RUAHA ECOSYSTEM WILDLIFE MANAGEMENT PROJECT
REWMP

VILLAGE ORAL HISTORIES MINI-STUDY

SEPTEMBER 1994

CONTENTS

RUAHA ECOSYSTEM WILDLIFE MANAGEMENT PROJECT (REWMP) VILLAGE ORAL HISTORIES MINI-STUDY

SUMMARY

1. This study is part of the Village Development component of REWMP. The study was designed to assist the planning and development of wildlife utilisation in villages in Lunda Mkwambi Game Controlled Area (LMGCA), which borders the southern side of Ruaha National Park (RNP).

2. Elderly villagers in the project area provided information on the history of wildlife use in villages and the impact of RNP on local communities. The aim was to gain insights into local patterns of wildlife use which would assist in the planning of the next phase of the project.

3. It was confirmed that most people traditionally used a range of wildlife products. Today there is a large but unsatisfied demand for these products. Provision of cheap meat and honey by the project would therefore be extremely welcome in the villages.

4. The principle of sustainability is appreciated in villages, but it is not clear whether sustainable management is capable of providing people with the level of traditional benefit they desire. It is therefore important to address the following:

- The wildlife resource base (large mammals and honey) should be quantified
- The level and value of current off-takes (legal and illegal) should be estimated.
- The feasibility should then be assessed of increasing local wildlife benefits in a sustainable way by use of current or novel methods. If non-traditional uses of wildlife are feasible which are lightly consumptive and highly profitable they should be preferred.

5. If it is desired to delegate wildlife management responsibilities to local communities it will be necessary to establish new institutions, as the traditional ones are defunct.

6. There may be opportunities to assist villages in problem animal control.

7. There are local wildlife experts such as village hunters who should be involved in local wildlife management activities initiated by the project.

8. RNP has always been the most important local source of honey. Evidence collected suggests that honey collection in RNP could if formalised and properly regulated generate significant economic benefits on a sustainable basis. This should be explored further. If, as appears likely for policy reasons, it proves impossible to do this in RNP, reasons for the low honey production of surrounding areas should be investigated.

Jennings/REWMP/ODA

20/09/94

INTRODUCTION

This research aimed to clarify the history of wildlife use and provide insights into local wildlife management capacity in Idodi and Pawaga Divisions in LMGCA.

In this study "wildlife" is large mammals, fish and animal products such as honey.

In particular the study was concerned with the following issues:

- The historical importance to communities of wildlife use: is there a tradition of wildlife use and how have uses changed since the 1940s and 1950s?

- Community incentives for sustainable wildlife management: what wildlife benefits did people enjoy before and what benefits would they wish to enjoy in the future?

- The wildlife management capacity of local communities: how did people access wildlife, was use of the wildlife deliberately managed and do communities retain such management abilities?

- What has been the impact of Ruaha National Park (RNP) on local wildlife use and on local livelihoods and cultures?

Information on these issues would support the implementation of wildlife utilisation in selected villages in the next phase of the REWMP.

METHOD

The method was based on guidance notes (Appendix One) and a trial exercise conducted in Idodi village, Idodi Division, on 16/17th August 1994 (Appendix Two)

The method adopted was to travel with a local counterpart (the Community Development Officer of each Division) around various villages in Idodi and Pawaga and talk as informally as possible to elderly village residents about natural resource matters. The locations visited are shown on the map.

Visits to villages were unannounced. Interviewees were selected from those elders who were in the village and willing to talk.

The interviews were conducted in Kiswahili and transcribed into English on the spot by the researcher. Usually discussion was with one person, but a few group discussions took place. The ad-hoc nature of the visits prevented group discussions assuming the air of arranged meetings.

A list of topics of interest had been drawn up (Appendix Three) and this was mentally referred to when talking with people.

Villages visited

Idodi Division

Idodi, Tungamalenga, Mafuluto, Mahuninga, Mlowa

Pawaga Division

Kimande, Isele, Kisanga, Mboliboli

People interviewed

Forty interviews were held and these involved about 56 people, though not all contributed equally to group conversations. No women were interviewed. The ethnic backgrounds of the men who took part in the interviews were as follows.

Tribe	Pawaga Division	Idodi Division	Total
Wahehe	17	17	34
Wagogo	6	1	7
Wahehe/gogo		2	2
Maasai		8	8
Wakuria	1		1
Wabena		1	1
Wasangu		1	1
Unknown	1	1	2
Total	**25**	**31**	**56**

Further information came from discussions with counterparts and village officers.

About half of the interviewees had formerly lived in what is now RNP:

Tribe	Lived where in RNP?	Living where now?	No:
Maasai	old Ilolo	Mlowa, IDODI	7
Unknown	old Ilolo	Tungamalenga, IDODI	1
Wahehe/gogo	old Ilolo	Tungamalenga, IDODI	1
Wagogo	old Ilolo	Kimande, PAWAGA	1
Wahehe	old Ilolo	Isele, PAWAGA	3
Wahehe	old Ilolo	Kisanga, PAWAGA	1
Wahehe	Jongomeru	Tungamalenga, IDODI	1
Wahehe	Makaluga	Isele, PAWAGA	1
Wahehe	Mdonya	Tungamalenga, IDODI	2
Wahehe/gogo	Mdonya	Tungamalenga, IDODI	1
Wasangu	Mdonya	Tungamalenga, IDODI	1
Wahehe	Msembe	Kimande, PAWAGA	1
Wahehe	Msembe	Tungamalenga, IDODI	2
Total ex-residents of RNP interviewed:			**23**

Biases in interviews

Women

At the outset it seemed unlikely that women would provide much information concerning use of large mammals, honey and fish[1]. In Pawaga on two occasions ladies declined to take part, saying they did not know anything. In Idodi Maasai ladies said we should talk to the men about history.

Ethnic

The predominance of Wahehe in the sample reflects their long-standing numerical and political dominance in this area. The Wahehe and Wagogo were the main users of wildlife in the REWMP area.

Discretion of village leaders

From courtesy it was necessary to advise village chairmen and executive officers of the work being undertaken. They were helpful in introducing the researcher to long-resident members of the community. Generally, they seemed to select people according to age, knowledge and length of residence rather than by other criteria but there may have been some bias in their choices.

Locational

When selecting villages there was an intentional bias towards those closer to RNP. Each village comprises several discrete sub-villages. Sometimes one or two interviews were conducted in each of several sub-villages of a village; elsewhere all the interviews were done in just one sub-village. It is not known how this may have biased the results.

