Section 4: Threats to chimpanzees

Chimpanzee missing foot due to snare injury. T.Furuichi.

Introduction

Across Africa chimpanzee populations are rapidly declining due to hunting for bushmeat and/or the loss and fragmentation of habitat. Ugandan's for the most part do not eat chimpanzees and consequently the threat from the bushmeat trade is less than in other countries (but the threat does exist at some sites - see below). The fact that chimpanzees are not eaten in Uganda means that they are generally tolerant of human presence. Because of this Uganda's chimpanzees can be readily habituated for viewing for research and tourism purposes. Rwanda, Burundi and Tanzania are in a similar position but the chimpanzee populations in these countries are much lower than in Uganda. Hence Uganda is the best country in the world to view wild chimpanzees. The Ugandan government, therefore, should be enhancing its opportunities to market chimpanzee tourism. Ensuring that the value of chimpanzees is clearly understood at all levels- from local people to politicians – will go a long way towards reducing threats and improving their chances of long term survival in Uganda. This section reports on the threats the survey teams encountered both to chimpanzees and the forest integrity.

Encounter rates of threats from surveys

During the chimpanzee and other large mammal surveys evidence of human activity in the forests was also recorded (see section 2 – censusing chimpanzees). Encounter rates per kilometre walked were calculated for all signs of human activity. Encounter rates associated with pitsawing (pitsaw pits, stacked timber, cut trees for props, porters carrying timber, campsites for pitsawyers) and hunting (snares, pitfall traps, skinned animals, hunters encountered, nets, dogs) were summed to provide a measure of the relative abundance of these two threats. Any site where farming or charcoal burning was taking place was taking place in the forest was also noted and referenced spatially using GPS (Garmin II plus).

Hunting of bushmeat

Bushmeat hunting occurs in all the forests surveyed. In many of the forests the predominant signs of hunting are the presence of snares and pitfall traps, although in some forests hunting with nets and dogs is more common. It partly depends on the level of law enforcement by the Uganda Wildlife Authority or Forest Department. Hunting with dogs and nets occurred in the forests that were more remote, and less intensively visited by staff. These forests included Kasyoha-Kitomi, Kagombe and Kitechura.

Figure 4.1 shows the relative intensity of hunting sign in the various forests surveyed. This figure shows that Bugoma and Budongo forests have the highest levels of bushmeat hunting, particularly along their southern edges where the human population density is higher. The Forest Department does not have the resources to provide protection and patrols to stop bushmeat hunting unlike national parks, and although hunting of most species is illegal they do not have the manpower to be able to control it in their forests. Many of the national parks surveyed had lower signs of hunting although Ruwenzori Mountains was an exception to this rule.

Signs of large mammals are few in these forests and appear to be lower than the number of signs encountered in the mid 1980s when surveyed by Peter Howard (Howard 1991). Certain species, notably elephant, buffalo and

bushbuck occur at very low densities where they are found. In Budongo forest, where the Murchison Falls National Park borders the northern edges of the forest, the sign of ungulates increases the nearer to the park you go indicating that distance from human habitation may be important in reducing hunting pressure. Few forests have more than about 10 km from the edge to the centre of the forest and this distance is easily walked by hunters setting snares.

