

South African Red Data Book - Birds

R K Brooke

A report of the Committee for Nature Conservation Research
National Programme for Environmental Sciences

SOUTH AFRICAN NATIONAL SCIENTIFIC PROGRAMMES REPORT NO

97

DECEMBER 1984

Issued by
Foundation for Research Development
Council for Scientific and Industrial Research
P O Box 395
PRETORIA
0001
South Africa

from whom copies of reports in this series are available on request

Printed in 1984 in the Republic of South Africa

ISBN 0 7988 3264 9

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Cover sketch: Redwinged Pratincole *Giareola pratincola*, a Rare species of the grassland biome

community, with acknowledgements to P A Clancey (1964). The Birds of Natal and Zululand, Oliver and Boyd, Edinburgh

Preface

The National Programme for Environmental Sciences (NPES) is one of several national scientific programmes administered by the CSIR. This book is produced under the auspices of one of the sectional committees of the National Programme, namely the Committee for Nature Conservation Research. The National Programme is a coordinated multidisciplinary undertaking of scientific research, concerned with problems in the environment. It includes research designed to meet purely local needs as well as projects undertaken in southern Africa as contributions to international scientific activities.

The ever increasing threat to Africa's native ecosystems and their component animal and plant species, poses enormous conservation problems. The need for development, together with the man-induced modification and destruction of natural habitats that so often accompanies it, provides conservation managers with their most taxing dilemma.

The purpose of the NPES is to obtain knowledge on current and future environmental problems sufficient to conserve and manage ecosystems most effectively. The collation of information on rare and threatened species is a vital part of this effort. The volumes of the "Red Data Book" series are intended to provide and analyse that data base. They contribute directly, not only to the monitoring and management of rare species but to the protection and sustenance of their constituent natural habitats.

To date the NPES has produced six of these reports in the National Scientific Programmes Report series published by the CSIR (no 7 in 1976, 11, 14, 18, 23 and 45 in 1980). They comprise the first generation of red data books, covering the groups birds, small mammals, fishes, large mammals, reptiles and amphibians, and vascular plants respectively. These volumes, which were all explicitly provisional, were based on the best available information. This was often embarrassingly sparse, such that some sections contained little more than annotated lists of species about which little was known.

This volume represents the first revision of those early red data books. It provides a measure of change in the status of species and a more thorough assessment of where future conservation and research efforts should be concentrated. It also provides a measure of the amount of scientific activity generated by the first Red Data Book - Aves (see Appendix 1). In this way this publication comprehensively supersedes its predecessor (Siegfried et al 1976a). The text and references were completed at the end of 1983 and exclude information that has originated after that date.

Acknowledgements

Although this book has a single author it is truly a cooperative work. Without the assistance of the institutions and persons listed below and the mass of modern literature arising out of the publication of the first Red Data Book - Aves, it would not have been possible to compile this Revision. I have received help from so many sources over the last five years that I fear I may have inadvertently omitted some. If so, I trust that they will not be angry and consider that I have deliberately slighted them: their help is as much appreciated as that from those I have listed below. Neither is it possible to acknowledge this help in any order of value. In any case the help received was so diverse that the value judgements involved in grading would be intolerable.

The following institutions were visited in search of data: Albany Museum, Grahamstown (Dr P H Skelton); Cape Bird Club, Cape Town (Dr L G Underhill); Durban Museum (Dr P A Clancey); East London Museum (C J Vernon); McGregor Museum, Kimberley (Dr R Liversidge); Natal Museum, Pietermaritzburg (Dr B J Stuckenberg); National Museum, Bloemfontein (Dr T Farkas); National Parks Board of Trustees, Pretoria (Dr G de Graaff); Orange Free State Nature Conservation Division, Bloemfontein, (the late Dr J N Geldenhuys); South African Museum, Cape Town (Dr G R McLachlan); Transvaal Museum, Pretoria (Dr A C Kemp).

The following institutions provided data on candidate bird species in their areas of jurisdiction:-Agricultural Development Corporation of Bophuthatswana; Bophuthatswana Division of Nature Conservation; Cape Department of Nature and Environmental Conservation; KwaZulu Department of Agriculture and Forestry; Natal Parks, Game and Fish Preservation Board; National Parks Board of Trustees; Orange Free State Nature Conservation Division; South African Defence Force; South African Forestry Division; Transvaal Nature Conservation Division; Venda Department of Agriculture and Forestry.

