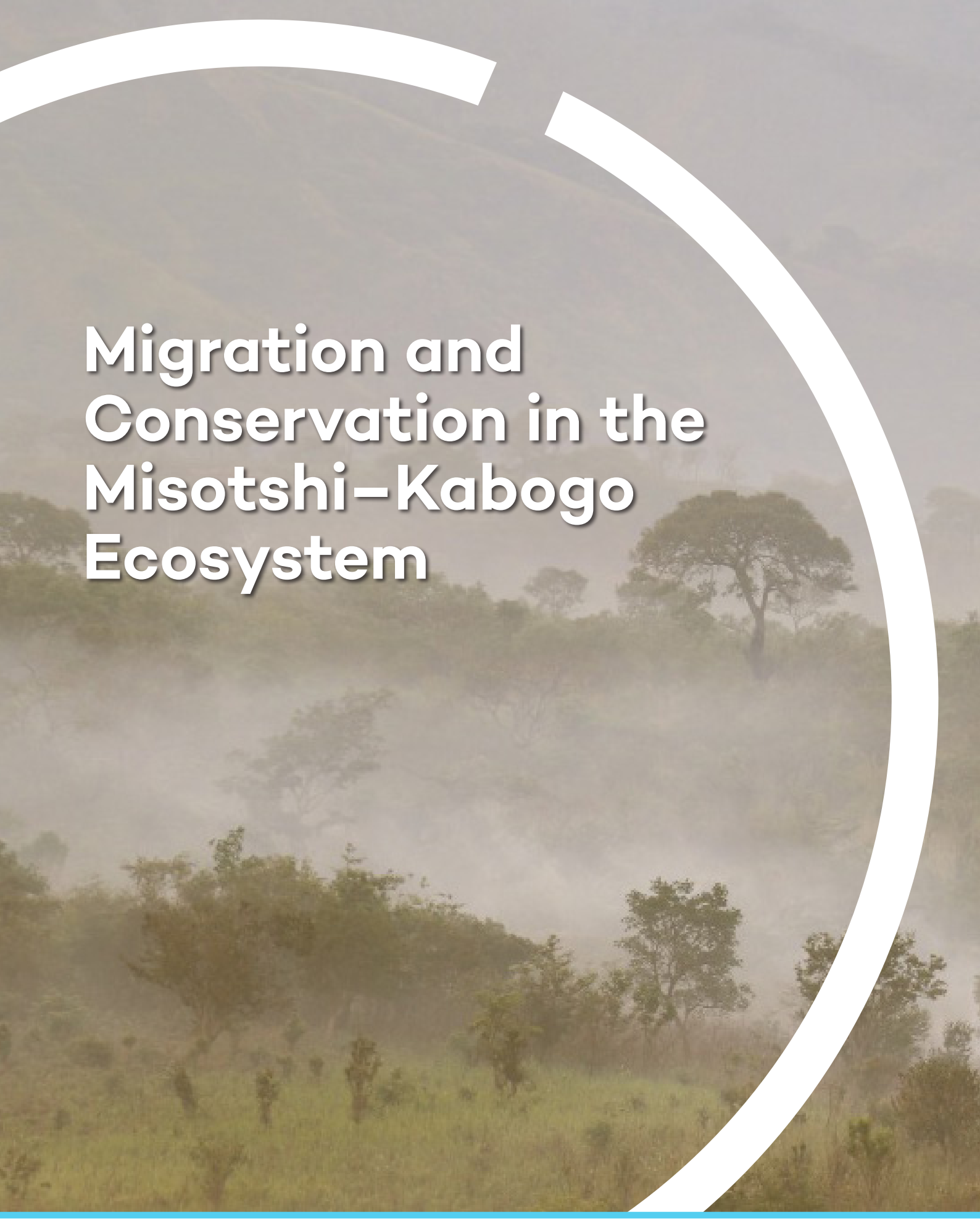

Migration and Conservation in the Misotshi–Kabogo Ecosystem

Alec Crawford
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ACRONYMS

DRC	Democratic Republic of Congo
GNI	Gross National Income
ICCN	Institut Congolais pour la Conservation de la Nature
IISD	International Institute for Sustainable Development
UNDP	United Nations Development Programme
WCS	Wildlife Conservation Society

1.0 INTRODUCTION

Migration has been used for centuries as a means of adapting to and coping with change, both in the Democratic Republic of Congo (DRC) and in the Great Lakes region more broadly. It is driven by a number of oftentimes mutually reinforcing factors, including: livelihood strategies, such as mobile pastoralism; the pursuit of economic opportunities; population pressures; environmental and climate stresses; development policies; and political persecution and conflict.

The livelihood and natural resource management strategies that are adopted throughout the migration process can have a range of impacts on ecosystems and the livelihoods they support. For example, habitat and species loss can undermine ecotourism opportunities, pollution can increase health risks, and land degradation and deforestation can undermine agricultural productivity. As traditional migration systems break down and the push-pull factors increase both in scale and complexity, the migration story in many countries is becoming increasingly complicated. For the Great Lakes region—a region already experiencing myriad forms of natural resource and climate stress—the growing socio-environmental impacts of migration could incubate or reinforce existing social tensions and institutional failures, further threatening critical ecosystems and the livelihoods they support.

Policy-makers and practitioners are not fully aware of these threats, nor are they fully prepared to manage them through appropriate interventions. To help them better understand and address the challenges, the International Institute for Sustainable Development (IISD) launched the Migration and Conservation in the Great Lakes Region project in 2013. The project developed a methodology for better understanding the drivers and impacts of migration on critical natural resources, ecosystems and livelihoods in the Great Lakes region; tested the methodology at three case study sites (the Misotshi–Kabogo ecosystem in the eastern DRC, the Bale Mountains ecosystem in southern Ethiopia, and the Lake Albert ecosystem in Buliisa District in northwest Uganda); and identified responses for policy-makers and practitioners working on these issues on the ground. The research involved a mix of desk research, site visits and on-the-ground surveys. This report will present an assessment of the migration context in the Misotshi–Kabogo ecosystem, as well as suggested response strategies. IISD and the Wildlife Conservation Society (WCS) conducted the research with the generous support of the MacArthur Foundation.