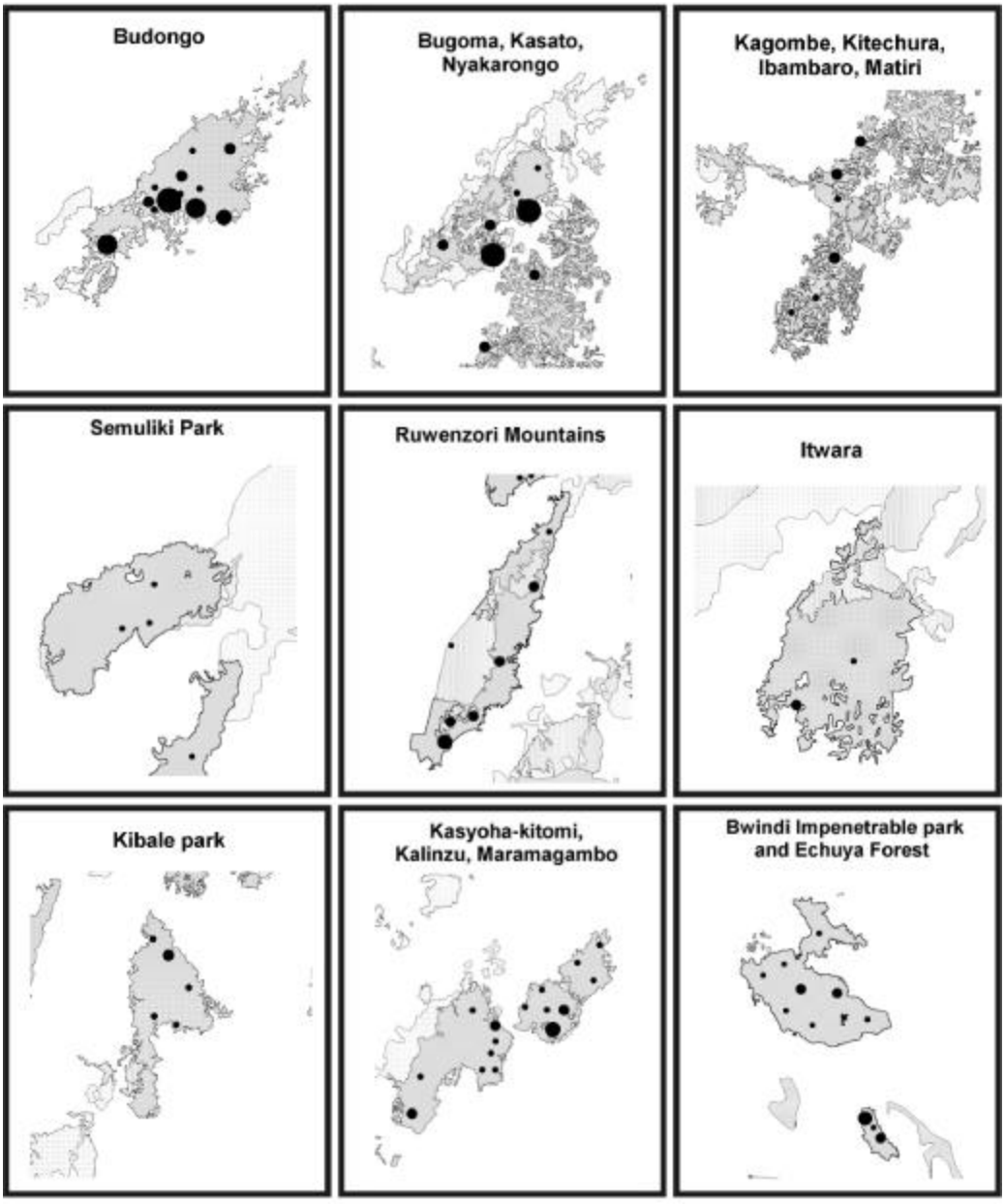

Figure 4.1 Hunting sign (encounter rate per km walked) in each of the forests surveyed. The larger the circle, the larger the encounter rate. Signs include snares, pitfall traps, hunters encountered, dogs and nets.

Deliberate hunting of chimpanzees was rare but does occur in some of these forests (Table 4.1). Ruwenzori Mountains National Park was the only forest where chimpanzees were regularly hunted for the consumption of their meat. One person admitted to hunting chimpanzees for meat in Kagombe Forest but this was the only case and he was an immigrant from Congo. Although chimpanzees are not targeted in the other forests by hunters they are still very much affected by the indiscriminate effects of snaring.

Table 4.1 Forests where hunting of chimpanzees specifically occurs. The method used to hunt and the reasons why they are hunted are given. Where chimpanzees are not specifically targeted by hunters is indicated with 'Not targeted'.

