REPORTS AND UPDATES

Reports in this series may be preliminary findings and should be read as such. Rather than awaiting project completion, GABAR publishes such updates to make current research more readily available. Further contributions are invited.

Greater Kestrel and Rednecked Falcon populations in the Ganab region of the central Namib Desert

Christopher J. Brown

Summary.- Population densities of Greater Kestrels *Falco rupicoloides* and Rednecked Falcons *F. chicquera* were determined in an 840 km^2 area in the central Namib Desert of SWA/Namibia. Thirty-seven pairs of Greater Kestrels and five pairs of Rednecked Falcons were located, giving an average area per pair of 23 km^2 for kestrels and 168 km^2 for falcons. Inter-pair distances ranged from 1.2 - 6.5 km ($\bar{x}$ = 3 km) for kestrels, and 3.5 - 10.7 km ($\bar{x}$ = 8.3 km) for falcons.

Introduction

Rednecked Falcons and Greater Kestrels are small to medium sized falcons, weighing about 200g and 260g respectively, and in southern Africa are both generally associated with semi-arid to arid regions (Steyn 1982, Maclean 1985). Limited information on

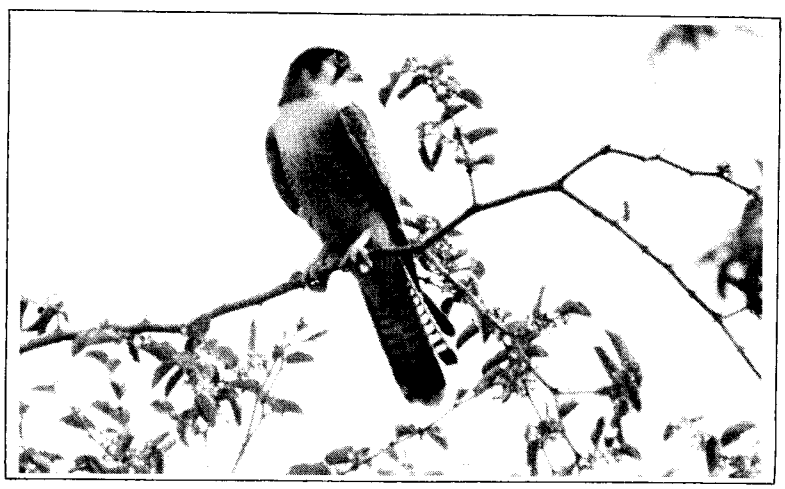

Fig. 1. Rednecked Falcon photographed in the Ganab. © CJ Brown.

the population densities of these two species is available, but with the exception of relative abundances of Greater Kestrels from road counts (Brown et al.1987), nothing from the Namib has been published. Accurate population density estimates for Greater Kestrels are given by Kemp (1978) and Tarboton & Allan (1984) for the Transvaal, and Brown et al. (1987) for the Halali area of Etosha National Park. Population densities of Rednecked Falcons in Africa are also sparse, but two estimates are given for Zambian populations by Colebrook-Robjent & Osborne (1974) and Osborne (1984). Here I report on population densities of Greater Kestrels and Rednecked Falcons in the Ganab region of the Namib-Naukluft Park, situated in the central Namib, during the period 1985 to 1986.

Study Area and Methods

The Ganab study area (Fig. 2) is situated on the eastern border of the Namib-Naukluft Park and occupies an area of about 840 km^2. The area is flat, consisting of gravel plains intersected by numerous sandy dry river washes which drain to the west (Fig. 3). The mean annual rainfall over the last 11 years at Ganab (1000 m a.s.l.) is 86 mm, most of which falls in late summer. Rainfall is highly variable and ranges from 9 to 374 mm per annum (Pietruska & Seely 1985). Approximately five days with coastal fog occur per year and this contributes about 4-5 mm of additional precipitation. Mean annual humidity is 37% and the area is windy; prevailing winds are from the west between September and March, and from the northeast for the remainder of the year.

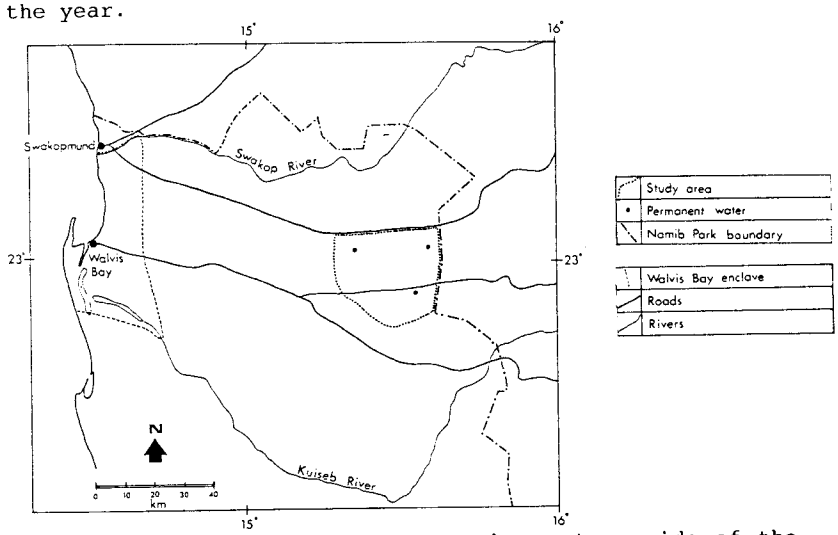

Fig. 2. Study area at Ganab, on the eastern side of the Namib-Naukluft Park, Namibia.

