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CASS Ocassional Paper Series Number - 52/93

*A Member of IUCN - The World Conservation Union

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A PRELIMINARY ASSESSMENT

OF RESULTS FROM A SURVEY OF HERDSMEN

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PREFACE

The research reported in this paper was stimulated by the author's experience as a participant in an exercise aimed at assessing community reaction to a proposal to place a cattle exclusion fence along the boundary of the Mavuradonha Wilderness Area (MWA) adjacent to Chawarura Ward in Muzarabani (now Centenary) District. [Matzke, et. al., 1993] It was clear from that exercise that there were few data to document either the extent of community use of the MWA, or the environmental consequences of that use. It was equally clear that the people of Chawarura Ward were unwilling to accept any proposed fence without provisions for continued community access. In light of this, the author undertook an exercise to generate data which might be useful to the parties considering the placement of a fence and related issues.

Two connected studies were initiated. The first (reported here) used an assessment of Veterinary Department records and a survey of 65 herdsmen using Chawarura diptank to estimate the pattern and extent Chawarura livestock use of the MWA*. Since the herdsmen were being interviewed anyway, the opportunity was seized to ask additional questions concerning their knowledge and use of the MWA. The results are reported in graphical form with a short commentary offering the author's perspective on the data. Readers are invited to make their own interpretation.

The second study (still ongoing) is aimed at quantifying the location and extent of some environmental impacts of Chawarura community use of the MWA through a series of field measurements. It uses samples along transects which start 500 metres outside of the proposed fence line and continue for at least 1 kilometre inside of the MWA. This second study is measuring evidence of tree cutting, grazing, grass condition, and the extent of bare ground. The data collection exercise will be completed by mid-August and the results will be reported at a later date.

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*The survey was conducted at the Chawarura dip tank on July 5, 1993. Three community secondary school graduates were selected, trained, and employed to interview herdsmen bringing their cattle for dipping. An attempt was made to interview a herdsman tending every herd arriving on that day. After the fact, it was calculated that the 65 interviewed herdsmen reported herding responsibilities for about 1/3 (35%) of the 1,680 cattle registered at the diptank. Since calculations showed that the herds of the studied individuals were about the same as those of the Chawarura community average, it is expected that this sample is representative for the questions dealing with cattle.

Questions of a more general nature about household wilderness use are likely to be less representative since the interviewees were almost exclusively male, came from cattle owning households (other research shows these are usually richer households), and may not have been fully informed about the activities of other members of their household.

INTRODUCTION

The proposal to construct a cattle exclusion fence along the ward boundary was presumably based on an assumption that livestock pose a threat to the proper management of the wilderness area. Wilderness advocates have made this argument in many places, but they have not been universally successful in convincing the powers-that-be of the merits of total livestock exclusion. For example, the huge federal wilderness system in the United States has provisions for livestock use because wilderness designation would have been politically impossible without affording provision for livestock access. There may be a parallel circumstance at Chawarura. The community clearly does not want a cattle exclusion fence. Rather, they want a fence which excludes marauding MWA wildlife from their fields and homesteads.[1]

The author is unaware of any data which demonstrate either the extent, or the consequences, of community use of the MWA. In the absence of such data, each actor can paint a scenario which fits his/her goals for the wilderness. If there is a demonstrable level of use which impinges on the wilderness management goals, there may be a need to develop a consensus for changes in the community use patterns. If there is no clear evidence of negative impacts of community use, MWA management may be better served by directing energies to tasks other than the exclusion of wilderness uses by the community.

THE PATTERN OF REPORTED LIVESTOCK USE

Distance vs. Use

The majority of herds from the Chawarura do not use MWA grazing resources. The best predictor of which herds go to the MWA is distance from the boundary. As shown in Figure 3, use declines dramatically with distance. When herdsmen reported a walking time of more than 60 minutes to reach the MWA, less than half said they used it for grazing.

The actions already undertaken to remove settlers from the hill slopes along the southern margins of the MWA, together with similar plans for the future, are likely to result in a reduction in livestock use (regardless of the fate of a fence). This is

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[1]The community's desire for a protective wildlife fence is well founded given the expectation that an increase in wildlife numbers in the MWA is key to increasing wilderness revenues, the danger from wildlife to crops and humans, and the demonstrated effectiveness of wildlife fencing in other contexts (Figures 1 & 2).

true for two reasons. The people closest to the MWA are being removed, and it is their cattle which have the highest probability of using the wilderness for grazing. Also, the abandoned fields will provide an intervening grazing opportunity which might lessen the need to travel as far as the MWA for grazing.

Number and Seasonality

Livestock are most likely to use MWA grazing resources during the crop growing season, apparently to prevent accidental crop destruction by livestock. When stover is available in the fields during the dry season, livestock use of the MWA is reduced to half of its wet season peak (Figure 4). Even at peak use times, less than half of the Chawarura cattle enter the wilderness during any one month period.[2]

The estimated number of Chawarura cattle entering the MWA during the past year peaked at about 550 in the middle of the wet season and declined to just over 250 during September and October. Since only one person reported that his cattle were sometimes left overnight in the MWA (Figure 5), the necessary time devoted to traveling to and from the MWA means that cattle can use the wilderness for only part of the day. Given the strong effect of distance on use, it is expected that only the margins of the MWA are actually grazed to any great extent.[3]

Livestock Losses

Wilderness managers may experience resistance to the presence of wildlife if it means there is an increase in livestock losses to predators. At present, predation seems to be very low according to herdsmen reports. In recalling all livestock lost to predators from their herds, fewer were reported lost to animals than to humans (Figure 6). Although cattle are twice as numerous as goats in the area, goats were twice as likely to be lost to theft and predators.

KNOWLEDGE OF OTHER WILDERNESS ISSUES

The diptank interviews provided an opportunity to gather additional information which give insights about community

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[2]Herdsmen were asked if their cattle ever used the wilderness during each month. If cattle went to the MWA only one day during the month, it is reported here as a month of use.

[3]The field study currently underway will provide a measure of the depth of cattle penetration into the wilderness. Results are not yet available.

understanding of the Mavuradonha Wilderness Area. The researcher probed several non-livestock topics and the results are reported below.

Wildlife Caused Crop Damage

The community has asked that a wildlife fence be installed in place of the proposed cattle exclusion fence. Although this may be a good idea, it will not eliminate the most frequently reported incidents of wildlife caused crop damage since most damage is done by animals unlikely to be deterred by a fence (Figure 7).[4] This is not to suggest that the community's proposal is a bad idea. From their point of view, why is a cattle fence proposed? It can serve no function other than to mark a line which will exclude their use of the MWA for grazing or other purposes. A wildlife fence with access gates conveys quite a different message.

The community is rightly concerned about the threat represented by wildlife from the MWA. The record of past depredations is not a good predictor of future conditions under a management regime aiming at enhancing wildlife numbers, especially when the species with the highest safari hunting value are increased.