Forest	Method to hunt	Why hunted
Budongo FR	Not targeted	
Bugoma FR	Spears/bows	For Crop raiding
Kagombe FR	Spears/bows	For Crop raiding
Itwara FR	Not targeted	
Semuliki NP	Not targeted	
Ruwenzori NP	Snares, dogs and nets, spears/bows	For meat consumption locally
Kibale NP	Spears/bows	For dog meat and crop raiding
Kasyoha-Kitomi FR	Dogs and nets	For dog meat
Kalinzu FR	Snares	For dog meat and body parts (witchcraft)
Maramagambo Forest	Not targeted	
Bwindi Impenetrable NP	Not targeted	

Setting of snares indiscriminately kills or maims other animals, including endangered species. Many chimpanzees in Budongo and Kibale forests have lost feet or hands because of snare injuries (between 25-35% of the population of habituated animals). Consequently a strategy addressing this issue is urgently needed if species being affected by snaring are to survive in these forests. Large mammals are known to have important effects on the structure

and composition of forests through selective browsing and seed dispersal (Plumptre, Reynolds and Bakuneeta 1994). In Budongo Forest for instance it is believed that elephants have strongly influenced tree composition within the forest (Sheil 1996; Laws, Parker and Johnstone 1975). Over time, loss of these large mammals would therefore alter the whole composition and ecology of certain forests affecting all biodiversity currently found in these forests.

Timber harvesting

Harvesting of trees for timber is legal in several forest reserves, notably Budongo, Bugoma, Kalinzu and Kasyoha-Kitomi. Much of the harvesting is carried out using pitsawing rather than sawmills and is only legal in certain compartments. Illegal logging occurs in many of these forests, particularly those with valuable timber species, the mahogany species *Khaya* and *Entandrophragma*, found in Budongo and Kalinzu. Illegal logging sometimes takes place at night and is very difficult to control with the small number of staff Forest Officers have available to them. Consequentlythere was evidence of illegal timber extraction throughout many of these forests (Figure 4.2).

Tackling illegal logging is of primary concern if these forests are to be managed for timber production in future. At present there is a push by the Forest Department to increase the number of species harvested in the forests to make sustainable management more financially viable. Including more species and increasing extraction will lead to even greater pressure on the forest resource, particularly if illegal logging cannot be controlled. Studies indicate that chimpanzees can survive in forests that have been selectively logged. The disturbance and openings in the forest resulting from selective logging offer increased opportunities for tree species that provide fruit for these animals, notably figs (Plumptre et al. 1997, Plumptre and Grieser-Johns, 2001; Plumptre and Reynolds, 1994). However, where logging has taken place the density of chimpanzees is often lower than in mature forest (Plumptre and Reynolds, 1994; Struhsaker, 1997).

There is potential to establish community management of timber harvesting in these forests to provide incentives to the local people to manage the forest

