

Creating Corridors for Chimpanzee Conservation

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Opportunities and challenges for people and chimps in Uganda

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Contents

Summary	1
1 Conservation corridors: theory, evidence, and effects on people	5
1.1 Corridors and connectivity: the thinking	6
2 Chimpanzee corridors in Uganda: policies and challenges	11
2.1 The policy environment for chimpanzee conservation in Uganda	12
2.2 Challenges for chimpanzees and people living in the Bugoma-Budonga Corridor	14
3 A 'local landscape' approach facing overwhelming challenges	19
3.1 Mapping and socioeconomic surveys	21
3.2 Creating Forest Corridor Action Plans	25
3.3 Implementing Forest Corridor Action Plans in the Bugoma-Budonga Corridor	26
3.4 Chimpanzee Monitoring Network	28
4 The future for the Bugoma-Budonga Corridor	31
4.1 Conservation land purchases or leasing	34
4.2 Utilise collective land titling	34
4.3 Formalise legal protection for remaining forest patches	35
Annex 1: Land titling in Uganda	36
References	39

List of boxes and figures

Box 1.	Uganda's Forest Legislation, Policy and Strategies	13
Box 2.	Last chance to create chimp corridors	16
Figure 1.	The forest reserves of the northern Albertine Rift in Uganda, and the project linkages	20
Figure 2.	Typical output from Chimpanzee Monitoring Network in Kidoma in 2016	29
Figure 3.	The clear cutting of 5500 hectares of tropical high forest off Bugoma Forest Reserve in the west for commercial sugar cane	33

Acronyms

ALC	Area Land Committee
CCLT	Certificate of Customary Land Title
CCO	Certificate of Customary Ownership
CEDP	Competitive Enterprise Development Programme
CFA	Communal Forest Associations
CLA	Communal Land Association
DLB	District Land Board
FFI	Flora & Fauna International
HWC	human-wildlife conflict
MLHUD	Ministry of Land Housing and urban Development
MWE	Ministry of Water and Environment
MZO	Ministry Zonal Office
NARCG	Northern Albertine Rift Conservation Group
NEMA	National Environmental Management Authority
NFA	National Forestry Authority
NTSC	National Tree Seed Centre
PES	payments for ecosystem services
PFOA	Private Forest Owners Associations
UWA	Uganda Wildlife Authority
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature

Summary

Habitat fragmentation has long been recognised as the most serious threat to chimpanzee conservation in Uganda. Land use change, and especially deforestation, is increasingly breaking up migration and foraging routes, and bringing chimpanzees into greater conflict with people. The 'forest corridor' concept is a well-recognised approach for mitigating this, within both Uganda's chimpanzee conservation policy and the 2010–2020 Strategic Plan for the Albertine Rift. Section 1 of this report reviews the thinking and theory behind conservation corridors, while Section 2 summarises Uganda's supportive policy landscape for chimpanzee conservation but also the challenges facing people and chimpanzee conservation in the region.

In reality, agriculture (subsistence and commercial), non-indigenous tree plantations, oil development and population growth have all but overwhelmed conservation efforts. Most of the major forest reserves of the northern Albertine Rift are home to chimpanzees, but a number of groups now have their home range almost entirely on community land, coexisting with people and moving between fragmented forest. The chimps are remarkably adaptive, remain genetically diverse and still represent viable populations. But time to preserve their habitat has all but run out. By 2025, 99% of remaining mature forest trees will have gone from unprotected areas in the northern Albertine Rift.

Within the northern Albertine Rift, conservation efforts initially focused on the broad corridor between the two largest forest blocks, Bugoma Forest Reserve in the south and Budongo in the north. Protecting and restoring forests throughout this corridor would now be extremely challenging. Therefore, recent efforts have focused in on some of the most important smaller linkages between key forests, including between Bugoma and Wambabya Forest Reserves in the south (the Kidoma linkage), and between Budongo and Mukihani Forest Reserves in the north-east (the Bulyango linkage). In both areas, people face severe challenges linked to insecure land tenure and population growth.

Section 3 describes satellite mapping studies (from 2013) and socioeconomic research (in 2014) introduced by Flora & Fauna International (FFI) that led to 5-year Forrest Corridor Action Plans for the Kidoma and Bulyango linkages. These were implemented from 2016, with support from the Arcus Foundation. They met their initial aims, and in 2019, the UK Government's Darwin Initiative agreed to support FFI in an expansion of the programme until 2023, concentrating on reforestation along river banks. Other agencies and organisations are also involved in tree planting in the region.

By 2018, 39 hectares of farmers' land had been afforested with seedlings grown under NGO projects. Afforestation has since accelerated. The Darwin Initiative project, for example, is growing 103,000 tree seedlings. A further 100 hectares is now under active restoration.

Yet progress has been too slow. By 2020, the number of households in the Kidoma linkage almost doubled, and natural forest patches had declined by 55% (since 2017). The remaining tiny natural forest patches in Kidoma will essentially disappear by 2023.

Chimpanzee monitoring, implemented alongside the afforestation projects, has shown that chimpanzees and other primates still use both the Kidoma and the Bulyango linkages widely. The landscape remains permeable for monkeys and baboons, and the linkages effectively connect the forest reserves ecologically and genetically [for these species]. However, habitat loss along the river has restricted most chimpanzee movements to short-distance 'forays' out from forest reserves onto local community land. Sightings have trended downward over time, and pressures continue to increase. In Kidoma, oil development accelerated in 2016/17, with roads widened and tarmacked, power lines installed and forest felled. In Bulyango, forest continues to be cleared, especially along the Waki River, where many areas are now being planted with pine. Rainfall patterns may also have influenced the trend, and further monitoring is needed.



Rice grown at edge of Wambabya Forest Reserve © R.H. Lamprey

The whole landscape of the Bugoma-Budongo Corridor, not just the linkages studied within this report, is changing at lightning speed and in ways that pose great risk to chimpanzees. Deforestation is continuing, even within forest reserves, and Uganda's first oil refinery will be built just 3–5km west of the Kidoma linkage, with associated pipelines and infrastructure that will interrupt wildlife movements.

Therefore, if chimpanzee conservation is to stand any chance, further and broader efforts must be made to establish corridors, or otherwise improve landscape permeability for primates. Section 4 discusses some options, for example for NGOs and associated land management trusts to lease or purchase land at market rates, and manage sympathetically for primates. EcoTrust is trialling this approach, and has purchased (and is replanting) approximately 20 hectares in Bugambe.

Another approach might be to secure land tenure for people (and hence provide an incentive for preserving the trees needed by chimpanzees) by facilitating collective land titling. Collective land titling could be more affordable than individual titling. It also offers a more stable ownership model, and could galvanise better community governance and accountability. Communal Land Associations (CLAs) would be appropriate community institutions for holding a collective land title.

Another suggestion is to formalise protection and restoration of remaining forest patches along rivers and streams in Kidoma and Bugambe by invoking existing legislation that says no activity (including agriculture) can be carried out within 30m of a riverbank without a permit. CLAs could be used to manage riverside land that is owned by the state, and is important for chimpanzees.

All these strategies could have a role to play in securing the future of the Bugoma-Budonga Corridor (and Annex 1 explores Land titling in Uganda in more detail). However, the economic imperative remains, and reforestation will only work where it is more lucrative than alternatives.



Collecting water on the Kanywabarogo River, Kidoma linkage, 2019 © R.H. Lamprey



1 Conservation corridors: theory, evidence, and effects on people

This section provides a brief literature review on conservation corridors. We summarise the theory behind improving connectivity, review the evidence on whether corridors are effective, and discuss how the conservation corridor approach affects local people.

1.1 Corridors and connectivity: the thinking

Conservation was once considered to be well-served by self-contained and standalone protected areas. But, over recent decades, the emphasis has shifted to creating networks of connected protected areas that maintain ecosystem functions and preserve biodiversity at a landscape or bioregional scale (Bennett, 2003; Jongman and Pungetti, 2004). Conservation corridors have emerged as an approach for achieving this. At its simplest, a corridor is an area¹ under some form of protection connecting two areas of conservation value, often aiming to facilitate wild animal movement (Chetkiewicz et al., 2006; Costanza and Terando, 2019). The basic premise is that corridors can help maintain healthy wildlife populations across habitat areas that would otherwise become fragmented. For example, corridors might allow genetic exchange, migration or dispersal, or provide an escape route from stress or shock (Hilty et al., 2019). The corridor is generally envisaged as different from the implicitly-hostile area it traverses (Forman, 1991).

Conservation corridors vary across the world. Some are vast and ambitious international connectivity projects, like the Meso-American Biological Corridor² or the North American Yellowstone to Yukon.³ Others offer targeted 'hard' infrastructure, for example the elephant underpasses beneath Kenya's A2 national highway near Mount Kenya,⁴ or reindeer viaducts in Sweden.⁵ What unites these diverse corridor incarnations is that they add ecological connectivity where it is desirable, or indeed essential.

