

Linking Conservation, Equity and Poverty Alleviation

Understanding profiles and motivations of resource users
and local perceptions of governance at Bwindi Impenetrable
National Park, Uganda

Medard Twinamatsiko, Julia Baker, Mariel Harrison,
Mahboobeh Shirkhorshidi, Robert Bitariho, Michelle Wieland,
Stephen Asuma, E.J. Milner-Gulland, Phil Franks, Dilys Roe



About the authors

Further details about the research team and their respective organisations can be found in Appendix 2. Contact details for the corresponding authors are given below.

Julia Baker, Parsons Brinckerhoff: Julia.Baker@pbworld.com

Medard Twinamatsiko, ITFC: twinamatsikomedard@yahoo.com

Dilys Roe, IIED: dilys.roe@iied.org

Produced by IIED's Natural Resources Group

The aim of the Natural Resources Group is to build partnerships, capacity and wise decision-making for fair and sustainable use of natural resources. Our priority in pursuing this purpose is on local control and management of natural resources and other ecosystems.

Published by IIED, August 2014

Twinamatsiko et al. 2014. *Linking Conservation, Equity and Poverty Alleviation: Understanding profiles and motivations of resource users and local perceptions of governance at Bwindi Impenetrable National Park, Uganda*. IIED Research Report, London.

<http://pubs.iied.org/14630IIED>

ISBN 978-1-78431-073-8

Printed on recycled paper with vegetable-based inks.

International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
www.iied.org

@iied

www.facebook.com/theIIED

Download more publications at www.iied.org/pubs

Linking Conservation, Equity and Poverty Alleviation

Understanding profiles and
motivations of resource users and
local perceptions of governance at
Bwindi Impenetrable National Park,
Uganda

Medard Twinamatsiko, Julia Baker, Mariel Harrison,
Mahboobeh Shirkhorshidi, Robert Bitariho, Michelle Wieland,
Stephen Asuma, E.J. Milner-Gulland, Phil Franks, Dilys Roe

Acknowledgments

The research team wishes to thank the following individuals and organisations for their support and advice for this project:

- First and foremost, the local people of Bwindi for their co-operation, participation and discussions during the field surveys without which this research would not have been possible.
- Chief Warden of Bwindi, Warden of Law Enforcement and the Community Conservation Warden of Bwindi for being active partners throughout the research giving support and technical advice. The Community Conservation Rangers of Bwindi for their support with data verification, and Law Enforcement Rangers of Bwindi for their support in data collection.
- The Uganda Wildlife Authority for their collaboration and input into the research.
- UNCST for permission for this research to be undertaken.
- Mark Mwine (Director, Bwindi Mgahinga Conservation Trust) for enabling lessons-learnt from the impact assessment of the Trust's projects to benefit this research.
- Douglas Shield and Miriam Van Heist for their technical input and advice, particularly the direction and design of the research and undertaking the field surveys.
- All of our project partners and stakeholders of the Research to Policy project for their input, feedback and support throughout the research process.
- Andrew Kirkby for his expertise in GIS and support with collating the field data.
- The administration team at ITFC for their organisation, management and logistical planning of the field surveys.
- Fiona Roberts, IIED, for her support, coordination and assistance throughout the research stage and publication of this report.

The opinions expressed in this report are those of the authors and not necessarily those of the institutions involved.

Contents

| | |
|---|-----------|
| Executive summary | 5 |
| 1 Introduction: Protected areas, conservation and poverty alleviation | 13 |
| 2 Linking conservation with poverty alleviation in Uganda | 19 |
| 3 The Research to Policy Project | 27 |
| 3.1 Objectives | 28 |
| 3.2 Research framework | 29 |
| 3.3 Methods | 31 |
| 3.3.1 Identifying and profiling unauthorised resource users | 31 |
| 3.3.2 Understanding governance | 32 |
| 3.3.3 Summary | 32 |
| 4 Understanding resource users at Bwindi | 35 |
| 4.1 Who are the poor? | 36 |
| 4.2 What are local people's perceptions of negative and positive conservation – poverty linkages? | 38 |
| 4.3 Who benefits from Bwindi's ICD programme? | 42 |
| 4.4 Who uses natural resources from Bwindi? | 44 |
| 4.4.1 Profiles of bushmeat hunters | 44 |
| 4.4.2 Profiles of firewood collectors | 46 |
| 4.4.3 Profiles of building pole collectors | 47 |
| 4.5 What resources do local people seek from the national park and why? | 48 |
| 4.5.1 Resource-specific motivations | 49 |
| 4.5.2 Non-resource specific motivations for unauthorised resource use | 50 |
| 4.6 Is the Multiple Use Programme a cover for unauthorised resource use? | 52 |
| 4.7 Has Bwindi's ICD programme influenced unauthorised resource use? | 53 |
| 4.8 How would local people improve ICD? | 54 |

| | | |
|----------|--|-----------|
| 5 | Is there good governance of ICD interventions at Bwindi? | 59 |
| 5.1 | How do local people define participation in ICD? | 60 |
| 5.2 | Which governance arrangements do local people prefer? | 61 |
| 5.3 | What worked well in terms of governance arrangements and why? | 62 |
| 5.4 | Does good governance in ICD correlate with increased benefits? | 65 |
| 5.5 | Case study: Governance of the Multiple Use Programme | 66 |
| 5.5.1 | Who received MUP identity cards to be able to access forest resources? | 66 |
| 5.5.2 | Why do those permitted to enter the national park no longer do so? | 67 |
| 5.5.3 | What do authorised resource users value most about the Multiple Use Programme? | 70 |
| 6 | Summary of research findings | 73 |
| 7 | Discussion | 77 |
| 7.1 | Key issues for improving ICD at Bwindi | 78 |
| 7.1.1 | Reducing threats to conservation | 78 |
| 7.1.2 | Addressing crop raiding | 83 |
| 7.1.3 | Sharing benefits equitably and contributing towards poverty alleviation | 84 |
| 7.1.4 | Governance of ICD | 86 |
| 7.2 | Wider lessons learned | 87 |
| | References | 89 |
| | Appendices | 93 |

Executive summary

Linking protected area conservation with poverty alleviation

Biodiversity conservation that contributes towards poverty alleviation is a priority under the 2011–2020 Strategic Plan for the Convention for Biological Diversity (CBD). Protected areas are important for CBD signatories to deliver this objective and the 10th Conference of Parties encouraged members to ‘support initiatives on the role of protected areas in poverty alleviation’ (Decision X31). Integrated Conservation and Development (ICD) has been promoted as an approach to conserve protected areas by addressing local development priorities. Although there have been successful ICD interventions, many that focus on reducing rural poverty have been criticised for failing to reduce threats to protected areas, often because the drivers of biodiversity loss and costs of conservation for local people are not fully understood.

Conserving Uganda’s mountain gorillas

Uganda’s population of the critically endangered Mountain gorilla (*Gorilla beringei beringei*) occurs within one of the poorest and most densely populated regions of Africa. This creates major challenges for Uganda to conserve its gorillas and ensure that conservation contributes towards improving the livelihoods of local people. To address this challenge, Bwindi Impenetrable National Park, in southwest Uganda, adopted the ICD approach. The national park is home to approximately half of the world’s mountain gorilla population. Many ICD interventions were implemented including tourism revenue sharing, a trust fund to support community projects and the Multiple Use Programme, where local people are allowed to collect minor resources from the national park. A recent review found that the ICD approach was important for improving park-community relations but had several flaws: interventions tended to benefit wealthier community members rather than the poorer households, who were assumed to be taking part in unauthorised resource use, and had little impact on reducing threats to the national park from unauthorised activities. The review highlighted the need for ICD interventions to link conservation with poverty alleviation more effectively, but also that doing so required a better understanding of the individuals involved in unauthorised use of resources and their motivations.

Research to Policy

The 'Research to Policy: Conservation Through Poverty Alleviation' project is a major initiative of the Uganda Poverty and Conservation Learning Group. The project involves two components of research and policy advocacy, and was designed to make a direct link between research and the direction that subsequent pressures would take to press for policy change. The aims of the research were to improve the effectiveness of ICD interventions in linking conservation with poverty alleviation at Bwindi and to promote a greater understanding of links between protected area conservation and poverty alleviation. Two priority research areas were developed – resource users and governance. Innovative social science techniques, in addition to focus group discussions and household questionnaires, were employed to overcome the challenges of identifying and profiling unauthorised resource users and explore local views on governance.

Understanding resource users at Bwindi

1. Who are the poor?

People living in the frontline zone of the national park (within 0.5km from the park boundary) were significantly poorer than people living further away, and they appeared to be in a poverty trap – they had little education and so were disadvantaged when seeking employment; were at risk of disease from poor sanitation facilities and, being close to the national park, were more vulnerable to crop raiding by wild animals, which reduces the food and income available to them. The poorest people also lived in remote areas far from trading centres or road transportation that benefit other local people.

2. What are local peoples' perceptions of the linkages between conservation and poverty?

Most local people described crop raiding and prohibited access to forest resources, notably firewood, as the ways that the national park exacerbates poverty. However, many local people associated the building of schools and park-related employment as ways that the national park contributes towards poverty alleviation.

3. Who benefits from ICD interventions?

Poorer people and those with the lowest quality of life reported fewer benefits from ICD interventions than less poor people. However, there was no significant difference in terms of distance from the national park – people living close to the national park described receiving similar amounts of benefits to people living further away.

4. Who are the resource users, what do they seek and why?

Authorised resource users (those enrolled in the Multiple Use Programme) were significantly less poor than other people of Bwindi. In contrast, those arrested for unauthorised activities in the national park were significantly poorer. They were also more likely to live closer to the national park and further from trading centres than others. To gain an understanding of all the people who make unauthorised use of resources (not just those arrested), the profiles of bushmeat hunters, firewood collectors and building pole collectors¹ were explored. In addition, the park resources that local people harvested most were identified.

Bushmeat was the forest resource that local people desired most and, out of the five resources assessed, the most widely consumed. Those hunting and consuming bushmeat were not only those who lived close to the national park but also those in remote areas, which were characteristically associated with the poorest people of Bwindi. Certainly, hunting was driven by a lack of money to buy meat or livestock, and medicinal needs for treating sickness. Yet when exploring the profiles of hunters, it was evident that people who were not the poorest in their communities were linked with hunting and bushmeat consumption. These included traditional subsistence hunters who sell bushmeat locally for a small, modest income, but also people who felt that national park conservation represents an injustice. These individuals hunted as a form of compensation for the costs associated with national park conservation, notably crop raiding by wild animals, or because they resented that revenue sharing had failed to benefit those who were most deserving or that jobs with the national park were given to outsiders.

Firewood was the second most frequently collected resource. As with bushmeat hunters, those who collected firewood and building poles from the national park lived in remote areas further away from trading centres than others within their community. However, people collecting firewood were not localised to the frontline zone but lived within 1 km from the national park and had more education than the average for local people of Bwindi. People collecting building poles had larger families and appeared to be less poor than the poorest people living around the national park. Despite this, the drivers of firewood and building pole collection were similar – a lack of land to grow trees and the lack of availability of these resources outside the national park.

5. Is Multiple Use a cover for unauthorised resource use?

The Multiple Use Programme at Bwindi was the first conservation initiative in Uganda to allow local use of natural resources from a national park. The Multiple Use Programme

¹ As part of our household questionnaire, we examined profiles of people collecting five types of resources: bushmeat; firewood; building poles; medicinal plants and honey (Appendix 1). Profiles of people collecting medicinal plants and honey were not significant, possibly because resource collection was too low for statistical testing.

has been heralded a success in local community involvement in national park management and the resolution of park-community conflict (Blomley, 2003). However, despite these positive outcomes for conservation, it has been criticised because of the inherent risk that allowing local access to national parks will increase unauthorised resource use.

Law enforcement records showed that, over the past two years, a small number of people who had been permitted to enter the national park under Multiple Use had been arrested for unauthorised activities that included poaching. However, the numbers were too small to allow inferences to be drawn from statistical analysis. The findings of this research showed that households consuming bushmeat during the last year were significantly *less likely* to be authorised resource users or to have attended park-community meetings. Furthermore, people permitted to enter the national park were no more or less likely to collect firewood or building poles from Bwindi than others within their community.

6. Have ICD interventions influenced unauthorised resource use?

In one sense, yes in a negative way – feelings of not receiving ICD benefits drove unauthorised resource use. Local people compensated themselves by taking resources from the national park when they felt they had suffered an injustice over national park conservation; either that they had not received an equal share of benefits from revenue sharing, felt that jobs with the national park went to outsiders, or felt a lack of support over crop raiding. Furthermore, people reporting that they had not benefited from a crop raiding mitigation project were more likely to collect firewood from the national park than others in their community. However, in another sense, no – benefitting from ICD interventions appeared not to prevent bushmeat hunting or building pole collection.

7. How would local people improve ICD interventions?

Local people identified the channelling of revenue sharing funds more directly to local communities, and for these funds to benefit people who suffered from the effects of crop raiding, as the greatest improvements that should be made to ICD interventions. They also identified that better, more regular, communication between park authorities and communities, and the monitoring of long-term outcomes of ICD interventions, as other improvements that should be made to ICD interventions at Bwindi.

Is there good governance of ICD interventions?

8. How do local people define participation in ICD?

Local people identified involvement in decision-making as the most important aspect of governance for a successful ICD intervention. When asked what involvement in ICD decision-making should mean in practice, local people highlighted the importance of being able to contribute throughout the whole process from design to implementation, but placed most emphasis on being part of the decision on the type of ICD intervention to be implemented.

9. Which governance arrangements for ICD interventions do local people prefer?

'Collaborative decision-making and implementation' (an equal collaboration between local communities and external organisations for designing and implementing an ICD intervention) was by far the governance arrangement that the people of Bwindi preferred. Discussions about this approach highlighted the importance that local people placed on collaborating with donors and external experts in both the decision-making and implementation stages of an ICD intervention.

10. What worked well in terms of ICD governance and why?

Local people also identified where local communities were involved in the selection and implementation of an intervention as the most successful ICD interventions from a governance perspective. Furthermore, they described ICD interventions that failed as those where local communities had not been involved in the decision-making.

11. Does good governance in ICD correlate with increased benefits?

This research showed that involvement in decision-making influenced the level of benefit from an ICD intervention that people said they received. The more that a person felt involved in the design and implementation of an ICD intervention, the more benefits they reported to have received, whereas people who did not report any benefit from an ICD intervention almost always felt that they were not involved in its design and implementation. There were situations when a person did not feel involved in decision-making but reported to have benefitted from an ICD intervention. These were most likely to be interventions such as the goat provision scheme where individuals receive a direct, immediate benefit, but may not be involved in the decision-making stage.

Conclusions

The 2011 gorilla census confirmed that Bwindi's mountain gorilla population was increasing. Despite this, bushmeat hunting was identified as one of the greatest threats to the gorillas and the national park. This research showed that, after 20 years of ICD interventions, bushmeat was the forest resource that local people desired and consumed the most. The research also showed the diversity of people undertaking unauthorised resource use and their reasons for doing so: poverty attributable to the national park (crop raiding and loss of access to forest resources, notably meat and firewood) drove unauthorised resource use, yet so too did resentment that benefits from the national park (notably tourism revenue sharing and employment) were not reaching those suffering the most from human – wildlife conflict.

The key issues for improving ICD at Bwindi from these findings are, firstly, the pathway of ICD to reduce conservation threats appears to a combination of addressing livelihood and subsistence needs of the poorest people living in remote areas and close to the national park, especially for meat and medicine, but also addressing local feelings of injustice about conservation particularly over crop raiding, benefit sharing and employment. Secondly, given the importance that the people of Bwindi place on being involved in decision-making of ICD interventions, ensuring that the poorest members of local communities can participate and be involved with decisions on the type and distribution of ICD interventions.

Wider lessons learnt

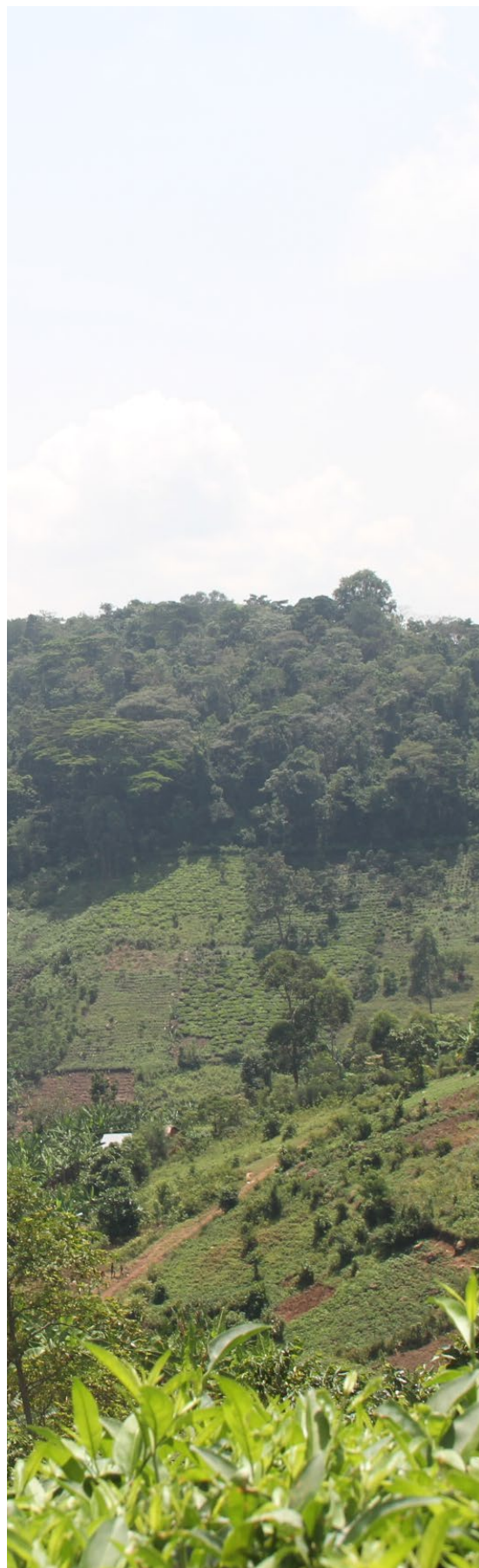
While our research focused on Bwindi, there are several lessons learned for other protected areas where the ICD approach is implemented to link protected area conservation with poverty alleviation. These are:

- 1) At many protected areas, law enforcement patrols are used to collect data on the 'what and where' of unauthorised resource use. Understanding the 'who and why' of unauthorised resource use can enable conservation managers to identify the diversity of people and drivers involved with unauthorised resource use, and implement appropriately targeted law enforcement while improving the livelihoods of the rural poor.
- 2) Combining studies on resource users and governance enabled a greater understanding of the types of ICD interventions and target beneficiaries that will link conservation with poverty alleviation more effectively, and of locally appropriate governance arrangements for implementing ICD interventions.

- 3) Many reviews of the ICD approach have highlighted that interventions aiming to reduce rural poverty have little positive impact for conservation. Our research shows that local resentment over the inequity of costs and benefits from conservation was just as important a driver of illegal activities as rural poverty. This supports current developments at the international level that focus on equitable management of protected areas (for example Aichi Target 11 in the Convention on Biological Diversity Strategic Plan) as an ethical and moral obligation, but also because equity is necessary for conservation to be effective and sustainable.



From a home at the edge of Bwindi Impenetrable National Park, Uganda: Michelle Wieland



1

Introduction: Protected areas, conservation and poverty alleviation

A long-standing narrative exists within the international conservation community on the challenges to conserving protected areas in regions densely populated by the rural poor.

Poaching endangered species, overexploitation of natural resources and agricultural encroachment are commonly listed as threats to conservation. Conflict between local communities and conservation authorities, particularly over crop raiding by wild animals, is often described as a factor undermining efforts to gain local support for protected areas. This narrative is based on the premise that poverty drives biodiversity loss – the dependency of poor people on biodiversity drives unauthorised resource use within protected areas, as individuals seek to meet daily subsistence needs or improve the security of their livelihoods. It is also based on the recognition that efforts to conserve protected areas can exacerbate rural poverty when local people are evicted from traditional lands, disproportionately fined for minor acts or lose crops and livestock to wild animals.

A series of international policies and conventions have aimed to resolve these challenges by addressing human rights in the context of protected area conservation² and, more recently, promoting linkages between biodiversity conservation and poverty alleviation. These include the declaration made at the IUCN World Parks Congress in 2003 that 'protected areas should strive to contribute to poverty reduction at the local level, and at the very minimum must not contribute to or exacerbate poverty', and the Programme of Work on Protected Areas adopted by the Convention of Biological Diversity (CBD) in 2004, element two of which focussed on equity, governance and benefit sharing. In 2008, at the 9th Conference of Parties, members were encouraged 'to ensure that conservation and development activities in the context of protected areas contribute to the eradication of poverty and sustainable development' (Decision IX/18).

In 2010, the UN General Assembly emphasised linkages between biodiversity and poverty by claiming that 'preserving biodiversity is inseparable from the fight against poverty'. The UN Convention on Biological Diversity agreed to increase the area of land protected for conservation and to do so 'equitably'. The 2011–2020 Strategic Plan for the CBD established an agenda for biodiversity conservation to contribute towards poverty eradication and the 10th Conference of Parties encouraged the support of 'initiatives on the role of protected areas in poverty alleviation' (Decision X31).

As a result of these policies and conventions, conservation practitioners have sought ways to achieve the inter-related objectives of reducing conservation threats, compensating for negative impacts from protected areas on local livelihoods and ensuring that protected area conservation contributes towards poverty alleviation. Integrated Conservation and Development (ICD) has been promoted as an approach to link conservation outcomes with poverty alleviation (Blomley et al., 2010) (Box 1). Based on the premise that protected area conservation will be more successful if it delivers more benefits and less cost to local communities, ICD interventions can be defined as either 'de-coupling' or

² Refer to IIED Briefing Conservation and Human Rights: the need for international standards, 2010 (<http://pubs.iied.org/17066IIED.html>)

'coupling'. De-coupling interventions are those that aim to reduce needs by local people for resources within a protected area, and typically include interventions that provide alternatives to park resources. Coupling interventions aim to change the behaviour of those entering a protected area illegally, often by fostering local support for conservation, for example through tourism revenue sharing.

When the ICD approach was first introduced during the mid-1980s, many interventions were generalised poverty alleviation programmes for local communities surrounding protected areas. These were criticised for failing to reduce threats to protected areas because of development activities that were unrelated to conservation or insufficient economic incentives for conservation impact (e.g. Larson et al., 2007; Linkie et al., 2008; Suich, 2013). The ICD approach then evolved to focus on specific interventions that have conservation impact by contributing towards the poverty alleviation of target community groups clearly linked with biodiversity, and successes have been documented. For example, conservation payments that secured human-wildlife coexistence (Dickman et al., 2011); direct payments that provided an effective conservation tool (Clements et al., 2013); revenue sharing as a mechanism that gained local support for protected areas (Archabald & Naughton-Treves, 2001); and the employment of local people as lion guardians that reduced the number of lion killings (Hazzah et al., 2014).