Informality and veracity

It was hard to achieve complete informality in the discussions as villagers do not talk casually to white strangers. Consequently in most interviews the researcher introduced themes about which the respondents could talk. Usually conversation then flowed in a relaxed manner, but in a few cases interviews became question and answer sessions.

The interviewer was introduced as from RNP and part of the REWMP. Once this was established, the historical thrust of the research was stressed in order to ease misgivings about discussion of wildlife use, which nowadays is mostly an illegal activity. In a few cases people remained suspicious of the motives for the research.

Interviewees often tell an interviewer what they think he wants to hear. Most people asked how historical knowledge would assist the REWMP but this was always at the

[1]Women may be more involved in collection of small animals and wild foods such as eggs, fruits etc.

end of our conversations, so the statements made by interviewees probably were not influenced by a desire to have their village selected for meat provision.

DISCUSSION OF RESULTS

Reference to transcripts

The interview transcripts are in Appendix Four, and for a better appreciation of the usual context and progress of interviews, the reader should browse through a few of these. They contain a lot more information on a variety of themes than it is possible to cover in this short discussion. Numbered paragraphs in the transcripts are statements made by the interviewee. Comments in square brackets are remarks or observations made by the researcher or onlookers.

References in this discussion to transcripts are given as the relevant paragraph number. To avoid long lists of paragraph numbers, references are not exhaustive.

The first section of transcripts covers interviews conducted in Pawaga Division, the second interviews in Idodi, including the pilot study.

1. General history of the REWMP project area

From the interviews a partial history can be constructed of RNP and adjacent areas.

Human population distribution

Information on human population distribution was rather scanty, and research of relevant historical literature and colonial and contemporary government records would yield a more complete picture. From the interviews it seems that in the 1940s most people in what was to become RNP were living in widely scattered settlements, each of which consisted of a cluster of houses of one or a few families (e.g. 392). As today, a single village name referred to an area encompassing several of these settlements.

Settlements in RNP included:

- **Ilolo** including Chaungu, Ikorongo, Igawa, Igangitau
- **Msembe**, including Kiganga, Makaluga and Matinga (south bank of Ruaha)
- **Mdonya**, including Matopotopo, Makindi, Kipera, Ikinga Igula/Iguna
- **Jongomeru**, near present ranger post
- Others at Mbagi, Itiku, Ukimbu, Miandope, Ipambara

Comments on the size of settlement populations suggest they usually were small:

- **Ilolo:** (presumably total area) had about 1,500 people in 1940s (353), sub-villages with 5 houses (421)
- **Msembe:** 10 houses in 1925 (469); just a few houses (182); sub-villages had 5 houses in 1940s (421).
- **Mdonya:** Sub-villages with 5 or 6 houses in 1940s (378, 384)
- **Jongomeru:** 13 houses and no more than 150 people in 1955 (455)

In terms of geographical area some said RNP villages were bigger than today's villages. Mdonya was a large area whose administration required two village officers (390).
Populations were probably concentrated in good agricultural areas e.g. in Ilolo on the river banks where people cultivated (421, 113, 523).

The areas mentioned are located in the Rift Valley segment of RNP. Roughly speaking, Msembe covered the central, Ilolo the east, Jongomeru the south-west and Mdonya the north-west up to the western escarpment[2]. This reported settlement pattern may be a reflection of the backgrounds of the interviewees but possibly there were fewer settlements above the escarpment because of tsetse flies[3].

Villages outside RNP were apparently equally small in population terms. Some people remembered settlement sizes as follows:

- **Idodi:** 10 houses in 1950 (384)
- **Ndoha**, Makombe: 13 houses in 1940 (493)
- **Mahuninga:** 5 houses in 1940s (484)
- **Mboliboli:** had 3 or 4 houses in 1930 (141)
- **Mafuluto/Mlowa:** sub-villages of 6 houses or so (567)

In general, few villages had more than 30 or 50 people in the 1930s, and none as many as 300 people or 30 houses (147).

Populations in the project area later increased because of intrinsic increase, voluntary immigration (e.g. 143, 531, 270, 5) and government-sponsored programmes of the 1970s which concentrated people in centralised villages (e.g. 569, 516, 479, 235).

Life in RNP

Places like Msembe, Mdonya and Ilolo were large areas, containing different habitat types. People living in settlements scattered over these areas thus experienced different living conditions according to local ecology.

Msembe The people were almost all Wahehe (188, 299). They cultivated and kept livestock. Cattle were herded around settlements near permanent water, such as Chief

[2] Msembe was a large region bordered by the Great Ruaha, Nzombe/Kisigo and Tungamalenga rivers, and it appears that, at least for administrative purposes, it included part of Ilolo (421). However the central and eastern portions of the Rioft Valley section of RNP are quite different in ecology and in this discussion reference to Msembe generally applies to the central area of the RIft Valley part of the park (i.e. around the current park HQ), plus villages on the opposite bank of the Great Ruaha River.

[3] Belts of tsetse fly infestation advanced in the 1920s and 1930s into areas on the western escarpment in RNP. In Rungwa the Wakimbu, a cattle-keeping people, lost their livestock and were reduced to a hunter-gatherer existence (see pp 164-165 in Kjekshus, H., "Ecology control and economic development in East African history - the case of Tanzania". London. Heinemann.).

Kayera's seat, Kiganga (471). In other areas people had little livestock and practised rainfed agriculture, growing maize, sorghum and groundnuts.

In such places there were occasional crop failures and people were forced to seek work as labourers in villages outside RNP such as Tungamalenga (470). There were locust outbreaks in the 1920s (469).

Mdonya The people in Mdonya were mostly Wahehe but there were small numbers of people from other tribes such as Wasangu from Mbeya District. The Maasai had not reached the area (342). They may have been deterred by tsetse flies - in some parts of Mdonya cattle had been eradicated by sleeping sickness, and people were relying on agriculture and hunting for survival (287, 394).

Some areas were well-watered with dark soils and farmers were growing bananas and sugar cane in addition to maize, sorghum and groundnuts (340, 405).

People referred to hunger when describing their life in Mdonya but remembered they had been able to use natural resources to survive (401-410).

Ilolo The people in Ilolo were mainly Wahehe, Wagogo and Maasai (206). The Wahehe and the Wagogo practised sedentary cultivation and kept livestock near the rivers. Crops cultivated included groundnuts, maize and sorghum (54).

There was a prosperous livestock economy and a market for honey and milk (see 353-364, 203). In the dry season Hehe cattle would be kept close to the river, eating crop residues around the villages (114). The cattle were moved further from the village when it rained (422).

