABCG's meeting on Land Use Rights in October 2012.
Photo: Kamweti Mutu/ABCG.

Figure 4-1. Stakeholders in group discussion to identify key conservation sites based on the TNC chimp survey results.
Note A number of areas were proposed to be conserved using various tools or approach ranging from Village forest reserve to water catchment areas.

Media pieces on this process, resource use management report and the integrated general management plan are not yet developed as the process due to a need for other key activities prior to initiation of the general management plan process. These are now to be completed in FY13.

Conservation Business Model Development (AWF)

With support from USAID's BATS program, ABCG member AWF developed a proposed business model to be used by the Zimbabwe Parks and Wildlife Management Authority to achieve tourism sustainability in its Parks, using Hwange National Park in Northwestern Zimbabwe as the pilot area.

AWF has also developed a business model to pilot application of the indigenization of the wildlife sector focused on the Save Conservancy in Zimbabwe's Southeast Lowveld which has been the center of controversy between government, local communities and private land owners. This will include valuation, zoning and community engagement. The model will be presented to the relevant ministry for review and endorsement. Information and data was collected through site visits, discussions with key partner (i.e. Conservancy members and staff, ZPWMA staff), economic valuations, and community engagement using AWF staff directly and commissioned consultancy. Several high level meetings were held between AWF Senior Program staff led by the AWF President and ZPWMA management, board of trustees, the Minister, USAID Mission & other donors, and partners in Zimbabwe to discuss the findings. By the end of the year, a 'Report of Study and Recommended Model for Piloting' was completed and is being finalized for presentation to the Minister of Environment and Natural Resources Management to endorse recommended course of action.

Report: Understanding the Ecological, Economic and Social Context of Conservancies in Zimbabwe

With USAID/BATS support in 2012, AWF conducted extensive research on the wildlife sector in Zimbabwe; the role of conservancies in Zimbabwe and Africa; and potential business and structural models that may be applied to conservancies in Zimbabwe to achieve long-term conservation and economic sustainability. This work has been completed at the request of the Zimbabwe Parks and Wildlife Management Authority (ZPWMA).

Wildlife in Zimbabwe's Protected Areas, CAMPFIRE areas, and conservancies are declining and at great risk. Habitat throughout Zimbabwe's conservation areas has been severely degraded over the past decade and sources of revenue to support conservation and conservation management are limited due to the economic and political situation in Zimbabwe and the corresponding decline in photographic and hunting tourism.

Conservancies throughout Africa play vital ecological, social and economic roles. While the precise shape, structure and composition of conservancies vary across the continent, one of the key ingredients for success and sustainability of conservancies is the meaningful integration of surrounding communities. Over the past twelve years many of Zimbabwe's conservancies have been settled and fragmented. Combined with a massive decline in tourism and instability and indecision around user-rights, several of Zimbabwe's conservancies have collapsed further marginalizing Zimbabwe's wildlife and conservation estate.

In 2007, Zimbabwe adopted the Indigenisation and Economic Empowerment Act (IEEA) with a goal to support the economic empowerment of indigenous Zimbabweans. The author recommends that private conservancies in Zimbabwe should integrate the surrounding communities where feasible to meet the requirements of the IEEA where feasible. This is the model that has succeeded throughout Africa.

AWF assessed success factors for conservancies in Africa as well as global best practices for conservancies, which can be applied in Zimbabwe. AWF conducted field research, a desktop analysis, a legal analysis, community assessments, and consulted with a diversity of stakeholders for this research. AWF developed a proposed model for conservancies that institutionalizes community involvement and ownership; expands conservancies where feasible; professionalizes the management of conservancies; and meets the requirements of the IEEA.

Zimbabwe was a global leader in conservation and has an opportunity to reclaim this standing by showcasing a viable conservancy and community model at the United Nations World Tourism Organization General Assembly scheduled to take place in Victoria Falls in 2013. Zimbabwe has an opportunity to demonstrate true community empowerment and sustainable conservation solutions.

AWF's work on these issues was presented in an ABCG meeting held on October 2, 2012.

Research on Overlapping Land and Natural Resource Property Rights (WRI)

In many African countries, most land and natural resources are either the property of the state or are public resources vested in or held in trust by the government for the people. While the state may be the owner, rights of access, control, transfer and exclusion—the bundle of property rights—are held under customary tenure arrangements or grants by the state under formal law for land and various natural resources on or below the land (*e.g.*, minerals, oil, natural gas, water, trees, and wildlife). Under formal law, these property rights regimes are separate and distinct. The rights to land often include only surface rights and not rights to these natural resources. As a result, different individuals or institutions may hold surface and natural resource rights on the same plot of land.

While considerable attention has focused on protecting against overlapping land (surface) rights, less attention has focused on reconciling overlapping surface and natural resource rights. Conflict can arise when the various holders of surface and natural resource rights on the same piece of land seek to exercise their rights in ways that contradict each other. For example, when the holder of surface rights wishes to farm the land, while the holder of mineral rights wants to mine, or the holder of tree rights wishes to log the forest, while the holder of wildlife rights wants to manage the forest for game viewing. Security in land is weakened when the holders of natural resource rights are legally empowered to limit or restrict the surface rights held by others.

In most African countries, the property rights regime for land and various natural resources are established and governed by different laws, and implemented principally by different government agencies. For example, land laws provide for surface property rights and sectoral laws (*e.g.*, mineral, petroleum, forest, wildlife, water and other natural resources) establish the property rights regime for

the various natural resources. While the land laws are generally silent on the exercise of natural resource rights on land in which surface rights are held by an individual, many natural resource laws provide for the rights and obligations of natural resource and surface rights holders. For example, the mineral laws often establish the authorities that holders of mineral rights have to enter onto land (surface rights) held by another individual, and the procedures to exercise their mineral rights. Many mineral laws also provide for some roles and responsibilities of surface rights holders regarding the exercise of mineral rights.

WRI's research focuses on the laws that govern land and natural resource property rights and the implications for the holder of the land (surface) rights. The review of laws included petroleum, minerals and trees/forests in six African countries: Kenya, Tanzania, Uganda, Nigeria, Ghana and Liberia. WRI is developing a series of recommendations designed to reduce conflict and promote development, including harmonizing legislation and promoting more coordination across the government agencies responsible for implementing the laws. The full report will be completed in FY2013.

WRI's Peter Veit prepared a presentation focused principally on the research findings on minerals and petroleum in Uganda, Kenya, Ghana and Liberia for presentation at ABCG's Governance and Land Use meeting on Oct 2, 2012.

BOX 1

Options to Strengthen Land Rights

- Land rights include NR rights
- Right of first refusal to NRs
- Opportunities to engage in reviewing bids
- Notification and consent to use NRs
- Landholder rights to use land or provided alternative land
- Landholder can request acquisition
- Social and environmental safeguards
- Compensation for damages & disturbances, rent & share of profits

Source: Veit, Peter / World Resources Institute, 2012

5

Task D: Support for Country 118/119 Tropical Forestry and Biodiversity Assessments

ABCG supports the 118/119 country-level assessments carried out by USGS Forest Service-International Programs by identifying relevant regional and national experts to assist with the assessments. ABCG looks forward to continuing to link relevant contacts in target countries to enable this important work to move forward.

6

Task E: Food Security

The objective of this task is to develop an integrated set of activities that will begin to allow enhanced understanding of the conditions necessary for sustainable agriculture intensification to improve food security, and improved on-farm uptake of biodiversity-sensitive intensification practices. Participating organizations include AWF, CI and WCS.

Through this ABCG collaborative work, we have built knowledge on diversification of food security strategies, the role of agricultural landscapes in climate change mitigation and adaptation, and the linkages to conservation in African landscapes. This work has followed the findings and lessons learned from the experiences in AWF's Zambezi Heartland, WCS's Ituri landscape and CI's spatial analysis work, with a view to scale up the review and analysis in Africa to feed into a formal review of the integrated agricultural landscape initiatives (ecoagriculture) in Africa and a review of the utilization of integrated landscape management to advance climate change adaptation and mitigation.

These reviews are a component of an Initiative led by a group of global partners implementing the Landscapes for People, Food and Nature (LPFN) Initiative[1]. LPFN is a three-year collaborative Initiative to foster cross-sectoral dialogue, learning and action to support the widespread practice of integrated agricultural landscape approaches. In doing so, the Initiative is advancing viable pathways for sustainable development in places where food production, ecosystem health, and human well-being must be achieved simultaneously. One of the Initiative's major objectives is to define and advocate policy and action agendas that support innovators in all relevant sectors in developing ecoagriculture

[1] The LPFN Initiative is currently being lead by eight co-organizing institutions that include EcoAgriculture Partners, World Agroforestry Center, Bioversity International, FAO, UNEP, UN University/International Partnership for Satoyama Initiative, Conservation International, and the Dutch Government Ministry of Agriculture.

landscapes on a scale that would make a significant global contribution toward improving food security, reducing rural poverty, mitigating and adapting to climate change, and conserving biodiversity and ecosystem services.[1]

We have built on some of the major findings of the food security work done to date, that will allow us to scale up the use of improved input packages and participatory land use planning that provides for diversification of food security strategies to building improved farming systems as a tool that contributes to achieving conservation objectives. Unfortunately, due to funding restrictions, WCS was unable to carry out its planned activities for FY2012. In FY2013, those funds will be used to augment WCS's activities in the F.1 Climate Change Adaptation task.

Activities and accomplishments in 2012 included:

Report: Food Security Strategies in the Kazungula and Zambezi Heartlands, and their Link with Conservation Impact and Climate Change (AWF)

This document presents a summary of the findings of a study on food security strategies in two transboundary landscapes (Heartlands) in Southern Africa where the African Wildlife Foundation has been working on conservation and livelihoods work for over 10 years. This study looked in detail into current and alternative food security strategies on the Zambian side of the Heartlands, and their link with conservation and climate change. These are the areas with the largest population numbers and with key challenges relating to food security and the linkages with conservation. Both Heartlands consist of a mosaic of protected areas, buffer zones (Game Management Areas) and community lands, and include important wildlife corridors. The Heartlands are part of agro-ecological zone I, with average rainfall below 800 mm. Soils in this area are generally poorly suited for agriculture with low natural fertility except in areas along the rivers. Both Heartlands are considered to be highly vulnerable to the impact of climate change. Not only is rainfall low in the area, the variability is high and is expected to increase due to climate change. This will lead to more droughts as well as to more floods caused by increase in extreme rainfall events. Primary food security strategies in use in these areas include small-scale agriculture, raising livestock, capture fisheries, aquaculture, and hunting and trading bushmeat.

Climate change models predict that temperatures in the Heartland areas will go up by anything between 1^{O}C and 3^{O}C by 2060. Total annual rainfall is projected to not change significantly, but the variability is expected to increase, leading to more droughts as well as to an increase of heavy rainfall events, which in turn may lead to an increase in floods. The vulnerability of the Heartlands to such climatic changes is high compared to most other parts of the country due to its already limited agricultural potential (lying as they do within agro-ecological zone I) and the fact that many parts of the Heartlands are already prone to floods.

[1] The LPFN initiative is promoting cross-sectoral research, knowledge-sharing, and international dialogue and action through three major components – a Global Review to review existing science and policy, an International Forum, and Action and Advocacy.

Figure 6-1. Food Security Workshop hosted by African Wildlife Foundation in Lusaka, Zambia.
Photo: Jimmiel Mandima /AWF

The greatest potential for conservation and food security impact is through promoting more sustainable and intensive agricultural practices that would increase yields per hectare *and* maintain or increase soil fertility levels. For successful interventions, it is important that they are long term and holistic (looking at all aspects of the farming system and the value chain), avoidance of subsidized inputs and promotion of synergies with climate mitigation and related financing options. To maximize conservation benefits, the interventions should take place within the context of an explicit land use framework and conservation agreement.

Possibly the most difficult conservation issue to address is the widespread, destructive and largely illegal charcoal production. The opportunity costs are high, and the demand for charcoal is constantly growing with increased urbanization, while the capacity of the government to regulate the charcoal trade is weak. Options to explore include the promotion of more sustainable charcoal production models, planting woodlots for charcoal and explicitly targeting current charcoal producers as beneficiaries for interventions in alternative livelihoods e.g. aquaculture and horticulture.

Key future strategies in this region include promoting and monitoring the potential conservation impact of alternative food security strategies. A continued focus on strategic partnerships with government institutions, NGOs and private sector stakeholders whose main mission relates to food security and livelihoods improvement is critical, as is development of holistic programs that address both food security and conservation. There must be balanced attention to conservation and food security with overall positive conservation impact through conservation agreements, land use frameworks (including mechanisms that encourage compliance such as physical demarcations of wildlife corridors) and improved monitoring mechanisms. It will also be important to monitor indicators that assess changing *perceptions* of the people with regard to wildlife as a result of these activities. Similarly, some of the admittedly difficult issues to measure like the trends in HWC, poaching and charcoal production, changes in land use, etc., are nevertheless important indicators for long term conservation impacts for which rigorous monitoring and evaluation tools need to be developed.

