

# Bokmakierie

The General Interest Magazine of the South African Ornithological Society

Editors: H. C. Hunter, M. E. Rose, R. I. Smith

Representatives: P. Steyn (Rhodesia), C. C. H. Elliott (Cape Town), P. A. Clancey (Durban)

MARCH 1974



Volume 26 No. 1

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FRONT COVER: Glossy Ibis. Photographed by M. Fagan.

(We are extremely grateful to Miss Olga Moller of Hermanus for her donation to Bokmakierie which has covered the cost of reproducing our front cover for this issue.)

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*Views expressed in this magazine are not necessarily those of the editorial committee*

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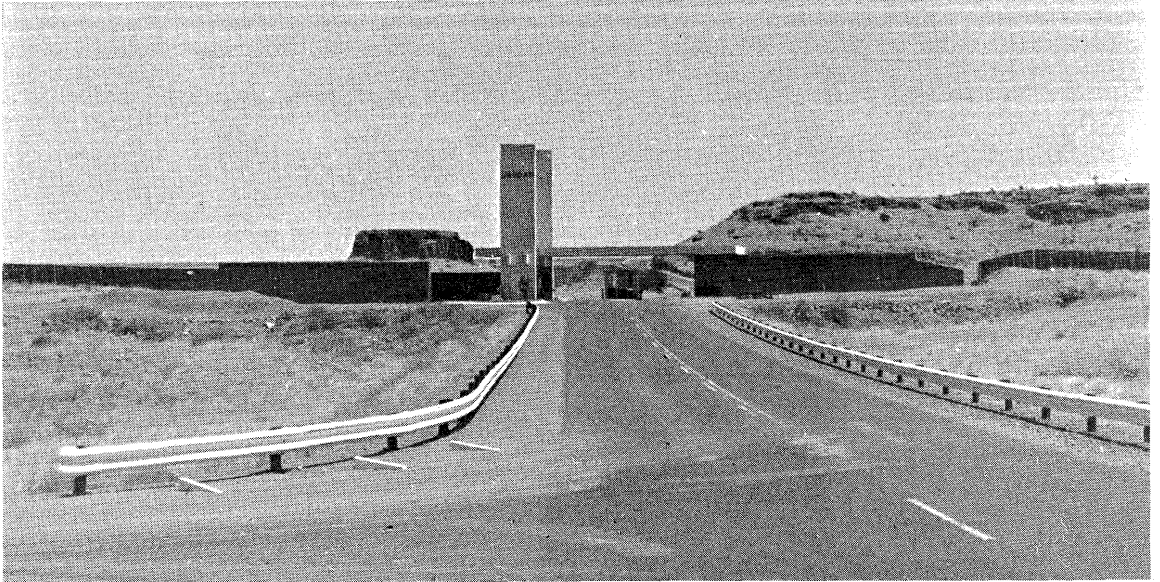
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# Symposium on the Adaptation of Birds to a life in a Hot and Dry Climate.

Held at the Hardap Dam on the 24th and 25th September, 1973.

(Photographs by G. J. Broekhuysen)



The Symposium was organised by the South African Ornithological Society and the South West African Scientific Society.

The choice of Hardap Recreation Resort as the venue for the symposium, was certainly a lucky one. This dam has a capacity of 323 million cubic metres and the surface covers 25 km<sup>2</sup>, extending upstream along the Fish River for 30 km.

The Rest Camp is almost completed, situated high on the plateau, overlooking the dam; the view, especially from the modern and very good restaurant, which has been built, perched as it were, on the edge of the rocks, is magnificent.

The delegates were housed in the modern bungalows, comfortably furnished, and with a gas refrigerator and a shower.

The symposium was attended by over 60 people and the actual deliveries were held in a hall, about 8 km from the entrance to the dam-area, situated in a small settlement.

A total of 11 papers was given, covering a wide range. The opening address was given by Dr. Jack Winterbottom, President of the South African Ornithological Society.

Peter Frost was the first speaker and his topic was a joint paper with Professor Roy Siegfried on Behaviour and Adaptation of the

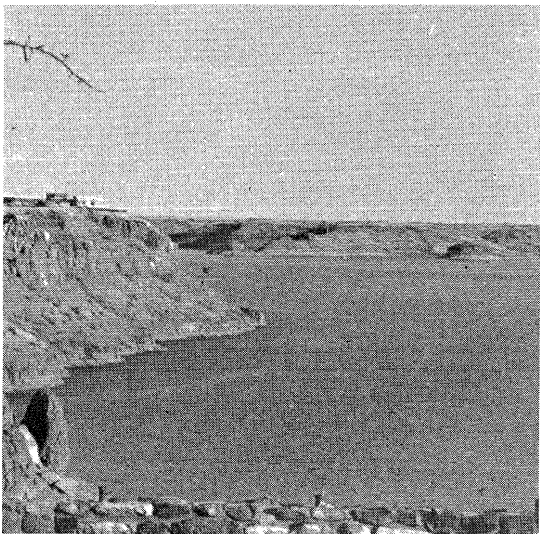
The entrance to the Hardap Recreation Resort.