The Misotshi–Kabogo ecosystem is found in the eastern Democratic Republic of Congo, in the lower portion of the Albertine Rift, one of the most species-rich regions of Africa (Plumptre et al. 2006, 2008). It lies along the shore of Lake Tanganyika, and straddles the border of South Kivu and Tanganyika provinces.[1] The ecosystem does not yet have formal protection, but is of great importance to the survival of local species—including 1,500 chimpanzees—due to the fact that forests in the ecosystem's altitude range are increasingly rare in the DRC (Plumptre et al., 2008; Greenbaum & Chifundera, 2012). While the area has been relatively sparsely populated for years because of regional insecurity, migrants have begun to arrive in the region, drawn by perceptions of abundant arable land and an absence of conflict. The corresponding increase in local population, and the migrants' livelihood choices, threaten to have a significant impact on the ecosystem.

The next section explores the conservation context, including Misotshi–Kabogo's key species, the ecosystem's management structures and institutions, and ongoing efforts to formally protect the ecosystem. Section 3 outlines key livelihoods and natural resource use in the area. Section 4 presents the migration context, describing the history and extent of the migration into Misotshi–Kabogo, and the profile of most migrants coming to the area. Section 5 looks at the ecological impacts of this migration on the ecosystem. The final section presents the project team's main conclusions and recommendations, including potential intervention strategies for addressing migration impacts.

[1] Tanganyika province was recently established, and was formerly a district of Katanga province.

2.0 THE MISOTSHI–KABOGO ECOSYSTEM

The Misotshi–Kabogo ecosystem (see Figure 1) is found in the eastern Democratic Republic of Congo. It lies along the shore of Lake Tanganyika, and straddles the border of South Kivu and Katanga provinces. The city of Kalemie, with a population of approximately 270,000, is south of the ecosystem (Mission de l'Organisation des Nations Unies pour la stabilisation en RD Congo [MONUSCO], n.d.). Misotshi–Kabogo is found in the lower portion of the Albertine Rift, one of the most species-rich regions of Africa, with more threatened and endemic vertebrates than anywhere else on the continent (Ayebare, 2013; Plumptre et al., 2008).[2]

The ecosystem does not yet have formal protection, although a gazettement process is underway. At the national level, a limited amount of forest remains within the altitude range found in Misotshi–Kabogo (Plumptre et al. 2008; Kujirakwinja et al., 2010). This makes the ecosystem extremely important to the survival of local species.

[2] The Albertine Rift has been named an Eastern Afromontane Hotspot, an Endemic Bird Area, and a Global 200 Ecoregion (Ayerbare, 2013).

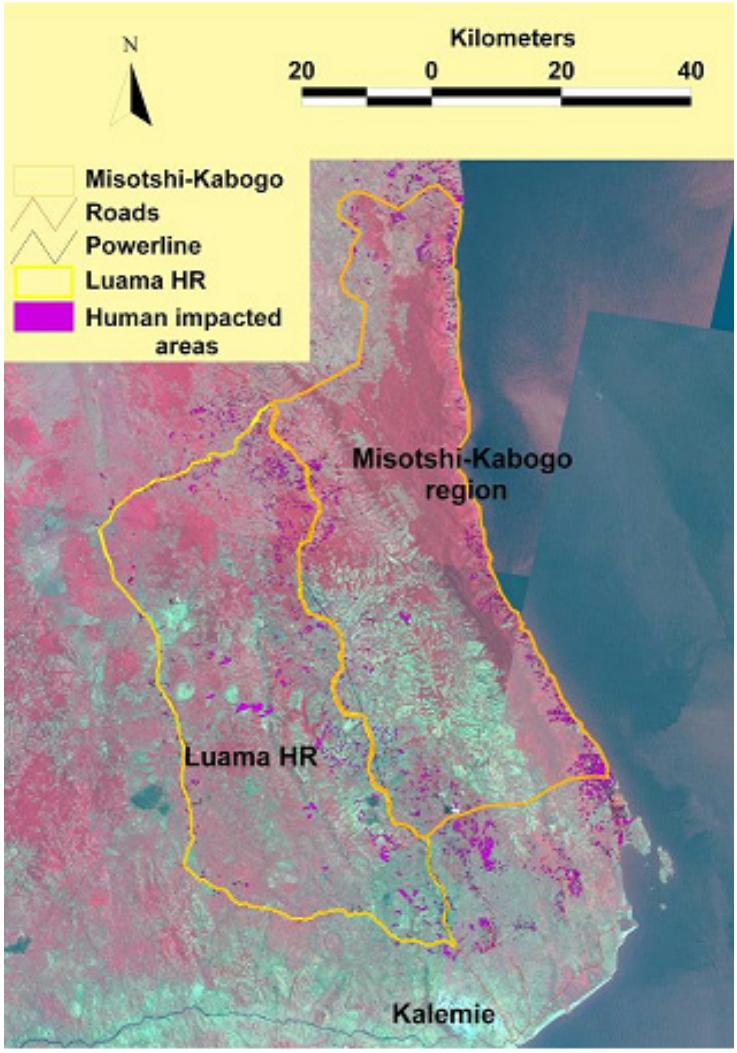

FIGURE 1: MAP OF MISOTSHI–KABOGO ECOSYSTEM AND PROPOSED NGAMIKKA NATIONAL PARK

Source: Plumptre et al., 2010

THE DEVELOPMENT CONTEXT

According to the 2014 Human Development Report of the United Nations Development Programme (UNDP), DRC is categorized as a country of Low Human Development: of the 187 countries included in the report's index, DRC is ranked 186, only ahead of Niger. For the country as a whole, life expectancy remains low at 50 years, while children spend on average just over three years in school, indicators that are both well below the average for sub-Saharan Africa (UNDP, 2014). According to the report, 74 per cent of the population is considered to be experiencing multidimensional poverty, with 46 per cent considered to be in conditions of severe poverty. Gross National Income (GNI) is just USD 444 per capita, with significant gender differences: for women, GNI is USD 390, while for men it is USD 499 (UNDP, 2014).[3]The national population is large (67.5 million, expected to grow to 104 million by 2030), young (median age is 17.5 years), and rural (65 per cent) (UNDP, 2014). Of the total Congolese population, approximately 10 million are found in South Kivu and Katanga provinces (4.6 million and 5.6 million, respectively). Nationally, 2.8 million Congolese have been displaced internally by conflict and instability, the majority of which are in the east of the country. Much of the country (68 per cent) remains forested, though deforestation is increasingly a problem (UNDP, 2014).