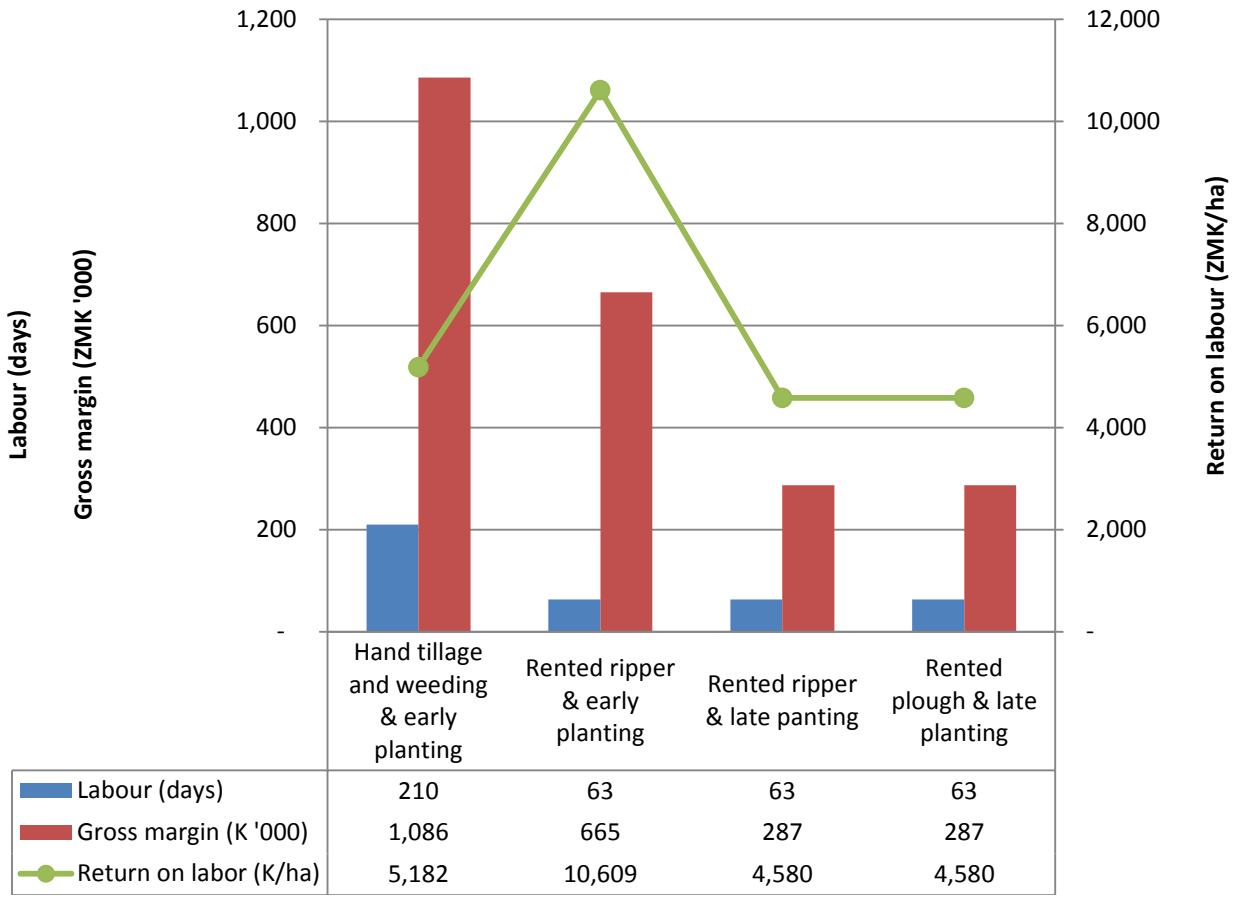

Figure 6-2. Cost benefits comparison between conservation agriculture and non-conservation agriculture practices for farmers without animal draught power.

AWF held a one day workshop in Lusaka, Zambia, where the consultant presented findings of the review and assessment to selected experts drawn from international & local NGOs, district council representatives, Ministry of Agriculture, Department of Fisheries, Forestry, Wildlife Authority and Community based organization representatives.

Report: AWF commissioned a consultancy to conduct in-depth reviews and analyses of the different food security strategies for communities in and around conservation landscapes in southern and central Africa—Zambezi and Kazungula landscapes in Zambia, and Maringa-Lopori-Wamba (MLW) in D. R. Congo respectively. The assessments had a deliberate focus on the potential contributions of capture fisheries, aquaculture and small livestock husbandry to household food production strategies.

AWF held a one day workshop with selected experts in Kinshasa, D. R. Congo to present and share findings from the review and assessment done for MLW.

Report: Integrated Landscape Initiatives: An Emerging Paradigm for African Development and Conservation (CI and EcoAgriculture International)

This report documents benefits of integrated landscape initiatives in agricultural landscapes, agricultural mosaics, and agricultural frontier areas in Africa and highlights key attributes of a sample of initiatives, including governance and institutional structures, key actors and stakeholders, decision-

making processes, management objectives and outcomes. These reviews are being conducted for numerous regions to generate greater understanding of integrated landscape initiatives, distill lessons from recent experiences, and identify opportunities and constraints to furthering these initiatives in Africa and other parts of the world. Findings form the report are being used to address key local, regional, and global challenges associated with competing uses of land, natural resources, and human wellbeing.

Figure 6-3. Food Security Workshop hosted by African Wildlife Foundation in Lusaka, Zambia.
Photo: AWF.

Perspectives on and prescriptions for African rural development are shifting rapidly, fueled by new interest in agricultural investment, new efforts to address widespread land degradation, and the new the realities of climate change. Agriculture and ecosystem conservation in Africa have traditionally been addressed through separate sectoral investments and projects. However, many now recognize that food security, energy production, economic development, biodiversity conservation, and climate change are closely linked issues. These issues converge in rural landscapes, where management decisions by diverse stakeholders dictate the degree to which there will be synergies or tradeoffs among multiple objectives, with implications for the wellbeing and resilience of rural communities. In light of this new reality, there is growing interest among policymakers, international donors, and NGOs in landscape approaches that seek to address these issues in an integrated, multi-scale, cross-sectoral manner. To date, however, understanding of landscape approaches has been fragmentary, often anecdotal, and spread widely across several academic fields and communities of practice. In this study, we survey participants in "integrated landscape initiatives" (ILIs) across sub-Saharan Africa to provide the first region-wide portrait of the contexts, motivations, design, participation, and outcomes of such initiatives. We identified 73 ILIs in 32 countries, most of which have begun in the past six years. While a high portion of the initiatives had an "entry point" in conservation or agricultural development, most were motivated by—and were investing in—the achievement of gains in all four "domains" of landscape multi-functionality: agricultural production, ecosystem conservation, human livelihoods, and institutional strengthening. Initiative outcomes were reported in 22 areas; the most prevalent included increased capacity and improved coordination for landscape planning and management; conservation of biodiversity and ecosystem services; and increased agricultural yields, household cash income, and food security. Investments in new landscape coordinating bodies and in capacity building were associated with greater numbers of positive outcomes. The results provide evidence that ILIs are indeed increasing the delivery of multiple goods and services in rural regions, and that they are helping stakeholders mediate the tradeoffs and synergies among these outcomes. Perhaps more interestingly, the findings suggest that integrated approaches may sometimes be a more effective means to achieve specific sectoral aims such as boosting agricultural production or conserving biodiversity.

Preliminary findings were discussed at the Landscapes for People, Food and Nature International Forum in Nairobi, Kenya in March 2012. The LPFN is a strategic 3 year initiative focused on achieving multifunctional landscapes that address food security, biodiversity conservation, ecosystem service provision and human well-being. The event brought together more than 125 experts, farmer representatives, government, NGO and private sector representatives from more than 40 countries, including representatives from ABCG Food Security Working Group members from CI, AWF, WRI and WCS. USAID/BATS funds were instrumental in strengthening participation from African countries including Tanzania, Madagascar and South Africa. In addition to a call to action document aimed at the Rio+20 conference, the conference's outputs included a full report and the formation of a multi-year, multi-stakeholder action plan for the larger LPFN initiative. Additional information on the LPFN can be found on the website at http://landscapes.ecoagriculture.org/ including the conference report, notable for its inclusion of the innovative visual note-taking employed at the conference, the LPFN call to action, and an updated LPFN report that outlines the vision, evidence, and next steps.

Related LPFN Links

- LPFN Forum Report
- LPFN Call to Action

Workshop: Integrating Climate Change Adaptation and Mitigation in Agricultural Landscapes

Hosted by CI and EcoAgriculture Partners, this workshop had the support of USAID/BATS (July 2012). The workshop participants reviewed the potential approaches for achieving mitigation and adaptation within agricultural landscapes, and began to draft a scientific paper identifying policy options which could help promote these approaches.

Figure 6-4. Photo: @Celia Harvey/Conservation International

7

Task F: Addressing Global Climate Change through Adaptation and Actions in Woodlands, Grasslands and other Ecosystems

The conservation experts that developed the Dar Vision identified one of the key components of the vision as: promot[ing] climate change mitigation, and climate adaptation for biodiversity and people (including: ensuring Africa plays a significant role in climate change mitigation advocacy; keeping African greenhouse gas emissions low; linking carbon credit schemes to poverty alleviation and biodiversity conservation, integrating climate science in vulnerability assessments; undertaking disaster preparedness and mitigation efforts; ensuring multi-sectoral and multi-level collaboration and partnerships; and networking to share solutions). ABCG has targeted climate change adaptation and REDD+ readiness in 2010-2011 with BATS support under Task E: Emerging Issues. In 2012-2014, ABCG elevated Global Climate Change strategies to the level of a dedicated task, with a variety of approaches to addressing climate change.

F.1 CLIMATE CHANGE ADAPTATION

ABCG members Conservation International (CI), The Nature Conservancy (TNC), Wildlife Conservation Society (WCS), and World Wildlife Fund (WWF) collaborated to bridge existing knowledge gaps in adaption in FY12. The activities focused on understanding synergies and learning from current adaptation work in the development sector. The highlights were:

Workshop: A two day workshop in Washington DC (April 11th/12th 2012) of the core adaptation task planning team to discuss lessons learned in the previous year, provide updates on existing project work, and identify collaboration opportunities.

Workshop: A Holistic Approach to Climate Change Adaptation in Africa: A dialogue for Conservation and Development Organizations, hosted by ABCG (July 24–25, 2012)

A two day workshop in Washington DC brought together more than 40 members of the development, donor and conservation community to share knowledge, tools, and discuss emerging cross-cutting issues in adaptation. The workshop was designed to encourage cross-disciplinary collaboration and a number of key recommendations emerged, including: a) fostering an open and neutral dialogue, b) building the evidence base for ecosystem based adaptation, c) starting small and working towards bigger projects, and d) working within existing frameworks and partnerships. A full report can be found at on the ABCG website: http://frameweb.org/CommunityBrowser.aspx?id=7471.

Report: A Review of Monitoring and Evaluation Approaches for Ecosystem-Based Adaptation (CI)

This paper, authored by consultant Meg Spearman and Radhika Dave of Conservation International, explores how various organizations and practitioners have approached the design and use of monitoring and evaluation (M&E) tools to record results and assess ecosystem-based adaptation (EbA) projects and programs. The information presented here is based on a desk review of documentation on frameworks and approaches to EbA, discussions among members of the ABCG, and interviews with practitioners currently developing EbA projects and programs. The guidance documents and reports on emerging lessons for EbA that are included in this review have mostly only indirectly addressed the issue of M&E, in part because most of the tools and resources available are intended as planning tools for integrating climate change projections into existing or new projects, rather than M&E tools per se. The authors reviewed guidelines and reports from several institutions and organizations that are attempting to measure EbA effectiveness to: 1) identify criteria and indicators for effectiveness; 2) identify the challenges and opportunities posed by M&E of EbA; and 3) identify the optimal M&E tools or approaches that a practitioner might utilize to track and record results to periodically assess implementation effectiveness. Also provided is a list of the factors that a practitioner may need to consider in designing effective M&E for any EbA approach.