Jackass Penguin, *Spheniscus demursus*, to a hot environment. He showed clearly how a bird like the Jackass Penguin has anatomical and behavioural adaptations to conserve warmth, but also to protect it against exposure to excessive high temperatures while incubating.

The second speaker was Dr. Allan Kemp, on a Study of the Biology of Monteiro's Hornbill, *Tockus monteiri*. He showed how at least one of the family of the hornbills has adapted itself to living in arid conditions. Monteiro's Hornbill successfully occupies a niche, which consists mainly of rocky substratum, with practically no trees and a rather erratic distribution of food. The bird's main adaptations are its hopping movement and the bringing of more than one item of food at a time to its chicks in the nest in a rocky crack.

Dr. Jack Winterbottom, in his paper emphasized the existence of Bergman's and Allen's rule and stressed that these were mainly based on measurements. He pointed out that weight would be a more reliable parameter, but that there is a serious lack in weight data.

Dr. Gordon Maclean gave a well illustrated account of arid zone adaptations such as cryptic colouration, drinking of saline water and



The Hardap Dam with the restaurant perched on the rocky outcrop in the centre of the picture.

the ability to secrete salt; the dependence on rainfall as regards breeding activity, orientation and position of nest sites and the relatively small and determinate egg clutches.

Mr. David Skead showed how especially in the Golden Bunting, *Emberiza flaviventris flaviventris*, the habit of drinking is linked to the food taken, and how the type of food in its turn, is linked to climatic conditions. Skead also pointed out that the general assumption that birds which include insects in their food are much less dependent on water, needs more careful scrutiny.

Mr. P. F. Woodall from Rhodesia discussed water-transport by birds to their nests containing eggs or chicks. He showed how in quite a number of species certain types of feathers have developed which strongly suggest adaptation to this habit of water-transport.

Dr. Sesinka from Germany, in his paper on the Australian Zebra Finch, *Taeniopygia castanotis*, pointed out that in this species early seasonal development can do with very little water. He also mentioned that sexuality in wild Zebra Finches was much more intense than in domesticated birds. Maturation of sexual activity follows a continuous development and as a result, the testes are fully developed in males after 70 days. Daylight length had no influence.

Dr. Rolf Jensen described arid habitats and showed how the bird inhabitants showed adaptation and dependence on rainfall. His talk was illustrated by many transparencies of outstanding quality.

Professor Roy Siegfried talked on certain adaptations in the Ostrich, *Struthio camelus*, to arid conditions. He pointed out how the Ostrich, mainly due to its large size, when

incubating, is especially vulnerable to solar radiation and diurnal variation in ambient temperature. Temperature of eggs, nest and surrounding were recorded and related to the incubation rhythm. It was shown that the male takes the main burden of energy requirement and that the incubation rhythm is flexible and adaptable.

Dr. Gordon Maclean in his second paper discussed the biology of the Sociable Weaver, *Philetarius socius*, in the Kalahari Sandveld. A colony of this species may vary from two to 500 birds and may occupy one single large compound nest or several nest masses. Only indigenous trees or artificial nest sites like telephone poles or water tankstands are used. The nest is divisible into several social levels.

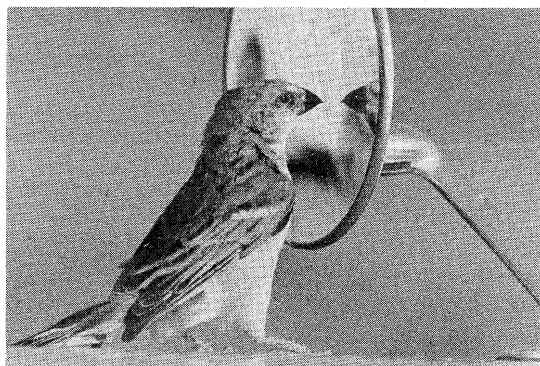
Temperature and humidity readings inside nest chambers showed no or insignificant differences with the outside conditions. It was found that rain was the main stimulus for breeding. Food supply regulates clutch size. Up to four successive broods may be raised by one pair and young of the first broods help their parents to feed later broods. The main nest predator is the Cape Cobra.

