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PROVIDING IMPALA MEAT (*Aepyceros melampus*) TO LOCAL POPULATIONS IN NYAMINYAMI (OMAY, ZIMBABWE)

Nutritional and sociocultural aspects
of man-wildlife interactions

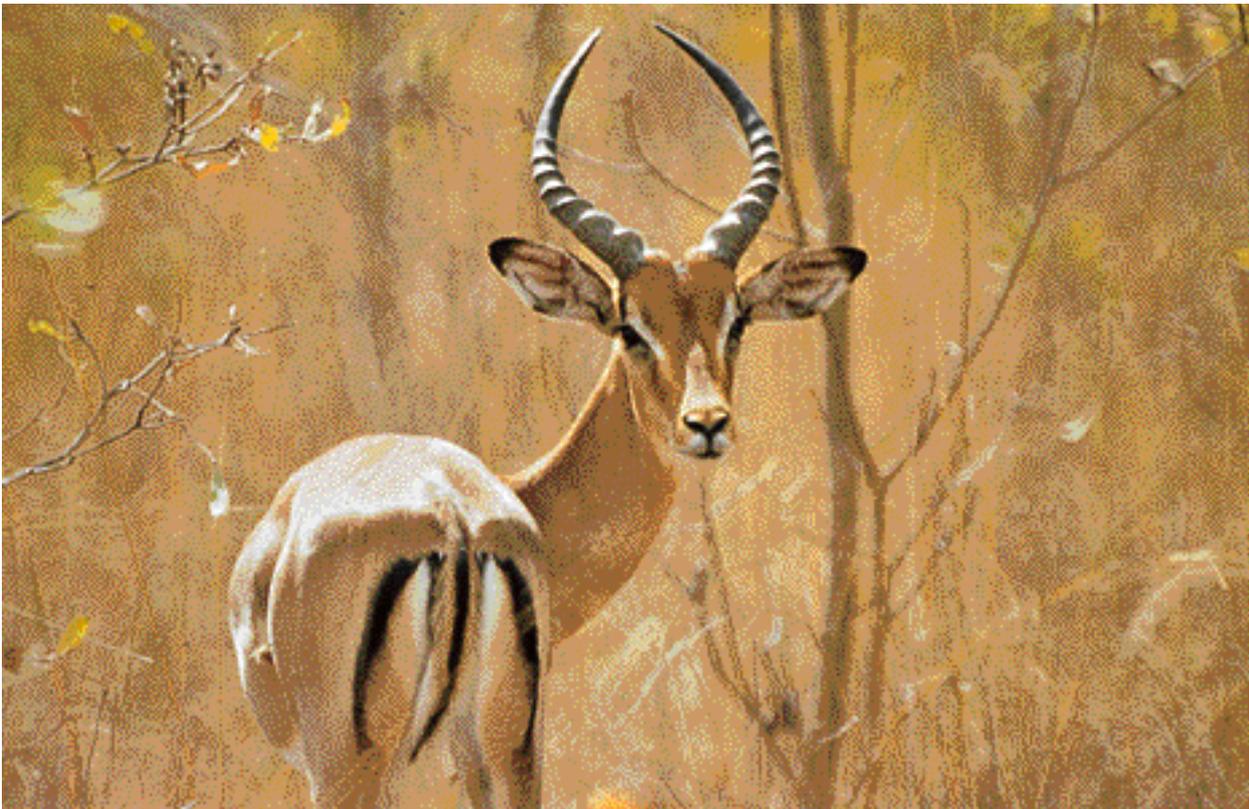


Photo : M. DE GARINE-WICHATITSKY

Zimbabwe still has a remarkably diverse and abundant wildlife, and National Parks and other protected areas represent more than 12.5% of the country. But one of the main challenges for the future is the conservation of wildlife outside national parks... in contact with local populations.

Le Zimbabwe possède encore une faune remarquablement diverse et abondante, et les parcs nationaux et autres aires protégées représentent plus de 12,5 % du pays. Mais un des défis pour le futur est de conserver la faune hors des parcs nationaux... au contact des populations locales.

The authors present the results of a survey, carried out in Zimbabwe in 1996, on the perception by local populations of wildlife conservation programs, as well as nutritional and socio-cultural aspects of bush meat for the Tonga in Nyaminyami.

If we except a few cultures which prohibit the use of meat on religious and philosophical grounds, most traditional societies consider it a valuable and tasty asset in the diet. Game is especially sought after and hunting is a valued, if sometimes ambiguous, venture. This has also been the case in the western world until the last few decades. The recent recognition of the danger of fauna extinction arose in the modern (and well-fed) western scientific community and the world-wide preservation of fauna for the future generations has become a sacred duty. These aspects are alien to most traditional societies, upon whom fauna conservation measures have been imposed from above in a rather colonial fashion.

FAUNA PRESERVATION

Zimbabwe is a good place to observe the phenomenon and its material and non-material consequences for the native populations residing in fauna conservation areas. What are their attitudes towards one of the most renowned, progressive conservation programmes: CAMPFIRE (Communal Areas Management Programme For Indigenous Resources; MARTIN, 1986)? How it is possible to avoid jeopardising their protein requirements and help them to establish positive new attitudes, also taking into account both their traditional past and scientifically grounded conservation concerns? A brief analysis of the impala meat programme in Omay (Nyama Project) might suggest some clues.

In Zimbabwe, early conservation legislation alienated commercial and communal farmers from wildlife resources (CHILD, 1996). But in 1975, the National Parks and Wildlife Act gave commercial farm-

ers the appropriate authority over wildlife on their land. Another step was made with the creation of the CAMPFIRE programme, through which local communities are empowered to manage and benefit from their wildlife in communal lands. Nyaminyami District Council of Kariba is one of the pioneers of this programme and was given responsibility for wildlife in January 1989 (TAYLOR, 1991).

Since 1993, a project (Nyama Project) aiming at cropping impala (*Aepyceros melampus*) and providing meat to local communities has been carried out on Omay communal land, Zimbabwe. Operating within the Campfire programme, the first phase of the Nyama Project was a technical success (providing cheap meat with a good hygienic standard), but little was known about the perception of the project by local populations. A survey was conducted in January 1996 to analyse sociocultural aspects of the relations of local Omay populations (mainly Tonga) with the fauna, and their nutritional status.