Wildlife Sightings

Herdsmen who spend long hours in the area represent a source of information about the wildlife in the MWA. Diptank interviews have been used successfully as a first approximation of wildlife abundance in another study (Matzke, 1993). Only a quarter of the herdsmen who had been in the MWA reported seeing any large game and these sightings were of relatively few species (Figure 8).[5] Even the sightings of duiker, the most common species, are far below what is normally reported from good duiker habitat.

The reported paucity of wildlife sightings means the Chawar-

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[4]This assumes the construction of a fence similar to that built at Masoka i.e. an electric fence to deter the largest of animals only.

[5]Individual sightings reported in this type of interview are of little significance. Rather, it is the frequency and pattern which has meaning. For example, the reader would be remiss in believing the MWA has resident lions because one person said he saw one. Single reports can result from lying, observer error, recording errors, data entry errors, or even the odd animal that wanders through the study area. When a large game species is really abundant in a grazing area, herdsmen reports usually show very high (over 75%) sighting rates.

ura people have yet to really experience the consequences of living next to a thriving wildlife enterprise. However, the area penetrated by these herdsmen represents only a fraction of the MWA. Nevertheless, these findings seem to confirm earlier reports of hunter disappointment with the low wildlife numbers in the area.

Other Uses of the Wilderness

Chawarura community meetings have expressed demands for continued access to the MWA for several purposes. This study confirms that there is a range of community uses of the area. In fact, more cattle keeping households go to the wilderness for broom grass collection than for grazing (Figure 9). Since other studies suggest that only about 1/2 of Shona households actually have cattle, it is likely that the use of non-grazing resources is far more frequent than cattle keeping when measured at the household level.

Community access demands are not exclusively related to resource use. During discussions about proposals to place gates in the border fence. The need for ceremonial access was discussed. Herdsmen confirmed the use of the area for ceremonial purposes (Figure 10). Further discussion with research assistants suggested that both Apostolic Church and traditional rain making ceremonies were held in the wilderness.

Community Understanding of the MWA

Many discussions about the MWA assume that members of the community are aware of its existence and, if aware, share a common understanding of its purpose. This study asked several questions to test these ideas.

Most herdsmen report that they had heard of the existence of the MWA. However, their understanding of the motivations for its establishment differs markedly from that reported in the originating documents. To the herdsmen, the MWA is a wildlife project (Figure 11). Not one individual volunteered an answer which suggested ecosystem concerns unrelated to wildlife. The perception of the MWA as a wildlife project means that an exclusionary cattle fence has to be viewed as something which is aimed at benefiting wildlife, not people. A lot of evidence and education must be brought to bear before things like enhanced watershed protection, erosion prevention, and protecting stream flows are seen as outcomes of wilderness designation.

Equally interesting is the perception that the MWA was supported by only two people, the local councilor and the neighboring commercial farmer (Figure 12). If the responses to this researcher's questions are a good indication of community attitudes, the Mavuradonha Wilderness has yet to develop as idea

which the community has taken on as its own. In this context, attempts to act precipitously on the issue of a fence would be ill advised. Continuing community consultation, education, and involvement is essential.

CITATIONS

Matzke, G., 1993, "Results of Diptank Surveys for the Mafungabusi Feasibility Study", Report to the Forestry Commission of Zimbabwe, June 9.

Matzke, G., Nabane, N., Finley, A., Makonyere, J., Rihoy, L., 1993, "Report on Mavuradonha Fence Survey", June 15 -17.

Matzke, G. and Nabane, N., (In preparation), "Gender and Campfire in Masoka".

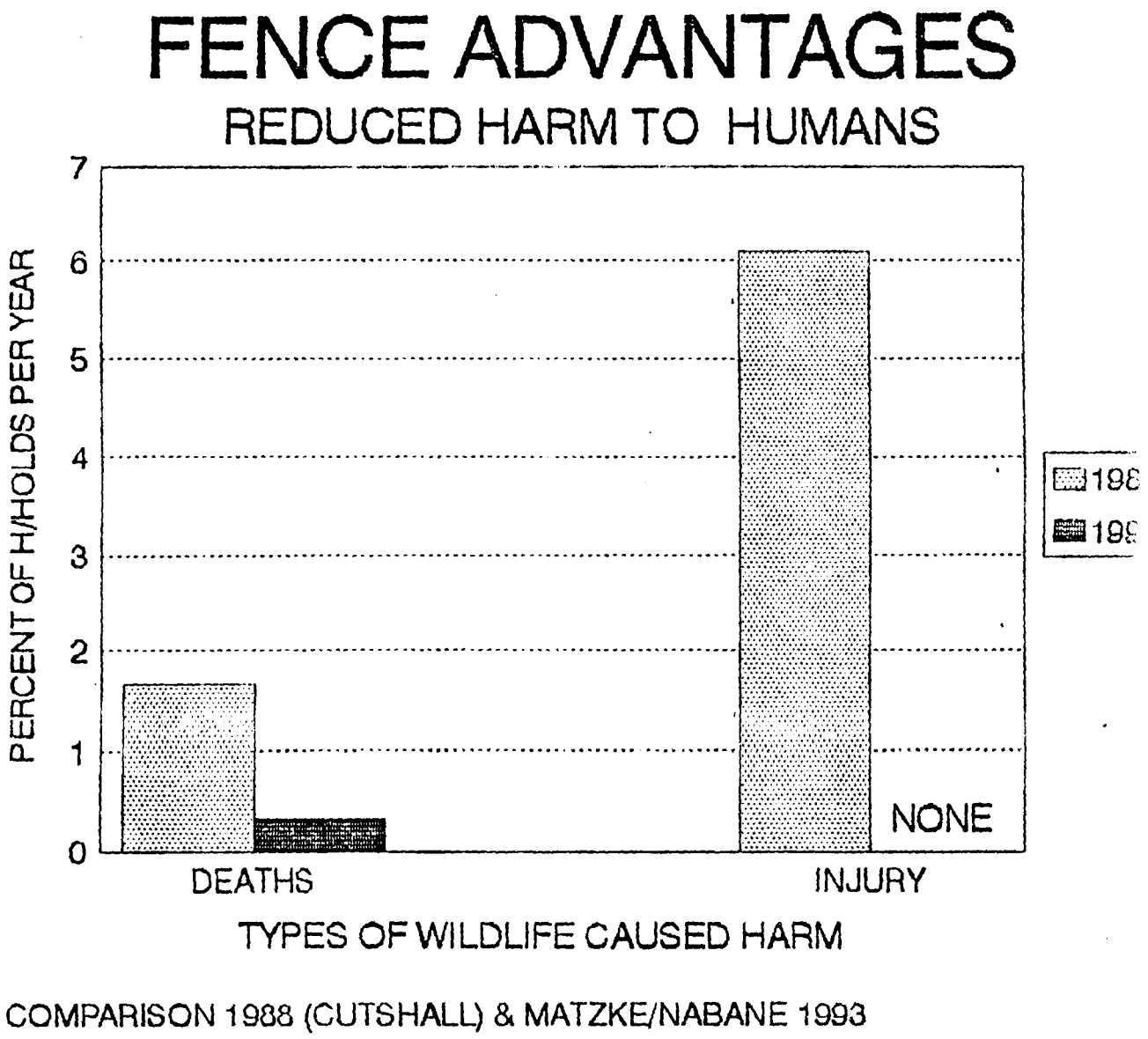


Figure 1. Reduction in Human Injuries and Deaths. The installation of an electrified wildlife fence around Masoka has virtually eliminated human injuries and deaths in that village. The only reported incident since fence installation occurred outside of the protective fence (Matzke and Nabane, in preparation).