However, delineating spaces for conservation across landscapes that may be occupied, used or valued by human beings will have implications for both people and wildlife. To understand these implications, and the challenges they pose, it is important to understand the theory and thinking underpinning conservation corridors.

1.1.1 Corridor theory

Two seminal theories have shaped the concept of ecological connectivity: MacArthur and Wilson's island biogeography (2001, originally published 1967), and Levins' metapopulation dynamics (1969).

Island biogeographic theory, first developed to explain varying species richness on islands, says that the number of species will reach an equilibrium determined by two opposing rates of change: the rate of extinction *on* the island; and the rate of immigration *to* the island. These rates are influenced both by the island's size and how isolated it is from the species' source region. The theory argues that better-connected islands will sustain more

1 Corridors may be flyways and swim-ways, as well as land, but these are not a focus in this report.

2 <https://projects.worldbank.org/en/projects-operations/project-detail/P060908>

3 <https://y2y.net/>

4 <https://mountkenyatrust.org/portfolio/elephant-corridor/>

5 <https://www.theguardian.com/world/2021/jan/20/sweden-to-build-bridges-for-reindeer-to-safely-cross-roads-and-railways>

species than more-isolated islands, because immigration will be higher. So, the number of species on small-but-connected islands can be similar to that on larger islands. Island biogeographic theory catalysed enquiry into how habitat isolation or fragmentation within terrestrial environments (where habitats effectively become 'islands') might influence population viability (Hess and Fischer, 2001).

Metapopulation theory examines local extinction and reestablishment dynamics for one species at a time. It considers the metapopulation to consist of sub-populations of the species spread across habitat patches. The metapopulation's distribution, and by extension its viability, depends on its ability to move between habitat patches, and is therefore directly influenced by connectivity (or fragmentation) (Hess and Fischer, 2001; Opdam, 1991).

Of the two theories, island biogeography in particular has provided the scientific basis for conservation corridors (Chetkiewicz et al., 2006).

A sub-discipline of connectivity conservation has emerged, strengthening the argument that corridors support ecosystem health. In 1992, Simberloff et al. outlined the predominant rationales for corridors that facilitate species movement as:

1. lowering extinction rates
2. reducing the likelihood of random events damaging populations (demographic stochasticity)
3. curtailing inbreeding
4. permitting the movement animals inherently need.

More recently, corridors have also been proposed as a tool to support species adaptation to climate change, helping them shift their ranges (Hilty et al., 2019) or to permit movement during times of climate-change related stress or shock.

1.1.2 Corridor effectiveness

Corridors' intuitive appeal as a conservation tool is obvious. However, conservation scientists have debated their effectiveness, and the utility of the ecological connectivity/fragmentation concept. Some suggest that there has been a problematic tendency to imagine landscapes in simplistic binary terms as safe, 'natural' corridor space and hostile surrounding landscapes. This underestimates the complexity of ecological processes across ecosystems (Haila, 2002).

The debate often involves the distinction between structural and functional connectivity. Structural connectivity refers to physical landscape features presumed to facilitate species movement generally. Functional connectivity is less concerned with landscape features and gives more consideration to how well a landscape permits *species-specific* movement (see Hilty et al., 2019). While structural connectivity is often conflated with visible 'natural' landscape features like rivers or tracts of forest, functional connectivity cannot be identified or assessed just by looking at a landscape. Functional connectivity

encompasses the concept of ‘permeability’, i.e. how well regional landscapes, containing a variety of natural, semi-natural and developed land cover, allow wildlife movement and sustain ecological processes (Ament et al., 2014). Essentially, functional connectivity considers how wildlife may move through a mosaic of human and ‘natural’ areas. As such, corridors may only be part of the answer, and defining and measuring how well corridors function in terms of connectivity is therefore complex (Hodgson et al., 2009; LaPoint et al., 2013).

Nonetheless, meta-analyses and reviews conclude that most corridors achieve a broadly-defined objective of ecological connectivity (Gilbert-Norton et al., 2010; Resasco, 2019). But practitioners must understand that ecological connectivity cannot easily be measured, instead being a highly contextual and contingent phenomenon. As Chetkiewicz et al. (2006) point out, a lack of universal rules applies to corridors as it does to ecology in general. Corridors might not work everywhere. Connectivity for one species might mean fragmentation for another. Structural and functional connectivity are not the same thing; and both connectivity and fragmentation can be desirable and undesirable at different times and in different contexts (Hilty et al., 2019). Additionally, conservation and planning professionals may have quite different ideas of what corridors are, what they are for, and how their success can be measured (Green and Sandbrook 2021; West et al., 2016).

1.1.3 Corridor challenges for people

Wildlife conservation has shifted from the fortress conservation epitomised in the USA’s first national parks in the late 19th century and then replicated across the world by colonial powers, through to more recent iterations of inclusive, pro-poor and community-based conservation in recent decades. However, modern conservation practice’s central tenet of setting aside and separating space for nature from space for humans has remained largely intact. This territorial tendency – which has historically had mixed impacts on local people – applies as much to corridors as to other spatial conservation strategies. Researchers have generally seen practitioners’ challenges in managing the ‘people’ aspect of corridors as:

- managing trade-offs and providing compensation for affected communities;
- delivering direct and indirect social benefits, and
- ensuring participation and informed consent from all stakeholder groups.

Managing trade-offs between people and nature is one of the most challenging elements of contemporary conservation policy and practice, particularly in developing countries where rural populations may depend on land for their livelihoods. Corridors are no different, and the challenges they can pose are particularly pressing when considered within the global context of a push for more protected land – such as articulated in the 2030 targets set in the CBD Global Biodiversity Framework (Schleicher et al., 2019). Research into the social and economic impacts of spaces already claimed for

conservation corridors is limited, but examples from East Africa show how corridor projects can cause displacement, opportunity costs, and inadequate or inappropriate compensation for people. For example, Rantala et al. (2013) show how money to compensate Tanzanian communities for farmland lost to a corridor project was often insufficient to purchase alternative land. This was most frequently the case for the poorest households, who were compensated the least. In addition, women reported receiving compensation for lost land far less frequently than men. Hall et al.'s (2014) synthesis of research at this site confirmed that while the corridor project enhanced forest connectivity and improved forest condition, project interventions failed to mitigate livelihood losses incurred through displacement.

Deriving and delivering social benefits from wildlife conservation has had mixed success. The relationship between the spatial dynamics of landscape connectivity and human-wildlife conflict (HWC) is complex and difficult to predict (Buchholtz et al., 2020). While some studies point to successful performance-based payments for species conservation, payments for ecosystem services (PES), participation in ecotourism, or other employment or payment from wildlife use (Berkes, 2009; Ferraro and Kiss, 2002), others show that mechanisms to deliver benefits to people have not worked as intended or promised (Holmes and Cavanagh, 2016). Corridor projects have received little research into these issues. However, attempts to maintain wildlife movement in and out of Nairobi National Park have had some success in using direct household payments (Gichohi, 2003). These were timed to coincide with school terms to improve school enrolment (particularly for girls) and disincentivise crop cultivation in identified wildlife corridor areas. For chimpanzee corridors specifically, McLennan's (2008) research in the Bugoma-Budongo forest corridor area in Uganda's northern Hoima District (discussed further in this report) showed that efforts to secure social benefits were undermined by the potential danger of chimpanzee habituation in areas where chimpanzees already live close to people, and ongoing habitat change was increasing negative interactions between the species and communities.

Participation and informed consent issues often involve poor communication and inadequate inclusion of local perspectives. Goldman (2009) highlights a case where a corridor project in northern Tanzania developed by western conservation scientists was designed with only tokenistic involvement of Maasai communities living in the area and was ultimately incompatible with Maasai perspectives on the coexistence of people and wild animals in that landscape. In southern Tanzania, Bluwstein and Lund's (2016) research explored a large-scale corridor project where insufficient ground-truthing, contradictory mapping and inadequate free, prior and informed consent practices created tension and conflict between conservationists, planning authorities, village governments and village residents.



Clearing forest trees to the edge of Wambabya Forest Reserve for rice cultivation, 2015 © R.H. Lamprey



2

Chimp corridors in Uganda: policies and challenges

This section summarises Uganda's policy and legislative approach to creating chimpanzee corridors, and introduces the Bugoma-Budonga Corridor, including the challenges facing people and chimps living within it.

2.1 The policy environment for chimpanzee conservation in Uganda

Land use change, and especially deforestation, is increasingly affecting chimpanzees, and habitat fragmentation has long been recognised as the most serious threat to chimpanzee conservation in Uganda. Uganda has forestry legislation and policy (see Box 1), however, over the past decade, the country has consistently registered among the world's highest population growth rates, and this puts enormous pressure on available resources (UNFPA 2017, UNFPA World Population Dashboard Uganda).