Customary land tenure is standard across the vast majority of the region, though these rights are not adequately defined or protected in the national laws regarding land (Vlassenroot & Huggins, 2004). As noted by Vlassenroot and Huggins (2004), the lack of a legal definition for "customary" land over time effectively disenfranchised the rural masses of the DRC, leaving them with "insufficient legal protection against land expropriation by powerful elites" (Vlassenroot & Huggins, 2004, p. 118). Formalizing land tenure remains a key challenge in the area, and the lack of formal tenure makes it easier for local chiefs to allocate lands to migrants with means.

The area around the Misotshi–Kabogo ecosystem was for many years the site of protracted civil conflict. It was from there that Laurent Kabila launched his rebellion again the regime of Mobutu Seso Seko in the 1960s, and when Kabila fled into neighbouring Tanzania in the 1980s, remnants of his rebel group remained in and around Misotshi–Kabogo, hidden in the forests. Their presence made the area too insecure for significant settlement and population growth, and insecurity during the First (1996–1997) and Second (1998–2003) Congo Wars kept local population densities low (Plumptre et al., 2009; Trefon, 2004).

Today, more than 7,000 households live in the area around the Misotshi–Kabogo ecosystem (WCS, 2011). The local population is young, with 64 percent of the population under 20 years of age (Plumptre, 2009). The area lacks adequate social services (including schools and health centres), most people have little secondary education, and almost no one has tertiary education. Conflicts have significantly affected those living in the area, with village populations decreasing considerably during the fighting and the local population experiencing extensive suffering through pillaging, displacement, rape and killings (Plumptre, 2009). Local households overwhelmingly depend on natural resources for their livelihoods and subsistence, and are the main agents of deforestation. Socioeconomic surveys of the region have revealed that the local population suffers higher levels of poverty than people living elsewhere in the Albertine Rift, with people along the lake faring slightly better than those along the road (Plumptre et al., 2010). According to surveys carried out for this research project, the principal needs of the local population are: improved health and education facilities, expanded agricultural extension services, improved provision of potable water, reforestation, enhanced conflict resolution mechanisms (particularly for herder–farmer conflicts), and improved access to credit.

[3] Measured in 2011 US dollars, adjusted for purchasing power parity.

THE CONSERVATION CONTEXT: MISOTSHI–KABOGO

Scientific information on the Misotshi–Kabogo ecosystem has historically been minimal as a result of the limited access conservationists have had to the region due to decades of civil strife (Plumptre et al., 2006). The ecosystem is divided between a number of different habitats: miombo woodland, highland savannah, and a 1,000 km2 block of contiguous, medium altitude and montane rainforest known as Kabobo Forest (Plumptre et al, 2010). Mount Kabobo lies at the heart of the ecosystem, and lends the landscape its dramatic altitude range, from 770 m above sea level (a.s.l.) to 2,725 m a.s.l. (Plumptre et al, 2010). The dearth of similar forests within this altitude range elsewhere in Africa increases the continental importance of the ecosystem: Misotshi–Kabogo has a high number of threatened and endemic species, which tend to congregate at higher elevations throughout the Albertine Rift region (Ayerbare et al., 2013).

The diversity of habitats within Misotshi–Kabogo means that the ecosystem is home to a wide variety of species, including the largest chimpanzee population in Katanga province (approximately 1,500 individuals), as well as populations of bongo (forest antelope), and colobus monkeys (Plumptre et al., 2010). There are a number of species, including elephants, known to be in the ecosystem but have not yet been observed. Biological surveys of the area in 2007 identified at least 1,135 plant species, 71 mammal species, 305 bird species, 14 amphibian and 26 reptile species (Plumptre et al., 2009). An estimated 22 endemic species of bird, two new amphibian species, and four new mammal species (a bat, a rodent and two shrews) were discovered during conservation surveys in the ecosystem in 2007 (Plumptre et al., 2010; Kerbis Peterhans et al., 2013). Taxonomists are currently working to identify potentially new plants and species of amphibian (Greenbaum & Chifundera, 2012; Leal, 2014).

Photo credit: Alec Crawford

Misotshi–Kabogo is one of the only places in DRC where a large population of chimpanzees lives in a forest-savannah habitat similar to that of early hominids (Plumptre et al., 2010). The chimpanzee population, in addition to being one of the biggest groups in Katanga province, is also the most southerly population of the ape in the Congo Basin forests. Local taboos among the Babembe people thankfully forbid the killing of chimpanzees for bushmeat; however, habitat loss remains a very real threat to all species, as do the hunting practices of the migrant community (Plumptre et al., 2010). In addition to its role as a habitat for a diverse range of species, the Misotshi–Kabogo ecosystem serves as a zone of watershed protection and catchment, making it an important area for both local agriculture and the provision of clean water. The forest is also expected to have a mitigating impact on climate change, contributing to local cooling as global temperatures increase (WCS, 2011).

WCS (2011) has identified a number of key challenges threatening the ecosystem. Deforestation is a central threat, and is driven by three main processes: the expansion of slash-and-burn agriculture; the growth of small-scale and illegal mining; and an increase in small-scale logging. Slash-and-burn agriculture is the biggest threat, and is carried out both for subsistence agriculture and for cash crops. Once cleared, previously forested lands are planted with rain-fed crops; after a few years of cultivation, the fields are typically abandoned and the farmers move on to other plots of land. This type of agriculture may be sustainable in tropical regions like Misotshi–Kabogo, provided that long fallow periods allow the land to recover and human populations remain low. However, increasing population densities (resulting in part from migration) threaten the sustainability of this type of agriculture. Looking forward, the introduction of more cash crops for international markets is likely to increase the amount of land required for agriculture (WCS, 2011).