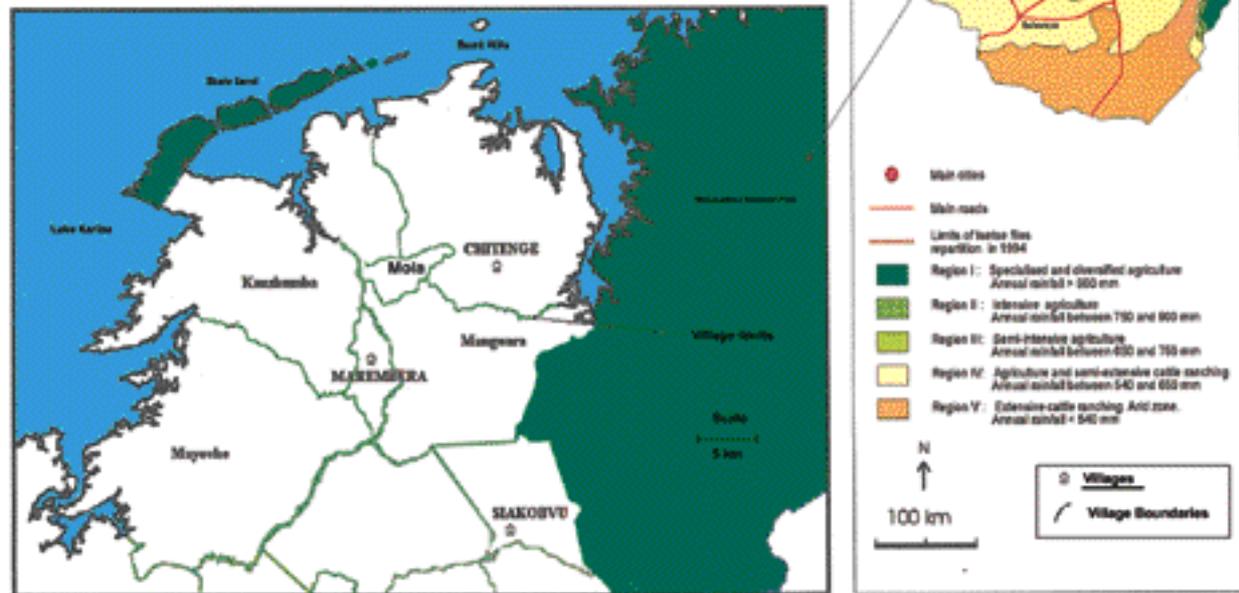
A SOCIOCULTURAL ANALYSIS

This paper is the result of one month's survey (January-February 1996) in Zimbabwe, and it attempts to reflect what people have to say about the critical issues of their daily life and the way they perceive Campfire and the Nyama Project. We concentrated the field work on Mola wards, in the villages of Chitenge and Marembera (figure 1).

Five interpreters/surveyors ("enumerators") were selected on the basis of their knowledge of traditional life and proficiency in English. A list of 25 open-ended questions was prepared and trans-

Figure 1. Survey area : Marembera and Chitenge villages (Mola A and B), Omay communal land, Zimbabwe. Zimbabwe agro-ecological and natural regions (classification based on VINCENT, THOMAS, 1961).

Zone d'étude : villages de Marembera et Chitenge (Mola A et B), zone communale de Omay, Zimbabwe. Zones agro-écologiques et régions naturelles (classification d'après VINCENT, THOMAS, 1961).



lated into Tonga, to be used as a questionnaire and as an interview base. It was used individually for adults (N = 116), mostly males, using the social-spatial network of the various enumerators. A shorter version was also used collectively in two primary schools (Mola Centre, N = 25, and Merembera, N = 51 –final grade children between 13 and 17). A total of 192 questionnaires was collected. At the same time, key informants (elderly males with a knowledge of traditional matters, and one female spirit medium) were interviewed.

Our findings may be compared to those of MUROMBEDZI (1994), who used a sample of 60 households from wards in Omay (including 15 from Mola). In most cases they coincide with and confirm his observations.

RESULTS

It is not possible to deal with the relationship with wildlife without taking into consideration at least some of the general background. A large amount of literature has already been devoted to the Tonga, displaced from the shores of the Zambezi River after the construction of the Kariba dam in the late 1950s, and a specific collection has even been published on the topic by Manchester University Press (Kariba Studies) dealing mostly with the Zambian Tonga (COLSON, 1962, 1971; SCUDDER, 1962). Excellent work has been carried out in Zimbabwe by WEINRICH (1977) and REYNOLDS (1991) and most of the local problems have been identified. How do the people in our sample perceive the main issues concerning their daily life in January 1996?

HUNGER

Hunger, mostly due to drought, comes first: mentioned in 75% of the questionnaires, 36% of the answers give it the highest ranking. It is a relevant factor with regard to attitudes and behaviour in relation to wild fauna, which is potential food. Hunger (*nzala*) is attributed to drought, irregular rainfall jeopardising the growth of seedlings, and also to poor land fertility.

It seems that hunger is, and has been, a critical issue in Tonga culture, as demonstrated by the well-known myth of Nyaminyami, which should actually be spelt *Nyama gutendwa* "(for) the meat, thank you", referring to a giant fish, probably an eel rather than the snake often portrayed. It was said to come close to the banks of the Zambezi (especially in August) and allowed

villagers to cut slices of flesh from its endless body. The Mola people add that this deity was most likely to be seen in the eastern part of what is today Lake Kariba.

In 1962, SCUDDER devoted a whole chapter of his book to famine (1962). REYNOLDS and COUSINS, in their work on Mola (1993), even give a list of 17 years between 1910 and 1987 named after particular events, i.e. starvation. For example, 1985 *nzala ya buyoni* the starvation [year] of Quelea birds. There have been more since: our informants point to 1992 and 1995 as having been especially bad.

□ **Agriculture**

The Omay area, and Mola especially, does not offer a favourable prospect with regard to agriculture. The land is classified "farming regions n° V" (VINCENT, THOMAS, 1961), at the bottom of the scale (figure 1). "... rainfall in the region is low and erratic for the reliable production of even drought-resistant fodder and grain crops" (Department of Conservation and Extension, 1984), and there is little to be done about it.

The figures for maize production in 1995 (Annual Physical and Expenditure Report of ARDA in Omay) are amazingly low: 385 kg per household in Omay, 325 kg in Mola, which represents about 50 kg per capita per year –three months' supplies. Maize is the dominant crop, followed by sorghum and millet, and yields are very low.

With such poor agricultural prospects, one wonders how the local population will be able to earn a living and satisfy its nutritional needs. In 1995, according to the ARDA report, all households experienced lack of food. In January 1996, the totality of the sample studied had undergone hunger during the last three years, mainly at the beginning of the rainy season (Octo-

ber to February). Most people acknowledged loss of weight (corresponding to a high degree of hunger), death of dogs (which is a reliable indicator of dearth) and "a few human deaths", which should be interpreted as loss of consciousness. According to the informants, two actual deaths from hunger occurred in 1995.

During our mission, food supplies were very low and subsistence was only possible through the government programme of assistance, a grain loan scheme, as has been the case for the last few years. Besides help from the government, villagers subsist during the lean period by eating and selling some of the goats they herd. In many cases, two-thirds of the flocks have been sold to cope with the hungry months. Goats also enter into the brideprice and are the most accessible capital asset available. Their sales represent 53% of household income (ARDA, 1995). It should be added that these are mostly emergency sales to cope with hunger, not just normal commercial ventures. It should be mentioned that many villagers are longing to raise cattle, as a programme of tsetse fly eradication is operating in the area.