However, a common weakness of the ICD approach is failure to identify the different people and motivations involved with unauthorised resource use, and how the costs of conservation are manifested at local levels (Blomley et al., 2010). The equitable distribution of benefits from national parks to local people is also a weakness of the ICD approach, often because there is little understanding that those having the greatest impact on conservation are not necessarily the same as those suffering the greatest cost (Archabald & Naughton-Treves, 2001).

Box 1. Integrated Conservation and Development

Blomley et al. (2010) presents a comprehensive account of the definitions, history, common problems and assumptions of the ICD approach. This includes the work on ICD approaches that emphasised the significant cost that conservation places on local communities and the need for effective mitigation measures to address the root cause of the problem, rather than simply focusing on conservation threats. It also includes an account of the evolution of the ICD approach from substitution and compensation to benefit sharing, and the more recent approach of power sharing.

Download the full report at: <http://pubs.iied.org/14592IIED.html>

Law enforcement patrol data on unauthorised resource use within protected areas have been used successfully to target patrols to reduce the practice more effectively (Plumptre et al., 2014). The datasets typically comprise information on what and where – what type of unauthorised resource use occurred and where it occurred. However, little or no data are collected on ‘who and why’ – who undertook the unauthorised resource use and what were their motivations for doing so. There is also limited evidence that is based on the social impacts of conservation. While studies exist on crop raiding by wild animals, and there are documented accounts of evictions of local people from protected areas, the true cost of conservation on the livelihoods and wellbeing of the rural poor is often unknown. Yet, understanding the socio-economic context of protected areas is critical for conservation managers to deploy the appropriate combination of law enforcement and ICD interventions to combat drivers of biodiversity loss and ensure conservation contributes towards poverty alleviation.

As well as an understanding of the ‘who and why’ of unauthorised resource use, governance (Box 2) is a key determinant of the success of ICD interventions (Hughes, 2001; Buscher & Dietz, 2005). Achieving good governance within the context of ICD includes the empowerment of local communities to have greater authority in decision-making. However, ICD interventions have been criticised for failing to strengthen the capacity of local organisations to be an equal partner in decision-making with national and international institutions. Furthermore, weak governance systems that lead to corruption have been shown to discourage or prevent local participation in natural resource management (Smith & Walpole 2005; Sandker et al., 2009). Resolving these issues requires a site-specific understanding of locally appropriate approaches to governance, particularly how local people define the key aspects of governance and how these should be practically implemented.

Box 2. The concept of governance

The concept of governance is defined as *'the institutions and processes used by right-holders and stakeholders to make and influence decisions, and to exercise authority and responsibility in society'* (Wilson, 2002). *Governance of natural resources can be defined as 'the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how citizens or other stakeholders have their say in the management of natural resources – including biodiversity conservation'* (IUCN Resolution RESWCC3).

Commonly recognised elements of good governance include: transparency; access to information; access to justice (and a way of resolving conflict and disputes when they occur); involvement in decision making (indicated by participation, legitimacy and the 'voice' that people have); fairness; coherence; respect for human rights; accountability; and rule of law, which should be fair, transparent and consistently enforced (Borrini-Feyerabend et al., 2004).



Mountain Gorilla, Bwindi Impenetrable National Park, Uganda: Mahboobeh Shirkhorshidi



2

Linking conservation with poverty alleviation in Uganda

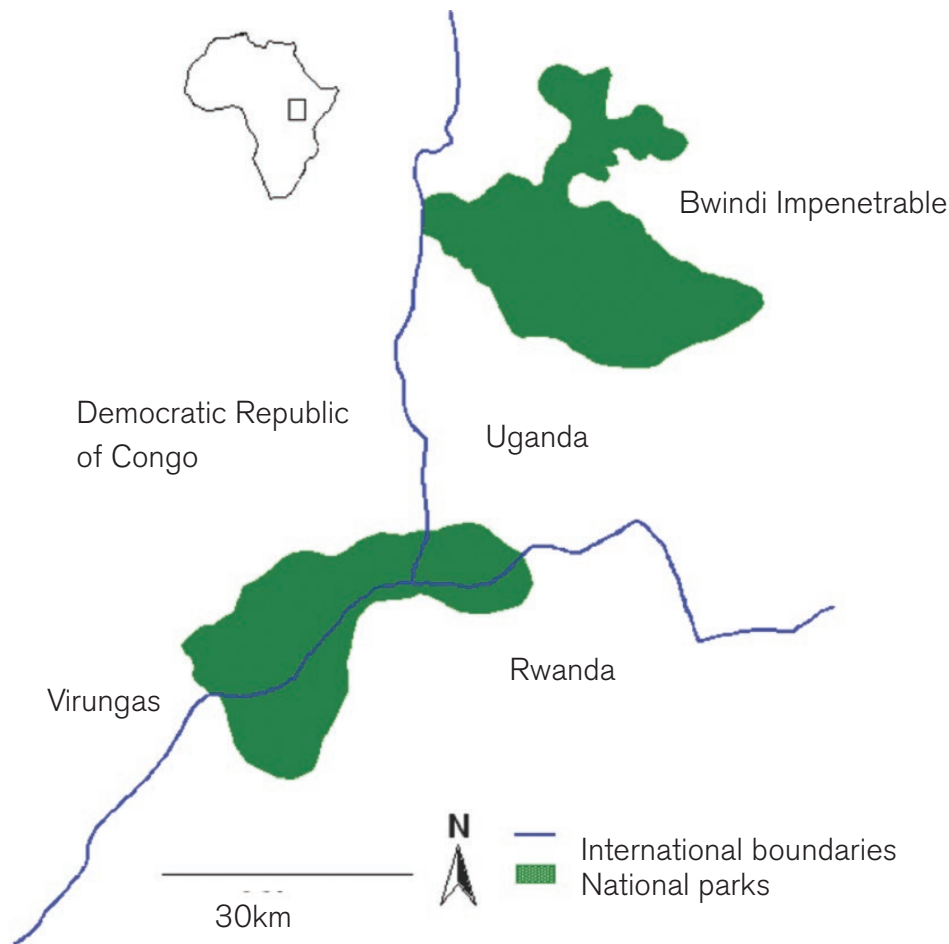
In this section we introduce our case study site – Bwindi Impenetrable National Park – and outline the challenges to conserving Bwindi and its population of Mountain gorilla.

The critically endangered Mountain gorilla (*Gorilla beringei beringei*) is the flagship species for conservation efforts at Bwindi Impenetrable Forest, in southwest Uganda. However, Bwindi is situated within one of the poorest and most densely populated regions of Africa, creating major challenges for Uganda's efforts to conserve its gorillas and ensure that conservation contributes to improving living standards for local people. It was in order to address this challenge, Bwindi became the first protected area in Uganda where the ICD approach was adopted.

Bwindi Impenetrable Forest was first gazetted as a forest reserve by the colonial government in 1932. In 1961, Bwindi became a game sanctuary under joint management of the Forestry and Game departments, until it was gazetted in 1991 as a national park. In 1994, Bwindi was designated a UNESCO World Heritage Site in recognition of the international importance of its exceptional species richness and diversity,³ being the only site in East Africa with forest cover over an altitudinal range of 1 190–2607m (Butynski, 1984; Howard, 1991; Hamilton et al., 2000). Now under the management of the semi-autonomous Uganda Wildlife Authority (UWA), Bwindi Impenetrable National Park is located in south-west Uganda on the edge of the Western Rift Valley, occupying the highest ranges of the Kigezi Highlands (Figure 1). Bwindi lies within three districts in Uganda, with the western edge of the forest bordering the Democratic Republic of Congo. The national park covers an area of 330.8 km² of dense forest with a rugged topography of narrow valleys and steep hills. Yet, from being part of a continuous tract of forest that extended to the Virungas, it now exists as an isolated fragment. Local population densities around Bwindi range from 160 to 320 people per km² (UNEP-WCMC, 2012), and the forest is surrounded by land that is intensively farmed that, in many places, extends to the boundary of the national park (Butynski, 1984; Howard, 1991; Cunningham, 1996).

³ <http://whc.unesco.org/en/list/682/>

Figure 1. Location of Bwindi Impenetrable National Park (IGCP)



Prior to being gazetted as a national park, Bwindi forest provided multiple livelihood and subsistence resources for local people. These included domestic timber products such as firewood, building poles and bean stakes; minor (non-timber) forest products such as medicinal plants, basketry materials and foods that included honey, edible plants and bushmeat. Although bushmeat hunting was an important cultural tradition, bushmeat was primarily sought for domestic consumption and provided only a modest income for local hunters (Tukahirwa & Pomeroy, 1993; Cunningham, 1996; Plumptre et al., 2004). The forest did provide local people with much more substantial sources of income. The people of Bwindi used trails through the forest to get to markets in various areas around the forest. Since the 1930s, traders had employed local people as labourers for pit-sawing and mining within Bwindi. They also employed local people to smuggle cattle and other goods through Bwindi and across international borders (Baker et al., 2011).

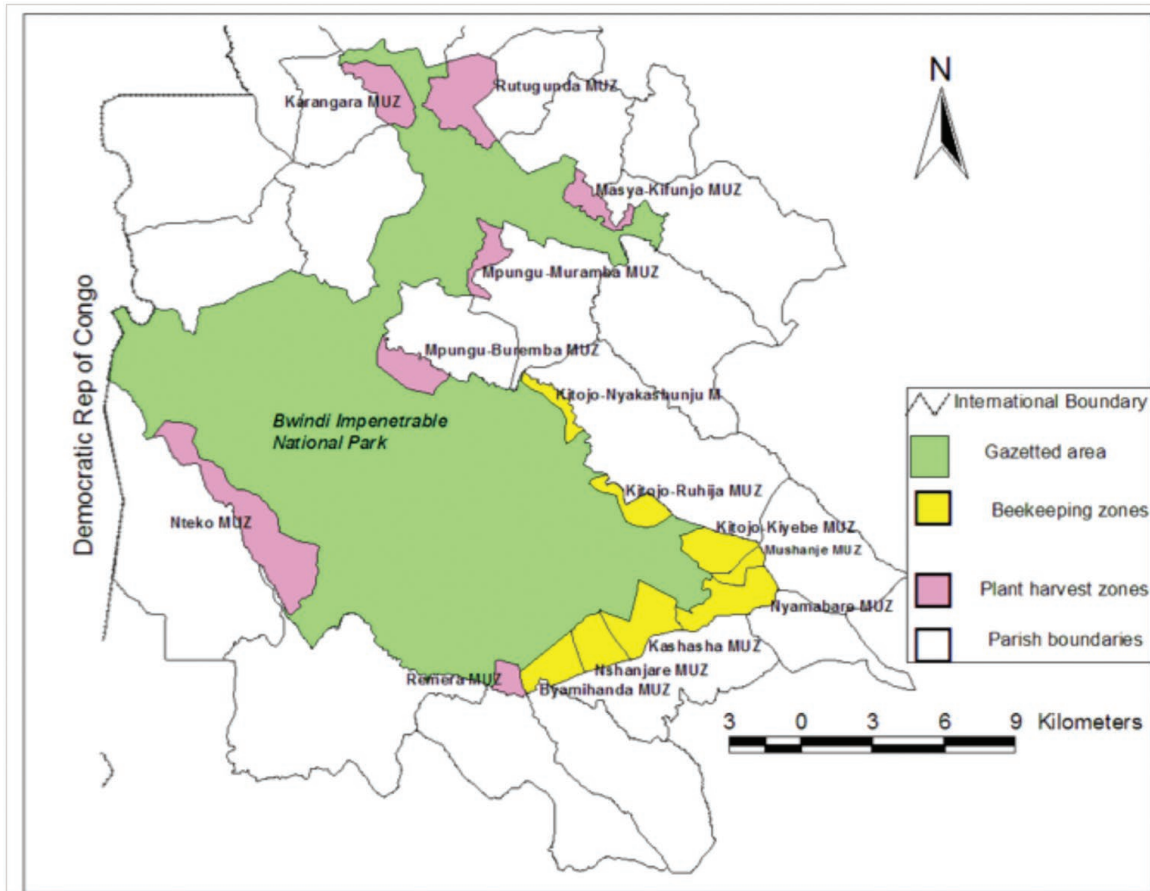
The dominant ethnic group around Bwindi are the Bakiga, but the forest is also home to the Batwa, an indigenous forest-dwelling people, believed to be part of the pigmy populations of eastern Congo and central Africa. The Batwa culture is deeply rooted in Bwindi forest. In the 1930s, the Batwa were evicted from the Bwindi forest by the colonial administration, and were moved to the forest fringes. However, they continued to enter the forest to gather resources, which included wild honey, bushmeat and other food products, and visit cultural areas including spiritual sites and burial grounds (FFI, 2013).

Bwindi was gazetted as a national park to protect the forest and its population of Mountain gorillas and other endangered and endemic species from widespread human activities. National park status meant that access to the forest for local people was prohibited. This rapidly created conflicts between the local population and conservation authorities. There were violent attacks on rangers and fires were started deliberately within the national park. These clashes were mainly a reaction to the loss of subsistence resources that local people had collected from the forest (Blomley et al., 2010). The local population were also reacting to the loss of income they previously earned from pit-sawing and mining, which were the major sources of work within the region (Baker et al., 2011).

The ICD approach was initially adopted at Bwindi as a mechanism for conflict resolution and community participation in national park management. It built on community conservation initiatives undertaken by CARE-Development Through Conservation and WWF during the late 1980s. These initiatives mainly involved the planting of trees on community land in order to provide local people with a non-park source of timber, thereby reducing their need to collect timber from the forest.

The first ICD intervention, the Multiple Use Programme (MUP), allowed specialist local resource users inside the national park to harvest a few resources that could be removed without causing harm to the forest. It was introduced on the premise that giving local people access to the national park would improve park-community relations and re-establish a local sense of forest ownership. Under collaborative management agreements between UWA and each parish of the Multiple Use, zones inside the national park were established for beekeeping (1991 and 1992) and to source herbal medicines and basketry materials (1994) (Figure 2). A process was introduced to register authorised resource users. There was a Memorandum of Understanding that detailed the harvesting activities and quotas for each Multiple Use zone and identity cards were issued to those authorised to use resource within the national park (Bitariho, 2013).

Figure 2. Multiple Use Zones of Bwindi Impenetrable National Park



(The zones extend a maximum distance of 2km from the national park boundary into the forest interior)

Following the Multiple Use Programme, a series of ICD interventions were introduced in communities around Bwindi by UWA and NGOs (Box 3). These included tourism that was focused on viewing mountain gorillas. This began in western areas of the national park in 1993 and brought employment and trade opportunities for local people. In 1994, tourism revenue sharing was established at 20 per cent of the national park entrance fees (and later US\$5 of mountain gorilla permit fees) to fund community projects, including the construction of schools and health clinics. A trust fund (the Bwindi Mgahinga Conservation Trust) was also established with approximately US\$8 million of donor investment coming from international donors. The trust fund supports community projects as well as some research and monitoring activities. In 2008, UWA established a Reformed Poacher Association (RPA) in communities around Bwindi. The aim of the RPA was for poachers to surrender their hunting tools in return for livelihood support. There have also been household income-generating projects, health care initiatives and livestock provision.

Box 3. Integrated Conservation and Development at Bwindi

Blomley et al. (2010) present a comprehensive account of the history, initiatives and of the national and international NGOs implementing ICDs at Bwindi. There are also definitions of de-coupling and coupling strategies and conceptual models illustrating assumptions and conditions of key ICD initiatives. When this research was undertaken, other NGOs established at Bwindi included:

Conservation Through Public Health: achieves gorilla conservation by enabling humans, wildlife and livestock to coexist through improving primary health care in and around Africa's protected areas; work comprises of setting up community-based health care and giving support to family planning via Community Health Practitioners, who administer health care and advice and speak to local communities about forest conservation and sustainable agriculture (<http://www.ctph.org/>).

Uplift the Rural Poor: undertakes community-based planning (in partnership with IGCP and CARE) whereby local communities identify their own priorities and receive support to address them, including the representation of community priorities in government planning.

Fauna and Flora International: implements various projects to support the indigenous and marginalised Batwa community (<http://www.fauna-flora.org/>)

A series of evaluations of Bwindi's ICD programme has been undertaken over the years. The MUP has been heralded as a success in local community involvement in national park management and the resolution of park-community conflict (Blomley, 2003). More recently, an impact assessment of community projects by the Bwindi Mgahinga Conservation Trust⁴ illustrated achievements in good governance with local people reporting involvement in the ICD decision-making process and ownership of ICD projects (Wieland & Bitariho, 2013). However, limitations of the ICD programme at Bwindi have also been reported:

- A study of tourism revenue-sharing found that, while community projects had been achieved, the scheme faced significant constraints to deliver adequate benefits given the livelihood needs of such densely populated rural areas. The study also identified the need for greater participation by local communities in project planning and implementation to ensure that benefits were directed towards local priorities (Tumusiime & Vedeld, 2012).

⁴ Established in 1994 as a conservation trust by the Global Environment Facility to support conservation objectives of the Bwindi Mgahinga Conservation Area; <http://www.bwinditrust.ug/page/about-us/>

- Research on the drivers of violent conflict between local communities and conservation authorities during Bwindi's gazettement illustrated that conflict was primarily instigated by local people over their loss of income when mining and pit sawing were prohibited in Bwindi under national park status. It also illustrated the lack of a specific ICD intervention to address this livelihood impact from protected area conservation, (Baker et al., 2011).
- Anecdotal accounts of the three Bwindi RPAs note that, despite some livelihood support from UWA, many RPA members claim this is not sufficient and continue to hunt because they have no alternative.
- A comprehensive evaluation compared six types of ICD intervention at Bwindi over a 15-year period. It found that ICD was important for improving park-community relations but had several flaws: interventions tended to benefit wealthier community members rather than the poorer households that were assumed to be undertaking illegal activities, and had little impact on reducing threats posed by unauthorised resource use. Recommendations from this assessment included the need for ICD to benefit the poorest and most vulnerable people of Bwindi (Blomley et al., 2010).

These evaluations highlight the need for better targeting and improved governance of ICD interventions. However, various gaps in the knowledge base remain. Data on the type and location of unauthorised resource use within Bwindi are recorded by law-enforcement rangers, although there is a lack of empirical data on individuals undertaking unauthorised resource use and their motives for doing so. There is also a lack of data on the poorest people of Bwindi, and limited understanding of how local communities define good governance of ICD interventions. Addressing these knowledge gaps is crucial for improving the effectiveness of ICD at Bwindi and drawing out lessons learnt from Bwindi on linking protected area conservation with poverty alleviation.



R2P fieldwork with local people of Bwindi: Mahboobeh Shirkhorshidi



3

The Research to Policy Project

We aimed to improve the effectiveness of Integrated Conservation and Development interventions at Bwindi, and promote a greater understanding of links between protected area conservation and poverty alleviation. In this section we describe our collaborative research framework and methodologies.

3.1 Objectives

The 'Research to Policy: Conservation Through Poverty Alleviation' project (R2P, 2012–2015) is the first major initiative of the Uganda Poverty and Conservation Learning Group (U-PCLG) (Box 4). It aims to build the knowledge and capacity of U-PCLG to effectively influence policy-makers and practitioners at local and national levels in order to improve the policy and practice of linking conservation with poverty alleviation. With a programme of research, capacity building and policy advocacy, the R2P project objectives are to improve policy and practice in a number of areas:

- research capabilities for evaluating the successes and limitations of ICD activities
- the targeting of ICD interventions for more significant development impacts and more effective conservation
- allocation of resources by conservation and development priorities
- national and local policy on the management of protected areas and links to poverty and poverty reduction

Box 4. The Poverty and Conservation Learning Group

Coordinated by IIED, the Poverty and Conservation Learning Group (PCLG) was established in 2004 as a multi-stakeholder forum for promoting dialogue and fostering learning about links between conservation and poverty reduction. Despite operating as an international network, PCLG also has the objective of establishing local groups and, in 2011, the Uganda Poverty and Conservation Learning Group (U-PCLG) was formed as a consortium of Ugandan conservation organisations with a particular interest in great ape conservation and its links with poverty alleviation. With members including representatives of government departments, civil society organisations, research institutions and the private sector, U-PCLG is well placed to influence conservation policy and practice in Uganda so that issues of poverty and social justice are given greater attention and that poverty reduction objectives of the Convention of Biological Diversity are achieved.

<http://povertyandconservation.info/>

The R2P project was designed to make a direct link between research and the direction of subsequent pressures for policy change. The first stage of the collaborative research process was to generate information on poverty-conservation linkages using the Bwindi Impenetrable National Park as a study site. Information from the research was then used in the second stage of the project – to design a capacity-building training programme to enhance the effectiveness of U-PCLG in policy advocacy, particularly to shape local and

national government policy to maximise interactions between biodiversity conservation and poverty alleviation in a protected area context.

3.2 Research framework

The aims of the R2P research component were two-fold: to improve the effectiveness of ICD interventions at Bwindi in linking conservation with poverty alleviation, and to promote a greater understanding of links between protected area conservation and poverty alleviation. The concept of this research came from the need to address questions arising from evaluations of Bwindi's ICD, notably the limited success of ICD interventions in reducing unauthorised resource use in the national park (Blomley et al., 2010). The R2P research was established to build on that review, specifically to gather information on the households who rely on national park resources for their livelihood, in order to improve the targeting of ICD interventions to address the social drivers of biodiversity loss and contribute towards poverty alleviation.

ICD interventions are often implemented based on the assumption that improving local people's attitude towards conservation will reduce park-community conflict and improve resource use behaviour. Natural resource use at Bwindi can be considered in two categories: use that is authorised by National Park authorities under the Multiple Use Programme and use that is not authorised. For this research, we consider unauthorised resource use as indicating, firstly, the different needs and uses of Bwindi forest by local people, which includes natural resource harvesting and meeting cultural and traditional needs, and, secondly, the challenges and limitations of the current approach to management of the national park and the governance⁵ of ICD interventions. On this basis, two priority research areas were developed: resource users and governance of ICD interventions. Overall we were primarily interested to understand:

- 1. Who continues with unauthorised resource use at Bwindi despite ICD, and why?**
- 2. Do preferences for governance of ICD interventions influence the level of benefit from ICD that local people report?**

We developed hypotheses associated with our priority research areas and primary research questions to address them (Table 1).