Mining and logging threaten the forest to a lesser extent (Butsic, Baumann, Shortland, Walker, & Kuemmerle, 2015). There are reports of gold deposits inside the forest being extracted by migrants from outside the region, and timber is being cut, particularly in the south of the forest closer to Kalemie (WCS, 2011). There are also several prospecting concessions for mineral resources that overlap with the ecosystem (Trefon 2004). These concessions have been allocated to various companies (including Tanganyika Mining Company, LEDA Mining Congo, Kameco, and Wamico-SPRL), though no prospecting has been carried out in the area to date (Kujirakwinja et al., 2010).

Surveys from the communities surrounding the ecosystem indicate that local stakeholders have observed changes in the forest ecosystem, including (in descending order of importance): deforestation; climate change (in particular a decrease in rainfall); agricultural encroachment; hunting; and bush fires. Those living next to the ecosystem also report a high incidence of animals, including hares, boar, monkeys, antelopes, and baboons, raiding their crops, necessitating constant vigilance on the part of community members. Citing the taste, price and availability, 83 per cent of respondents report that they consume bushmeat, primarily antelope, monkeys, buffalo and bush pig, though they claim to not eat it particularly often. Beyond bushmeat, communities rely on the forest for fuel wood, forest mushrooms, fruit, construction materials, straw and medicinal plants. Most stakeholders believe that the government is most responsible for addressing social and environmental problems in the area, followed by non-governmental organizations, village chiefs, environmental authorities, indigenous populations, and the local communities themselves.

CONSERVATION MANAGEMENT

Misotshi–Kabogo ecosystem does not yet have any formal protection from the Congolese government. For the stakeholders and communities around Misotshi–Kabogo, there are differing perspectives regarding which group has authority over access to and use of the forest's resources: some believe that the communities themselves control such resource access, while others believe that the central government controls access. It is also unclear among stakeholders whether statutory or customary laws govern access to these resources (Vlassenroot 2013).

WCS and the government authority in charge of protected areas management, the Institut Congolais pour la Conservation de la Nature (ICCN), are currently working toward the establishment of a protected area in the Misotshi–Kabogo region. The national government has committed to protecting 15 per cent of its land area, and initial consultations show that the provincial authorities, local chiefs and adjacent communities all support the creation of a protected area for the ecosystem (Plumptre, 2010).

The process for establishing formal protection for the ecosystem has been ongoing for approximately eight years, and continues to have the support of the local community (Kujirakwinja et al., 2010). During that time, migration and local use of natural resources have continued to impact the ecosystem. Although formal protection of the ecosystem is not yet in place, local monitors have been identified by customary chiefs and trained by WCS to collect biodiversity data, enabling a monitoring of human activities and of corresponding changes to the health of key species. WCS coordinates activities with the forestry department authorities to ensure that the country's forestry laws are enforced in those areas that communities have agreed will lie within the park boundaries. Local chiefs are also involved in law enforcement activities for these areas. To support those community activities that will be implemented by WCS and ICCN in the area, local conservation committees have been established in villages surrounding the ecosystem.

According to socioeconomic surveys of the region, 85 to 90 per cent of the population supports protection of the ecosystem, provided that communities can retain a degree of access to the forest's natural resources (Plumptre, 2009). In response to this broad support, WCS has started a participatory mapping exercise to determine the ideal park boundaries. The proposed protected area would be called Ngamikka National Park (taken from the local names Ngandja, Misotshi, Kabili, Kabobo), and it would include a core conservation area surrounded by a buffer zone where neighbouring communities would be able to access forest resources. WCS and ICCN remain confident that formal gazettement of Ngamikka will be achieved, but will need to find financing to cover the cost of long-term park management.

Created in the early 1950s, Luama–Katanga Hunting Reserve (LHR) currently sits adjacent to Misotshi–Kabogo to the west. Despite its protected status, the area has had no formal protection since the late 1990s due to limited ICCN presence and capacities. This limited protection has meant that edges of the reserve have been degraded and some mining concessions have been established within its boundaries. The Environment Ministry decided in 2011 to change the reserve's boundaries to accommodate the mining concessions. Confusion surrounding the new boundaries has meant that the move had a huge impact on the ecosystem, with mining concessions, farms and pasturelands established within the reserve's legal boundaries. To address these threats, WCS and ICCN are working with the Mining Authority and the Environment Ministry to cancel the 2011 amendment act.

Photo credit: Alec Crawford

3.0 KEY LIVELIHOODS AND NATURAL RESOURCE USE

Most people in the Misotshi–Kabogo region remain very poor. The local population lives in two main areas: the fishing villages along the shores of Lake Tanganyika and the villages that lie along the road that links the cities of Kalemie and Fizi. The proposed protected area lies in the largely uninhabited area between these two strips of populated land (there are some artisanal gold miners within the ecosystem, but they are there on a temporary basis) (Plumptre, 2009).

Local livelihoods are dominated by agriculture, pastoralism and fishing. For the communities along the Kalemie-Fizi road, subsistence agriculture is the primary source of income, with some complementary income coming from trading and gold mining. Miners working in the area are typically migrants, usually coming from around Bukavu in South Kivu province; the local population does not think that mining is worth the effort, given the small associated revenues. Lakeside incomes are dominated by fishing, with crafts, small businesses, and timber and thatch sales providing some supplementary income (Plumptre, 2009). The coastal villages tend to be wealthier in terms of income—fishing being a more lucrative livelihood than agriculture locally—though road villages tend to have more land and livestock. These road villages focus more on cattle, while fishing villages concentrate on smaller livestock, like goats and chicken.

Forest resources contribute approximately 4 to 7 per cent to total household income for those living in the area, and 95 per cent of households access these resources on a regular basis (Plumptre, 2009). Construction materials, fuel wood, ropes and lianas, mushrooms, thatching grass and medicinal plants are all accessed in the forest. It is also considered a site of cultural and religious significance for a number of people in the area. Use of the forest is typically greater during the wet season, in the period between October and March.

