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# Biology and Conservation of the Lappetfaced Vulture in SWA/Namibia

CHRISTOPHER J. BROWN

## INTRODUCTION

The Lappetfaced Vulture *Torgos tracheliotus* is a large (6,8 kg), solitary, tree-nesting species which inhabits mainly semi-arid and arid habitats from the northwestern Sahara east to Israel and south to the Cape Province, South Africa (Brown *et al.* 1982). In many parts of its range numbers have declined seriously; in Israel only two pairs survive from a population of about 30 pairs in 1945 (Mendelsson & Leshem 1983, Mendelsson 1985) and in Tunisia and Morocco, where they formerly bred, Lappetfaced Vultures are now extinct, (Cramp & Simmons 1980, Thevenot *et al.* 1985). Brooke (1984) classified the Lappetfaced Vulture as a "vulnerable" species in South Africa, with the number of breeding pairs surviving being probably closer to 50 than to 100. It no longer breeds in Natal, and in Zululand it is confined largely to game reserves (Clancy 1964, Cyrus & Robson 1980). It is one of the seven diurnal raptors in the Cape Province to have experienced a major decrease in range, formerly having bred over most of the Cape Province but now recorded only from the northern Cape where it is classed as "scarce" (Boshoff *et al.* 1983). In the Transvaal the Lappetfaced Vulture is ranked as the most threatened vulture, now confined to lowland conservation areas, with probably fewer than 40 breeding pairs (Farbton & Allan 1984). Because it is doubtful whether this population (and populations in other provinces) would survive without the existence of breeding populations in neighbouring countries, the last mentioned authors stress the need for the conservation of this species on a regional basis, i.e. in southern Africa as a whole.

Lappetfaced Vultures are extremely sensitive to nest disturbance (Steyn 1982) and if incubating birds are kept off their nests for too long they will readily desert. The most important factor in the decline of this species, however, is the effect of poisons. In SWA/Namibia, during the past three years, 11 Lappetfaced Vultures (three ringed) were reported killed by poisons, mainly strychnine, which had been used by farmers for predator control. Of these 11 birds, four had died from feeding on a poisoned carcass, while the others had picked up small pieces of poisoned meat. These figures undoubtedly represent only the "tip of the iceberg" as poisoned birds are rarely found and are unlikely to be reported by users of poison.

Research on Lappetfaced Vultures in SWA/Namibia began in the mid 1960s with the work of Sauer (1973) in the Namib Desert, and was continued by Clinning (1980 and in prep.) who concentrated mainly on their breeding biology and ringed large numbers of

nestlings to determine their movements and survival. My research expands upon that of the previous workers and recognises the following objectives:

1. To determine the distribution and status of Lappetfaced Vultures in all regions of SWA/Namibia.
2. To investigate the daily foraging patterns of immature and adult birds throughout the year.
3. To determine their home range sizes during different seasons of the year and different cycles of the breeding season.
4. To determine the early movements and dispersal patterns of fledglings.
5. To obtain information on breeding success and immature survival.

## METHODS

A bird atlas project (Williams 1985) and a raptor road count project (Brown & Biggs 1984) have been in existence in SWA/Namibia since 1977 and provide data on general distribution per quarter-degree square. The coverage achieved by these two projects, to June 1984, are shown in Fig. 1.

SWA/Namibia was divided into eight main bioclimatic regions (Fig. 2) and the relative abundance of birds of prey are calculated per region from the road counts. A total of almost 400 000 km of road count data was obtained during the above period.

A study area (c. 1200 sq. km) at Ganab in the Namib-Naukluff park was selected for the study of objectives 2-5. The area has good road access, accommodation and water, and supports a breeding population of about 40 pairs of Lappetfaced Vultures. Nests are located during the early incubation period (June or early July), and each nesting tree is marked with a coloured tag and the locality is plotted. The period of disturbance at nests is kept as short as possible (usually 2-3 min), and the area is then quickly vacated. Nests are checked again in November when nestlings are ringed, nests measured and prey remains collected. Information on home range and movement is being obtained by radiotelemetry. In 1985 three nestlings and two immature birds were fitted with 80 g transmitters with a battery life of two years. During 1986 an attempt will be made to capture four adult birds and attach transmitters to them. Radio-tagged birds are monitored simultaneously by two people from high points in the study area on four consecutive days per month, from early morning to late evening. The positions of the birds are later calculated by triangulation.