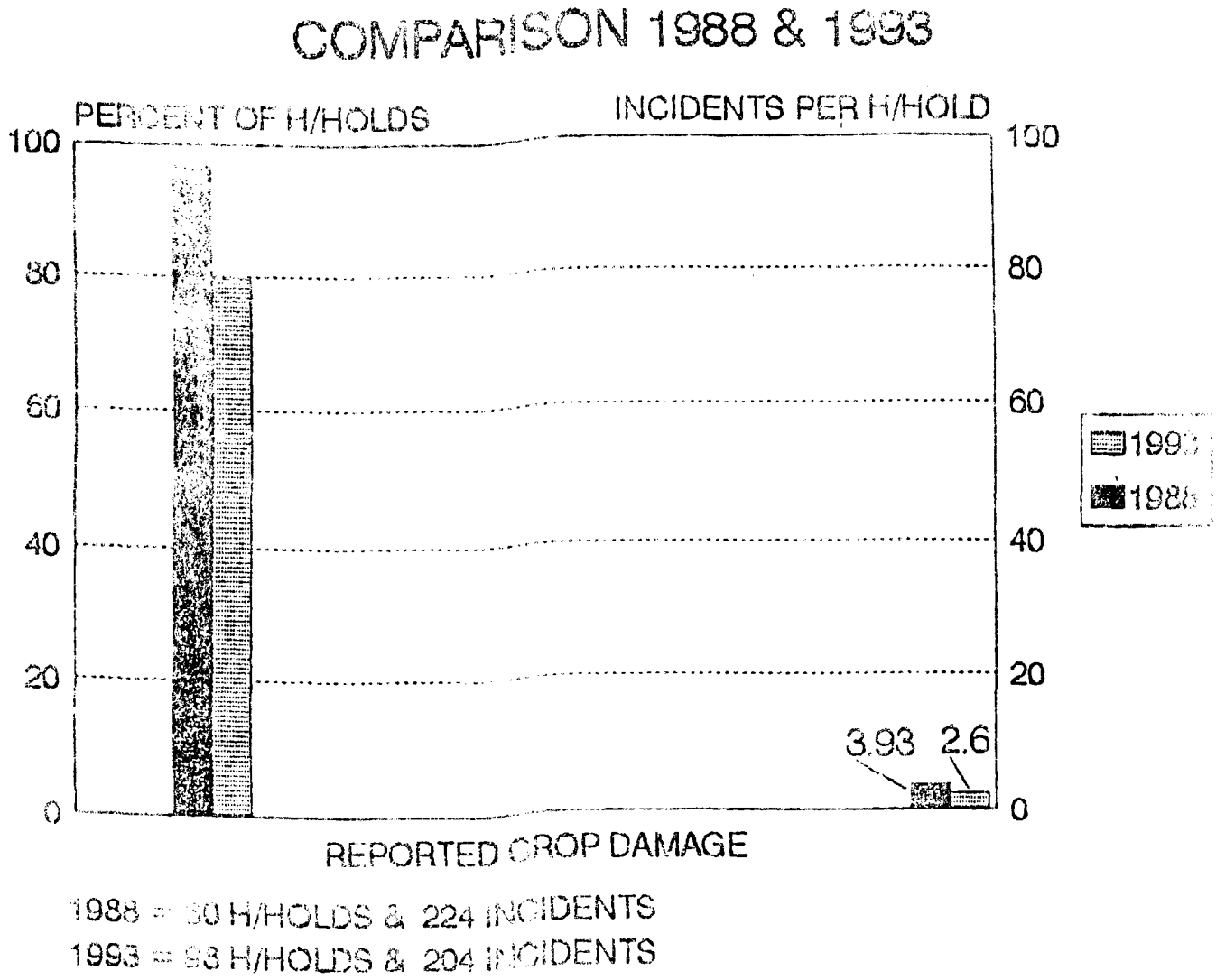
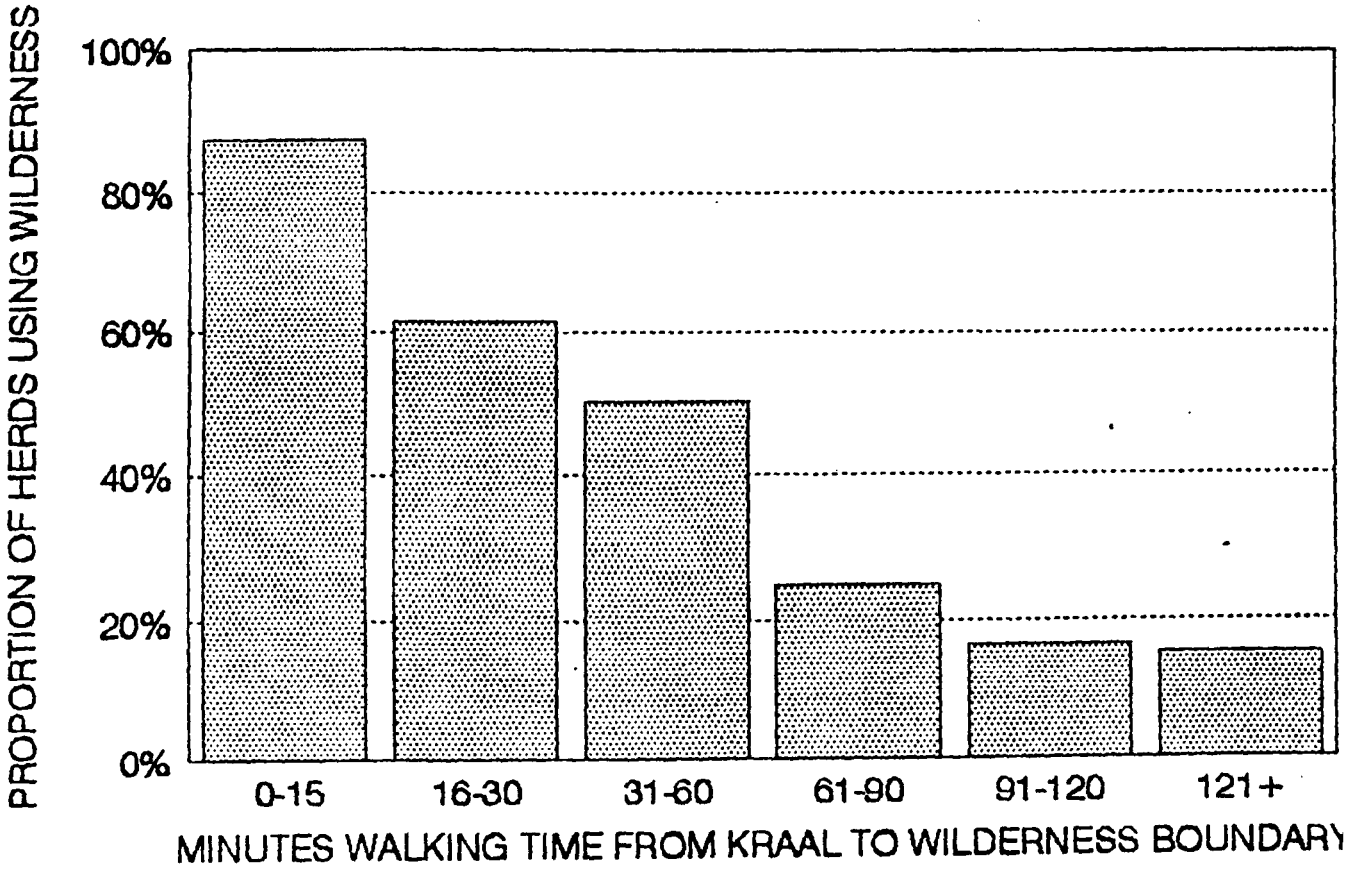