The following people commented on one or more draft red data sheets: Dr A F Boshoff, Cape Department of Nature and Environmental Conservation; J Breytenbach, Saasveld Forestry Research Centre; Dr P A Clancey, Durban Museum; J Cooper, FitzPatrick Institute; Dr G Currie, Cape Town; D P Cyrus, University of Natal; D H Day, Southern African Crane Study Group; R A Earle, National Museum; P G H Frost, Centre¹ for Resource Ecology; the late Dr J N Geldenhuys, Orange Free State Nature Conservation Division; Capt S K B Godschalk, South African Defence Force; C W Heyl, Cape Department of Nature and Environmental Conservation; Dr P A R Hockey, FitzPatrick Institute; Dr D N Johnson, Natal Parks, Game and Fish Preservation Board; Dr A C Kemp, Transvaal Museum; I A W Macdonald, FitzPatrick Institute; Professor G L Maclean, University of Natal; R Martin, University of Stellenbosch; Dr J M Mendelsohn, Durban Museum; Dr P J Mundy, Vulture Study Group; T B Oatley, South African Bird Ringing Unit; R M Randall, University of Port Elizabeth; M Schramm, University of the Transkei; J C Sinclair, Durban Museum; the late Dr D M Skead, Transvaal Nature Conservation Division; W R Tarboton, Transvaal Nature Conservation Division; P J van Rensburg, Mammal Research Institute; C J Vernon, East London Museum; RT Watson, University of the Witwatersrand; Dr A J Williams, South West Africa Nature Conservation Division; Dr E A Zaloumis, Durban.

The constituent bird clubs of the Southern African Ornithological Society SAOS encouraged their members to report sightings of candidate bird species either to them or direct to me. Mr B Every of the Eastern Cape Wild Bird Society and editor of their newsletter, "The Bee-eater", was particularly assiduous in this.

The active support and encouragement of Professor Siegfried and Dr T M Crowe, both of the FitzPatrick Institute, during the writing of this Revision and the assistance of Miss J C Heath, primarily with mapping, Mrs S A Dalgleish and Miss A F Emmett, primarily with computer editing, must not go unnoticed.

