

Falconry as a Conservation Tool in Africa

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ABSTRACT

Falconry can assist raptor conservation, especially in Africa with its meagre financial resources and expertise. Falconers can assist by monitoring nest sites, ringing raptors, establishing captive breeding programmes for endangered species, assisting with raptor rehabilitation, running educational programmes and providing specimens. This model has been applied successfully for the past 21 years in Zimbabwe, as a result of the government falconry policy, consisting of a formal arrangement between the Zimbabwe Falconers' Club (ZFC) and the Department of National Parks and Wild Life Management (DNPWLM). A vital component in this relationship has been the linkages between a ZFC research coordinator and a senior ecologist (DNPWLM). The ZFC established a Raptor Conservation Unit (RCU) in 1989 which has also worked in joint programmes with The Peregrine Fund Inc., including studies on: DDT impact on the Peregrine Falcon *Falco peregrinus minor*; status, ecology and captive breeding of the Taita Falcon *F. fasciinucha*; and the raptor community in the Batoka Gorge (site of a proposed dam). The ZFC has produced over 200 Peregrines in captivity and 70 have been released. The ZFC also supports falconry clubs at two private secondary schools.

INTRODUCTION

Falconry has been a legal pursuit in Zimbabwe (Hartley 1993a) for 30 years and the special falconry policy established in 1976 by the Department of National Parks and Wild Life Management (DNPWLM) has led to a systematic and concerted effort to conserve both raptors and their prey by falconers (Hartley 1993a, 1994a). The methods and structure of the programme were described in Hartley (1991, 1993a). The Zimbabwe Falconers' Club (ZFC) conservation strategy has four components: education and public awareness through talks and demonstrations by experienced falconers and also from two falconry clubs at private schools; veterinary care and rehabilitation of raptors; a research data base on raptor nest sites used for studies of populations, comparative ecology, DDT impact and the prey base of hawks; and, a captive breeding and release programme mainly on the African Peregrine Falcon *Falco peregrinus minor*, but recently including the Taita Falcon *F. fasciinucha* as well (Hartley 1993a, 1996, in press a).

Guidance and professional input on the conservation programme was achieved by regular linkage between the Chief Ornithologist of DNPWLM and the Club's Research Coordinator (Hartley 1993a), as a consequence of official policy and also the commitment of the respective personnel concerned.

A cornerstone for the success of the programme has always been the falconers' access to birds from the wild (Hartley 1993a).

Joint conservation and research programmes have been set up between the ZFC and The Peregrine Fund (TPF), Overseas Development Agency (ODA) and the DNPWLM (Hartley 1993a). The Raptor Conservation Fund was established by the ZFC in 1989 to provide financial support to the research programme (Hartley 1993a). A separate breeding fund was established by the ZFC thereafter as well. Material and financial support has been supplied by TPF and the Endangered Wildlife Trust of southern Africa (EWT; Hartley 1993a). Material support has also been supplied by the National Birds of Prey Centre (UK; Hartley 1993a), while The Institute of Terrestrial Ecology (UK) has sampled eggshell contents for pesticide residues (Hartley *et al.* 1995).

The aim of this paper is to review the conservation activities and projects of the ZFC since 1992 (Hartley 1993a), to verify the usefulness of this approach, and also to review developments in other countries of southern and east Africa with a view to promoting the Zimbabwe model.

RESULTS AND DISCUSSION

Routine activities

Annual monitoring has continued, with the maintenance of the nest record card system which has continued to grow and a further 13 Peregrine and three Taita sites have been added since 1992 (Hartley 1993a). The system also has nesting data on: Black *Aquila verreauxii*, Tawny *A rapax*, Wahlberg's *A. wahlbergi*, African Hawk *Hieraaetus spilogaster*, Ayres' *H. ayresii*, Martial *Polemaetus bellicosus*, Crowned *Stephanoaetus coronatus*, Blackbreasted Snake *Circaetus gallicus* and African Fish Eagles *Haliaeetus vocifer*; Lizard Buzzard *Kaupifalco monogrammicus*; Redbreasted *Accipiter rufiventris*, Ovambo *A. ovampensis*, Little *A. minullus* and Black Sparrowhawks *A. melanoleucus*; Littlebanded *A. badius*, African *A. tachiro* and Gabar Goshawks *Micronisus gabar*; and Lanner Falcon *F. biarmicus*.