In January 1996, most of the fields appear to be planted with maize. According to the informants, the decrease in millet and sorghum is due

to the need to cultivate a very short-cycle crop to avoid the harvest being destroyed by pests, birds and wild animals. However, maize is less drought-resistant than sorghum, millet and rapoko (*Eleusine* sp.). It was also mentioned that the youngsters prefer maize, which they consider a "modern" food.

□ **Nutrition**

During our survey, we used the 24-hour recall technique, and we also sought information about the common, everyday diet. The answers obtained by both techniques were very similar (table I).

The staple is almost exclusively sadza, a thick porridge made mostly of ground maize, very bland and accompanied by plant relishes with a little salt (REYNOLDS, 1991). It should be mentioned that use is still made of potassium obtained from ashes of grass, baobab bark, animal dung, etc. through which water is made to filter. Vegetables, pumpkin, cucumber and groundnuts are used for the relish but mostly "okra", which is the general term for a mucilaginous sauce made from both cultivated and wild species: true okra (*Hibiscus esculentus*), amaranths, jute (*Corchorus olitorius*), false sesame (*Cerathoteca sesamoides*), baobab leaves (*Adansonia digitata*)... Species gathered

TABLE I

RESULTS OF NUTRITION SURVEY IN MOLA USING TWO TYPES OF TECHNIQUES (24-HOUR RECALL AND DESCRIPTION OF EVERYDAY DIET). PROPORTION OF EACH TYPE OF FOOD ITEM IN THE DIET

	24 Hours recall (%) (459 items)	Everyday diet (%) (555 items)
Carbohydrates (mainly sadza)	55	50
Greens and vegetables	39	39
Meat (mainly chicken and goat)	4	8
Fish	2	3

in the environment are also still in use. The above-mentioned cereals are also consumed as a lighter porridge, a pap. Corn is also boiled or used as popcorn. Mention is made of a slightly fermented sorghum drink – “mahew” – and also of “chibuku”, the traditional sorghum beer, which is also brewed industrially. Though responsible for drunkenness, it nevertheless presents, some interest in terms of calories.

Animal proteins are scarce. In a few instances fish is consumed (“kapenta”, *Limnothrissa miodon*), but rarely meat (mostly goat or chicken). Little mention is made of game meat (except impala) for obvious reasons (severe repression of poaching).

There is awareness of the difficult nutritional situation as regards animal proteins (13% of the answers) – “the need for an improved relish”... These responses may reflect the influence of nutritional education in the community.

We have no clue about the quantities of food consumed. In most cases only two meals are taken per day, lunch and supper. The diet seems unbalanced, mostly maize, a carbohydrate, and vegetables; precious few animal proteins are available.

Most of the energy comes from maize, a diet liable to cause pellagra. As a matter of fact, in 1995 the ARDA/EU Report mentions 55 cases of pellagra as opposed to only nine cases in 1994 from records in Omay clinics, an increase of 600%. Action has been taken by the Save the Children Fund (UK) to improve the nutritional situation of children (6 months to 5 years). This age group is being taken care of and data is available on it: decrease in kwashiorkor and marasmus (which does not preclude the possible existence of milder malnutrition). According to LOOF and MANYAU (1994), using the clinics’ records, we still find in 1989 that 21% of the children were under weight (6 months to five

years) and 27% were stunted (Report of the Nutritional Survey in Kariba District, April 1989). These figures are twice as high as the national level of malnutrition, 11,5%. No data have been made available on children over 5 years and adults.

□ Fish

No specific enquiry was made about food commercialisation. However, very little mention was made of fish (3% of the food items most commonly used; 2% 24-hour recall). Coming from a population located 25 km from the Kariba Lake, and whose District Council owns a fishing company (Old MacKenzie Fisheries), this answer is quite unbelievable, especially in the absence of other sources of animal proteins. MUROMBEDZI (1994) described the situation as follows in 1992 “...there were 375 holders and 770 fish-buying permits,... the buyers cut down trees for firewood to dry the fish and to construct houses at the fishing camp... they do not sell the fish locally but rather transport it to urban areas where they can fetch higher prices...”.

□ Food preferences

Answers to enquiries about food preferences show a strong taste for the traditional staple, “sadza”, and to a certain extent rice. As regards drinks, “mahew” and “chibuku”, traditional fermented grain drinks, are favoured, manufactured beers and soft drinks such as Coca Cola are also appreciated.

Among animal proteins, meat comes first. There is a traditional term “bwusa” referring to a craving for animal proteins (meat and fish). Beef, chicken and goat are mentioned as well as impala, buffalo and elephant (hind legs). It would be a mistake to believe that game is the only sought-after meat. A number of wild animals such as zebra and por-

cupine are considered to have a bad smell, so their meat has to be dried before consumption.

Today, meat is mostly consumed on festive occasions: family celebrations, Christmas, Independence Day. It represents 8% of the answers concerning the most frequent food items used and 4% of the responses in the 24-hour recall survey. First on the list comes chicken, then sheep, cattle and goats (which are slaughtered in traditional rituals). Buffalo meat appears as a gift of the District Council on Independence Day. The symbolic value of meat in demonstrating prestige remains. Traditionally, certain types of meat are reserved for the chief: pangolin, ant bear, elephant’s trunk, roan antelope.

□ Hunting

The traditional role of hunter was esteemed and enhanced a man’s prestige as a provider of meat, fulfilling the needs of his kinsmen and neighbours, pleasing his parents on the matrilineal and patrilineal sides, offering specific morsels to the elderly. He was also entitled to choose pieces of the quarry such as the head and meat from the breast. He had to thank the supernatural powers, mostly his ancestors on the matrilineal side, who had permitted the success of his enterprise. Hunting large animals in traditional Tonga culture is not a trivial undertaking... It implies the approval of supernatural beings, the ancestors, who progressively grant success with larger and larger animals and expect beer offerings in return. Fulfilling nutritional and social expectations was the purpose, not commercialisation outside the local group or money.

Information obtained during our stay regarding hunting is scarce –for obvious reasons: heavy fines and prison for poaching. Allusion was made to the trapping of animals to avoid starvation during the lean



(class III traps; Rhodesia Statute Law, Act 34, 1973), suggests the possibility of allowing for some well controlled traditional subsistence hunting if it is legally permitted by the District Council and within its administrative competence (Parks and Wildlife Act 1975, as amended at the 1st August 1990. "... The Tonga do not know that if they use natural fibres and not wire and some trap designs and not others they can catch some animals..." (REYNOLDS, 1991).

WILD ANIMALS

□ General attitudes

The most important concern expressed in our sample relates to cohabitation with wild animals: "... they wanted us to live with the animals..." (TREMMELE, 1994). In response to our questionnaire, 70% of the answers refer to this problem, of which 36% give it priority ranking and out of which 7% mention "killing by elephants" (figure 2).