Current use of the forest and its resources to support local livelihoods will not be possible should the ecosystem be granted full national park status, as such resource use is typically not allowed in these protected areas. This points to the need for a zoning scheme for the eventual Misotshi–Kabogo (or Ngamikka) protected area that allows for partial resource use by the local population (Plumptre, 2009). This could mean that a core national park is established, with a surrounding faunal reserve that allows for continued community access to forest resources. Without such zoning, restricted access for forest resources would likely increase local poverty rates.

Most stakeholders see the creation of the protected area as a positive thing for the local environment, due to its potential to protect habitats and wildlife, and the possibility it holds of re-establishing extirpated species. Many also see positive livelihood opportunities coming out of the decision, both through job creation relating to park management and associated tourism potential. Those who oppose the establishment of a park want continued, unfettered access to the ecosystem's natural resources.

4.0 MIGRATION TO MISOTSHI–KABOGO

The ecosystem and its surroundings were sparsely populated in 2007 when WCS first began looking into the conservation potential of Misotshi–Kabogo, in part due to regional insecurity and the presence of rebels. As the region became more secure in the years following WCS's initial 2009 surveys of the area, population densities have increased, primarily as a result of migration into the region by a number of different social groups. Interestingly, during the community consultations conducted by WCS in 2010, one of the key benefits identified by stakeholders of establishing a national park was "to help keep immigrants who are coming into the region from outside away from the area" and preserve local cultural heritage (Plumptre et al., 2010).

MIGRATION DRIVERS IN MISOTSHI–KABOGO

Community surveys indicate a number of key drivers for the migration into the Misotshi–Kabogo region. Broadly, migrants are drawn to the area by its fertile soils, extensive pasturelands, productive fisheries and increased security.

Conflict is the main push factor identified by stakeholders as driving migrants into the area. Refugees, displaced to neighbouring Tanzania during the Congolese wars, have returned to the DRC and many have migrated to the now-stable, less densely populated Misotshi–Kabogo region in search of pasture, arable land and livelihood opportunities (Kamungi, Summit, & Huggins, 1993). In addition, Kongolo migrants from south of Kalemie have come to the ecosystem after having degraded their own landscapes (Plumptre et al., 2008).

There are a number of factors that are pulling migrants toward the Misotshi–Kabogo area, with many migrants coming from neighbouring South Kivu province. Stakeholders report that family reunification is a significant driver, as immediate and extended family members move to the region to be with those migrants who have already settled near the ecosystem. A number of farmers from neighbouring South Kivu province have also migrated to the region, taking advantage of its low population densities, fertile soils and extensive pasturelands. This population influx is reported to have led to the clearing of considerable amounts of forest for conversion into farmland. Another factor pulling migrants to Misotshi–Kabogo is improved market access, which is better in the region than in many of the surrounding areas, and these improved transportation links draw many to the region; migration has been linked to improvements in the condition of the main road that links South Kivu province to the Katanga province.

Non-farm economic activities are also pulling new migrants into the area: artisanal mining, small-scale logging and fishing are increasingly seen as providing livelihood opportunities in the region. Industrial mining has not yet begun in the area, though as mentioned a handful of companies have been granted exploration and exploitation permits in the area, and so commercial mining remains a strong possibility. This provides an impetus for establishing the park before exploration and exploitation begin. Secondary and tertiary pull factors for migration into the Misotshi–Kabogo region include perceptions of greater stability; improved education and health facilities; reduced rates of zoonotic disease; increased commercial opportunities; the presence of a sawmill; and a welcoming local population.

MIGRATION PROFILE

Precise figures on migration to Misotshi–Kabogo are not available due to the lack of demographic data at the provincial level. It is however a widely held belief among the local population that a significant number of migrants have arrived in the region over the past 5 to 10 years. Most migrants are believed to have come to the region on a permanent basis, with very few planning

to return to their areas of origins following the next harvest. Pastoralists from the Banyamulenge ethnic group have come from South Kivu province, bringing with them thousands of cattle in a search for pasture. The Fuliro ethnic group, who also come from South Kivu, are the primary migrant group practising farming and timber exploitation. As mentioned, Kongolo migrants from south of Kalemie are coming to the region in search of more fertile, less degraded lands (Plumptre et al., 2008).

The vast majority of migrants to the Misotshi–Kabogo ecosystem are either farmers or pastoralists. Arriving in the area, migrants typically acquire land and obtain access to natural resources from local chiefs. These chiefs manage lands in the area, and through their traditional powers are able to distribute lands among stakeholders, typically receiving tributes from those who use the land. Migrant farmers, bringing with them slash-and-burn agriculture, tend to be far more destructive with regards to the local ecosystem, as they clear forested lands for planting, charcoal and timber.

Many migrants claim to have not encountered many barriers when arriving in Misotshi–Kabogo. They report that they have been well integrated with the local population without major difficulties. That said, upon arrival in the Misotshi–Kabogo region a significant proportion of surveyed migrants report that they have encountered a number of problems, including:

- Conflicts between farmers and herders over crops that have been destroyed by livestock
- A lack of agricultural inputs
- Food insecurity
- Increased transportation costs
- A lack of housing
- Insufficient access to education and health services
- A lack of potable water
- Weak prices for agricultural products
- A lack of microcredit and an absence of markets
- Violence toward women
- Communication barriers brought on by language differences between local and migrant communities.

Survey respondents typically saw migrants as having a better standard of living than their local community counterparts, which was frequently ascribed to the migrant's strong work ethic. These differences have also been looked at as a potential source of future conflicts between migrants and the host community. On a more positive note, the arrival of migrants to the area has also meant that the local population can now access certain foods, including milk, pumpkins and some vegetables, with greater ease.

5.0 ECOSYSTEM AND BIODIVERSITY IMPACTS OF MIGRATION

To understand the impacts of human migration on the Misotshi–Kabogo ecosystem and its host communities, surveys, interviews and focus groups discussions were carried out in communities surrounding the ecosystem. Interviews were carried out with groups comprising 5 to 12 people, drawn from a number of different social groups: local authorities, including the village chief and council; women's groups; migrant farmers; migrant pastoralists; the local population; and displaced populations residing in camps in the area.