In 2003, the Uganda Wildlife Authority (UWA), with the support of NGOs and donors, developed a Conservation Action Plan for Uganda's Chimpanzees 2003–2008 ('the Chimpanzee Plan'). Its goal was: to strengthen the protection of chimpanzees, and enhance the viability of populations in major forest blocks by establishing corridors (UWA 2003).

The Chimpanzee Plan has not been updated since its 'expiry' in 2008, but the actions and recommendations were translated through into IUCN's broader Eastern Chimpanzee (*Pan troglodytes schweinfurthii*): status survey and conservation action plan 2010–2020 (IUCN 2010). This document again identified habitat fragmentation as a key threat in Uganda, and emphasised the need to "design cost-effective corridors and purchase private land between chimpanzee conservation units by 2020".

Beyond the Chimpanzee Plan, the 'forest corridor' concept was a key component of the 2010–2020 Strategic Plan for the Albertine Rift (see Box 2), prepared under the umbrella of the Ministry of Water and Environment (MWE). The Strategic Plan advocated for conserving forest reserves, and connecting forest patches, in a 'mega-corridor' stretching from Semliki in the south to Budongo in the north, and called for reforestation of 19,000 hectares of degraded corridor land by 2020.

The Semliki-Budongo Corridor has been the geographical focus of a wide range of development and conservation interventions to engage farmers in conserving forest patches, and growing trees for timber, fuelwood and REDD+ carbon benefits. More recently, however, the primary focus has been on the Bugoma-Budongo stretch of the corridor, the focus of this report, see Figure 1. Many of the intervention projects operate at district and sub-county level, and the general approach has been one of 'greening-the-landscape'. But although significant experience has been gained in working with farmers for tree planting in different farming systems, actual progress has been slow.

Box 1. Uganda's Forest Legislation, Policy and Strategies

The **Forest Policy for Uganda (2001)** aims for *“an integrated forest sector that achieves sustainable increases in economic, social and environmental benefits from forests and trees by all the people of Uganda, especially the poor and vulnerable”*.

The **National Forestry and Tree Planting Act, 2003**, introduced the legal framework to achieve these goals. It classified forests as:

- a) central forest reserves, centrally managed by the National Forests Authority
- b) local forest reserves, managed by local authorities
- c) community forests, managed by the community
- d) private forests; owned and managed by private landowners.

The **National Forestry and Tree Planting Act, 2003** also established the **National Forestry Authority**.

The **National Development Plan 2010–2015** proposed returning to 1990 forest levels by 2015, but this has manifestly not been achieved.

Meanwhile, the **National Forest Plan (NFP) 2011–2021** looks to increase economic productivity and employment from forests, raise household incomes through forest-based initiatives; restore and improve forest ecosystem services; and conserve forests that protect watersheds.

More specifically, the **Strategic Plan for the Northern Albertine Rift of Uganda, 2011–2020** set out a framework for conservation and restoration of forests in the Northern Albertine Rift. Prepared under the umbrella of the MWE, with support from UNDP/GEF, and guidance by Wildlife Conservation Society (WCS) and the World Wide Fund for Nature (WWF), this major plan was formulated over many months of consultation with national and local governments, stakeholders, local communities, community-based organisations and NGOs. The plan built on a vision in which: *“The landscape of the northern Albertine Rift is conserved effectively in a partnership between Government, communities and other stakeholders to ensure protection of biodiversity, functional habitat connectivity and contribution to sustainable livelihoods”*. Among its goals, it aimed to support restoration of degraded habitats on public and private land; and support integrated and coordinated natural resources management and sustainable livelihoods.

2.2 Challenges for chimpanzees and people living in the Bugoma-Budongo Corridor

The high forests of Western Uganda's Albertine Rift are renowned for their astonishing biodiversity, which includes the country's remaining Eastern Chimpanzees (*Pan troglodytes schweinfurthii*), estimated to number 5,000 in 2010 (Plumptre et al., 2010), the last known estimate. Forested areas also protect water catchments for major rivers and provide the region's growing local communities with fuelwood, poles and timber. However, deforestation is occurring rapidly as people cut down trees to expand subsistence agriculture and exploit forests for timber and charcoal, and this is fragmenting habitats for chimpanzees. In the Albertine Rift, pressure on natural forest increased with the 2006 discovery of commercially viable oil deposits. The Government of Uganda has identified minerals, oil and gas in addition to agriculture and tourism as the three priority growth opportunities for national development (Republic of Uganda 2015). All of these factors put pressure on forests throughout the Albertine Rift and represent a clear threat to indigenous flora and fauna.

Chimpanzees are found within most of the major forest reserves of the northern Albertine Rift, but a number of groups have their home range almost entirely on community land, coexisting with people and moving between fragmented forest patches. The chimps are remarkably adaptive, remain genetically diverse at present, and thus still represent viable populations.

Within the northern Albertine Rift, the greatest conservation effort has been made in the broad corridor between the two largest forest blocks, Bugoma Forest Reserve in the south and Budongo in the north. This 'Bugoma-Budongo Corridor', lying within Kikuube, Hoima and Masindi Districts, is broken up by intensive subsistence agriculture, commercial sugar cane and maize farms, road developments for the oil industry and the conversion of interlinking forest reserves to farmland or exotic tree plantations, primarily pine and eucalyptus.

Protecting and restoring forest patches throughout this corridor is now extremely challenging. Therefore, there has been a focus on restoring some of the most important smaller linkages between key forests within the overall corridor. Section 3 of this report focuses on two potentially viable linkages, the first connecting Bugoma and Wambabya Forest Reserves in the south (the Kidoma linkage, named after the parish), the second connecting Budongo-Mukihani Forest Reserves in the north-east (the Bulyango linkage, after the main parish there, although the linkage also extends into Kasenene Parish in Masindi District).

In Kidoma and Bulyango linkages, local people who share the land with chimpanzees face severe challenges linked to insecure land tenure and population growth. Most of the land

in the region remains unregistered. Customary land use is statutorily recognised, but many customary owners of land don't have documentation, and have struggled to demonstrate their rights to access, use and own land. Population growth and immigration is breaking up customary land holdings and leading to decreased per-capita food production; reduced availability of woodfuel; and HWC.

The discovery of oil in 2006 hectares exacerbated land insecurity with increased incidents of land grabbing (CRED 2014, ULA 2011). This further increases the pressure on chimpanzees since, without land security, people have less incentive to conserve natural resources.

In order to address this interlinked problem, conservation organisations have helped communities set up Private Forest Owners Associations (PFOAs), which in turn seek to secure Certificates of Customary Land Title (CCLTs). PFOAs are legally-recognised Community Based Organisations and aim to help forest owners collectively manage their resources, and negotiate benefits, such as PES. Over 2171 private forest owners have been organised into 15 PFOAs in Hoima, Masindi and Kibaale districts. Many farmers joined in the hope of finding a route to secure certificated land tenure but slow progress has weakened farmers' engagement with some PFOAs.



Seedlings being planted in a tobacco field, Bulyango, on the edge of Mukihani Forest Reserve, 2016 © R.H. Lamprey

Box 2. Last chance to create chimp corridors

Chimpanzees need 'corridors' so they can move between protected forests, as recognised in the 2003–2008 'Chimpanzee Plan' (UWA 2003, IUCN 2010). However, although potential corridors have been mapped, illegal logging and clearing has not reduced. And whilst urgent efforts are ongoing to restore corridors between forest blocks, there are struggles to maintain traction in the face of new oil-related developments. The opportunities for establishing functional corridors are rapidly expiring:

- In the early 2000s, an estimated 70% of Uganda's natural forests were on private land outside formal forest reserves.
- By 2005, the estimated figure was some 2.3 million hectares (or 64%) of Uganda's 3.6 million hectares of forest existing on private land
- Uganda's National Development Plan 2010–2015 was unable to achieve its proposed return to 1990 forest levels by 2015.
- Deforestation has continued rapidly across Uganda, with rates highest in western Uganda. Hoima and Kibale Districts of western Uganda jointly lost about 8,300 hectares of forest a year between 2001 and 2010, as assessed from satellite imagery (Leal et al., 2010)
- The Strategic Plan for the Albertine Rift 2011–2020 proposed reforesting 19,000 hectares by 2020. This proposal was modest in comparison with recent losses, but hugely ambitious given current progress. No more than 5% of this was achieved, and conversion of land within forest reserves to sugar cane now outweighs gains.
- Comparisons of satellite imagery (Lamprey, 2011) between 2001 and 2008 showed that the Bugoma-Budongo Corridor lost 8.5% of tree cover *per year*, with an annual increase in roofs of 11% per year.
- A recent study using high-resolution satellite imagery of 2011–2017 indicated that the loss of indigenous tree cover on community land has accelerated to 13% per annum, with increase in roofs at 7% per annum (Lamprey, 2019). Indigenous tree cover now stands at just 3%. The cover of exotic plantation increased by 400% over this time, and the cover of exotic eucalyptus and pine plantations now surpasses that of indigenous forest.
- Meanwhile, in the southern section of the Bugoma-Budongo Corridor, development of oil pipeline infrastructure through the Kidoma linkage has now bisected two major chimpanzee strongholds – the Bugoma and Wambabya forest reserves.