SOUTH AFRICAN RED DATA BOOK - BIRDS

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Abstract

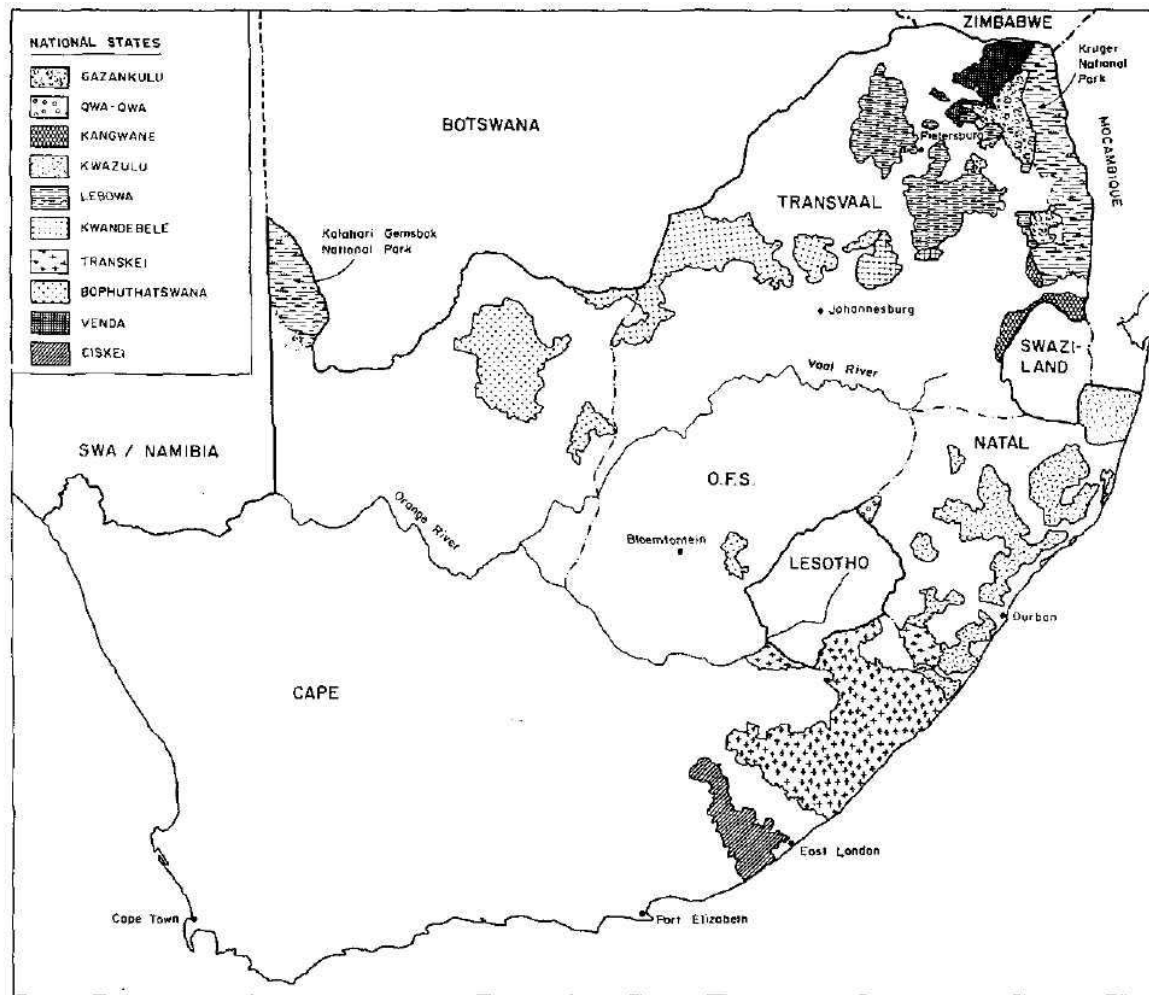
Red data sheets are provided for 102 species of birds that breed on the South African mainland and a further six species for the oceanic Prince Edward islands. Species are listed according to the established IUCN criteria of extinct, endangered, vulnerable, rare, out of danger or indeterminate. Each data sheet is accompanied by a list of published sources and most by a distribution map. Of the 108 species, two are judged to be locally extinct and five have been allocated to the endangered category, also on a local basis. Twenty one species are vulnerable, 44 species rare, one species out of danger and 35 species are as yet indeterminate. Indications of past research effort and of future needs in both research and conservation management are provided, together with a comprehensive rare species bibliography.

Samevatting

Rooidatavelle word voorsien vir 102 voelspesies wat op die Suid-Afrikaanse vasteland broei en 'n verdere ses spesies vir die oseaaniese Prins Edward-eilande. Spesies word gelys volgens die gevestigde IUCN- kriteria van uitgestorwe, bedreig, kwesbaar, seldsaam, buite gevaar of twyfelagtig. Elke datavel word vergesel van 'n lys van gepubliseerde bronne en meeste van 'n verspreidingskaart. Van die 108 spesies word twee as plaaslik uitgestorwe beskou en vyf toegewys aan die kategorie bedreig, ook op 'n plaaslike basis. Een-en-twintig spesies is kwesbaar, 44 spesies seldsaam, een spesie is buite gevaar en die status van 35 spesies is tot dusver nog twyfelagtig. Aanduidings van vorige navorsingspogings en van toekomstige behoeftes in beide navorsing en bewaringsbestuur word voorsien tesame met 'n volledige bibliografie van seldsame spesies.

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Map of southern Africa showing political boundaries, the two largest national parks and some principal towns and rivers.

Introduction

The red data book idea originated within the International Union for the Conservation of Nature and Natural Resources (IUCN) in the early 1960's. In 1966 the first global red data book (Volume 1 Mammalia) was published, followed later the same year by Volume 2 Aves. The intent of the red data books was to systematize information on rare and threatened species so as to facilitate their conservation.