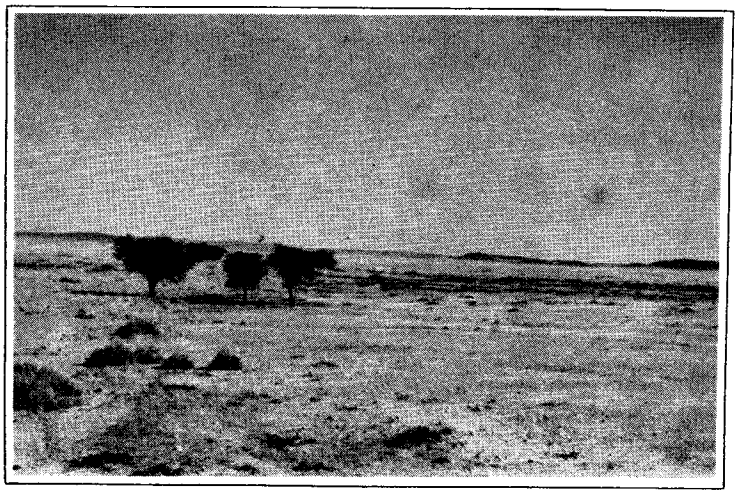

Fig. 3. The gravel plains of the Namib Desert. Note the sparse vegetation and the Lappetfaced Vulture nest. © CJ Brown.

Temperatures range from 1 to 39 °C with a mean annual value of 22 °C (Lancaster et al. 1984).

The standing crop of vegetation on the gravel plains of the central Namib is highly variable and rainfall-dependent. The plains may be virtually barren or can support a moderate growth of grass, mainly *Stipagrostis* species. During the study, a sparse covering of grass was present during both years. The river washes by contrast are lined with numerous trees of which *Acacia erioloba* predominates.

As part of a Lappetfaced Vulture (*Torgos traceliotus*) research programme, all river washes in the study area were systematically checked from a vehicle during July and December 1985 and November 1986. The localities of adult pairs of both *Falco* species were plotted directly onto 1:50 000 maps. Although Greater Kestrels were sometimes seen at some distance from trees, e.g. hunting over adjacent plains, perched on rocks or the ground, it was uncommon for birds to spend long periods away from the river washes. In particular, during the heat of the day when most of the field work was done, the kestrels were usually perched in the shadow of the trees. Except when pursuing prey, Rednecked Falcons were invariably located or flushed from dense canopied trees. The areas in which pairs of both species were found remained remarkably constant between visits. No difference in the numbers of falcons was recorded over the study period, and the number of kestrel pairs varied by less than 6%. The long term occupation of specific sites, even outside the breeding season, was further illustrated by large accumulations of pellets at nest, roost and perch sites, confirming the sedentary nature of pairs.

Results and Discussion

Falcon and kestrel densities

An average of 37 pairs of Greater Kestrels, ranging from 36 to 39 pairs, and five pairs of Rednecked Falcons was located in the study area. Kestrels thus averaged 23 km^2 per pair and falcons 168 km^2 per pair, although not all this area (in particular away from washes) was used. The mean inter-pair distance for kestrels was calculated at 3.0 km (range 1.2 - 6.5 m) and 8.3 km (range 3.5 - 10.6 km) for falcons. In instances where two or more Greater Kestrels pairs occupied different sections of the same river wash, linear inter-pair distances for 22 pairs were smaller at 2.2 km (range 1.2 - 3.5 km). The mean minimum distance between kestrels and falcons was 3.5 km (range 3.1 - 4.5 km), suggesting some spatial segregation between the species.

Home range and prey

Greater Kestrels were seen up to 2.2 km from their nesting sites along river washes and up to 2.8 km out over the gravel plains. No colour ringing was undertaken, and sightings were of an incidental nature. Nevertheless, a home range size in the order of 20 km^2 can be estimated for this area. In contrast, Rednecked Falcons were seen over the gravel plains only when pursuing prey (up to about 1.2 km from the river wash), but moved extensively within the wash, up to about 6.4 km from their nest sites.

The difference in the densities of the two *Falco* species, as well as their utilization of habitat, is probably related to their respective prey and how it is captured. Rednecked Falcons are specialist feeders with 98% of their diet being small birds (Steyn 1982). They therefore make extensive use of the river washes which provide them with the shelter of trees for hunting, as well as supporting relatively high densities of small birds. Waterholes are favoured, and each of the three areas with permanent water in the study area fell within the ranges of three respective pairs. In contrast, Greater Kestrels are generalists in terms of diet, taking mainly invertebrates and reptiles, two of the most common groups of animals in the desert, but also birds and small mammals (Brown et al. 1987). Reptiles and invertebrates occur commonly on the gravel plains - where Greater Kestrels are found foraging.

Relative densities

Comparison with other studies show that the population density of Greater Kestrels in the Namib was very similar to that found in the Transvaal highveld (28.6 and 16.3 - 21.7 km^2 per pair; Tarboton & Allan 1984) and the same as that found in suitable habitat in Etosha National Park (23.7 km^2 per pair; Brown et al. 1987). Rednecked Falcons, however, occur at a considerably lower density in the Namib than in Zambia, where, in seven study areas, population densities ranged between 2.6 - 83.3 km^2 per pair (Osborne 1984). Even the area with the lowest population in Zambia supported twice as many Rednecked Falcons as that found

in the Namib, probably because the density of avian prey in the Namib is low, and a large component is highly nomadic.

Acknowledgements. I am grateful to Ben Riekert and Brian Colahan for assistance in the field, to Sue Brown for comments on an earlier draft, and to the staff at Ganab, particularly Russel Vinjevold, for co-operation and support.

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CJ BROWN
ORNITHOLOGY SECTION
DIRECTORATE of NATURE CONSERVATION and RECREATION RESORTS
PRIVATE BAG 13306
WINDHOEK 9000
NAMIBIA