Figure 2. Reduction in Crop Damage. The installation of an electrified wildlife fence has reduced the incidence of crop damage by wildlife in Masoka. Most of the remaining crop damage occurs outside of the fence, or is caused by animals which the fence was not designed to control, such as pigs, primates, [illegible] and rodents (Matzke and Nabane, in preparation).

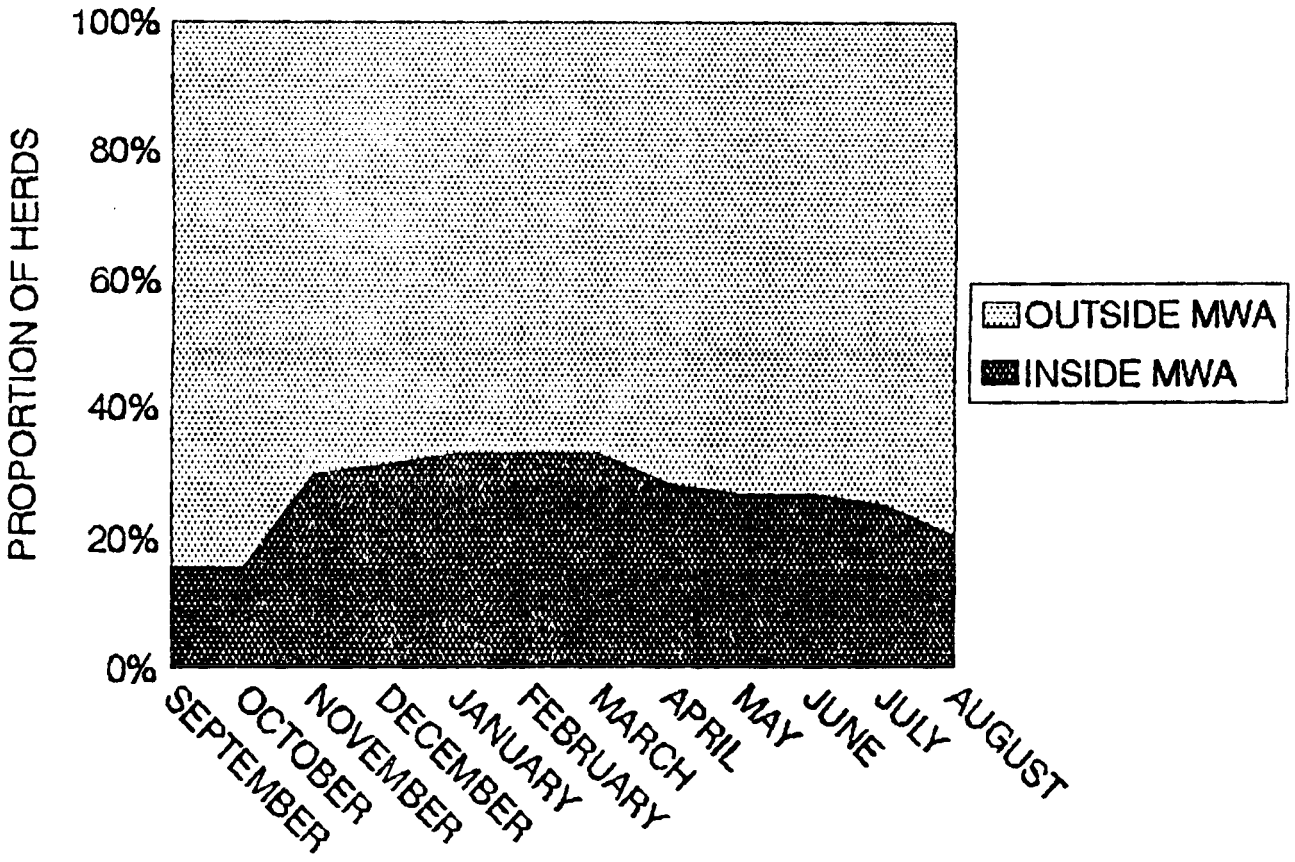
CATTLE USE VS. WALKING TIME TO WILDERNESS



N = 64 HERDSMEN RESPONDENTS

Figure 3. Distance vs. Frequency of Use of MWA for Grazing. The likelihood of cattle using the MWA grazing resources is closely associated with the distance of the kraal from the wilderness boundary.

WHICH MONTHS DO LIVESTOCK USE MWA?



N = 64 RESPONDENTS OF WHICH 25 USED MWA SOMETIME DURING PAST YEAR FOR GRAZING CATTLE.

Figure 4. Seasonality of use of the MWA for Grazing. The pattern of MWA grazing is closely related to the seasons with use doubling during the rainy season.