As can be expected, damage to crops is mentioned most frequently and villagers stress the ineffectiveness of steps taken in relation to problem animals (MUROBEDZI, 1994). Local game guards have no bullets, and referral to the district is not necessarily followed by concrete action or compensation, especially over the past few years. The need for villagers to guard their crops at night throughout the growing season is paralleled by the necessity of keeping watch during the day time over herds of goats which can be far too abundant at certain periods. Besides material destruction of potential food, watching out for animals weighs very heavily on the villagers' schedule, especially women and children, and increases stress.

Almost everybody in the sample mentions having been frightened or charged by wild animals. Elephants rank as the most dangerous ani-

Taking advantage of the abundant population of impala on the shores of lake Kariba, the Nyama Project supplies affordable meat to local communities on Omay communal Land. Operating within the CAMPFIRE Program, the project is run independently by the Nyaminyami District Council.

Tirant avantage d'une population d'impala abondante sur les bords du lac Kariba, le projet Nyama fournit de la viande à un prix abordable pour les communautés locales de la zone communale de Omay. Opérant au sein du programme CAMPFIRE, ce projet est géré de manière indépendante par le District Council de Nyaminyami.

months. Indirectly, some adults mentioned the premonitory role of dreams in signalling catches in traps. "If you dream of picking up a small animal in the bush, tomorrow your trap will be okay".

Direct questioning on hunting was made only among the children in our sample. They all wished to hunt with guns and mostly traps; more unexpectedly spears. REYNOLD (1968), referring to these traditional techniques

Photographs: C. LEPELLET

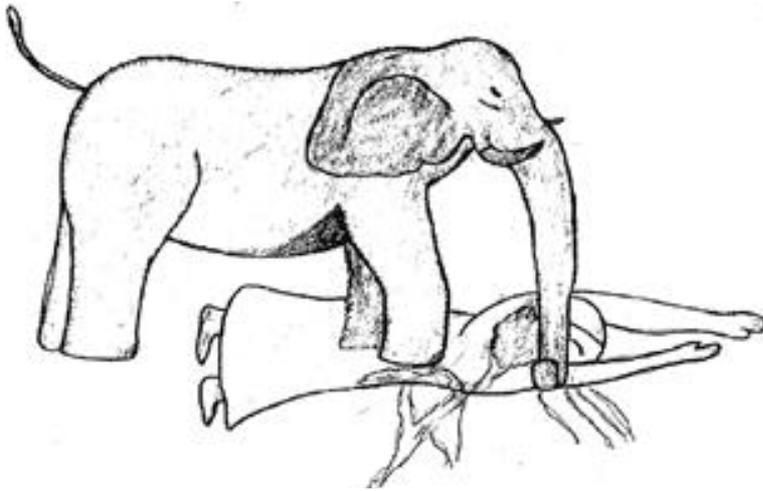


Figure 2. Elephants are perceived as cunning and dangerous animals. This drawing refers to an accident which occurred on January 13th 1996 during our stay. *Les éléphants sont perçus comme des animaux fourbes et dangereux. Ce dessin fait référence à un accident survenu le 13 janvier 1996, durant notre séjour.*

mals*, followed by buffaloes and baboons (for children). Problem animals are tracked and killed by game rangers, and villagers have access to their meat. According to them, this provides their main opportunity to benefit (at high cost!) from animals in the vicinity.

Fear of wild animals which bother adults in their fields and on roads, and children on their way to school, is omnipresent. We asked adult villagers to relate their latest dream about animals. 57 out of 116 people answered. The frequency with which animals were mentioned is as follows: first comes the lion, 20 out of 57 responses, which is understandable as it is related to the rain spirits; elephant 19; dog (which is symbolically equivalent to the lion) 12; buffalo 6. In most episodes, the dreamer was attacked and chased by these beasts, which may have

* During our stay, on 13th January 1996, on her way back to Nyakatanda fishing camp, a woman was killed by an elephant and her baby thrown into the bush. Fortunately, the baby survived.

been inhabited by an evil spirit. Informants believe that some of the dreams foreshadowed episodes which actually took place in real life.

Traditional beliefs about the action of supernatural beings and witchcraft are still very much alive. Wild animals can be dangerous simply because of their physical strength and their normal behaviour. They may also be inhabited by supernatural beings such as ancestors (*misi-mu, basangu*) who protect the land but are eager for offerings or may be angry. Alternatively, animals may also be inhabited by evil spirits (*zyelo*) attracted through witchcraft, which is still active. One of the most profitable activities of healers (*nganga*) is related to interpersonal conflicts, success in love and hunting or poaching. Traditionally, animals are not perceived as friendly. Contemporary international public opinion advocates bringing about changes in attitude and behaviour, favourable to conservation and maintenance of biodiversity. This implies that people in contact with the fauna—who may also suffer from it—obtain tangible benefits from the

new situation imposed on them (HARRISON, 1992).

□ The CAMPFIRE programme

The CAMPFIRE Programme has been operating in Omay since 1989, but it seems that its aims are not clearly perceived by the villagers. We asked the following questions: 1) what do you know about the CAMPFIRE Programme?; 2) have you benefited from it? How?; 3) what is good about this programme?; 4) what could be improved in it?

67% of adults and 87% of children said that they knew nothing about the CAMPFIRE Programme (table II). The lack of knowledge among the children is striking; a vague association of CAMPFIRE with fire wood led two of the pupils to mention "concern about trees", and one to describe the purpose of the programme as "grass burning".

These limited positive answers show, however, an awareness of the general aim of the programme, and of the benefits to the community. Some of the answers from adults acknowledged certain educational efforts. They mention the benefits of "keeping the wildlife resources for the children". However, the participatory aspect of the programme is not well perceived. People are not aware that initiatives should come from the villagers themselves; they tend to believe that they are issued by the district administration.

No one acknowledged any benefit in terms of game meat coming from safari hunting operations (as mentioned by the 1995 Nyama Project report). In relation to possible improvements, fencing of the conservation area is mentioned four times, receiving meat from the programme four times (children), concern about better information on the programme, and its management at safari operation and district levels is also expressed (table II).

There is no negative reaction expressed regarding the programme, people are just not informed about it. Those who are informed ask for more clarity on the financial revenues and their management. As mentioned by DERMAN (1995), "the Nyaminyami Wildlife Management Trust (NWMT) was set up not to involve local people in decision making but to qualify for funds generated by wildlife". There is some awareness that "because of investment in both personnel and capital, the NWMT has very high recurrent costs which decrease the wildlife and tourist revenues" (DERMAN, 1995).

□ **Nyama project**

It is clear that the Nyama Project is better known as it is locally operated and provides a very much sought-after commodity: meat (legal meat). It is, as such, also perceived as diminishing poaching (17 answers). However, improvements appear to be desirable according to the people (table III) concerning the price and the amount of meat provided. They even suggest extending the project to other species (buffalo).