To complement our research on governance, we undertook a case study of the MUP. The programme at Bwindi was the first conservation initiative in Uganda to allow local use of natural resources from a national park. Since its introduction, the programme has been heralded a success in creating local community involvement in national park management

⁵ In this context we defined governance of ICD interventions as the processes that determined how decisions were undertaken, how local communities had their say and how power and responsibilities were exercised

Table 1. Hypotheses and primary research questions

| Hypotheses | Resource Users Primary Research Questions |
|---|---|
| Poorest members of the local communities undertake unauthorised resource use. | Who are the poor? |
| Livelihood security (risk coping strategies) and subsistence (meeting daily needs) are primary drivers of unauthorised resource use. | What are local people's perceptions of negative and positive conservation – poverty linkages? |
| Those engaged with unauthorised resource use perceive that they have benefitted less from ICD. | Who benefits from Bwindi's ICD? |
| | Who are the resource users (authorised and unauthorised)? |
| | Which resources do local people seek from the national park and why? |
| | Is the Multiple Use Programme a cover for unauthorised resource use? |
| | Has Bwindi's ICD influenced unauthorised resource use behaviours? |
| | How would local people improve ICD? |
| Local people are more likely to consider an ICD intervention successful and report more benefits from the intervention if the governance ⁶ conditions align with their preferences for governance. | How do local people of Bwindi define participation in ICD? |
| | Which governance arrangement for ICD interventions do local people prefer? |
| | What worked well in terms of ICD governance and why? |
| | Does good governance in ICD correlate with increased benefits? |

and the resolution of park-community conflict (Blomley et al., 2010). Governance arrangements at the community level involved Memorandum of Understandings (MoUs) between UWA and local communities. These MoUs transferred some rights and responsibilities for management of the harvest zones to local people. At the individual level, there is a process of registration for each specialist resource user. These 'authorised resource users' were issued with MUP identity cards in order to enter the forest. Given the 20-year history and prominence of Multiple Use as an ICD intervention, we sought

⁶ In this context we defined governance of ICD interventions as the processes that determined how decisions were undertaken, how local communities had their say and how power and responsibilities were exercised

to gain insight into governance arrangements at the individual level by addressing the following research questions:

- **Who received MUP identity cards to be able to harvest forest resources?**
- **Why do those permitted to enter the national park no longer do so?**
- **What do authorised resource users value most about the MUP?**

3.3 Methods

3.3.1 Identifying and profiling unauthorised resource users

The methodology for identifying unauthorised resource users required careful thought because of the ethical issues involved with this type of research, which includes exposure and incrimination. One approach that avoids exposure and incrimination is use of indirect questioning techniques. This population-level assessment involves a series of questions to gauge the prevalence of a particular behaviour in an area, or for a particular group, or just overall. This avoids ethical issues because there is no individual identification while profile characteristics of people likely to be engaging in this behaviour can be obtained. This approach has been proven to generate more reliable estimates of unauthorised resource use in protected areas than direct questioning techniques (Nuno et al., 2013), although it can be limited because the estimations are based on likelihood. Another approach to determine characteristics of people undertaking unauthorised resource use is to use law enforcement data on individuals arrested for unauthorised resource use in a protected area. The advantage is the identification of unauthorised resource users in an indirect way (unauthorised resource users are not directly approached themselves).

However, a verification process can be necessary for secondary data collection, such as law enforcement patrol data. Furthermore, this source only covers individuals *arrested* for unauthorised resource use rather than all unauthorised resource users (both arrested and those not arrested). In addition, if these individuals are interviewed, particularly in a village-based setting, then controls are required to ensure no incrimination occurs.

Both of these approaches – indirect questioning using the Unmatched Counting Technique and law enforcement data on individuals arrested for unauthorised resource use – were adopted for our household questionnaire (Appendix 1). This enabled us to obtain an overall view of the prevalence of unauthorised resource use among the people neighbouring Bwindi and determine social and economic profile characteristics of people likely to have engaged in unauthorised resource use and people known to have been arrested for doing so. We then compared these profiles with those of authorised resource users – i.e. those permitted to enter the national park to collect honey, medicinal plants or basketry materials.

Our household questionnaire included two indicators of wealth. Firstly, the Basic Necessity Survey (BNS) (Davies, 2013) for which possession or lack of possession of basic necessities (determined democratically by local people) indicates the level of poverty. Secondly, household size and construction type were combined to give a score, based on discussions with local residents on the size and construction types that most likely indicated wealthier households. In addition to the household questionnaire, focus group discussions were held to explore local perceptions of what motivates local people to undertake unauthorised resource use within Bwindi. Each focus group followed the same format; participants discussed motivations of unauthorised resource use by local people and then ranked motivations in order of what motivates people most.

3.3.2 Understanding governance

Focus group discussions were held to identify local community perceptions and experience of governance of ICD interventions at Bwindi. The discussions included a preference activity where participants were asked to score the approach to governance that they considered was most successful. In addition, semi-structured interviews using questionnaires (Angelsen et al., 2011; Corbin & Strauss, 2008; Oppenheim, 1992) were used to explore experience of the MUP by authorised resource users in our case study.

3.3.3 Summary

Our combination of survey techniques, which included household questionnaires and focus group discussions, was adopted in order to study the complexities of resource use from protected areas and local peoples' perceptions of governance (Table 2). Full details of our methodology are given in Appendix 1.

Table 2. Summary of research methods

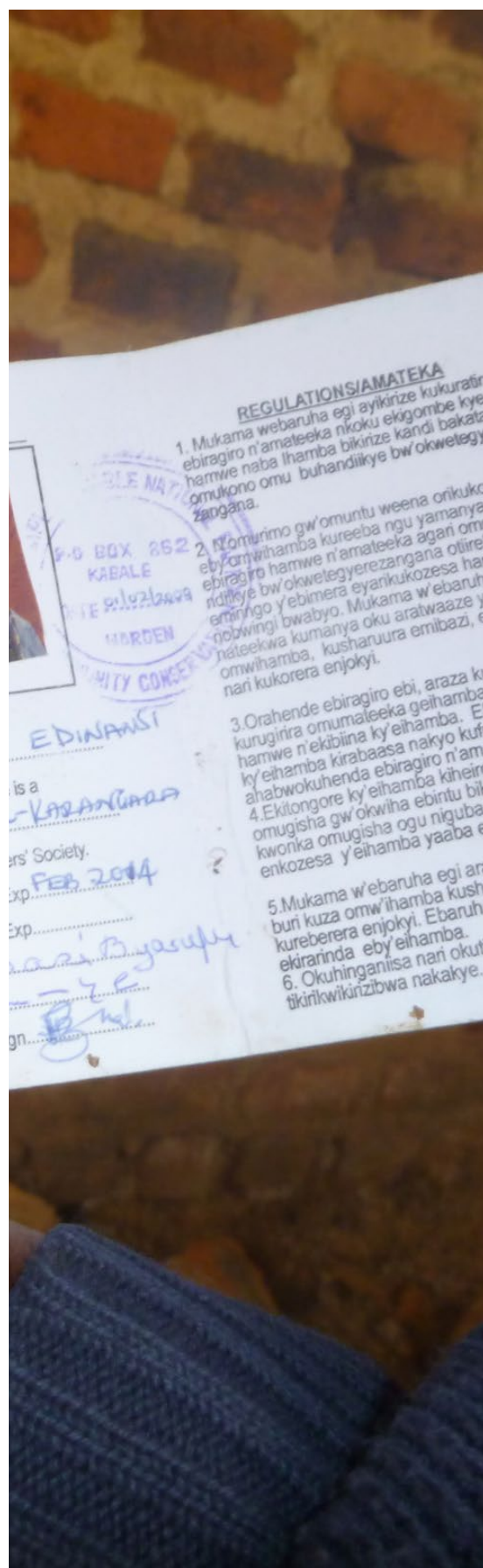
| Hypothesis | Research Methods | Survey Respondents |
|---|---|--|
| Poorest members of the local communities undertake unauthorised resource use Livelihood security (risk coping strategies) and subsistence (meeting daily needs) are primary drivers of unauthorised resource use | Household questionnaire; Basic Necessity Survey; Unmatched Counting Technique | Authorised Resource Users; Unauthorised Resource Users; a sample of other local people of Bwindi |
| Those engaged with unauthorised resource use perceive that they have benefitted less from ICD | Unmatched Counting Technique; Focus group discussions | Authorised Resource Users; Unauthorised Resource Users; a sample of other local people of Bwindi; Key community groups |
| Local people are more likely to consider an ICD intervention successful and report more benefits from the intervention if the governance conditions align with their preferences for governance | Focus group discussions; participation preference activity | Key community groups |
| Case study on MUP | Household questionnaire | Authorised Resource Users |



Multiple Use Programme Identity Cards, Bwindi Impenetrable National Park, Uganda: Medard Twinamatsiko

4

Understanding resource users at Bwindi



In this section we present our findings on the profiles and motivations of resource users. Our starting point was to understand the socio-economic context of local communities and the national park. We addressed the questions of who are the poorest members of the community; what are local people's views on how the national park exacerbates poverty or contributes towards poverty alleviation (conservation – poverty linkages) and who considers that they benefit from ICD interventions? We then examined the profiles of authorised and unauthorised resource users and explored the reasons why people seek resources from the national park. This enabled us to gain insight into whether those permitted to enter the national park undertake unauthorised resource use and whether Bwindi's ICD has influenced unauthorised resource use behaviours. Finally, we sought the views of local people on how Bwindi's ICD could be improved.

4.1 Who are the poor?

People living within 0.5km of the national park boundary (Figure 3) were significantly poorer⁷, had fewer sanitation facilities and were less educated than people living further away. The average duration of education was three years; individuals with three or less years of formal education were poorer⁸ than individuals who had been educated for longer. Furthermore, people living further from roads and trading centres were poorer⁹ than people living closer to roads and trading centres, and poorer individuals rated their quality of life lower than less poor people (Box 5).

Box 5. The poverty trap of people of Bwindi

The poorest people in our survey lived in the frontline zone around the national park, which were farmland areas most susceptible to crop raiding by wild animals. The poorest people also lived in remote areas far from trading centres or road transportation that benefit other local people. They had less education and so were disadvantaged when seeking employment, and, with fewer sanitation facilities, were at greater risk of disease.

We examined differences in poverty between districts. Households in Kanungu were significantly poorer than households in Kabale¹⁰, whereas households in Kisoro were significantly poorer than those in Kabale¹¹.

We examined the profiles of the indigenous Batwa in comparison with non-Batwa people of Bwindi, as several reports have documented that the Batwa are the poorest and most marginalised communities of Bwindi. Compared with non-Batwa people, the Batwa were poorer¹²; had fewer neighbours; a low quality of life; fewer years of formal education; fewer sanitation facilities; were more likely to go hungry and were more likely to obtain water from an unprotected source. The Batwa were also more likely to live either 0.5km (the frontline zone) or over 2km from the national park boundary. This was considered to reflect land provision programmes of Bwindi's ICD, as the Batwa were more likely to say that they benefitted from land provision programmes than non-Batwa people. The Batwa were also more likely to report benefits from ICD livestock provision programmes. However, they were least likely to report benefits from the MUP, which reflected the lack of inclusion of Batwa people in the programme. Finally, our Batwa survey respondents

⁷ Indicated by household construction and size only

⁸ Indicated by household construction and size only

⁹ Indicated by household construction and size only

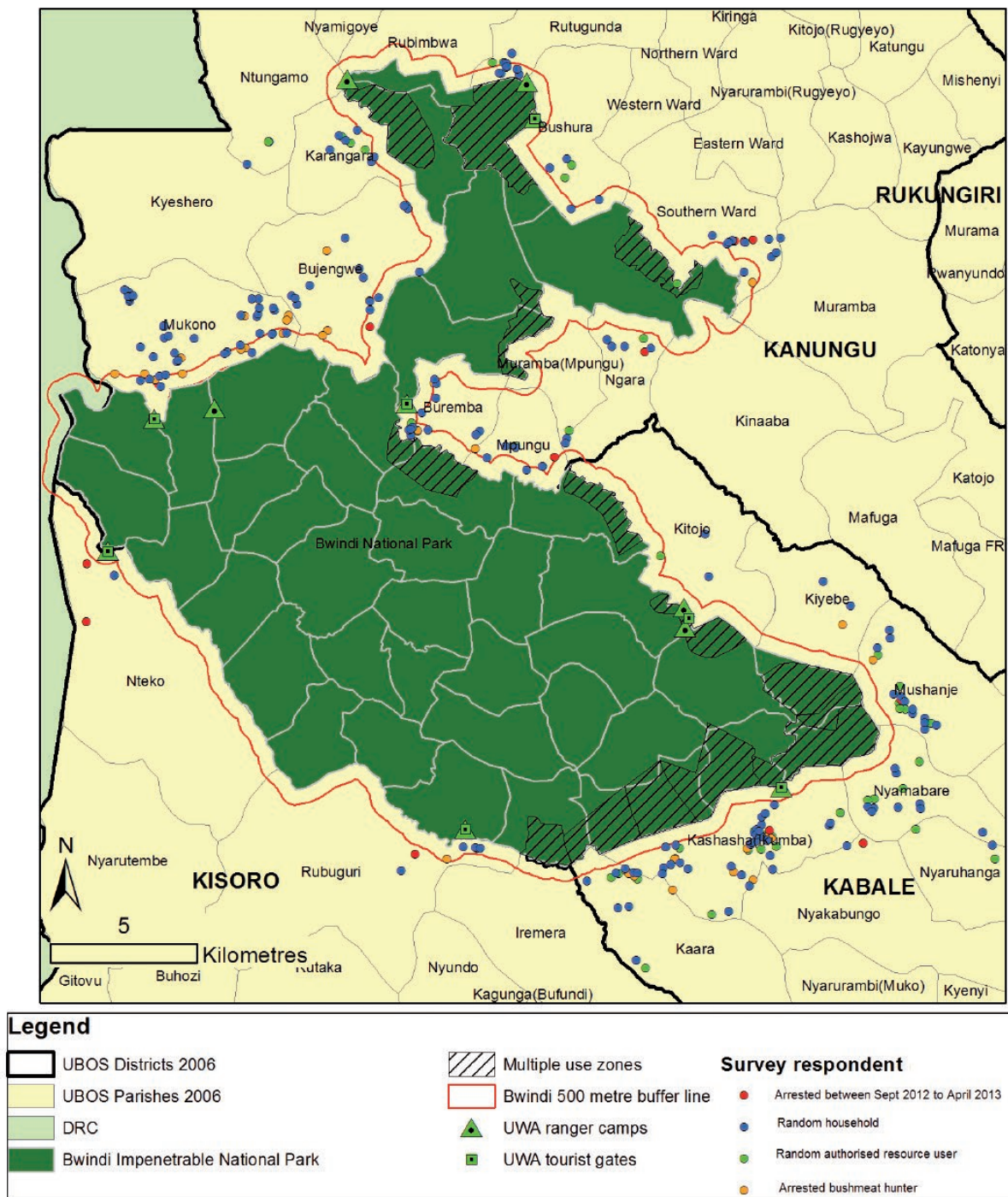
¹⁰ Indicated by both BNS and household construction and size

¹¹ Indicated by household construction and size only

¹² Indicated by household construction and size only

were more likely to have been interviewed previously by researchers than our non-Batwa respondents.

Figure 3. Survey respondents and the frontline zone of Bwindi Impenetrable National Park



Map author: Andrew Kirkby
Date: 19 Aug 2013

4.2 What are local people's perceptions of negative and positive conservation – poverty linkages?

We defined negative linkages between conservation and poverty as factors relating to the establishment and maintenance of the national park that exacerbate poverty (Roe & Elliott, 2005). We investigated local people's perceptions of negative conservation – poverty linkages using two questions: what are the reasons for not having basic necessity items and what factors contribute towards a low quality of life.

Loss of food from crop raiding by wild animals was the most commonly reported reason by local people for not having the basic necessities that they need (60.8 per cent). Furthermore, '*animals raid my crops*' was also the most commonly reported reason for having a low quality of life (51 per cent). This clearly illustrates the significance that local people place on the effects of crop raiding (and indirectly the national park) on their livelihoods. In addition to the loss of crops, local people described other impacts of crop raiding. These were the loss of chickens, a reduced income to be able to buy basic necessities or invest in development activities, that they would have to abandon farming land and that their children were unable to attend school because they have to guard crops.

A lack of firewood outside the national park was the second most commonly reported reason as to why local people did not have basic necessities (42.5 per cent). 'Prohibited access to forest resources' was the second most common reason for a low quality of life (50.7 per cent). However, most people mentioned firewood as the forest resource that they were denied access to (22.5 per cent) and described how the establishment of the national park had reduced firewood availability. Other denied forest resources were building materials (19.7 per cent), timber (17.5 per cent), weaving materials (15.3 per cent), meat (10.1 per cent), medicinal plants (7.8 per cent) and honey (6 per cent).

After crop raiding and firewood, other park-related factors that affected people's possession of basic necessities were the unavailability of food, bean stakes, bamboo, income, health care and land. Non-park related factors were a lack of land for farming and their remoteness to health centres, schools, water sources and roads.

Other reasons that people gave for a low quality of life included land scarcity (28.8 per cent), a lack of education (24.1 per cent), poor health (13.7 per cent) and lack of employment (13.4 per cent). Reasons that included a reference to the national park were a lack of employment from the national park (1.6 per cent), loss of revenue sharing funds through corruption (0.5 per cent), or that no benefits had been received from revenue sharing (1.1 per cent) or the national park (0.3 per cent) (Box 6).

Box 6. Local people's perceptions on negative conservation – poverty linkages

We gained insight into local views on how the national park exacerbates poverty or contributes towards poverty alleviation (on negative conservation – poverty linkages) by questions relating to ownership of basic necessity items and factors affecting quality of life. Crop raiding and prohibited access to forest resources, notably firewood, were the most commonly reported reasons for the lack of basic necessities and for a low quality of life.

We defined positive conservation – poverty linkages as the contribution that conservation efforts at Bwindi make towards poverty alleviation (Roe & Elliott, 2005). Local perceptions of how conservation efforts contribute to poverty alleviation differed according to the methodology used (the Basic Necessity Survey or the 'quality of life' question in the household questionnaire). Looking at the Basic Necessity Survey, most people noted the building of schools as the largest contribution of the national park towards poverty alleviation. However, using the quality of life question, very few people indicated any improvements in their quality of life. Out of the few individuals who did, most mentioned the national park – either park-related employment or park-related income – illustrating the local significance of employment and income-generating opportunities from the national park (Table 3). Park-related incomes included selling baskets using forest resources from the MUP and selling food to organisations of the national park, particularly those related to tourism.

Table 3. Reasons by local people for improvements in their quality of life (n=365)

| Reason for improved quality of life | Total Number of Respondents | Percentage of Respondents |
|--|-----------------------------|---------------------------|
| Employment | 12 | 3.3 |
| Employed in the National Park as a Porter | 4 | 1.1 |
| Employed in the National Park as a birder | 1 | 0.3 |
| Employed in the National Park with Human Gorilla Conflict Resolution Groups (HuGo) | 1 | 0.3 |
| Employed by ITFC | 1 | 0.3 |
| Has an income | 11 | 3.0 |
| Has an income from MUP baskets | 2 | 0.5 |
| Has an income from selling fuel wood (from plantation) | 1 | 0.3 |
| Has an income from selling poles (from plantation) | 1 | 0.3 |
| Has an income from pitsawing | 1 | 0.3 |
| Has an income from tea production | 2 | 0.5 |
| Has an income from beekeeping | 2 | 0.5 |
| Planted own trees | 5 | 1.4 |
| Planted own bamboo | 1 | 0.3 |
| Has enough food | 4 | 1.1 |
| Got land from Bwindi Trust | 1 | 0.3 |
| Can afford to buy firewood | 2 | 0.5 |
| Can afford to buy building materials | 1 | 0.3 |
| Still young so still has hope for the future | 5 | 1.4 |
| Can afford children's school fees | 4 | 1.1 |
| Has access to markets | 1 | 0.3 |

| | | |
|---|---|-----|
| Is healthy / Can afford medical treatment | 1 | 0.3 |
| Has responsibilities in the community | 1 | 0.3 |
| Socially accepted / Has positive social relationships | 4 | 1.1 |
| Satisfied with what they have | 5 | 1.4 |
| Has an income from selling food to the Park | 1 | 0.3 |
| Plans well for family to survive with what they have | 1 | 0.3 |

Highlighted text: national park-related improvements

We gained further insight into residents' perceptions of positive linkages between conservation and poverty by understanding whether they associated the national park (or park resources) with their future aspirations. When asked about their main aspirations in life, most locals replied 'to educate my children' (54.8 per cent). Other most commonly reported aspirations were to increase farming (33.4 per cent); increase income (32.9 per cent) particularly by growing cash crops (11.8 per cent) or starting a business (10.1 per cent); have a permanent house (30.7 per cent) and own more land (30.1 per cent). Of the few aspirations that directly related to the national park, most related to employment, which further illustrated the importance that people place on jobs from the national park. Employment was either just referred to as employment by the national park (0.5 per cent) or, more specifically, employment as a crop guard (0.3 per cent) or by ITFC (0.3 per cent). The only other aspiration that related to the national park was to become, or remain, a member of the MUP (1.4 per cent) (Box 7).

Box 7. Local people's perceptions of positive conservation – poverty linkages

By using a variety of questions to investigate local perceptions of the positive linkages between conservation and poverty, our research revealed that most local people associated building schools and park-related employment or park-related income as the most significant ways that the national park contributes towards poverty alleviation.

4.3 Who benefits from Bwindi's ICD programme?

The following results were from the household questionnaire in which individuals were asked to list the ICD interventions that they were aware of and, for each intervention, if they felt involved, to have benefitted from the intervention and to have ownership of it. The results reflect individual perceptions of benefits from specific ICD interventions (we did not measure actual beneficiaries of ICD interventions). We tested for significant differences between a range of social and economic profile characteristics¹³ and perceptions of ICD involvement, ownership and benefit. From all of the profile characteristics that we tested, those that were significant were:

- Age
- Education
- Homestead distance to the national park
- Quality of life
- Wealth

Our results showed that people aged between 41–60 years felt that they benefitted from more ICD interventions, were more involved and had greater ownership of ICD interventions than younger people aged between 21–40 years. People with more years of formal education perceived more involvement with, and more ownership of, ICD interventions than people with fewer years of formal education. Interestingly, there was no significant difference between an individual's perception of the level of ICD benefit received and the number of years of formal education. This indicated that, while the better educated felt more involved with and greater ownership of ICD interventions, level of education was not important when it came to the ICD benefits that people said they received.

People living in the frontline zone (within 0.5km from the national park) reported similar levels of involvement in ICD interventions as people living further from the national park. People living in the frontline zone also reported similar levels of ICD benefits as people living up to 1.5km from the national park boundary, but people living more than 1.5km from the national park boundary reported fewer ICD benefits than people living nearer to the national park. Levels of ICD ownership¹⁴ that frontline local people reported were similar to people living up to 2km from the national park boundary. Yet people living further than 2km from the national park boundary perceived significantly lower

¹³ Refer to Appendix 1

¹⁴ Ownership of an ICD intervention was defined as when an individual felt that it belonged to them and they had responsibility for it

ownership of ICD interventions than people living closer to the national park. There was no significant difference between an individual's perceptions of ICD involvement, benefit or ownership and how far they lived to roads and trading centres (Box 8).

Box 8. Frontline local people's perceptions of involvement, ownership and benefits from ICD interventions

People living within the frontline zone of the national park reported similar levels of involvement in ICD decision-making to people living further from the national park. Frontline people also reported similar levels of benefits from ICD interventions to people living within 1.5km of the national park and similar levels of ownership of ICD interventions to people living within 2km of the national park.