## SOME PRELIMINARY RESULTS AND DISCUSSION

### Distribution and status

Lappetfaced Vultures occur throughout SWA/Namibia (Fig. 3) and their breeding distribution is believed to be similar. This is in accord with the distribution given by most recent authors (e.g. Brown *et al.* 1982, Steyn 1982, Maclean 1985), but is a substantial improvement on the known breeding distribution (see Mundy 1982): to date almost 200 breeding attempts have been recorded from 51 quarter-degree squares.

Lappetfaced Vultures were the most commonly encountered

vulture species throughout the Namib Desert (regions 1-3) and in the Pro-Namib (region 4a). In all other regions the Whitebacked Vulture *Gyps africanus* was more abundant (Table 1). Cape Vultures *Coprolaetes* were rare throughout (see Brown 1985), and Whiteheaded Vultures *Trigoniceps occipitalis* and Hooded Vultures *Necrosyrtes monachus* were recorded mainly from the woodland Savanna region, where neither were as abundant as Lappetfaced Vultures.

The relative abundance of Lappetfaced Vultures in different regions of SWA/Namibia ranged from 0,5 birds seen per 1000 km travelled in the Kalahari savanna to 8,3 birds in the mopane savanna (Table 2). Most of the coverage in the mopane savanna was obtained in the Etosha National Park. A belt of open *Acacia* savanna of varying width, through which many of the tourist roads are routed, surrounds the Etosha Pan itself. This area supports a particularly high concentration of game and predators, and scavenging species are abundant. The relative density of Lappetfaced Vultures in the mopane savanna as a whole is expected to be not as high as 8,3 birds per 1000 km, and is probably lower than the figure for the central and southern Namib (region 2). In the south of the country (region 4b) numbers were surprisingly low.

It is difficult to assess the natural abundance of Lappetfaced Vultures in different habitats because of the effects of human activities on these populations. Two large tracts of land which have had very little human influence, and support healthy populations of game animals, may provide a reasonable indication of vulture populations in undisturbed habitats. These areas are the Namib Desert and the woodland savanna habitat (Fig. 4), which represent areas of lowest and highest rainfall in the country respectively. The relative abundance of Lappetfaced Vultures in the woodland region was about half that for the central and southern Namib and about 66% that of the total Namib figure; this supports the view of Brown et al. (1982) that this species is less common in dense woodland. In most other areas of SWA/Namibia commercial or subsistence farming is practised (Fig. 4), and this has had a marked influence on Lappetfaced Vulture numbers.

In predominantly small-stock farming areas (southern parts of the country) farming activities have had a particularly devastating effect on vulture numbers. This is because (i) many small-stock farmers see all large birds of prey as a threat to their livestock, either because they cannot distinguish predators from scavengers or because they believe that vultures attack sick animals, animals giving birth or new-born lambs during the first few hours after birth (Brown in prep.), and (ii) small-stock farmers usually experience greater stock losses to mammalian predators than do large-stock farmers (4,6% and 0,5% of all stock respectively (H. Biggs and I. Stutterheim pers. comm.) and therefore make more use of predator control methods such as gin traps and poison, to which vultures are also vulnerable.

In the south of the country 76,5% of farmers admit to using poisoned baits for the control of predators (Fig. 5); in one district this was as high as 93%, but no information on the frequency of use was obtained. In the central regions about 56% of farmers set poisoned baits and the figure for the north was 46%.

TABLE 1  
The ratio of Lappetfaced Vultures to other vulture species recorded in each bioclimatic region of SWA/Namibia (see Fig. 2).

Region	Lappetfaced Vulture	Whitebacked Vulture	Cape Vulture	Whiteheaded Vulture	Hooded Vulture
1	1	0	0	0	0
2	1	0,07	0,02	0	0
3	1	0	0	0	0
4a	1	0,16	0,01	0	0
4b	1	1,73	0	0	0
5	1	4,08	0,06	0,03	0
6	1	4,31	0,03	0,66	0,14
7	1	28,50	1,00	0	0
8	1	2,6	0	0,01	0
Total	1	1,96	0,02	0,05	0,01

TABLE 2  
The relative abundance of Lappetfaced Vultures in each bioclimatic region of SWA/Namibia, as determined from road counts.

