

# People and Hyrax in the Conservation of Black Eagles *Aquila verreauxii* in the Matobo Hills, Zimbabwe

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## ABSTRACT

The raptor community in the Matobo Hills is very diverse. A project was initiated in 1995 to secure the future of this unique raptor community outside the Matobo National Park, mainly by focusing on the Black Eagle *Aquila verreauxii* which in the park is heavily dependent on two hyrax species (98%). These prey items have declined sharply in nearby communal lands from human pressure (hunting and habitat change). There were 78 Black Eagle pairs in an area of 1220 km<sup>2</sup> in the Matobo Hills in the 1970s, of which 26 were in the communal area. By 1993 the number of pairs had dropped to 45, with only four in the communal lands.

Since the start of the project, over 8,000 school children from 23 schools, 542 elders and 26 n'angas (traditional healers) have been given lectures on the relationship between Black Eagles, hyrax and people. Wildlife Clubs have been formed at all the schools surrounding the National Park, and students were taken on educational trips into the park.

The hyrax population is being monitored through censuses every April at 20 sampling sites in the National Park and eight outside the park, and has shown marked increases since 1995. Also Black Eagles have increased outside the park to 23 pairs. The Black Eagle diet outside the National Park was found to be more varied (86% hyraxes) than that inside.

## INTRODUCTION

We believe that the density of Black Eagles *Aquila verreauxii* in the Matobo National Park and the immediate surrounds is the highest for the species in Africa. It may be among the highest density for a large eagle anywhere in the world. This community of Black Eagles is also special because of a long term study of nearly 40 years.

The study of the Black Eagle population in the Matobo Hills was started in 1959, and by 1964, 41 pairs had been located in an area of 620 km<sup>2</sup>, and were being annually monitored (Gargett 1990). The number peaked in 1976 to 59 pairs. In 1978 a large area (1220 km<sup>2</sup>) in the Matobo Hills had a total of 78 Black Eagle pairs. Sadly enough, a survey of the species in 1992 (Gargett & Gargett 1993a & b) revealed that this population had declined down to 44 pairs. This decline applied particularly in the communal lands surrounding the National Park and was confirmed by T. & O.

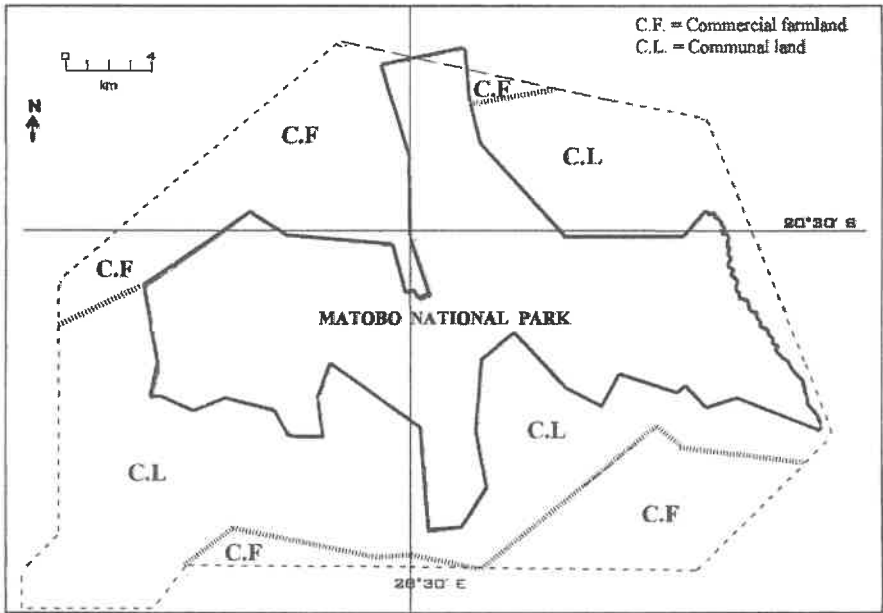
Aumann's (unpubl.) six-month study in 1993. The main reason for the decline was attributed to excessive competition for the eagles' main food, of hyraxes, with communal people, being worsened by natural droughts.

Because of the international significance of the raptors of the Matobo Hills, an on-going Black Eagle monitoring programme outside the Matobo National Park was proposed by T. Aumann in order to secure its population and the hyrax. The programme started in 1995 and has been going on since then. It involves the investigation and annual monitoring of the breeding performance of Black Eagles and other raptors outside the Matobo National Park; collecting and identifying raptor prey items from nests and feeding sites surrounding the nests; checking the population of hyraxes (through annual census) and their utilization by the local Ndebele-speaking people; interpretative work with school children, adults, chiefs, n'angas and District Councillors about raptors and hyraxes, with emphasis on the relationship between the Black Eagles and hyraxes. The interpretative work, which coincides with school terms, also includes talking to teachers and children about how they can contribute towards the conservation of hyraxes and ultimately the raptors outside the protected area. This paper details results from the first few years of the project.