People reporting the lowest quality of life perceived that they received fewer ICD benefits, were less involved with ICD interventions and had less ownership of an ICD intervention than people reporting a higher quality of life. The specific results were: people who rated their quality of life as 'average' or 'somewhat bad' felt that they had benefitted from more ICD interventions and felt more ownership of them than people who rated their quality of life as 'the worst that it has been'. People who rated their quality of life as 'average' felt more involved with ICD interventions than people who rated their quality of life 'somewhat bad' or 'worst', and people who rated their quality of life as 'worst' felt less involved with ICD than people rating their life as 'somewhat bad'.

With the Basic Necessity Survey as an indicator of wealth, there were no significant differences between an individual's perceptions of ICD involvement, benefit and ownership. However with wealth indicated by homestead construction and size, the poorest people felt less involved with an ICD intervention, less ownership of an ICD intervention and to have benefitted from fewer ICD interventions than less poor people (Box 9).

Box 9. Poorest people benefit least from ICD at Bwindi

The poorest people¹⁴ of Bwindi, and those with the lowest quality of life, felt less involved with, to have fewer benefits from and less ownership of ICD interventions than less poor people. However, people living in the frontline zone felt similar levels of involvement in decision-making, benefits from and ownership of ICD interventions to people living further from the national park.

¹⁴ Indicated by homestead construction and size

4.4 Who uses natural resources from Bwindi?

Authorised resource users (those enrolled in the MUP) were significantly less poor¹⁶ than the other people of Bwindi. They were also more likely to be from larger families, have more neighbours, live closer to trading centres, use water from a protected source and, when asked about household food availability, report that their families never went hungry. In addition, authorised resource users felt significantly more involved with decision-making regarding ICD interventions, more ownership of ICD interventions and more benefits from ICD than other local people. Only 4 per cent stated that the MUP was their primary income source, but more than half (55.6 per cent) did not mention Multiple Use as a source of income. Almost a third (29.2 per cent) listed the MUP as their secondary income source and 11 per cent stated it was their third income source.

Those who had been arrested in the national park for unauthorised resource use were significantly poorer¹⁷ than other local residents. They were also more likely to live closer to the national park and further from trading centres. However, as with authorised resource users, they were more likely to have larger families than other locals. Of these, 22 per cent reported they had only one income source, compared with 11 per cent of authorised resource users. Ethnicity did not appear to play a part in the likelihood that a person would be arrested for unauthorised resource use.

These results illustrate differences between the profiles of people permitted to enter the national park and people who have been arrested for unauthorised activities. This particularly regards wealth; those authorised to harvest park resources were less poor than others, whereas those arrested for unauthorised activities were poorer.

Our next stage was to gain an understanding of all people who undertake unauthorised resource use (not just those arrested), for which we explored the profiles of bushmeat hunters, firewood collectors and building pole collectors¹⁸. We found that profiles of these specific resource users differed.

4.4.1 Profiles of bushmeat hunters

Profiles of bushmeat hunters were developed from two information sources. Firstly, law enforcement records of 46 people who were arrested for bushmeat hunting in the national park between January 2011 and July 2013 (hereafter referred to as arrested

¹⁶ Indicated by both the Basic Necessity Survey and homestead construction and size

¹⁷ Indicated by the Basic Necessity Survey only

¹⁸ As part of our Unmatched Counting Technique analysis, we examined profiles of people collecting five types of resources: bushmeat, firewood, building poles, medicinal plants and honey (Appendix 1). Profiles of people collecting medicinal plants and honey were not significant, possibly because resource collection was too low for statistical testing.

hunters). Secondly, we used the Unmatched Counting Technique (UCT) of households consuming bushmeat within the last year. These were households hunting bushmeat and, or, households obtaining bushmeat from hunters but not hunting it themselves. It was not possible to distinguish between the two from the survey. Nonetheless, our UCT profile provided an overall view of all local people around Bwindi who hunt and consume bushmeat to complement law enforcement records on people arrested for hunting.

Both households consuming bushmeat and arrested hunters were more likely to live closer to the national park and in remote areas further from roads or trading centres than other local people. Living closer to the national park, and in remote areas, were characteristics associated with the poorest people of Bwindi. However, when exploring the poverty status of households consuming bushmeat and arrested hunters, wealth was not a significant profile characteristic. This indicated that households consuming bushmeat and arrested hunters were neither poorer nor less poor than other local people. Furthermore, local people who rated their quality of life as 'worst' were amongst the poorest people of Bwindi yet *less* likely to consume bushmeat than other community members.

The only other profile characteristic that distinguished arrested hunters from other local people was that they were more likely to have larger families. In contrast, there were many profile characteristics that were unique to households consuming bushmeat. Households consuming bushmeat were more likely to be from single parent families; have less years of education than the average local person; have fewer neighbours; and rate their quality of life as either 'average' or 'somewhat bad' (but not 'worst' as per the poorest people). Households consuming bushmeat were also highly unlikely to be authorised resource users, yet more likely to report that they benefit from the MUP. This result could reflect geographical overlap, as law enforcement patrol reports illustrate bushmeat hunting activities adjacent to harvesting zones. In this situation, households consuming bushmeat living in a parish of Multiple Use could benefit from the programme. Finally, households consuming bushmeat were less likely to have attended a park-community meeting, further indicating that they were not part of the MUP. A non-attendance at park meetings could reflect the remoteness of these households, as park-community meetings are often held near trading centres.

This array of data (Box 10) illustrates that people who hunt and consume bushmeat from Bwindi live in remote areas and close to the national park boundary, yet they were neither poorer nor less poor than other local people. Furthermore, some of the poorest people of Bwindi were less likely to consume bushmeat than others within their community.

Box 10. Bushmeat hunter profiles

Compared to other local people, households consuming bushmeat from Bwindi during the past year were more likely to...

- Be from single parent families
- Have fewer years of formal education
- Have fewer neighbours
- Rate their quality of life as either 'average' or 'somewhat bad' (but not 'worst' as the poorer people)
- Not have attended a park-community meeting
- Be highly unlikely to be Authorised Resource Users
- Report they receive benefits from the Multiple Use Programme

Compared to other local people, people arrested for bushmeat hunting in Bwindi during the past two years were more likely to be from larger families.

Compared to other local people, both households consuming bushmeat and arrested hunters were more likely to live closer to the national park boundary and further from roads or trading centres. They were neither poorer nor less poor than other local people.

4.4.2 Profiles of firewood collectors

Compared with other local people, people who collected firewood from Bwindi during the previous year were more likely to live within 1km from the national park and further from trading centres, but have four or more years of formal education (i.e. better educated than the average local person). Wealth was not a significant profile characteristic indicating that firewood collectors were neither poorer nor less poor than other local people. In addition, people who did not perceive that they have benefitted from an ICD crop raiding mitigation project were more likely to have collected firewood from the national park (Box 11).

Box 11. Profiles of firewood collectors

Compared to other local people, people who collected firewood from the national park during the past year were more likely to...

- Live within 1km from the national park boundary
- Live further from trading centres
- Have four or more years of formal education (three years was the average)
- Perceive no benefits from ICD crop raiding mitigation projects
- Be neither poorer nor less poor than other local people

4.4.3 Profiles of building pole collectors

People who collected building poles from Bwindi during the previous year were more likely to have larger families, live further from trading centres, report that their families 'sometimes went hungry' (as opposed to 'never' or 'mostly'), and be significantly less poor¹⁹ than other local people. These results further illustrate the diversity of households who engage with unauthorised resource use at Bwindi. Like firewood collectors, people collecting building poles were likely to live further from trading centres and not localised within the frontline zone of the national park, yet were significantly less poor than others within their community (Box 12).

Box 12. Profiles of building pole collectors

Compared to other local people, people who collected building poles from the national park during the past year were more likely to...

- Have larger families
- Live further from trading centres
- Report their families 'sometimes went hungry' as opposed to 'never' or 'most'
- Be less poor

Our findings on the profiles of resource users illustrate the diversity of local people who undertake resource use at Bwindi. Regarding their poverty status, authorised resource users were less poor than other local people, whereas overall individuals arrested for unauthorised activities were poorer. Yet, when examining resource-specific profiles, we

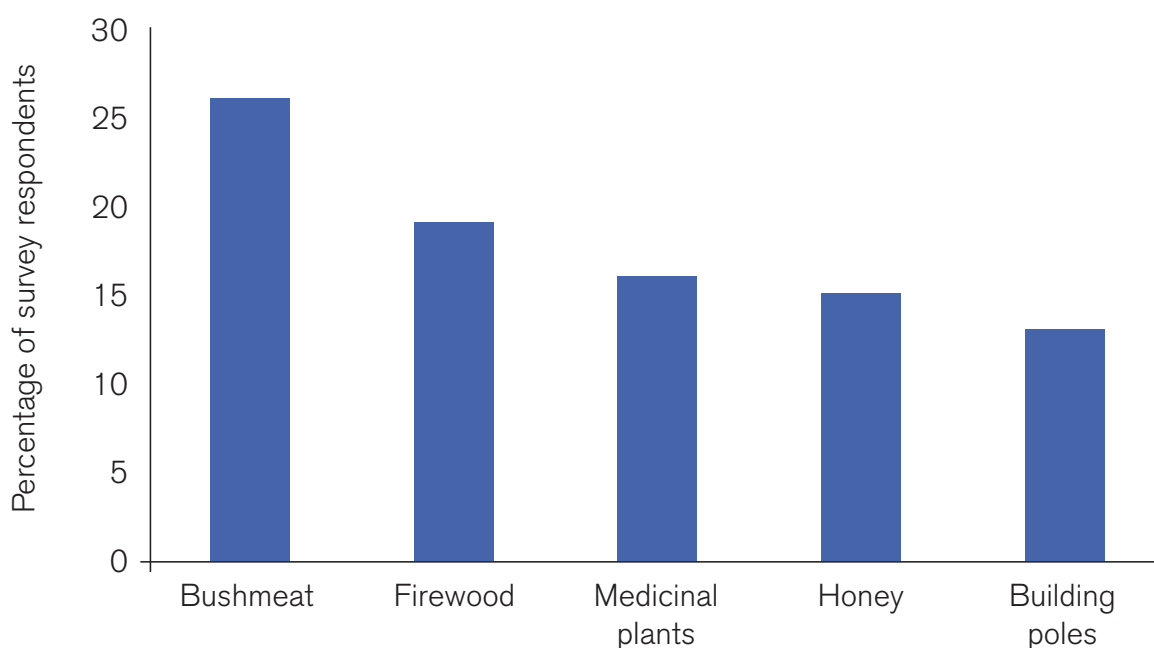
¹⁹ Indicated by the Basic Necessity Survey only

found that people who hunt and consume bushmeat and those collecting firewood were not discernible in their wealth status from others within their community.

4.5 What resources do local people seek from the national park and why?

We examined the prevalence of use of five forest resources by local people during the previous year. These were the unauthorised resources of bushmeat, firewood and building poles, and the authorised resources of medicinal plants and honey. Bushmeat was the most commonly utilised resource. An estimated 26 per cent of our survey respondents had consumed²⁰ bushmeat during the previous year. Firewood was the second most commonly utilised resource, as an estimated 20 per cent of our survey respondents had collected firewood from the national park during the previous year. This was followed by medicinal plants (16 per cent), honey (15 per cent), and building poles (14 per cent) (Figure 4). This order of resource use was supported by the ranking of resource use during focus group discussions. Focus group discussions added that basketry materials were similarly ranked to medicinal plants and honey.

Figure 4. Percentage of survey respondents consuming national park resources during the past year



²⁰ It was not possible to determine whether they hunted bushmeat or obtained bushmeat from a hunter (i.e. did not hunt it themselves)

Only 3.9 per cent of our survey respondents were permitted to collect medicinal plants from the national park, whereas the results above show that 16 per cent had obtained forest medicinal plants during the last year. It was not possible to determine whether 'obtained' meant that an individual had collected medicinal plants from the national park themselves or from someone who was authorised to do so. Nonetheless, this result indicates the level of use of – and demand or need for – medicinal plants by the people of Bwindi. Similarly, 12.1 per cent of our survey respondents were beekeepers registered with the MUP, whereas 15 per cent had consumed forest honey during the past year.

As part of our focus group discussions, we looked at the reasons local people seek national park resources. These discussions revealed that some motivations regarded specific forest resources, but that there were also other overriding motivations that were not specific to a single forest resource, yet important drivers of unauthorised resource use. These are discussed below.

4.5.1 Resource-specific motivations

Our focus groups reported that a lack of money to buy meat or livestock, or need to treat childhood malnutrition (protein deficiencies), were the primary drivers of bushmeat hunting. Focus groups also reported a local trade in bushmeat around Bwindi, but only when households have more than they can consume. Here bushmeat is sold for less than meat from local butchers and the income is typically used for school fees. Focus groups reported that communities believe bushmeat has medicinal properties, for treating worms for example, and that a child gains traditional knowledge from eating bushmeat. Nonetheless, meeting daily needs and livelihood risk coping strategies, particularly associated with sickness, were identified as the primary motivations for people hunting and consuming bushmeat.

Scarcity of land to grow trees was the only reason given by focus groups as to why local people collect firewood from the national park. They also reported that firewood collected from the national park is for household consumption only.

Local belief that medicinal plants are more effective at curing illness than modern medicines was the primary driver of medicinal plant collection from the national park. Some focus groups described that modern health centres were too far away or too expensive, although the overriding drivers were local belief in the effectiveness of traditional medicines and that medicinal plants only grow in the national park.

Household use and local trade were the main reasons for local people to collect honey from the national park. For household use, honey is both a food and medicine to treat coughs and chest problems, while the local sale of honey generates an income for beekeepers. Focus groups also reported that local people collect honey from the forest in three forms: wild nests in trees; stingless bee nests in the ground; and beehives; and

that local people prefer to place their hives in the forest than on their own land. There are two reasons for this: the common belief that hives in the forest produce better and more honey, and the shortage of land for beehives given the demand for land for livestock and crops.

Household use and local trade were also the main reasons for the collection of basketry materials from the national park. Focus groups said that *Smilax anceps* (collection allowed) and *Loeseneriella apocynoides* (collection not allowed) are the two most utilised plants locally to make baskets, trays and mats. These species are also used, although less commonly, to weave beehives and granaries. The fact that these species do not grow outside of the forest was an additional reason why local people went to the national park to collect them.

Lack of available building poles outside the national park was the only reason given by focus groups as to why local people go to Bwindi to collect timber for building poles. Focus groups reported that building poles collected from the national park is for personal use only (Box 13).

Box 13. Resource-specific motivations for why local people seek forest resources

Meeting daily needs, livelihood risk coping strategies and a lack of alternative resources were commonly identified drivers of unauthorised resource use by focus groups. Bushmeat hunting was associated with the poverty of local people being unable to buy meat or livestock, or local people seeking medicine to treat childhood sickness. Firewood and building pole collection was associated with the scarcity of these resources outside the national park. In comparison, regarding authorised resources, household consumption was associated with the collection of medicinal plants, honey and basketry materials. However, local sale of these resources to gain an income was an equally important driver (despite Multiple Use only being intended for subsistence use). For medicinal plants and species used as basketry materials, the fact that these species only grow in the forest was ranked highly as a motivation.

4.5.2 Non-resource specific motivations for unauthorised resource use

Resentment of the national park by local people was identified as an overarching driver of all unauthorised resource use by focus groups. This resentment arose from crop raiding, inequality of revenue sharing and the lack of employment from the national park.

Resentment over crop raiding was the fourth highest ranked motivation for unauthorised resource use after need for food (meat) and herbal medicine, and land scarcity for

firewood. Focus group discussions identified the loss of food and income from crop raiding, the lack of financial compensation from UWA and, in the eyes of local people, limited success of crop-raiding mitigation projects as driving local people to compensate themselves by obtaining food, basic necessities or items to sell from the national park. As members from one focus group explained:

'The present management is not controlling the problem of crop raiding animals, scaring them or killing them, which makes people angry so they go into the forest.'

This resentment over the tourism revenue sharing scheme at Bwindi arose from the mismanagement of funds and inequity in distribution. Focus groups reported that most of the community money is lost when it passes through different levels of government, and those living close to the national park and suffering from crop raiding rarely receive any benefit. Focus groups also reported that the money is commonly used to distribute goats, but the goats often die after delivery. Many comments emerging from those participating in focus groups expressed some resentment:

'People are angered by corruption in revenue sharing. The intended money does not reach people.'

'People are angered by the revenue sharing of giving goats; those who are benefitting by receiving goats are those who are not living near the Park; people near the Park (like us) are denied goats, so we are angry and go to the Park and poach.'

'Revenue sharing and the gorilla levy is ongoing, but the way it is going is not OK ... money is misused at different levels; people know what is taking place and it generates more anger and makes people go to the Park; people know that the money from revenue sharing and the gorilla levy is supposed to compensate people... but... the way it is being handled makes people unhappy.'

'People living near the Park are not the people who receive the benefit of revenue sharing ... the benefit goes to those who live far from the Park, and those who are near the Park who are facing the problem of crop raiding get nothing'

Focus groups commonly reported that park-related employment is given to people from distant areas. This fuelled resentment by local people over a lack of local employment (and subsequent lack of income) for local people from the national park, and this resentment drove unauthorised resource use. One focus group explained:

'The Park should employ local people instead of people from far away; our children have been to school and have papers; they apply but they don't get accepted and when someone has applied for a job and gone for an interview and

he sees that it has gone to someone from Gulu²¹, he ends up not appreciating the Park; he becomes biased against the Park and he is a local person, living near to the Park.'

Cultural beliefs and traditional practices were also listed by focus groups as overarching drivers of unauthorised resource use, but less frequently than other factors. Cultural beliefs included that local people have a right to forest resources, and this belief was most commonly mentioned by the Batwa focus groups.

4.6 Is the Multiple Use Programme a cover for unauthorised resource use?

The MUP at Bwindi was the first conservation initiative in Uganda to allow local use of natural resources from a national park. The programme has been heralded as a success as a means of creating local community involvement in national park management and as an instrument in resolving park-community conflict (Blomley, 2003). However, despite these positive outcomes for conservation, it has been criticised because of the risk that allowing local access to national parks will increase unauthorised resource use. There is no empirical evidence to prove or disprove this claim. As part of our research, we sought to gain insight as to whether authorised resource users engage in unauthorised resource use.

There were 46 people arrested for bushmeat hunting in the national park between January 2011 and July 2013 according to law enforcement patrol reports. Of those 46, 15 were authorised resource users. A group of 15 individuals was too small to undertake statistical analysis to assess whether certain characteristics distinguish individuals who are permitted to enter the national park but engage in unauthorised resource use. Furthermore, these arrest figures were not representative of the proportion of authorised resource users who hunt bushmeat, as we did not have the information needed to determine this. The only other arrest data we had from law enforcement patrol reports was the 12-month period between August 2012 and July 2013. A total of 39 people were apprehended for unauthorised activity inside the national park during this period. Of these 39 people, 24 were Ugandan, of whom four were members of the MUP.

These law enforcement data show that a small number of people arrested in the national park are authorised resource users. However, to explore the extent to which the MUP is a cover for unauthorised activities, our most compelling evidence comes from our household questionnaire, which we analysed using the Unmatched Count Technique. These results suggested that households consuming bushmeat during the last year were highly unlikely to be authorised resource users or to have attended a park-community

²¹ Gulu is approximately 700km from Bwindi

meeting. Yet these households were more likely to report that they benefit from the MUP. This could reflect a geographical overlap, as harvest zones are adjacent to forest areas where hunting occurs. In this situation, bushmeat consumers living in villages of the programme would benefit from forest products collected by authorised resource users.

Our analysis also showed that the profiles of local people who collected firewood or building poles from the national park during the previous year contained no significant variable related to the MUP. This indicated that authorised resource users were no more or less likely to collect firewood or building poles than other members of the local community (Box 14).

Box 14. Is the Multiple Use Programme a cover for unauthorised resource use?

Law enforcement records showed that, over the previous two years, a small number of people permitted to enter the national park under Multiple Use had been arrested for unauthorised activities that included poaching. However, the numbers were too small to allow inferences to be drawn from statistical analysis. The findings of this research showed that households consuming bushmeat during the last year were significantly *less likely* to be authorised resource users or to have attended park-community meetings. Furthermore, people permitted to enter the national park under Multiple Use were no more or less likely to collect firewood or building poles from Bwindi than others within their community.

4.7 Has Bwindi's ICD programme influenced unauthorised resource use?

Two aspects of the research were used to answer this question. Firstly, from the household questionnaire, individual perceptions of involvement with, ownership of or benefits from ICD interventions were examined as profile characteristics to distinguish resource users from other local people of Bwindi. Secondly, focus group discussions on motivations for unauthorised resource use were used to indicate views of the community.

Focus groups identified that resentment by local people over inequitable ICD benefit sharing or livelihood costs from the national park was a primary driver of all types of unauthorised resource use. This indicates that local people who perceived themselves to have benefitted less from ICD interventions or suffered great livelihood costs because of the national park undertook unauthorised resource use (any type) as compensation. The profiles of people collecting firewood from the national park illustrated a similar link between lack of ICD benefit and unauthorised resource use: people who said that they had *not* benefitted from an ICD crop raiding mitigation project were more likely to have

collected firewood from the national park than others within their community. However, there was no significant association between ICD benefits and bushmeat hunting or building pole collection, indicating that benefits from ICD interventions did not prevent hunting activities or building pole collection (Box 15).

Box 15. Has Bwindi's ICD influenced unauthorised resource use?

Feelings of inequity over either a lack of ICD benefit or lack of support for crop raiding drove local people to undertake unauthorised resource use in compensation. Similarly, local people who reported that they had not benefitted from a crop raiding mitigation project were more likely to collect firewood from the national park than other local people. However, benefits from ICD interventions appeared not to prevent bushmeat hunting or building pole collection from the national park.

4.8 How would local people improve ICD?

Focus groups were asked for their views on improving ICD (Box 16). Improving the targeting of revenue sharing was frequently discussed, specifically to benefit frontline local people suffering from crop raiding. This further highlighted the importance to local people that frontline people should receive support for crop raiding, for example:

'... when it comes to the gorilla revenue sharing programme, they don't consider people who live very near the Park; we need the Park at least to reverse it so that they consider the people who are exactly adjacent to the Park and who are affected by the Park.'

'... the Park should do a study and find out how the neighbours of the Park are, so when they are doing the revenue sharing of goats, they first consider and give priority to the local person who is adjacent to the Park, where crop raiding is hitting him as a problem.'

'... they should come and see the people who are affected by crop raiding before they give revenue sharing goats; they should first know those who are affected.'

Some groups raised a similar point; namely that revenue sharing should explicitly be implemented as compensation for crop-raiding:

'... when you are talking of revenue sharing, through education we hear that it should go to people as compensation for crop raiding, but... you find that the people who have benefitted from revenue sharing are few, whilst those who have lost crops are many.'

'... revenue sharing was put there as compensation, but it is not working because the people who benefit are not the people who have suffered.'