Later, people in Ilolo lost livestock because of sleeping sickness (434) and other diseases (371). Water was sometimes in short supply away from the rivers, necessitating the use of stores of water in baobabs (367). There was a serious famine in the 1940s, possibly caused by drought (370, 39) and outbreaks of smallpox. The disease caused people to temporarily vacate the area in 1946 (358, 420) . In such times people ate baobab fruits and honey to survive (352)

The Maasai arrived in Ilolo in 1953 from Mtera and Dodoma (552). They moved their cattle around pastures a long way from the villages (523).

Local leaders in the project area

Enquiries about the regulation of wildlife use stimulated discussion of how local government worked. The information is incomplete and could be supplemented by reference to historical texts.

In the 1950s there was a system of local government based on area and village chiefs (or chiefs and sub-chiefs). Chiefs with large areas to administer relied on executive officers or secretaries to deal with remoter villages (487).

In what was to become RNP, some leaders mentioned were:

- **Chief Kayera**, based in Kiganga (448), who oversaw Msembe (188) and Ilolo (420) and had under him various sub-chiefs (421).
- **Chieftainess Nyongwa** in Mdonya (448, 393).
- **Chief Mwaliyele** in Jongomeru (461)

During British administration of Tanzania, the government appointed existing chiefs as its local representatives (475, 569). Adam Sapi, a descendant of Chief Mkwawa (who led Hehe resistance against the Germans at the end of the 19th century), was a District Commissioner for Iringa in the 1940s (358).

It seems the chiefs pre-dated colonial times (475, 478, 556), but by the 1950s they were presumably involved in administering a mix of customary and statutory law within a colonial-style framework of regional and national government.

Events leading to the formation of RNP

The formation of RNP involved various episodes of resettlement of its indigenous populations, starting in the 1950s (see transcript 4 and the pilot study transcript).

In 1950 the present area of RNP was largely included in Rungwa Game Reserve. This Reserve originated from Sabi River Reserve, which was gazetted by the British in the 1930s[4] and re-named Rungwa in 1946. Rungwa's southern limit was the north bank of the Great Ruaha River. Land on the opposite bank had no conservation status.

Presumably the various settlements in Rungwa pre-dated the Reserve's creation. People from Mdonya referred to their fathers being buried there (389).

Around 1955 it seems either the Reserve underwent a change of status or conservation policy changed (523, 387), with the result that it became necessary to remove the people living there[5]. Rungwa began to be called "Shamba la Bibi" (Grandma's Farm), as it was thought to have been bought by the Queen (296).

In 1955, people were moved out of Mdonya to Msembe, to villages on the north and south banks of the Great Ruaha River (404). Probably people were also moved from Mbagi and Jongomeru (443) at this time. People from Jongomeru went to Mkupule (454), where those from Iguna were later to be sent after resisting resettlement (234).

---

[4]Creation of Sabi followed resettlement of people to the north of RNP as a precaution against sleping sickness. This left the area uninhabited. The British Provincial Commissioner remarked, "the sanctity of the game is well shown by the desolation of the country" (in Kjekshus, H., 1977, "Ecology control and economic development in East African history - the case of Tanzania". London. Heinemann.).

[5] Perhaps it was decided to set aside Rungwa as an exclusive area for big game hunters, usually whites or Arabs (150, 165, 188): it became illegal for Africans to hunt in the reserve (387).

In the early 1960s, the Msembe population remaining on the north bank was moved across the river and out of Shamba la Bibi (479).

RNP was created in 1964 from the southern half of Shamba la Bibi plus an area on the south bank of the Great Ruaha River. The villages across the river were included by the park and so their populations were moved again. The villagers were given a choice of destinations and went to various locations in Idodi and Pawaga Divisions.

In the east of RNP, around Ilolo, an agreement that the Maasai could continue to bring in their cows for grazing (532) was repealed in the late 1960s (534). Some of the people in the area were resettled as part of the Operation Songeza ("squeeze people together") villagisation programme in 1974 (526). Other parts of Ilolo remained inhabited until 1979 or 1980 when people were evicted (113).

There seems to have been confusion over which parts of Ilolo were in RNP, and this persists today (533). It may be one reason why people were able to remain there for so long. Eventually the people from Ilolo moved to various villages in Pawaga and Idodi. They did not all go to new Ilolo, which is further from RNP (18).

Lunda Mkwambi Game Controlled Area (LMGCA) was gazetted in 1985 and seems to have created more confusion about access to grazing and water in this area (535) .

2. Historical importance of wildlife use

Large mammals

Main uses

The main use of large mammals was for meat. Among the Wahehe there are no ceremonial uses of large mammals (241). There was little cultural restriction on the species used - the Wahehe ate everything (65, 318, 139), except predators and primates (318, 319). Some animals like eland may have been avoided because they were believed to have magic powers which made them hard to hunt (399). Muslims objected to eating bush pigs (100) and probably also to warthogs. A mention was made of an objection to eating elephants (240), probably on religious grounds (316), but such injunctions were rare.

In the 1950s, animals were hunted close to villages, so local large mammal community composition dictated which species were consumed (494). The risk of injury also influenced the choice of species hunted e.g. elephants (131)[6].

It appears that the "small animals" (from dik dik to eland) were the ones most commonly hunted. The generic term "antelopes" was used often. "Big animals" like

[6]It did not apply in the 1980s' ivory poaching episode, possibly because of the use of more reliable modern weapons and the prospect of bigger benefits from a successful hunt.

giraffe, hippo and elephant seemed to be eaten less frequently. Specific animals mentioned most were buffalo, kudu, zebra and eland (despite its magic powers!).

Medicinal qualities were attributed to game meat (408), most especially to meat of elephants and giraffes (317, 432), which was thought valuable in times of hunger (401)[7]. Giraffe and zebra meat was cooked and eaten with the skin left on (407, 429), but other species were skinned. Hippo and elephant fat could be used in cooking as an alternative to groundnut oil (381).

Full use was made of animals obtained (563). Where there was too much meat for immediate consumption it was dried to be eaten later (428,562).

The skins of antelope species, and perhaps occasionally of zebra, were used for making seats and skins to sleep on (429, 346, 175, 97). The skins were much-praised for their comfort (161). Today they cannot be used or displayed openly because of their association with illegal hunting (e.g. 21, 161).

Skins were sometimes used for drums (e.g. 241, but see 321). The use of skins for slings to carry children was said to date from much earlier times (382), perhaps contemporaneous with the use of skins for clothing (241) i.e. before man-made fabrics were widely available. In some places buffalo skin was used to make livestock tethers (330) but elsewhere buffalo and hippo skins were thought useless (429).