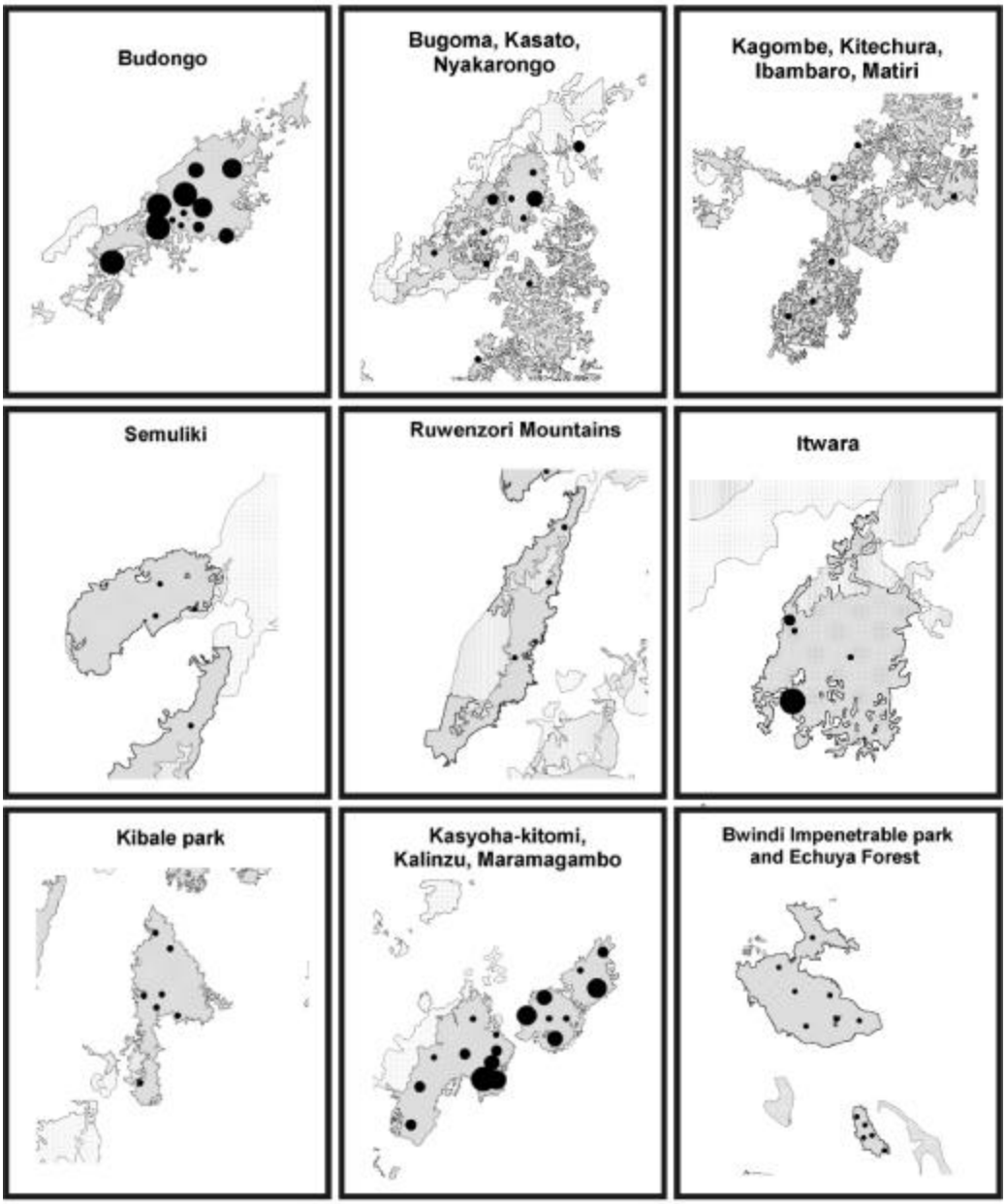

Figure 4.2 Timber harvesting sign (encounters per kilometre walked). Sign includes pitsaw sites, stacked timber, felled trees and pitsaw camps.

rather than illegally harvest the trees. However, there are certain issues that need to be examined carefully before collaborative management is established. These include:

1. Who is carrying out illegal logging? Often people from south west Uganda are brought in to pitsaw in the forests. Apparently they work harder because they want to return home and so will finish the job more quickly. The people bringing them in may be local politicians or businessmen and these people together with the local communities must be included in any collaborative management if it is to be successful. As people in villages realise more power under the decentralisation process they may become stronger at tackling these 'big men' but for the moment this is unlikely in many sites.
2. Where are the local community from? For instance around Budongo Forest 70% of the local community come from elsewhere in the country (mainly Nebbi, Arua, Lira and Democratic Republic of Congo). If you talk with these people you find that few of them consider themselves residents (even if they have lived there most of their lives) and all plan to return to their home area in the future. Consequently planning long term management of forests with people who do not expect to remain in the area may be futile. Similarly many people around Kasyoha-Kitomi come from around Kabale-Kisoro and have homes in both places.
3. How will revenue from timber extraction be shared within the community and how will funds be managed for the community as a whole. While pitsawing is hard work and people carry out the activity because of the personal benefits it affords them only a few individuals benefit directly with the community only benefiting indirectly from the 'trickle down' effect of increased cashflow in bars, restaurants and shops for example. The management of timber profits and the appropriate allocation will be crucial if collaborative management is to succeed.
4. How will timber harvesting be managed with local communities? There is a real need for reduced impact logging techniques in the tropical high forests to minimise damage and encourage regeneration. Many of these techniques are known and available. Training of pitsawyers is needed and incentives developed to ensure that the techniques are implemented correctly.