Buffalo, impala and elephants are perceived by the villagers as having increased in number, which does not tally with game counts carried out during the same period in the area. As with CAMPFIRE, the need for more information and training is expressed, as well as more clarity in the management of meat and financial assets by the District Council. Villagers are rather emotional about this issue, as well as about ensuring that the meat of the impala culled in a given ward is sold to the people of the ward, and not shared with non-neighbouring villages on the basis of ancient rights, without their knowing clearly what has happened to the meat and whether some has vanished in the process, or not.

TRADITIONAL KNOWLEDGE

Many aspects of Tonga traditional culture are still vivid. There are many reasons for this. As written by ELLERT (1984) "... it was the policy of the Rhodesian government... to sup-

press the development of the Zambezi Valley Va-Tonga... the intention being to preserve the Va-Tonga in a primitive stage of development as tourist attraction...". They have suffered the hardship of authoritarian

TABLE II
AWARENESS OF CAMPFIRE IN A SAMPLE OF 116 ADULTS AND 76 CHILDREN IN MOLA
BENEFITS AND SUGGESTED IMPROVEMENTS IN POSITIVE ANSWERS (38 ADULTS, 10 CHILDREN)

Awareness	"What do you know about Campfire"?	"Nothing"	67% 87% Ch
Benefits	Money invested in community improvement		10%
	Ward dividends		20%
Good aspects	Nature conservation for future generations		28%
			13% Ch
	Development		13%
	Training		4%
Improvements	More information on the programme		29%
	More clarity about management		24%

Ch = Children.

TABLE III
AWARENESS OF THE NYAMA PROJECT IN A SAMPLE OF 116 ADULTS AND 76 CHILDREN IN MOLA
BENEFITS AND SUGGESTED IMPROVEMENTS FOR SOME OF THE POSITIVE ANSWERS (38 ADULTS, 10 CHILDREN) (%)

Awareness	"What do you know about the Nyama Project"?	"Nothing"	38 48 Ch
Benefits	Meat		32
	Money return at community level		10
Good aspects	Cheap meat		22
			26 Ch
	Reducing poaching		4
			13 Ch
	Better relish		9
	Money revenues		5
Improvements	Providing cheaper meat		12
	Providing more meat		15
	Using other species (mostly buffalo)		11
	More information and training		6
	More clarity in management		4

Ch = Children.

relocation in a remote, godforsaken geographical area where little modern development has taken place. They retain an idealised memory of the time they were living along the Zambezi River. They refer to their Zambian ties and miss their kinsfolk, now living on the Zambian side of Lake Kariba. They are, however, influenced by Shona culture. As stated by Murphree, since the 1950s, for the 18,000 Tonga in Kariba and Gokwe districts, the educational languages are Shona and English, "... the possibility of the introduction of Tonga primers was investigated..." (MURPHREE, 1988). On 22nd April 1994, The Herald indicated: "Tonga elders press for teaching of their language in schools" (TREMMELE, 1994).

Although they are said to assert their ethnicity (MURPHREE, 1998), the Kariba Tonga seem less advanced than the more politicised Binga people in defending their cultural authenticity and their rights (TREMMELE, 1994). In order to understand the present Tonga socio-religious organisation, it might be helpful to consider the similarities (possibly due to borrowing) with the Shona culture (spirit possession, *mhondoro*) (COLSON, 1969; GARBETT, 1969; ASCHWANDEN, 1987).

□ Totem and taboos

To a question referring to their religious beliefs, out of 85 adults interviewed, 54 refer to "traditional culture", "ancestor cult", spirit mediums. 31 are Christians, Roman Catholics, who are well accepted "as they honour the deceased people" (ancestral spirits); Faith Apostles are appreciated for possession by the Holy Spirit (spirit medium); Methodists and, lastly, the Faith Apostolic Mission, considered as stern (they actually enforce the avoidance of alcohol, pork, duck and hare).



Photograph: I. DE CARPINE

Spirit mediums, who may be women, are leading figures in dealing with the environmental and social issues of contemporary life.

Le « spirit medium », qui peut être une femme, est un acteur central des questions touchant à l'environnement et aux aspects sociaux de la vie contemporaine.

Almost all the people in the sample are able to name their totem on the matrilineal and the patrilineal side and say that they respect a food prohibition associated with it. This is the main aspect we touched on.

As in many cultures, temporary food avoidances persist and concern nutritionally vulnerable groups, especially pregnant women; they refer to sympathetic magic principles. Pregnant women should not consume eggs for fear of giving birth to a bald child, they should refrain from eating zebra, spotted animals, and liver to avoid marks on the baby's body, etc. As in most cases, these short-term taboos have little nutritional influence.

□ Socio-religious organisation

Around the village chief, who still plays an active role in the traditional system and provides a link with the

national administration, elders retain decision-making powers in relation to the ancestor cult, celebrations related to the annual cycle and rain making. Agricultural hazards such as drought are interpreted as the consequence of an imbalance within the community: too much competition between local chiefs, land disputes, incest, neglect of ancestors. The symbolic correspondence between social behaviour and local ecology could be used to maintain a sustainable environment policy by improving the education of local populations concerning certain basic scientific aspects of wildlife management.

Under the control of the chief and the elders, rituals are performed and beer is brewed periodically, for instance at the beginning of the rains and at harvest time. Prayers, ceremonies, offerings and sacrifices are carried out at sacred grounds such as the chief's cemetery in Mola (Marende) or altars close to sacred trees. Rituals marking the return of the rain messengers from Gokwe (a small town located more than 100 km away from Mola) were performed during our visit.

Rainmaking is a crucial issue (a consequence of the local ecology). It can be sought from local spirit mediums and, if necessary, outside the community. During our stay a delegation from Mola went to Gokwe on foot, as traditionally required (180 km each way), to ask for the assistance of the main rainmaker in the area, a Shona (or a Sengwa) medium for Navana, a protecting spirit. The coincidence was conspicuous: a few days later Mola and its vicinity was rewarded by rainfall varying from 70 to 130 mm in one day.

The origin of drought is symbolically perceived as being due to human misbehaviour which will be globally identified by the spirit medium. It will then be investigated locally. Culprits

who have committed a serious offence, such as incest or unruly land conflicts, will be singled out in person and the appropriate rituals performed. The belief in spirit mediums has an unexpected consequence in Mola: a taboo on working in the fields on Thursdays. It is linked to worship of Navana, the rain spirit, possessing the principal medium of the area. This prohibition is still respected. According to WEINRICH (1977) such days are similar to Shona *cisi* days, breaking the taboo is believed to trigger adverse events occurring in the fields, e.g. crop destruction by animals, death from lightning.