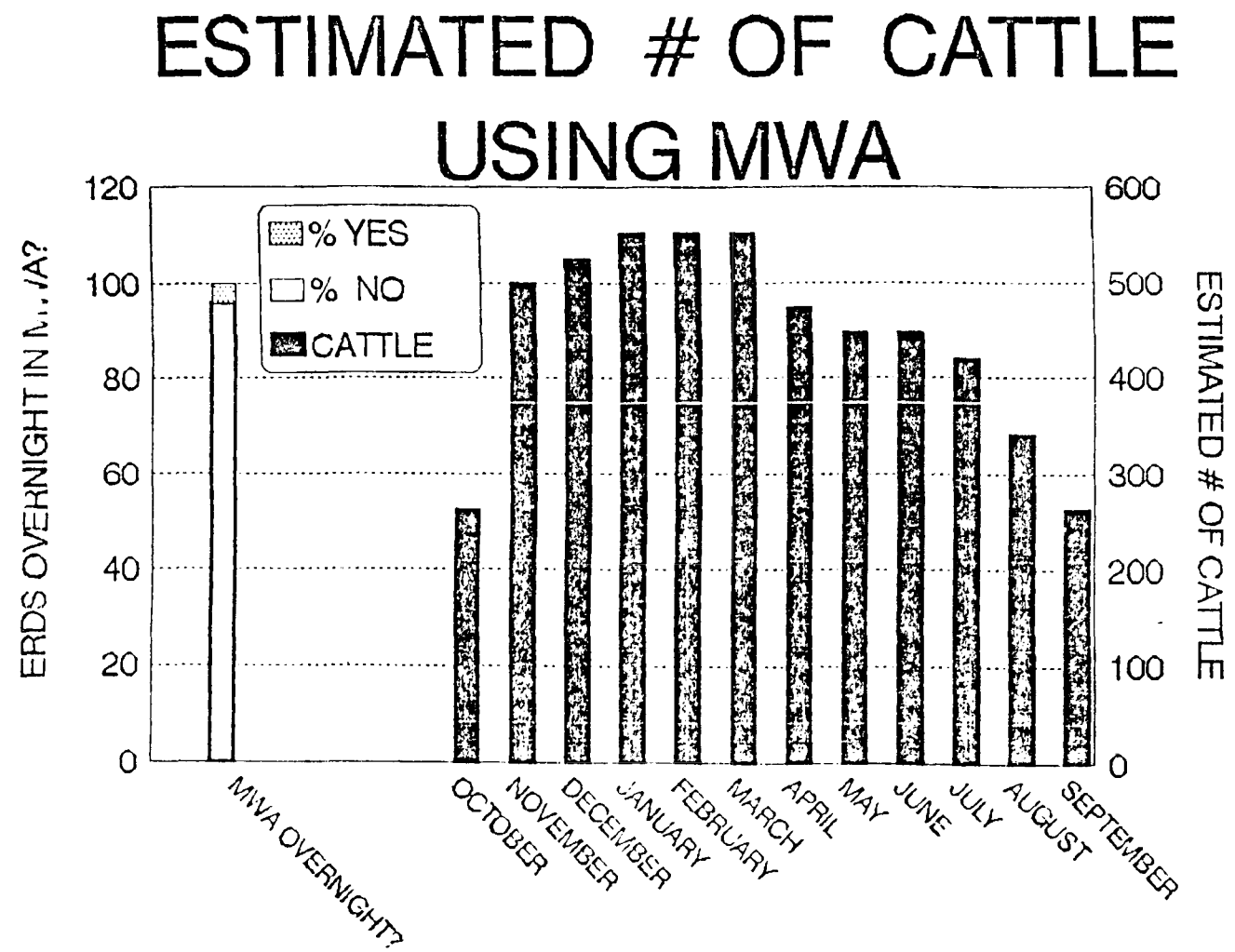
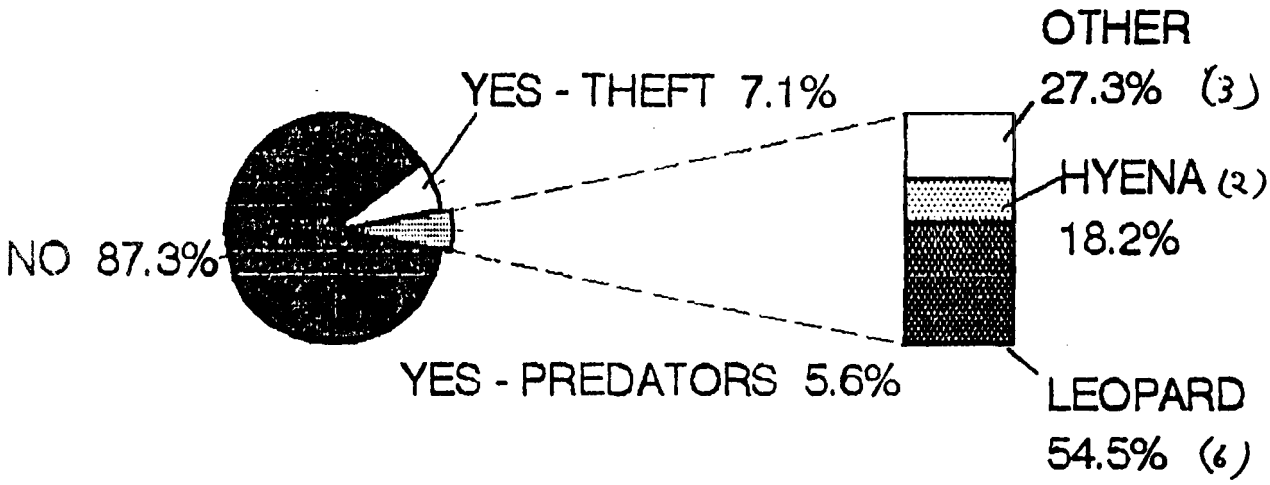


Figure 5. Estimated Number of Cattle Using the MWA. About 550 cattle from the Chawarura Diptank use the MWA during the peak rainy season months. Only about half the peak number is found during the rainy season. Almost all cattle are returned to the kraal every night, thereby limiting the distance the MWA can be penetrated for grazing purposes.

HAVE YOU EVER LOST LIVESTOCK TO PREDATORS OR THIEVES?



N = 65 HERDSMEN INTERVIEWS.

REPORTED LOSSES TO PREDATORS: 1987 - 2, 1988 - 2, 1992 - 2, 1993 - 3, UNKNOWN YEAR - 2.

Figure 6. Reported Losses to Predators and Thieves. Although neither was very common, thefts were reported more frequently than losses to predators. The losses recorded include all livestock, not just cattle, that could be remembered. At this point, predators with a refuge in the MWA appear not to pose mu of a threat to neighboring livestock owners.