Region	Sample (km)	No. Lappetfaced Vultures seen	No. Lappetfaced Vultures/1000 km
1	11620	55	4,7
2	35530	252	7,1
3	7423	17	2,3
4a	18940	82	4,3
4b	121435	105	0,9
5	158122	231	1,5
6	16295	64	3,9
7	3820	2	0,5
8	18022	150	8,3
Total	391207	958	2,5

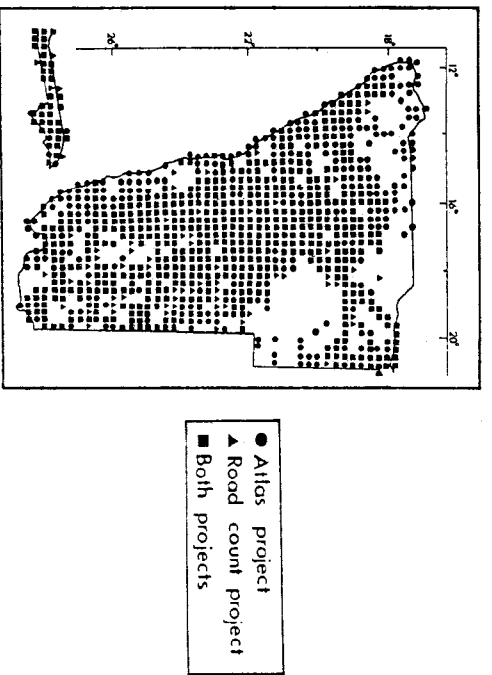


FIGURE 1. The coverage achieved in SWA/Namibia by the bird atlas project and the raptor road count project.

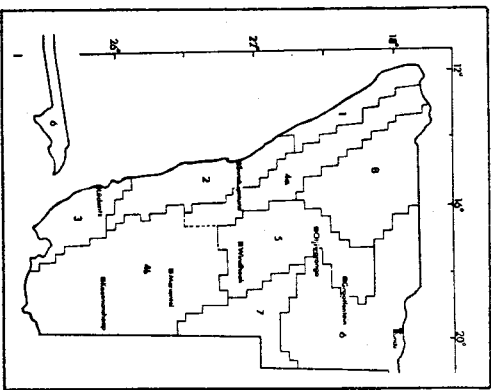


FIGURE 2. The eight main bioclimatic regions in SWA/Namibia for which raptor road count data were analysed.

Region 1: Northern Namib, summer rainfall <50 mm  
 2: Central and southern Namib, summer rainfall <50 mm  
 3: Southern Namib, winter rainfall <50 mm  
 4a: Pro-Namib, 50-200 mm  
 4b: South, 50-200 mm  
 5: Highland savanna, 250-400 mm  
 6: Woodland savanna, 400-700 mm  
 7: Kalahari and forest savanna, 150-400 mm  
 8: Mopane savanna, 100-400 mm