### STUDY AREA

The Matobo Hills is a unique area characterized by outstanding large bare granite hills and broken kopjes, interspersed with marshes and sponges that give rise to an intricate network of tributaries leading to the larger rivers of Whovi, Maleme, Mtsheli and Tuli. Although the Matobo Hills are located in the drier western part of Zimbabwe, because of the nature of the habitats they represent a western extension for many species that are characteristic of higher rainfall areas in the eastern side of the country. The Matobo National Park is centred on (28° 30'E, 20° 30'S), and is surrounded by communal land and commercial farmland (Figure1).

Figure 1. Land-use in the study area



The project area is almost 800 km<sup>2</sup> in extent (Figure 1) within the Matobo Hills which themselves have an area of approximately 3,000 km<sup>2</sup>! There is an exceptional density of kopjes here, averaging three individual peaks (of 20 metres or more by elevation) per km<sup>2</sup>. Coupled with the derived sandy soils, which are low in nutrients, generally the habitat is unsuitable for crop cultivation. Furthermore, the steep slopes of the kopjes cause rain water to run quickly through the drainage systems, in turn, contributing to poor soil and short-term fertility during the dry seasons.

Generally, the Matobo Hills lie in a semi-arid agricultural region which is characterized by seasonal drought spells. The average annual rainfall (November to March) from four weather stations (1984/85-1994/95 seasons; Department of Meteorological Services *in litt.*) in the Matobo Hills was 533.5 mm (range 273-819 mm). Extensive livestock production is the preferred form of agriculture.

Much of the project area is communal land, which is populated by tribal people living at a subsistence level. The commercial farmlands in the area are given over to cattle ranching.

## METHODS

All the Black Eagle nest sites (occupied and unoccupied) outside the Matobo National Park were checked for occupancy once at the beginning of each breeding season (March/April). Thereafter, each of the occupied territories was visited three times to check for breeding performance: egg-laying/incubation in April-June; hatching in June/July; and fledging in August/ September. In the years of the project (1995-1998), 181 days of visits to the area were made.

Prey remains were collected from below the occupied nests and feeding sites close to the nest at the end of each breeding season (November-January). These were identified at the Natural History Museum, Bulawayo. Nomenclature follows Maclean (1993) for birds and Skinner & Smithers (1990) for mammals.

The census of hyraxes in the Matobo National Park was a continuation of the project initiated by Barry (1993), who identified 20 sampling sites inside the national park. The census was carried out by two observers each using binoculars during the early mornings only. Observations began at, or just before, sunrise and usually lasted up to four hours. The census was extended into the communal lands and commercial farmlands in 1997, where four sampling sites were identified in each and areas estimated (by eye). Hyrax were identified to species (different appearance) and age (different size) by eye; four age-classes were used.

Each of the schools (five secondary and 18 primary) near the national park boundary was visited and lectures given on wildlife conservation, particularly birds, during 1995 and 1996. As a result of the initial visits, all the 23 schools formed Wildlife Clubs. Wildlife books, pamphlets, magazines and posters were given to each to start these clubs. Each club was visited at least three times per year, to coincide with the raptor survey field trips in the hills. Local leaders (the chief, headmen and district councillors) were visited to promote the project and its objectives. By socializing with elderly people and *n'angas* (traditional healers) at their homes, many traditional stories and beliefs on wildlife, particularly birds, were heard.

## RESULTS

### Black Eagle breeding performance

The known number of territories occupied by Black Eagle pairs in the study area (outside the protected Matobo National Park) has increased from 16 in 1995 to 21 in 1996 and 23 by the end of 1997 (Table 1). The production of young per pair (y/p) was good (1995 - 0.50 y/p; 1996 - 0.81 y/p; 1997 - 0.70 y/p). This followed a major decrease in occupancy since 1978 (Figure 2).

There were only four occupied Black Eagle territories in the communal land in 1995 (Table 1), contrasting with 26 in the early 1970's (Gargett 1990). The occupied territories had, however, risen to 11 by the end of the 1997 breeding season. Three new nests were found in the communal lands (through the assistance of the local community) since the start of this project, one in 1995 and two in 1996.