Charcoal burning

The use of timber resources for charcoal burning is also having a impact on the forest reserves. In the past charcoal burning was legal in certain forests but today it is illegal in tropical high forest (At the time of the survey a small trial was being made in Kalinzu to determine if it could be reintroduced there). However it still goes on illicitly. Figure 4.3 shows the relative abundance of charcoal burning sites within each of the forests surveyed. It is clear that this activity is far less widespread than bushmeat hunting and illegal timber harvesting and is primarily occurring in Kasyoha-Kitomi and Kalinzu forest reserves, although in Kalinzu one of the sites was legal charcoal burning.

Charcoal burning has the potential to cause more damage than timber harvesting, if not carefully controlled, as people are less selective in the tree species they harvest for charcoal. There is increasing demand for charcoal in Uganda, particularly in the large towns and cities. The impacts of charcoal production on chimpanzees are unknown. Charcoal production should be concentrated in plantations rather than natural forest wherever possible as in the long term the wood resources in natural forest will not be sufficient to meet demand.

Encroachment

The greatest impact on the forests occures where the forest has been encroached for farmland. Encroachment was particularly intense in south east Kasyoha-Kitomi Forest where an area of at least 10 km^2 had been cleared for agricultural use (Figure 4.4). The Forest Department has since evicted these people. This is in an area where the human population density is not particularly high but soil fertility is low, and declines rapidly following deforestation. Improved farming techniques and soil enrichment is necessary to ensure that people do require more forest.

Encroachment is resulting in the loss of critical chimpanzee habitat. The greatest conversion of forest to agriculture however is currently taking place outside the forest reserves. Analysis of satellite imagery from the mid 1980s

and 2000/2001 indicates that approximately 800 km^2 of forest has been lost in chimpanzee habitat areas in Uganda (Plumptre, 2002). This is almost twice the area of Budongo Forest