Addressing the mismanagement of funds by channelling revenue sharing funds more directly to local communities was identified as a means to improve ICD:

'... why is it that the money from revenue sharing and from the Park, goes directly to the district level, then to the sub-county, but when it reaches the sub-county, to find the one who is going to benefit, they use ballot papers; how does the ballot paper know money? As if it is voting in politics? Corruption; that is creating our anger.'

'... money for revenue sharing should not go via sub-county, it should do direct to stretcher groups.'

'... revenue sharing money should not go through local government; it should go direct to local communities and be given directly by UWA, not another organisation; local communities know each other so there would be less corruption.... recipients should be selected by the Chairman of the LC1 who knows the local people and who needs it most.'

Improving communication between authorities and local people was also raised as a means of improving ICD. Reference was made to the fact that people find it difficult to attend meetings because they are guarding crops:

'... the revenue sharing going on now... we went, and were told different things, and then there are people guarding the crops so they can't go.'

Or to receive communications on ICD:

'... communication is a problem; they don't put announcements for everybody... they go up to the centre... you don't get information in all the communities; in Mpungu sub-county we do not hear the announcements.'

Or be involved with decisions:

'... the decision on revenue sharing is made by the people at the top who are not down on the ground... we should make a decision based on local priority, but the decision is made by the top people; we want the decision to be made by local people who are on the ground.'

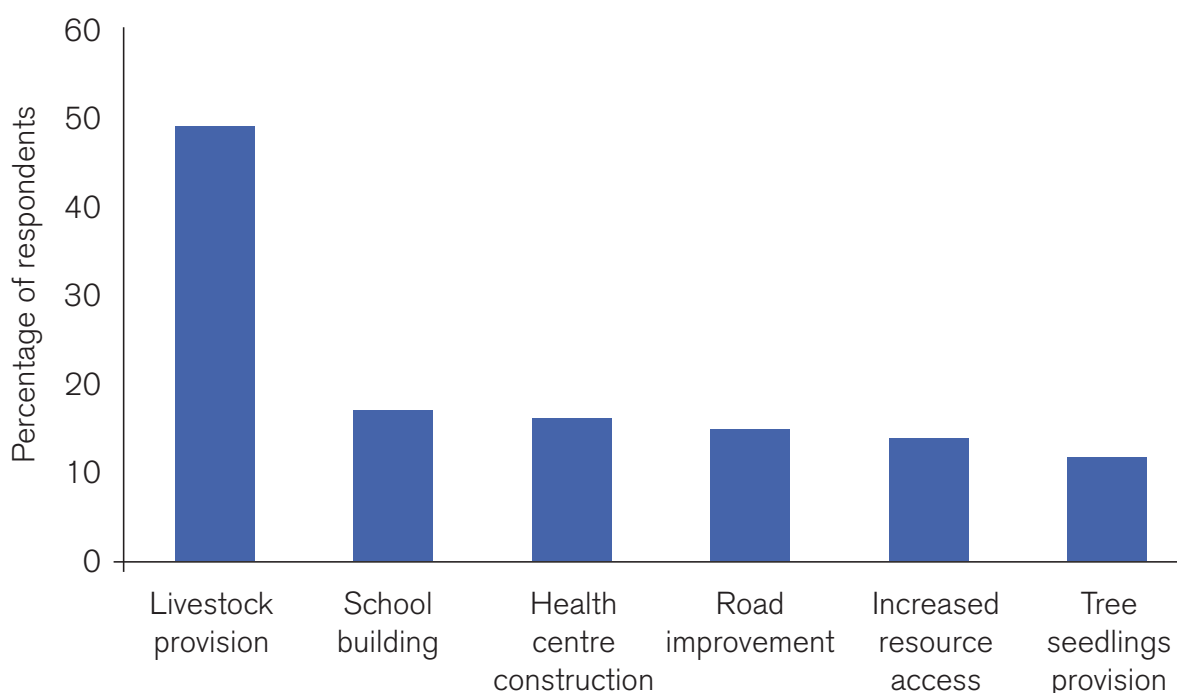
And, finally, the need for follow-up monitoring:

'... the Park should make a follow up after giving goats for revenue sharing.; they should go and find local people who have received them; they should ask what is your attitude upon receiving the goats?'

We gained further insight into how local people would improve ICD by asking what would they do if they were the national park manager of Bwindi. Most people said that they would increase benefits for local people (81.6 per cent). Six benefits were mentioned, with providing livestock most frequently cited (49 per cent) followed by schools (17.8 per

cent) and health centres (15.6 per cent). Almost half respondents would address crop raiding (45.2 per cent), compared with less than a third reporting that they would allow local people to extract forest resources (14 per cent) (Figure 5).

Figure 5. Activities that local people would undertake to increase national park benefits to local communities

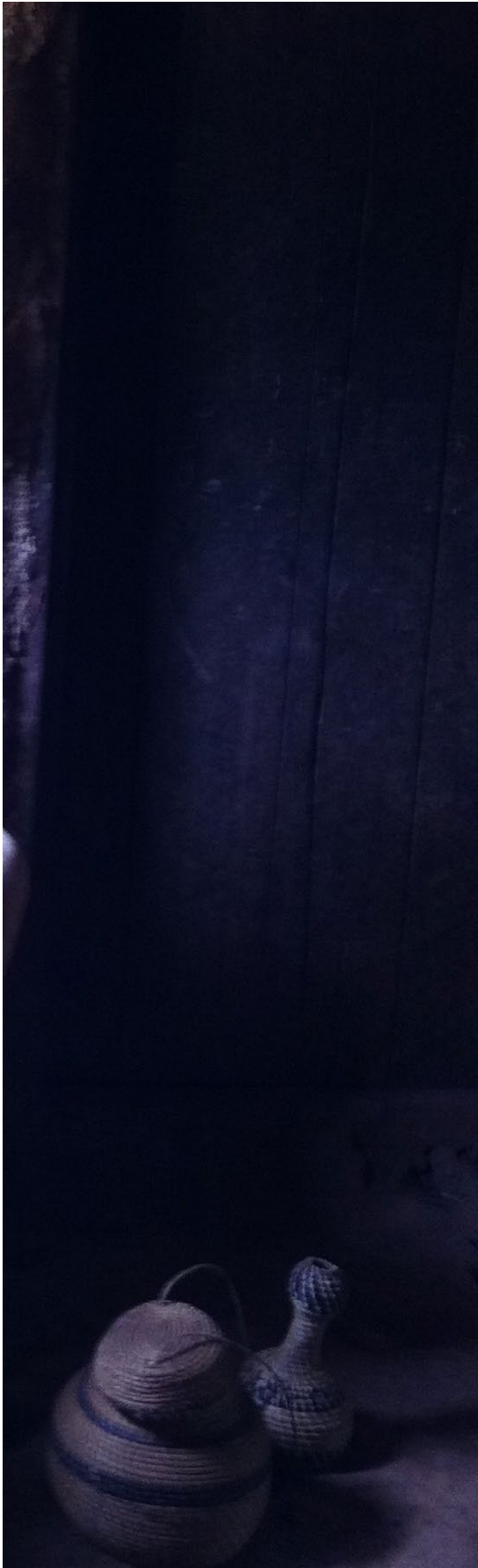


Box 16. How would local people improve ICD?

Benefits to people suffering from crop raiding and channelling revenue sharing funds more directly to local communities were the most commonly identified improvements to ICD interventions by local people. Other improvements to ICD interventions that local people identified included monitoring the long-term outcomes of ICD interventions and better, more regular communication between park authorities and local people.



Authorised resource user with his baskets made from plants harvested from the national park; Mariel Harrison



5

Is there good governance of ICD interventions at Bwindi?

We sought to find out which aspects of ICD governance local people consider most important, and whether the type of governance influences the amount of benefit from ICD interventions local people say they receive.

5.1 How do local people define participation in ICD?

During pilot tests of our survey, we explored the aspects of governance that local people considered most important for success of ICD interventions. These discussions were based on commonly recognised elements of good governance, as defined by Borrini-Feyerabend et al. (2004), which included transparency, participation, accountability and ownership. All pilot groups identified involvement and participation in decision-making by local communities as most important for a successful ICD intervention. We then asked local people (through focus groups) to define what involvement and participation in ICD decision-making should mean in practice. They highlighted the importance of being able to contribute throughout the whole process of an ICD intervention, but placed most emphasis on being part of the decision on the type of intervention to be implemented. Most importantly, they highlighted that local people will actively contribute to an ICD intervention if it is a priority for them, but if it is not a priority, the intervention is unlikely to be sustainable (Box 17).

Box 17. How do local people of Bwindi define participation in the context of Integrated Conservation and Development interventions?

Focus group discussions highlighted the following as being important:

- Community involvement and contribution in meetings, setting rules, planning / decision-making and where possible, implementation, i.e. selecting the ICD intervention of choice as well as the beneficiaries;
- Collaboration, selecting people involved, making the laws governing the intervention, equal participation in implementation;
- Communities being consulted before planning and decision-making;
- The money comes directly to the communities and they plan for it themselves.

5.2 Which governance arrangements do local people prefer?

Many different governance arrangements can and have been used within ICD. From a review of literature, we identified six possible arrangements:

| Governance arrangement | Definition |
|---|---|
| Externally-led | Top-down approach where external organisations make decisions on design and implementation without local community involvement |
| Externally-led with local communities being informed | Top-down approach led by external organisations with local communities being informed of the decisions taken |
| Externally-led with some local involvement in decision-making | Top-down approach led by external organisations with limited involvement by local communities in decision-making |
| Collaborative decision-making and implementation | An equal collaboration between local communities and external organisations for designing and implementing an ICD intervention |
| Participatory decision-making and local community management | Local communities lead the decision-making process with support from external organisations and then solely manage the implementation stage |
| Local community decision-making and management | Design and implementation solely by the local community |

Discussions with local people revealed that the *'collaborative decision-making and implementation'* approach was by far the most preferred. Discussions about this approach highlighted the importance that local communities placed on collaborating with donors and external experts in both the decision-making and implementation stages of an ICD intervention. The only other governance approach that was highlighted by local people as their preferred approach was *'participatory decision-making and local community management'*. Again, they described the importance of engaging with donors during the early stages but, fundamentally, they felt that local communities should manage the implementation of an ICD intervention. It was interesting that no group chose *'local community decision-making and management'*. Their reasons all related to the importance that they placed on collaborating with donors and external experts during the ICD process. Further discussions revealed that local people preferred voting as the method for selecting an ICD intervention, which they explained was because voting is available

to everyone and all respect the majority decision. They also preferred that a specifically selected group of community representatives be responsible for collaborating with external organisations and implementing ICD interventions.

5.3 What worked well in terms of governance arrangements and why?

The same six approaches to governance of ICD interventions were used to ask what approaches are implemented at Bwindi. Most chose '*externally-led*', and said that the authorities do not ask local communities before selecting an ICD intervention, but announce decisions only after they have been taken. There was variation between ICD interventions with some people describing that '*participatory decision-making and implementation*' is used, and reporting that communities are involved with decisions about ICD interventions. They also reported that, during ICD implementation, they were left without project management support. This they described as negative, as they were unable to continue collaborating with external organisations.

They also listed five ICD interventions that they considered successful from a governance perspective. Three were community-benefit projects (health clinic, school and a road), one was an agricultural project and the final one was the MUP at Mpungu. Reasons given for the success of the interventions all related to the involvement of local communities in the selection and implementation of the ICD intervention (Table 4).

Those surveyed listed four ICD interventions that they considered unsuccessful: schools, agricultural projects, gravity water and goat sharing. Interestingly, schools and agricultural projects had been listed as successful ICD interventions by different focus groups because of local involvement in decision-making. However, these focus groups reported that schools and agricultural projects failed because local communities had not been involved in selecting and implementing the ICD intervention. This further illustrated that involvement is a key factor for local people of Bwindi to consider an ICD intervention successful. A lack of community contribution was also given as a reason for failure of the gravity water and goat sharing ICD interventions, in addition to poor targeting (not benefitting people in need) and corruption (ICD funds were embezzled before reaching local people (Table 5).

Table 4. Focus group perceptions on successful ICD interventions and reasons for success

| ICD Intervention Considered Successful | Reasons Given For Success |
|---|--|
| Health centre | We initiated the idea to get medical service. We helped to provide land, stones, sand. |
| School | We needed it and benefit from it, so it is ours. We contributed to the construction. We have meetings with the school management team to better run the school. |
| Agricultural: Irish potato | This is the project we wanted. We are fully involved in all stages. Only the direct beneficiaries are the owners. |
| MUP: Mpungu | We were actively involved in the process of MUP planning from the beginning. We get the resources we want, use it sustainably as our own garden. |
| Road | They paid us money and we decided to spend it on constructing the road. We decided what we want and we planned it. Now everyone puts in energy and effort to finish it. Everyone is involved digging the road. It benefits all. |

Table 5. Focus group perceptions on unsuccessful ICD interventions and reasons for failure

| ICD Intervention Considered Unsuccessful | Reasons Given for Failure |
|--|---|
| Gravity water | <p>There was no community contribution at any stage.</p> <p>They did not discuss with the communities that have problems accessing water.</p> <p>It is not benefitting people from areas with no water.</p> <p>They are charging people but most do not have the money to pay, so only people who can pay are benefitting.</p> <p>Most local people continue to obtain water from the original sources.</p> |
| Goat project | <p>There was no community contribution.</p> <p>Money goes through different channels and is embezzled before reaching local people.</p> |
| School | <p>There was no community contribution.</p> <p>It is government property.</p> <p>We do not own it, just benefit from it.</p> <p>The school is very far and not convenient, so some children cannot attend.</p> |
| Agricultural: Irish potato | <p>The sub-county officials do not understand problems facing local people.</p> <p>We were given seeds but out of season so these were wasted.</p> <p>We only received poor quality seeds, which failed to grow.</p> |

5.4 Does good governance in ICD correlate with increased benefits?

Our focus groups gave an insight into the overall view of local communities on the preferred governance arrangements of ICD interventions. This illustrated very clearly the importance that local people of Bwindi place on being involved in decisions and collaborating with external organisations. To explore this further, we examined perceptions of involvement, benefit and ownership of ICD interventions by individuals. Specifically, we looked at if an individual felt involved with an ICD intervention, did this influence whether they felt ownership of the intervention and to have benefitted from the intervention?

We found that people who did not report any benefit from an ICD intervention almost always felt that they were not involved in its design and implementation. Similarly, the more that a person felt involved in the design and implementation of an ICD intervention, the more benefits they reported to have received. However, people who did not feel involved in an ICD intervention reported almost equally that they had and had not benefitted from an intervention. This shows that a person can perceive benefits from an ICD intervention when they did not feel involved in the design and implementation. These situations are most likely to be an intervention such as the goat provision scheme where individuals receive a direct, immediate benefit. Nonetheless, overall, the people who felt involved in ICD design and implementation were more likely to feel that they benefitted from an intervention.

People reporting benefits from an ICD intervention were more likely to feel a high level of ownership of that ICD intervention. Similarly, people who did not perceive any benefits from an ICD intervention – i.e. they were aware of the ICD intervention but perceived it had not benefitted them – were most likely to feel no ownership of that ICD intervention. People who felt highly involved in the design and implementation of an ICD intervention almost always felt complete ownership of that ICD intervention. However, there were people who reported ownership of an ICD intervention despite feeling no involvement in its design or implementation. This was considered most likely to be the case when they perceived a direct, immediate benefit from the intervention, such as the goat provision scheme (Box 18).

Box 18. Local perceptions of involvement, benefit and ownership of ICD interventions

People who felt involved in ICD design and implementation were more likely to report that they benefitted from and had ownership of the ICD intervention. Effective engagement of local people in the ICD decision-making process is therefore important if they are to feel that they benefit from and have ownership of an ICD intervention. However, there were ICD interventions, such as the goat provision scheme, when people do not feel involved in the design and implementation yet reported that they benefitted from and had ownership of the intervention.

5.5 Case study: Governance of the Multiple Use Programme

5.5.1 Who received MUP identity cards to be able to access forest resources?

Governance arrangements of the MUP include the registration of authorised resource users and issue of identity cards for local people to enter the national park. We examined profile characteristics of authorised resource users with and without identity cards. Our aim was to see if profiles differed between those able to benefit from the MUP (i.e. registered and issued with an identity card) and those unable to benefit from the programme (i.e. registered but not issued with an identity card).

Local people living closer to a road, with leadership positions in their communities (for example a village chairman or church leader) and who were significantly less poor than other community members were more likely to have an identity card and, therefore, be able to harvest resources in the national park. This indicated that people registered for the MUP who were poorer, lived further from a road, and with no position in society, were not able to harvest resources in the national park, as they had not received, or renewed, their identity card. In addition, people involved with the MUP from its inception were more likely to have an identity card than people registered later by UWA, and people aged between 41–60 years were more likely to have identity cards than those in other age groups. Profile characteristics of gender, education, other authorised resource users in the family and attitude towards the MUP were not significant determinants of whether an individual received an identity card or not.

We then examined profile characteristics of authorised resource users with identity cards in order to identify differences between active and inactive harvesters (i.e. whether they had harvested resources in the national park during the past year or not). Out of 12 profile characteristics, only two were significant: family size and the distance people lived from a trading centre. These results indicated that authorised resource users with identity cards were more likely to be active harvesters if they lived closer to a trading centre and had a large family (a mean of 7.36 family members) compared with inactive harvesters (a mean of 5.41 family members) (Box 19).

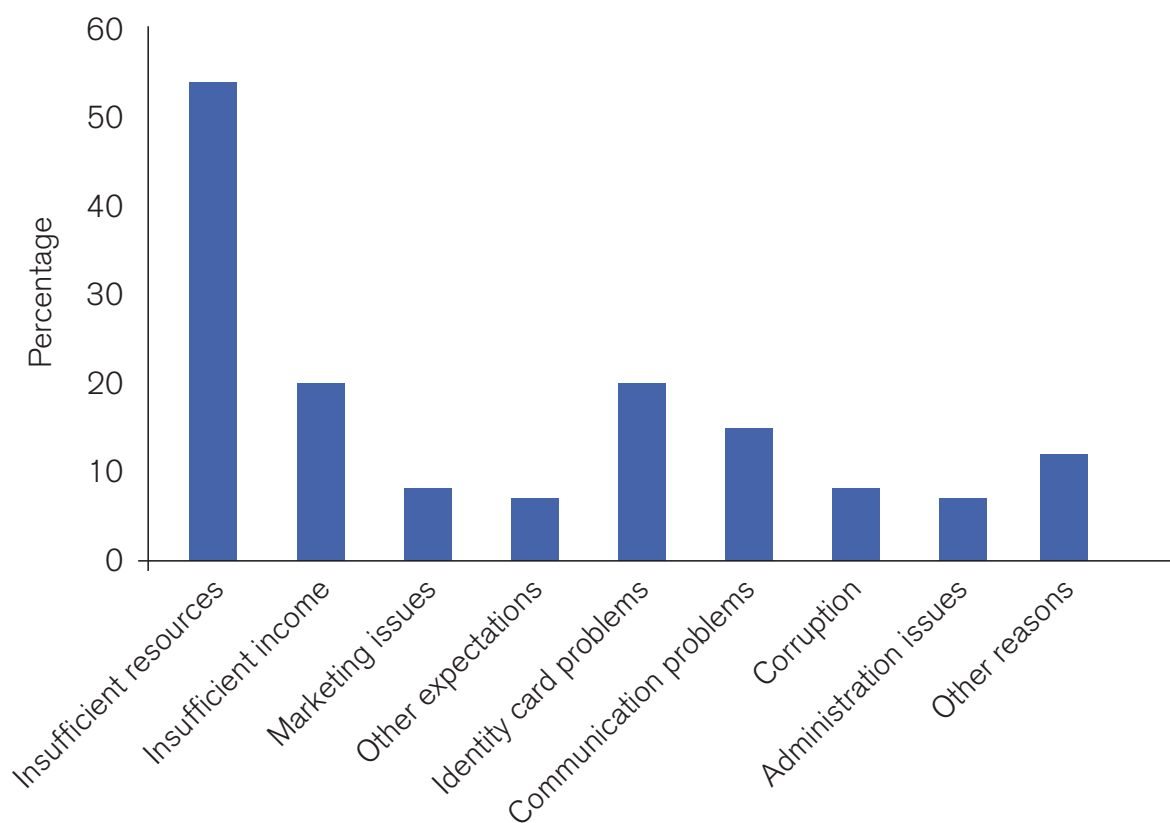
Box 19. Who has a MUP identity card to be able to harvest forest resources?

People living closer to a road, who held a leadership position or some authority in their communities and were significantly less poor than other community members, were more likely to have an identity card. They were, therefore, able to harvest resources in the national park. Of authorised resource users with identity cards, those who lived closer to a trading centre and had a large family were more likely to be active harvesters. Conversely, the poorer, more remote people with no position in society were not able to harvest resources in the national park because they had not been issued with an identity card.

5.5.2 Why do those permitted to enter the national park no longer do so?

During our study, it became apparent that some people who were able to enter the national park to harvest resources no longer did so. When we asked authorised resource users why harvesters became inactive, most reported there were insufficient resources to harvest. Insufficient income from the MUP, and park-community communication problems were also reasons given for why harvesters become inactive. Other less commonly reported reasons included corruption, administration issues, marketing issues and other expectations about the programme (Figure 6; Box 20).