Hunting techniques

Large mammals were hunted with bows and poison arrows, spears, muzzle-loading guns, shotguns, rifles, dogs and traps. In the 1950s hunters were usually operating close to their villages (124, 173, 398, 505).

Use of fire-arms was common before the 1950s (93). These were mainly muzzle-loaders, which could be made locally (145, 146, 93). Their high incidence may have been a consequence of Hehe conflict with the Germans at the end of the nineteenth century (457)[8].

It was said that the Wagogo in Pawaga were experts with bows and specialists in making poison for arrows (462, 473). It was not clear whether many bow-hunters remain but if they do, most are probably in Pawaga (462).

Some hunters were specialised as pig or warthog hunters, using dogs to pursue the quarry which could be despatched with a spear when caught (e.g. 123, 195, 494, 546).

[7]In the 1950s giraffe and elephant were among the first species to be protected by licensing laws from local hunting (445) e.g. elephant licences were too expensive for almost all African hunters (424).

[8]Today far fewer people have fire-arms (331). In the 1980s Operation Uhai was carried out jointly by Government wildlife and security forces in an attempt to halt elephant poaching (231). The operation was responsible for the confiscation of many weapons. No-one mentioned Operation Uhai, but comments about confiscation of weapons in Mafuluto (559, 566) may be oblique references.

Hunters generally operated alone or in small groups, calling for assistance from people in the village when help was needed to butcher an animal and transport the meat (92, 497). There was no mention of regular communal hunting, although in Mdonya there may have been occasional village hunts to secure elephant meat during famines (401).
Hunters commonly used special medicines and made offerings to spirits and chiefs in order to assure a successful outcome to the hunt (94, 130, 380).

There seems to have been little use of snares in the past. A reference was made to the use of pitfall and leg-hold traps to catch animals near shambas (242), and it was said that the Wagogo sometimes used special spear traps to kill elephants (464).

Scavenging from carcasses, particularly lion kills, was mentioned as a way of obtaining meat in Ilolo (54), Kiteleke (86), Mdonya (402) and Msembe (184). Scavenging was usually an opportunistic activity (86) but apparently in parts of Msembe there were so many lions that villagers could regularly obtain meat this way (472).

Another source of meat was donation by white big game hunters (189, 314, 362) or from Game Department rangers who shot problem animals (218, 343, 550). Today these sources are trivial because there is no tourist hunting around the villages and there seems to be little control work by the Game Department. Urban-based resident (i.e. Tanzanian) hunters visiting the area take meat home with them.

Importance of game meat in the diet

The importance of game meat in the diet, i.e. how often it was eaten and what fraction it constituted of total food consumption, was related to hunting effort and success and the number of people who shared the meat of each animal obtained.

In small settlements in the early 1950s a single hunter was probably supplying everyone with meat (148, 562, 563). The hunters would hunt when meat was needed (345, 428, 497), so presumably they were eating meat regularly and so were their families and friends (344). A man whose grandfather was a hunter described game meat as an important part of the family diet (95).Some referred to consumption by village hunters of an animal a month (378, 386). Others reported they ate meat every week (458).

There were some villages without hunters (473), or with a few hunters (184, 185) who were probably not capable of supplying meat to everyone. Here most people may have relied on scavenging and on windfalls such as donation of elephant meat from big game hunters, so game meat was a less prominent part of the average diet.

When staple food crops failed reliance increased on game meat. Where there was a lot of livestock less game meat was eaten (363, 220), but when livestock numbers declined, people would switch to eating wild animals (370).

From the little information here it appears most people ate game meat frequently while they lived in small settlements in the 1940s and early 1950s. People in non-hunting villages ate game meat less than people who hunted or knew hunters (473).

From the mid-1950s it seems likely that as settlement size increased and the demand for meat grew, the significance of meat in the average diet actually decreased. This was because new wildlife protection policies suppressed the growth in hunting activity required to keep pace with demand and wildlife quickly became less accessible in the locations to which people were resettled. Later still, game meat began to be sold for cash which further reduced local availability.

Game meat is sometimes available in local villages (438), but the quantities involved are thought to be small. Today, due to cost, meat of domestic animals does not figure prominently in the local diet (412, 489, 35).

Economic importance of game meat

In the 1950s game meat was a commodity with no monetary value and a low barter value (31, 151, 123, 568). It was never sold but usually consumed at home with family and friends (344). It was probably perceived as plentiful and of low value (31,560).

Today game meat cannot legally be sold or traded (244). There is a game meat market in villages where meat can be exchanged for maize (438) but this is thought to be insignificant because casual observation suggests off-take levels are very low. This should be verified by further research into legal and illegal off-takes.

Honey

Main uses

In the 1950s, honey may have been a delicacy more highly-prized than game meat. Honey was used as food, either in its own right (52) or in combination with other foods like maize (311) and baobab fruit (352). Honey was also prized as an additive to beer (24, 500).

Collection techniques

People said the area which is now RNP was always the most important source of honey (20, 52, 54, 243, 481).

Traditional methods of honey collection from wild bees' nests demanded good knowledge of the local area because the nests might be found in holes in the ground, among rocks, in thick bush, in dry river beds or in trees (158). Some people specialised in collecting honey (544) but there was also opportunistic collection (281).

Most commonly, nests were found in baobab trees (124), of which RNP has many. Baobabs were probably favoured because they had soft wood which made it easy to bang in pegs to climb the tree and to make a hole to reach the honey (576). Smoke was used to subdue the bees (450) while the honey was removed by boring a small

hole, taking care not to disturb parts of the honeycomb containing grubs (509). This hole was resealed afterwards . By collecting in this way it was possible to return to the same site and remove honey at reasonable intervals (509). One or more honey hunters could use the same nest, depending on local custom (509, 572).

Traditional hives were used in certain areas (572, 136, 350) but in RNP most of the honey was obtained from wild nests (186, 205). These are said to be capable of producing two or three *debes* (tins), or forty to sixty litres, of honey a month (243). Collection of honey from wild nest is still more important than use of either traditional or modern hives, but it has become an illegal activity in RNP. The methods of collection have become less sustainable than traditional ones, as modern honey hunters destroy entire nest when they collect honey (510, 511), perhaps because they are under pressure to obtain honey quickly without being arrested. The commercial value of honey was suggested as another reason why modern hunters, even outside the RNP, are less careful in their collection methods (565).