In terms of criteria for success, the review shows that EbA projects are classified as successful according to these guidelines and reports if they: i) improve local livelihoods (CARE/IIED, CBD, UNEP, WCS, WB); ii) improve awareness or understanding of and engagement on ecosystems or ecosystems-services and climate change (CATIE and partners, TNC, UNEP, WCS); and/or iii) enhance the ability of natural systems to resist incremental and/or sudden climatic shifts (all). The role of ownership of, and participation in, adaptation activities, and awareness of climate change among stakeholder groups, are prominent components of all guidelines and reports, for building local and institutional capacity around climate change and EbA. Half of the guidelines and reports (CATIE, GISP, TNC, WCS) interpret the effectiveness of chosen adaptation strategies at least partially through the lens of *resilience*, and half (CARE/IIED, CATIE, CBD, WCS)—not mutually exclusive from the first half—interpret effectiveness through the lens of *vulnerability*.

Some of the barriers associated with M&E of the effectiveness of EbA strategies relate to setting appropriate and realistic objectives in the context of often unpredictable climatic changes and climate variability, uncertain distributions of potential losses, and unknown trade-offs between one adaptation strategy and another over long periods of time. In addition, because changes in ecosystems are inherently complex and long-term (restoration of some ecosystems may deliver no practical adaptation benefit for many years), determining "effectiveness" criteria for a particular EbA project is a key example of the challenges faced by practitioners more broadly in identifying and measuring the successes of adaptation globally. However, we identified several M&E tools or approaches that a practitioner might utilize to track and record results to periodically assess implementation effectiveness. Two case studies from ABCG members are presented that are actively developing M&E strategies for ongoing EbA projects, including the challenges they face in terms of both process and intentions.

Some of the factors a practitioner may need to consider are applicable to M&E of other adaptation approaches: 1) Consider the quality and characteristics of the planning context as input to a robust

baseline; 2) Ensure that each indicator addresses a specific driver of climate-relevant vulnerability; 3) Consider local capacity as the key to monitoring short-, intermediate- and long-term effects; 4) Monitor the context of surrounding activities; 5) Formulate monitoring systems that recognize EbA approaches can be both a process and an action; 6) Use a multitude of types of information; 7) Outline what evaluative questions the project's M&E system will be able to answer.

An Executive Summary of the report is also available.

Outreach

A conference presentation in September 2012 by WCS at the IUCN World Conservation Congress 'Smart climate adaptation' workshop in Jeju, South Korea, on the key findings of the 2011 ABCG climate adaptation review. The full review can be found on the ABCG website: http://frameweb.org/CommunityBrowser.aspx?id=8202&lang=en-US.

F.2 CLIMATE MITIGATION—REDD WORKSHOPS

As increasing funds have been available for REDD+ work, ABCG members determined that there were sufficient opportunities for training and capacity building on REDD+ elsewhere. Therefore, this task was "graduated" from the ABCG portfolio in FY2012.

F.3 WOODLANDS AND TRADEOFFS

ABCG members African Wildlife Foundation (AWF), Jane Goodall Institute (JGI) and the Wildlife Conservation Society (WCS) worked together to develop and test a decision framework that allows planners to integrate the objectives of climate change mitigation, climate change adaptation, biodiversity conservation, and economic development into landscape level planning. The objective was to help identify and prioritize areas that will achieve large conservation and mitigation gains, to maximize return on limited conservation and REDD+ resources, while also minimizing the opportunity cost of conservation. The project is predicated on the notion that by getting the right stakeholders in the room and then providing them with better access to data and a methodology to integrate that data into the decision making process, more informed decisions can be made about future land-use in each the landscapes. Highlights from ABCG's work in 2012 include:

- Development of an analysis protocol that facilitates landscape level conservation planning through a transparent and stakeholder driven process. The protocol allows users to explore trade-offs between achievement of conservation objectives, and balancing those objectives with constraints and demands by other stakeholders (eg. tourism, ecosystem services, extractive industries).
- The collection and consolidation of social, ecological and ecosystem service data for Murchison-Semliki landscape, initial data inventory and data collection priorities for the Imbirikani group ranch landscape in Kenya and Masito-Ugalla landscape in Tanzania.

- Development of a Marxan database with biodiversity, ecosystem services, and socio-economic data for the Murchison-Semliki Landscape, and initiation of scenario development to explore trade-offs.

Workshop: Tools to Make Scientifically Sound Decisions about Trade-offs between Different Actions: An Example from the Murchison-Semliki Landscape, Kampala , Uganda , August 27-28, 2012

The workshop brought together 20+ representatives from government, industry, donor, NGO, and academic institutions to present the analysis framework, review data collected to date, and solicit stakeholder input into the development of conservation objectives and priorities for trade-offs analysis. The full workshop report will be available on the ABCG website. Based on the lessons learned at the initial Kampala based stakeholder workshop, the partners have refined the workshop structure for the workshops planned in the next two landscapes in 2013.

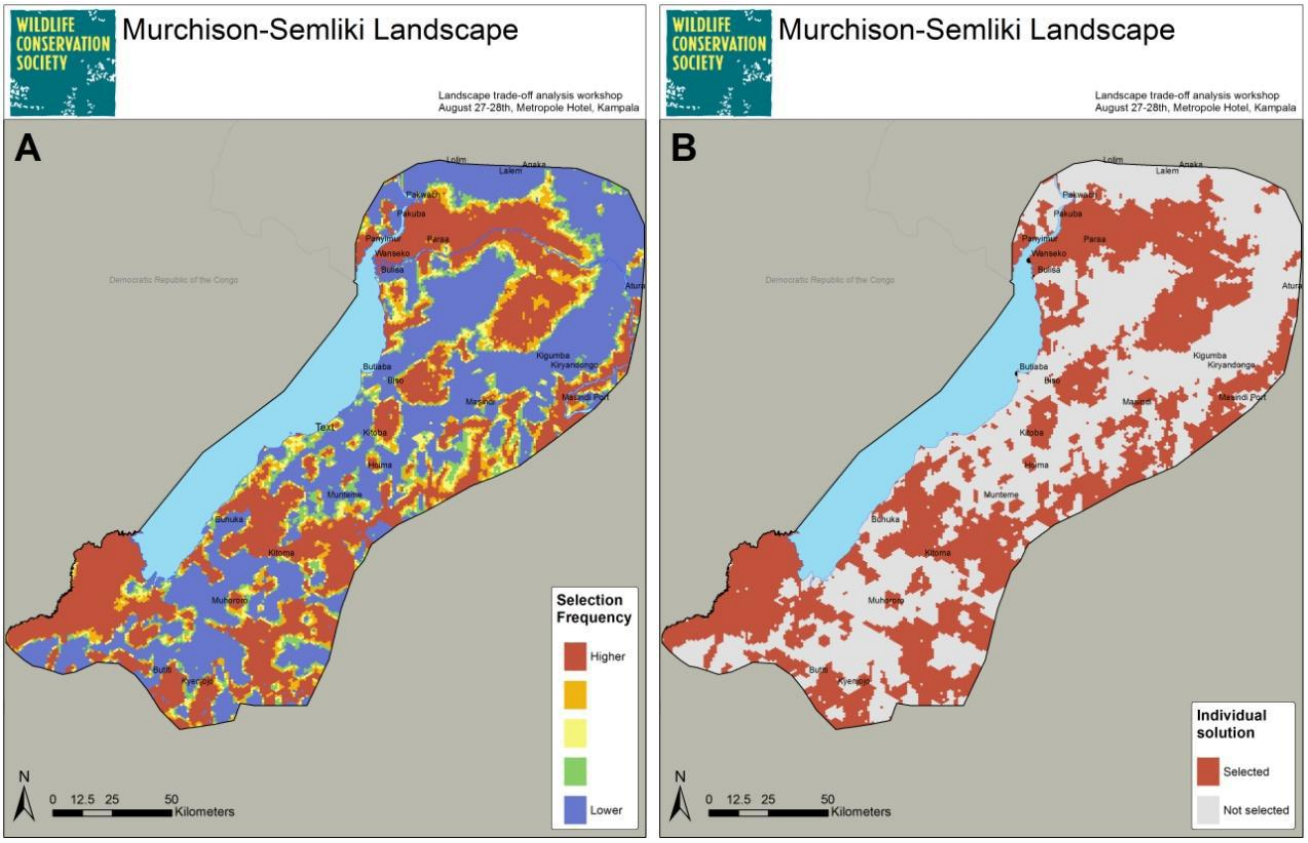

Figure 7-1. Preliminary output presented for discussion at the workshop.
Note. '**A**' displays the relative importance of areas to achieve conservation objectives efficiently (higher importance in red). '**B**' shows a single Marxan solution (red areas) that achieves the specified conservation objectives.

Report: Avoiding conflict and balancing trade-offs: Biodiversity Conservation in the context of Competing Land Uses

Authored by a team from WCS, this report reviews new methods to assess tradeoffs in conservation planning. Conservation planning methods have been developing rapidly over the past 20 years to address the realities of a world with ever competing land uses. These methods allow us to carefully plan resource allocation, explore trade-offs between different interest groups (stakeholders), and promote thoughtful and informed land-use decisions. They also provide a framework to ensure our conservation objectives are achieved, while minimizing the cost to other stakeholders.

This report summarizes how a conservation planning decision support tool such as Marxan, can be used to examine trade-offs in land use (including biodiversity conservation, tourism in parks and forest reserves, small scale agriculture, large scale agriculture, carbon sequestration, timber extraction and oil mining)in the Murchison-Semliki Landscape of Uganda aiming to minimize conflicts as well as identifying options for offsets for residual industrial impacts. It results from a workshop held in Kampala in late August 2012 that demonstrated the Marxan tool, and solicited input from attendees on conservation objectives for the landscape, and relative importance of minimizing the opportunity cost to other stakeholders/land-uses in the region. We used this information to develop six scenarios to demonstrate how the Marxan could be used to identify priority areas for conservation in the landscape. These help identify which areas of the landscape are non-negotiable and which areas are potentially up for discussion and could potentially be switched with another area if it minimizes conflict between the land use options.

This preliminary analysis does not include all the data or input from all the stakeholders that would be needed for a complete landscape-scale analysis. However, the preliminary results indicate that areas where exploration for oil is currently taking place are critical for the achievement for conservation objectives. The overlap between areas of high conservation importance, and oil exploration, highlights the need for careful planning of extractive activities to ensure the long term conservation of species important for the tourism industry such as Rothschild giraffe (an endangered species) and the lion (vulnerable species).

The framework presented here provides an objective and transparent way of analyzing and documenting how decisions are made. It also outlines how an inclusive decision making process can incorporate of the interests of multiple stakeholders, and provide feedback on how preferences for one stakeholder group will impact the interests of others. This transparent planning process minimizes subjectivity, and the use of a spatial optimization tool avoids inefficient outcomes. We aim for this report to provide an example of how systematic conservation planning can be used to address difficult decisions, and would encourage the Strategic Environment Assessment for Oil to seriously consider using similar methods to balance the demand for extractive resources with conservation in this landscape.

F.4 CLEAN ENERGY AND ECO-CHARCOAL

The objective under this task is to build knowledge on clean energy technology by reviewing existing applications in Africa, and use this to inform policy to enhance uptake of these technologies at a scale that provides meaningful conservation leverage through REDD+ initiatives. To achieve this, AWF and JGI engaged a consulting company, GVEP, to conduct field based assessments in Kenya and Tanzania to document information available that relates to clean energy and charcoal production.

Report: Review of Household Clean Energy Technology for Lighting, Charging and Cooking in East Africa—Kenya and Tanzania: A Learning Report

The report, authored by consultants from GVEP for AWF and JGI, focuses on the technologies of improved cookstoves, biomass briquettes and eco-charcoal, solar, biogas and wind. Each technology option has a range of both imported and local products which vary in capacity and price. The energy market in Kenya is slightly more advanced than in neighboring Tanzania and the report has listed key suppliers of these technologies in both countries. Whilst most are located in the major cities and towns, they will supply products countrywide and are expanding their activities into rural areas through partnerships and dealer networks.

In addition to suppliers of energy technologies, a number of stakeholders are active in promoting and disseminating these technologies, several within conservation contexts, such as Wildlife Works, WWF and African Solar Design. Lessons can be learned from the experience of these organizations when planning the introduction of energy technologies.

Promotion of energy technologies, such as improved cookstoves and biogas, has been ongoing in Kenya and Tanzania for several decades, yet the uptake of the technology remains relatively low. This report has outlined some of the barriers that have hindered the uptake of these technologies including the lack of affordable financing for both the consumers and entrepreneurs operating in the sector. Many initiatives initially disseminated energy technologies for free which has left the end user with a sense of entitlement and reluctance to pay for these technologies on a commercial basis. Lessons learnt from past programs have also been discussed, including the positive effect of peer marketing on the demand for energy products and the importance of having product maintenance available at the local level to maintain confidence in the quality of the product.