Figure 6. Reasons given by authorised resource users for why harvesters became inactive



Box 20. Reasons given by authorised resource users for why harvesters became inactive

Many authorised resource users described insufficient income and resources from the Multiple Use Programme as the main reasons for becoming inactive:

Female, Active weaver: *'Sometimes we cannot get enough resources and at the end of the year we cannot weave anything.'*

Female, Active weaver: *'There are not enough resources for people to make profit. We go once a year. Sometimes what you have brought is enough for only one mat or less and the energy you put is not equivalent to what you get.'*

Male, Inactive beekeeper: *'Pit-sawing income is higher than honey. It is hard to get 20,000 (Ugandan schillings) at once from honey, but I get it from pit sawing.'*

Female, Inactive weaver: *'We have no market for our products. We have the trainings, the skills, and have made a lot of products, but failed to sell them.'*

Others stated that the Multiple Use Programme did not meet their expectations:

Male, Active beekeeper: *'Different people had different expectations at the time of registration. Some thought they could get some land or some other resource. These people were withdrawn and lost interest and lost in MUP.'*

Female, Inactive weaver: *'The aim of joining was to get some money and ... stuff like cooking utensils. I thought they would fund us, give us money and domestic animals.'*

Finally, some authorised resource users stated that mis-communication led to them being inactive:

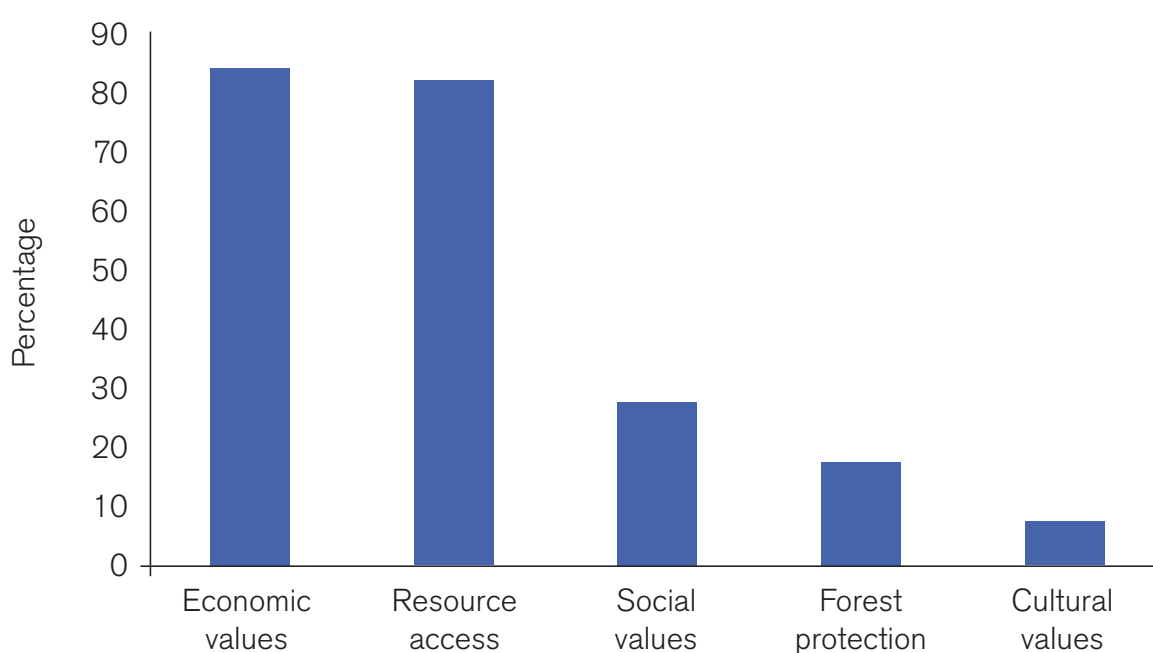
Female, Inactive weaver: *'From the time of registration, I didn't go to the forest because they didn't come back to give instructions and trainings. They didn't come back to tell us anything after registration, I am still waiting.'*

Female, No-card Herbalist: *'I wasn't staying close to people who are in MUP. That's why I think I was not considered. I would miss the meetings because no one would inform me.'*

5.5.3 What do authorised resource users value most about the Multiple Use Programme?

Authorised resource users valued economic benefits and access to resources from the MUP most, followed by social values and forest protection, to a much lesser extent. Cultural values were the least frequently mentioned by authorised resource users (Figure 7; Box 21). However, regardless of any personal benefit from the MUP or whether they were active harvesters or without identity cards, most participants of this study (90 per cent) supported the MUP, describing its importance for local communities to access to forest resources (Box 20).

Figure 7. Values gained from the Multiple Use Programme reported by authorised resource users



Box 21. Values gained from the Multiple Use Programme reported by authorised resource users

Authorised resource users described that they valued the income that they obtained from the Multiple Use programme:

Male, Active weaver: *'I have achieved what I wanted. We are getting the resources; I have even got the income I expect.'*

Others valued access to forest resources:

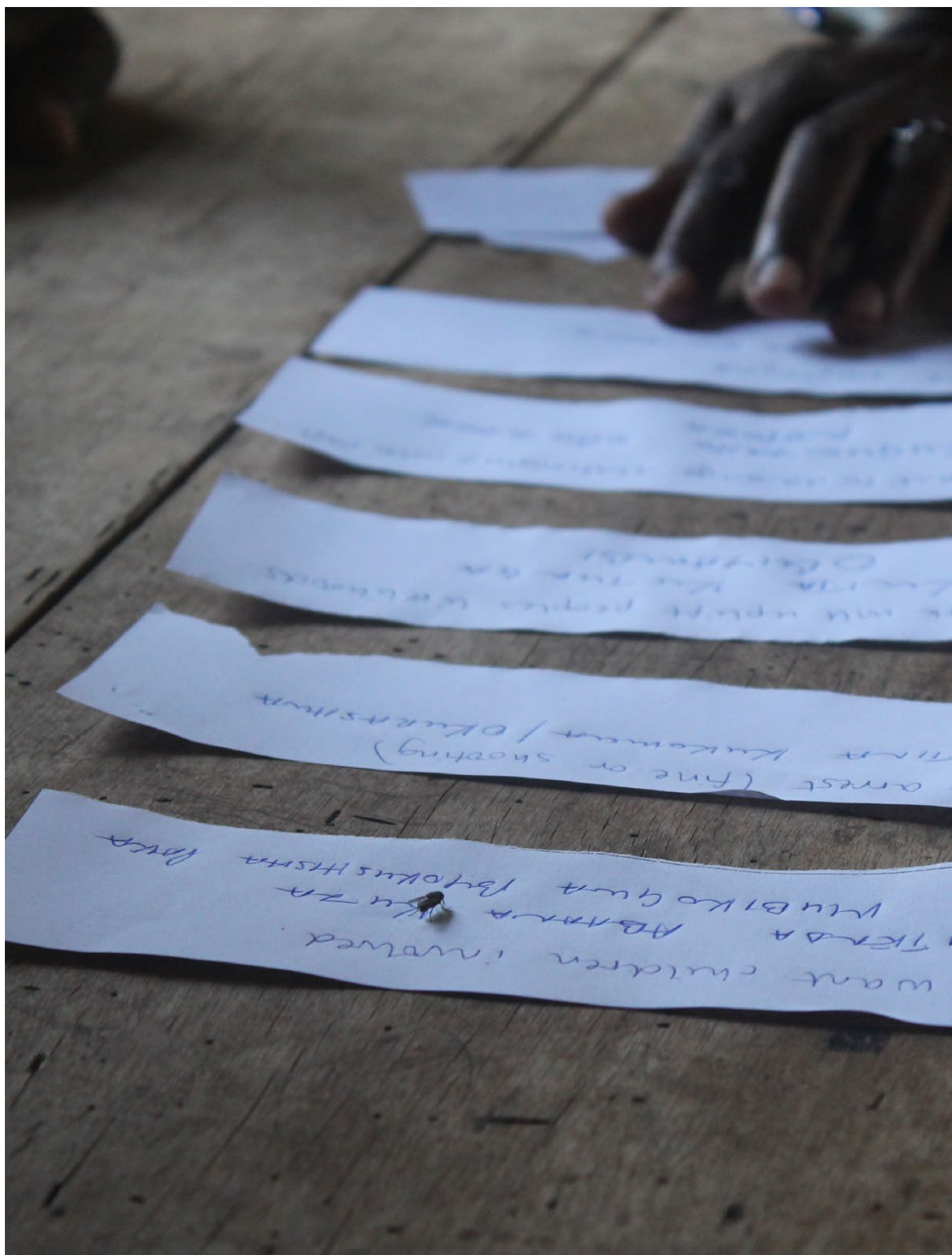
Active weaver: *'MUP is good because they have thought us using the resources sustainably so that younger generation can also benefit.'*

Male, active herbalist/weaver: *'MUP is giving us the resources which we were going to miss if the programme was not establishedIf they close the project, people would suffer and the products are needed there is no way to get them from communities.'*

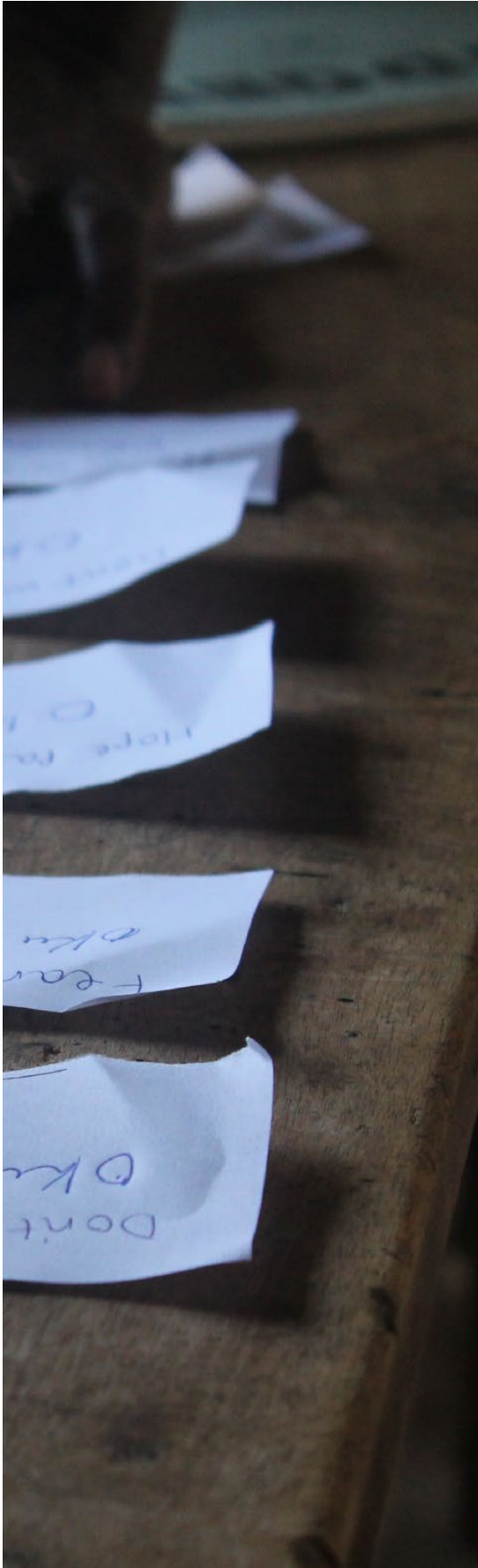
Some authorised resource users valued the social aspects from the programme:

Male, Active herbalist: *'Gained very many friends when I heal their family. Now I am famous and prominent man in my village.'*

Male, Active herbalist: *'Project is helping everyone around. If they stop it, the skills will die. I want to continue the skills even in next generations.'*



A focus group ranks in order the motivations of unauthorised resources for this study; Mariel Harrison



6

Summary of research findings

In this section we identify the key findings that address our hypotheses. They emphasise the complex relationship between biodiversity and poverty and the importance that local people place on being part of the decision-making process.

Table 6 presents our study hypotheses along with evidence that supports them (marked 'yes') and evidence that illustrates situations where the hypothesis is disproved (marked 'no'). The clearest findings were, firstly, the complex relationship between biodiversity and poverty, illustrated by the diversity of resource users and their motivations for resource use at Bwindi, and secondly, the importance that local people placed on being part of the ICD intervention decision-making process and collaborating with external organisations involved.

Table 6. Key findings of the research*

| Resource users | |
|---|---|
| Hypotheses | Key Findings |
| Poorest members of the local communities undertake unauthorised resource use | <p><u>Yes</u>: people who had been arrested for unauthorised resource use were more likely to be poorer than other people of Bwindi. Furthermore, drivers of bushmeat hunting were associated with rural poverty of people being unable to buy meat or livestock, or seeking medicine to treat childhood sickness.</p> <p><u>No</u>: households consuming bushmeat and firewood collectors were neither poorer nor less poor than other local people. Individuals collecting building poles appeared to be less poor than others within their community.</p> |
| Livelihood security (risk coping strategies) and subsistence (meeting daily needs) are primary drivers of unauthorised resource use | <p><u>Yes</u>: for certain forest resources notably bushmeat and firewood although a lack of alternatives outside the national park also drove unauthorised resource use.</p> <p><u>No</u>: local resentment from a perceived lack of support on crop raiding, inequity of benefit sharing and a lack of employment for local people drove unauthorised resource use.</p> |
| Those engaged with unauthorised resource use perceive that they have benefitted less from ICD | <p><u>Yes</u>: focus groups identified that local people's resentment over a perceived inequity of costs from the national park was a primary driver of unauthorised use (i.e. people undertook unauthorised resource use as compensation). Also people who reported that they had not benefitted from ICD crop raiding mitigation projects were more likely to collect firewood from the national park than other community members.</p> <p><u>No</u>: benefits from ICD interventions appeared not to prevent bushmeat hunting or building pole collection, indicating the need for these forest resources, or reason for undertaking the unauthorised activity, overrode the ICD benefits that local people of Bwindi have received.</p> |

Governance

Hypotheses

Local people are more likely to consider an ICD intervention successful and report more benefits from the intervention if the governance conditions align with their preferences for governance.

Primary Research Questions

Yes: local people identified involvement in the decision-making process as the most important aspect of governance of an ICD intervention. They then identified successful ICD interventions as those where local people had been involved with the decision-making process, and unsuccessful ICD interventions as those without participation of local people. Furthermore, local people who felt involved in ICD design and implementation were most likely to report that they benefitted from the ICD intervention.

* YES: evidence that supports the hypothesis.

NO: research findings that illustrate situations where the hypothesis is disproved.



A family guards its crops, Bwindi Impenetrable National Park, Uganda: Mariel Harrison



7

Discussion

In this section we discuss our results in order to identify the key issues emerging for improving future ICD interventions at Bwindi. We then draw out lessons learnt for other protected areas where the ICD approach is implemented to link protected area conservation with poverty alleviation.

This research was designed to help improve the effectiveness of future ICD interventions at Bwindi by understanding two key issues. Firstly, who continues with unauthorised resource use and why, despite the long-running ICD programme? Secondly, whether local people were more likely to consider ICD interventions successful and report more benefits if the governance conditions align with their preferences.

We found that while the poorest people did indeed undertake unauthorised resource use, other less-poor people were also involved. In many instances, subsistence needs drove unauthorised resource use, but people also used forest resources because they did not have alternatives (for example forest medicinal plants) or they felt some injustice – either as a result of the costs imposed by conservation or because of a sense that they had not received an equal share of the benefits from the ICD programme. For some people who did receive benefits from the ICD programme, it appeared that a need or desire for certain resources still overrode the benefits that they had received.

While our research illustrated the diversity of people and the motivations associated with unauthorised resource use, in relation to governance of ICD, local people placed most importance on being involved in decision-making. They particularly emphasised being involved in the decision on the type of intervention and they described successful ICD interventions as those where communities had made decisions or, at the very least, been actively involved in the decision-making process. We also found that local people who felt involved in designing and implementing an intervention were most likely to feel that they benefitted from ICD.

7.1 Key issues for improving ICD at Bwindi

7.1.1 Reducing threats to conservation

The ICD approach at Bwindi has made a significant contribution to improving park-community relations. Some interventions have also contributed towards the alleviation of poverty, for example the on-farm tree planting scheme. However, like many other ICD programmes, Bwindi's ICD programme has had little impact on reducing threats to conservation from unauthorised resource use. Before Bwindi became a national park, it was used for a variety of extractive purposes that threatened conservation. Timber pit-sawing and mining were affecting large areas of the forest. Bushmeat hunting by snares and hunting dogs was threatening populations of both target (namely duiker and bushpig) and non-target species including mountain gorillas (Butynski, 1984).

At just a little more than ten years after gazettelement, an evaluation of ICD at Bwindi identified that illegal pit-sawing and mining in the national park had declined, largely a result of law enforcement. However, bushmeat hunting continued in the interior, less well patrolled areas (Baker, 2004).

Another ten years on, the 2011 population census of Bwindi's mountain gorillas revealed an increase in the Bwindi population to a minimum of 400 gorillas. This raised the world's total number of mountain gorillas to 880 and thought to result from the law enforcement efforts to protect the gorillas (IGCP, 2012). During this period, the first systematic camera trap survey in Bwindi revealed bushmeat hunting was taking place throughout the national park. This highlighted a key issue: while there has been an increase in mountain gorillas and community-based initiatives to address hunting, which included income-generating projects and the supply of livestock, bushmeat hunting remains one of the biggest threats to Bwindi's conservation and an on-going challenge for the ICD approach to address (EoH, 2007; Mugerwa, 2012).

Our research established that bushmeat was the forest resource that local people desired most and, out of the five resources assessed, the most widely consumed. We also established that those hunting and consuming bushmeat lived in remote areas and the frontline zone of the national park. Living in remote areas and the frontline zone were characteristics associated with the poorest people of Bwindi. Certainly, hunting was driven by a lack of money to buy meat or livestock, and medicinal needs. Also, people arrested for unauthorised activities during the course of this research were among the poorest people of Bwindi. Yet when exploring the specific profiles of hunters, we discovered that people who were not the poorest in their communities were linked with hunting and bushmeat consumption. These included traditional hunters who hunt for their subsistence needs but also to sell locally for a small, modest income, as well as those who hunted as a form of compensation. These individuals sought compensation for the costs associated with national park conservation, notably crop raiding by wild animals, or because they felt resentment because they believed that revenue sharing had failed to benefit those who were most deserving or that jobs with the national park were given to outsiders.

There are three key findings from our research. Firstly, this research generated new information on bushmeat hunting at Bwindi – bushmeat was the forest resource most desired and widely consumed after 20 years of ICD; those hunting and consuming bushmeat lived in remote areas and the frontline zone; and, poverty and resentment were the primary drivers of hunting. Secondly, the relationship between hunting, poverty and feelings of injustice about conservation was not straightforward. Not all those who hunted were poor or felt disproportionately affected by conservation and not all who were poor or endured some of the costs of conservation hunted. Furthermore, hunting was not necessary an either-or situation. People might benefit from ICD interventions, not be particularly resentful of the national park but continue to hunt in order to benefit from the small additional income that poaching provides, or because hunting is of cultural importance. Thirdly, many reviews of the ICD approach have highlighted that interventions aimed to reduce rural poverty have little positive impact for conservation. Our research shows that local resentment over the inequity of costs and benefits from conservation was just as important a driver of bushmeat hunting (and other illegal activities) as rural

poverty. This supports current developments at the international level that focus on equitable management of protected areas (for example Aichi Target 11 in the CBD Strategic Plan), as an ethical and moral obligation, but also because equity is necessary for conservation to be effective and sustainable.

Reducing hunting has been a key focus of many ICD interventions around Bwindi and elsewhere with five approaches emerging:

- 1) Diversification of income sources to reduce livelihood dependency on hunting;
- 2) Production of domestic sources of protein to reduce dependency on bushmeat;
- 3) On-farm breeding of indigenous species to reduce dependency on bushmeat;
- 4) Co-management of natural resources where local communities, as a whole, commit to controlling illegal hunting;
- 5) and Payments for Ecosystem Services schemes as an alternative income source that promotes conservation (van Vliet, 2001).

Advocates of these approaches claim they are sustainable leading to long-term change of hunter behaviour. Critics however argue that approaches operating at the community level are prone to 'elite capture' where benefits fail to reach the poorest people, whereas approaches operating at the individual level directly with poachers only 'reward the sinners'. The choice of approaches, and combination with law enforcement, depends on the site-specific context of linkages between poverty and hunting. The root causes of bushmeat hunting are often chronic poverty and livelihood vulnerabilities, as well as cultural preferences, that arise from a combination of factors, many of which are beyond the scope of ICD interventions. While conservation practitioners are urged to contribute towards poverty reduction, the conservation impact pathway of ICD interventions depends on identifying the role of poverty reduction efforts in addressing hunting and the contribution that national park conservation can make towards alleviating the poverty drivers of hunting. From our research, while a greater understanding of the cultural importance of bushmeat hunting to local people of Bwindi is needed, the pathway of ICD to reduce bushmeat hunting appears to a combination of addressing the needs of poor people living in remote areas and close to the national park particularly for meat and medicine, but also, and of equal importance, local feelings of injustice about national park conservation.

Bushmeat hunting is not the only form of resource use that threatens the successful conservation of Bwindi. A 1992 baseline survey indicated that half of households neighbouring Bwindi collected domestic timber products, namely building poles, bean stakes and firewood, from the forest. A 2002 survey showed that domestic timber products were still some of the most illegally harvested resources from the national park, which was contributing towards erosion of the forest edge (edge effects) of an already fragmented and isolated forest (Todd, 2007).

Our research established that, after 20 years of ICD, firewood was the second most-frequently collected resource during the previous year and primarily collected for domestic use. We also established that local people described lack of access to firewood as a major cause of a low quality of life and being without basic necessities, second to crop raiding. Finally, we identified the diversity of individuals undertaking unauthorised timber collection and how they differed to those hunting and consuming bushmeat. People who collected firewood, and those who collected building poles from Bwindi during the previous year, both lived in remote areas that were further from trading centres than others within their community. However, the people who were collecting firewood were not localised to living in the frontline zone but lived within 1 km from the national park and had more education than the average for the people of Bwindi. People collecting building poles had larger families and appeared to be less poor than the poorest members of the community. Despite this, the drivers of firewood and building pole collection were similar – a lack of land to grow trees and the lack of availability of these resources outside the national park.

Domestic timber substitution programmes have been undertaken in communities around Bwindi, which included on-farm planting of trees, bamboo and non-timber forest products. These interventions resulted in poverty alleviation benefits with an estimated 75 per cent of households in frontline parishes planting trees. Yet while these interventions were intended to reduce local demand for forest resources, they turned out to be treated as additional, rather than alternative, resources. Consequently, the impact of conservation was limited (Box 22). For these programmes to be more effective as conservation strategies, our research findings indicate a need for a greater understanding of the barriers that local people face in relation to tree planting in order to ensure that the benefits reach the poorest people. Our findings also indicate the need for a more detailed understanding of the ways in which firewood and building-pole collectors seek to diversify their livelihoods and meet subsistence needs, as domestic timber collection from the national park was not confined to the poorest community members or those in the frontline zone.

Box 22. Review of domestic timber substitution programmes at Bwindi

An evaluation of on-farm tree planting at Bwindi (Blomley et al., 2010) revealed that the programme had achieved poverty alleviation benefits for local communities. Just over three quarters of community respondents had planted trees on their own land and considered that these trees were adequate substitutes to replace park-sourced firewood. Most of the trees were used to satisfy their own subsistence needs although some were sold at local markets. However, local people within the frontline zone appeared to plant fewer trees than people living further away from the national park.

This was considered a result of a combination of factors: local perceptions that trees would attract wild animals from the forest; conservation authorities would extend the national park boundary; and some frontline people satisfying their energy demands by collecting firewood from the national park. Furthermore, while people used the trees for firewood, they did not accept on-farm trees as substitutes for hardwoods. With no noticeable decline of unauthorised resource use evident from law enforcement reports, the evaluation concluded that on-farm tree planting had resulted in poverty alleviation benefits given the substantial uptake of tree planting. However, it had not been effective in switching patterns of resource use, but rather complemented park-use for certain low value resources, such as firewood, and so had little conservation impact. A better understanding of the barriers to tree planting faced by the poorest people living close to the national park was required (Blomley et al., 2010). A review of resource substitution programmes in Africa found a similar finding: resource substitution programmes became an addition to, rather than a replacement of, national park resource use. Reasons for this included inadequate consideration of how substitution programmes fit into local livelihood portfolios or of all the constraints that poor people face (such as access to land and capital), or that programmes targeted the wrong beneficiaries (Sandbrook & Roe, 2010).