The most significant observed impact of migration on the ecosystem is deforestation: rates of forest loss for the ecosystem have increased considerably since 2001 (see Figures 2 and 3). Much of this deforestation occurs as the result of bushfires, set to clear land for crop fields and (to a lesser extent) access to hunting areas and artisanal mining sites. Migration impacts are most acute in the villages along the road, rather than in the fishing villages, and these impacts are mainly found within about 7 kilometres of the road. Some impacts have been noted further into the forest, as smaller groups have—to a lesser extent—established farms and pasturelands in these areas.

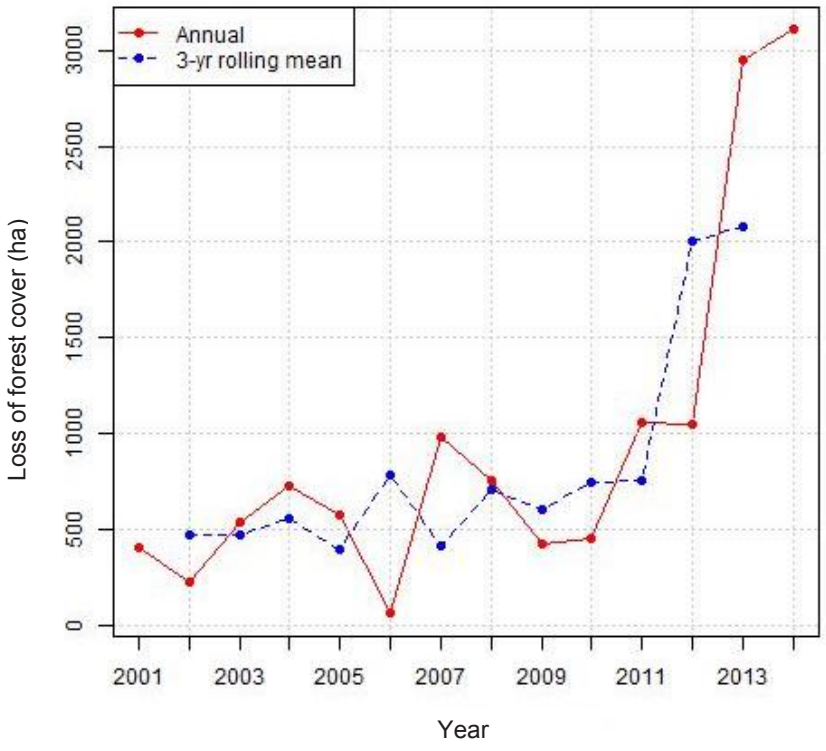

FIGURE 2. FOREST COVER LOSS FOR LUAMA–KATANGA ECOSYTEM FROM 2001 TO 2014 (OSFAC, 2014)

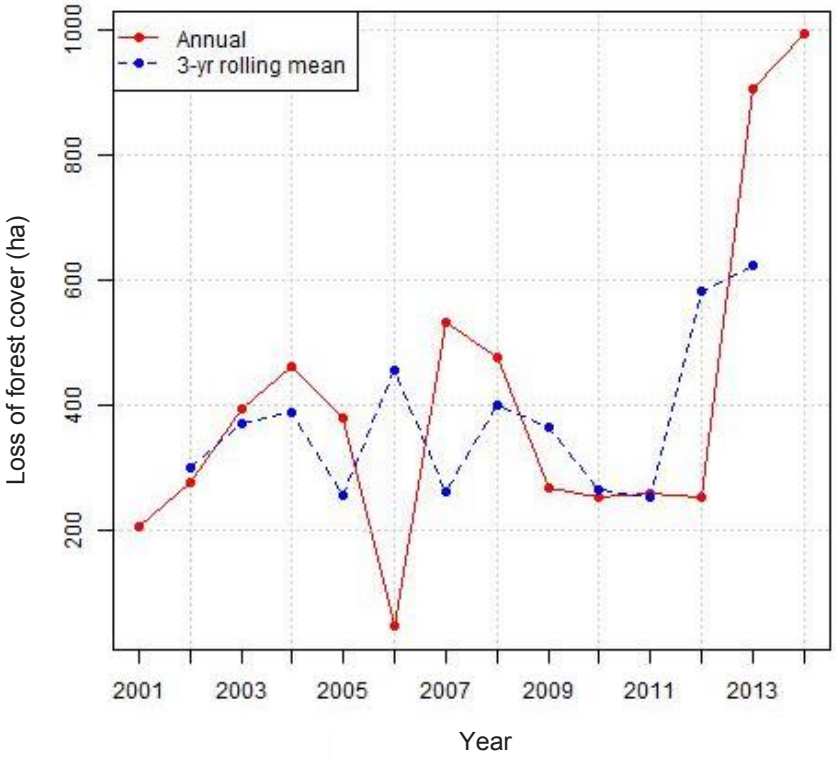

FIGURE 3. FOREST COVER LOSS FOR KABOBO ECOSYSTEM FROM 2001 TO 2014 (OSFAC, 2014)

Stakeholders have also observed the following: a loss of local wildlife due to hunting and bushfires; a changing local climate, with more variable, unpredictable rains and increasing temperatures (most likely a result of broader, global processes, but nevertheless impacted by local deforestation); a reduced amount of arable land available for cultivation; the introduction of cattle breeding; increased local insecurity and conflicts between migrants and locals; the appearance of new diseases and pests; population growth; increased illegal artisanal and small-scale mining; and—on a positive note—improvements in village development.

Looking forward, respondents generally believe that the demographic growth brought about by the arrival of significant numbers of migrants will have negative impacts on the local population and the Misotshi–Kabogo ecosystem. Expected impacts include:

- Soil degradation
- Increased scarcity of fertile land
- Loss of agricultural and fishery productivity
- Food insecurity
- Continued deforestation
- Increased air pollution
- Increasing temperatures
- Increased disease burden
- Drying up of waterways
- Reduced viability of agriculture
- Conflicts between migrant and local

6.0 RECOMMENDATIONS

The conceptual framework for the migration currently being experienced in and around the Misotshi–Kabogo ecosystem is found in Figure 4. As laid out, the migration itself, driven by a number of different push and pull factors, has led to four principal livelihood and natural resource use impacts: the introduction of slash-and-burn agriculture, the expansion of artisanal and small-scale mining, the increased use of forest resources, and increased pastoralism. These changes in local livelihoods and natural resource use have in turn resulted in deforestation and forest degradation, which have led to changes to the local climate, soil degradation, and wildlife and habitat loss.