There appears to be little use of traditional or modern hives in the villages today. The government bee officer has visited several communities but most have done nothing since (27, 68), though some have tried (313). The destructive attentions of honey badgers were mentioned as one disincentive to use of hives (27) but there must be more fundamental reasons. Some claimed that there are no bees in the area (565, 26, 416). A possible reason for this is a local lack of water (350). Perhaps the distribution of baobab trees and bee food plants are another factor.

Importance in diet

Honey mixed with pounded baobab fruits was a food which helped people to survive periods of nutritional stress (352, 406, 469). In some areas of RNP people were eating and selling honey (485), which suggests they may have had surplus to their needs.

Economic importance

The historical abundance of honey in RNP and the relative lack of it outside, may have stimulated a long-standing trade in the commodity. Some people referred to transporting honey over long distances by the traditional method of carrying two debes (20 litre tins) slung on a pole, which is still used today (354, 408).

Ilolo in RNP seems to have once been the site of a market where traders from Iringa came to buy honey (213). According to one interviewee up to 1,000 debes of honey were sold each month (356). A comparable volume of honey at current prices of about TS 8,000 per debe would be worth TS 8,000,000 or about £ 10,000. If such a monthly turnover was achieved it must be the most significant economic activity which has taken place in RNP up to and including today (with the possible exception of ivory poaching, which was unsustainable). Today there is a local market for illegal and legal honey but it is not known if it is achieving a similar economic performance.

Fish

Main uses

Fish was used for food.

Fishing techniques

Fishing involved a number of techniques of which line and harpoon were the most common (20, 124, 136, 501). In some areas lines were preferred to harpoons because the latter were believed to be wasteful of fish (388) There was one reference to the use of fish traps (136). Lines are widely used today but probably harpooning and trapping are less-used. Poisoning was used (242) but was probably not widespread (20). No-one mentioned the use of nets in the old days, though these are used now in Mtera Dam, where some people from the villages visited go to fish (246).

Importance

Little was discovered about the importance of fish in the local diet and economy, but . there were several references to fishing and fish which suggests that generally it was and remains a widely-used method of obtaining animal protein. It would have assumed greater importance when no game meat was available (501).

Other natural resources

Trees and fruits

The baobab tree was and remains an important resource. It can provide water (367), honey and fruits which aid survival in times of nutritional and other stress.

Herbal medicines were prepared from parts of certain trees and plants (411, 214, 354). It was said that the availability of these plants has not changed very much (250), but the efficacy of herbal preparations declined following commercialisation (214) . The Maasai are using traditional medicines to combat tsetse flies (537).

Certain wild fruits are used as an additive to beer (24).

Insects

Insect larvae found in tree bark were used as food in Mdonya (410).

Conclusion

The general impression gained from the interviews is that in most places where wildlife was available it was used by at least some of the population, possibly mostly by those lacking large numbers of livestock or living in marginal lands i.e. poorer people. It seems likely that the intensity of use of wildlife increased from this "background level" in times of nutritional or economic stress.

While people in all areas referred to life in the 1940s and 1950s as more comfortable than today, they also mentioned that there were periodic droughts, crop failures,

livestock losses and disease and pest outbreaks which led to hunger. These affected people in and outside Shamba la Bibi (363, 394, 456, 39, 155, 502, 543), and their effects were to increase dependency on use of wildlife (407, 352).

As well as this sporadic reliance on wildlife, in many areas there may have been a more prolonged and perhaps even constant dependency. Life in some places, perhaps parts of Mdonya for example, may only have been possible, or at least bearable, because of access to wildlife at certain times of the year.

Since the 1950s it has become progressively more difficult to access wildlife resources and in times of environmental or socio-economic stress this has exacerbated the discomfort of local people, especially those who can remember life in 1950.

3. Wildlife management capacity of local communities

The wildlife management capacity of communities derives from:

- their technical expertise in harvesting wildlife (already covered)
- the physical capacity of their harvesting methods
- their willingness and ability to control the level of off-take
- their ability to manage problem animals

The effectiveness of management can be assessed by considering:

- has the wildlife resource changed as the communities intended?
- are communities controlling wildlife problems?

Wildlife-using peoples

It seems that all the peoples in the project area used wildlife to some extent, with the Wahehe and Wagogo being the most important users. Wasangu also used wildlife (transcript 27, Idodi). Wabena lived in hunting villages but it is not clear whether they actually hunted or consumed wildlife products (544). Maasai did not hunt large mammals (281, 519), but they are said to use skins of wild animals (160) which they buy from hunters (160, 14), and they use honey (281, 520). Man'gati and Wasukuma have been in the area for a very short time (375) and probably are insignificant as wildlife users.

Customary controls on level of exploitation

The interviews produced evidence of customary controls on wildlife use. The overall situation was complex. It appears that, originally, chiefs exerted some traditional controls which ranged from virtually non-existent to strict regulation. Later these controls became bound together with colonial conservation regulations during the period when the chiefs were acting as local administrators. They were finally replaced altogether in the post-colonial period when the chiefly office was abolished.

Reference to some form of regulation was made in interviews, as follows:

Period	Where resident at that time	Type of control cited	Transcript para. ref.
1940s	Mafuluto, Idodi	Chief left access open	556
1940s	Ilolo, RNP	Strict customary control	423
1940s	Msembe, RNP	Chief left access open	445-449
1940-1950s	Mdonya, RNP	Strict customary control, later allied with colonial game laws	380-398
1950s	Msembe, RNP	White hunters consult chief	188
1950s	Msembe, RNP	Chief restricted local but not white hunters?	476-477
1950s	Msembe, RNP	Game Dept, DC, courts	249
1950s	Kiganga, RNP	Little until licensing came in	310
1950s	Ilolo, RNP	None	117
1950s	Jongomeru, RNP	Strict customary control	461
1950s	Mahuninga, Idodi	None until colonial game laws	487
1950s	Makombe, Idodi	None	497
1950s	Mafuluto, Idodi	Chief administered colonial game laws	550
1950s	Mafuluto, Idodi	None except gun licence	560-568
1950s	Isele, Pawaga	None	32
1950s	Isele, Pawaga	Gov't orders	67
1950s	Kisanga, Pawaga	Gov't orders via village leaders	108
1950s	Kimande, Pawaga	Gov't orders	196
1960s	Kiteleke, Pawaga	None (re law and order)	82, 85

All references to strict customary control came from Tungamalenga, Idodi, a village near the RNP. They were made by people who formerly had lived in RNP. All but one references to the role of chiefs came from Idodi Division.

It is not known if this is a genuine effect or an artefact of bias e.g. in the selection of interviewees or the terminology used in discussing regulation. It is thought unlikely that references to customary control were made elsewhere but mis-interpreted (462).