The ritual life of the Tonga shows that in their minds land is still loaded with symbolical significations, not a profane bounty to be plundered at will. Respected sites, sacred areas, ritual places and burial grounds exist, as demonstrated by ZVAPERA MATOWANYIKA (1991) in a similar community among the Kagori Shona. Relationship between the people and the land is mediated by ancestor spirits reincarnated as mediums... The rain ritual in Mola involving Gokwe and the Shona or Sangwe spirit medium suggests the existence of symbolic and historical links which go beyond local and even ethnic limits (COLSON, 1971), taking into account what GARBETT (1969) termed "spirit realms", under the control of the most senior of the local *mhondoro* (SPIERENBURG, 1995).

Regional history should be taken into consideration in setting limits between human communities and wildlife. Heads of household still perform rituals related to the family cycle and the agricultural calendar on altars in their own compounds.

At community, family and individual level, specific issues will prompt recourse to the spirit medium and the *ganga* (healer). Witchcraft is practised for positive and negative effects:

satisfactory pregnancy, avoidance of ghosts and evil spirits, safe travelling, obtaining work, success in love, hunting or business. Acquiring certain very powerful magic charms may imply the symbolic gift to the supernatural powers of the soul of a near relative, which is believed to cause his death.

Spirit mediums and *ganga* retain powerful social functions and the political role of the former during the recent struggle in Zimbabwean history has been abundantly documented. The temptation to use these traditional figures as levers in development schemes such as those operating in Omay is great. A recent report by SPIERENBURG (1995), about an attempt to involve them at Dande in the Mid Zambezi Rural Development Project, introduces a note of caution as it has not helped very much in clarifying the issues and contributing to the progress of the programme. By no means should the involvement of *ganga* and spirit mediums as dynamic factors of progress appear as a general recipe; they are not always convinced by developers' arguments.

□ Ethnozoology, ethnobotany

COLSON (1962), SCUDDER (1971), WEINRICH (1977), and REYNOLDS and COUSINS (1993) have demonstrated the profound knowledge of the Tonga in terms of ethnoscience. However, questions on the use of wild plants in our questionnaire did not bring forth many answers. It is likely that the open questionnaire technique appeared too time-consuming and tiring to those questioned.

Interviews gave a better result. Young adult men show knowledge of 52 out of the list of 165 species identified by SCUDDER (1971), which does not mean that they are all actually used. It is likely that better results would be obtained with women and the elderly. The latter showed knowledge of most of the

mammals present in the area and, more unexpectedly, familiarity with fish species. Folk tales in which animals are the main characters are still vivid in the memory of adults and children.

Carrying out a comprehensive study of the Tonga folk knowledge is still likely to be fruitful. It would have to be undertaken rapidly as it is conceivable that coercive measures regarding hunting, fishing and gathering will contribute to erasing traditional expertise about wild life, which has become a perilous topic and a non-operational field. This tendency will not help to increase a spirit of responsibility and participation in the CAMPFIRE programme and in developing constructive behaviour towards wildlife.

DISCUSSION

The nutritional situation in Mola is alarming in terms of carbohydrates as well as proteins, which confirms previous work carried out in the area (LOOF, MANYAU, 1994)... In order to determine the magnitude of the problem, a careful clinico-nutritional survey should be carried out, but it is clear that animal proteins are lacking.

If nothing can be done (which remains to be discussed) as regards access to game meat because of inclusion in the CAMPFIRE system, the solution resides in the accession of the local Tonga population to the Kariba fish resources. Tonga citizens of Mola should have priority to fish in terms of capture, commercialisation and consumption rather than seeing the production of kapenta and other fish from the various fishing camps exported without any major benefit to the indigenous population.

All the organisations represented in Nyaminyami agree that the nutritional situation in the area is alarming

(e.g. the nutritional well-being of the total population should therefore become priority n° 1, which has not been the case so far although the nutritional issue has been endlessly mentioned).

It would be unfortunate if the international community became aware of the fact that Nyaminyami, a star area of the Zimbabwe CAMPFIRE Programme (which should illustrate the most progressive attempt towards the sustainable exploitation of wildlife by actively participating local communities), was also a conspicuous area in terms of human malnutrition.

Wild animals put a strain on the population, destroy crops, frighten and sometimes kill people. This is unanimously recognised by all organisations involved in Omay, and constitutes one of the villagers' main concerns.

The answer may be the electric fence. However, the poor management of it by villagers might be an indication that it is not totally accepted and that people do not like the feeling of being fenced in.

The second possibility is a broad buffer zone, very carefully watched and guarded by properly equipped, decentralised game guards, who are also well supplied with ammunition, allowing rapid intervention to deal with marauding animals. In any case, damage of all kinds by wild animals should be instantly assessed and appropriate compensation (with little red tape) rapidly paid to the victim.

As quoted by the 1993 Nyaminyami Progress Report "The CAMPFIRE Programme seeks to demonstrate the hypothesis that natural resource utilisation, specifically wildlife, is a profitable and sustainable land use option. It seeks also to promote and strengthen institutions at village level so that communities are equipped to utilise their natural resources on a sustainable basis and to manage the

revenues derived from such activities. It therefore promotes the establishment of self-sufficient programmes which will promote increased local employment and income through the sustainable utilisation of wildlife".

Among people living in contact with the wild, community involvement and change in attitude and behaviour are crucial; they constitute the most original aspect of the programme. It is clear that in order to change their traditional behaviour, which is deeply related to the ethos of their culture, people need to be strongly motivated. COLCHESTER (1994) has very thoroughly reviewed the cultural and psychological factors involved. The villagers are impeded from carrying out highly valued activities. It is therefore necessary that sufficient benefits are derived from the new situation which has been imposed on them by strangers, in accordance with the latest "Eurocentric" priorities (BONNER, 1993) prevalent in the Western world, and in which they had practically no say.

The Nyaminyami Rural District Council is perfectly aware of the difficulties encountered. It very honestly states: "During 1993 most decisions were made by the communities through meetings but ward dividends alone are insufficient to motivate communities to manage their wildlife resources. Local communities need to be actively involved in management decisions and not passive recipients of revenues generated by wildlife. It is unlikely that the revenues or the meat distributed to date, or the manner in which they have been distributed have fully instilled in local people a sense of responsibility or accountability for the wild life which surrounds them, as NWMP/NRDC continue to adopt a top down approach, although this approach has softened" (CAMPFIRE Progress Report, 1994; METCALFE, 1994).

Our findings fully support these views. Direct contact with the population leads us to make the following remarks. More information is needed about the programme's aim, its implementation and a clear view of what use is made of money and meat. Villagers do not seem to have precise knowledge of the priorities governing the allocation of revenues generated by CAMPFIRE, nor do they know that they are themselves the ones who should decide what these priorities should be. There is no awareness of the possibility of improving the nutritional well-being of the community through CAMPFIRE revenues. Increased efforts in nutritional education might help in this respect and the policy of the NRDC and NWMP should be modified to give high precedence to the nutritional well-being of the Nyaminyami population as a whole.