- These trends indicate that by 2025, 99% of remaining mature forest trees will have gone from unprotected areas in the northern Albertine Rift. Unless corrective action is immediately taken, the opportunity to develop corridors will have been lost (Lamprey 2020).
- Despite the deforestation trends across the entire Bugoma-Budongo Corridor, chimpanzee movements continue, although records show a significant reduction. These movements are now essentially forays by chimp groups outwards from the forest reserves onto local community land, especially when fruit-trees are in season.
- Chimpanzee migration between forests is no longer documented, and is now probably impossible. Meanwhile other species, including black-and-white colobus, red-tail monkeys still show a wide distribution across community land, both in the corridor and locally in the linkages.



Project Tree seedling nursery, Bulyango PFOA, 2016 © R.H. Lamprey



Project tree seedlings grown by Kasenene PFOA, 2016 © R.H. Lamprey



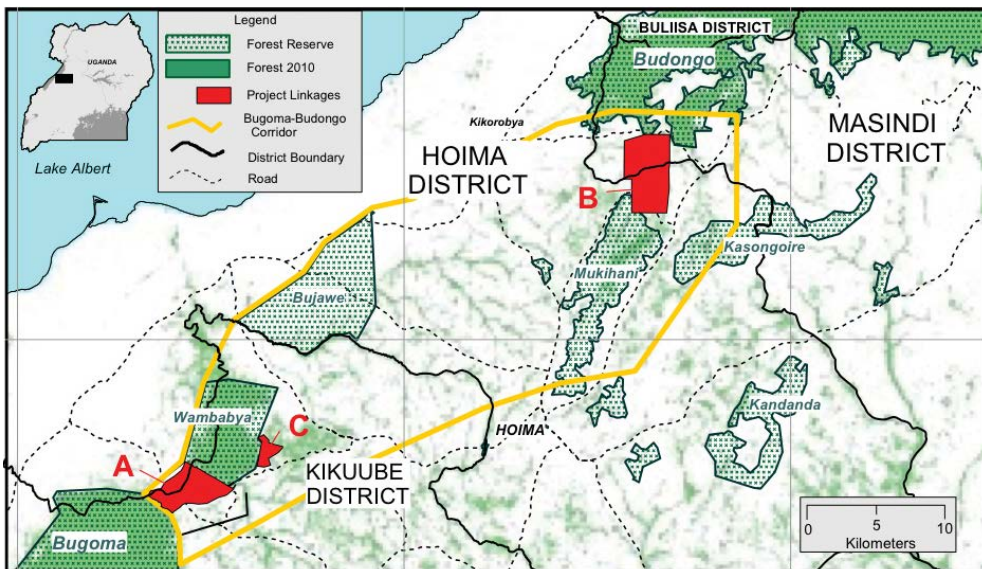
3

A 'local landscape' approach facing overwhelming challenges

In the face of accelerating deforestation, conservation organisations started a 'local landscape' approach to reforesting small but important linkages within the Bugoma-Budonga Corridor. This section discusses two action plans, and their successes (especially in generating experience of working with local communities), but also the on-going and mounting pressures overwhelming progress.

In 2013, the general failure to protect or establish the Bugoma-Budonga Corridor led to the beginnings of a different approach. With support from the Arcus Foundation, FFI started to explore the opportunity for a focused local effort to restore forest in two small (1000–2000 hectares) but strategically important linkage areas. These had already been identified in past studies as important target areas for re-connection. The first is the Kidoma linkage (1077 hectares) between Bugoma Forest Reserve (39,907 hectares) and Wambabya Forest Reserve (3420 hectares). The second is the Bulyango linkage (1630 hectares), which connects Budongo Forest Reserve (81,450 hectares) and Mukihani Forest Reserve (3670 hectares).

Figure 1. The forest reserves of the northern Albertine Rift in Uganda, and the project linkages



Project linkages (in red): A = Kidoma, B= Bulyango, C= Bugambe. The yellow line indicates the general boundary of the Bugoma-Budongo Corridor. The dark green areas are forest extent in 2010. The inset map shows the location of the corridor in Uganda.

These linkages, marked A and B on Figure 1, were selected to maintain connections between some of the most important forests in the northern Albertine Rift. Budongo Forest Reserve is renowned for its diversity of plants, birds and primates, and collectively with Bugoma and Wambabya these forests support some 2000 chimpanzees. Small populations of chimpanzees reside in forest fragments in the community land that separates these forest reserves, but these areas have seen rapid human immigration in recent years, and accompanying felling. Mukihani is largely degraded but it includes rivers that feed into the Waki River, the main water source for many thousands of households in western Uganda.

In 2020 a third linkage was added – Bugambe – which connects Wambabya Forest Reserve to the Bugambe Tea Estate (area C in Figure 1). The estate is a long-established commercial enterprise which, under its Rainforest Alliance certification, has maintained a large area of mature tropical high forest within its borders. The forest supports resident chimpanzee groups, as well as transient chimpanzee groups from Wambabya Forest Reserve.

In Phase 1 of the approach, FFI assessed local farmers' interest in land reforestation and the feasibility of developing critical corridors. The team also gathered information on government forest policy and legislation underpinning community-based forestry and sought to determine what other agencies in the Albertine Rift were doing to conserve forest on private land.

3.1 Mapping and socioeconomic surveys

FFI, and partners working with local communities, then embarked on a programme to map forests and households in Kidoma and Bulyango linkages using satellite imagery (from 2013), and to conduct a socio-economic survey (in 2014) of all households within the defined borders of the linkages.

The principle behind the mapping was to provide every household in the linkage area with a 'birds-eye' view of their compounds and surroundings, so that they can understand their spatial relationship to their fields, neighbours, community and forests. The maps were intended to 'anchor' individual households' perceptions of their land within the landscape. For almost all households, this was the first map they had ever seen of their house and local area.

The socio-economic surveys were designed to explore who was and was not interested in planting trees on their land, what kinds of trees were of interest and the perceived barriers to tree-planting; who encountered chimpanzees, how frequently and with what consequences; and what householders' main fear was for their land. This was a carefully worded question, formulated after long discussion with the PFOA members. The survey captured about 95% of the households in both areas; 303 households in Kidoma linkage and 496 households in Bulyango linkage.

Several important findings emerged. Most households depend on agriculture, and new households cannot be sustained by further land sub-division. Families are deeply concerned about their future because they have no legally recognised land tenure. Nonetheless, the great majority of households were keen to grow trees to provide timber and firewood, and shade for coffee. Many households said some land could be put aside to grow more trees even on smallholdings, but that a key constraint was a lack of seedlings. However, many people, especially those owning trees, reported

disturbance from wildlife. HWC would have to be addressed if corridors are to be successfully reforested.

3.1.1 Land, people and livelihoods: Kidoma linkage

People: The Banyoro is the main ethnic group of the Kidoma linkage. Many people who have recently settled on or near state gazetted waterways, wetlands and forest reserves in Kidoma are immigrants, mostly Bakiga from south-western Uganda.

Land ownership: In 2013, all land in the 2660 acre⁶ Kidoma linkage had been claimed for ownership. There were 310 households in the area, suggesting they might hold an average of 8.6 acres each. In actuality, people resident for 30–40 years were holding 8–10 acres while recent arrivals were holding 3–5 acres – barely enough for a subsistence living. Some 58% of households said they owned 1–5 acres. Recent immigrants in the far west and far east had relatively small landholdings.

Two more recent studies show a significant decline in average household landholdings. Phase 3 of FFI's work (funded by the UK's Darwin Initiative) calculated the average amount of all owned and leased lands that is farmed as 5.3 acres.

In a remote sensing study in 2020, ECOTRUST/IUCN-NL showed that the number of households had increased to 574, almost double that of 2013. Divided into the total land area, that implies average land holdings had declined to 4.6 acres. However, in a linked ground-based survey of 103 households living close to rivers and forests (termed households-with-forests, or HHFs), the EcoTrust/IUCN-NL study showed that there was little change in landholdings between 2013 and 2020. These areas, which were settled first, still had average landholdings of 8.1 acres.