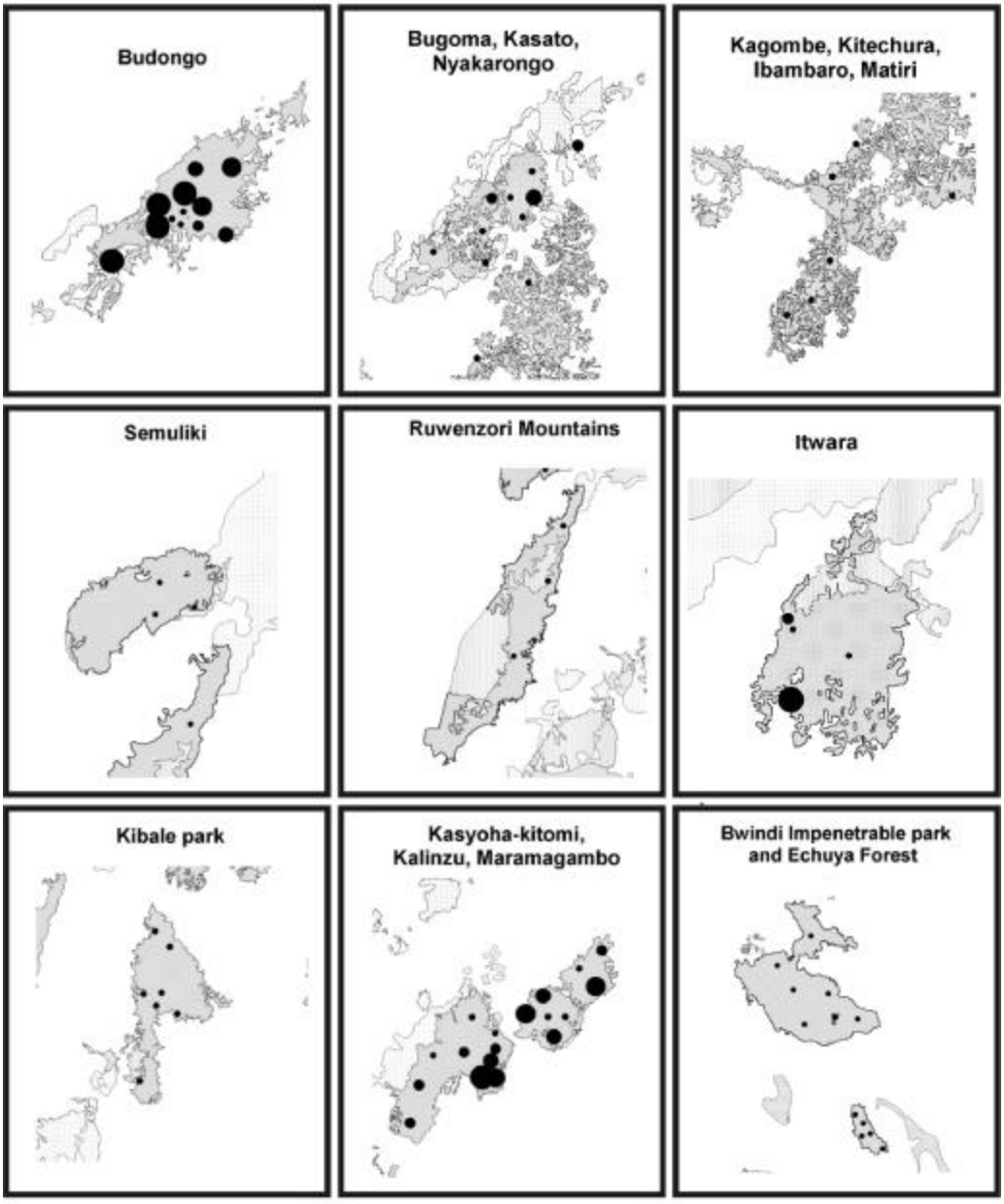

Figure 4.3 Encounter rates of signs of charcoal making within the forests.