The decision to extend this activity to the national or regional level in South Africa was adopted by the NPES in 1974. This resulted in the publication of "The South African Red Data Book -Aves" in 1976. The book, the first in the local red data book series, was compiled under the guidance of Professor W R Siegfried, director of the Percy FitzPatrick Institute of African Ornithology. Its purpose, as with the other five volumes in the series, was very similar to that of the IUCN publications, with an emphasis on inventory rather than on analysis. This Review, while considerably strengthening the inventory component, has also focused on analysis and, with a time-lapse of eight years, a comparison of the two sets of data.

This book has four specific objectives,

1. to establish which locally breeding species are rare or threatened to a degree that warrants formal recognition or action by the nature conservation authorities
2. to establish the nature and extent of such rarity and threats for each species
3. to determine priorities for conservation action
4. to determine priorities for future research and monitoring

In addition this book serves many more general purposes. It publicizes information on birds and their habitats for general conservation awareness and as a basis for decision making in the fields of natural resource management and environmental impact assessment. It serves as a crude instrument of environmental monitoring at a national or regional level and as a detailed local contribution to the global red data books published by the IUCN.

Objectives 1, 3 and 4 have been achieved to a degree commensurate with the current state of avifaunal knowledge in South Africa. The same cannot be said of the second objective. For less than 20% of the species included in this Revision can it be said that we have a firm basis for identifying what is the primary threat or cause of rarity. For far too many we are forced to use the selfevident "habitat degradation or destruction" which only thinly disguises our biological ignorance.

Species considered for inclusion in this book are limited to those recorded as having bred since 1800 AD in South Africa or the oceanic Prince Edward islands. For a variety of practical reasons, "South Africa" is limited to all land south of the southern borders of South West Africa/Namibia, Botswana, Zimbabwe and Mozambique. It specifically includes both Swaziland and Lesotho although our knowledge of certain species in these two countries is not good. It specifically excludes South West Africa/Namibia (as well as the South African Walvis Bay enclave) as its inclusion would have doubled the work involved. It is understood that SWA/Namibia has already started to compile its own red data books.

The decision to base this text on political boundaries produces many unsatisfactory anomalies, especially with regard to the inclusion of peripheral (often tropical) species. However this problem is inherent in any regional analysis and would not be substantially reduced by using the alternative "natural" or biogeographic boundaries such as the Cunene/Zambesi line used by Clancey (1980a) and many predecessors.

Non-breeding migrants and visiting species present different problems of study and are not included. For these usually seasonal populations, the principal action required on the part of the South African conservation authorities is to protect the specialized habitats that they use, such as coastal wetlands and estuaries. An additional capability is that of being able to deal with limited environmental disasters such as oil spills or accidental poisonings, and with localized climatic extremes.

Present knowledge of our rare, vulnerable, endangered and extinct bird species is derived from many sources. There are the specimens and records of bird collections in South African museums. There is an extensive 19th Century historical literature on South African birds which helps in the estimation of original distributions of species before the impact of modern man on their habitats. There is a substantial 20th Century scientific literature of both an anecdotal and analytical nature. This includes news-sheets and popular publications of bird clubs as well as the more sophisticated publications in a variety of scientific and conservation journals. It includes the nest record cards of the SAOS and other privately collected records similarly housed at the FitzPatrick Institute in Cape Town.

Some of the proposed red data book species have been intensively studied, (see Appendix 1) giving rise to confident statements on conservation status and trends. The majority of species included have been inadequately investigated, many virtually not at all. These entries are correspondingly vague, leading to less confident assessments of status and threats. It is important that readers who wish to quote the findings expressed in this volume do so with care and precision. To quote that a species appears "on the South African red data list" or that species x is "a red data species" is meaningless if the category is not specified. In this respect only those species included in the category Extinct, Endangered, Vulnerable or Rare should be referred to as red data species where such a collective description is necessary.

Species excluded from this Revision but which were considered as candidates are listed separately in the chapter titled "Species for monitoring". The ultimate categorization of all the species referred to in the 1976 Red Data Book are listed with comments in Appendix 2.

Terminology

The order of the red data sheets is taxonomic, following that of Professor G L Maclean in his forthcoming revision of Roberts' Birds of Southern Africa, due for publication later in 1984. The English and Afrikaans names used are also those used by Maclean. The scientific names (including the ordinal and family names) follow those of the SAOS Checklist edited by Clancey (1980a) except in the Alaudidae where those of Maclean are used. The author of the name, its date of publication and type locality have been taken from appropriate sources, often from the SAOS checklist. Synonyms for all names, such as the familiar ones from McLachlan and Liversidge (1978) are given in parenthesis wherever appropriate. Debatable names are occasionally discussed in the Remarks section of the data sheets.