Livelihoods: In 2014, 98% of households depended on subsistence agriculture as their main livelihood, the primary crops being maize, beans, cassava, rice and sweet potatoes. Cash crops, mainly coffee (50% of households) and tobacco (18%) averaged 2.48 acres per household. Jackfruit, mangoes, cocoa and sugarcane were also grown. Of those that selected 'other', the majority (17%) grew avocados, while fewer people grew oil palm, guava, oranges, pineapple, and sisal. Those with the most land had cattle or goats while many households kept pigs, and chickens. Many saw diversifying their livelihoods as a way out of poverty.

Security of tenure: In the 2014 FFI survey, no households had any form of title deed for their land. Asked about fears for their land, 78% said they felt they had no security in their land tenure, and that their land could be appropriated by land speculators or 'rich people'.

⁶ Land ownership in Uganda is primarily understood in terms of acres, rather than hectares; 1 hectare = 2.47 acres.

In 2020, FFI again surveyed people about tenure. Only **21%** said they have a formal land title. Over half (**57%**) did not have a formal land title, while **22%** selected 'other' on the questionnaire. The most common responses given for selecting 'other' were that land was inherited or they had land agreements from the local council or chairperson. In aggregate, nearly four fifths still didn't have a formal land title.

Forest issues: The 2014 survey showed that 99% of households depend on fuelwood and charcoal from local forests for their cooking needs. When asked if 'being close to a forest helps your daily lives', 90% of respondents agreed, citing firewood, timber, poles, 'rainfall attraction', fresh air and hunting. Around half also said they were disturbed by wildlife, citing monkeys and baboons as the main problem species. Disturbance by wildlife was strongly correlated with having trees (indigenous or plantation) on the farm. Nevertheless, most households wanted to plant trees, whether they had little land, or a large area. Almost everyone (90%) said a lack of seedlings was the main constraint to planting trees.

However, a remote sensing study of Kidoma, conducted by EcoTrust and IUCN-NL and looking at satellite images from 2017–2020, found natural forest patches had declined from 103 hectares to 46 hectares, a reduction of 55% over just 3 years (Lamprey 2020). These small patches were confined to the two small rivers, Kanywabarogo and Kasoma. The imagery revealed that the linkage 'flipped' from one of freely-available natural forest wood supply to one of privately-owned plantation woodlots, with fuelwood as a cash crop. Forests of pine and eucalyptus, both inert in terms of biodiversity, had increased from 4 hectares in 2017 to 56 hectares in 2020. The remaining tiny natural forest patches in Kidoma will essentially disappear by 2023. By 2020, it was therefore apparent that the measured 'local landscape' approach for linkage conservation and restoration had been largely overtaken by demand for fuelwood. Conversely, the increase in plantation will reduce pressure on the few remaining natural forest patches.

3.1.2 Land, people and livelihoods: Bulyango linkage

People: The Bulyango linkage crosses two parishes – a southern section in Bulyango Parish in Hoima District, inhabited by Banyoro people; and, north of the Waki River, a section in Kasenene Parish in Masindi District. The northern park is primarily inhabited by Alur and Lugbara people from West Nile. As with the Kidoma linkage, many people who have recently settled are immigrants, here mostly Bagungu people from the shores of Lake Albert. As with Kidoma, all households were mapped from 2013 remote sensing images, and then interviewed in 2014.

Land ownership: In 2014, 68% of Bulyango's 327 households owned less than 5 acres. In Kasenene, where 169 households were interviewed, many more families had 5–10 acres, and households are more prosperous than south of the Waki river. For both Bulyango and Kasenene, land holdings were related to the length of residence. Residents

of around 30 years were holding 6–8 acres while recent arrivals averaged just 2.5 acres – barely enough to sustain a family.

Livelihoods: Almost everyone (97%) depended on subsistence agriculture. Few people own cattle, but goat and pig keeping was common, and chickens were ubiquitous. In Bulyango, 99% wanted to start a small business. In Kasenene, with larger landholdings, it was 69%. Almost all households (99%) in the Bulyango linkage cooked on wood.

Security of tenure: No-one had any form of title deed. In Bulyango, where most community members were recent immigrants, 93% were very concerned about tenure security. In Kasenene, where some families have lived for over 70 years, people felt more secure (47% indicated concern), some saying they had inherited land, and some that they are processing land title through the Masindi Land Board.

Forest issues: Nearly everyone (90%) said living near forests is an advantage, the primary reason being that 99% of households depend on forests for fuelwood for cooking. Yet between 2000 and 2013, 33% of the forest was cleared in the linkage, largely along the Waki River in Bulyango. North of the river, in Kasenene, conservation efforts associated with the Ongo Community Forest, and the EcoTrust Trees for Global Benefits project, had, to a significant degree, halted deforestation by 2017. In Bulyango, only about a quarter of households said their land had indigenous trees (larger land holdings often had exotics), and nearly three quarters had no interest in growing more (but nearly all wanted to grow plantation trees, giving lack of seedlings as the main constraint). By contrast, in Kasenene, nearly a third of households had indigenous trees on their land, and nearly two thirds of people wanted to grow more. Only those with larger landholdings had plantation trees, and wanted to grow more of these. However, unlike Kidoma, there was no further research in 2020 to update these statistics, and the situation is likely to have worsened.

In 2014, over half (58% in Bulyango, 60% in Kasenene) households claimed wildlife disturbance, mainly by monkeys and baboons. In Bulyango, only 3 households indicated chimps as a problem while in Kasenene, 16% of households said chimpanzees were raiding crops. This was associated with having indigenous forest. The Ongo and Budungo forests are also close by, and chimps are losing their fear of people. In both Bulyango and Kasenene, wildlife disturbance was more likely on larger land holdings. Clearly, managing HWC will continue to be a crucial factor for any successful reforestation.

3.2 Creating Forest Corridor Action Plans

In response to the mapping and socioeconomic survey results, FFI designed two 5-year 'Forest Corridor Action Plans' – one for each linkage – specifying how reforestation in chimpanzee corridors could be achieved.

The Action Plans proposed harnessing the knowledge and experiences of locally-active NGOs, including on: conservation agriculture (WCS); PES (Chimp Trust); forest monitoring on private land (Jane Goodall Institute); REDD+ through Plan Vivo (EcoTrust); and microfinance (WCS, Village Enterprise). In this way, the plan was to apply some of the approaches used at the broad landscape scale ('greening-of-the-landscape') into a targeted local level reforestation exercise.

The 'shared actions' needed in both linkages were envisaged as:

- Involve the communities from the start in designing the project.
- Work with the PFOAs to design the forest connections.
- Zone the area for prioritising reforestation and afforestation activities.
- Select farmers who want to plant trees, who meet specific criteria of land availability, and who are near existing forest patches and connections.
- Explore a range of incentives for afforestation, conservation agriculture, and small business enterprise to enhance livelihoods, eg microfinance, REDD+.
- Engage with the tobacco and coffee industry players for support to key farmer groups in afforestation.
- Continue the programme of applying for Certificates of Customary Ownership (Customary Land Titles) for key farmers.
- Establish appropriate tree nurseries.
- Establish a monitoring system to measure progress on tree planting.
- Design and implement a biodiversity monitoring system.
- Introduce environmental education in local primary schools, especially on forestry, land management, hygiene and local water issues.
- Introduce fuel efficient cooking stoves.
- Develop local clean water supplies so no household will be further than 250 metres from a source.

3.3 Implementing Forest Corridor Action Plans in the Bugoma-Budonga Corridor

In 2016, Arcus Foundation agreed to finance implementation for the Action Plans (Phase 2 of FFI's Forest Corridor Project). This involved supporting an initial group of farmers to reforest land at both linkages, establishing a community chimpanzee monitoring network, undertaking baseline biodiversity studies, and investigating opportunities to work with the private sector.

The implementation project aimed to identify at least eight farmers in each linkage who would plant at least 12 acres (24 in total) with indigenous (not plantation) trees at a density of approximately 300 trees/acre. Overall, in the Kidoma linkage the project worked with 9 farmers and reforested 18 acres. In Bulyango the project worked with 16 farmers, and 20 acres were re-planted. Thus, initial aims were exceeded by over 50%.

3.3.1 Engaging communities and beginning reforestation

The project engaged with communities through their PFOAs: Kidoma-Bulimya PFOA in the Kidoma linkage, Bulyango and Kasenene PFOAs in the Bulyango linkage. After discussion with the PFOAs, and taking into account disparities in land holdings between their members, selection criteria were:

- Kidoma – farmers who had at least four spare acres, and who wanted to plant at least two acres of indigenous trees.
- Bulyango – farmers with at least two acres, who wanted to grow at least half an acre of indigenous trees.
- Kasenene – farmers with at least two acres available, who wanted to plant at least one acre of indigenous trees.