Numerous specimens (eggs and shell fragments; dead birds) have been measured and submitted to the Natural History Museum of Zimbabwe (NHMZ) in Bulawayo. Species included: Black, Wahlberg's, Crowned and Blackbreasted Snake Eagles; Black, Ovambo and Little Sparrowhawks; Littlebanded, Gabar and African Goshawks; and Taita, Peregrine and Lanner Falcons. The first specimen (live bird) of Sooty Falcon *F. concolor* collected from Zimbabwe (Hartley & Hustler 1995) is still in the care of the ZFC.

Data on prey taken by trained hawks included weights and measurements (including gonads), moult and location and were collected almost exclusively by Falcon College Falconry Club. This has amounted to over 2500 individuals of over 140 species. Some prey data were published in Hartley & Mundy (1992), Hartley (1995), Francis *et al.* 1996 and Hartley (1997). Furthermore this unit has also compiled a prey reference collection which now represents 126 species of birds, useful in the identification of prey remains. The monitoring of the raptor community around the college in the Esigodini area has continued for 16 years, providing useful understanding of long-term population trends.

Over 120 raptors have been ringed by the ZFC and numerous raptors have been successfully rehabilitated, including considerable veterinary work done by Dr. A. Huelin. *Post mortems* have revealed incidences of avian tuberculosis in a few free-living and captive Peregrine and Lanner Falcons, and a possible vulnerability to aspergillosis in some captive Black Sparrowhawks.

Education was described by Hartley (1993a). Since its inception in 1983 Falcon College Falconry Club (Hartley 1987) has produced 59 fully fledged falconer-conservationists (Hartley 1998a), all of whom have spent a minimum of two years of intensive activity in the unit. They have also hosted many groups of visitors, instructing them on the raptors at the facility and on aspects of raptor conservation. As many as 20 groups from visiting schools make organised trips to the facility each year. A similar service has been provided at the Peterhouse Falconry Club. Several falconers have put on posters illustrating the ZFC conservation and research programme at conservation workshops and at game fairs held in Harare. They have also given flying displays with trained raptors.

Special projects

On-going projects involving Peregrine and Taita Falcons (Hartley 1993a) were described in detail by Hartley *et al.* (1996):

1. Status and distribution of the Peregrine and Taita Falcons in Zimbabwe (1976-present). 16 of 20 Taita nest sites and 50 of 136 Peregrine nest sites have been found in well wooded areas in the Zambezi Valley where Peregrines outnumber Taitas 3:1, but increasing habitat destruction in this zone may favour the Lanner (currently outnumbered 10:1 by the Peregrine) in the future, possibly at the expense of the Taita (Hartley in press a). The Taita is sympatric with the Peregrine and it is likely that its numbers are constrained by the larger species, the Taita fitting in where it can (Hartley *et al.* 1993, in press a). Nest site characteristics, productivity, prey, nesting densities and ecology are being studied. Formal, systematic investigations on the effect of organochlorines on Peregrine in Zimbabwe were completed in 1990, and it was concluded that these no longer posed a serious threat to populations (Hartley *et al.* 1995). This was also supported by data collected on Lanners and Taitas (Hartley 1993b). The analyses were conducted by the Institute of Terrestrial Ecology in the UK, under the auspices of Dr. I. Newton, also scientific advisor to The Peregrine Fund, USA.