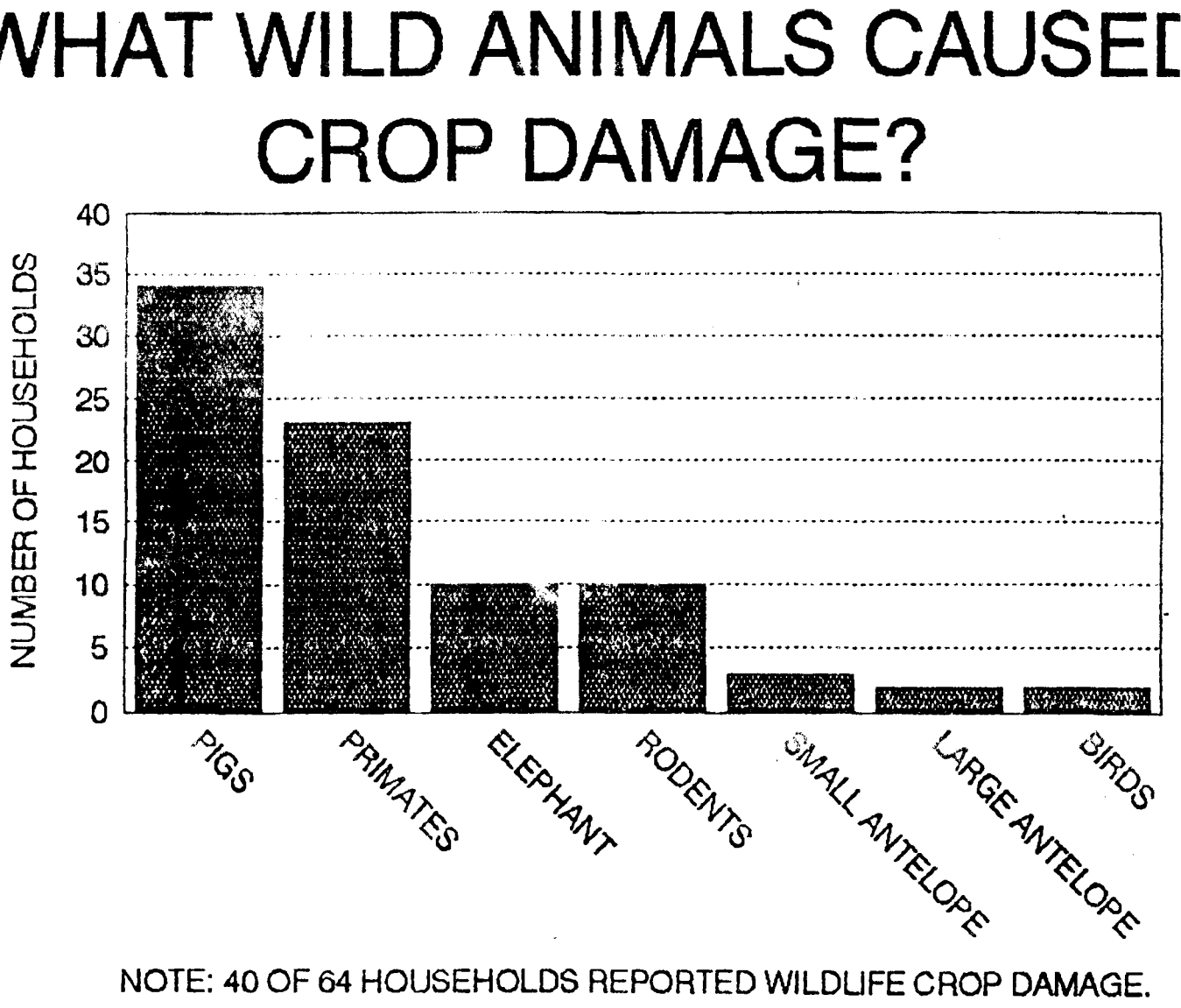
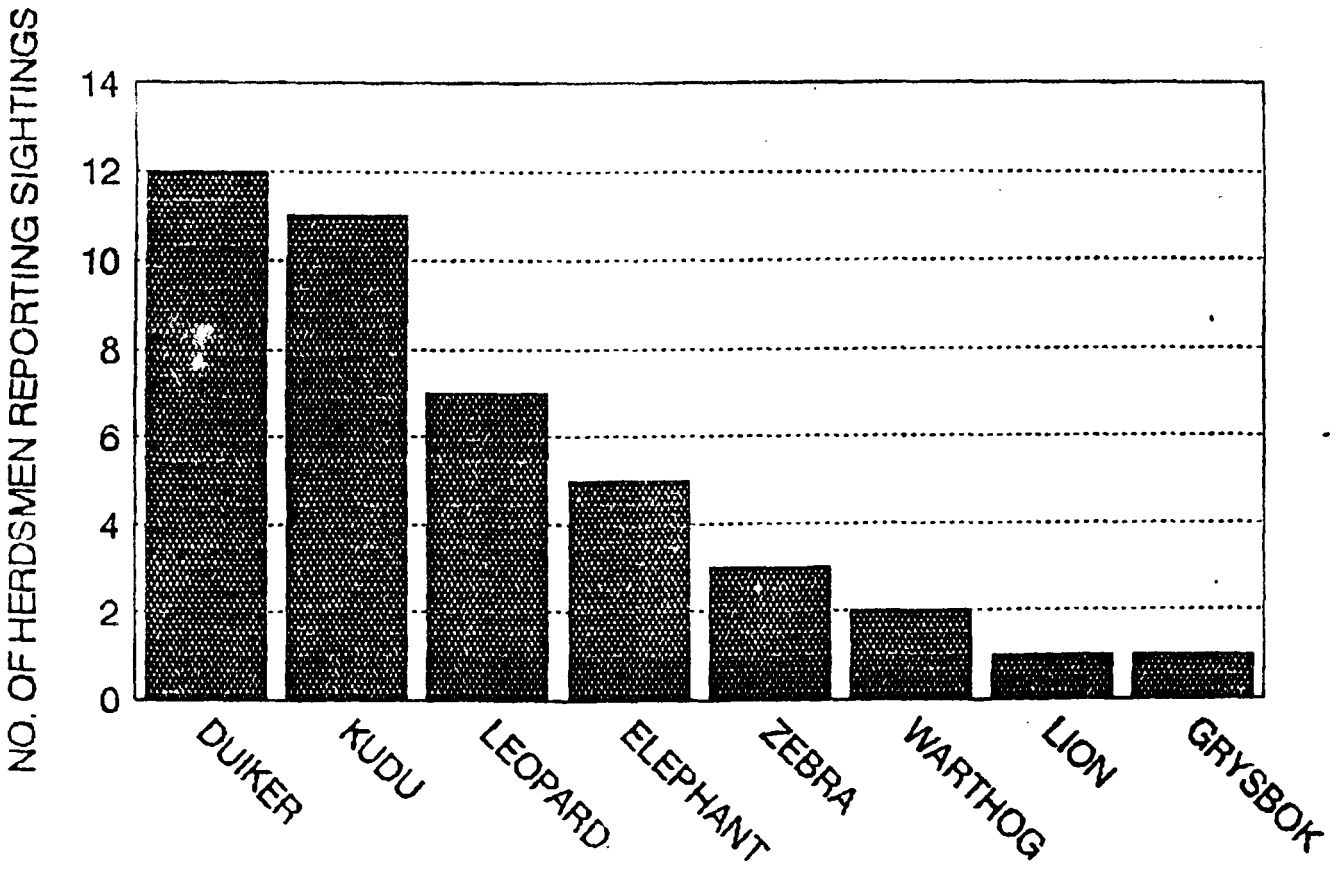


Figure 7. Species Reported to be Causing Crop Damage. Most reported incidents of crop damage will not be eliminated by the erection of a wildlife fence since the species involved can either pass through the fence, or are resident in the communal area itself. If successful, elephant damage is most likely to b reduced by the fence.

DID YOU SEE LARGE GAME IN MWA IN LAST YEAR?



N = 46 RESPONDENTS WITH 29 YES RESPONSES . YES RESPONDENTS COULD MENTION MORE THAN ONE SPECIES .

Figure 8. Reported Large Game Sightings in the MWA. Herdsmen reported relatively few sightings of game animals in the MWA. This suggests the areas they use for grazing do not contain abundant wildlife populations.