REVENUES AND STAPLES

Staple crop yields are low and wild animals are liable to destroy some of them, which maintains a feeling of insecurity as to the success of any agricultural endeavours. REYNOLDS (1991) quotes villagers referring to "... the place where we grow crops although we know that the elephant will eat them...". In exchange for attitudes respecting wildlife, CAMPFIRE revenues could be made to provide each villager with sufficient money to buy at least part of his staple food. This remittance (in cash or, preferably, in kind) should be considered as a legitimate royalty on game and not as a charitable relief gift of governmental and non-governmental organisations, which nurtures the impression of being assisted. It would bring security to villagers who have great difficulty in keeping their staple crops free from raids by wild animals, and would enable them to concentrate on developing gardening, at which they were good, in areas closer to the village and easier to control.

MEAT

The villagers need meat; they feel that the game killed in their neighbourhood is "their meat" to which they should have absolute priority. The policy whereby it is also distributed in other wards is badly accepted.

Nevertheless, the Nyama project is well appreciated. It will remain so provided cheap prices are maintained. The suggestion whereby villagers should benefit from cheaper prices than outsiders and wage earners is constructive. The villagers ask for more meat; if material conditions permit, the programme should be extended to other species, i.e. buffalo.

Meat and money do not altogether make up for the loss of a highly prestigious activity, hunting, which could alleviate food problems and make an appreciable contribution to the nutritional value of the diet. If the District Council can be considered "an appropriate authority" and is ready to take the risk, allowing for strictly controlled traditional subsistence hunting of the most abundant species during hungry periods (forbidding firearms, nylon and metal snares and traps) might ease the pressure and bring about a less negative perception of modern wildlife management.

ECOLOGICAL KNOWLEDGE FOR THE VILLAGERS

Nyaminyami villagers are prohibited from interacting with the fauna and it is understandable that they feel alienated from wildlife management efforts (FERON, NOBULA, 1994). Such a negative situation is likely to create disinterest among children or an aversion to wildlife, attitudes which are not very conducive to active participation. However, knowledge and interest about fauna is still present: safari operators and their teams are envied,

game hunting and photographing are appreciated. The field guides on mammals, birds, and fishes which we used during our study were avidly consulted,...

Villagers should be fully-fledged partners in game management ventures. To increase their involvement, they should have access to the best possible modern information about wildlife. In addition to routine courses on natural history which are already part of the school programme, why not provide specific training about the regional fauna, its behaviour, its management, and the ecological and economic problems involved? A further step could be to bring scientific insight to, for instance, adult men concerning fauna, and women as regards flora. Traditional knowledge about food and medicinal plants could be enhanced with information about the nutritional value of the resources available in the environment, especially with regard to those which are accessible on the spot during lean periods. In accordance with the general process of modernisation, their use will become obsolete if nothing is done to justify scientifically their exploitation in the eyes of their users.

LOCAL INITIATIVE

The 1993 Nyaminyami Progress Report mentions "... the lack of initiative and the passivity of the villagers as well as the persistence of a top down approach to the problems...". This is a crucial point, which exceeds the limits of our study. For historical reasons, beginning with colonial policy, the Tonga people have been marginalised and at present apparently still have to master Shona before learning English, which delays their training. In addition, hungry periods interfere with their school attendance. Such a situation cannot lead to high academic achievement and precludes their inclusion in medium and high-level national policy-making bodies. Even at district level, very few offices are held by local

Tonga. Similarly, very few are involved in profitable activities such as fishing and fish commercialisation, leaving the initiative to outsiders who have a higher academic level and meet the financial and managerial requirements. Changing this overall situation may take a long time. Psychological reasons should also be mentioned. The Tonga are less advanced in the modernising process than other Zimbabwean populations and are looked down upon by their elites. MURPHREE (1988) mentions a certain feeling of inferiority towards the dominant cultures and especially in Nyaminyami with regard to the Shona.

The Tonga did not obtain much of what they were promised by the governments after the authoritarian relocation process they suffered with the creation of the Kariba Dam. No wonder they are sceptical about development ventures and tend to passively expect relief in the event of emergency. They need a demonstration of the palpable benefits obtained from wildlife. They also need to gain confidence in themselves through educational approaches in order to become active and responsible partners in the rational management of their environment. Measures in their favour have to be translated into action. For instance, preference should be given to Tonga in the assignment of administrative and technical responsibilities within their capacities in their own homeland. Despite their reduced financial means, the Tonga should also be given access to business opportunities (for instance, in fishing ventures). This is not the case at present as very high fees are about to be asked for kapenta fishing permits (see Sunday Mail, 14th January 1996).

BALNEAVES, High Commissioner for Rhodesia and Nyasaland (1958, quoted by REYNOLDS, COUSINS, 1993) wrote: "... Caught up in the ruthless march of progress, the



Tonga have had to leave their homes... the Tonga should gain immeasurably from the balanced exploitation of the Lake's resources and the game,... so rudely displaced, [they should] find space to reinstate themselves in an area secure for man".

34 years later, LESSING (1992) remarks "... They are thin and some are stunted... Unable to fish, removed from the rich alluvial soils that produced two or three crops a year... the Tonga tried maize but had to reckon with elephants, who love maize... I can recommend travellers to visit Kariba, for there is nothing like it anywhere else in the

world. But do not visit the river Tonga, for they will break your heart" (quoted by TREMMEL, 1994). In broad terms, as remarked by HARRISON (1992), "... the cost of preserving the world's wildlife heritage should never fall on the shoulders of the world's poor. The rich North has an obligation to make sure that the world's gain is not their loss...".

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R É S U M É

LA FOURNITURE DE VIANDE D'IMPALA (*AEPYCEROS MELAMPUS*) AUX POPULATIONS LOCALES DE NYAMINYAMI (OMAY, ZIMBABWE)

Aspects nutritionnels et socioculturels des interactions homme-animal

La viande de brousse est une ressource importante pour les populations traditionnelles vivant au contact de la grande faune, d'un point de vue socioculturel et également d'un point de vue nutritionnel. Mais les mesures de conservation de la nature prises en Afrique en ont bien souvent limité ou interdit l'accès aux populations locales. Dans les zones communales de Nyaminyami (Omay, Zimbabwe), un programme d'abattage (Projet Nyama) et de vente de viande d'impala (*Aepyceros melampus*) aux communautés locales opère dans le cadre du programme CAMPFIRE, depuis plusieurs années. Les populations locales, majoritairement tonga, possèdent une connaissance profonde de la faune et de la flore de la zone sur laquelle elles ont été déplacées depuis la création du lac Kariba. La grande faune suscite une peur symbolique entretenue par les agressions subies par les personnes lorsqu'elles se déplacent sur la zone ou qu'elles protègent leurs cultures contre les invasions d'animaux. D'autre part, les habitants de Mola vivent dans une situation nutritionnelle très précaire. Le Projet Nyama est en conséquence relativement bien connu et perçu par les populations locales. Pour améliorer la perception du projet, les personnes interrogées suggèrent l'extension du programme à d'autres espèces que l'impala, et une plus grande transparence sur les modes de fonctionnement du projet, notamment le choix des points de distribution, approvisionnés en fonction des zones où les animaux sont abattus.