Traditional control was mediated through chiefs and their relatives. Wildlife users sought prior advice from chiefs on the type and level of use to be allowed. It was believed that misfortunes would befall users who failed to comply (461, 396). Chiefs might call transgressors to account for their actions (451).

Directions were often issued after making offerings to spirits or deities (423). The chief or an old relative, e.g. the chief's mother (423), consulted the spirits (459). The chiefs were invested with supernatural powers and possibly regarded as super-human (e.g. 393, 449).

Where traditional control was little-exercised an open access situation applied until the colonial game laws began to take effect.
The different intensities of control may have resulted from a combination of factors. Certain communities relied more than others on wildlife use, and chiefs in such areas might have exerted stronger control over wildlife use in order to ensure the survival of their communities. In Mdonya, for some people, nutritional stress was a regular event (401,406): perhaps this was the reason for Chieftainess Nyongwa's strong influence.

Distance from the centre of chiefly influence must have affected the intensity of control. Where the village was far away from the chief there was either less control attempted or less observance of the rules. Local representatives may have been less-respected than the area chief (487).

Related to this is the effect of settlement size on the level of control. In small, remote villages open access had no detrimental effect on sustainability, so regulation was superfluous. In larger settlements a higher demand for natural resources would necessitate close control of use, and if this could not be achieved wildlife resources would disappear from the local area. This has occurred widely outside RNP.

Chiefs probably received a good share of meat harvested (32, 568). Msembe's Chief Kayera, administering a large area, seemed to restricted his wildlife use regulation to dealing with big game hunters, perhaps because of the meat and other benefits which they provided. Some chiefs may have had no interest in controlling wildlife use (556) because they received no personal benefits in return.

Colonial game laws began to be applied with licensing started in 1945 (450), and some chiefs began applying traditional custom in tandem with the new rules. Technically chiefs could not refuse access to wildlife by someone who complied with the new laws but licensed hunters, Africans and whites alike, continued to respect chiefly authority (188, 398, 476, 477). Perhaps some new "traditions" were developed by chiefs in this period to ensure subjects' compliance with game laws.

In Tungamalenga a wish was expressed to maintain some of the old customs e.g. to make offerings to the spirit of Chieftainess Nyongwa at a site in Mdonya in RNP (466, 415). Some people say this would improve the weather. Others maintained that old customs would curtail poaching as effectively as modern methods (466).

Effectiveness of customary control

It is impossible to judge the effectiveness of customary controls. Of the communities in which this study suggests wildlife use was controlled by custom, none remained *in situ* after 1955. They were all moved out of RNP and their customary systems were never subjected to modern pressures which might have challenged their sustainability.

From the 1950s onwards, colonial game laws supplanted customary rules. This trend, and the later removal of chiefs, increased the obscurity of traditional systems.

Most evidence points to an incidental sustainability of "traditional use", whether or not it was controlled by custom. The following comparison of past and present scenarios illustrates some of the pressures which have reduced the effectiveness of customary and modern controls on wildlife use in this area.

In the 1950s the usual scenario was:

- few people in small, dispersed settlements
- lots of animals around them - because of a different distribution but not necessarily a larger total population
- disturbance was low so use could be maintained around the community
- few hunters per village
- meat had negligible commercial value and a low barter value
- off-take was limited to what local people could eat, and they did not waste meat

i.e. exploitation levels were regulated more by the communities' ability to consume the products of wildlife use than by deliberate control on access to the resources.

In the 1950s there were few hunters per village (174, 323, 378, 494, 554, 562). They were experts or *fundis* (130, 239, 544); perhaps they were lineage hunters (13). But there were many guns in some villages (146, 457). The rule of Chief Mkwawa may have marked the start of a Wahehe tradition of gun ownership (457). Most people were not interested in using their guns for hunting (323), but used them for protection of crops and livestock (559).

However it was possible for anyone with a weapon to hunt if he wanted (31, 64, 117, 195), and so villages probably had the capacity to significantly increase game off-take by utilising more fire-power. Usually they were restrained by their capacity to consume more meat (33) and the image of hunting and honey collection as specialised trades may have restricted the number of participants. It seems likely that hunting effort would have increased in times of stress caused by crop failures or loss of livestock, and perhaps it increased dramatically when socio-economic conditions worsened.

More recently the scenario has changed as a result of the following:

- settlements are bigger and more populous, and surrounded by larger areas of cultivation (279, 103)
- increased disturbance (63, 181, 489) has caused wildlife to move towards RNP (22, 37, 48, 468, 485, 503, 558)
- legal and illegal hunting of large mammals is taking place further from the community, close to or inside RNP (26, 326, 503)
- meat has acquired a commercial value due to the development of an urban market, and (illegal) hunting has become a business (107, 34, 568)
- most local residents cannot afford to buy meat, so most consumption is taking place in distant villages or urban areas (38, 568, but see 438)

- local demand for cheap meat has increased because of loss of Wahehe livestock and expense of meat from other sources (257, 220, 116, 412, 348, 490, 507).
- gun licences and hunting permits are more expensive and harder to obtain these days (34, 68, 331, 468)

As wildlife now occurs mostly adjacent to and inside RNP, off-takes are limited by the effectiveness of anti-poaching operations in RNP and LMGCA.

Human population growth, poverty and commercial incentives have encouraged people to take up illegal hunting for meat (98, 438), honey (511) and ivory (464 and 465). These pressures may have been partially counteracted by decreasing availability of the resource and increased dangers of arrest. Hunting success in terms of off-take per hunter must have declined.

Comments about theft of cattle (116, 257, 374, 559) and honey (243), lack of respect for the old (224) and undesirable social change (221, 275, 338) suggest that traditional control on wildlife use might be less effective in today's social climate. Non-wildlife customary controls still operate e.g. fining cattle-keepers for letting animals stray into fields in Kimande (follows 8) but this may be because there is clearly defined proprietorship of the resources involved, which does not exist for wildlife today.

These are pressures to which customary controls would have been subjected had they persisted in the villages of Pawaga and Idodi. The alternative controls adopted in colonial times have failed to maintain the historic wildlife resource around these villages but they have succeeded in conserving wildlife in RNP.

Trends in the status of wildlife and other natural resources

Reduced large mammal densities around villages compared with those of the 1950s were reported in most interviews. It was widely felt that this reflected a distribution change rather than a reduction in total population size i.e. there are as many animals as before but most of them have moved closer to RNP. Some people explained they could not be sure, as they cannot enter RNP to check the situation there (118, 75).