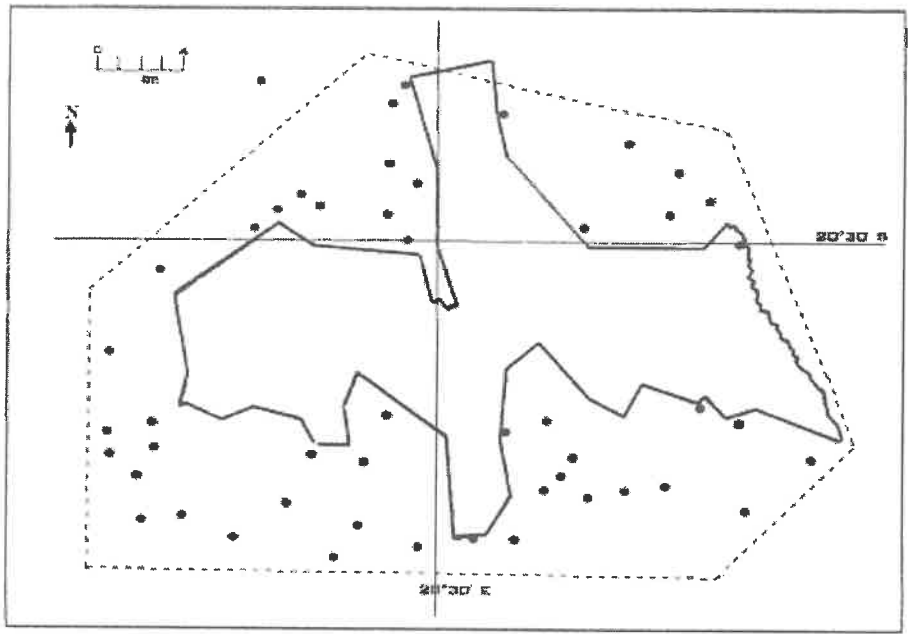
**Table 1. Breeding performance and territory occupancy of Black Eagles in the Matobo Hills (1995-1997)**

CFL - commercial farmland; CL - communal land; P - present Br - bred successfully.

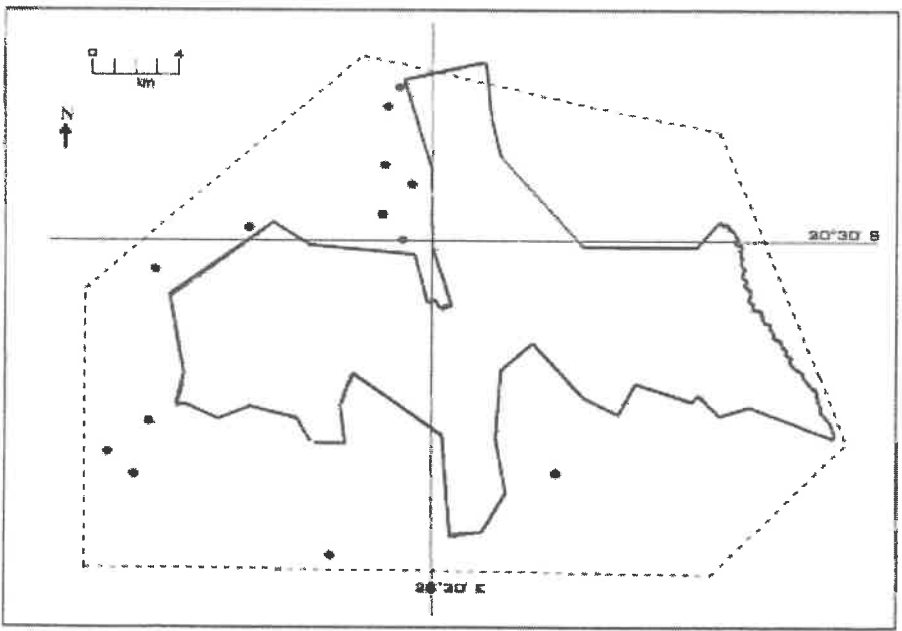
| <i>Nest No.</i>        | <i>Land-use<br/>CL/CFL</i> | <i>Dates<br/>1995</i> | <i>1996</i> | <i>1997</i> |
|------------------------|----------------------------|-----------------------|-------------|-------------|
| 5                      | CL                         | Br                    | Br          | Br          |
| 6                      | CL                         | -                     | -           | -           |
| 7                      | CL                         | -                     | -           | -           |
| 8/A                    | CL                         | -                     | -           | -           |
| 16                     | CL                         | -                     | -           | -           |
| 17                     | CL                         | -                     | -           | -           |
| 19                     | CL                         | -                     | -           | -           |
| 20                     | CL                         | -                     | -           | -           |
| 21                     | CL                         | Br                    | Br          | Br          |
| 22                     | CL                         | -                     | Br          | Br          |
| 23/93                  | CL                         | -                     | -           | -           |
| 24                     | CL                         | -                     | -           | -           |
| 25                     | CL                         | -                     | -           | -           |
| 33                     | CL                         | -                     | Br          | Br          |
| 35                     | CL                         | -                     | -           | -           |
| 36/A                   | CFL                        | Br                    | Br          | Br          |
| 37                     | CFL                        | P                     | Br          | Br          |
| 39                     | CL                         | -                     | -           | -           |
| 42                     | CL                         | -                     | -           | -           |
| 43                     | CL                         | -                     | -           | -           |
| 44                     | CFL                        | Br                    | Br          | Br          |
| 47/48                  | CFL                        | Br                    | Br          | P           |
| 50                     | CL                         | -                     | -           | -           |
| 52/A                   | CFL                        | P                     | Br          | Br          |
| 53                     | CFL                        | Br                    | Br          | p           |
| 56                     | CFL                        | -                     | -           | -           |
| 57/A/B                 | CFL                        | P                     | P           | Br          |
| 58                     | CL                         | -                     | -           | -           |
| 59                     | CL                         | -                     | -           | -           |
| 60/A                   | CFL                        | P                     | Br          | Br          |
| 74                     | CFL                        | -                     | -           | -           |
| 75/83                  | CL                         | -                     | -           | -           |
| 80/A                   | CFL                        | P                     | P           | P           |
| 84/113                 | CL                         | -                     | -           | -           |
| 85                     | CL                         | -                     | -           | -           |
| 87                     | CFL                        | P                     | P           | Br          |
| 88                     | CFL                        | -                     | Br          | Br          |
| 90/A                   | CFL                        | -                     | -           | P           |
| 91/A                   | CL                         | Br                    | Br          | Br          |
| 92                     | CL                         | -                     | Br          | Br          |
| 96                     | CL                         | -                     | -           | -           |
| 110                    | CL                         | -                     | -           | -           |
| 116                    | CL                         | -                     | P           | P           |
| 117                    | CL                         | Br                    | Br          | Br          |
| 118                    | Cl                         | (?)                   | Br          | Br          |
| 119                    | CL                         | (?)                   | Br          | Br          |
| <hr/>                  |                            |                       |             |             |
|                        | <i>1995</i>                | <i>1996</i>           | <i>1997</i> |             |
| Total occupied         | 16                         | 21                    | 23          |             |
| Total breeding success | 8                          | 17                    | 16          |             |
| Total vacant           | 28                         | 25                    | 23          |             |