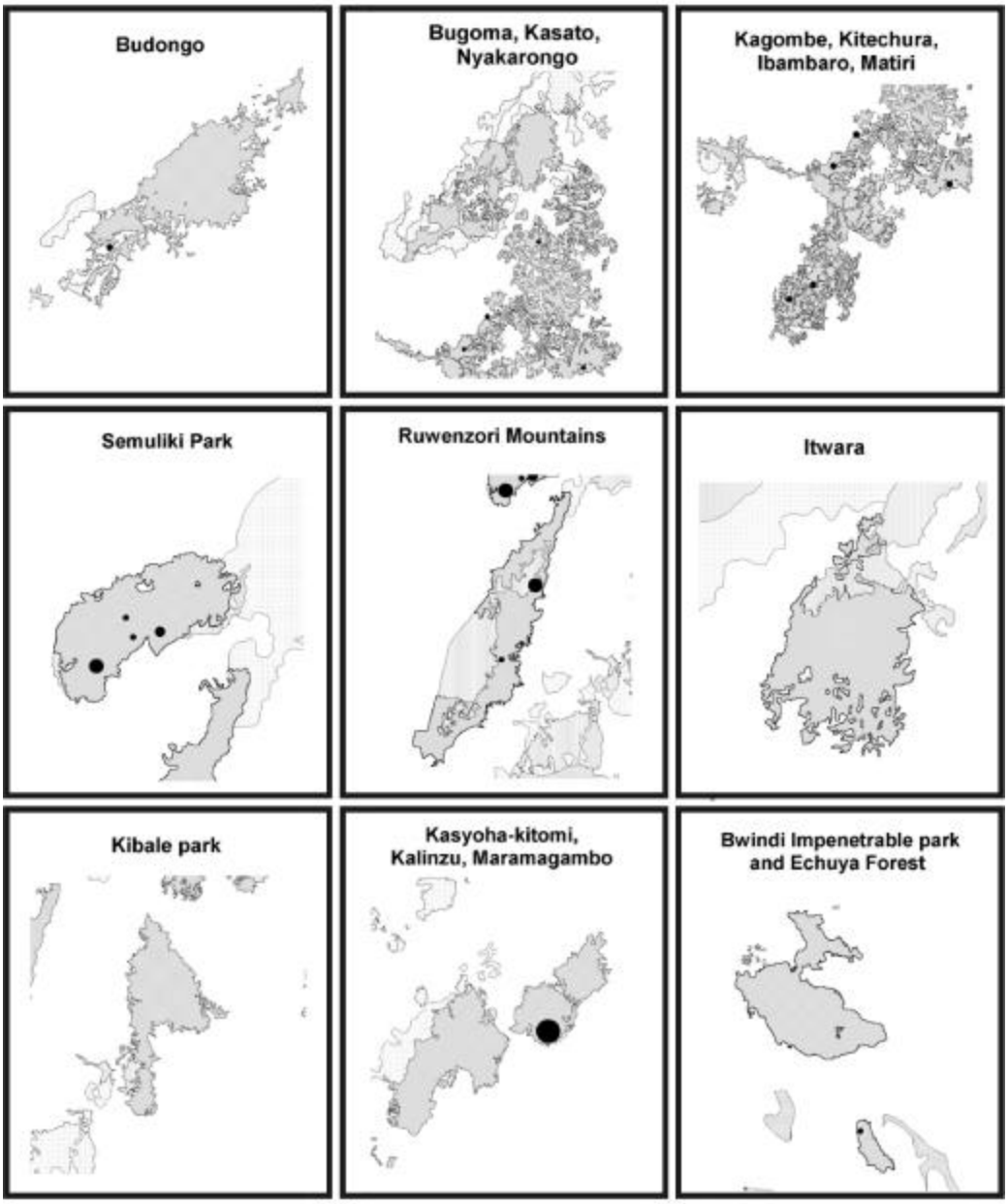

Figure 4.4 Encounter rates of encroachment for farming within the forest.

Reserve. If densities of chimpanzees are around 0.03-4 km^{-2} in these forests as (Table 3.2) then approximately 25-30 chimpanzees have been lost due to this

reduction in forest cover. More critically, forest connectivity and dispersal opportunities for chimpanzees has also been significantly reduced, preventing gene flow necessary to maintain viable metapopulations. In the long term, the inability to disperse could be the greatest threat to chimpanzee communities in these forests.

Other threats observed

Mining

Signs of mining were few and were primarily old (greater than 5 years). The only site with evidence of recent mining activity was Kasyoha-Kitomi. According to local residents this forest has been mined in the past for gold but recently has been mined fairly heavily for Columbo-tantalite, commonly referred to as Coltan. Coltan is a mineral used as a semiconductor in computer chips, particularly those used in cell phones. In 2000-2001 it was being mined heavily in eastern Democratic Republic of Congo (DRC) and Rwanda as it was fetching prices of over $80 per kilo and several kilos could be mined at some sites each day. Nyungwe forest in Rwanda had two sites with over 3,000 miners at one point in 2000. Miners in DRC were harvesting bushmeat around camps which led to severe population declines in both elephants and gorillas. International pressure reduced the exploitation of Coltan in the region and the price has dropped considerably to about $10 per kilo or less. In Kasyoha-Kitomi the army was involved in much of the mining activity, although we met several people around Kasyoha-Kitomi who had stockpiled Coltan in the hope the price would increase in future (one admitted to having 500 kilos!). At present most Coltan is purchased from mines in Australia and there is pressure to encourage companies to recycle cellphones and reprocess the Coltan. In the event that world coltan prices increase, there is potential for serious problems in Kasyoha-Kitomi forest.

Trade in infant chimpanzees

Chimpanzee infants are often taken from mothers that have been killed for meat in the hope they can be sold as pets, for entertainment and for biomedical research. Not much of this trade occurs in Uganda but infant chimpanzees are often smuggled across the border from the Democratic Republic of Congo. This activity is illegal in Uganda and if they are found, chimpanzees are confiscated. From the 1960s-1998 confiscation rates averaged about 1 chimpanzee every 1.5 years although most of these confiscations took place in the 1990s. Recently there seems to have been an increase in the number of chimpanzees being sold and 14 infants have been confiscated since 1998 (three to four per year). This is probably a result of the civil war in Congo and the inability of park staff to adequately manage and monitor activity in and around protected areas.

Killing chimpanzees for crop raiding

The surveys revealed that in many areas local people were not particularly concerned about chimpanzees crop raiding. Most losses are due to raiding by baboons, vervet monkeys and bushpigs. Around Bugoma Forest where cocoa is grown, and around Budongo Forest where sugar cane is grown as cash crops there is much more antagonism towards chimpanzees. Studies in Budongo Forest have shown that chimpanzees used to raid mangoes, papaws and other crops prior to local people growing sugar cane but they would only take one or two fruits before leaving and the villagers were not particularly concerned. Local attitudes have changed, howver, with sugar cane – a cash crop that provides significant income – being lost to raiding chimpanzees (C.Hill, F. Babweteera pers comm.). Some villagers living near the forest actively hunt the chimpanzees that raid sugar cane or set snares at the edges of their fields which kill or maim chimpanzees that are caught in them.