Mots-clés: viande de brousse, impala, gestion de la faune, Tonga, nutrition, ethnozoologie, Zimbabwe.

S U M M A R Y

PROVIDING IMPALA MEAT (*AEPYCEROS MELAMPUS*) TO LOCAL POPULATIONS IN NYAMINYAMI (OMAY, ZIMBABWE)

Nutritional and sociocultural aspects of man-wildlife interactions

Bush meat is an important resource for traditional populations living in contact with large African mammals, from a sociocultural and nutritional point of view. But nature conservation policies implemented in Africa have often limited or prohibited access of local people to this resource. In the Nyaminyami Communal Lands (Omay, Zimbabwe), a project (Nyama Project) aimed at cropping impala (*Aepyceros melampus*) and selling the meat to local communities has been operating for several years within the CAMPFIRE programme. During a survey carried out in January 1996, it was found that local populations, mainly Tonga, still retain a profound knowledge of the surrounding fauna and flora, despite the fact that they were displaced after the creation of lake Kariba. Big game at hand is a tempting bonus. It also maintains an ancestral fear that is reinforced by the aggression felt by people when they travel in the area or protect their crops from animal raiding. People living in Mola are in a very precarious nutritional situation. Consequently, the Nyama Project is relatively well known and well perceived by the local people who were questioned. To improve the perception of the project, local communities suggest that other game species could also be included in the cropping programme and ask for more transparency in the functioning of the project, especially with regard to the sensitive issue of where to crop the animals and where to distribute the meat.

Key words: bush meat, impala, wildlife management, Tonga, nutrition, ethnozoology, Zimbabwe.

R E S U M E N

EL SUMINISTRO DE CARNE DE IMPALA (*AEPYCEROS MELAMPUS*) A LAS POBLACIONES LOCALES DE NYAMINYAMI (OMAY, ZIMBABWE)

Aspectos nutricionales y socioculturales de las interacciones hombre-animal

La carne procedente de la selva constituye un recurso importante para las poblaciones tradicionales que viven en contacto con la gran fauna, tanto desde un punto de vista sociocultural, como también desde el punto de vista nutricional. Pero, las medidas en pro de la conservación de la naturaleza tomadas en África han limitado o prohibido a las poblaciones locales el acceso a este recurso. En las zonas comunales de Nyaminyami (Omay, Zimbabwe), un programa de matanza (Proyecto Nyama) y de venta de carne de impala (*Aepyceros melampus*) en las comunidades locales, se ha llevado a cabo en el marco del programa CAMPFIRE desde hace varios años. Las poblaciones locales, en su mayoría tonga, poseen un profundo conocimiento de la fauna y la flora de la zona en la cual se han visto desplazadas desde la creación del lago Kariba. La gran fauna crea un temor simbólico mantenido por las agresiones resentidas con motivo de los desplazamientos en esta zona o la protección de los cultivos. Por consiguiente, el Proyecto Nyama es relativamente bien conocido y percibido por las poblaciones locales. Para mejorar el enfoque del proyecto, las personas interrogadas han sugerido la ampliación del programa a otras especies distintas del impala, así como una mayor transparencia respecto a los modos de funcionamiento del proyecto, y fundamentalmente, la opción de los puntos de distribución aprovisionados acorde a las áreas en que se efectúa la matanza de los animales.

Palabras clave: carne de selva, impala, gestión de la fauna, Tonga, nutrición, etozoología, Zimbabwe.

SYNOPSIS

**LA FOURNITURE DE VIANDE D'IMPALA (*AEPYCEROS MELAMPUS*)
AUX POPULATIONS LOCALES DE NYAMINYAMI (OMAY, ZIMBABWE)
Aspects nutritionnels et socioculturels des interactions homme-animal**

IGOR DE GARINE, MICHEL DE GARINE-WICHATITSKY

Le problème des relations entre la faune des zones de conservation et les populations qui leur sont voisines est crucial. L'utilisation de la viande de brousse en est un aspect non négligeable et un facteur de l'intérêt que les populations locales portent à la protection de la nature.

UNE ANALYSE SOCIOCULTURELLE

Au cours d'une mission d'un mois (janvier-février 1996) dans la population tonga du district de Nyaminyami (zones communales d'Omay, Zimbabwe), l'on s'est efforcé de déterminer l'attitude des villageois face aux efforts de conservation entrepris dans le cadre du programme participatif CAMPFIRE (Communal Areas Management Programme For Indigenous Resources) et du projet d'utilisation de la viande d'impala, *Aepyceros melampus* (Projet Nyama). Une liste de 25 questions ouvertes a été soumise à un échantillon de 116 hommes adultes et 76 enfants âgés de 13 à 17 ans.

LES RÉSULTATS

La nutrition

La faim apparaît comme un élément majeur. Elle est due à la pauvreté des sols, aux aléas climatiques, aux restrictions de l'utilisation de la faune et des ressources végétales sauvages. On peut y ajouter une réticence administrative concernant le développement de l'élevage dans un écosystème fragile. Le niveau nutritionnel de la population est peu satisfaisant. La consommation des protéines animales y est dérisoire. Un accès au poisson du lac Kariba, situé sur les terres qui étaient traditionnellement habitées par les Tongas, pourrait apporter une solution. Les animaux sauvages (e.g. éléphants, buffles, babouins et grands prédateurs), qui proviennent du parc national voisin de Matusadona, sont responsables de fréquentes déprédations dans les cultures, coupables d'accidents parfois mortels, et sont donc perçus de façon négative. Dans ce contexte, le programme CAMPFIRE apparaît comme peu connu par les villageois, alors que le Projet Nyama bénéficie d'une image relativement positive.

Le savoir traditionnel

La connaissance traditionnelle en matière d'ethnozoologie peut être mise à profit pour développer un dialogue avec les responsables de la conservation. On notera que l'attitude traditionnelle concernant le gibier n'est pas permissive, elle est codifiée. L'organisation sociale territoriale et religieuse de la population traditionnelle reste vivace et il importe d'en tenir compte lors de la mise en place de programmes de conservation adaptés aux situations locales. Les savoirs profonds concernant la faune et la flore sont présents et maintiennent une attitude dynamique de la gestion des ressources.

LES PROPOSITIONS

Il serait utile de tirer profit de ces savoirs et de les compléter par un programme éducatif qui mettrait à la portée des villageois les connaissances scientifiques en matière de gestion de la faune. Ceci implique un contact étroit avec le terrain, une meilleure consultation des populations et une attitude moins directive de la part des responsables. Le Projet Nyama pourrait servir de support à une telle entreprise. □