The project developed a satellite imagery 'scoping study database' to identify particularly suitable farmers who were willing to participate, had forest on their land, were close to important remaining forest patches, or were in a recently forested area. Not all farmers met the initial criteria, but there were additional circumstances that improved their suitability. For example, two brothers with adjoining land were selected because they offered economies of scale. A detailed mapping survey, using the satellite images from the scoping study, helped farmers identify suitable and verifiable afforestation areas.

Benefits farmers expected from the scheme included:

- timber
- money (income from REDD+ and timber sales)
- trees bringing more rain
- mitigation of climate change effects

- firewood
- poles
- added value to land
- nature conservation
- leaving a valuable legacy

Potential challenges included:

- setting aside land, only to find no seedlings are provided
- increased primate activity and wildlife conflict
- insufficient rain for seedling survival
- seedling and tree disease factors
- delay before receiving benefits – perhaps not until old age

The project supported three tree nurseries, paying an agreed labour charge for each seedling eventually distributed to farms. Seeds for Musizi, Nsambya and Mahogany were ordered and collected from the National Tree Seed Centre (NTSC), the National Forestry Authority's main tree nursery near Kampala. Mvule, for which there are few mature trees left, had to be collected from a single fruiting tree in the grounds of Kikoroby Hospital (enough for the Kasenene nursery only).

In Phase 2, some 20,000 seedlings were grown. Seedlings were distributed in May 2017, at the start of the delayed 'first rains' season. Shifts in the rainfall pattern disrupted visits to verify planting, but enough checks were made to be confident that the plans were being followed. Farmers who had set aside land but not yet planted trees were not included in the final assessment.

In 2019, the UK Government's Darwin Initiative agreed to support FFI in a Phase 3 (2020–2023) expansion of the programme, involving:

- Restoring at least 90 hectares of forest along rivers within the Kidoma and Bulyango linkages, using the government's statutory 30m riverbank buffer zone as the foundation for this restoration.
- Training community members in how to manage HWC.
- Expanding beyond the riverine buffer to reforesting an additional 90 hectares on adjacent private land of PFOA members.
- Building PFOA members' capacity in agroforestry systems and land use planning.
- Involving PFOA members in agroforestry market development and diversified livelihoods.
- Building capacity and governance of PFOAs through learning exchanges with other NGO forest conservation programmes in the Northern Albertine Rift, collaborating with the Northern Albertine Rift Conservation Group (NARCG).

A number of agencies are now involved in tree planting in Kidoma to restore forests, including EcoTrust, FFI, Jane Goodall Institute and the WCS. EcoTrust and IUCN-NL inventoried afforestation in Kidoma (Lamprey, 2020) and found that whilst 57 hectares of mature natural forest had been cut down, by 2018 39 hectares of farmers' land had been afforested with new seedlings grown under NGO projects. Afforestation has since accelerated, especially by FFI with Darwin-fund assistance. With the additional Phase 3 support of the Darwin Initiative project, 103,000 seedlings have been grown for planting along river buffers and farmers' land and a further 100 hectares is under active restoration.

3.4 Chimpanzee Monitoring Network

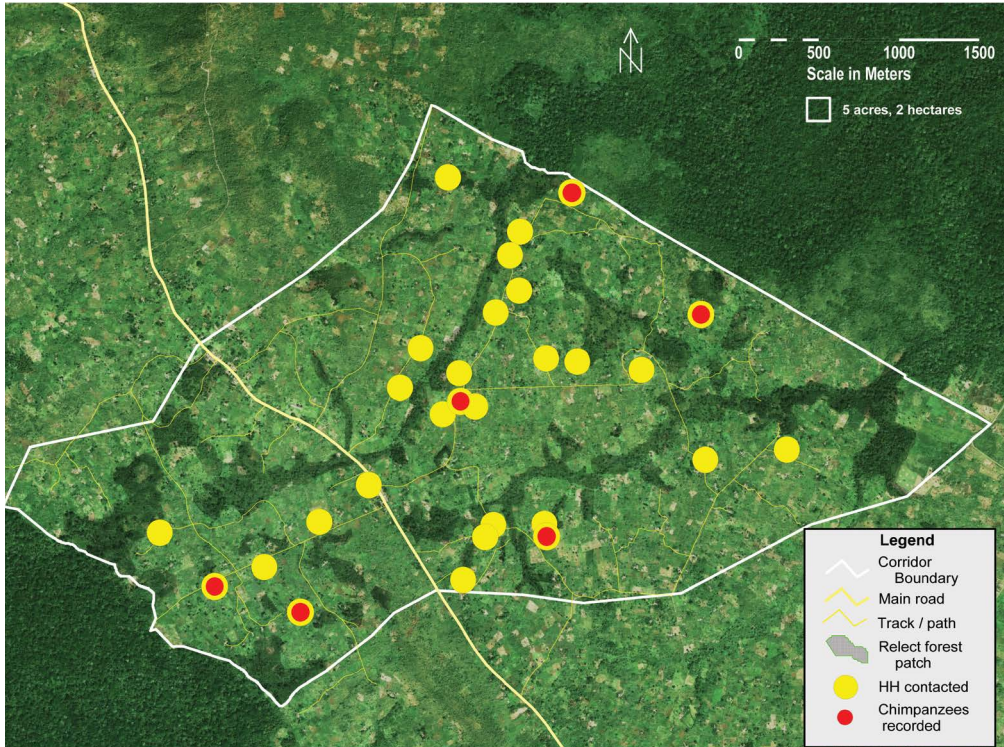
The Phase 2 project established a simple Chimpanzee Monitoring Network in the two linkage areas, involving over 60 households with mobile phones. A project coordinator phoned through the randomised list of phone-owning households every 6–8 weeks until at least 20 responses were received for each PFOA. Participants were asked about primate sightings and, where possible, numbers in the previous month. That gave an overall sample size of some 60 households in the network and 20–30 records for each area between start in October 2016 and final session in August 2017. In Phase 3, the Chimpanzee Monitoring Network was expanded further to include 130 community members within the two linkages. Figure 2 shows a typical output from chimpanzee monitoring.

The results of Phase 2 and Phase 3 chimpanzee monitoring indicate chimpanzees and other primates (red-tailed monkey *Cercopithecus ascanius*, Uganda mangabey *Lophocebus ugandae*, blue monkey *Cercopithecus mitis*, black-and-white colobus *Colobus guereza*, vervet monkey *Chlorocebus pygerythrus*; and olive baboon *Papio Anubis*) used both linkages widely. During the dry seasons, more than 30% of households in Bugoma-Wambabya, and 50% in Bulyango-Kasenene, reported chimpanzees on or near their land each month, and the survey, together with interviews with farmers, was used to map the main chimpanzee movement routes for the two linkages. In general, this revealed that the landscape remains permeable for the monkey species and baboons, and that the linkages between the forest reserves are effective for ecological and genetic connectivity. For chimpanzees however, trans-forest movement is greatly restricted by the loss of habitat along the rivers, and chimpanzee movement is now short-distance local 'forays' out from forest reserves onto local community land. This is especially the case along the southern edge of the Wambabya Forest Reserve.

Overall, both linkage areas showed a general downward trend in sightings over time. In Kidoma, oil development accelerated in 2016/17, with roads widened and tarmacked, power lines installed and forest felled. In Bulyango, forest continues to be cleared,

especially along the Waki River, where many areas are now being planted with pine. Rainfall patterns may also have influenced the apparent trend, and further monitoring is needed to clarify seasonal movements and longer-term trends. The community-based chimpanzee monitoring network shows potential for delivering this.

Figure 2. Typical output from Chimpanzee Monitoring Network in Kidoma in 2016



The yellow dots indicate households in the network, the red dots those households that have seen chimpanzees on their land in the preceding 2 weeks.



Felled forest tree on the Kanywabarogo River, Kidoma, the firewood paid for school fees. © R.H. Lamprey



4

The future for the Bugoma- Budonga Corridor

Despite the small successes in reforestation described in the previous section, the Bugoma-Budonga Corridor needs a new approach. This could involve land purchase for conservation use, better use of existing legislation, or collective titling.