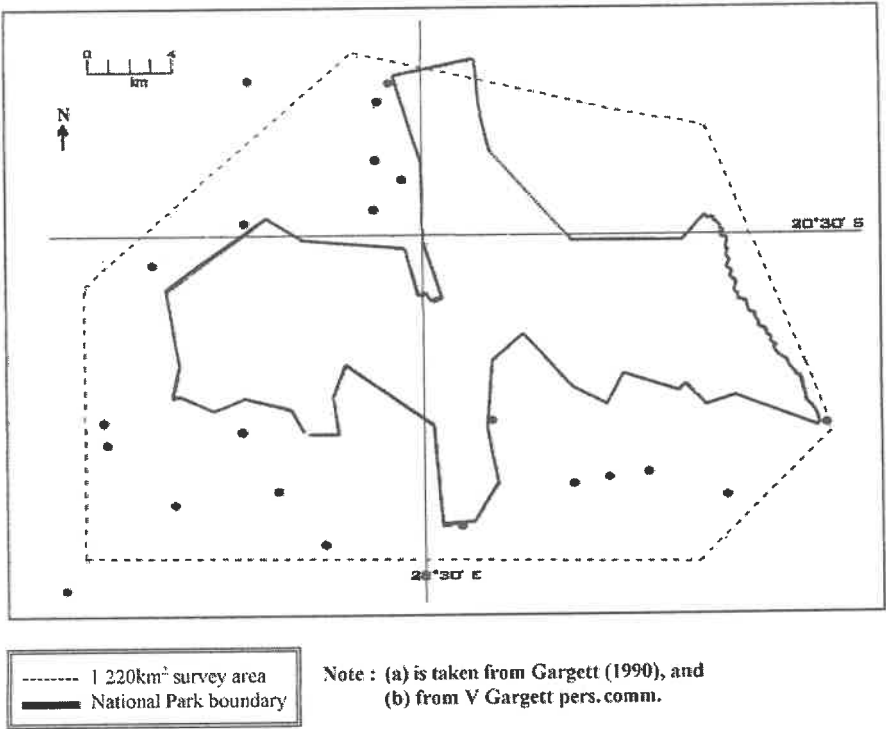
Figure2. Black Eagle territory occupancy outside the Matobo National Park, over a 20 year period

a. 1978



b. 1992





In the commercial farmland, the occupied Black Eagle territories rose from 10 in 1995 to 11 in 1997. A pair of Black Eagles was seen each time on five visits to number 90/A during the 1997 breeding season. It was assumed that a pair had resumed occupancy in this territory after being absent since 1992. The alternate nest site has not been found as yet. Nest sites 90 and 90A were still derelict by the end of the 1997 breeding season.