Mr. Peter Milstein showed in his paper how random movements in birds are an escape mechanism and that they enable adaptation.

The last paper was by Dr. J. S. Watt. He discussed the breeding habits of the Chestnut Weaver, *Ploceus rubiginosus trothae*. It was pointed out that the urge to occur in flocks was highly developed. Rainfall appeared to be the main trigger mechanism for the onset of breeding activity which seemed to be highly organised and therefore very little time was wasted once it had started.

And so came the end of a most interesting, rather informal and excellently organised Symposium.

*In the next issue we hope to publish a sequel to the above article.*



This Great Sparrow *Passer motitensis* was fighting its image from the early morning until the late afternoon in the car mirror of one of the delegates.

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JUNE 1974



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FRONT COVER: Female Saddlebill Stork. Photographed by Peter Steyn.

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# S.A.O.S. Ornithological Symposium in S.W.A.

by G. J. A. Currie.

## The Excursion to the Namib Part 2.

We left Hardap Dam on a beautiful morning in a spacious tourist bus. The route from Mariental to Maltahöhe traverses the plateau of 1 000 m altitude. The gently undulating scrub savanna supports Karakul farming and the following birds were identified: Martial Eagle, Pale Chanting Goshawk, Rock-Kestrel, Kori Bustard, Forked-tailed Drongo, Namaqua Sandgrouse, Mountain Chat. White-browed Sparrow-Weaver colonies were continually noticed and a count revealed a density of 65 colonies in 32 km. Maltahöhe is situated on a higher part of the plateau, and the air was crisp at 11 a.m. as we stepped out of the bus and to our surprise we noticed two punctures. It was incredibly lucky to have had these punctures at the only garage before Walvis Bay. While waiting for the punctures to be mended, we had a look at a dry riverbed and noticed Brubru, Tit-babbler, Red-headed Finch, Gabar Goshawk and Dusky Sunbird in non-breeding plumage. A nest of a Marico Flycatcher was found containing one chick and one egg, 1,5 metres high in an *Acacia karroo*.

During the descent from the plateau to the Namib plains the Isohyet changes from

400 - 100 mm, and there is a distinguishable vegetational transition zone. We stopped for lunch in a gorge of the Kuiseb River. The sides were steep with sparse vegetation but the riverbed was fairly well wooded. Here we saw one pair of Black Eagle, Scimitar-billed Hoopoe, Monteiro's Hornbill, Golden-tailed Woodpecker, Great Sparrow, Black-throated Canary, Rosy-faced Lovebird, Mountain Chat and Brubru.

### NAMIB PLAINS

After the descent from the plateau, the road passes through a transition zone of huge koppies and a small "one horse" collection of buildings called Solitaire is reached. From here the Namib plains "proper" start with average annual rainfall of 75 mm. Scenically this is probably the most fascinating region of the Namib desert. Flat sparse low scrub with occasional yellow grass with majestic huge koppies scattered haphazardly. The bus braked to allow two Ludwig's Bustards to walk off the road 15 metres away — what a privileged view! We entered the area of the Namib Desert Park and noticed Karoo Korhaan and Burchell's Coursers, while we made for Ganab. This name is given to a long shallow linear depression or "wadi" in the vast vista limited by the plains horizon and the occasional giant koppie.



Ganab.



The ultra-arid zone.

This "wadi" supports large *Acacia giraffi* and smaller thorn bushes suggesting a source of underground water. Here Martial Eagles and Red-necked Falcons had bred, and we saw Lanners, Sociable Weavers, Grey-backed Finch-Larks and Ostriches.

A huge stillness pervaded the vastness broken only by the occasional chattering of Sociable Weavers, and the clicking of lizards, the so-called "Namib frogs". We were loathe to leave this fascinating area but the sun was setting and as we crossed the ultra-arid zone in semi-darkness, we were all stimulated by the day's introduction to the Namib and arrived to sink into the comfort of an hotel in Walvis Bay.

#### THE ULTRA ARID ZONE

This is the coastal zone which stretches for approximately 50 km inland and to the 50 mm Isohyet. As a result of the very low rainfall there are no drinking sites, and thus resident species have completely adapted. Such species are the Ostrich, Layard's Chat, Gray's Lark and the Double-banded Courser. In this flat sparsely-covered dune veld the opportunity is minimal for birdlife to escape to cooler micro-environments to avoid the daytime heat, and special physiological adaptations were described at the symposium involving water retention and heat tolerance. Cloacal excretions are more concentrated. Salt excretion anterior to the eye produced by a gland has been noticed in the Gray's Lark and the Double-banded Courser. During the intense midday heat it is probable that a higher body temperature is tolerated for a short period. Thus precious water is not lost from the body by excessive panting or body surface loss.

