



ERRATA

		<i>For</i>	<i>Read</i>
Frontispiece		Bobspits Okavanga	Bokspits Okavango
<i>Page</i>	<i>Column</i>		
x	map caption	future	further
21	1	<i>Hypaene</i>	<i>Hyphaene</i>
27	2	Drotsky	Drotsky
38	1	Proboscidae	Proboscidea
	1	Reverse captions fig. 1 (a) and (b)	
	centre	MAROSCELIDIDAE	MACROSCOLIDIDAE
	2	Hyracoidae	Hyracoidea
40	1	<i>Elephantantulus</i>	<i>Elephantulus</i>
43	1	Schwan	Schwann
72	2 (in key)	Fig. 10(b)	10(d)
82	centre	Geoffrey	Geoffroy
90	fig. 13 (d)	<i>Taphosous</i>	<i>Taphozous</i>
97	2	<i>Xixyphus</i>	<i>Zizyphus</i>
129	2	Namaqua gerbil	South African pygmy gerbil
180	1	<i>alibicauda</i>	<i>albicanda</i>
214	1	<i>transvalensis</i>	<i>transvaalensis</i>
218	2	Phubuhudu	Phuduhudu
219	1	Jentnick	Jentink
227	1	Sundervall	Sundevall
256	1	two species	two specimens
264	centre	RODETIA	RODENTIA
282	centre	OCTODONTIDAE	THRYONOMYIDAE
283	1	Missone	Misonne
284	1 (in key)	<i>Paratomys</i>	<i>Parotomys</i>
287	2 (in key)	underparts	upperparts
315	Plate 16	Gerbie	Gerbil
325	1	Camp 3 (21 23 A3)	Camp 3 (22 23A3)





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THE
MAMMALS
OF
BOTSWANA



Botswana, a country of contrasts

The south-western Kalahari, near Bobspits.

The Okavanga delta; the Thamalakane River at
Matlapaneng causeway.