Six pairs of Black Eagles outside the Matobo National Park bred successfully in each of the three breeding seasons (Table 1). Four of these were in the communal land.

There was a consistently high productivity by the Black Eagles in the fewer nests of the communal lands (3-year average = 0.88 young /pair/year; Table 2). By contrast, in the national park the eagles had a lower output (3-year average = 0.49).

**Table 2. Breeding performance of Black Eagles in relation to annual rainfall in the Matobo Hills, 1995–1997**

**BE – Black Eagle; CFL - commercial farmland; CL - communal land ; NP - national park.**

| Year | Rainfall<br>(mm) | Occupied BE<br>territories |     |    | Bred successfully |     |    |
|------|------------------|----------------------------|-----|----|-------------------|-----|----|
|      |                  | NP <sup>1</sup>            | CFL | CL | NP <sup>1</sup>   | CFL | CL |
| 1995 | 512              | 29                         | 10  | 4  | 10                | 4   | 4  |
| 1996 | 807              | 28                         | 11  | 10 | 13                | 8   | 9  |
| 1997 | 569              | 28                         | 11  | 11 | 19                | 6   | 9  |

<sup>1</sup> after Banfield<sup>1</sup> 1996, 1997 & 1998.

### Black Eagle Prey

A total of 680 prey items of 16 species were identified from 56 collections during the project period (Table 3). The variety of species that were preyed upon by Black Eagles in the Matobo Hills during the study period was greatest in communal land, and least in the national park. Mammals accounted for 95.6% of the prey items collected, birds 2.8%, and reptiles 1.6%. The two species of hyrax - the Yellow-spotted Hyrax *Heterohyrax brucei* and the Rock Hyrax *Procavia capensis* - accounted for 92.5% (overall).

**Table 3. Comparison of prey items collected from Black Eagle nest sites in the three land-use areas in the Matobo Hills**

**NP - national park; CFL - commercial farmland; CL - communal land.**

| Prey item <sup>1</sup>                                     | 1995      |          |          | 1996     |          |          | 1997     |          |          | Total     |
|------------------------------------------------------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
|                                                            | NP        | CFL      | CL       | NP       | CFL      | CL       | NP       | CFL      | CL       |           |
| Vervet Monkey<br><i>Cercopithecus pygerythrus</i>          | 1         | -        | 1        | -        | -        | -        | -        | -        | 1        | 3         |
| Scrub Hare<br><i>Lepus saxatilis</i>                       | -         | 1        | -        | -        | -        | -        | -        | -        | -        | 1         |
| Red Rock Rabbit<br><i>Pronolagus randensis</i>             | 1         | -        | -        | 1        | 1        | 1        | 1        | 3        | 5        | 13        |
| White-tailed Mongoose<br><i>Ichneumia albicauda</i>        | -         | -        | -        | -        | -        | -        | -        | -        | -        | 1         |
| Rock Hyrax<br><i>Procavia capensis</i>                     | 76        | 8        | 6        | 23       | 13       | 21       | 36       | 30       | 64       | 277       |
| Yellow-spotted Dassie<br><i>Heterohyrax brucei</i>         | 80        | 11       | 11       | 40       | 41       | 50       | 35       | 50       | 34       | 352       |
| Goat/Lamb (domesticated)                                   | -         | -        | 1        | -        | -        | -        | -        | -        | 2        | 3         |
| Helmeted Guineafowl<br><i>Numida meleagris</i>             | 1         | 1        | -        | -        | -        | -        | -        | -        | -        | 2         |
| Swainson's Francolin<br><i>Francolinus swainsonii</i>      | -         | -        | -        | -        | -        | 1        | -        | 1        | -        | 2         |
| Natal Francolin<br><i>Francolinus natalensis</i>           | -         | -        | -        | -        | -        | -        | -        | -        | 1        | 1         |
| Rock Pigeon<br><i>Columba guinea</i>                       | -         | -        | 1        | 1        | 1        | 1        | -        | 2        | 1        | 7         |
| White-necked Raven<br><i>Corvus albicollis</i>             | -         | -        | 2        | -        | 1        | -        | -        | -        | -        | 3         |
| Red-billed Hornbill<br><i>Tockus erythrorhynchus</i>       | -         | -        | -        | -        | 1        | -        | -        | -        | -        | 1         |
| Chicken(domesticated)                                      | -         | -        | -        | -        | -        | 1        | -        | -        | 2        | 3         |
| Leopard Tortoise<br><i>Geochelone pardalis</i>             | -         | -        | -        | -        | 1        | -        | -        | 1        | 1        | 3         |
| Giant-plated Lizard<br><i>Gerrhosaurus validus validus</i> | 1         | -        | -        | -        | -        | 2        | -        | -        | 5        | 8         |
| <b>Collection sites</b>                                    | <b>12</b> | <b>2</b> | <b>3</b> | <b>9</b> | <b>7</b> | <b>6</b> | <b>5</b> | <b>5</b> | <b>7</b> | <b>56</b> |

<sup>1</sup>Overall prey items - hyrax = 629; other = 51.