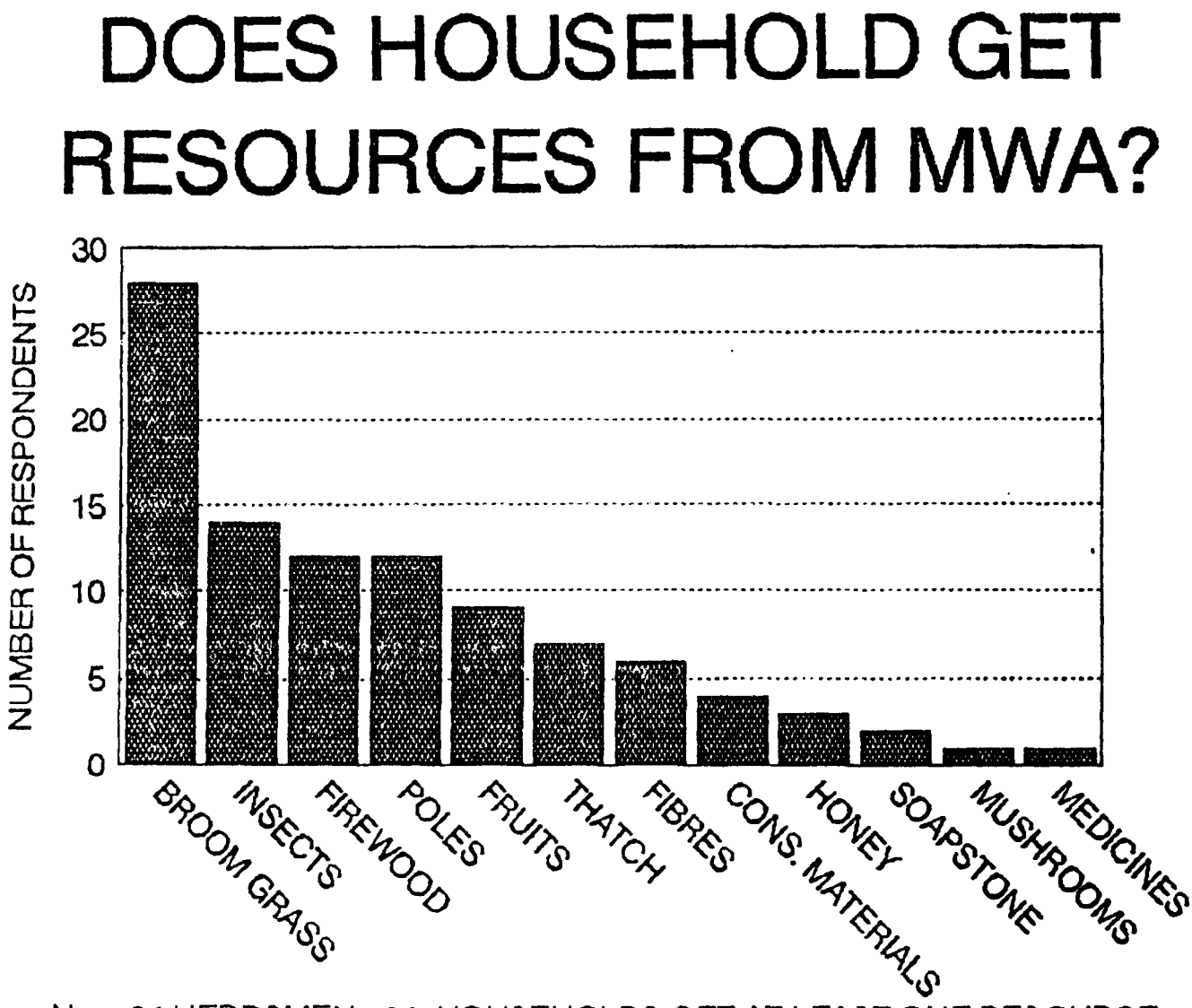


Figure 9. Chawarura Households Use a Variety of MWA Resources. Reported community use of the MWA includes a range of products in addition to grazing resources.

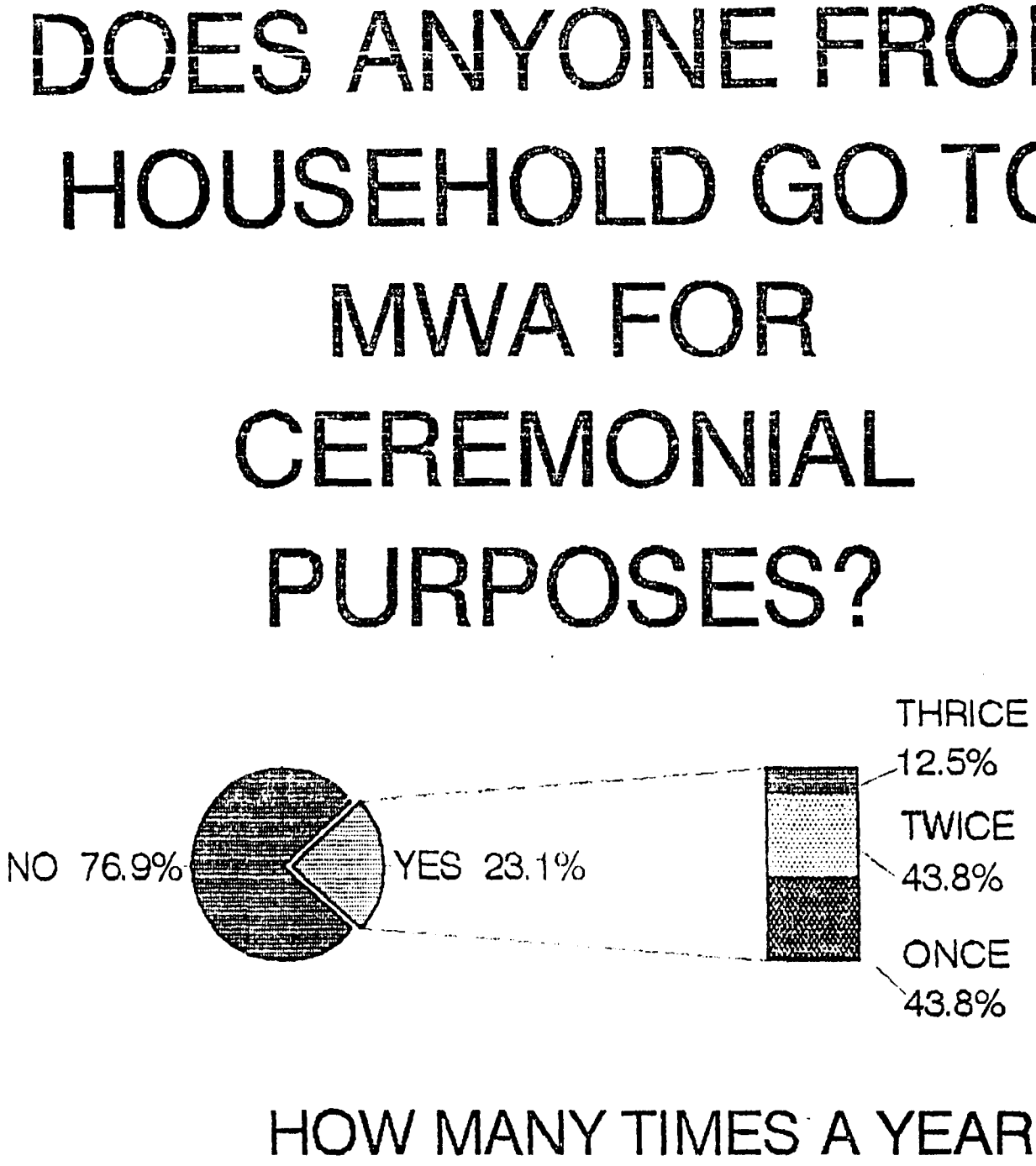


Figure 10. Ceremonial Use of the MWA. Community members use the MWA as a ceremonial site for both Apostolic Church and traditional rainmaking purposes.