Addressing the impacts of migration in Misotshi–Kabogo will require engaging with key stakeholders. The key, primary stakeholders for the ecosystem are:

1. *Traditional chiefs*: These chiefs manage and can distribute local lands, and receive payment from those stakeholders who use it. The chiefs are allowing migrants to access land. They collect also tributes in mining sites.
2. *Local community members*: Host community populations have traditional rights to land and have to pay annual tributes to the traditional chiefs.
3. *Migrants*: Migrants are either farmers or pastoralists, and have acquired land and resource use rights from local chiefs. Farming migrants are more destructive to the ecosystem than pastoralists due to their forest clearing, charcoal production and timber exploitation.
4. *Public servants*: Ranging from the parks authority to forestry workers to the armed forces, public service employees will be central to the enforcement of laws surrounding the ecosystem. Their influence can be both positive and negative for the ecosystem: some forestry agents and soldiers are reported to be involved in illegal tree cutting in Misotshi–Kabogo.
5. *Provincial or district authorities*. They are key decision makers for the landscape, and are mandated to oversee the enforcement of laws in their areas.

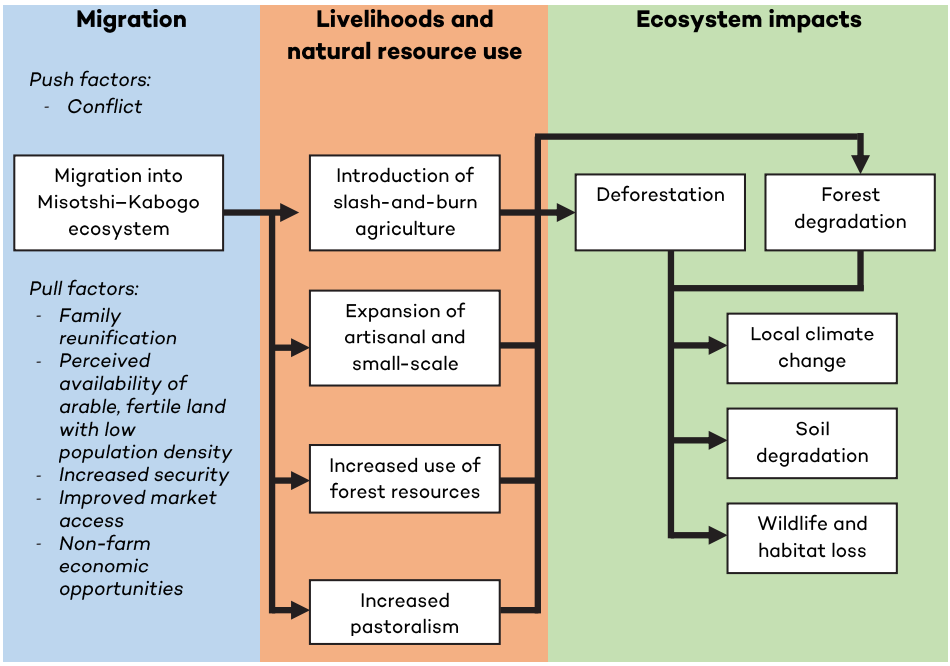

FIGURE 4: CONCEPTUAL FRAMEWORK OF THE MIGRATION PROCESS FOR THE MISOTSHI–KABOGO ECOSYSTEM

Source: Author diagram.

Secondary stakeholders who should also be considered when crafting solutions to address migration impacts include WCS; the UN and its peacekeeping force, MONUSCO; artisanal miners; mining companies; church groups; and local and international civil society organizations.

RESPONSE STRATEGIES

A number of response strategies can be recommended for addressing the impacts of human migration on the Misotshi–Kabogo ecosystem. Rather than attempting to address the migration itself, which is beyond the mandate and geographic reach of WCS and ICCN, the intervention strategies listed below focused on addressing ecosystem and livelihood impacts. Given the strong political will to protect the ecosystem, both within the local and provincial governments and within the communities themselves, it is hoped that adoption of the recommended interventions will help address and reduce the ecosystem impacts of migration.

Recommendation 1: Establish Ngamikka National Park

The formal protection of the Misotshi–Kabogo ecosystem is a crucial first step toward reducing the impacts of human migration on the forest and its wildlife. As mentioned, the establishment of the protected area must involve continued, extensive consultation with local communities to ensure that all parties understand where park boundaries will lie, and how and where forest resources can be accessed. Clarity on park boundaries will help avoid future situations in which local chiefs allocate plots of land inside the ecosystem to migrants. To avoid negatively affecting local livelihoods, a zoned response is most suitable, whereby access to forest resources is limited to a faunal reserve around the core conservation area, with the faunal reserve serving as a buffer zone between communities and park. Agricultural activities should not be allowed in this buffer area.

To succeed, long-term funding must be secured to ensure the sustainable operation of the protected area. Beyond support from donors and the federal government, conservation managers should explore funding options associated with the REDD+ process and tourism. For the former, preliminary feasibility studies have been carried out on the potential for Misotshi–Kabogo to generate REDD+ benefits. In addition to funding long-term conservation programs and park operations, funding for the park would allow for the creation of park-related jobs for local community members, such as ranger positions or tourism officials. Clearly demarcated park and buffer zone boundary markers must also be included in the budget establishing the protected area to ensure that all stakeholders know where forest resources can and cannot be accessed.

The establishment of a national park, particularly in an area benefiting from increased stability and good transportation links, will open up the Misotshi–Kabogo ecosystem to increased scientific research and tourism opportunities, and stakeholders are currently assessing ways to develop tourism for the region. Expectations must, of course, be managed with local communities to ensure that they do not believe that a flood of tourists will arrive upon the opening of the park gates. Nevertheless, the potential for ecotourism activities—including hiking, chimpanzee trekking and bird watching—exists and could potentially create new guiding or hospitality livelihoods for the local and migrant populations that draw them away from agricultural livelihoods. In addition, benefit-sharing schemes could be arranged to ensure that a portion of the revenues from tourism is invested in local development initiatives. The design of such schemes must be done in a conflict-sensitive way to ensure that they do not create or exacerbate tensions, but rather that they promote cooperation between the park and the local population.