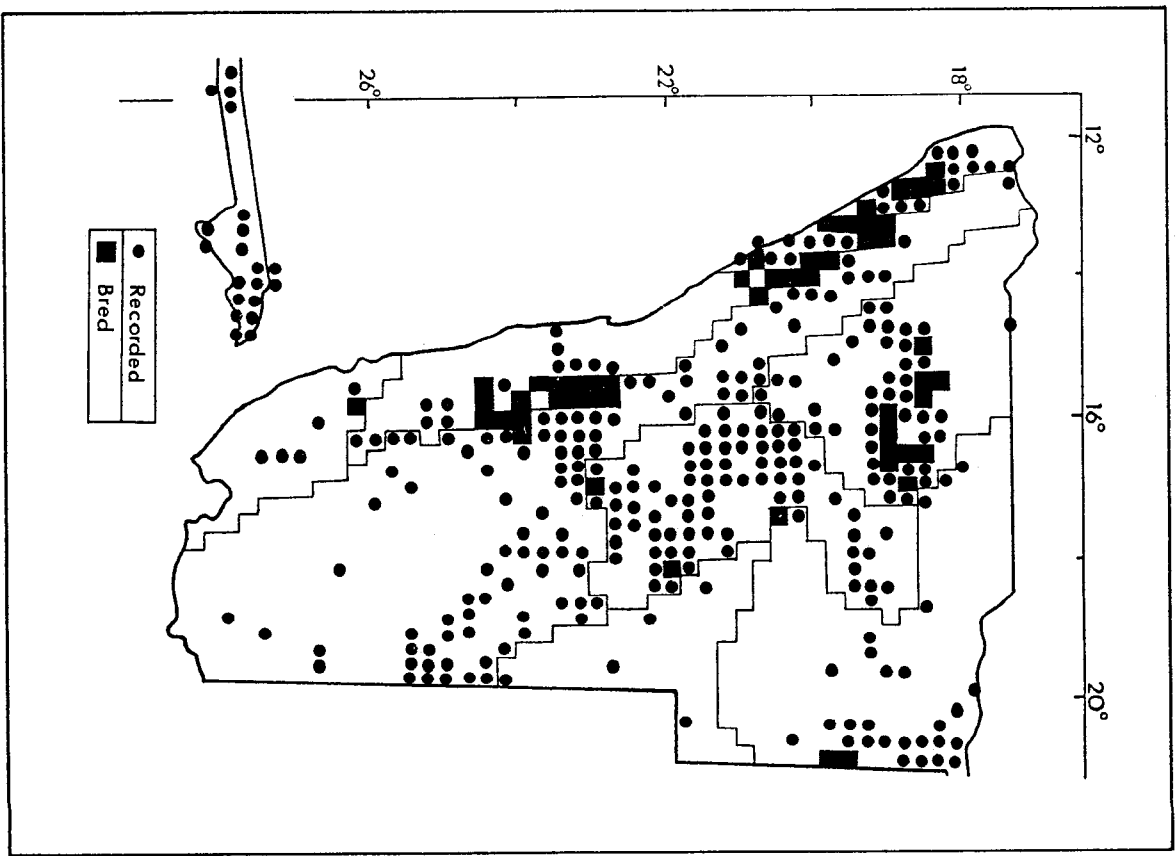


FIGURE 3. Distribution of the Lappetfaced Vulture in SWA/Namibia.

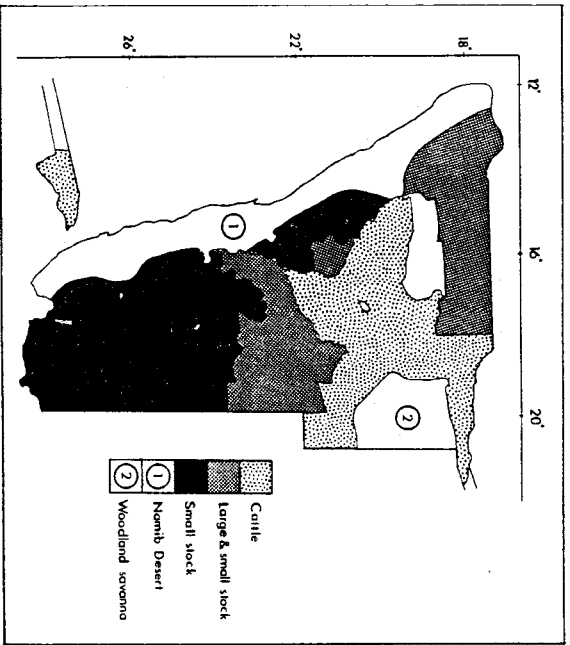


FIGURE 4. Patterns of land use (commercial and subsistence) in SWA/Namibia and the two largely undisturbed areas in which Lappetfaced Vulture numbers have been little affected by farming activities (see text).