The Budongo Forest Project is experimenting with a trap that has been designed to catch chimpanzees and other crop raiding species alive, so that farmers can release the chimpanzees - after scaring them to deter them from returning – and destroy vermin species. Whether the trap will be as effective as is hoped remains to be seen. It is evident, however, that experimenting with this trap has been effective in reducing friction between the protected area

authorities and local people as they have seen that the authorities attempting to help them solve this problem.

Threats analysis

A simple process has been developed to assess the success conservation managers have in reducing threats to protected areas and protected species (Margoluis and Salafsky, 2001). The aim of the method is to encourage managers to assess how effective they are in tackling the major problems they are facing while conserving a protected area. This '*Threats Reduction Assessment'* (TRA) divides threats into three components:

- The area they threaten
- The intensity of the threat in a given area
- The urgency that something is done to mitigate the threat

Breaking the threat up into these three components helps the manager think about the threats more carefully and is used in the TRA to rank the threats in the protected area. The process then looks at how effectively the threats are reduced over time following management actions.

At the end of the censuses we brought together the senior field staff who had worked in many of the different forests to assess the threats to each of the forests we surveyed. We used the TRA process of breaking the threats into their components and then ranking them to determine the importance of various threats to each of the forests we surveyed where chimpanzees occur (Table 4.2). Care must be taken when interpreting table 4.2 as the threats have been ranked with respect to the forest where they occur, NOT between the different forests. For instance a value of 11 in Kibale National Park is not equivalent to a value of 11 in Kagombe Forest Reserve. They only provide a measure of the importance of the various threats within a particular forest. Those threats with the highest total scores on the rankings are the ones that were assessed as having the greatest impact on the forest integrity and species found within them. The threats assessed only include those activities impacting species and habitats within the forests surveyed and not outside or at the edge of these

forests. Man traps for instance are placed around several of these forests and will affect species that come out to crop raid but were not assessed here.

The details of the threats analysis for each forest are summarised in the Appendix under the individual forest profiles.

Table 4.2 Ranking of threats to each forest where chimpanzees are known to occur. The higher the number the greater the impact, extent and urgency of the threat. Threats that probably occur but were not observed/assessed are indicated with '?'. Note that comparisons cannot be made between forests in this table (see text).

Threat	Budongo FR	Bugoma FR	Kagombe FR	Itwara FR	Semuliki NP	Ruwenzori NP	Kibale NP	Kasyoha-Kitomi FR	Kalinzu FR	Maramagambo	Bwindi NP
Hunting *With firearms*						7		1	3	4	
Dogs/Nets/Spears	1		11	10	8	1	10	13	11	11	7
Mantraps			1								
Pitfall traps			8				8				
Snares	10	6	10	1	11	5	15	14	9	9	8
Animal collecting						?					
Charcoal burning	6		6				16	9	13	12	
Chemical Effluent							4				
Crop raiding	4	2	5	3	4		3	4	1	4	1
Encroachment	11	10	8	9				15	11	7	
Fire	7	5	4		2	3	17	7	6	?	7
Firewood								12	12		
Household use	9	7	12	7	7		12	10	7	8	2
Fishing					5					5	
Grazing	2	2		5	3		6	3	4		3
Medicinal plant collection	3	4	3		1		2	3			4
Mining					?		8	5	2		
NTFP collection	13	9	9		?	4	15	11	8		5
Bush ropes				4	6					4	
Poles				8	10					7	
Rattan	13	8		13	12						
Coffee				2							
Pitsawing	14	11	13	11		3	18	16	14	11	
Legal	6	3		6				6	8		
Rebels					13	7	9			1	
Research	1						15		?		?
Roads					9		5	8	?	?	
Sawmilling	8						0		8		
Tourism	1				?	?	11		?	?	?
Water Collection			2				1			?	