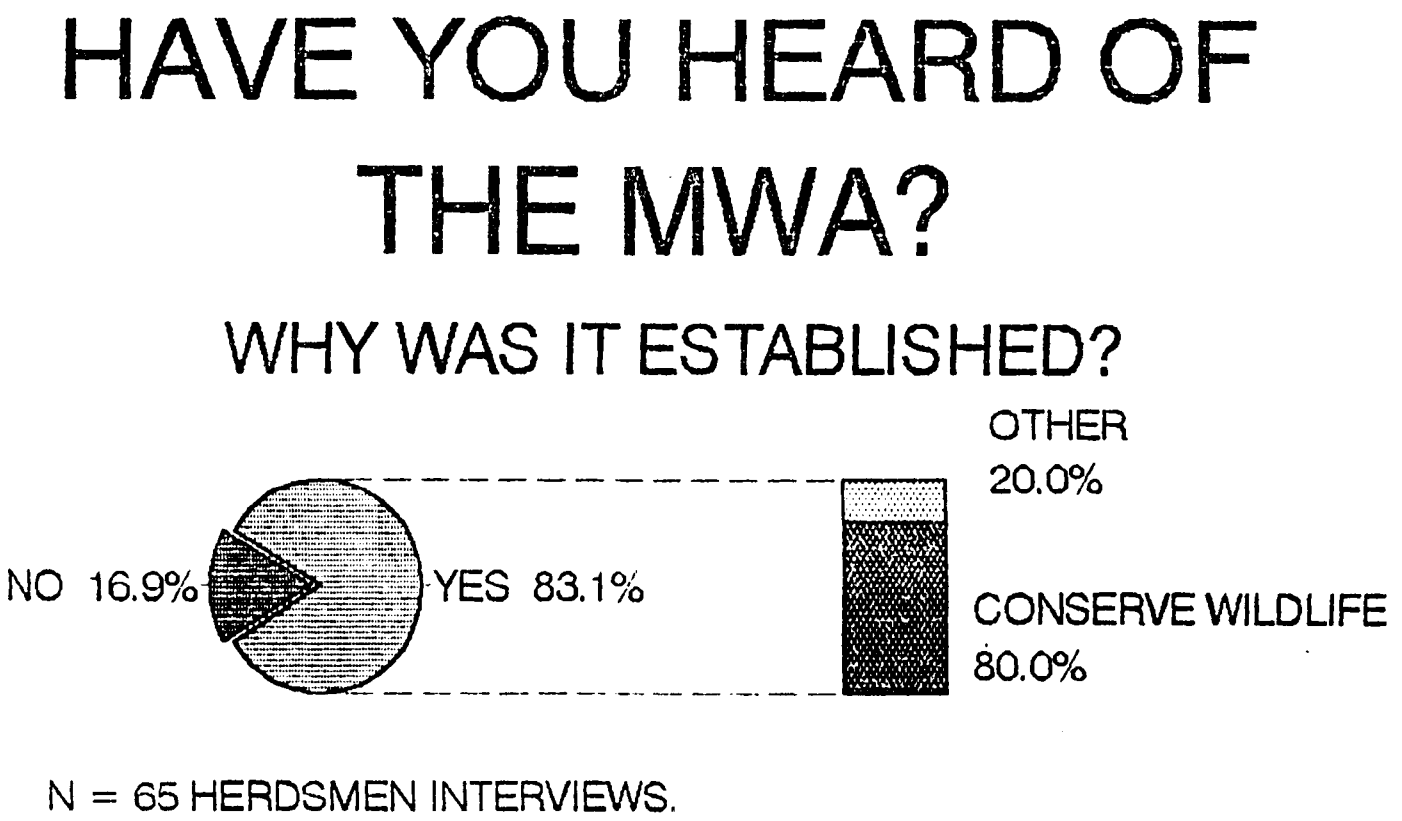
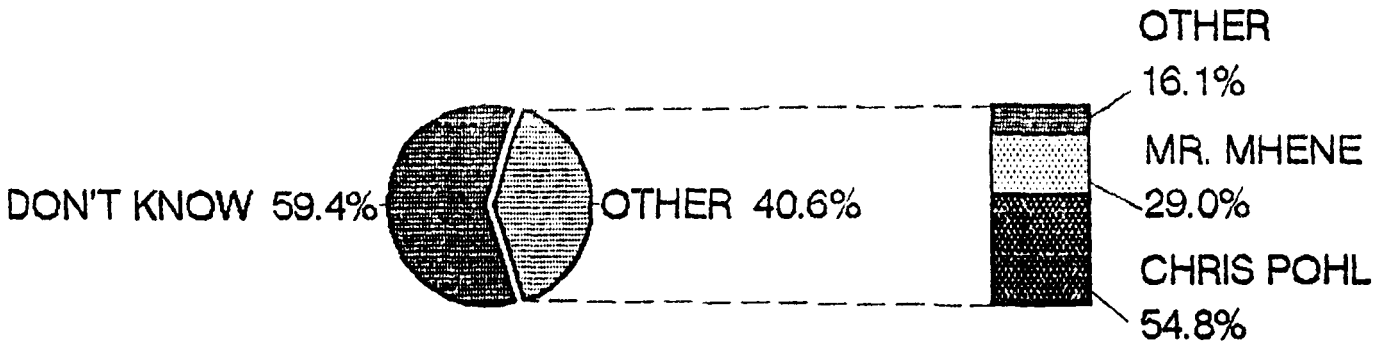


Figure 11. Knowledge of the Existence and Purpose of the MWA. Most interviewed herdsmen knew of the MWA's existence and reported its purpose as wildlife conservation. Broader ecosystem values of erosion control and stream protection were never mentioned.

WHO SUPPORTED ESTABLISHING THE MWA?



N = 64 HERDSMEN; MR. MHENE = LOCAL DISTRICT COUNCILOR; CHRIS POHL = NEIGHBOURING COMMERCIAL FARMER.

Figure 12. Support for MWA Establishment. The herdsmen attributed support for the establishment of the MWA to two people. Notably absent was any pattern of responses which suggested it was a community project.