Overall, Yellow-spotted Hyraxes were taken more by Black Eagles than Rock Hyraxes (ratio - 14:11 respectively). In the national park and also in commercial farmland the Yellow-spotted Hyrax was taken more than the Rock Hyrax, whilst in the communal land the opposite occurred.

In the national park hyraxes accounted for 97.3% of prey items collected (N = 298). In commercial farmland they accounted for 92.2% (N = 166), while in the communal land hyraxes comprised 86.1% (N = 216). These figures suggest that Black Eagles in the Matobo Hills vary their diet slightly according to the location of their territories.

### Hyrax census

There has been an increase of Hyraxes in the national park, as revealed by the post-birth counts of hyraxes since the start of the project (Table 4). Four (1995-1998) censuses at the 20 sampling sites (sample area = 402 hectares) in the national park gave an average of 978 hyraxes/census (range 502 - 1333), giving an average density of 2.4 hyraxes/ha (Table 4). The average density in the commercial farmland was 0.9 hyraxes/ha (sample area = 254 hectares), compared with 0.4 hyraxes/ha on communal land (sample area = 325 hectares). By contrast, decreases were recorded in the commercial farmland (by 35%) and in the communal land (by 6%)!

More Yellow-spotted Hyraxes than Rock Hyraxes were counted in the national park, whilst the ratio was the opposite outside the protected area.

**Table 4. Counts of hyrax (both species combined) carried out at sampling sites in the three land-use areas in the Matobo Hills during April/May of each year.**

| Year | Land-use    |       | Totals /age group |      |      | Rainfall (mm) |     |
|------|-------------|-------|-------------------|------|------|---------------|-----|
|      | (No. sites) | Adult | Sub ad.           | Juv. | Pups |               |     |
| 1995 | NP (20)     | 329   | 17                | 20   | 140  | 506           | 512 |
| 1996 | NP (20)     | 509   | 84                | 75   | 99   | 767           | 807 |
| 1997 | NP (20)     | 802   | 140               | 135  | 227  | 1304          | 569 |
|      | CFL (4)     |       | 148               | 32   | 32   | 64            | 276 |
|      | CL (4)      |       | 83                | 16   | 14   | 33            | 146 |
| 1998 | NP (20)     | 781   | 168               | 147  | 237  | 1333          | 482 |
|      | CFL (4)     |       | 111               | 15   | 20   | 33            | 179 |
|      | CL (4)      |       | 76                | 14   | 14   | 34            | 138 |

### Poaching

There were 53 reported cases of poaching activities both inside and outside the Matobo National Park (Table 5). Most of the poachers apprehended inside the national park came from distant locations, including outside the Matobo District. These poachers killed animals through snaring around established bases. Those who were caught poaching outside the national park came from the local area. This group of people used a number of hunting methods which included group hunting with the use of dogs, spears and snares.

The most commonly poached animals in the hills were the hyraxes, which are more abundant than any other mammal. Almost every poacher had either hyrax-size snares, hyrax carcasses or hyrax skins. Table 5 also shows that more poaching activities took place during 1996 and 1997. This was likely due to the fact that armed patrols by police and army were withdrawn from anti-poaching activities in the park in 1995, and also perhaps due to the increase of hyrax in the hills (Table 4). A total of 40 hyrax skins, three hyrax carcasses, and two Bush Buck *Tragelaphus scriptus* skins were confiscated from poachers at their hideout inside the national park in June 1997. Other animals poached in the hills were antelopes.