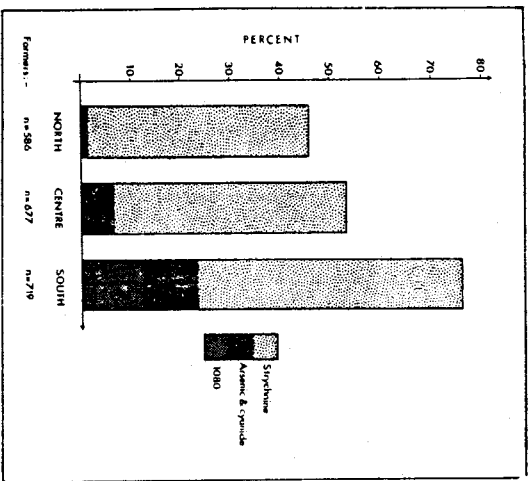
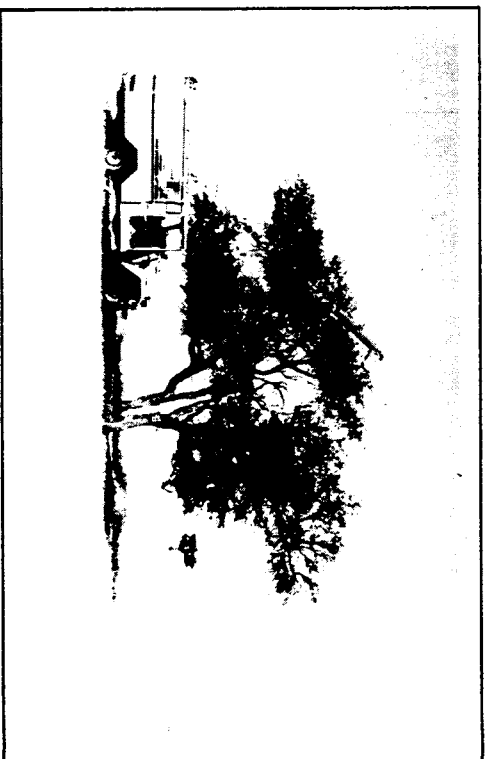


FIGURE 5. The percentage of farmers who admit to using poisons in the north, centre and south of SWA/Namibia, and the main types of poison used.



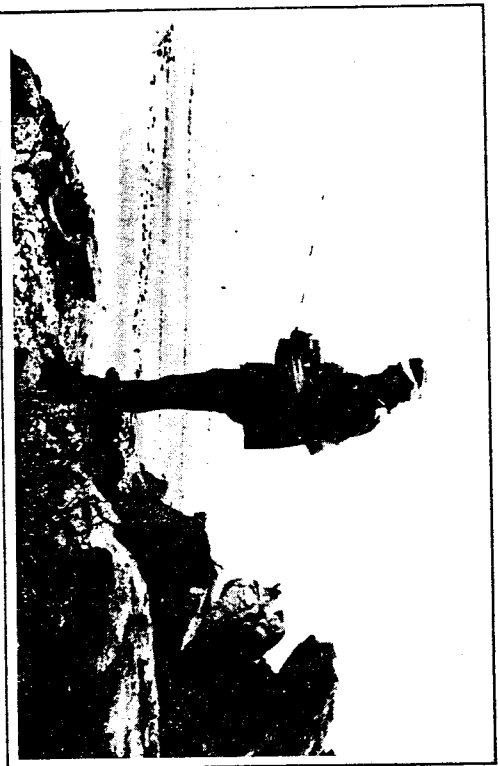
Checking Lappetfaced Vulture nests in the Central Namib Desert.



Nestling Lappetfaced Vulture marked with new PVC rings supplied by V.S.G. The birds feet are wrapped in sacking to prevent injuries to researchers!



Immature Lappetfaced Vulture captured by cannon-net in the Central Namib and fitted with an 80g radio transmitter mounted on its back by means of a nylon and plastic tubing harness. The transmitter has a life of 2 years and gives a line - of - sight range of at least 80 km.



Radio-tagged birds are monitored from high points in the otherwise flat Central Namib, from early morning to late evening, on at least four days per month.

It is clear that poisons are much more frequently used in the small-stock farming districts of the south than in those where cattle are farmed. Information on this aspect is currently being gathered from a bird of prey questionnaire which has been sent to the farming community. This questionnaire also requests information on stock losses and on carrion available to scavengers; preliminary analysis of returns suggests that food is not a limiting factor in any part of the country.

The impact of predator-control operations in the south of the country is emphasised by the number of recoveries in this area of birds ringed in the central Namib Desert. A total of 143 nestlings were ringed by C.F. Clinning in the 1975-1980 period. Of these five have been recovered (3,5%), all in the south. Three were killed by strychnine poison, one was caught in a gin trap and one was shot. Preliminary results point strongly to anti-predator control by the farming community as being by far the most important cause of mortality of Lappetfaced Vultures, with the irresponsible use of poison being the single most important factor.

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C.J. Brown, Ornithology Section, Directorate of Nature Conservation, Private Bag 13306, Windhoek 9000, SWA/Namibia.

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