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The Mammals of Botswana

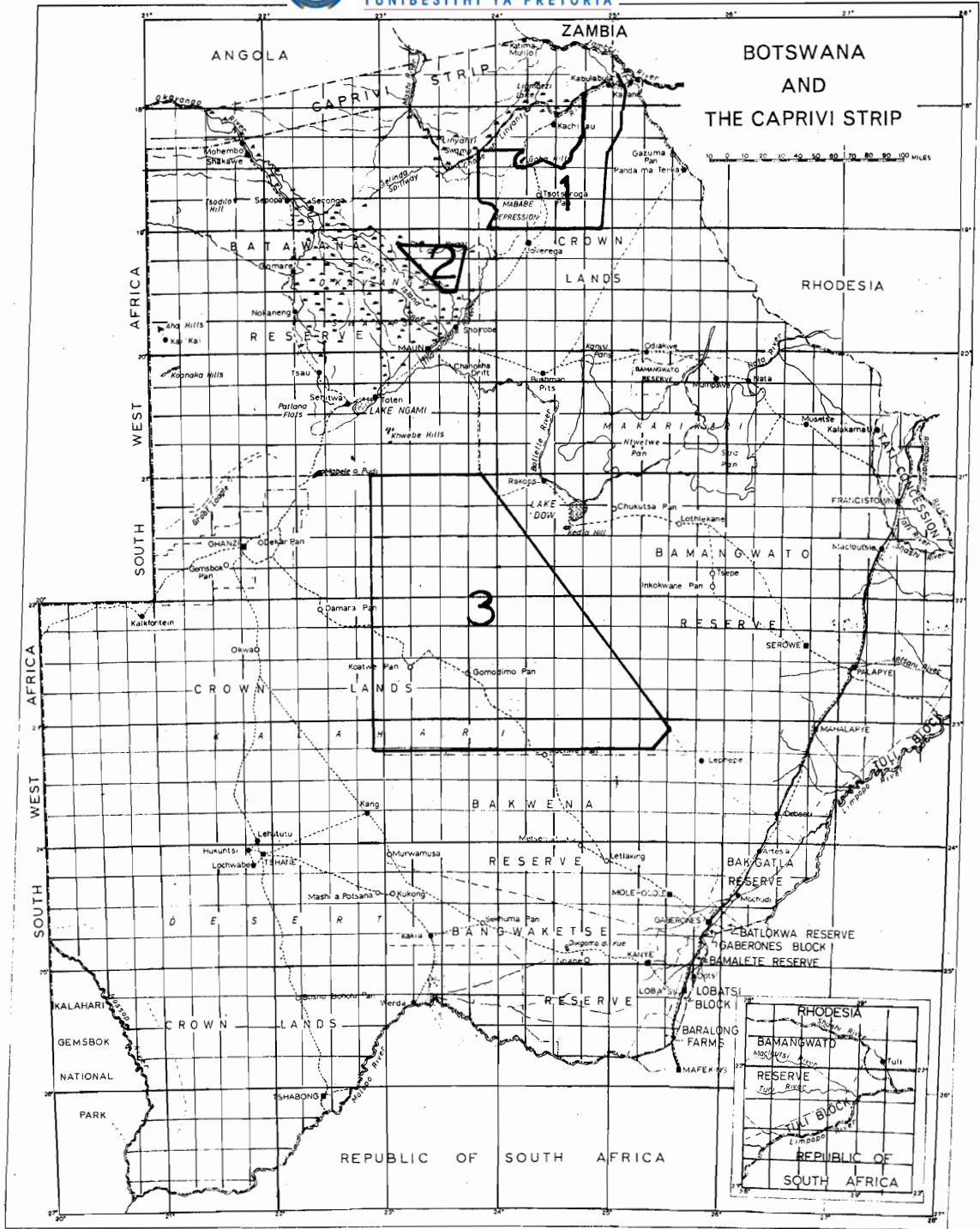
by

Reay Henry Noble Smithers

Submitted in partial fulfilment of the requirements
for the degree of
Doctor of Science
in the
Faculty of Science
University of Pretoria
Pretoria



1971



Botswana and the Caprivi Strip (quarter degree grid). Showing approximate boundaries:
 1 Chobe National Park 2 Moremi Game Reserve 3 Central Kalahari Game Reserve.
 Consideration is at present being given to the provision of future areas of this type in other parts of the country.

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THE MAMMALS OF BOTSWANA

by Reay H. N. Smithers

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Submitted in partial fulfilment of the requirements
for the degree of Doctor of Science, Faculty of
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The purpose of this study, which was undertaken over the years 1964-69, was to determine which species of mammals occur in Botswana and to contribute to our knowledge of their taxonomy, distribution, habitat requirements, habits, food and reproduction.

As this programme involved the services of a number of teams and individuals working independently and far from base, a system was devised whereby the observations and data were recorded in a standard manner for ease of later recovery and correlation.

The study area was divided into five sectors, and each sector was visited at least once during both the wet and dry seasons.

The data collected included sight records of easily recognizable species, material records based on skins and skulls, stomach contents (except those of the Chiroptera and Muridae) and reproductive tracts. All specimens were weighed and standard field measurements were taken. In addition, habitat preferences were noted and information on habits was recorded, augmented, where possible, by observations of specimens in captivity.

After three years of fieldwork, an interim report was published, giving information on distribution and habitat of the 146 species collected up to that date (Smithers, 1968). By the completion of the study in 1969 a further six species had been added to the list, making the total number, now dealt with, 152.

The introduction of the present report deals with: the objects of the study; the value of the results as a basis for further studies; the problem of field-work in terrain that is largely waterless and difficult of access; and other subjects of direct and indirect interest to the survey.

Further chapters deal with the study area, its situation, and political, topographical, ecological and other features; a gazetteer of place names and their *locus* on a quarter-degree grid system; a discussion on the planning of the survey; definitions of the terms used in the text and a glossary of abbreviations. The methods and techniques used in obtaining and processing material and the use of the record forms are discussed.

An outline of the classification used is provided. With some stipulated exceptions it follows that of Ellerman, Morrison-Scott and Hayman (1953).

A checklist follows, which deals in detail with each of the species studied. Keys to genera and species are given. The distribution of each species is briefly described, and plotted on a distribution map using a quarter-degree square system, distinguishing between sight and material records. The taxonomy of the species is discussed, if it presents problems, and habitat, habits and reproduction are described in the light of the information acquired in the course of the study. Sizes and weights are summarized, when samples consist of four or more specimens. Otherwise, individual values are given.

A list is provided of species which were not collected, but which might be expected to occur, as they have been taken in ecologically similar conditions in adjacent parts of surrounding territories.

Acknowledgement is made to those who provided the finance for the operation, assisted in the work, or were associated in various ways with it; and a bibliography and indices of scientific, English and seTswana names are given.