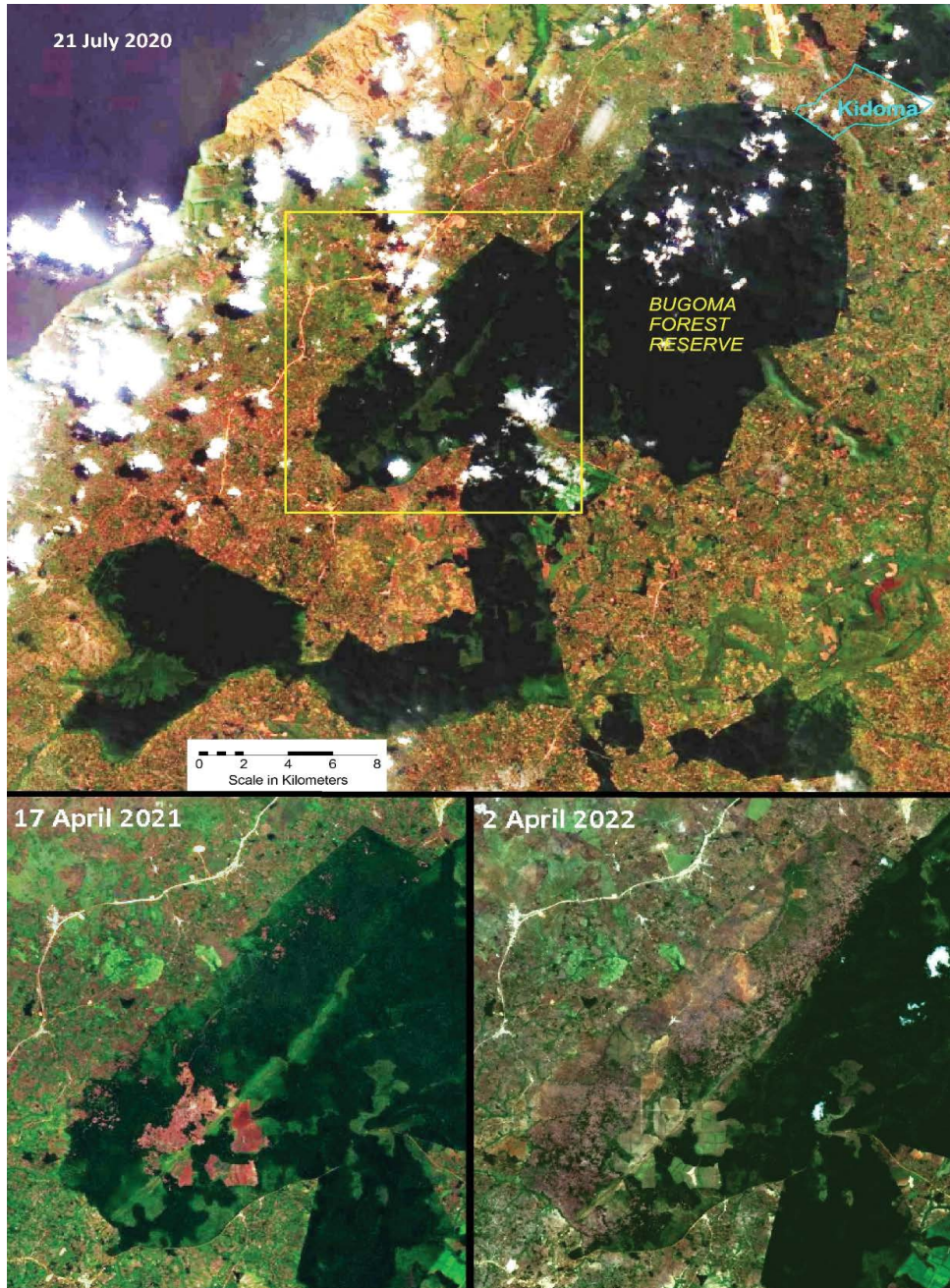
The landscape of the whole Bugoma-Budongo Corridor, not just the linkages described previously, is changing at lightning speed and in ways that pose a great risk to chimpanzees.

In 2019 EcoTrust and IUCN-NL Committee conducted a scoping study (Lamprey, 2019) to determine how recent developments in the region are impacting wildlife, and to trial further approaches to restoring forest linkages. Using satellite imagery from 2007–2020, they determined that: dwellings were increasing at nearly 7% per year; 50% of natural forest has been lost since 2011; forest reserves have been converted to plantation forestry (with Mukihani Forest Reserve losing 77% of its natural forest cover since 2011); roads have been widened and paved in the lead up to oil development; and sugar cane cultivation by smallholders and medium-scale enterprises was expanding at 800 hectares per year in the Bugoma-Budongo Corridor by 2019. In September 2020, clearing started on 8000 hectares of the west-central section of Bugoma Forest Reserve, leased by the Bunyoro-Kitoma Kingdom to Hoima Sugar. By June 2022, some 5500 hectares of Bugoma had already been cleared for cane (see Figure 3).

Oil infrastructure is another expanding pressure. For example, Uganda's first oil refinery, the Kabaale Refinery, will be built just 3–5km west of the Kidoma linkage. Crude oil piped to the site will originate from the Total Energies Tilenga Field in Murchison Falls National Park 200km to the north, and from Kingfisher Field nearby on Lake Albert. The crude oil will be divided into two streams at the site. One will be refined and then transported to Kampala (30,000 barrels per day output) through a proposed petroleum products pipeline. The other will be exported via pipeline to Tanga in Tanzania for refining (potential throughput 216,000 barrels per day).

Therefore, if chimpanzee conservation is to stand any chance, further and broader efforts must be made to establish corridors, or otherwise improve landscape permeability for primates.

Figure 3. The clear cutting of 5500 hectares of tropical high forest off Bugoma Forest Reserve in the west for commercial sugar cane



The land was leased by the Bunyoro-Kitoma Kingdom to Hoima Sugar. The lease is for 8000 hectares, and therefore further clearing is to be expected. Source: Lamprey R, 2020–22, assessment using LandViewer Sentinel-2 imagery (LandViewer, 2022).

4.1 Conservation land purchases or leasing

One suggestion for a way to improve reforestation of the Bugoma-Budonga Corridor is for NGOs and associated land management trusts to purchase land at market rates, or lease land from landowners for long periods, for example 10 years, and manage sympathetically for primates. Lease rates would have to be competitive with alternative land uses, such as sugar cane.

This approach is being trialled by EcoTrust. In 2020 EcoTrust added a third linkage to the local landscape approach – Bugambe – which connects Wambabya Forest Reserve to the Bugambe Tea Estate (area C in Figure 1). The estate is a long-established commercial enterprise which, under its Rainforest Alliance certification, has maintained a large area of mature tropical high forest within its borders. The forest supports resident chimpanzee groups, as well as transient chimpanzee groups from Wambabya Forest Reserve.

To date, EcoTrust have purchased approximately 20 hectares in Bugambe, and restoration is starting on this land with planting of indigenous seedlings. This is the first test case of conservation land-purchase in the Albertine Rift, and the process will be a test for similar schemes in other critical linkages.

4.2 Utilise collective land titling

Another approach might be to pursue collective land titling as a way to help secure land both for chimpanzees and for local people. Sections 3.1.1 and 3.1.2 clearly set out people's worries about land tenure security, and the very low number of owners with formal titles. Socioeconomic surveys also demonstrated people's interest in growing more trees. But without secure tenure, the incentive to maintain trees for their long-term advantages is very low.

Collective land titling could have key conservation advantages over individual land titling. One advantage is affordability. A single freehold application for a CLA representing multiple households is more affordable than individual titling.

Another advantage is stability. Individual titles can be sold and reforestation gains lost with new owners, whereas collectively held titles have the potential to galvanise communities to improve intra-community governance, foster sustainable land and natural resource management and conservation, and hold local leaders accountable.

Strengthening of communal land rights is clearly provided for in the National Land Policy, which notes: *97. (iv) Ensure community management structures relating to land under customary tenure are strengthened; 109. (v) Recognize and confer official status to community-based boundary marking systems in all tenure systems.*⁷

⁷ Republic of Uganda, Uganda National Land Policy: Final Draft, Ministry of Lands, Housing and Urban Development, February 2013.

Key to securing collective title is first to establish an appropriate community institution. The 1998 Land Act provides for establishing CLAs as legally recognised entities comprising members of a particular community to register, lease or own land (Republic of Uganda, Land Act, Part 2, Section 15, 2 July 1998). The Land Act provides clear and detailed instructions on how a CLA is to be established, involving appointing community representatives to form a management committee, and developing a constitution and a management plan. Once established, the CLAs can then be supported to exercise the principle of free, prior informed consent to decide on the most appropriate way to legally hold the land (either as a freehold or customary) (Republic of Uganda, Land Act, Part 2, Section 22, 2 July 1998). The CLA's constitution governs the management committee and outlines the rights and responsibilities of different members of the community. See also the discussion on collective titling in Annex 1.

4.3 Formalise legal protection for remaining forest patches

Another suggestion is that restoration processes in Kidoma and Bugambe could have a more formalised basis in law by invoking a clause in the National Environment (Wetlands, River Banks and Lake Shores Management) Regulations (Clause No. 3/2000). This states that no activity (including agriculture) can be carried out within a 30m buffer from the riverbank without a permit. Since the remaining forest patches in Kidoma and Bugambe occur along rivers and streams, their protection could be formalised under this legislation. Few cases exist in Uganda for testing this legislation, and the Kidoma and Bugambe examples might provide examples.