For each red data sheet entry the standardized category relating to conservation status, ENDANGERED, VULNERABLE, RARE etc, appears opposite the English name. The definition of each category follows those of the IUCN, modified for relevance to a limited area as opposed to the whole world. For clarification these definitions are:

EXTINCT: species which have been searched for but not found breeding since 1969;

ENDANGERED: species in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included are species whose numbers have been reduced to a critical level or whose habitat has been so drastically diminished and/or degraded that they are deemed to be in immediate danger of extinction. Also included are species which may already be extinct.

VULNERABLE: species believed likely to move into the endangered category in the near future if the causal factors continue operating. Included are species of which all or most of the populations are decreasing because of overexploitation, extensive destruction of habitat or other environmental disturbance, species with populations which have been seriously depleted and whose ultimate security is not yet assured, and species with populations which are still sizeable but which are under threat from serious adverse factors throughout their range.

RARE: species with small populations which are not at present endangered or vulnerable but which are at risk. These species are usually localized within restricted geographical areas or habitats, or are thinly scattered over a somewhat more extensive range. In practice, species with only one or two colonies or less than about 200 breeding pairs in South Africa have been classified as rare. This means that some endemic or virtually endemic species, eg the African Black Oystercatcher *Haematopus moquini* (Hockey 1983), which might be regarded as rare on a worldwide basis are not included in the Revision.

OUT OF DANGER: species formerly included in one of the above categories and which are now considered to be relatively secure-because effective conservation measures have been taken, or the previous threat to their survival has been removed.

INDETERMINATE: species that are suspected of belonging to the categories Endangered, Vulnerable, Rare or Out of Danger but for which insufficient information is currently available. These vary from probably endangered to doubtfully rare.

Categories Endangered, Vulnerable and Indeterminate may include species whose populations are beginning to recover as a result of conservation measures but not yet to an extent that would justify transfer to another category.

The red data sheet entries are organized under a set of fifteen recurring headings. The first section of each entry is the **Summary**. It summarizes the conservation status of the species in South Africa as well as its range and seasonality.

Present distribution which is described, refers to the distribution since 1 January 1970 and is shown in solid circles on the map that accompanies most red data sheets. No maps are provided for species breeding in the Prince Edward islands or for the locally extinct African Skimmer and Yellowbilled Oxpecker. For species like the White Stork only breeding records are shown and no attempt has been made to map the South African range of nonbreeding birds from the Palearctic Region. In a few cases a cross or asterisk has been used to designate breeding colonies. The substantial majority of records known to me have been mapped but a few have inadvertently escaped mapping.

Former distribution which is described, refers to that between 1800 and 1969 inclusive and is shown in open circles on the accompanying map. This format has been adopted to show range contractions where these have occurred.

Habitat describes the type of landscape, habitat or vegetation type in which a bird occurs. Where breeding and foraging habitats differ, this is noted.

Status describes whether a bird is resident within South Africa or not. If the latter, season of presence is given and any variation by age class or area.

Estimated numbers and population trends gives what estimates are available, varying from a nationwide or provincial census of breeding pairs to an unquantified assessment of rarity. What evidence there is for a decrease in numbers and/or range is given. In some cases the evidence points to no significant change since 1800 but never an increase for included species.

Breeding rate in wild gives what data are available on reproductive potential, normally covering the average number of eggs laid in a clutch, the number of clutches or broods per season, the incubation period (the time between the start of incubation and the hatching of the last egg to hatch), the nestling period (the time between the hatching of the first egg in a clutch and the first flight of the last surviving youngster), the age at which females probably first attempt to breed. In many cases such data are not available for rare birds, particularly passerines, through lack of study. In some cases data on commoner and better studied congeners are used with a qualifying 'probably'. While incubation and nestling periods are not directly part of a species' reproductive potential, the time taken is part of the overall potential since a new breeding cycle cannot normally be undertaken until the previous one is complete. In addition, the data are important if special protection is to be given for a specific breeding attempt.