Figure 7-2. Women carrying wood in Mwamgongo Village, Kigoma. **Photo:** GVEP International.

A range of financial institutions exist in Kenya and Tanzania from commercial banks, to micro finance institutions to informal savings schemes at the village level, all with differing terms and conditions. Financing for energy products is still at infancy, with Kenya slightly ahead of Tanzania. Current payment options of energy products include upfront payments and installment payment with credit provided through financial institutions or product suppliers. Pay-as-you-go schemes are also being piloted. The cost of small products such as improved cookstoves and small solar lanterns are low, and therefore financial institutions often do not include such products into their lending portfolio for customers as transaction costs will be higher. Without key technical experts, financial institutions often face problems with quality assessments, and it is recommended that certified products and guarantees be essential elements for any product financing.

The report also includes site surveys conducted in two locations in Kenya and Tanzania, with specific recommendations for follow up work in these sites.

Toolkit for Implementing Household Energy Projects in Conservation Areas

This step-by-step toolkit, authored by GVEP international for AWF and JGI, walks users undertaking clean energy projects at the household level in conservation areas of Kenya and Tanzania through the process of designing, implementing, monitoring, and evaluating sustainable energy projects within the context of conservation.

The toolkit considers the *technologies* of solar, improved cookstoves, briquettes and eco charcoal, wind and biogas and the prerequisites for when these technologies are suitable. For example solar is most suitable in areas that are off grid that are unlikely to be connected in the next five years and receive sufficient levels of sunlight. Various types of technology exist that may be suited to different situations, for example fixed and portable improved stoves. The pros and cons of each technology option should also be considered; for example briquettes can reduce reliance on charcoal from unsustainable sources but production may be more labor intensive and increase the unit price of the fuel.

In most cases energy technologies will be sourced through *suppliers* and there are several ways to identify local suppliers including talking to local organizations and connecting with energy networks and associations. When considering which suppliers to use it is important to think through factors such as geographical reach, production capacity, maintenance services and the quality of the product.

It is important to consider the current conditions of the *target market and the feasibility of the product* when deciding on a suitable energy technology. Urban and rural markets will have distinctive energy needs and may require different implementation approaches. Some of the factors to be considered are the existing energy needs and habits of the market, the current level of consumer awareness of energy technologies, willingness to pay of the target market and the existing businesses and projects in place. Assessing these factors will help decide on the approach to take, for example the level of marketing and awareness creation needed, how to collaborate with existing suppliers and businesses and the need for consumer financing mechanisms.

Social and cultural factors can have a strong influence on the uptake of energy technologies. Users can attach certain perceptions around cooking methods, fuels and technologies and many communities have been using the same technologies to meet their household energy needs for generations. It is important to assess the current methods being used by the community, any secondary uses the

methods provide (such as heating the house or drying maize) and the impact on resources of introducing a new technology (for example competing uses of agricultural waste that could be utilized for briquette production). When conducting assessments in communities, methods such as household surveys, community stakeholder interviews and focus groups should be used. It is important to seek opinions from all members of the community and hold separate discussions with men and women to allow for open dialogue that consider all views.

A number of different *implementation models* exist for introducing energy technologies. For example, a project based model sourcing directly from an established supplier may be used, or an enterprise model either setting up dealer networks for products or training businesses in the local area to produce energy products. Working with energy businesses can help to develop a commercial and sustainable market for energy products. An energy program may support such business to improve on their technical and business skills in order to scale up and improve access to their services. Appropriate ownership and management are both important determinants of successful projects or businesses.

Figure 7-3. Basic improved charcoal stove in Mwamgongo Village, Tanzania.
Photo: GVEP International.

When planning how the project will be executed think about what activities will need to be done. These are likely to include project planning, setting up an M&E system, recruiting project partners, providing training to businesses, conducting marketing activities and project evaluations. Monitoring and evaluation indicators need to be developed to capture outputs, outcomes and impacts. Indicators could include the number of energy products used, the reduction in household fuel expenditure and improvements in the health of women and children. It is important to capture the baseline for the project area and determine what success looks like for each project.

An Executive Summary of both documents is also available.

F.5 GRAZING MANAGEMENT AND SOIL CARBON

Interim Report: Soil Carbon Dynamics in the Northern Rangelands Trust Member Conservancies, Kenya (Syracuse University and TNC)

A key question in the management of pastoral systems in semi-arid grasslands is how grazing and other management affects soil carbon. Soil carbon may be a key mediator of soil fertility and the capture of available rainfall, but the influence of management on soil carbon is not well understood. In this study, the authors conducted a ground survey of vegetation and soils at 86 sites across 8 different conservancies within the Northern Rangelands Trust in Samburu and Isiolo Districts in northern Kenya. This phase of sampling was designed to accomplish two objectives: 1) to establish a baseline for

comparison of soil carbon over time, and 2) to test a predictive model that estimates the accrual rate of carbon based on a few soil and vegetation characteristics. To accomplish these objectives, sites were non-randomly selected to encompass a wide range of soil types across as many conservancies as possible, and to compare areas of different livestock grazing management: no to light livestock grazing (Core Areas), moderate livestock grazing (Buffer Areas), and heavy continuous livestock grazing (Village Areas). While all areas have the potential for wildlife grazing, this grazing pressure is not managed and therefore is not factored into our analysis at this stage.

Figure 7-4. Chart from training workshop on grazing management.
Photo: The Nature Conservancy.

At each site, soil and vegetation were sampled together. Soil was sampled to 20 cm depth, and analyzed for total organic carbon, texture (percent sand, silt, and clay), and bulk density. Vegetation was sampled by clipping live, aboveground plant biomass, and analyzed for lignin and cellulose content. In addition, current and past grazing intensity were estimated for each site. These soil and vegetation parameters (i.e., soil texture, lignin and cellulose content, historic average grazing intensity) along with interpolated average annual rainfall, were entered into a predictive soil carbon dynamic model called SNAP. The SNAP model was used to predict current soil organic carbon (SOC) stocks based on the estimated history of grazing. The mean predicted SOC stocks were then compared with mean observed SOC stocks for each type of management, and predicted SOC stock at a particular site was compared against observed SOC at the same site.

The results suggested that within the NRT Conservancies, the model predicted mean and individual site SOC values with more than 90% accuracy. The SNAP model results suggest that prolonged, heavy, continuous grazing in the NRT Conservancies over the past 30 years has greatly depleted SOC stocks, but that reduction in grazing intensity will lead to recovery of SOC at a potential rate of 0.3-0.5 tons C/ha/yr across a variety of soil types. Because of past degradation, there is a large capacity for recovering SOC stocks in the Conservancies. These results suggest that planned grazing management beginning in the NRT Conservancies should help restore SOC and productivity in these semi-arid grasslands, and could result in an economically viable carbon offset project. Further sampling planned in the coming months will help to validate the accuracy of these assessments across all Conservancies potentially participating in the grazing management program, and more precisely assess the progress of specific grazing management actions within a few selected conservancies.

Northern Rangelands Trust collaboration

The goal of this task is to better understand how holistically planned grazing can be rolled out across multiple community conservancies, and to determine the extent of rangeland improvement and soil carbon sequestration.

Capacity building was a large component of the 2012 work. In FY2012, five grazing coordinators were employed by the Northern Rangelands Trust to coordinate and implement the holistic grazing and soil carbon project covering seven different community conservancies in Northern Kenya. To facilitate implementation, four motorcycles were purchased for the grazing coordinators. The NRT Research and Monitoring team was trained in soil carbon and vegetation sampling. Eight people trained as lead trainers, including a visit to the Africa Centre for Holistic Management in Zimbabwe. In conjunction with the Grevy's Zebra Trust, the NRT team facilitated a **Holistic Grazing Planning Trainer of Trainers Workshop**, during which 16 trainers were trained on holistic planned grazing drawn from 5 conservancies including Meibae, Westgate, Kalama, Kelurruki and Mpus Kutuk as well as NRT staff, grazing committee members and board members from conservancies. Following this, 16 zone level workshops were conducted in eight separate conservancies. In total, 800 people were reached by the holistic management workshops in 2012 out of which 30% were women, 51% elders and 19% youth. Cumulatively up to 2336 people have been trained in holistic planned grazing from project inception to date through the project. In addition, 10 grazing plan dissemination meetings (2 per conservancy) reaching 500 people per conservancy were conducted.

Figure 7-5. Collecting Soil Carbon Samples.
Photo: Northern Rangelands Trust.

Monitoring was also a critical component of the 2012 work. The NRT research team completed the design of a Vegetation monitoring database to facilitate conservancy-led rangeland monitoring. Within the project sites, 200 permanent monitoring stations were identified and sampling was conducted (beginning of growing season) for soil, vegetation, and rangeland health assessment in seven separate conservancies. The samples were submitted to the labs for analysis lignin and carbon equivalent analysis. At the end of this management period, 72 bags of perennial grass seeds were harvested by one conservancy for re-seeding in the next planting season.

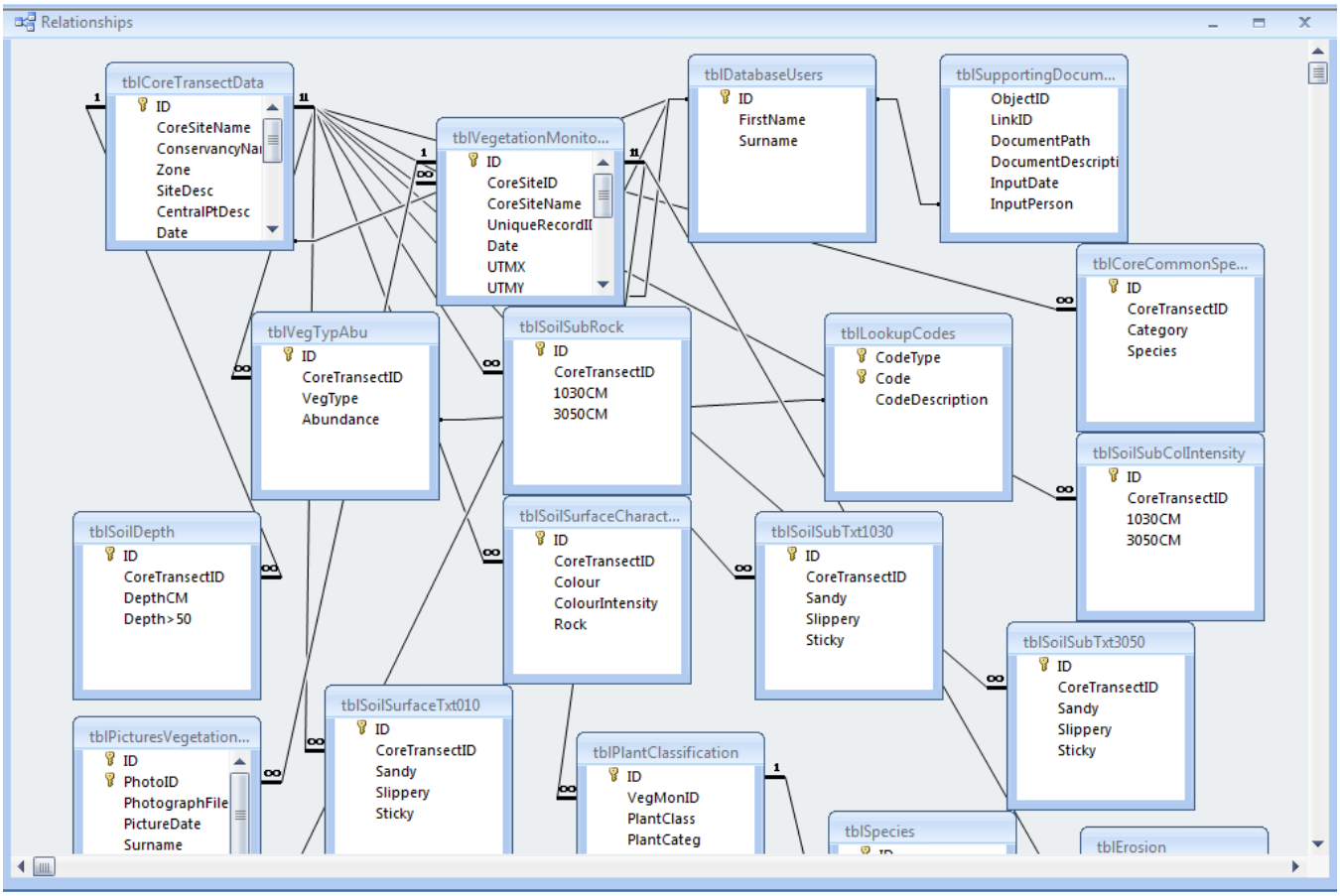

Figure 7-6. Vegetation monitoring relationships in the Rangeland Monitoring Database.