We gained insight into two key questions regarding the conservation impact of the ICD programme at Bwindi. Our first question was whether the MUP is a cover for unauthorised resource use. There is evidence from the literature that park-community negotiated resource access agreements reduce illegal resource extraction. Research at Kibale National Park, Uganda, concluded that implementation of resource access agreements with local community associations was an effective means of reducing illegal extraction, but only if the association members profited financially from the agreement. The authors suggested that this conservation strategy should be applied to resources that create income-generating opportunities, rather than those use for subsistence purposes (Mackenzie et al, 2011).

At Bwindi, we found that a small number of people who were permitted to enter the national park under Multiple Use had been arrested for illegal activities, which included bushmeat hunting. However, our statistical analysis showed that households consuming bushmeat were significantly less likely to be authorised resource users. Furthermore, people permitted to enter the national park were no more, or less, likely to collect firewood or building poles. So has MUP been a cover for unauthorised activities? While a small number of authorised resource users have been arrested for unauthorised activities, there is no evidence from our research that the MUP is associated with significant levels of illegal activities.

Our second question was whether Bwindi's ICD had changed unauthorised resource use behaviours. In one sense, yes, in a negative way as feelings of not receiving ICD benefits drove unauthorised resource use. We found that when some people felt that they had not received an equal or fair share of benefits from revenue sharing, they compensated themselves by taking resources from the national park. However, in another sense, no – it appeared that benefitting from ICD interventions did not prevent unauthorised resource use if local people needed a specific forest resource. These findings support the notion that for ICD to reduce unauthorised resource use, a generalised poverty alleviation programme will likely be ineffective. Rather, the ICD approach should be a series of specific interventions that have poverty alleviation benefits (explicitly linked with conservation outcomes) for target community groups.

Finally, our research on resource users illustrated the diversity of people and motivations involved with unauthorised resource use at Bwindi. The poorest people undertook unauthorised resource use, in addition to other individuals who were not among the poorest households. While poverty associated with subsistence needs drove unauthorised resource use, people went to the national park to compensate themselves for the costs of conservation or when they felt injustice. For some people who did receive benefits from ICD, they went to the national park when in need of a certain unauthorised resource. These findings support previous evaluation of conservation practice that demonstrated a basic understanding of communities and social context is inadequate for achieving conservation through local community development (Waylen et al. 2013).

7.1.2 Addressing crop raiding

Impacts of crop raiding by wild animals on the rural poor are well documented. There are also accounts of how crop raiding leads to retaliatory killings of wildlife when a specific individual animal or species is targeted in response to loss of crops or livestock, or human injury or death (Naughton-Treves, 1998). The 2010 evaluation of the ICD programme identified that crop raiding was a significant cost to Bwindi communities and undermined progress of ICD in gaining local support for national park conservation. Consequently, most people living around the national park felt that conservation costs exceeded the

benefits of ICD (Blomley et al., 2010). Our research showed that most local people identified crop raiding as a major cause of a low quality of life and being without basic necessities. Our research also showed a link between crop raiding and unauthorised resource use – resentment by local people over a lack of support to address crop raiding caused people to compensate themselves by collecting unauthorised resources.

Local resentment also arose over revenue sharing, specifically the beliefs that those who were victims of crop raiding had not benefited from revenue sharing and that revenue sharing should explicitly be implemented as compensation for crop raiding rather than other projects. While a series of crop raiding prevention and mitigation measures have been undertaken at Bwindi, our findings highlight the importance of addressing crop raiding, either by prevention or increasing local resilience, to improve the effectiveness of future ICD interventions in linking conservation with poverty alleviation.

7.1.3 Sharing benefits equitably and contributing towards poverty alleviation

People living in the frontline zone of the national park were significantly poorer than people living further away. Furthermore, the poorest people of Bwindi appeared to be in a poverty trap – they had little education and so were disadvantaged when seeking employment, were at risk of disease from poor sanitation facilities and, being close to the national park, were more vulnerable to crop raiding by wild animals, which reduces the food and income available to them. The poorest people also lived in remote areas far from trading centres or road transportation that benefit other local people. This finding indicates that targeting communities in the frontline zone is important for Bwindi's ICD to contribute towards poverty alleviation and ensure equitable benefit sharing. However, when we asked individual people if they had received benefits from ICD interventions, there was no significance difference according to distance from the national park in the level of ICD benefits that each person reported. But there was a difference according to poverty status. Poorer people reported fewer benefits from ICD interventions than less poor people. Poorer people also reported being less involved in decision-making and less ownership of interventions.

While this research was conducted, UWA introduced new guidelines on revenue sharing for the benefits to be distributed to people living closest to a national park. This research supports the implementation of the new guidelines at Bwindi, as the findings highlight the importance of targeting not just people in the frontline zone, but the poorest people within the frontline zone and ensuring that the poorest people are involved in decision-making.

In addition to resentment over a lack of support to address crop raiding and poor targeting of the revenue sharing scheme, local people voiced resentment that employment by the national park went to outsiders. The importance to local people of being employed by the national park was further highlighted by our finding that, while overall few people gave reasons for improvement in their quality of life, most of those who did mentioned park-related employment.

The ICD approach was first introduced as projects that linked natural resource management with local development priorities. Many projects provided social services that included new schools. The aim was to improve local attitudes towards conservation and, by doing so, reduce threats to protected area conservation. However, concerns arose that ICD was too focused on rural development and bore no relation to conservation (Larson et al., 1997). From this research, we found that poorer people were less well educated than less poor people. We also found that people commonly mentioned building schools as the way that the national park contributes towards poverty alleviation, and many reported that educating their children was their main aspiration. The value that local people place on education and their belief that school construction is the way that the national park contributes towards poverty alleviation both indicate the importance of building schools as one component of an ICD programme. However, the conservation impact of investing in schools is difficult to determine. Our findings were that households consuming bushmeat had less education than other local people of Bwindi, although people who collected firewood from Bwindi had more education. Nonetheless, building schools as one component of an ICD programme at Bwindi appears important from the perspective of local people.

All these findings highlight gaps in ICD implementation where improvements can be made for Bwindi's ICD to make a greater contribution towards poverty alleviation and ensure equitable benefit sharing. These include ICD interventions to benefit the poorest people within the frontline zone and in remote areas far from roads or trading centres. These also include ICD interventions that local people identify as contributions by the national park to poverty alleviation, which for Bwindi were schools and employment.

One way of enhancing local benefits from the national park is through the MUP, which has been heralded as a success in park-community conflict resolution and local community engagement in national park management (Blomley, 2003). However, while this research illustrated the values that the people of Bwindi place on the programme, it highlighted failures in implementation with poorer people not able to harvest resources because of a lack of identity cards – thus further fuelling perceptions of inequity. The identity card issue reflected logistical difficulties for UWA to maintain the MUP given the number of local people involved and limited UWA staff for community conservation.

Measures to overcome these challenges should be relatively straightforward to implement, but the MUP itself is limited in terms of the resources that it allows access, the sites where resources can be harvested, and the number of people that can participate. Cultivation of Non Timber Forest Products such as medicinal plants on community land is one option for extending the benefits of the MUP but is likely to be subject to the same constraints – particularly in terms of available land and the barriers local people face to planting trees – as discussed for on-farm tree planting programmes. Gaining an understanding of the barriers facing local people to cultivating Non Timber Forest Products would be the first step towards overcoming these barriers.

7.1.4 Governance of ICD

The research findings discussed above highlight the target beneficiaries for Bwindi's ICD to be more effective in linking conservation with poverty alleviation. The next stage is to consider how ICD is implemented; namely the governance conditions that will maximise the conservation impact of ICD, ensure equitable benefit-sharing and its contribution towards poverty alleviation.

The effectiveness of ICD has a strong correlation with the governance scores at regional and national levels (Garnett et al., 2007). Furthermore, engendering a local sense of ownership of ICD projects is essential for the sustainability of a project (Lachapelle, 2008). Yet many ICD projects fail to realise the importance of strengthening the capacity of local organisations for making collaborative, consensual and transparent decisions (Borrini-Feyerabend, 2004). In addition, the lack of monitoring of good governance of ICD limits our understanding of reasons for successes and failures in the ICD approach (Baker et al., 2013).

In Uganda, the National Environment Management Policy 1994 identifies 'enhance local community participation in the management of protected areas' as a strategy for forest and wildlife conservation. This research illustrated that the level of ICD benefit that people felt they received was influenced by their involvement in decision-making. People who felt involved in decisions were most likely to report that they benefitted from ICD and had ownership of an ICD intervention. The importance to local communities of being involved in ICD decision-making was further illustrated when, from the different aspects of good governance, people placed most importance on being involved in decision-making and putting emphasis on deciding the type of ICD intervention. They also stressed the importance of community-led collaborative partnerships with external organisations, and described successful ICD interventions as those where communities had made decisions or, at the very least, been actively involved in the decision-making process. From these findings, various approaches can be undertaken to improve governance of ICD interventions at Bwindi (Box 23).

Box 23. Examples of approaches to improve governance of ICD interventions at Bwindi

Our research findings highlight various approaches to improve governance of ICD interventions at Bwindi:

- Capacity-building for frontline people in developing ICD proposals and in project implementation.
- More inclusive involvement of frontline poorer, remote people in ICD design and implementation, particularly to overcome challenges of communication and meeting attendance by people given their need to guard crops from wild animals.
- More direct distribution of ICD funds to local community projects.
- ICD governance to be established as a community-led collaborative partnership arrangements with external organisations.
- A park-community feedback process for improved communications and greater transparency in the decision-making process and allocation of funds.
- Capacity-building for local people to be active participants in the monitoring and evaluation of ICD interventions for lessons learnt to improve future ICD interventions.
- Monitoring and evaluation of ICD interventions to report on indicators of good governance, including identifying whether local people perceived that they were involved, had ownership of and benefited from an ICD intervention.
- A locally agreed exit strategy for external partners on ICD interventions.

7.2 Wider lessons learned

The ICD approach has evolved from the premise that it can reduce threats to conservation through a generalised notion of poverty alleviation. It is now recognised that, firstly, poverty alleviation is a far greater challenge than any one protected area can achieve, and secondly, ICD interventions must focus on people whose poverty is being exacerbated by conservation and, or, those who can make a positive contribution to conservation, for example by changing resource use behaviours. There are also international commitments for protected areas to contribute towards poverty alleviation. Achieving conservation and poverty alleviation outcomes requires careful targeting of ICD interventions to ensure that the intended beneficiaries receive the appropriate type of benefit; in turn this requires understanding the role of poverty reduction activities in reducing biodiversity loss and the contribution that national park conservation can make towards poverty alleviation. However, only limited research exists that demonstrates or quantifies the complex

relationship between biodiversity and poverty (Roe, 2014). Furthermore, poverty as a driver of biodiversity loss is rarely defined (or understood) in terms of the diversity of actors or motivations involved. While our research focused on Bwindi, there are several lessons learned for other protected areas where the ICD approach is implemented to link protected area conservation with poverty alleviation.

- 1) The challenge of conducting research on individuals undertaking illegal activities in protected areas can be overcome by adopting a mixed-method approach: combining law enforcement records with indirect questioning. This research used this mixed-method approach to establish the profiles and motivations of users of resources in protected areas. This permitted identification of the types and combination of ICD interventions that contribute towards poverty alleviation and, by linking conservation with poverty, achieve the objectives of reducing threats to conservation and ensuring equitable benefit sharing;
- 2) In many protected areas, law enforcement patrols are used to collect data on the 'what and where' of unauthorised resource use. Understanding the 'who and why' of unauthorised resource use can enable conservation managers to identify the diversity of people and drivers involved with unauthorised resource use from international to local levels, and implement appropriately targeted law enforcement while improving livelihoods of the rural poor. This can also enable conservation managers to monitor changes over time in dependency on and use of natural resources by local people, and linkages between conservation and poverty alleviation;
- 3) Combining studies on resource users and governance enabled a greater understanding of the types of ICD interventions and target beneficiaries that will link conservation with poverty alleviation more effectively, and the local governance arrangements most appropriate for implementing ICD interventions.
- 4) Many reviews of the ICD approach have highlighted that interventions aiming to reduce rural poverty have little positive impact for conservation. Our research shows that local resentment over the inequity of costs and benefits from conservation was just as important a driver of illegal activities as rural poverty. This supports current developments at the international level that focus on equitable management of protected areas (for example Aichi Target 11 in the CBD Strategic Plan), as an ethical and moral obligation, but also a necessary condition for effective and sustainable conservation.

References

- Archabald, K. and L. Naughton-Treves (2001) Tourism revenue sharing around national parks in western Uganda: Early efforts to identify and reward local communities. *Environmental Conservation*. 23: 135–149
- Baker, J., Milner-Gulland, E.J. and Leader-Williams N. (2012) Park gazettement and Integrated Conservation and Development as factors in community conflict at Bwindi Impenetrable Forest, Uganda. *Conservation Biology*. 26 (1): 160–170.
- Baker, J. et al., (2013) Linking Protected Area Conservation with Poverty Alleviation in Uganda: Integrated Conservation and Development at Bwindi Impenetrable National Park. In J. B. Smith, ed. *National Parks*. Nova Science Publishers, Inc, pp. 47–103.
- Baker, J. (2004) *Evaluating the impacts of Integrated Conservation and Development at Bwindi Impenetrable National Park*. PhD Thesis, University of Kent, Canterbury, UK.
- Bitariho, R. (2013) *Natural resource management at Bwindi Impenetrable National Park*. PhD thesis, Mbarara University of Science and Technology, Uganda.
- Blomley et al., (2010) *Development AND Gorillas? Assessing fifteen years of integrated conservation and development in south-western Uganda*. IIED. Natural Resource Issue 23.
- Blomley, T. (2003) Natural resource conflict management: the case of Bwindi Impenetrable and Mgahinga Gorilla National Parks, southwestern Uganda. In eds Castro A.P. and Nielson E. *Natural resource conflict management case studies: an analysis of power, participation and protected areas*. Rome: FAO, 231–250.
- Borrini-Feyerabend et al., (2004) *Governance of protected areas: from understanding to action*. Best practice protected area guidelines series no 20, Gland, Switzerland, IUCN.
- Büscher, B. & Dietz, T. (2005) Conjunctions of Governance: the State and the conservation-development nexus in Southern Africa. *Journal of Transdisciplinary Environmental Studies* 4, 2: 1–15
- Butynski, T.M (1984) *Ecological survey of the Impenetrable (Bwindi) Forest, Uganda, and recommendations for its conservation and management*. Unpublished report, Wildlife Conservation Society.
- Clements, T., John, A., Nielsen K., An D., Tan S., and Milner-Gulland, E.J. (2013) Payments for biodiversity conservation in the context of weak institutions: Comparison of three programs from Cambodia. *Biological Conservation*. 157: 50-59.

- Cunningham, A.B. (1996) People, park and plant use: Recommendations for multiple use zones and development alternatives around Bwindi Impenetrable National Park, Uganda. People and plants working paper 6.
- Davies, R. (2013) The Basic Necessities Survey (BNS). Monitoring and Evaluation NEWS. Available at: <http://mande.co.uk/special-issues/the-basic-necessitiessurvey/>
- Dickman, A. J., Macdonald E. A. and Macdonald D.W. (2011) A review of financial instruments to pay for predator conservation and encourage human-carnivore coexistence. *Proceedings of the National Academy of Science of the United States of America*, 108: p13937-13944.
- EoH (2007) *Enhancing our heritage: Bwindi Impenetrable National Park*. IUCN, Gland Switzerland.
- FFI (2013) *Batwa cultural values in Bwindi Impenetrable and Mgahinga Gorilla National Parks*, Uganda. FFI, Cambridge.
- Garnett, S.T., Sayer, J. and Toit, J. (2007) Improving the Effectiveness of Interventions to Balance Conservation and Development : a Conceptual Framework. *Ecology and Society*, 12(1).
- Hamilton, A., Cunningham, A., Byarugaba, D. and Kayanja, F. (2000). Conservation in a region of political instability: Bwindi Impenetrable Forest, Uganda. *Conservation Biology*, 14 (6): 1722–1725
- Hazzah et al., 2014. Efficacy of Two Lion Conservation Programs in Maasailand, Kenya. *Conservation Biology*, 28 (3), 851–860.
- Harrison, M. (2013) *Penetrating the Impenetrable: establishing profiles and motivations of resource users at Bwindi Impenetrable National Park*. Masters thesis, Imperial College Conservation Department.
- Howard, P.C. (1991) *Nature Conservation in Uganda's Tropical Forest Reserves*. IUCN, Gland, Switzerland and Cambridge, UK.
- Hughes R.F.F. (2001) *Integrated conservation and development experience: A review and bibliography of the ICDP literature*. Biodiversity, IIED.
- IGCP (2012) Population of mountain gorillas in Bwindi determined by census. Available at: <http://www.igcp.org/population-of-mountain-gorillas-in-bwindi-determined-by-census/>
- Lachapelle, P. (2008) A Sense of Ownership in Community Development: Understanding the Potential for Participation in Community Planning Efforts. *Community Development*, 39(2), pp. 52-59.

- Larson, P., Freudenberger M. and Wyckoff-Baird B. (1997) *Lessons learnt from the field: a review of World Wildlife Fund's experience with integrated conservation and development projects 1985–1996*. World Wildlife Fund, Washington D.C., USA.
- Linkie et al., (2008) Evaluating Biodiversity Conservation around a Large Sumatran Protected Area. *Conservation Biology*, (22), 3: 683–690.
- Mackenzie, C., Chapman, C.A. and Sengupta R. (2011) Spatial patterns of illegal resource extraction in Kibale National Park, Uganda. *Environmental Conservation*, 39 (1): 38–50
- Mugerwa, B. (2012) Poachers and hunting dogs on Bwindi's candid cameras. Available at: <http://bwindiresearchers.wildlifedirect.org/2012/09/17/poachers-and-hunting-dogs-on-bwindis-candid-cameras/>
- Nuno, A. et al. (2013) A Novel Approach to Assessing the Prevalence and Drivers of Illegal Bushmeat Hunting in the Serengeti. *Conservation Biology*, 27(6), p1355–1365
- Naughton-Treves, L. (1998) Predicting patterns of crop damage by wildlife around Kibale National Park, Uganda. *Conservation Biology*. 12:156–168
- Plumptre et al., (2014) Efficiently targeting resources to deter illegal activities in protected areas. *Journal of Applied Ecology*, 51 (3): 714–725.
- Plumptre, A.J. et al. (2004) *The socio-economic status of people living near protected areas in the Central Albertine Rift*. Albertine Rift Technical Reports 4.
- Roe, D. & Elliott, J. (2005) Poverty-Conservation Linkages: A Conceptual Framework. *Poverty and Conservation Learning Group*.
- Sandker, M. et al., (2009) Exploring the effectiveness of integrated conservation and development interventions in a Central African forest landscape. *Biodiversity and Conservation*, 18(11), pp.2875–2892
- Sandbrook, C. and Roe, D (2010) *Linking conservation and poverty alleviation: the case of great apes*. IIED Poverty and Conservation Learning Group Discussion Paper, International Institute for Environment and Development.
- Shirkhorshdi, M. (2013) *Local community perceptions on natural resource governance at protected areas: Understanding factors critical to the success of Integrated Conservation and Development*. Masters thesis, Imperial College Conservation Department.
- Smith, R.J. and Walpole, M.J. (2005) Should conservationists pay more attention to corruption? *Oryx*, 39: 251–256.
- Suich, H. (2013) The effectiveness of economic incentives for sustaining community based natural resource management. *Land Use Policy*, 31: 441–449.
- Tukahirwa, E.M. and Pomeroy, D.E. (1993) *Bwindi Impenetrable Forest Baseline Study Report*. Makerere University Institute of Environment and Natural Resources.

Tumusiime, D.M. and Vedeld, P. (2012) False promise or false premise? Using tourism revenue sharing to promote conservation and poverty reduction in Uganda. *Conservation & Society*, 10 (1): 15–28.

UNEP-WCMC Bwindi Impenetrable National Park Factsheet. Available at: http://bioval.jrc.ec.europa.eu/PA/pa/61609/frame_61609.html

Secretariat of the Convention on Biological Diversity (2011) *Livelihood alternatives for the unsustainable use of bushmeat*. Report prepared for the CBD Bushmeat Liaison Group. Technical Series No. 60, Montreal, SCBD, p46.

Wieland M. and Bitariho R. (2013) *Assessing 15 years of projects by the Bwindi and Mgahinga Conservation Trust*. ITFC, Uganda.

Wilson, R. (2002) *PRIVATE PARTNERS AND THE PUBLIC GOOD*, Belfast. Available at: <https://www.belfastfestival.com/schools/SchoolofLaw/Research/InstituteofGovernance/Publications/briefingpapers/Filetoupload,47662,en.pdf>

Waylen, K.A et al., (2013) Effect of Local Cultural Context on the Success of Community-Based Conservation Interventions. *Conservation Biology*, 24 (4): 1119–1129.

Appendices

Appendix 1 Research Methodology

Unmatched Counting Technique

The Unmatched Counting Technique (UCT) was employed to estimate prevalence of unauthorised resource use amongst local people neighbouring Bwindi and determine social and economic profile characteristics of people most likely engaging with unauthorised resource use. This indirect questioning technique was adopted primarily because it avoids any ethical issues associated with the sensitive topic of unauthorised resource use at protected areas. It also adds variety to a standard questionnaire by asking participants to choose between different cards.

The UCT was designed to examine unauthorised resource use during the past year from when the fieldwork was undertaken during the summer of 2013. Six forest resources were selected for the UCT. The selection process was undertaken by the research team with technical support from Stephen Asuma, Country Officer for IGCP with extensive experience of community conservation at Bwindi. The selection criteria included forest resources that were considered to be most desired by local people and represent a range of conservation considerations (Table A1). Conservation considerations included both authorised and unauthorised resources to enable comparisons between levels of use by local people.

Table A1. Resources selected for the Unmatched Counting Technique assessment

| Resource selected for UCT | Authorised? | Conservation Consideration |
|---------------------------|-------------|--|
| Bushmeat | No | Bushmeat hunting in Bwindi is prohibited under national park status; bushmeat hunting has been identified as a primary threat to Mountain gorillas because gorillas can become accidentally caught in snares set for bushmeat species (e.g. duiker) or injured or killed during an accidental encounter in the forest with hunters and/or their dogs |
| Firewood | No | Firewood collection from Bwindi is prohibited under national park status; law enforcement rangers report that firewood collection commonly occurs and that most firewood collection is along the national park boundary; collection of firewood in itself can be considered as a relatively minor threat to conservation although consistent high levels contribute to biodiversity loss through encroachment of the forest. |
| Medicinal plants | Yes | Medicinal plant collection within exterior areas of the national park is authorised in certain parishes neighbouring Bwindi; medicinal plant collection was authorised because of its low conservation impact; it is considered to be a highly desired resource by local people. |
| Building poles | No | Collection of timber for building poles is prohibited under national park status; building pole collection is typically for homestead construction and can pose a greater threat to conservation than firewood collection because larger tree species in the interior of the national park are involved. |
| Honey | Yes | Harvesting bee hives within exterior areas of the national park was the first resource use to be authorised under the Multiple Use Programme for certain parishes neighbouring Bwindi; honey is considered to be a highly desired resource by local people. |

| Resource selected for UCT | Authorised? | Conservation Consideration |
|---------------------------|-------------|--|
| Basketry materials | Yes | Harvesting basketry materials within exterior areas of the national park is authorised in certain parishes neighbouring Bwindi; collecting basketry materials was authorised because of its low conservation impact; the materials are considered to be a highly desired resource by local people. |

The UCT methods and analyses used for this research are detailed in Harrison (2013). The UCT was undertaken as part of a household questionnaire with known resource users (both authorised and unauthorised) and a sample of local people neighbouring the national park.