Reasons for decrease gives what reasons are known or suspected to be involved in any decrease in numbers and/or range. In a regrettably large number of cases all that can yet be said is a vague reference to habitat destruction or degradation.

Protective measures taken deals with the legal status of the bird and attempts to list the conserved areas in which it is known to breed. Particular protective measures that have been taken are also mentioned. >

Protective measures proposed covers suggestions, hopefully practical, which would give increased protection to the species concerned.

Number held in captivity covers both South African and overseas zoos, public and private aviaries. Little attempt has been made to gather data for this section as captive breeding of stocks for reintroduction into the wild does not seem to be a necessary technique in South Africa as yet.

Breeding potential in captivity covers likelihood that a captive breeding programme would be successful without very high costs.

Current research effort lists work known to be still in progress, as opposed to that already published which is covered by the bibliography section below.

Remarks permits the inclusion of relevant matter which does not fall under any previous heading. It is here that data on the range outside South Africa is given to show how important the conservation of a species may be in a world or continental context. Taxonomic and nomenclatural problems may be alluded to and priorities for future study may be indicated.

Selected bibliography lists in short form, not only publications referred to in the red data sheet but virtually all publications of the last 20 years or so in South Africa and most of those in adjacent countries. This is to assist conservation officials who may have to plan the protection of a species and need to learn as much about it as possible. It will be seen that for some species such as the Jackass Penguin and the Cape Vulture there is a copious modern literature which is in great need of consolidation in one or more review papers. For other species the amount of literature is moderate and for some negligible. Standard works such as McLachlan and Liversidge (1978), Clancey (1980a), Winterbottom (1971a) and Irwin (1981) are presumed to be familiar to those interested and are not included unless referred to in the data sheet for some reason. Similarly, pre-1960 literature is not included unless referred to in the red data sheet. Full references are cited in a single consolidated list at the back of this volume.

Some findings

One hundred and eight species of breeding birds have been found worthy of inclusion in this book. Six are Southern Ocean species breeding on the Prince Edward islands. Of these, four petrels are Vulnerable and two terns are Rare. The comments and analyses below relate chiefly to the 102 mainland breeding species.

Two species are Extinct in South Africa: the African Skimmer and the Yellowbilled Oxpecker. The former was a tropical peripheral species with one breeding colony at Lake St Lucia. The latter was widespread in deciduous woodland/savanna but last bred about 1910. The Yellowbilled Oxpecker is thus the only widespread and well established species to have become extinct in historical times in South Africa.

Five species are Endangered in South Africa:

Egyptian Vulture (Extinct?)	Roseate
Tern	
Blackrumped Buttonquail	Blue Swallow.
Wattled Crane	

Seventeen species are Vulnerable in South Africa:

Jackass Penguin	Kori Bustard	African Broadbill
Bittern	Stanley's Bustard	Rudd's Lark
Cape Vulture	Ludwig's Bustard	Spotted Thrush
Lappetfaced Vulture	Cape Parrot	Yellowbreasted Pipit
Martial Eagle	Natal Nightjar	Pinkthroated Longclaw.
Bateleur	Ground Hornbill	

Fortytwo species are Rare in South Africa:

White Pelican	Bat Hawk	Thickbilled Cuckoo
Pinkbacked Pelican	Southern Banded Snake Eagle	Coastal Barred Owl
Rufousbellied Heron	Palmnut Vulture	Pel's Fishing Owl
Little Bittern	Peregrine Falcon	Mottled Spinetail
White Stork	Dickinson's Kestrel	Boehm's Spinetail
Woollynecked Stork	Striped Flufftail	Woodwards' Barbet
Openbilled Stork	Whitewinged Flufftail	Whitebreasted
Cuckooshrike		
Saddlebilled Stork	Lesser Jacana	Arnot's Chat
Marabou Stork	Chestnutbanded Plover	Shorttailed Pipit
Yellowbilled Stork	Lesser Blackwinged Plover	Tropical Boubou
Pygmy Goose	Whitecrowned Plover	Neergaard's Sunbird
Bearded Vulture	Redwinged Pratincole	Goldenbacked Pytilia
Hooded Vulture	Caspian Tern	Broadtailed Paradise
Whydah		
Whiteheaded Vulture	Damara Tern	Lemonbreasted Canary.

