R E P O R T

DIET AND CONSERVATION STATUS OF CAPE CLAWLESS OTTERS IN EASTERN ZIMBABWE

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ABSTRACT: Kairezi otters are subject to human disturbance in the KRPA, including trapping at the Nyafaru trout farm, they are not regularly hunted, and the national park at least offers the population some protection. However there is a long-term threat to the catchment´s otters from habitat loss: clearance of riverine thicket for fuel wood is escalating within the KRPA, but most clearance is likely to be downstream in the unprotected areas of the communal land. Since the otters occur at naturally low densities in the catchment they are highly vulnerable to population fragmentation. Many rivers in Zimbabwe´s eastern highlands face a similar situation of degradation by subsistence agriculture, and therefore it is fair to conclude that the conservation status of the region's clawless otter population is fragile. If the problems of the KRPA could be solved the scheme could act as a model for further community-based catchment conservation schemes in the area, within which clawless otter conservation could be promoted.

INTRODUCTION

Since 1988 a CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) scheme has been established along a 7 km stretch of the Kairezi River in the eastern highlands of Zimbabwe. The river flows from Nyanga National Park into an adjacent subsistence agricultural (communal) area and has been stocked with rainbow trout *Oncorhynchus mykiss*. The local population sell the fishing rights and have established a conservation corridor, the Kairezi River Protected Area (KRPA), in which livestock grazing, human settlement and fuel-wood cutting are restricted to prevent soil erosion and siltation of the catchment and to ensure the future sustainability of the scheme. However, trout catches have declined since 1988, discouraging visiting fishermen and reducing the revenue generated for the local community. Consequently the justification for the conservation corridor is being lost and human encroachment, overgrazing and wood-cutting are rife in the KRPA.

Trout anglers have suspected that predation by resident Cape clawless otters *Aonyx capensis* is one of the causes of the decline in trout numbers. This study investigated this assumption and also considered the population density and conservation status of clawless otters in the catchment.

METHODS

A total of 20 km of the Kairezi watercourse was studied intensively between January and June 1993, covering both the KRPA and the Nyanga National Park. In February 800 trout of approximately 200 mm in length were stocked at four sites within the KRPA. Otter scats were collected from the area every month and their contents were analyzed (after ROWE-ROWE, 1977a; VAN DER ZEE, 1981; VERWOERD, 1987). The lengths of trout eaten were estimated by comparing bones found in scats with

those of specimens of a known size. The area was searched intensively for otter signs. Holts were categorized as “main” or “subsidiary” (KRUUK and HEWSON, 1978) according to their frequency of signs activity. Inter-holt distances were measured along the Kairezi´s course. Open-ended interviews were carried out among members of the local community to establish the extent of otter hunting and trapping. River crab *Potamon perlatus* densities were estimated by mark-recapture sampling at two sites within the KRPA and related to estimated otter densities.

RESULTS

Diet

Of the 255 scats collected, trout remains occurred in six of them (1% RF). Crabs, catfish, frogs and dragonfly larvae constituted 93.6% of the diet (table 1). The trout eaten were estimated to be 190-260 mm long, and five of the scats containing them were found in the KRPA.

Table 1. Summary of food items recorded in 255 *Aonyx capensis* scats collected from the Upper Kairezi River between January and June 193. (%RF=relative frequency of occurrence)

Prey	Occurrence	
	Actual	%RF
River crab, *Potamon perlatus*	255	41.9
Mountain catfish, *Amphilius uranoscopus*	115	18.9
Dragonfly larvae, *Anax imperator*	72	11.8
River frog, *Rana angolensis*	67	11.0
Ruminant dung	29	4.8
African mottled eel, *Anguilla bengalensis*	19	3.1
Dung beetles, *Onitis, Diastellopalpus spp*.	13	2.1
Rainbow trout, *Oncorhynchus mykiss*	6	1.0
Locust, Acrididae	6	1.0
Vlei rat, *Otomys irroratus*	5	0.8
Grasshopper, Tettigoniodea	4	0.7
Shield bug, Pentatomidae	4	0.7
Herald snake, *Crotaphopeltis hotamboeia*	2	0.3
Brown water snake, *Lycodomorphus rufulus*	2	0.3
Dragonfly larvae, Libellulidae	2	0.3
Moth adult, Sphingidae	1	0.2
Caterpillar, Lepidoptera	1	0.2
Soldier termite, Termitidae	1	0.2
Earwig, Forficulinae	1	0.2
Common toad, *Bufo regularis*	1	0.2
Masked weaver, *Ploceus velatus*	1	0.2
Dragonfly adult, *A. imperator*	1	0.2

Otter numbers and status

Nine holts were located in the study area, three of which were recognized as main holts. The mean distance between all holts was 1.15 km (n=8, S.E.=1.51, range=0.33-1.6) and the overall holt density was 0.45/km of watercourse. The mean distance between main holts was 3.27 km. Local inhabitants explained that otters are not hunted with dogs because they are hard to catch and aggressive. Although the animal´s face oils are considered valuable as a fertility enhancement for women, otters are not regularly killed for this purpose. Eight otters have been trapped since 1988 at a local trout farm in the village of Nyafaru where they are a regular pest, killing trout indiscriminately.

