

Evidence of an increase in a red-billed oxpecker population in the Kruger National Park

C.J. Stutterheim and Irene M. Stutterheim

Department of Zoology, Rand Afrikaans University,
P.O. Box 524, Johannesburg 2000, South Africa

Submitted 19 May 1980; accepted 10 June 1980

Ground counts of redbilled oxpeckers *Buphagus erythrorhynchus* and their mammalian symbionts were made during November 1974 and December 1979 in an area of approximately 343 000 ha near Shingwedzi in the Kruger National Park, South Africa. Mean ratios for oxpecker/symbiont were 0,025 and 0,043 for 1974 and 1979 respectively (Table 1); the difference between the two values being statistically significant ($d0,05 = \pm 1,645 < 4,09$).

Table 1 Numbers of mammalian symbionts and redbilled oxpeckers in the Shingwedzi area of the Kruger National Park during November 1974 (counts made along a 717 km transect) and December 1979 (823 km transect)

Symbiont species	No. symbionts		No. oxpeckers		Ratio	
	1974	1979	1974	1979	1974	1979
Impala	2 037	4 019	39	92	0,019	0,023
Buffalo	114	237	15	48	0,132	0,203
Zebra	54	368	1	8	0,018	0,022
Kudu	27	156	4	44	0,148	0,282
Warthog	7	20	—	—	—	—
Nyala	16	21	—	5	—	0,238
Bushbuck	4	9	—	3	—	0,333
Sable Antelope	—	9	—	4	—	0,444
Wildebeest	69	29	—	—	—	—
Giraffe	—	3	—	2	—	0,667
Eland	—	4	—	5	—	1,250
Roan Antelope	—	1	—	—	—	—
Total	2 328	4 876	59	211		
Mean					0,025	0,043

No local movements of redbilled oxpeckers were observed during an intensive 19-month study of a population of the species in the Skukuza area of the Kruger National Park (Stutterheim 1976). Thus, it is unlikely that the difference in the ratio observed between 1974 and 1979 was due to immigration or emigration of oxpeckers. The number of ungulates, with the exception of the impala *Aepyceros melampus*, has increased in the Shingwedzi area over the last six years (S.C.J. Joubert, *in litt.* 1980), presumably as a consequence of above average rainfall.

Mean annual rainfall for Shingwedzi is 473 mm (1935—1979) compared to 638 mm for 1974—1979 (W.P.D. Gertenbach, *in litt.* 1980). An increase in the number of symbionts should result in a decrease in the oxpecker/symbiont ratio, unless the number of oxpeckers increases proportionately. Since, however, the observed ratio increased concomitantly with an increase in the number of symbionts, it appears that the number of oxpeckers also increased between 1974 and 1979.

The most important items in the diet of redbilled oxpeckers in the KNP are the ticks *Boophilus decoloratus* and *Rhipicephalus appendiculatus* (Bezuidenhout & Stutterheim *in press*). According to Howell, Walker and Nevill (1978), *B. decoloratus* is relatively rare in the eastern lowveld of the Transvaal, but may be introduced into new areas during seasons when above average rainfall results in enhanced vegetation cover. These populations may then be able to maintain themselves temporarily. Moreover, populations of *R. appendiculatus* tend to die out during relatively dry periods in the lowveld including the northern part of the KNP.

In conclusion, it appears that relatively high rainfall during the last six years in the Shingwedzi area can be correlated with an increase in the redbilled oxpecker population, coupled with increases in the populations of the bird's mammalian symbionts and its principal food. The improved food supply might have favoured a reduction in mortality of both adult and young birds, so promoting a population increase.

Acknowledgements

The National Parks Board of Trustees who granted the necessary permission, Dr S.C.J. Joubert for unpublished information and financial support by H. Lewis & Co. are gratefully acknowledged.

References

- BEZUIDENHOUT, J.D. & STUTTERHEIM, C.J. *In press*. A critical evaluation of the role played by the red-billed oxpecker *Buphagus erythrorhynchus* in the biological control of ticks. *Onderstepoort J. Vet. Res.*
- HOWELL, C.J., WALKER, J.B. & NEVILL, E.M. 1978. Ticks, mites and insects infesting domestic animals in South Africa. Part 1. Descriptions and biology. *Sci. Bull. Dep. Agric. tech. Serv. Republ. S. Afr.* 393.
- STUTTERHEIM, C.J. 1976. The biology of the red-billed oxpecker, *Buphagus erythrorhynchus* (Stanley 1814) in the Kruger National Park. M.Sc.-thesis, University of Pretoria.