Recommendation 2: Initiate awareness-raising and training campaigns

Efforts must be made to increase the local and migrant population's awareness of the social and environmental impacts of slash-and-burn agriculture and associated deforestation and forest degradation. Awareness-raising campaigns can be launched in area schools and through local radio programming, with care taken to ensure that the campaigns are carried out in multiple languages if necessary to ensure broad understanding. The campaigns can stress the importance of an intact Misotshi–Kabogo ecosystem to local water resources, biodiversity, the local climate and—perhaps most relevant to the audience—natural resource-based livelihoods. These campaigns can also help to communicate where park boundaries lie and where resources can still be accessed (i.e., in the buffer zone).

Beyond raising awareness, training programs should also be provided to both local and migrant communities on improved agricultural practices that move them away from pervasive slash-and-burn practices. Current rates of migration to the Misotshi–Kabogo ecosystem, coupled with natural population growth, mean that slash-and-burn agriculture will only become more pervasive in the years ahead, accelerating environmental degradation and threatening the ecosystem. Efforts should therefore be made to ingrain less detrimental agricultural practices at the local level, and to ensure that migrants adopt these local practices. These training programs should in turn be supported by a general increase in agricultural extension services in the area.

Recommendation 3: Improve environmental governance

Governance of the Misotshi–Kabogo ecosystem must be strengthened to address the ecosystem's degradation. This will come, in part, with the establishment of a protected area, but should include addressing key concerns to ensure that migration impacts are continuously assessed and addressed.

To begin, a governing board for the ecosystem should be established, with the board including representation from a number of different stakeholder groups to ensure that decisions reflect broad consensus across interest groups. The board would therefore include ICCN staff and local authorities, but also civil society organizations, the private sector and representatives speaking for both the local and migrant communities. Enforcement of existing laws should be strengthened, and efforts must be made to reduce the negative impacts of public servants on the ecosystem. Finally, local dispute resolution mechanisms must also be strengthened to help better resolve natural resource conflicts between migrant and host communities.

In addition, the provincial government must work to improve land-use planning in the region, including clear, well-communicated zonation for conservation, agriculture and pastoralism and support for improved land tenure for communities. This should include efforts to clearly demarcate, document and communicate land titles and rights for stakeholders, as well as increased clarity on statutory and customary laws for local resource users. The customary laws that govern land ownership around Misotshi–Kabogo should be better integrated into national statutory law to ensure that these rights—which overwhelming govern who can access and use land in the region—are protected. Land was a key driver of conflict throughout the region during the Congo Wars (see Vlassenroot & Huggins, 2004), and as such all efforts should be made to address tensions between migrants and host communities over land before they are exacerbated.

Recommendation 4: Support local livelihoods and increase community involvement in conservation

Survey respondents cited a lack of alternative livelihoods as a key issue for the ecosystem. To respond, the governing board, together with conservation organizations, should identify feasible alternative activities that could generate

Photo credit: Alec Crawford

income for the local and migrant population while also reducing pressures on natural resources. This should be done in part through community consultations, to establish the various—and likely differing—needs and options for ecosystem-adjacent villages. This process should be conducted in a conflict-sensitive way, to ensure that the design and implementation of new alternative livelihoods does not create or exacerbate tensions between the migrant and host populations.

To help with this, there is need for stakeholders, particularly ICCN and WCS, to expand in their efforts to establish community-based conservation committees in the villages surrounding the ecosystem. These locally elected committees would act as intermediaries between park management and the communities, allowing for improved, two-way communications between the population and the ecosystem managers. These committees bring with them a number of benefits: community members can have their concerns and grievances formally communicated to the parks authority; mechanisms are established to ensure that communities are consulted with prior to decisions being made on natural resource control, access and use; and a platform for discussion is established whereby park–people conflicts can be resolved and tensions defused. With regards to migration, the committees should include representation from the migrant community to ensure that host communities are not the sole voice heard by the ecosystem managers.

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ANNEX: METHODOLOGY

The research study would follow the methodology established for the Bale Mountains NP (Ethiopia) case study.

1. The project team would visit the critical ecosystem with the local partner to identify the migration drivers, assess the migration context, and develop the research questions and corresponding research instruments. Research questions would be developed for a mix of research instruments: focus group consultations, semi-structured interviews with key stakeholders, and broad surveys of the local communities. A substantial component of the research will be forward-looking: getting community input on how they think migration and its associated threats and impacts will evolve over time. Potential response strategies will also be elicited and discussed with community members.
2. Recognizing local cultural and language sensitivities, the local partner (WCS) would then identify, subcontract and train one or two local researchers selected from a relevant program at Kalemie University to carry out data collection on the ground (through surveys, semi-structured interviews and focus groups).
3. Qualitative and quantitative data would then be compiled and translated for analysis by the project team; this analysis will be supported by a desk-based analysis of existing secondary research sources by the project team, including WCS aerial surveys of land-use change in the ecosystem.
4. A preliminary draft of the research findings and proposed response strategies will be presented to the project partner and key area stakeholders. A scenario planning component may be added at this stage to help the project partner plan for and respond to future migration threats.
5. Based on feedback from the project partners, the research findings will be finalized, translated and submitted to the project partner. A 4-page summary document highlighting key findings will be prepared for further dissemination. Case studies findings would be integrated into the project's final e-learning tool.

The following groups were interviewed across the three study areas:

- Local authorities and chiefs: 27 groups interviewed
- Migrant farmers: 31 groups interviewed
- Local population: 26 groups interviewed
- Migrant pastoralists: 16 groups interviewed
- Women's groups: 42 groups interviewed
- Displaced populations: 24 groups interviewed

Four local researchers were recruited from the local university to collect the data for the project. They were selected and supervised by WCS. The researchers were chosen both for their analytical abilities and also their knowledge of local languages and customs.

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