Crab densities

The overall density of crabs was 0.32 crabs/m^2 and the mean width of crabs caught was 27.1 mm (n=88, S.E.=0.6, range=18.7-39.5).

DISCUSSION

Otters do eat trout in the Kairezi but in the months studied they were an unimportant food item, suggesting that otters predation is not the cause of the KRPA´s problems. This result is similar to that of ROWE-ROWE (1977a), who also found that trout were unimportant prey for clawless otters inhabiting a dam (2% RF) and a stream (3% RF) in Natal, South Africa.

The catfish and eels were more important fish prey than trout for Kairezi clawless otters can partly be explained by the species´ characteristic morphology. Clawless otters have evolved as predators of benthic animals which they catch largely by feel with their sensitive, fingered front feet (ROWE-ROWE, 1977b, 1977c; ZEE, 1981; VERWOERD, 1987), and are therefore better adapted to catching benthic fish such as catfish and eels. Trout live mid-water where the otters could only locate them by sight.

Otters usually prey on smaller fish which are slower and easier to catch, and possibly more numerous (ROWE-ROWE, 1977a, 1977c; ZEE, 1981; KRUUK and MOORHOUSE, 1990). This selectivity is marked for salmonids which are swifter swimmers than most fish species preyed upon by otters (ERLINGE, 1968; ROWE-ROWE, 1977c). Thus in Natal 90% of the trout eaten by clawless otters were less than 200 mm long (ROWE-ROWE, 1977a), yet in the Kairezi the trout eaten either equaled or exceeded this size. A possible explanation is that they were disabled fish that were stocked in February. Farmed trout frequently have mutilated fins from contact with others in stewed ponds and in natural situation their swimming ability is impaired, making them easier for otters to catch, as ERLINGE (1968) demonstrated. In comparison, smaller wild trout in the Kairezi may have been swifter swimmers and less naive to predators.

The holts found were similar in character to those described by ROWE-ROWE (1992) in Natal. In comparison with the Natal holt densities of 3.1/km (ROWE-ROWE, 1992) the Kairezi densities of 0.45/km were considerably lower. Using the minimum coastal estimate of on adult otter per four holts (ARDEN-CLARKE, 1986; VERWOERD, 1987; ROWE-ROWE, 1992), which may not be applicable to freshwater habitats, the density of otters on the Kairezi was approximately 1/10 km, which is also considerably lower than ROWE-ROWE (1992) estimate in the Drakensburg of 1/3-4 km of riverbank.

It is also possible that clawless otter densities in freshwater are related to the density of their staple food, *Potamonautes spp*. crabs. The density of crabs in the Kairezi ($0.32/m^2$) was considerably lower than on the Buffalo River ($1.72\text{-}5.25/m^2$) (HILL and O´KEEFE, 1992) and the Eerste River ($2.0/m^2$) (ARKELL, 1979) in South Africa. Clawless otters occur in the Buffalo (HILL, pers. comm.) and giant kingfishers *Ceryle maxima* are present on the Eerste (ARKELL, 1979), so an absence of predation is unlikely to be the reason for the high crab densities on these rivers.

Crabs are central to stream nutrient cycling (HILL and O`KEEFE, 1992) and their density may therefore be an indication of a catchment´s productivity. The headwaters of the Kairezi are nutrient-poor, and the relatively low density of crabs and otters may be a reflection of this.

Although the Kairezi otters are subject to human disturbance in the KRPA, and particularly threatened by trapping at the Nyafaru trout farm, they are not regularly hunted, and the national park at least offers the population some protection. However there is a long-term threat to the catchment´s otters from habitat loss. Although the clearance of riverine thicket for fuel wood is escalating within the KRPA, the most clearance is likely to be occurring downstream in the unprotected areas of the communal land. Since the otters occur at naturally low densities in the catchment they are highly vulnerable to population fragmentation. Many rivers in Zimbabwe´s eastern highlands face a similar situation of degradation by subsistence agriculture, and therefore it is fair to conclude that the conservation status of the region's clawless otter population is fragile. If the problems of the KRPA could be solved the scheme could act as a model for further community-based catchment conservation schemes in the area, within which clawless otter conservation could be promoted.

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