Figure 7-7. Discussion of designated grazing blocks at holistic planned grazing workshop.
Photo: Craig Leggett

Mapping: Five maps with designated grazing blocks were prepared for holistic planned grazing workshop. Five conservancy grazing plans have been mapped and ready for implementation.

8

Task G: Bridging the Gap between Global Health and Biodiversity

G.1 HIV/AIDS AND CONSERVATION

For many years, ABCG has prioritized work on the linkages between HIV/AIDS and conservation. Due to funding restrictions, next steps on this task were postponed to FY13. We will soon move forward with a training workshop on development of workplace policies and programs to build the capacity of conservation professions in addressing HIV/AIDS in the workplace as well as in communities where conservationists work.

G.2 WATER, SANITATION AND HYGIENE (WASH) AND CONSERVATION

The goal for this task was to build the evidence base for how Water, Sanitation and Hygiene (WASH) and freshwater ecosystem conservation projects can achieve simultaneous health and environment goals through more holistic, integrated approaches. Since World Water Day in March 2011, several conservation organizations, including CI, TNC and WWF, have been collaborating with a number of development organizations specializing in Water, Sanitation and Hygiene (WASH) to promote integrated approaches to improve freshwater conservation and human well-being. The rationale underpinning this multi-sectoral collaboration is that humans depend upon healthy freshwater ecosystems for sustaining the provision of multiple services over the medium and longer term—including providing drinking water, sanitation and hygiene benefits. Ecosystem services support some 126,000 species, and these systems can be affected by WASH projects – either degraded or enhanced depending on how they are designed and implemented.

WASH projects can play a greater role in improving the lives of people while protecting freshwater dependent species and resources. Given the existing disparities in access to clean water across the globe, this project focuses on African countries. While globally incredible progress has been made towards achieving the U.N. Millennium Development Goal (MDG) concerning access to safe drinking water, huge disparities still exist. This MDG also includes a sanitation target to halve the proportion of people without access to sanitation by 2015, but unfortunately that is lagging behind and is even considered one of the most off track of all the MDGs. At the same time, Africa's environmental sustainability is under threat, with natural resources under intense pressure due to human-induced threats such as population growth, human migration, water scarcity, and unsustainable natural resource management practices.

With input from ABCG members, the InterAction WASH Working Group, and other connections within those networks, CI drafted a Terms of Reference and outline for a consultant to produce a white paper with syntheses of conservation NGO, USAID and other development group or agency case studies that make a compelling case for integrating conservation and WASH projects to USAID and WASH advocacy groups initially. David Bonnardeaux, a consultant based in Zimbabwe who has worked with both the WASH and biodiversity conservation sectors, was selected to write the white paper.

Report: Linking Biodiversity Conservation and Water, Sanitation, and Hygiene: Experiences from sub-Saharan Africa

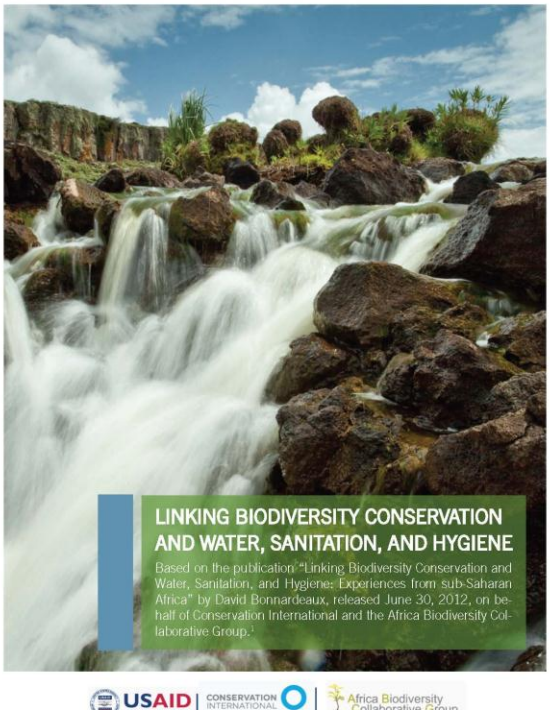

Figure 8-1. Report brief of 'Linking Biodiversity Conservation and Water, Sanitation, and Hygiene: Experiences from sub-Saharan Africa'.

The author reviewed 43 projects in African countries that have worked across health and conservation sectors to improve human well-being and protect water resources. The document also offers lessons learned, challenges and opportunities from projects taking a more holistic approach to conservation and development. A four-page summary document of the above report was disseminated at World Water Week in 2012.

On July 11, ABCG and Conservation International hosted a brown bag presentation to release the report and present the findings and recommendations. On July 18, Janet Edmond participated in the USAID-funded FRAME webinar, where she presented the report findings to additional stakeholders, and established a dialogue about potential next steps with USAID staff. On September 11, the Wilson Center's Environmental Change and Security Program hosted an event, featuring a report highlights from David Bonnardeaux, a integration case example from Bruno Rajaspera from CI Madagascar, and Dennis Warner from Catholic Relief Services as a discussant from the WASH sector.

9

Task H: Forecasting and Analyzing Conservation Needs and Building Capacity on Critical Issues

H.1 LARGE SCALE LAND ACQUISITION

Following the spike in commodity prices in 2007-2008, media reports revealed that investors (*e.g.*, government, international companies, venture capitalists) had expressed interest in 56 million ha of land for agriculture and forestry production in less than one year.[1] Sub-Saharan Africa accounted for 2/3 of this expressed demand. Despite the poor record of large agricultural investments in Africa and parts of Asia, the global median project size of 40,000 ha implies that these investments could have major implications for rural land use and existing land users, especially smallholders. Alarmingly, countries with weak legal frameworks for recognizing rural land rights and poor business environments were most likely to be targeted by recent large land investments. [2]

As oil prices creep up, natural disasters affect farm outputs and other factors, large-scale land acquisitions by foreign actors for agriculture development (food and biofuel crops) are again on the rise in Africa and are having profound effects on natural environments, critical ecosystem services and biodiversity. Land is being allocated to grow food and biofuel (*e.g.*, palm oil, sugar cane, jatropha) crops, principally for export to promote food security in importing country (*e.g.*, Saudi Arabia, China, Bangladesh), to generate profits, and to meet the demand of biofuels in the west.

Considerable attention has focused on Ethiopia, Madagascar and Sudan, but other African countries are also allocating large plots of land (Table 1 shows the 13 main recipient countries in Africa listed by number of land deals and showing two estimates for the magnitude of all the land deals in each country.[3]). In Kenya, land in the Tana Delta is being allocated for sugar cane plantations, displacing hundreds of families and destroying one the Africa's most important bird habitats.[4] In Tanzania, a recent South African acquisition in the foothills of Mt. Kilimanjaro has been fenced, significantly disrupting wildlife movements between the Arusha, Kilimanjaro and Amboseli parks and creating new problems for the Maasai. And in Cameroon, DR Congo and Congo (Brazzaville), natural forest is being allocated to foreign companies to develop large palm oil plantations.

[1] Compared with an annual average growth in the global cultivated area of just 1.9 million ha.

[2] Deininger, Byerlee, Lindsay, Selod, and Stickler. 2010. *Rising Global Interest in Farmland: Can It Yield Sustainable and Equitable Benefits?* World Bank: Washington, DC.

[3] Friis, Cecilie and Reenberg, Anette. 2010. Land Grab in Africa: Emerging Land System Drivers in a Teleconnected World. GLP Report No. 1. GLP-IPO, Copenhagen. Available online at: http://www.globallandproject.org/Documents/GLP_report_01.pdf. Table based on the screening and triangulation of GRAIN (2008), Von Braun & Meinzen-Dick (2009) and Görgen et al. (2009).

[4] http://www.guardian.co.uk/world/2011/jul/02/biofuels-land-grab-kenya-delta

Table 9-1. Land Deals in Africa, 2009

Recipient country	Number of deals	Magnitude (ha) Min	Max
Ethiopia	26	2,892	3,524
Madagascar	24	2,745	
Sudan	20	3,171	4,899
Tanzania	15	1,717	11,000
Mali	13	2,417	2,419
Mozambique	10	10,305	
Uganda	7	1,874	1,904
DR Congo	6	11,408	
Nigeria	6	821	
Zambia	6	2,245	
Ghana	5	89	
Malawi	5	307	
Senegal	5	510	
Other countries	29	10,914	39,365
Total (all 27 countries)	177	51,415	63,111

To meet this ABCG interest and concern, the Jane Goodall Institute (JGI) and World Resources Institute (WRI) are working together to *secure biodiversity and other critical ecosystem services important for rural livelihoods from the threat of large-scale land acquisitions for agricultural production purposes*. This work includes risk mapping, due diligence on land risk, investigations of the investment environment in various regions in Africa, and an assessment of spatial planning tools for balancing biodiversity and large-scale agricultural expansions.

In FY12, WRI completed research on large-scale land acquisitions in Uganda with a focus on the role of the Uganda Investment Code and the Uganda Investment Authority in the identification and allocation of rural land for agricultural investment, especially by foreign actors (e.g., food and biofuel production). A key product of this work was the compilation of **Risk Maps for Uganda** regarding the following products:

- Jatropha
- Maize
- Oil Palm
- Sugar

Report on the investment environment and safeguards applicable to large-scale agricultural investments in Uganda

WRI produced a report on the investment environment and safeguards applicable to large-scale agricultural investments in Uganda. Considerably less international attention has been focused on Uganda, where the government has a history of allocating land for large-scale agricultural production. For example, media reports indicate that a deal is underway to lease 840,000 ha in Uganda (2.2% of the country's farmland) to Egypt for wheat and maize production to be shipped back (Sharma 2008). It has also been widely reported that the government has allowed large-scale farming operations in a number of protected areas, including Butamira Forest Reserve and several Forest Reserves on Bugala Island (Veit et al. 2008).

This paper aims to help decision-makers better understand the following topics:

1. The process through which investors—whether domestic or foreign, public or private—acquire agricultural land outside the protected estate2 in Uganda.
2. The social and environmental safeguards applicable by law that are applied to this process.
3. The social and environmental implications of actual recent large-scale land acquisitions and potential projects in areas of high "risk" for land acquisition because of their conservation value and suitability for biofuels production.

Because of its key role in facilitating investor access to land, this paper focuses primarily on the role of the Uganda Investment Authority and its enabling legislation—the Investment Code Act of 1991. Other relevant government institutions and legislation will also be discussed to the extent that they interface with the duties of the Uganda Investment Authority.

This paper is based primarily on interviews with key informants in the Uganda Investment Authority (UIA), the Uganda Land Commission (ULC), and several leading Ugandan NGOs and private sector consultancies focused on land governance and environmental conservation as well as more than 15 other experts in government, the private sector, and civil society. Feedback from all interviewees is presented anonymously. Information obtained from these interviews was also fact-checked and supplemented with a review of relevant literature on recent large-scale land acquisitions and legislation that applies to agricultural land acquisitions. Given the limited availability of peer-reviewed literature on this subject in Uganda and the resulting heavy reliance on key informant interviews, it is recommended that the results of this study be validated through further research.

The study reveals a significant gap between existing laws and policies governing large-scale land acquisition for agricultural investments and the actual processes that have been applied to recent investments. Despite lacking clear legal authority or codified procedures, the Uganda Investment Authority has directly acquired agricultural properties for allocation to private investors. Moreover, the UIA has allocated at least some of this land to foreign investors for commercial agricultural production, which is in direct contradiction to the Investment Code Act. The UIA has also assumed various roles and responsibilities that appear beyond its core competencies, including helping investors identify legitimate owners and occupants. At the same time, it appears that existing social and environmental safeguards have not been adequately applied to large-scale agricultural investments.

Private investment in Uganda's agriculture sector can have an important role to play in transferring new technologies to local farmers, increasing rural incomes, and promoting balanced socio-economic development. However, a number of reforms to existing policy, law, and practice will be necessary to ensure that this investment leads to sustainable and equitable development in Uganda.

In particular, investors should be encouraged to create joint ventures and outgrower schemes with local land owners and occupants to facilitate skills and technology transfer and avoid displacing existing land holders. Where direct land acquisition is justified, detailed rules and regulations will need to be codified and implemented to clarify the role of the UIA and other government institutions in helping investors acquire agricultural land. The government needs to complete a comprehensive recording of rights to public and private lands and resolve existing land disputes to protect the rights of both existing landholders and investors. The UIA also needs to work closely with the Ministry of Lands, the Uganda Land Commission, and the District Land Boards to ensure that the rights of existing land owners and occupants are consistently recognized and enforced during the investment planning and implementation process. Finally, information about all investments—particularly those involving government land acquisitions—should be made publically available to support on-going monitoring and reform and to decrease opportunities for abuse.