The riverbeds through the Namib usually have a well developed vegetation and fulfil two important functions. They are considered as

"Linear Oases" and provide a favourable migration route through the arid regions from the plateau to the coast. 90 per cent of all species breeding in the Namib below the 100 mm Isohyet (approx. 100 km from the coast) do so in these riverbeds, i.e. the nomads, local wanderers and residents. The use of the underground water of the Kuiseb River by a uranium mine is dropping the water table, diminishing the vegetation of this all important habitat and reducing the seepage so vital to the existence of the vegetation in Sandwich Harbour, the other great coastal, wader habitat.

#### WALVIS BAY LAGOON

This is an extremely large shallow tidal lagoon supporting a large population of waders of which flamingoes number 25 000, a concentration second only to the Central African lakes. As the tide was rising we noticed White Pelicans swimming in a flock and they seemed to synchronise the submergence of their heads as they apparently hunted fish. As a wader habitat, it compares favourably with Langebaan but its future has been seriously threatened by the following interference.

After a road had been built across this lagoon, cutting off a third of it, it was discovered that the tidal action at the mouth thus reduced was unable to oppose the silting action of the sea. The mouth has become progressively shallower since and research has been undertaken to seek a solution. Attempts to stabilise the dunes on the mainland shore of the lagoon include spraying the dunes with used oil from diesel locomotives. The potential polluting danger of such a practice was later realised and it has been stopped. It is hoped that no further practices endangering the existence of this unique habitat in S.W.A. will be

carried out in the name of development.

## SALTPANS AND GUANOPLATFORMS

On the last morning we visited the large artificial salt pans at Swakopmund. The depth of water in the large partitioned sections favoured only large wading birds, i.e. flamingoes, and these were only present in small numbers.

On the same site is situated a large artificial breeding platform. 1,2 million Cape Cormorants were breeding. Two streams of cormorants, the one approaching the platform and the other departing, stretched from the breeding platform over the beach to the horizon. Research is taking place here to try to determine the quantity and size of fish eaten per bird, per day, and correlation of this data with fishing industry information.

Between Walvis Bay and Swakopmund another platform is situated on reefs, which are exposed at low tide. This was started about 40 years ago as a private enterprise to collect

guano and has been gradually extended. It now covers 1,7 hectares and is occupied in the breeding season by approximately 0,75 million Cape Cormorants, 100 Crowned Cormorant (a race of the Reed Cormorant), and 400 pelicans. It is interesting that the quantity of guano collected in 1960 at the peak of the pilchard boom was treble the amount collected in 1972.

This excursion was thoroughly enjoyed by all taking part and was certainly a revelation of the symposium theme, i.e. The adaptations of birds for life in a hot and dry climate. In addition to adaptations already mentioned, we learnt that in general the more advanced the adaptational development, to a resident life in an arid environment the more predominantly insectivorous the species become. We learnt that the desert is very sensitive to change, whether to an increase or decrease in its meagre rainfall and that uncontrolled use of the underground water of riverbeds would have profound effects on 90 percent of species.

# PHOTOGRAPHIC COMPETITION RESULTS

Our congratulations to C. H. Langley of Simonstown — 1st prize. Petrus van Rensburg of Pretoria — 2nd prize.

(The two slides are reproduced below in black and white).

Once again, because of the high standard of the slides entered, voting was very close indeed.

All slides entered were shown and judged — 61 in all. The judges spent almost 3½ hours before finally reaching their decision.

Voting was held on the 28th May, the judges being: R. I. Smith and H. C. Hunter — both members of the Bokmakierie editorial committee. N. Nolten — professional photographer. W. Rossini — professional photographer. Also, Mr Rossini is a wildlife photographer who has won awards as far afield as Taiwan! C. J. West — colour reproduction expert and adviser.

Messrs Nolten, Rossini and West are not members of any branch of the S.A.O.S.

We thank all those members who entered the competition. As mentioned above, because of the standard of slides submitted, it is impossible to single out any for special commendation!

We thank also Mr Nolten for the use of his premises and Mr West for very kindly offering to reproduce and supply the two sets of colour separations at no cost to the Society.

Please note: This year one-third of the profits from the Christmas card sales will be given to the Conservation Committee of the S.A.O.S.

Vanjaar sal die kaarte in Afrikaans en Engels gedruk word.