In some cases the local disappearance was noted of animals such as rhino and certain antelopes, possibly Grant's gazelle and waterbuck (247, 137, 91, 102). It was reported that buffalo and kudu have increased around Idodi village (256).

Honey was reported to be scarce everywhere outside the RNP and it appears it always has been. Most references to trends in fish populations referred to a decline but one suggested little change (127).

Some people noted a reduction in trees suitable for building (69, 157, 178), and others suggested local woodland was in decline (233, 436). Others noted little change (23).

Pasture and water are of great importance to pastoralists. There has been a serious decline in access to pasture, mainly due to expansion of agriculture, villagisation and the closure of former grazing areas in RNP, and access to water has become a problem

in some areas (40-48, 279, 515-541). Wildfires are another cause of loss of pasture (156, 365). The situation is being aggravated by the continued immigration of Mang'ati and Wasukuma pastoralists attracted by irrigation works (5, 528).

Several people felt that rainfall now is less than in the old days (39, 51, 225, 435).

Problem animal control

Several communities suffer crop damage by animals (179, 260, 335, 551), which they seem unable to manage. The main culprits are bush pigs, bush buck and baboons. Elephants and hippos also are involved. Stock raiding by lions also occurs (47, 277).

These problems always must have occurred (238, 480), but may have been less widespread in the past because of the reduced extent of settlement and agriculture. Possibly they were bearable because of the compensations of access to game meat (238). Animals may have been less accustomed to people and easier to scare off (183).

Communities are believed to possess far fewer weapons today than in the past and this limits their ability to control pests (26, 259, 559).

Today it is difficult for people to act spontaneously to control crop damage, as to kill animals without giving notice to the authorities invites accusations of poaching. That some species are useless (e.g. baboons are not eaten) makes it unattractive for anyone to waste expensive ammunition on them. People want the Wildlife Department or RNP to assist but seem to receive little help (180).

Bush pigs enjoy a form of religious protection: they could be killed, but they are not easily consumed in the midst of Muslim communities (100). Other animals are protected by reluctance of RNP and Wildlife Department to kill them e.g. elephants. If special licences were available for hippos and elephants villagers might take responsibility for destroying these animals in their shambas. However many villages lack the necessary weapons (e.g. 506).

Dogs were once used partly for guarding crops from pigs (64, 107, 200) but these days few people keep dogs (26). Use of traps in shambas is apparently forbidden (242), probably to prevent accidental capture of protected species, a potential alibi for those possessing illegally obtained wildlife products.

Perhaps if carefully planned the use of snares to trap pests such as bushbuck could reduce crop damage and provide meat.

Village-based hunters today

There appear to be few legal hunters operating out of the villages today (30, 244, 331, 506), mainly due to the expense of maintaining a licence for a rifle, buying ammunition and obtaining hunting permits.

It would be useful to identify all village-based hunters. As they are already in the community and possess legal firearms plus knowledge of the local area, they are well-qualified to assist the project. Illegal hunters are probably more numerous, but it may be harder to enlist their help. Interviewees said that the young modern hunters are not as skilled as the old *fundis* (465, 503).

Presumably there will be more hunters where there is more wildlife, which are the areas where cropping should be most feasible. This needs further research.

4. Community incentives for sustainable wildlife management

The incentives to use wildlife remain the same as always - cheap meat and honey. The prospect of cash benefits from wildlife seems little-appreciated. Communities understand the importance of sustainability but it remains to be seen whether sustainable use of the wildlife can provide significant benefit.

Incentives and sustainability

Most interviews suggested that people want meat, honey and fish. There were explicit statements that people desired these benefits (89, 171, 507, 491). Frustration at being unable to obtain meat or honey because of the cost of the commodity or a licence (34, 68, 99, 219, 503) shows the importance of pricing in controlling access. Game meat and other products must be provided cheaply (104, 112).

Some people said that when communities possessed large numbers of livestock they reduced their consumption of game meat (220). Others suggested that today they cannot obtain enough meat because of butchers' and pastoralists' marketing practices (35, 489). This suggests that beef or mutton would be preferred to game meat at the same price. However it is unlikely that provision of cheap beef could eliminate demand for game meat, there being such a high demand for meat of any kind in this area.

One person suggested that if buffalo meat were to be offered for sale it should be priced at TS 300 per kilo, compared with a price of TS 400 per kilo for beef (491).

People appreciate that it may not be possible to provide the wildlife benefits they desire on a sustainable basis (468, 506). It will be possible to address this important issue when more information is available on the current status of the wildlife resource base and the level of off-take it is already supporting.

One person suggested that his village would need four buffalo a week for meat (506) i.e. over two hundred buffalo a year. Another man pointed out that even five buffalo a year would be better than nothing (104). Providing two hundred buffalo a year would provide significant benefit but might not be sustainable. Five buffalo a year, or about 1,500 kg of meat[9] shared by 1,000 villagers, would be a sustainable use but does it

[9] Assumes animals shot are adult males, weight of dressed carcass about 300 kg.

represent a significant benefit? It might if the average villager eats meat only twice a year (412).

The idea of legally earning money from wildlife is something which did not occur to any interviewees except those who had discussed it during previous REWMP village surveys (336). From casual observation it was not obvious that lightly consumptive high revenue generating activities like tourist hunting could succeed in this area, as wildlife densities appeared very low (results of the REWMP aerial surveys will clarify this). Tourist hunting has been carried out previously in Pawaga. Some areas have pleasant scenery and might have potential for eco-tourism if wildlife densities increase.

Sustainable honey collection in RNP may have the potential to generate sizeable economic benefits if the account of the Ilolo honey market is accurate (356). However it will not be possible without a radical change in RNP management policy.

5. Impact of the establishment of Ruaha National Park

Wherever they were living at that time i.e. whether they were inside or outside RNP, most people referred to life in the 1950s as better than today, with better access to large mammals (343, 106), fish (144, 501), honey (186, 205), livestock (28, 364), good pastures (114), water (39, 115) etc. Conflict with wildlife seems usually to have been bearable (238). Social behaviour was better also (502, 151/152). This may be nostalgia. However it demonstrates the important point that not only those evicted from RNP feel their quality of life is lower today than in 1950. The impact of RNP should be considered with this in mind.

Impacts on wildlife use

The main effect of RNP formation was to move people out of wildlife-rich areas and into places where equally rich game populations were being reduced by the increased level of human disturbance.

The creation of RNP as a large area free from human habitation may have accelerated the shift in wildlife distributions away from the villages. In Tungamalenga as early as 1955 animals were said to be decreasing and going into the park (387), though this could be the result of clearance of forest for agriculture (436, 349). One person referred to animals and people being "villagised" into their respective settlements (558). In the same village, Mafuluto, another person mentioned that there had still been a lot of animals around in the 1960s (542).