There is also an urgent need for the National Environmental Management Authority, the Wetlands Management Department, the Ministry of Water and other relevant environmental agencies to work with the UIA to ensure that all approved investments implement the existing environmental safeguards. In the short term, safeguards related to environmental impact assessment, water use, waste discharge (e.g. of pesticides, chemicals, and herbicides) and wetlands conservation should be the highest priority. In the medium- to long-term, the government also needs to improve these safeguards, in particular by incorporating additional environmental screening into the investment license application process. Procedures for verifying whether a proposed project is in compliance with the relevant environmental laws, and in particular to confirm that an EIA has been completed, should be established and implemented *before* and investment license is approved. Additional resources will also be needed to help NEMA and other environmental agencies monitor approved investments to ensure they are implementing the recommended mitigation actions and complying with all other terms of their environmental management plan. Only through reforms that promote sustainable and socially inclusive investments and clarify the roles of all parties can Uganda ensure these projects lead to sustainable and equitable development.

An abbreviated version of the report, titled **Governance of Large-Scale Land Acquisitions in Uganda: The role of the Uganda Investment Authority** was submitted to and accepted by the Land Deal Politics Initiative (LDPI) International Conference on Global Land Grabbing II, 17-19 October 2012, Cornell University, Ithaca, NY, USA.

Report: Due diligence on lands at risk of or subject to land acquisitions in Uganda authored by M. Mercedes Stickler, WRI

WRI's work on assessing the land acquisition process, including applicable social and environmental safeguards, highlighted that agricultural suitability is only one of many factors that influence which lands are acquired for large-scale agro-investments in Uganda. In fact, Uganda's complex land tenure context makes it difficult for investors to acquire land that may otherwise be 'suitable' for investment.

This suggests that identifying lands at risk of land acquisition based solely on their suitability for commercial agriculture would not accurately predict the location of future investments in Uganda. However, no geographical data on land rights in Uganda are available at a small-enough scale to inform land use planning. At the same time, compared to other countries in Africa where the impacts of large-scale land acquisitions have been well documented, relatively little has been published on the impacts of recent agro-investments in Uganda, particularly investments outside the protected estate1. Therefore, this paper seeks to draw attention to the potential social and environmental impacts of future agro-investments in Uganda by presenting existing evidence from recent agro-investments.

This paper aims to help decision-makers better understand the following topics:

- How have large-scale investors recently acquired farmland in Uganda?
- What social changes have been associated with recent large-scale agro-investments?
- What environmental changes have been associated with these investments?

Due to the lack of funds available for primary field research, this paper is based primarily on the few existing case studies of recent large-scale agro-investments in Uganda. As it was not possible to verify these findings through primary field research, any omissions or errors should not be attributed to WRI or the author. To minimize the potential for error, conclusions drawn from these case studies were supplemented with information from interviews with key informants in the Uganda Investment Authority (UIA), the Uganda Land Commission (ULC), and several leading Ugandan NGOs and private sector consultancies focused on land governance and environmental conservation.

This report demonstrates that recent large-scale agricultural investments in Uganda have acquired land through diverse mechanisms that do not always involve the Uganda Investment Authority, which is explicitly authorized to help investors acquire land by the Investment Code Act of 1991. In many cases, these land acquisitions have led to conflict with local stakeholders, and these conflicts have sometimes delayed investment implementation. Moreover, the evidence available suggests that investments that displace existing land users can have significant negative impacts on local livelihoods, while clearing natural vegetation often adversely affects biodiversity.

On balance, it appears that outgrower models—where investors contract with smallholders to cultivate desired crops on existing farmland instead of acquiring the land directly—may be more beneficial to existing landholders in terms of both tenure security and income potential. To the extent that environmentally-friendly production practices are implemented on existing farmland, outgrower models could also potentially reduce the negative environmental impacts associated with clearing natural vegetation for cultivation. Further research based on quantitative impact analysis is necessary to test these conclusions, and the Government of Uganda should take steps to monitor investment impacts on local livelihoods, biodiversity, and ecosystem services. In the meantime, it would appear preferable to promote outgrower models over direct land acquisition to ensure that agro-investments lead to sustainable and equitable outcomes for Uganda's people and biodiversity.

Report: Modeling potential conflict between agricultural expansion and biodiversity in the Greater Mahale Ecosystem, Tanzania (Lilian Pintea, the Jane Goodall Institute)

Incompatible conversion of forests and woodlands to agriculture is one of the major drivers of deforestation, loss of habitat, biodiversity, ecosystem services and increase in CO2 emissions in Tanzania. The country's economy is primarily agricultural based with more than 80% of the nation's population engaged in agriculture. However, the agricultural sector is seen as the major opportunity for investment on the basis that arable land accounts for 44 million hectares out of which only 10.1 million hectares are currently under cultivation (Baha 2012). The National *Kilimo Kwanza* (Agriculture First) initiative launched in 2009 encourages the transformation of the agriculture sector in the country by taking advantage of the numerous opportunities to modernize and commercialize agriculture in Tanzania.

With increases in population size as well as increased interest by foreign and domestic companies in large-scale agricultural investments in Tanzania for export and related investments in bio-energy, the threat to biodiversity and ecosystem services drastically increase, as will CO2 emissions from agriculture conversions. Therefore there is an urgent need to better understand the geography and the ecological, social, economic and political factors driving land acquisitions and the conversion of natural lands to both subsistence and commercial agriculture, to mitigate the impacts on critical biodiversity and ecosystem services and to design landscapes that better work for people, agriculture and biodiversity.

In 2012 JGI completed research on large-scale land acquisitions in Masito-Ugalla Ecosystem in western Tanzania with a focus on modeling and mapping potential conflict between agriculture and biodiversity with special emphasis on chimpanzees as a keystone species for the region. JGI collaborated with Google Earth Outreach and Google Earth Engine teams to develop a cloud platform that enables for the first time to model species distribution in the cloud. This allowed to model and map chimpanzee distribution in Masito-Ugalla using petabytes (thousands of terabytes) of satellite imagery and other ancillary data stored in the Google cloud. In order to improve the likelihood of finding chimpanzee nests during the field surveys over the large and difficult to access remote areas, JGI tested the use of unmanned aerial vehicle (UAV), commonly known as drones.

Figure 9-1. Photo: The Jane Goodall Institute.

The final conflict map was developed by overlaying the predicted potential land for agriculture and chimpanzee suitability layers with watershed, village boundaries, land tenure, protected areas, and distribution of other conservation targets in the region. In addition to chimpanzees, Greater Mahale Ecosystem Conservation Action Plan (2007) defined the following focal conservation targets: Rivers, streams and riparian habitats, Elephants, Montane ecosystems, Bamboo forest, Evergreen

forest, and Miombo woodland/grassland mosaic. All these targets have been combined in one biodiversity index using normalized density and distance functions and overlaid with agriculture potential map.

This study is preliminary and focuses on developing and testing methodologies to model potential conflict between biodiversity and agriculture expansion at the regional scales using Masito-Ugalla Ecosystem as a case study. The methodology will be scaled up to the Greater Mahale Ecosystem in 2013. Only then Marxan optimization tools could be used to identify areas that best balance both agriculture and biodiversity objectives and identify potential safeguards (e.g. specific land use plans, spatial scenarios, or policies) for agriculture expansion. It is clear that agriculture is one of the major threats to biodiversity in the region that could potentially lead to the loss of more than 60% of critical chimpanzee habitats in Masito-Ugalla alone. Agriculture is the predominant economic sector in the area and over 85% of the total population of the Kigoma and Mpanda region depends on agriculture for their livelihoods. However, the bulk of agricultural production comes from smallholder farmers who employ very little capital.

Recently AgriSol Energy Tanzania and Serengeti Advisers Limited, a Tanzanian investment and consulting firm together with Iowa-based Summit Group and Global Agriculture Fund of the Pharos Financial Group, in partnership with AgriSol Energy LLC and the College of Agriculture and Life Sciences at Iowa State University have been planning to invest in agriculture in the land that is currently designated as refugee settlements in Katumba and Mishamo in Mpanda district and Lugufu in Kigoma rural district (Figure 2). In addition to soil fertility and suitability for agriculture, one of the main factors that led to the decision to invest capital in agriculture in former refugee areas was the lack of information on actual boundaries of the village and general lands (Baha 2012). This information was not available either at the national or local levels while former refugee settlements and camps were better demarcated.

Facilitating local communities and government's development of Participatory Village Land Use Plans (see: "*Development of integrated Management Plan for the Greater Mahale Ecosystem (GME), Tanzania (JGI & TNC)*" section) has been consistently identified as one of the main conservation strategies at several Conservation Actions Plans (Greater Gombe, Greater Mahale, Masito-Ugalla, and National Tanzania Chimpanzee Conservation Action Plans). While clarifying land tenure is still an important conservation strategy that needs to be continued, the availability of information on land use boundaries could accelerate and increase land allocations to foreign and local investments similar to AgriSol and make it easier for land grabbing.

Therefore there is an urgent need to identify critical hotspots and priority areas for conservation of biodiversity and other ecosystem services supporting people livelihoods, including agriculture. Tanzania as a nation should take advantage of conserving its biodiversity and ecosystem services and make it an integral part of transforming its agriculture sector.

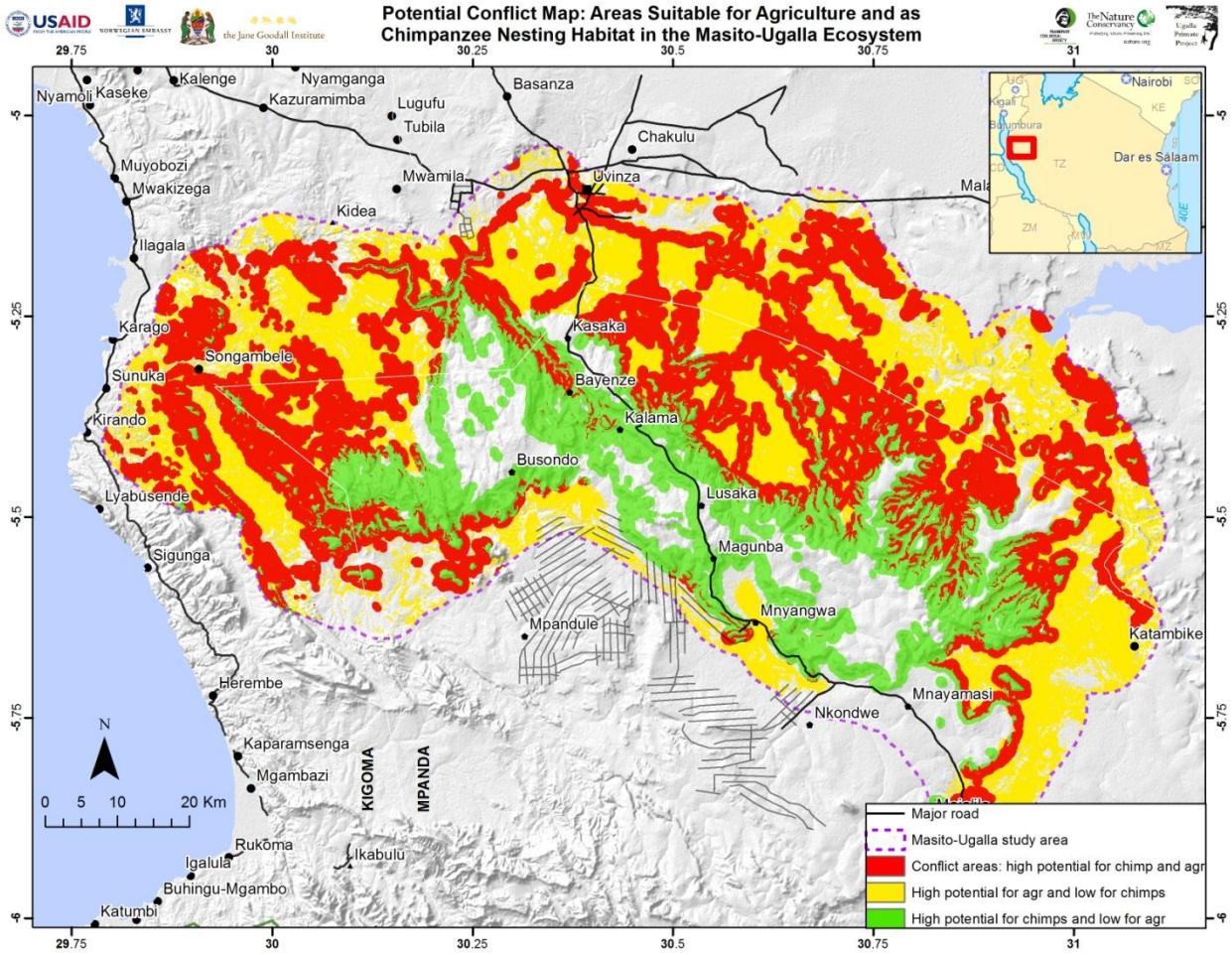

Figure 9-2. Potential human-chimpanzee conflict map.