One species, the Bald Ibis, is Out of Danger in South Africa and thus -the world.

Thirtyfive species are Indeterminate in South Africa, ie they probably belong in one of the foregoing categories but on present knowledge it is not possible to assign them with confidence to a category. This category also covers species which breed occasionally but not regularly in South Africa. The species concerned are:

Whitebacked Night Heron (Rare or Vulnerable?)	African Finfoot (Rare or Vulnerable?)	Pennantwinged Nightjar (Rare if it breeds in South Africa)
Dwarf Bittern (Rare?)	Yellowthroated Sandgrouse (occasional breeder)	Bradfield's Swift (Rare?)
Black Stork (Out of Danger?)	Delegorgue's Pigeon (Out of Danger?)	Mangrove Kingfisher
Greater Flamingo (occasional breeder)		or Vulnerable?)
Lesser Flamingo (occasional breeder)	Bluespotted Dove (Rare if it breeds in South Africa)	Greyhooded Kingfisher
Cuckoo Hawk (Out of Danger?)	Rosy faced Lovebird (Rare or Vulnerable?)	Rackettailed Roller (Rare if it breeds in South Africa)
Rednecked Falcon (Rare?)	Black Coucal (occasional breeder)	Shortclawed Lark (Rare or Vulnerable?)
Blue Quail (occasional breeder)		Red Lark (Rare?)
Baillon's Crake (Rare?)	Grass Owl (Vulnerable?)	Botha's Lark (Rare or

Vulnerable?)

Sclater's Lark (Rare?)	Wattle-eyed Flycatcher (Rare or Vulnerable?)	Longtailed Starling (Rare?)
House Martin (occasional breeder) Broadtailed Warbler (Rare or Vulnerable?)	Mountain Pipit (Rare?)	(Rare?) Bluethroated Sunbird (occasional breeder)
Woodwards' Batis (Rare or Vulnerable?)	Blackfronted Bush Shrike (Rare?)	Yellow White-eye (Rare?) Pied Mannikin (occasional breeder).

Of the 102 mainland species 73 belong to the nonpasserine orders which contain between them nearly half the ca 10 000 living species of birds and 29 belong to the passerine order to which most small birds belong. Thus there is a great preponderance of large birds in this book.

Twentythree species are endemic highly isolated populations:

Jackass Penguin (virtual endemic)
 White Stork (highly isolated)
 Bald Ibis (endemic)
 Bearded Vulture (highly isolated)
 Egyptian Vulture (highly isolated)
 Cape Vulture (virtual endemic)
 Wattled Crane (highly isolated)
 Striped Flufftail (highly isolated)

or virtually endemic to South Africa or are

Whitewinged Flufftail (highly isolated)
 Stanley's Bustard (highly isolated)
 Roseate Tern (highly isolated)
 Delegorgue's Pigeon (highly isolated)
 Woodward's Barbet (highly isolated)
 Rudd's Lark (endemic)
 Shortclawed Lark (virtual endemic)
 Red Lark (endemic)

Botha's Lark (endemic)
 Sclater's Lark (virtual endemic)
 Blue Swallow (highly isolated)
 Spotted Thrush (highly isolated)
 Mountain Pipit (endemic)
 Shorttailed Pipit (highly isolated)
 Yelfowbreasted Pipit (endemic).

Forty-two are tropical species with peripheral populations in South Africa in KwaZulu and/or the northeastern Transvaal:

Pinkbacked Pelican
 Rufousbellied Heron Dwarf Bittern
 Woollynecked Stork
 Openbilled Stork
 Saddlebilled Stork
 Marabou Stork
 Yellowbilled Stork
 Pygmy Stork
 Bat Hawk
 Southern Banded Snake
 Eagle Palmnut Vulture

Whitecrowned Plover
 Redwinged Pratincole
 African Skimmer
 Bluespotted Dove
 Thickbilled Cuckoo
 Black Coucal
 Pel's Fishing Owl
 Pennantwinged Nightjar
 Mottled Spinetail
 Boehm's Spinetail
 Greyhooded Kingfisher
 Rackettailed Roller
 Whitebreasted Cuckooshrike
 Arnot's Chat