2. Monitoring and managing falcons in two Zimbabwe cities. Lanner Falcons have bred in Harare city since 1972 (Kellow-Webb & Dingley 1972) and a chick ringed in a nest at Grindlays Bank was recovered 17 years later - the greatest longevity recorded for a wild falcon in Africa. These and Peregrines have been monitored intermittently since then and the ZFC has been instrumental in assisting these falcons and the interested public. Dr. J.B. Condry (ZFC) provided supplementary feeding for the chicks (Kellow-Webb & Dingley 1972). In 1997, when the adult male Lanner disappeared, supplementary food was supplied to the nest by N. Deacon (ZFC) and T. Tanser, and all three young fledged successfully. After the laying of the first egg a nest tray was also provided, as the window ledge had no substrate. Stories were also canvassed to the two principal Sunday papers. Television coverage probably assisted the recovery of two young Peregrines which landed in the street below their nest in 1990. Both chicks had been supplied from the captive breeding project of the ZFC, as the Peregrines had lost two eggs (de la Harpe 1990). In separate incidents in 1997 two Peregrine fledglings stranded on busy streets below their nest were quickly rescued and handed in to ZFC personnel, who in turn returned them to their nest. Both fledged successfully. In 1997 a pair of Peregrines attempted breeding in Bulawayo for the first time. Unfortunately the adult female disappeared, and when replaced by an immature, the latter was recovered injured on the street and handed to the ZFC. A few days later it laid an egg.

3. Captive breeding and release programmes involving Peregrine and Taita Falcons.

a) Peregrine. The programme started in 1978 and the first successes were in 1981 (Hartley 1983, 1996a; Thomson 1984). To date 19 pairs have produced 214 young. Surplus young were produced from 1989 onwards, and 70 juveniles released to the wild. In 117 pair-years 20 pairs produced 96 male and 96 female young, 83% fledging successfully. 75 pair-years were claimed by 30 unsuccessful pairs, but five females from this set bred successfully when placed with suitable males. Of 57 Peregrines used, 56% produced young, compared with levels of 30-50% achieved elsewhere (Lindberg 1982). Three females produced young at 14 years of age, and one at 15 years. No females bred successfully after this time, following senescence patterns recorded in captive birds at The Peregrine Fund (Clum 1995). Each released falcon was ringed and 13 were recovered. There was a tendency to drift to towns and to cereal croplands near Harare, usually within 100 km of the release sites. The longest distance recovery was at Pretoria west, South Africa, for a falcon released at Peterhouse, Marondera (Oatley 1995). A five and a four year old falcon were recovered respectively, while another falcon bred successfully at a dominant, traditional Peregrine site in the Matobo Hills in 1997. All costs were borne by the falconers, and by a fund established by the ZFC (Hartley 1996a).

b) Taita. In 1993 four pairs of Taita Falcons were constituted from three females (Hartley 1994b) and one male taken from the wild, and three males bred in captivity by TPF (see Hartley & Mundy 1990; Hartley 1994b & c). One pair has died. Two pairs produced eggs in 1996 and 1997, and one of these produced young for the first time in 1997 (Hartley in press b).

4. *Breeding and ecology of Crowned Eagle* in Turwi River system (1994- present). 14 nesting territories were found in 180 km², although just 4-6 were occupied in any year. 123 prey items have been collected. Crowned Eagles were recorded feeding on carrion (Smith & Hartley 1996). A raptor community study in the wider Save Conservancy has been undertaken as ancillary programme, and so far 42 species of diurnal raptors and 9 species of owls have been recorded. This study is essentially an inventory, with data also being gathered on prey, breeding and nesting densities.

5. *Black Eagle study* in Marula district. A survey was started on the Black Eagles on private land in Marula district of the Matobo Hills in 1997, to complement the major study in the National Park (Gargett 1990). Private land has been much less studied in this area. Our study has focused on 14 nest sites, and two species of hyrax are being sampled to support surveys being done on the prey base in neighbouring Communal Lands and National Parks Estate (Chiweshe this volume). Useful data was also collected on all other species of raptor, so that there will also be a raptor community component to the programme. Several Black Eagle nests have been known since the early part of the century.

6. *Raptor community study* in the Batoka Gorge system, which holds the highest density of falcons recorded in Africa, with 8-10 pairs of Taita and 15-18 pairs of Peregrines occurring along the first 60 km of the 122 km gorge system (Hartley 1993c). Twelve of 29 species of diurnal raptors are eagles, including seven pairs of Black Eagles (Hartley & Smith 1995), and nine species of owls were also recorded. Information was supplied to a current environmental impact assessment, as a hydro-electric dam is planned (Hartley 1993 a & c).