The modeling approach developed in the case study will be expanded as part of the 2013 work plan for the larger Greater Mahale Ecosystem. The final layers will be used as an input to spatial optimization tool Marxan (see section "*F.3 Woodlands and Tradeoffs*") for developing biodiversity safeguards for agricultural expansion in Tanzania.

H.2 SMART LAW ENFORCEMENT

Initiation of this task was deferred to FY2013 due to funding restrictions. We will soon begin training and capacity building of conservation professionals to use the Spatial Monitoring and Reporting Tool (SMART) for adaptive management of law enforcement in five sites in Central and East Africa.

H.3 WESTERN INDIAN OCEAN

The Western Indian Ocean region presents challenges that are different from other regions with similar initiatives/challenges. There have been many discussions in the past to ensure better coordination of marine and coastal activities across the region with varying degrees of success. Individual countries have tended to focus on national priorities for coastal management, rather than prioritizing regional partnerships and collaboration. In addition, many regional initiatives have not been adequately linked to national priorities and processes, and as a result have had difficulty in sustaining their actions over the long term.

Through regional frameworks such as the Nairobi Convention and Indian Ocean Commission, integrated management of coastal and marine resources has been identified as a common concern for all the south west islands of the Indian Ocean and the coastal countries of East Africa. The marine and coastal ecosystems of these countries share common characteristics. Their respective coastal environments are under similar human pressures and are experiencing the effects of similar natural phenomena in the region, including climate change, the influence of marine currents at the south of the Equator and the impacts of monsoon winds or cyclones which particularly affect the island countries. Collaboration between institutions, information exchange and the sharing of experience and resource management tools will enhance regional cooperation and economic integration.

Moreover, the majority of fishers in the Western Indian Ocean (WIO) region are small-scale operators working from shore. Climate change poses risks to their fishing operations on many fronts, from shifts in species distributions and productivity, to changes in ocean chemistry that affect ecosystem health, to more extreme weather events that destroy infrastructure and productive assets. Small-scale fishers can adapt to climate variability by shifting location, species caught, or levels of investment in fishing and competing options, but these individual responses will not be sufficient to boost food security across the region. Development programs have generally poorly served small-scale fisheries, and fishing communities have often excluded from coastal planning and resource management.

At the national and regional levels, fisheries are under pressure from increased harvesting rates, inequitable and poorly governed trading relations with external and global markets, and ever-greater pressures from competing uses. Furthermore, market chains for many species are not well characterized and trade policy and the costs of adapting to climate change have not been evaluated. Management measures to maintain fish stock and environments are often weak, and undermine the ability to construct climate-resilient fisheries systems. Better integration of small-scale fisheries into development processes, climate change adaptation investments, fisheries and coastal governance and knowledge systems can all help to improve the living and working conditions of fishers, and reduce their vulnerability to economic hardship.

In a response to this context, the nation states of the region and their partners, including WCS, WWF, CI and TNC, are in the process of launching the "**Western Indian Ocean Coastal Challenge**" as a "call to action" focused on integrated marine and coastal management that builds on the efforts of the Nairobi Convention, WIO/LAB Strategic Plan, and the Indian Ocean Commission's efforts to put into place Integrated Coastal Zone Management Action Plans and Locally Management Marine Areas (LMMA) at the country level. The proposed overall goal is: **"Coastal economies and communities sustained by safeguarding the region's vulnerable marine and coastal ecosystems"**

The objective of this ABCG support is to undertake a stocktaking exercise to identify gaps, opportunities, and lessons learned for marine and coastal resources conservation and management, including climate vulnerability and adaptation, in the Western Indian Ocean.

Report: Climate Change in the Western Indian Ocean: A Situation Assessment and Policy Considerations

By Tofondriaka Kakotobe, Christopher Holmes (WCS) and Harfidy Ralison (WWF).

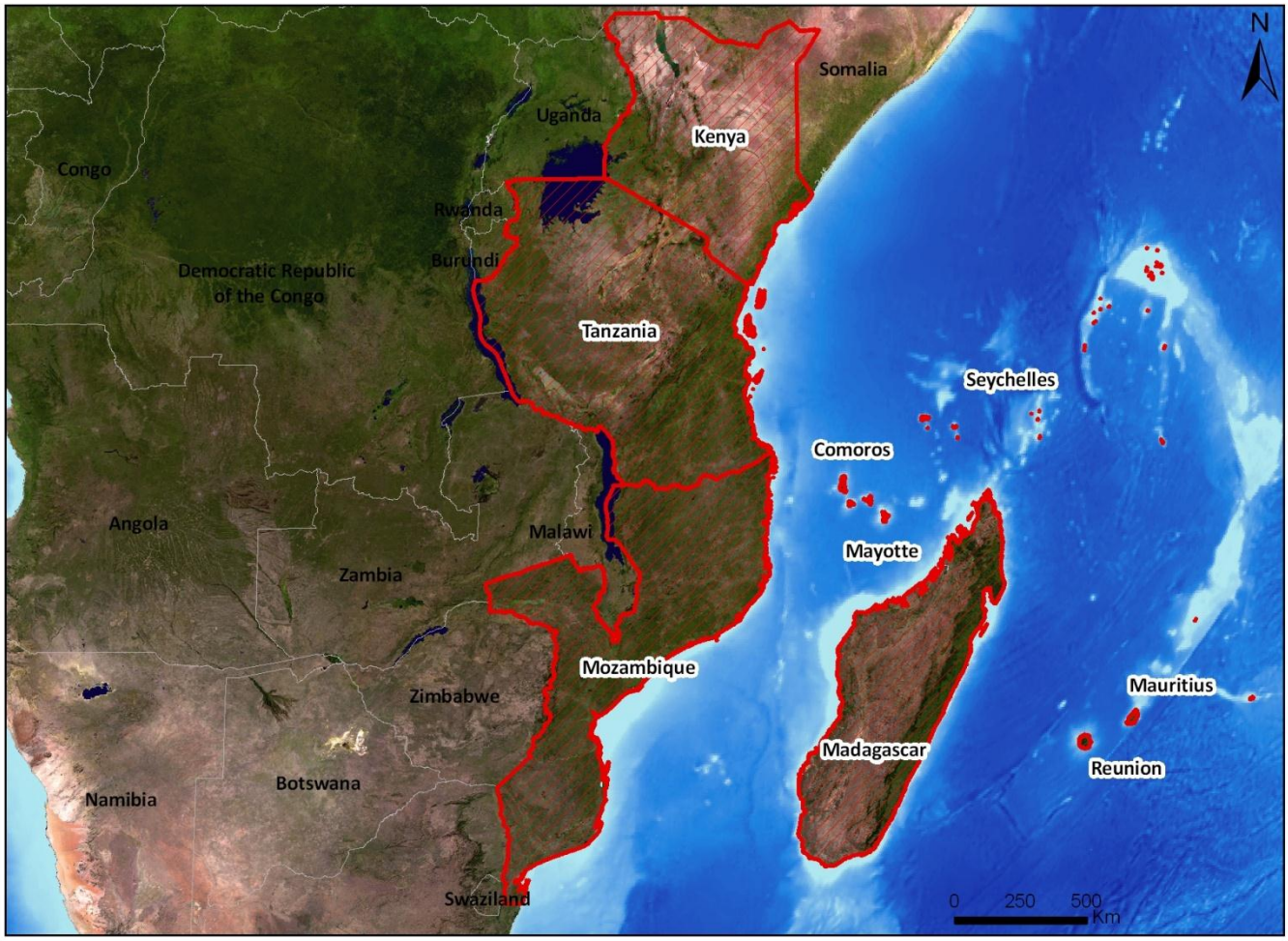

Figure 9-3. Western Indian Ocean countries.
Map: Wildlife Conservation Society

Led by a WCS consultant, the document assesses climate change in the Western Indian Ocean and summarizes regional, national and WIO-C member interventions in the field of climate change adaptation. The report undertakes to review existing national and regional climate change strategies prepared by countries; review existing climate change strategies and plans of the WIO-C members; prepare an inventory of ongoing national and regional Climate Change programs in the region; identifying important gaps in regional climate change programs.

The countries of the Western Indian Ocean are not spared by climate change. Historical observations indicate a temperature increase of 0.6°C to 1.1°C over the last fifty years, a rise in sea level between 0.4 and 1.2 mm per year, and a decrease in precipitation (except for Seychelles). UNDP Climate Change Profiles of the countries in the region predict that in the future (horizon 2090), the region will experience more severe temperature increase (between 2.8°C and 3.9°C and a sea level rise up to 56 cm. Precipitation will be less abundant during dry seasons and more intense during rainy seasons, and the average rainfall will be higher for the Comoros, Kenya, Seychelles, Tanzania, and reduced for Madagascar, Mozambique and Mauritius. The increased frequency of intense cyclones registered in recent years will continue.

The coastal and marine ecosystems of these Western Indian Ocean countries are particularly vulnerable to climate change: coral reefs are highly exposed to bleaching, mangroves exposed to sedimentation and sea level rise, and coastal lands to flooding and erosion. Community livelihoods have the same vulnerability scale particularly coastal agriculture, fisheries, human health and industrial activities.

For these reasons, WIO countries have developed national adaptation action plans (Comoros, Madagascar, Mozambique, Tanzania), and national response strategies for climate change (Kenya, Mauritius, Seychelles). At the same time, integrated coastal zones management approaches are being implemented. However, marine and coastal ecosystem's potential to support community adaptations are rarely formalized in national adaptation policies, and climate issues are not integrated to coastal zones management approaches.

Climate change adaptation policies are implemented through specific country driven projects (1 project in the Comoros, 3 projects in Kenya, 2 projects in Madagascar, 3 projects in Mauritius, 7 projects in Mozambique, 1 project in Seychelles and 3 projects in Tanzania) and regional or multi-national adaptation initiatives (31 in total). In addition, even if their initial objectives are biodiversity conservation, marine protected areas (MPAs) (a total area of 17,186 km^2 within the WIO counties) provide the core foundation for ecosystem-based adaptation.

Created in 2007, the WIO-Consortium aims to address sustainable management of coastal and marine resources in the region. The WIO-C is formed by intergovernmental institutions (Nairobi Convention and the Indian Ocean Commission), and NGOs working in the region (WIOMSA, IUCN, CORDIO, WCS, WWF, TNC, Blue Ventures, BirdLife International and RARE Conservation). Through the actions of its members, the Consortium realizes environmental research and supports management of seascapes and marine protected areas. In total, 51 resilience-oriented projects at different scales are implemented by WIO-C.

Figure 9-4. Malagasy fishing boat.
Photo: Dmitiri-66/Flickr

To a considerable extent, WIO-C activities are focused on biodiversity conservation, and there are few climate change focused activities. For this reason, a paradigm shift is necessary, to move form biodiversity conservation to ecosystem resilience. In addition, ecosystem-based adaptation (EbA) must be adopted as a common issue. This option will be in accordance with Rio +20 Summit, the World Congress for the Oceans and the African Ministers' Council on the Environment's recommendations. To this end, current WIO-C activities and interventions may be considered as first steps towards an ecosystem-based adaptation approach. Upstreaming and upscaling EbA are necessary for resilience of ecosystems, and to support communities' resilience to climate change. Finally, resilience of these ecosystems (particularly mangroves) can be considered as a long-term global warming mitigation option through blue carbon sequestration.

At the first Regional Workshop of the WIO-Coastal Challenge Platform (WIO-CC) held on March 13–14 2012 in Seychelles, ABCG member organizations WCS and WWF assisted in the drafting of the workshop agenda and facilitation of the workshop. Meeting outputs were: 1) WIO-CC platform country members committed and engaged with clear understanding of the benefits of the Challenge; 2) **"**Champion**s"** for forwarding political commitment and country ownership identified; 3) Roles and responsibilities of WIO-CC Platform and coordination mechanism to operationalize WIO-CC defined and understood with different stakeholders; 4) Input for implementation of ISLANDS Work Plan to operationalize WIO-CC: operational plan developed; and 5) Next steps identified.