**Table 5. Poaching activities in the Matobo Hills (January 1995 - April 1998)**  
(Sources: Matobo National Park monthly reports & pers. obs).

| Year                                                                                                          | Poaching Reports | Poached Animals<br>Hyrax | Other     | Snares     | People<br>Convicted | Maximum Penalty               |
|---------------------------------------------------------------------------------------------------------------|------------------|--------------------------|-----------|------------|---------------------|-------------------------------|
| 1995                                                                                                          | 8                | 7                        | 7         | 93         | 8                   | Not spelt out.                |
| ( ZRP Support Unit pull out of the national park) <sup>1</sup>                                                |                  |                          |           |            |                     |                               |
| 1996                                                                                                          | 13               | 6                        | 5         | 133        | 10                  | 12 months jail or \$1500 fine |
| (Squatters illegally resettle themselves inside the national park. Later evicted through High Court's orders) |                  |                          |           |            |                     |                               |
| 1997                                                                                                          | 30               | 117                      | 12        | 305        | 23                  | 80 days jail with labour      |
| 1998                                                                                                          | 2                | 10                       | -         | 65         | 1                   | \$200                         |
| (Squatters resettle themselves briefly before they were evicted once again through the High Court's orders)   |                  |                          |           |            |                     |                               |
| <b>Totals</b>                                                                                                 | <b>53</b>        | <b>140</b>               | <b>24</b> | <b>596</b> | <b>42</b>           |                               |

<sup>1</sup> The Zimbabwe Republic Police ZRP Support Unit and the Zimbabwe National Army had been carrying out anti-poaching patrols (protecting Black *Diceros bicornis* and White *Ceratotherium simus* Rhinos) together with national parks scouts inside the Matobo National Park.

All of the poachers apprehended inside the national park were handed over to the Matobo Police Station where they were sentenced by the magistrate after appearing in the court. The maximum penalty for all the offenders was 12 months in jail (with labour), while the maximum fine was Z\$1500,00 (US\$50.00). Of all the poachers arrested in the hills, five were released by the magistrate, because of being juveniles (<17 years of age; four) or too old (>70 years old; one).

Squatters from Bulawayo were evicted from the Matobo National Park in September 1996, by way of a High Court order. When they re-invaded the park in March 1998 they were evicted once again, but the High Court fined the leader only Z\$200,00.

### Conservation Education

This programme started with 15 schools in 1995 (Table 6) and increased to 23 schools (18 primary and five secondary) in 1997, still the current membership. Each of these schools has now got a Wildlife Club, formed under this project. An important activity was an overnight camping trip for students into the Matobo National Park in 1996. However, financial constraints limited it to one educational trip per school, involving 16 schools (12 primary and 4 secondary), and four schools were combined for each trip. Each school was represented by six students and a teacher, with the exception of two schools that brought extra persons. Transport, food and camping facilities were organised and paid for from funds provided by non-governmental organizations (NGOs) and individuals.

Over 500 elderly people and 26 n'angas (traditional healers) were talked to on the relationship between Black Eagles, hyraxes and people. Stories were collected from some of the elders and n'angas on the traditional medicinal use (healing powers), superstitions and beliefs concerning some birds. A Fact Sheet (in English and Ndebele - the local language) on the relationship between Black Eagles, hyraxes and people was distributed to schools and the local community. Positive feedback included assistance from some locals in the location of raptor nests.

**Table 6. Schools in the study area that are under the project's wildlife conservation education programme. C = children; T = teachers.**

| <i>School name</i> | <i>1995<br/>C</i> | <i>1996<br/>T</i> | <i>per<br/>(C+T) Clubs</i> | <i>1997<br/>field trip</i> | <i>(C + T)</i> | <i>Club members</i> |
|--------------------|-------------------|-------------------|----------------------------|----------------------------|----------------|---------------------|
| <b>Primary</b>     |                   |                   |                            |                            |                |                     |
| Bazha              | 605               | 15                | 18                         | 7                          | -              | 21                  |
| Dopi               | -                 | -                 | -                          | -                          | (342)          | 18                  |
| Dula               | -                 | -                 | -                          | -                          | (296)          | 24                  |
| Fort Usher         | 356               | 11                | 13                         | 7                          | -              | 23                  |
| Fumugwe            | -                 | -                 | (384)                      | 7                          | -              | 18                  |
| Gwandavale         | 260               | 6                 | 9                          | 7                          | -              | 19                  |
| Halale             | -                 | -                 | (377)                      | -                          | -              | 22                  |
| Lukadzi            | -                 | -                 | -                          | -                          | (281)          | 27                  |
| Lushumbe           | 156               | 5                 | 14                         | 7                          | -              | 18                  |
| Matobo Mission     | -                 | -                 | (667)                      | -                          | -              | 38                  |
| Mazhayimbe         | 351               | 10                | 18                         | 7                          | -              | 17                  |
| Nduna              | 178               | 5                 | 13                         | 7                          | -              | 26                  |
| Njelele            | 291               | 8                 | 20                         | 7                          | -              | 22                  |
| Nyumbane           | 396               | 12                | 18                         | 7                          | -              | 21                  |
| Silobi             | -                 | -                 | -                          | -                          | (318)          | 19                  |
| Silozwe            | 635               | 17                | 21                         | 7                          | -              | 27                  |
| Tohwe              | 333               | 9                 | 21                         | 7                          | -              | 26                  |
| Whitewaters        | 456               | 12                | 17                         | 8                          | -              | 14                  |
| <b>Secondary</b>   |                   |                   |                            |                            |                |                     |
| Bazha              | 350               | 14                | 20                         | 7                          | -              | 23                  |
| Matobo Mission     | -                 | -                 | (877)                      | -                          | -              | 43                  |
| Silozwe            | 203               | 8                 | 18                         | 7                          | -              | 20                  |
| Tohwe              | 268               | 11                | 17                         | 9                          | -              | 16                  |
| Whitewaters        | 302               | 12                | 16                         | 7                          | -              | 19                  |
| <b>Totals</b>      | <b>5140</b>       | <b>155</b>        | <b>2558</b>                | <b>115</b>                 | <b>1237</b>    | <b>521</b>          |