7. *DDT impact on African Goshawk* at Siabuwa (Zambezi valley). The collection of eggs from selected sites is planned for December 1998 for DDT impact studies, to follow-up on the project completed in 1988-1990 (joint exercise with ODA, U.K.; Hartley & Douthwaite 1994). The impending exercise will test whether DDT levels have changed since the cessation of ground spraying in 1990, and whether productivity of goshawks has been influenced.

8. *Molecular phylogeny of Peregrine, Taita and related falcons* (1994-present). This is a joint project between RRH (ZFC) and Dr. D. Bell (California Academy of Sciences). This will be presented as a poster to the 22nd International Ornithological Conference in Durban in August 1998.

Most of these projects are joint programmes between ZFC, the DNPWLM and TPF (Hartley 1993a). The ZFC is also a member of the newly established Raptor Conservation Group of Zimbabwe, whose mandate includes the planning and prioritisation of research projects in the national interest. Other research oriented services rendered by ZFC activities included collaboration with: J. Dale (PhD student, Cornell University) during the harvesting of Redbilled Quelea *Quelea quelea* for hawk food during quelea breeding seasons in 1995-1997; P. Weeks (PhD student, Cambridge University) where a trained Peregrine was used to test behaviour exhibited by Redbilled Oxpeckers *Buphagus erythrorhynchus*; and B. Davidson (M.Sc. student, Rhodes University) who studied a raptor community in the south-eastern Lowveld.

CONFERENCES

The ZFC has long been recognised as a valuable contributor in the field of raptor and gamebird conservation in Zimbabwe, and it has contributed to several conferences: Perdix VI gamebird symposium (Hartley & Mundy 1992; Mundy 1996); VIII Pan Afr. Orn. Congr. 1992 (Hartley 1993a, Hartley *et al.* 1993); Raptors and Man symposium (Hartley *et al.* 1996); Our Endangered Environment (Hartley 1996b); Migrating Birds Know No Boundaries (Hartley 1998b); and V World Conference on Birds of Prey.

FALCONRY AND CONSERVATION ELSEWHERE IN AFRICA

Falconry south of the Sahara has been largely confined to Zimbabwe and South Africa, while in north Africa activities have been largely related to hunting by Arab falconers. South Africa has the most falconers and it is likely the membership of the Cape, Natal, Free State and Transvaal Clubs is

about 250 members. Of the 122 members (1998) of the ZFC, 91 have been practising falconers in Zimbabwe. There are three falconers in Botswana and one in Zambia. Although there are a few falconers in Kenya, including TPF's Simon Thomsett, there is no official policy or support towards the activity. There are a few keen falconers in Namibia, but it is currently not allowed there (Oettle *et al.* this volume).

Although there are many conservation minded falconers in South Africa, there has been a turbulent relationship between many falconers and ornithologists in particular (Raptor Conservation Group 1996; Ryan 1996). However, South African falconers have assisted ornithologists and conservationists (Tarboton & Allan 1984; Jenkins *et al.* 1991; Jenkins 1995; Lombard 1998; Oettle *et al.* this volume). There is also significant resistance to the harvesting of raptors from the wild (Raptor Conservation Group 1996), even if biologically justifiable. Ironically the same detractors praise the efforts of the ZFC, whose government falconry policy is based on the legitimate harvesting of birds from the wild.

In Zimbabwe the government falconry policy is based on the principle that those who use the resource will contribute to it (Thomson 1992). Experience shows this to be true, with users being more pro-active in conservation than most others. This has characterised Zimbabwe's falconers who have given their time, expertise and money to the conservation programme. In a continent that is chronically short of these resources, with pristine habitats diminishing steadily under the growing human population, wildlife needs all of the input that it can get. Wildlife biologists, falconers and landowners/holders need to pool their expertise and resources and commit to work together for the common cause of wildlife conservation.

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