ABCG members WCS and WWF participated in the Meeting of the Consortium for Conservation of Coastal and Marine Ecosystems in Western Indian Ocean (WIO-C) on August 10, 2012. This meeting took place during the Nairobi Convention meetings held in Maputo, Mozambique during August 1-10 2012. The objective of the August 10th meeting was to discuss, amongst other items, WIO-C operational modalities particularly in relation to planning and implementation of joint activities; progress toward drafting of technical reports for submission to the Seventh Conference of Parties to the Nairobi Convention; formalization of the technical support to WIO Coastal Challenge (WIO-CC); and WIO-C participation to the World Conservation Congress to be held in Jeju South Korea in September.

H.4 FAITH & CONSERVATION

Religious faith plays an enormous role in the lives of people around the world, helping to provide an understanding of the world around us and lighting a moral path to follow in times of uncertainty, need or joy. The intersections of faith and conservation are an important element of the Dar Vision on the Future of Biodiversity in Africa, in which experts from throughout Africa came together to articulate multidimensional approaches to biodiversity conservation in Africa. Recently, the BATS program of USAID's Bureau for Africa commissioned a report on religion and conservation in Africa. This work, From Practice to Policy to Practice: Connecting Faith and Conservation in Africa, was written by Amy Gambrill of IRG, which explores some of the current practices of connecting faith and conservation, provides information on some of the faith groups doing conservation work, and presents several case studies on faith-based conservation. ABCG held a thematic meeting in June 2011 to discuss opportunities, challenges and examples of conservation and faith groups working together.

In 2012, ABCG members the Jane Goodall Institute and World Wildlife Fund-US as well as UK NGO the Alliance of Religions and Conservation, worked together and with faith groups in Africa to build trust, identify common aims and lay the groundwork for future collaborative activities. While JGI, WWF-US and ARC each have their own activities planned, there are significant areas of collaboration and learning to be shared.

Conference: *Many Heavens, One Earth, Our Continent* conference held in September 2012 at the All Africa Conference of Churches, Nairobi, Kenya

The conference including 50 faith participants from 9 countries in Sub Saharan Africa. WWF-US hosted an evening session with WWF Kenya on the protection of wildlife and hosted the faith leaders on a safari to Nairobi National Park. Representatives from the JGI's environmental education program in Tanzania and Uganda presented their work on incorporating environmental education within Islamic schools.

From 18–20 September 2012, ARC hosted the "Many Heavens, One Earth, Our Continent: African Faith Commitments for a Living Planet" conference during which faith groups from throughout sub-Saharan Africa launched their long-term plans for conservation. These plans are compiled in a volume of the same title. During the workshop, more than 100 participants gathered at the All Africa Conference of Churches Archbishop Desmond Tutu Ecumenical Centre for three days of celebrating the long-term conservation plans, as well as discussions of engaging faith communities, developing partnerships, sustainable agriculture, education, tree planting, the role of women, and illegal wildlife trade.

Celebration and storytelling were important components of the conference. Martin Palmer of ARC emphasized the importance of celebration in all faith traditions, and so the conference began with joyous recognition of the work and commitments of each faith group. Guest speakers included the President of the All Africa Conference of Churches, the Acting Ambassador of Norway, the UNEP Africa Region Permanent Secretary and school children from Muslim and Christian eco-schools in Nairobi. Tree seedlings were blessed with Muslim, Christian and Hindu prayers and were presented to Kenyan leaders at the conference.

Figure 9-5. Faith leaders celebrate their commitments to conservation.
Photo: Natalie Bailey /ABCG

The plans focus on faith-based responses to the issues of agriculture practice, sustainable use of land and water and education on the environment in faith schools. They include:

- Tree planting and agroforestry are important parts of many faith plans. For example, the Evangelical Lutheran Church in Tanzania intends to set up 26 tree nurseries training over 200 women in tree nursery establishment, tree planting and agroforestry.
- Many faiths have strong commitments to sustainable agriculture. One of these, the Abaja Ba Kristo (the Servants of Christ) agro-pastoral centre, run by a women's religious congregation in Karongi Region, Rwanda, proposes expanding its farmer training in sustainable agriculture.
- Water, sanitation and hygiene (WASH) projects are also very important to many faith groups, as is environmental education from a faith perspective. ARC is working with the Kenyan Organization for Environmental Education and other faith groups to development an education for sustainable development toolkit for faith primary schools in Kenya that incorporates faith values, using eco-schools as a strategy for the curriculum of faith-based schools.
- Islam, Christianity and African spirituality all have important ways of relating to the environment, and many faith groups have goals for education and community engagement. Mosques in Uganda are promoting Green Fridays—designated days for discussion and action on the environment. In addition, more than 10,000 Christian and Muslim congregations in Ghana will hold awareness creation workshops on environmental protection.

More information on the faith commitments may be found here:
http://www.arcworld.org/projects.asp?projectID=563

Wildlife trade commitments

WWF worked with ARC to develop a three-part strategy on illegal wildlife trade and engaging faith leaders at the September 2012 Nairobi conference. Accomplishments include: 1) Presentation by WWF Sacred Earth, WWF Kenya, and Kenya Wildlife Service on the wildlife crisis and appeal to faith leaders to take this issue seriously. This resulted in the signing of statements by all faith leaders present against illegal wildlife trade. 2) Hosting of over 35 faith leaders on a wildlife safari to Nairobi National Park, where faith leaders visited the ivory burning memorial site and prayed for the lives lost of rangers and wildlife to the illegal wildlife trade.

WWF invited and organized attendance by 10 selected media to cover the event, including AP, Christian Science Monitor, BBC World Service, Voice of America, and Xinhua. WWF and ARC also held a press meeting with four religious leaders representing Christianity, Islam, and Hinduism to develop local interest and coverage among Nairobi-based media.

Environmental Education

The Education for Sustainable Development toolkit for use in faith-based schools in Kenya is on track to be delivered by December 2012 by Kenyan Organization for Environmental Education. It is currently being piloted in schools with the establishment of eco schools and demonstration projects. Teachers from faith groups are being trained in its use. ARC visited Roots and Shoots Clubs, Muslim schools and JGI in Tanzania in May 12 to explore the adaptation of the ESD toolkit and further cooperation with JGI and the Roots and Shoots program in Tanzania. WWF will contribute to a section of the ESD Toolkit on biodiversity and wildlife protection.

Partnerships

- At the Nairobi conference, JGI explored faith based organizations working in-country such as Bishop Kyamanywa Nathan of the Bunyoro Kitara Diocese who is interested in incorporating environmental education to support ongoing conservation efforts. Relationships also developed with UNICEF to support WASH projects in both countries.

Figure 9-6. Christian, Muslim and Hindu faith leaders pray for protection of wildlife and park rangers at the site of the 1989 ivory burn at Nairobi National Park.
Photo: © J.Morgan /WWF-Canon

- WWF US East Africa Program, WWF Sacred Earth and WWF Kenya held a half-day discussion on potential priority landscapes where a pilot partnership would achieve the strongest conservation impact. This resulted in two field trips: one to the Shimba Hills, Diani coast of East Kenya, and the other to Mount Kenya, the source of Tana River which flows into the Lamu coastline. WWF Kenya is now involved in a dialogue with faith leaders in both landscapes that will focus on natural resource management and biodiversity protection. WWF Sacred Earth and WWF Kenya are currently

developing an analysis of past experiences, lessons learned and two separate concepts to pilot formal partnerships with faith communities to benefit conservation efforts in East Africa. This will be ready by the end of October of 2012.

10

ABCG Outreach and Communication

In FY2012, ABCG organized and ran the following meetings and events:

- Mining and Biodiversity in the DRC—Challenges and Opportunities DRC Mining meeting (Oct 11–12, 2011) and brown bag (Oct 12, 2011), co-hosted with CI
- **ABCG Adaptation Toolkit Planning Workshop** (April 11–12), co-hosted by WWF
- Public Health, Bushmeat and Nutrition event, featuring Dr. Christopher Golden, Cara Honzak (WWF), Steve Osofsky (WCS) and Nathalie Simoneau (WWF) (May 2, 2012)
- A Holistic Approach to Climate Change Adaptation in Africa, including more than 40 representatives of development, conservation, humanitarian and donor organizations. (July 24–25, 2012)

In addition, ABCG organized and ran the following 17 brown bags:

- ABCG Adaptation Report Launch, featuring Anton Seimon (WCS), Jenny Frankel-Reed (USAID), Tim Resch (USAID), David Williams (AWF) and Kristen Patterson (TNC) hosted at USAID (Oct 20, 2011)
- Incorporating a Return-on-Investment Framework to Identify Conservation Priorities in Africa brown bag, featuring Dr. Tim Tear, co-hosted with TNC (Dec 12, 2011)
- **Climate Change Adaptation in Africa—Lessons from ABCG Members,** WWF Learning Week, featuring Anton Seimon of WCS (Jan 10, 2012)
- Equatorial Guinea's Economic Boom: Effects on Apes & Elephants brown bag**,** featuring Heidi Ruffler of CI, co-hosted with CI (Jan 12, 2012)
- Working With Faith Communities as Real Partners in Conservation brown bag, featuring Martin Palmer of the Alliance for Religions and Conservation (ARC), co-hosted with WWF (Jan 24, 2012)
- FRAMEwebinar: The Cost of Mining: Artisanal vs. commercial and global policy with local impact, featuring Anne-Gaelle Javelle and Peter Veit of WRI, co-hosted with FRAME (Feb 29, 2012)

- Securing a Future for Lions through Community Conservation in Northern Kenya brown bag, featuring Shivani Bhalla of the Ewaso Lions project (Apr 5, 2012)
- Developing adaptation strategies to deal with climate impacts in Western Tanzania brown bag, featuring Dr. Elizabeth Gray of TNC, co-hosted by TNC (Apr 13, 2012)
- Ensuring the Survival of Great Apes in Eastern Democratic Republic of the Congo brown bag, featuring Dario Merlo of JGI, co-hosted by JGI (Apr 18, 2012)
- **ABCG: Convening, Catalyzing & Communicating** presentation, featuring Natalie Bailey (ABCG), John Buchanan (CI) and Peter Veit (WRI), USAID Biodiversity and Forestry Seminar Series (May 2, 2012)
- The Myth and Reality of Ecosystem Services in Seasonal Tropical Forests: Lessons from the Agua Salud Project brown bag, featuring Dr. Jefferson Hall, co-hosted with WWF (Jun 7, 2012)
- Mitigating the impact of the illegal bushmeat trade: Awareness and alternative proteins in Katavi-Rukwa ecosystem of western Tanzania brown bag, featuring Andimile Martin, Bushmeat-Free Eastern Africa Network Field Officer, co-hosted with US Fish & Wildlife Service (Jun 7, 2012)
- Building Resilience for Wildlife and Livelihoods in Northern Kenya **brown bag, featuring** Craig Leggett of the Savory Institute, co-hosted with TNC (Jun 8, 2012)
- Weaving together Freshwater Conservation and Water, Sanitation and Hygiene (WASH) Initiatives: Improving Biodiversity Conservation and Human Health **brown bag, featuring Janet Edmond, Director of Population & Environment and Colleen Vollberg, Freshwater and Biodiversity Policy Manager, both of Conservation International, co-hosted with CI (Jul 11, 2012)**
- Promoting Mountain Gorilla Conservation through Education & Community Initiatives in Rwanda **brown bag, featuring Amy Clanin, Director of Development, and Valerie Akuredusenge, Executive Assistant, Teacher and Translator, both of Art of Conservation (July 17, 2012)**
- Protecting Bonobos: Rescue, Rehabilitation and Conservation Education in DRC**, featuring Claudine André, founder of Lola ya Bonobo sanctuary (August 15, 2012)**
- Development & Sustainability: Nothing About Us Without Us**, featuring Graça Samo, Executive Director, Forum Mulher, Mozambique. Co-hosted by ABCG and the CARE-WWF Alliance (September 10, 2012)**

In FY2013, ABCG looks forward to further sharing our achievements from 2012. We will work together using a variety of approaches to tackle emerging and high-priority issues affecting biodiversity in Africa including:

- High conservation value forest assessments in Gabon and Central Africa
- Governance and land tenure in East Africa

- Food security and sustainable agriculture in DRC and Zambia
- Addressing climate change through a suite of approaches such as adaptation, prioritizing tradeoffs in woodland ecosystems, grasslands management and clean energy
- Intersections between human health and ecosystem health through WASH and HIV/AIDS efforts
- Identifying risks from large-scale land acquisitions for agriculture
- Building capacity on implementing SMART law enforcement
- Recommendations to address the impacts of climate change on coastal habitats in the Western Indian Ocean
- Supporting partnerships with faith organizations for conservation action
- Sharing results with key stakeholders and the broader conservation and policy communities