## DISCUSSION

Several factors have probably contributed towards the decline of both the Black Eagle and hyrax populations in the Matobo Hills since the late 1970s. These include a series of droughts from the early 1980s and rapid human population growth that resulted in excessive pressure on natural resources. People are destroying their habitat through extensive crop cultivation, indiscriminate cutting down of trees (for building houses and fencing, and for fuel), and overgrazing by domestic animals. By contrast commercial farmlands are characterized by controlled cattle grazing, few working people, little poaching of wild animals, and consequently relatively intact habitats.

A possible reason for the difference in hyrax populations between the communal land and the commercial farmland was perhaps due to the greater adaptability by the bigger Rock Hyrax compared to the Yellow-spotted Hyrax, which is predominantly a browser. The Rock Hyrax is a grazer but it browses heavily during the dry season when the nutritional value of grass is low (Barry 1993).

The main aim of this project is to protect the Black Eagle by protecting its food (hyraxes) and its habitats. The key problem is human population pressure. People are competing with the Black Eagle for hyraxes. While these people do not make any direct use of Black Eagles, they certainly eat hyraxes as a source of protein and also make karosses (blankets and mats) out of their skins. A double-bed kaross contains a minimum of 40 skins, while a hyrax colony consists of only 15 to 20

hyraxes. The local people told me that karosses last for more than 15 years. The way the hyraxes are hunted is well described by Walker (1989).

Five taxidermy companies visited around Bulawayo City said the current local market value of a kaross (average 40 skins) is Z\$2000,00. Foreigners' prices are three times the local value. A fully mounted hyrax costs Z\$1360,00 to a local buyer while it costs Z\$6000,00 to a foreigner. Black market values for the karosses are most likely a lot higher. These are all incentives for poachers, who also appear to be able to get into the Matobo National Park without the fear of arrest or getting killed by armed patrolling game scouts. Furthermore, when offenders are captured and charged, penalties are mild while some are even released without conviction in court.

The education of rural communities, especially in communal lands, is particularly important as all the unique ecosystems in the national parks are at the mercy of the land use practices around them. Education from an early age helps to achieve effective wildlife conservation, and the best method should be through the school child.

However, the lack of effective strategy is the biggest problem in this context, while policy makers rarely establish supportive policies on whatever they initiate. For example, staff from the Department of National Parks did a reconnaissance patrol in 1978 to assess the deteriorating relationship between the Matobo National Park and surrounding communal people. They recommended the urgent need for an experienced researcher to undertake a sociological project in the national park and the surrounding communal land and commercial farmland, and for an African interpretative officer to start public awareness on wildlife conservation. The report that was submitted to the Parks and Wild Life Board (Ashton 1981) had sound recommendations which were partly fulfilled, while the public relations officer worked for a very short period before he was given a new job.

Socializing with people of all age groups, including the traditional leaders (chief and headmen), n'angas, and school children in the Matobo Hills helped them in getting confidence in me. They later became free to talk to me about their traditional way of living and their social problems that are related to wildlife. The local community even helped me in locating a number of raptor nests within the study area.

None of the schools under this project's educational programme had ever been visited by an education (interpretative) officer from the Department of National Parks, while the children themselves had never visited the Matobo National Park! This reflects the lack of appropriate inputs by policy makers.

Wildlife is a key resource in Zimbabwe and this project is also trying to promote conservation awareness among rural communities. Although there are many wildlife education officers in Zimbabwe (working for example through the Wildlife Society) who are willing to carry out this kind of work, funding is limited. It is hoped that through the participation of government and NGOs, more emphasis will be placed on programmes for wildlife conservation education. Changing people's attitudes towards wildlife conservation is an uphill task that cannot easily be measured over a short time, particularly in the Matobo Hills. Here the view of the Matobo National Park is deeply interwoven with strong cultural influences and traditional beliefs, and even verges towards antagonism.

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