The data, on which the detailed analysis of habitat and food preference were based, remain available for further study in the archives of the National Museums of Rhodesia.



THE MAMMALS OF BOTSWANA

deur Reay H. N. Smithers

Promotor: Dr. J. Meester, Departement Dierkunde

Voorgelê tergedeelte vir die graad van Doktor in the Natuurwetenskap, Fakulteit Wis—en Natuurkunde, Universiteit van Pretoria, Pretoria.

Die doel van hierdie ondersoek, wat uitgevoer is gedurende die tydperk 1964 tot 1969, was om vas te stel watter spesies van soogdiere voorkom in Botswana en om 'n bydrae te maak tot ons kennis van hul taksonomie, verspreiding, habitat-vereistes, gewoontes, voedsel en voortplanting.

Aangesien hierdie program die dienste van verskeie spanne en individue meegebring het wat onafhanklik en ver van hul basis af gewerk het, was 'n sisteem uitgewerk waardeur die waarnemings en gegewens op 'n standaard manier aangeteken is vir gerieflike latere naslaan en korrelasie.

Die studiegebied was verdeel in vyf sektore, en elke sektor was ten minste een keer gedurende beide die nat en die droë seisoene besoek.

Die gegewens wat versamel is het ingesluit visuele rekords van maklik herkenbare spesies en materiële rekords wat gebaseer is op velle en skedels, maaginhoud (behalwe die van die Chiroptera en Muridae) en voortplantingsisteme. Alle eksemplare was geweeg en standaard veldafmetings is gedoen. Verder is habitatvoorkeure en inligting oor gewoontes aange-teken, om later waar moontlik aangevul te word deur waarnemings in gevangenskap.

Na drie jaar se veldwerk is 'n interim verslag gepubliseer wat inligting bevat het oor die verspreiding en habitat van die 146 spesies wat tot op daardie tydstip versamel is (Smithers, 1968). Teen die tyd toe die studie in 1969 afgehandel is, is 'n verdere sewe spesies by hierdie lys gevoeg, sodat 'n totaal van 153 nou behandel word.

Die inleiding van die huidige verslag handel oor: Die doelstellings van die opname; die waarde van die resultate as 'n basis vir verdere navorsing; die probleem van veldwerk in gebiede wat in 'n groot mate waterloos is en moeilik is om te besoek; en ander onderwerpe van direkte of indirekte belang vir die opname.

Verdere hoofstukke handel oor die studiegebied, insluitende die ligging daarvan sowel as die politieke,

topografiese, ekologiese en ander kenmerke daarvan; 'n lys van plekname en hul lokusse op 'n kwartgraad ruitsisteam; 'n bespreking oor die beplanning van die opname; definisies van die terminologie wat gebruik word en 'n woordelys van afkortinge. Die metodes en tegnieke wat aangewend is om materiaal te verkry en verwerk en die rekordvorms wat gebruik is word in besonderhede behandel.

'n Raamwerk van die klasifikasie wat gebruik is word voorsien. Met sekere gestipuleerde uitsonderings volg dit die van Ellerman, Morrison-Scott en Hayman (1953).

'n Naamlys volg wat in detail handel oor elkeen van die spesies wat bestudeer is. Sleutels tot genera en spesies word verstrekk. Die verspreiding van elke spesies word kortliks beskryf en aangedui op 'n verspreidingskaart, wat van 'n kwartgraad ruitsisteam gebruik maak, en waarin onderskei word tussen visuele en materiële rekords. Die taksonomie van die spesies wat probleme bied word behandel en habitat, gewoontes en voortplanting word beskryf in die lig van die inligting wat verkry is in die loop van die opname. Mate en gewigte word opgesom wanneer steekproewe bestaan uit vier of meer eksemplare. Anders word individuele waardes verstrekk.

'n Lys word voorsien van spesies wat nie versamel is nie maar wat na verwagting mag voorkom, aangesien hulle reeds versamel is in ekologies soortgelyke omstandighede in aanliggende dele van aangrensende gebiede.

Dank word uitgespreek aan die persone wat die projek finansieel ondersteun het, wat bygestaan het in die werk of wat op verskeie maniere daaraan verbonde was; en 'n bibliografie en registers van wetenskaplike, seTswana en Engelse name word verskaf.

Die gegewens waarop die gedetailleerde analise van habitat en voedselvoorkeur gebaseer is, is vir verdere studie beskikbaar in die argiewe van die Nasionale Museums van Rhodesia.