Household questionnaire

The aims of the household questionnaire were to identify social and economic characteristics of unauthorised and authorised resource users and to explore local perceptions of ICD governance. The questionnaire first covered questions on household population, livelihoods, education, health and wealth. With permission from Conservation Through Public Health, questions to assess health were adapted from household questionnaires used by this NGO to monitor the health status of local communities of Bwindi. Two indicators of wealth were employed.

Firstly, the Basic Necessity Survey (BNS) (Davies, 1997) where possession, or lack of basic necessities indicates poverty. The basic necessity items for the questionnaire were devised by the research team in discussion with local residents. Secondly, household size and construction type, which were combined into a score that was based on discussions with local residents on the size and construction types that most likely indicated wealthier households. To explore local perceptions of ICD governance at Bwindi and add to data collected by focus group discussions, participants were asked to list all ICD interventions that they were aware of. For each project, they were asked what impact the project had on them (Bad, No change, Benefit), how involved in the project design and implementation they felt they had been (None, A little, Some, A lot) and what sense of ownership they felt over the project (None, A little, Some, A lot).

Local people's perceptions of positive and negative conservation-poverty linkages were explored. For purposes of this research, positive linkages were defined as the contribution that conservation efforts at Bwindi make towards poverty alleviation and negative linkages as factors relating to the establishment and maintenance of Bwindi Impenetrable National

Park that exacerbate poverty. People's perceptions on these linkages were examined from answers to two different questions: the Basic Necessity Survey and quality of life. For both of these questions, respondents were asked to describe their current status and then explain their answers describing any influence from or links with the national park. We cross-referenced these answers with comments on these issues during focus group discussions in order to triangulate and verify the findings. Homestead location of each participant was recorded by a Geographical Positioning System in order to calculate the straight-line distance from the homestead to the national park boundary using ArcGIS software. Results referring to 'people living' reflect their homestead location (as opposed to land ownership).

The questionnaire was undertaken with unauthorised resource users, authorised resource users of Bwindi and a sample of local people neighbouring the national park. Unauthorised resource users were identified from law enforcement patrol data of Bwindi. Firstly, the Community Conservation Warden of Bwindi supplied a list of local people who had been arrested for hunting in Bwindi. The research team verified this list by checking law enforcement patrol records of arrested individuals during the past two years (from the date of fieldwork). All of these bushmeat hunters were interviewed. Secondly, the research team developed a datasheet for law enforcement rangers to record basic details (including name and home residence) of individuals they arrested for unauthorised resource use. The research team with Community Conservation Rangers verified these data.

Individual residents in a parish neighbouring Bwindi who were arrested between September 2012 to February 2013 were interviewed. This method of identifying unauthorised resource users only identified unauthorised resource users that had been *arrested* for unauthorised resource use. Profile data from UCT represented all unauthorised resource users. Therefore, comparing profiles of arrested unauthorised resource users with profiles from UCT was undertaken to overcome limitations of both approaches and enable greater confidence in the results.

Authorised resource users (n=72) to interview were randomly selected from the Uganda Wildlife Authority's list of Authorised Resource Users (n=630) at Bwindi. From villages of authorised and unauthorised resource users, a stratified random sample of local people neighbouring the national park were selected for interview (n=240). These individuals were not authorised resource users, had not been arrested for unauthorised resource use between September 2012 to April 2013 and had not been recorded by law enforcement rangers as arrested for bushmeat hunting during the past two years. A total of 365 people were interviewed between May to August 2013. Full details of the household questionnaire and statistical analyses to determine resource user profiles and local perceptions on ICD governance are given in Harrison (2013).

Focus group discussions

The aim of these focus group discussions was to explore local perceptions of what motivates people to undertake unauthorised resource use within Bwindi. Focus groups were held with stretcher groups of communities neighbouring Bwindi. Stretcher groups are informal governance institutions, usually made up of members of the same clan living in the same locality. Every person in a community will be a member of a stretcher group, as the members provide support to each other in times of need, as well as setting a moral code and giving guidance as to how to behave. Stretcher groups were selected because the groups represent the range local community members neighbouring Bwindi and have extensive knowledge of these communities. In the villages where a high number of household questionnaires had been undertaken, 17 stretcher groups were randomly selected from lists provided by village chairmen. Focus groups were held with representatives of these 17 stretcher groups. Each focus group followed the same format: participants discussed motivations of unauthorised resource use by local people and then ranked motivations in order of what motivates people the most, i.e. in order of the number of community members who went to the national park for that reason.

Focus group discussions were also held with Bwindi's three Reformed Poacher Associations (RPA). These were Mpungu RPA, Kiyebe RPA and Rubuguri RPA. The RPAs are community groups composed of self-confessed members of community denouncing bushmeat hunting. The first group was formed by 87 members from Mpungu parish and aim at wooing more bushmeat hunters into their association. The community conservation department has sensitised more communities around Bwindi to denounce hunting and form more groups and support conservation.

As a result, two more groups have been formed. In contrast to stretcher groups when all unauthorised resource use was discussed, RPA focus groups only discussed bushmeat hunting. These groups were asked why they used to hunt bushmeat and why some people still hunt. Participants then ranked their answers to the first question in order of why most people used to hunt. The focus group discussion methodology and statistical analysis used to determine local peoples' perspective on motivations of unauthorised resource use are detailed in Harrison (2013).

Exploring local perceptions on governance of ICD

Focus group discussions were held with four established Bwindi community groups (Table A2); chosen to represent key community groups who interact with national park staff and ICD practitioners. Six to eight members of each group that represented the wider community (i.e. differing in terms of age, gender, livelihoods and so on) were invited to attend the focus groups. A total of 19 focus groups were held of which four were with village-level governments (LC1) and five with each of the other groups.

Table A2. Established community groups selected for focus group discussions

| Community Group | | Means of selection |
|-------------------------------------|---|--|
| Resource User Committees (RUC) | Parish level committees responsible for the management of the MUP. | Randomly selected from the list of RUCs provided by ITFC. |
| Stretcher groups | Community groups whose main function is for health emergency services; the groups also provide small-scale services including credit and saving schemes and funeral and burial services. They have strict rules, regular meetings, are well organised and respected within the community (Wild & Mutebi, 1996). | Information on stretcher groups was gathered in the field with assistance from the LC2 chairman for each parish; stretcher group were selected random. |
| LC1 | Village-level government structures. | Information on LC1s was gathered in the field with assistance from the LC2 chairman for each parish; LC1s were selected at random. |
| Human Gorilla Conflict Force (HUGO) | Voluntary groups who work with park authorities collecting crop raiding data. and helping community to chase out forest animals from community lands. | Randomly selected from the list of HUGOs provided by ITFC. |

The discussions were in three parts, each with a series of questions to explore perceptions and experience of ICD governance by local communities neighbouring Bwindi. Part one explored how communities define involvement and ownership of ICD projects. Part two explored which of the ICD projects the communities perceived to have been successful and which unsuccessful. Part three comprised a structured set of questions based on the format of an economic choice experiment where participants were presented with six approaches to governance of ICD. Participants were asked to

select the approach to ICD governance that local communities most prefer, and then the approach that local communities had experienced. Cards with a visual illustration of each governance approach were presented for clarity on what each approach entailed. Questions for the focus group were piloted with eight participants in Mushanje parish and refined in response to feedback from the pilot. All focus groups were asked for the views of communities neighbouring Bwindi, not the views of their specific group. Data from focus group discussions were coded for qualitative analysis. Results of governance preferences were scored based on participants' ranks using the Pareto distribution law (Tanizaki 2004). For each focus group, a value between 0–100 was given to each preference based on the communities ranking using:

$$V_{(n)=xr(n)}^{-1}$$

Where for each FGD:

$$\sum V_{(n)=100}$$

Where V is the value given to each option, n is the option number and r is the rank given by the community. Where respondents chose more than one option without ranking, the total value of 100 was divided equally between the chosen options. The total score for each preference was calculated by summing the values and dividing by the highest possible rank to give a value between 0 to 1. The option with the highest score (i.e. closest to 1) was the option most selected as the preferred option by focus groups.

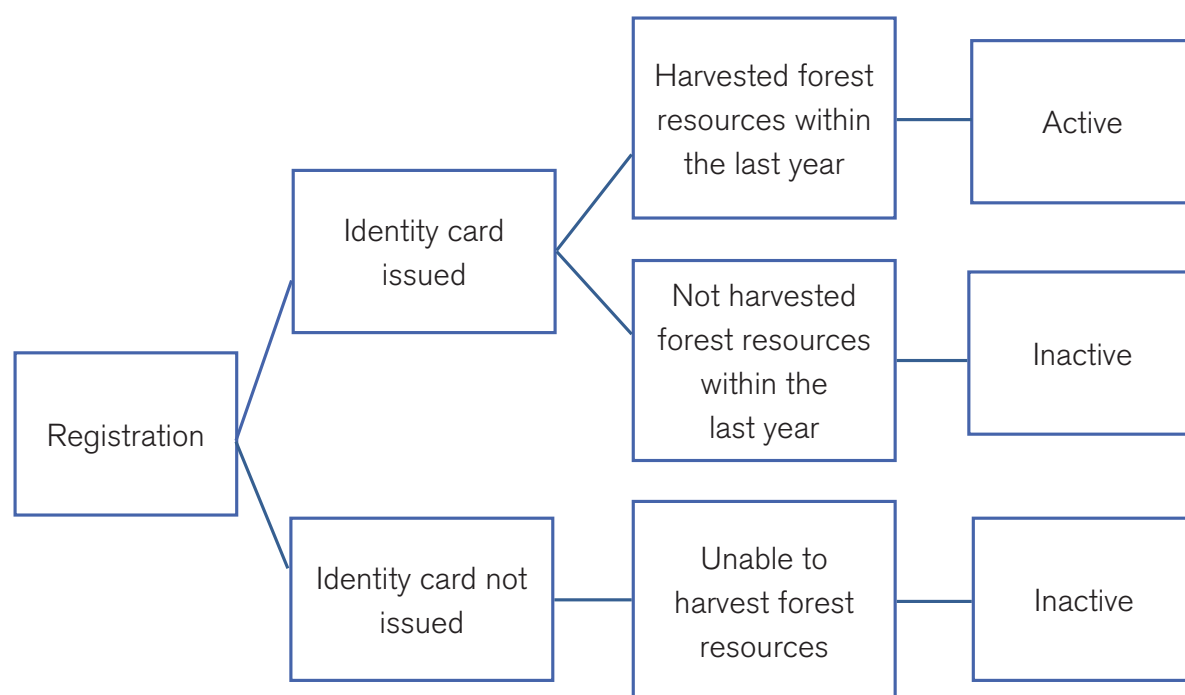
Exploring local perceptions on governance of Bwindi's Multiple Use Programme

Semi structured interviews using questionnaires were used to explore perceptions by Authorised Resource Users of governance of the Multiple Use Programme. Authorised Resource Users were selected at random from a list of 634 Authorised Resource Users provided by UWA. The questionnaire comprised seven sections. The first five were designed to identity socio-economic characteristics of Authorised Resource Users using the same questions as the household survey. Sections 6 and 7 explored Authorised Resource Users' perceptions and experience of governance of the MUP. The questions included whether participants felt involved in the decision-making process, what they valued most from the programme and what factors discouraged them from harvesting resources. When the interviews started, it became apparent that some participants had been registered for the MUP by UWA but never received an identity card or their identity cards had not been renewed.

This meant that they could not harvest resources inside the national park, as an identity card is required by law enforcement rangers. It was also apparent that other participants

with identity cards had not been to the national park to harvest resources during the last year. To assess these specific aspects of governance (i.e. administration of identity cards) and inactivity (i.e. those with identity cards not harvesting forest resources), categories of harvesters were developed. Firstly, authorised resource users with identity cards and able to benefit from the MUP or authorised resource users who never received an identity card. For authorised resource users with identity cards, a sub-category was assigned of active harvesters (defined as individuals who had harvested resources from the national park during the last year) and inactive harvesters (defined as individuals who had not harvested resources from the national park during the last year) (Figure A1). The period of one year to define active and inactive harvesters was chosen based on two harvest seasons of the Multiple Use Programme. There were participants collecting resources of the Multiple Use Programme without registration or an identity card, which was explained to be on behalf of an authorised resource user. These participants were omitted from the study, as it was not possible to verify their harvester status.

Figure A1. Categories of Active and Inactive Authorised Resource Users



Qualitative data analysis was undertaken using grounded theory with data coded and arranged using Nvivo 10. Quantitative analysis, using R Studio, included applying the Chi squared test for categorical variables, the t-test for continuous variables and the Mann-Whitney U test for not normally distributed variables to determine:

- Significant differences between the profiles of registered harvesters who have and have not been issued with identity cards.

- Significant differences between the profiles of registered harvesters with identify cards who are and are not active harvesters.

Pilot testing

Before all surveys started, meetings with parish and village officials were held to introduce the research and formally seek approval. All surveys were pilot tested with local residents around Bwindi and refined in accordance with results of the pilot test. Surveys were undertaken by the researcher and research field assistants who spoke the local language of Rukiga. At the start of a survey, all participants were given an introduction to the objectives and purpose of the research, assured of the anonymity and confidentiality of the survey and given reimbursement in accordance with the ITFC procedures. Limitations of this type of social conservation research include misinterpretation of terms and concepts when questionnaires are translated into the local language and answers are translated into English. To overcome these limitations, the research team discussed and agreed meanings and interpretations of all survey questions, especially to avoid leading questions or giving prompts for answers. The team also agreed the level of detail to be translated.

After each survey, the team discussed the responses to check translations of the answers given by the participant. In addition, a process for validating the translations was employed: participants selected at random were asked permission to record the interviews; a senior ITFC researcher assessed the recordings against the field translations to check that field translations were consistent and accurate. Recording an interview without the field assistant knowing was not possible. Hence, during recorded interviews, the field assistant might have been more vigilant in the translations. Nonetheless, given the pre and post interview checks by the field team and the crosschecks of the recordings, the translations were considered to be consistent and representative.

Appendix 2 Research team and project partners

'Research to Policy: Building capacity for conservation through poverty alleviation' is a three-year project (2012–2015) coordinated by the International Institute of Environment and Development (IIED). The Institute for Tropical Forest Conservation (ITFC) leads the research component with support from Imperial College Conservation Science as Scientific Advisor. Advocates Coalition for Development and Environment (ACODE) is developing and delivering the capacity building programme in collaboration with the Jane Goodall Institute-Uganda (JGI), as conveners of U-PCLG. The project was launched in July 2012 with a Project Inception Workshop in Kampala, Uganda (U-PCLG, 2012).

Medard Twinamatsiko was the Lead Researcher with technical support given by Robert Bitariho (ITFC Director). ITFC received support from IIED's Research Advisor, Julia Baker (Parsons Brinckerhoff), and from a conservation community specialist Michelle Wieland who designed an ACCESS database for storage of the field survey data. Andrew Kirkby completed the maps and distance analysis in a Geographical Information System. ITFC's field assistants who assisted with the field surveys were Marion Birungi, Robert Mujuni, Janine Kyomugisha, Savio Ngabirano, Benon Twehikire, and Christopher Byaruhanga. The camp keepers were Peter Mukasa and Innocent Byamukama and the drivers were Ntegyereize Richard and Aulerian Kabare.

Professor EJ Milner-Gulland (Imperial College Conservation Science) gave technical support and advice throughout the research. Two Imperial Conservation Science Master students, Mariel Harrison and Mahboobeh Shirkhorshidi, undertook research to complement and add to the study and data analysis. Mariel undertook focus group discussions on motivations of unauthorised resource use and completed all of the data analysis. Mahboobeh undertook focus group discussions on governance of ICD and interviews with Authorised Resource Users for the specific case study on governance of the Multiple Use Programme, and completed the statistical analysis for the governance study.

IIED

IIED is an international policy research institute and non-governmental body working for a more sustainable and equitable global environment. IIED works globally through a wide range of long-standing relationships with partners across the developing world. Its partnerships generate close working relations with many key national and international development actors at the grass roots level. This emphasis on collaboration with partners and networks enable IIED to link local development priorities to national and international policy making.

| | |
|--------------------------|--|
| ITFC | Institute of Tropical Forest Conservation (ITFC) is a leading research institution located in Bwindi Impenetrable National Park, Uganda. ITFC has 22 years of experience in ecological and sociological research and monitoring for tropical forest conservation and with increasing interest and capacity in anthropogenic influences on conservation. ITFC was established in 1991 as a postgraduate research institute of Mbarara University of Science and Technology (MUST) and is based in Bwindi Impenetrable National Park in Southwest Uganda. The major focus of ITFC is to support and undertake research, monitoring and capacity building of Ugandans and others; to bolster conservation understanding and practice in the Albertine Rift region and beyond. ITFC has participated closely in many social researches. ITFC's mission is: to lead in the implementation of biological and social research and training that furthers conservation and management of Albertine Rift forests and biodiversity. In addition, building capacity in Uganda is fundamental to all aspects of ITFC's work. |
| ACODE | ACODE is a long term partner of IIED and convenes the Uganda team in the Forest Governance Learning Group managed by IIED. ACODE, as a public policy research and advocacy think tank in Uganda, empowers people to shape public policies so that they support sustainable development. Through evidence-based policy research, ACODE builds capacity in Uganda by arming citizens with the knowledge and information that they need in order to make sustainable choices in business, governance and leadership. |
| JGI | JGI-Uganda is an international NGO locally registered in Uganda. Its primary goal is to maintain a viable population of chimpanzees living in peaceful co-existence with human populations through conservation education, habitat protection and promoting chimpanzee welfare. The habitat protection is achieved through community centred conservation, an approach that integrates conservation and development. JGI-Uganda has worked with IIED since 2010 on poverty-conservation issues including scoping the need for, establishing and convening a sub-Group of IIED's PCLG – the Uganda Poverty and Conservation Learning Group. |
| Imperial College, London | Imperial College's Conservation Science Group's wide-ranging interdisciplinary conservation research includes the interface between ecology and human behaviour with primary themes of incentives and attitudes of natural resource users, social-ecological system dynamics and management of natural resource use. |
| Parsons Brinckerhoff | Parsons Brinckerhoff is a global consulting firm assisting public and private sector clients to plan, develop, design, construct, operate and maintain critical infrastructure projects around the world. Our extensive environmental capabilities include specialist biodiversity services. These range from research to training to practical on-the-ground support, through which we add value to projects by our clients and seek to make a significant contribution towards conservation of the natural world. |



Knowledge
Products

Research Report

August 2014

Biodiversity; Poverty

Keywords:

Protected Areas, Resource use,
Livelihoods, Bwindi Impenetrable
National Park, Uganda, Equity

Bwindi Impenetrable National Park, southwest Uganda, is home to around half the world's population of critically endangered Mountain gorilla and is situated in one of the poorest and most densely populated regions of Africa. Integrated Conservation and Development (ICD) initiatives have been promoted as a way of protecting the park while also improving the livelihoods of local people. But while some have been successful, many have been criticised for failing to reduce threats posed by unauthorised resource use.

This research sought to understand who continues to use Bwindi's resources illegally and why, despite ICD. We found that local feelings of injustice over national park conservation were as important a driver as rural poverty, and the more involved in decision-making people felt, the more benefit from an ICD intervention they reported. Our findings support current developments at the international level that focus on equitable management of protected areas not only as a moral obligation, but also as a necessity if conservation efforts are to be effective and sustainable.

IIED is a policy and action research organisation. We promote sustainable development to improve livelihoods and protect the environments on which these livelihoods are built. We specialise in linking local priorities to global challenges. IIED is based in London and works in Africa, Asia, Latin America, the Middle East and the Pacific, with some of the world's most vulnerable people. We work with them to strengthen their voice in the decision-making arenas that affect them – from village councils to international conventions.

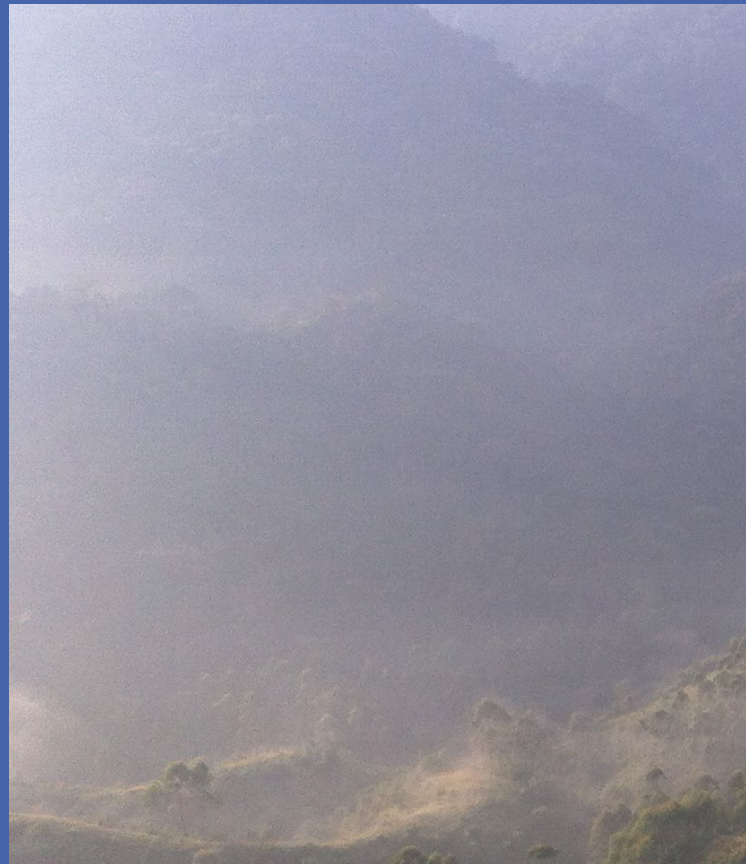
IIED coordinates the Poverty and Conservation Learning Group (PCLG). Its first national chapter was established in Uganda in 2011 to bring together Ugandan conservation and development practitioners to share experiences and work together to better inform policy and practice.



International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK

Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
email: info@iied.org

povertyandconservation.info



Bwindi Impenetrable National Park, Uganda: Mariel Harrison



Department
for Environment
Food & Rural Affairs

This project is funded through the UK Government's Darwin Initiative, which assists countries that are rich in biodiversity but poor in financial resources to implement their commitments under the international biodiversity conventions. It is also part funded by UKaid from the UK Government, however the views expressed do not necessarily reflect the views of the UK Government.