As honey is a resource which seems always to have been scarce outside the park and plentiful inside, establishment of RNP should have led to immediate local shortages of honey. It is not known if honey hunters were effectively excluded from RNP at the time of its formation, but today they continue to poach honey in RNP (243). Around Ilolo it seems honey hunting proceeded until the time of the evictions in 1979 (205).

RNP enclosed a large section of the Great Ruaha River (opposite Msembe) within the park and this created problems for people who formerly had fished there (246). Other

stretches of the river form the RNP boundary. Fishing without a licence on these stretches is an offence, and licences are not available locally (144). The Mtera Dam is the single most important local source of fish, and it is filled by the Kisigo and Great Ruaha rivers which are protected by RNP. RNP may thus be contributing to increased local availability of fish for sale from the Mtera fishery.

In one area, palm leaves for weaving mats were mentioned as having been made inaccessible within RNP (83).

The establishment of RNP reduced access to the most important local source of honey. It was one factor in the loss of access to large mammals. Whether it has reduced access to fish is unclear.

Impacts on cultivation, livestock and pastoralism

Some people stated that the conditions for cultivation (348, 209) and livestock (532, 208) in RNP were superior to those in the locations to which evicted villagers were moved. Others said the opposite (480). In RNP "traditional" rain fed crops were grown, such as maize and sorghum. Some farmers do not wish to change to irrigated agriculture, more suitable in the areas where they now live, because it involves too much work (53, 71).

Some claimed that people from RNP were moved to places where there was less rain and so yields of maize and sorghum were poor (207). It is not known if there was such local variation in rainfall, though it is possible. Today there is a variation in rainfall between villages in the shadow of the escarpment and those a few kilometres further into the valley, which can make the difference between a good and a bad harvest of maize (*pers. obs.*, Malunde). Alternatively, since in most areas people said there is less rain nowadays, the claimed effect may have been part of a general climatic trend in and outside RNP. It may reflect different soil drainage characteristics (348).

In the 1960s people from RNP arriving in Idodi were sometimes obliged to work as labourers for a year before they acquired their own shambas (252). It was not always so bad though (192).

There has been a general trend of loss of livestock among the Wahehe and the Maasai due to tsetse flies and the need to sell stock to buy food and other consumables (49, 277, 537). Another critical factor is lack of grazing lands.

The Wahehe livestock keepers who were moved out of RNP in the 1950s may have encountered a shortage of pasture for their stock. At first perhaps this was not severe because of their use of livestock in combination with cultivation (422, 114). Some people mentioned that their stock holdings were reduced when they left RNP (116) and this may have been a result of movement in tsetse-infested areas (49). Today there is less room for grazing (120) but Hehe cattle are few. The loss of livestock may have contributed to a decline in agricultural productivity by removing an important source of manure and incapacitating mixed farming systems.

The Maasai, husbanding their cattle in a much more extensive way, were able to continue to use grazing resources in the east of RNP until the late 1960s when access was refused (206, 533). This was followed by their eviction from the area during the 1970s campaign of villagisation (526). Nowadays the Maasai are increasingly sedentary and most have taken up cultivation as a supplement to livestock (538, 269). This process which has affected most pastoral peoples, driven mainly by the encroachment on rangelands of settled cultivation.

It is doubtful that restoration of access to pastures in RNP would change things, as unless access were restricted to particular groups of Maasai, any area set aside for pastoralism would rapidly become overcrowded with immigrants. Additionally, such a move would probably lead to calls for similar concessions from the other tribes who had inhabited RNP since long before the arrival of the Maasai in 1953 (522).

Recently local livestock keepers have been involved in a dispute over access to water on the RNP boundary. The impression given by interviewees is that two years ago certain channels of the Great Ruaha River previously used to water local livestock were declared as out of bounds. This has created serious problems for livestock keepers and others who claim they have no alternative water source in the dry season (46, 534). It is also possible that the river has changed course and the old channels have dried up but no-one mentioned this. The situation needs clarification.

Impacts on local culture and society

The people who were moved out of RNP left graves behind and this was mentioned as a loss by some (251, 15). The loss of access to traditional sites for making offering to ancestors and chiefs was also mentioned (415).

The park has affected the local economy by providing employment opportunities for local people. A disproportionate number of permanent and casual employees come from Idodi, which is closer to RNP headquarters. Negative effects have been that the attraction of paid work in RNP deprives nearby villages of manpower needed for self-help projects and has led to young men and women neglecting school.

Probably the presence of RNP was partly responsible for the recent upgrading of the main road from Iringa, which passes through several villages.

Attitudes to RNP

Because of its anti-hunting, fishing and honey-collecting activities, RNP is viewed with antipathy by neighbouring communities. This is especially so in Pawaga where people have received few employment or other benefits from RNP (11). Some people complained that RNP was too strenuous in enforcing the law (42, 50, 70, 44)

IMPLICATIONS FOR WILDLIFE UTILISATION PROJECTS

The main implications of the results for wildlife utilisation in REWMP are:

- Most people in the project area traditionally used a range of wildlife products. There is still a high demand for these products, but it is largely unsatisfied. Provision of meat and honey by the project would be extremely welcome in the villages visited.

- If it is desired to eventually delegate wildlife management responsibilities to local communities it will be necessary to establish new institutions, as the traditional ones are defunct.

- The principle of sustainability is appreciated in villages, but it is not clear whether sustainable management is capable of providing people with the level of traditional benefit they desire. It is therefore important to address the following:

    - The wildlife resource base (large mammals and honey) should be quantified

    - The level and value of current off-takes (legal and illegal) should be estimated.

    - The feasibility should be assessed of increasing local wildlife benefits in a sustainable way by use of current or novel methods. If non-traditional uses of wildlife are feasible which are lightly consumptive and highly profitable they should be preferred.

- There may be opportunities to assist villages in problem animal control.

- There are local wildlife experts such as village hunters who should be involved in local wildlife management activity such as cropping, problem animal control and honey hunting.

- Some evidence collected suggests that honey collection could if formalised and properly regulated generate significant economic benefits on a sustainable basis. This should be explored further. If, as appears likely, it proves impossible to do this in RNP, reasons for the low honey production of surrounding areas should be investigated further.

ACKNOWLEDGEMENTS

Without the assistance of Mr G. Ng'wani, Community Development Officer, Pawaga Division and Mr V. Mwaikambo, Community Development Officer, Idodi Division, this study would have been impossible.