The 2003 National Forestry and Tree Planting Act provides for local community institutions to manage a community forest on behalf of the community (Republic of Uganda, 2016). CLA's set up to achieve collective land title could thus also be supported to establish Communal Forest Associations (CFA) and possibly enter into agreements with the National Environmental Management Authority (NEMA), Uganda Forestry Authority or appropriate authority to make use of wetlands, forest reserves or other gazetted land (Republic of Uganda, 2015; Paul et al., 2004). This facility will be appropriate because many of the forests currently used by chimpanzees are along waterways, forest reserves and wetlands. This land is owned by the state and cannot be privatised, but can be managed by a CLA in cooperation with the relevant government authority.

All these strategies could have a role to play in securing the future of the Bugoma-Budonga Corridor. However, the economic imperative remains. Reforestation will only work where it is more lucrative than alternatives.

Annex 1: Land titling in Uganda

Uganda has a very comprehensive collection of laws associated with land registration and administration. In practice, land governance is a multi-layered mix of statutory and customary land tenure systems comprising colonial legacies, reforms and new initiatives. These different systems often overlap resulting in conflicting tenure rights and interests (Republic of Uganda, 2013; Burke et al., 2014).

Issues with land tenure security across Uganda arise from many challenges, including: proving rights and interests; expensive and difficult procedures associated with land registration; poor accountability and transparency; limited funding to the sector; legal and regulatory constraints; attitudes; culture; squatters; historical issues; and capacity constraints.

Poverty and inequality are closely related to land tenure security (Muhumuza and Akumu 2019). Land governance and management across Uganda is vulnerable to elite capture. Individuals within communities and local government can exploit challenges such as limited awareness and understanding of laws and policies, lack of communications and coordination between relevant state institutions, and ethnic politics, for personal gain. The 2006 discovery of commercially viable oil deposits in the Albertine Sub-Region spurred a rush for land (CRED 2014, ULA 2011) with significant impacts on land values and tenure (Ssekika 2018, Roberts and Specioza 2018, Tumusiime et al., 2016; ULA 2011).

The process for obtaining certificates of customary ownership of land is a long-drawn-out application process. The application involves getting the right forms from the Sub-County Land Board, filling these in, including details of neighbours, and preparing a sketch map of the land and its neighbours. These are then submitted to the Sub-County Area Land Committee (ALC), which advertises the proposed registration for 14 days. The ALC should then inspect the applicant's land and make a recommendation to the District Land Board (DLB). When the application is approved by the DLB it should be sent back to the Sub-County Chief, who issues the certificate.

When the PFOA network was initially set up in 2011–2012, the Jane Goodall Institute supported 123 farmers from Kidoma, 80 from Bulyango and 35 from Kasenene to apply for these certificates, helping with the application process and funding some of the survey work. The initial implementation phase of the Chimpanzee Corridor Project followed up on

these applications, asking local authorities why no certificates had yet been issued. The response was that trials of the process in Nwoya and Kasese Districts had highlighted problems in the application process. The most serious was that sometimes more than one Certificate was being issued for the same piece of land.

The FFI/Arcus study suggested there may also have been political reasons for the ongoing delay – for example the Uganda Constitution Amendment Bill 2017 lets Government compulsorily acquire private land for economic development, and this becomes more challenging the clearer and stronger the land tenure rights are. There is also an issue of elite capture. In August 2016, for example, the National Forestry Authority (NFA) requested the Ministry of Land Housing and urban Development (MLHUD) cancel a land title belonging to the King of Bunyoro-Kitara Kingdom for 8,000 hectares in the Bugoma Central Forest reserve, on the grounds it had been fraudulently acquired. In December 2019, the Court of Appeal ordered the reinstatement of the land title to the King, who subsequently committed to provide the land to Hoima Sugar Limited. The company plans to clear the land for sugarcane, and this will seriously threaten the chimpanzee population in the area (Kasozi, 2019). By March 2022, 5500 hectares of Bugoma Forest Reserve had been converted to sugarcane, see Figure 3. The extent of the Bugoma deforestation dwarfs, by a factor of 40, the annual forest restoration by conservation actors in the region, calling into question the overall commitment of the Government in implementing the Strategic Plan for the Northern Albertine Rift.

The general level of knowledge and awareness of statutory or customary land law, the rules and principles and the mechanisms available to deal with land management is very low. This has been well documented across Uganda and is equally applicable in the Bunyoro Sub-Region (Bosco et al., 2017, Damba 2019, Deininger 2008). Efforts are, however, underway through the MLHUD and Hoima District Council to speed up the roll out of Certificates of Customary Ownership (CCOs) in the district.⁸ A Ministry Zonal Office (MZO) that covers both Hoima and Buliisa Districts was opened in early 2018 to deliver land services in the region including the issuance of CCOs.⁹ A number of initiatives are currently underway to demarcate and register CCOs but coordination between them is often weak.¹⁰

8 Personal Communication with the senior MLHUD representative, 19 December 2019.

9 Personal Communication with senior MZO representative, MLHUD, 16 September and 25 April 2019.

10 Personal Communications with representatives of Jane Goodall Institute (JGI), Kampala, 21 March 2019 and 13 September 2018; Eco Trust, Kampala, 21 March 2019 and 13 September 2018; Wildlife Conservation Society (WCS), Kampala, 28 September 2018; Chimpanzee Sanctuary and Wildlife Conservation Trust, Hoima Town, 7 August 2018; Representative of Hoima District Forest Office, Hoima Town, 7 August 2018; National Forestry Authority (NFA) Office, Hoima Town, 6 August 2018; Hoima District Land Office, Hoima Town, 6 August 2018.

Collective Land Title

Collective land titling, put forward in Section 4 as a way forward for chimpanzee conservation, has both advocates and detractors.

A number of recent and ongoing initiatives to address land governance in Uganda have built capacity and focused government's attention on strengthening land governance and improving security of tenure. Benefits could include reducing conflict; facilitating social and economic development; and attracting investment. It is expected that the second phase of the World Bank-funded "Competitive Enterprise Development Programme (CEDP)" (Republic of Uganda, 2016b) will support the establishment of Communal Land Associations (CLAs) and the systematic demarcation and the registration of customary land under Certificates of Customary Ownership (CCOs).

The Ugandan government and a significant number of NGOs operating in the area consider CCOs and CLAs to be pro-poor and effective in improving tenure security especially for women and vulnerable groups. However, some prominent land actors vehemently disagree. CCOs have been criticised on the grounds that they ignore or distort the roles of family, cultural leaders and women; do not capture local customary rights and interests; that not all of the people are named, that there may be no capacity to check these or other details; and that there is insufficient clarity about the management of disputes (Adoko, 2017; Arcadia Advocates 2016; NULP 2014). Similarly, CLAs have been criticised on the grounds they lack clarity in law and application, in addition to being overly complicated and beyond the capacity of communities to readily access (Balesesa, 2016; Arcadia Advocates, 2016).

MLHUD and institutions implementing pilot CCO and CLA interventions in other regions of Uganda have endeavoured to address the majority of these purported shortcomings by carefully establishing procedures to ensure the equitable access to women, poor and vulnerable, certify all appropriate names appear and create roles for cultural leaders in the issuance of CCOs: observing plot demarcation, ensuring that all relevant names are included on the document and cross checking the accuracy of the information. Nonetheless, some observers suggest more needs to be done (Adoko, 2016).

Despite the challenges there is a keen interest in customary land titling – whether collective or individual – by stakeholders in Uganda from central government to individual farmers. A range of pilot initiatives have generated useful lessons – of both opportunities and challenges – on which new interventions can build. The current lull in activity in the oil sector – and hence deflation of land prices and competition – provides an opportunity to reflect, take stock of the situation and develop robust ways forward for equitable solutions to land tenure security that support local peoples' rights and interests and also secure the long-term future of the country's chimpanzees.

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This report considers chimpanzee conservation efforts within the Bugoma-Budonga Corridor in Western Uganda's Albertine Rift. Section 1 offers conservation practitioners and policy-makers an introductory review of conservation corridor theory. Section 2 summarises Ugandan policy on chimpanzee corridors, and then discusses the rapidly changing situation within the Bugoma-Budonga Corridor. In Section 3 we compile knowledge from unpublished mapping and scoping studies (including socio-economic surveys) that led to reforestation efforts. These had some success, yet have faced overwhelming external pressures. Although useful knowledge has been gained, a wider approach is urgently needed. Section 4 examines potential ways forward, including purchase/lease of land for conservation, collective land titling to incentivise reforestation, and using existing legislation to manage land alongside waterways.

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