Woodwards' Batis
 Wattle-eyed Flycatcher
 Pinkthroated Longclaw
 Tropical Boubou
 Blackfronted Bush Shrike
 Longtailed Starling
 Neergaard's Sunbird
 Bluethroated Sunbird
 Yellow White-eye
 Goldenbacked Pytilia
 Pied Mannikin
 Broadtailed Paradise
 Whydah
 Lemonbreasted

Lesser Blackwinged Plover

It is instructive to examine the 102 included species in terms of their broad habitat or biome requirements. Some species occur in more than one habitat: hence the totals add up to more than 102. Relatively few evergreen forest birds are included: 13 in all occurring in several different forest types. Major efforts have been and are being made to conserve forests and the rate of forest destruction has markedly abated. Thus relatively few forest birds are Rare or Vulnerable at present. The 13 species are:

Dickinson's Kestrel
 Blue Quail

Canary.

Southern Banded Snake
 Eagle Delegorgue's Pigeon
 Cape Parrot
 Coastal Barred Owl
 Mangrove Kingfisher

Woodwards' Barbet
 African Broadbill
 Spotted Thrush
 Woodward's Batis

Wattle-eyed Flycatcher
 Tropical Boubou
 Blackfronted Bush Shrike
 Neeregaard's Sunbird.

SOME FINDINGS

White Stork	Yellowthroated	
Bald Ibis	Sandgrouse Rudd's Lark	
Kori Bustard	Shortclawed Lark	
Thirty are species of	Botha's Lark	
deciduous Marabou Stork	savannas: Kori Bustard	Arnot's Chat
Hooded Vulture Cape	Bluespotted Dove	Longtailed Starling
Vulture Lappetfaced	Thickbilled Cuckoo	Yellowbilled Oxpecker
Vulture Whiteheaded	Pennantwinged Nightjar	(Extinct)
Vulture Cuckoo Hawk	Mottled Spinetail Boehm's	Bluethroated Sunbird
Bat Hawk Martial Eagle	Spinetail Greyhooded	Yellow White-eye
Bateleur Dickinson's	Kingfisher Rackettailed	Goldenbacked Pytilia
Kestrel	Roller Ground Hornbill	Pied Mannikin
	Whitebreasted	Broadtailed Paradise
	Cuckooshrike	Whydah Lemonbreasted
		Canary.
Thirteen are species of dry grasslands:		
Stanley's Bustard		Blue Swallow
Lesser Blackwinged Plover		(Endangered) Mountain
Thirtysix are species of	(seasonally waterlogged or	Pipit Shorttailed Pipit
wetlands White Pelican	flooded Lesser Flamingo	Yellowbreasted Pipit.
Pinkbacked Pelican	Pygmy Goose Palmnut	
Rufousbellied Heron	Vulture Blue Quail	grasslands to open waters):
Whitebacked Night Heron	Blackrumped Buttonquail	Chestnutbanded Plover
Little Bittern Dwarf	(Endangered)	Whitecrowned Plover
Bittern Bittern Black Stork	Wattle Crane (Endangered)	Redwinged Pratincole
Woollynecked Stork	Baillon's Crake Striped Fluff	Caspian Tern
Openbilled Stork	tail Whitewinged Flufftail	African Skimmer (Extinct)
Saddlebilled Stork	African Finfoot Lesser	Black Coucal Grass Owl
Yellowbilled Stork Greater	Jacana	Pel's Fishing Owl Natal
Flamingo		Nightjar Mangrove
		Kingfisher Broadtailed
		Warbler Pinkthroated
		Longclaw.
It will be noted that 49 of the		
102 included species utilize dry or wet grasslands or		
waterbodies. That 48% of the species found worthy of		
inclusion in this book belong to this suite of habitats strongly		
suggests that the grasslands and wetlands of South Africa have		
ecological stresses than has commonly been realised. To a nonbotanist or nonecologist		
grass is grass and little note is taken of changing species composition. As pressure such		
as excessive burning, overgrazing and trampling build up, erosion in the catchments of		
wetlands leads to increased silt load which may either fill in the wetland or erode it.		
Whatever happens, the normal hydrological pattern of the wetland changes, most often		
resulting in more xeric dryland conditions. This is apart from the active draining of		
wetlands for agricultural, industrial and residential purposes. The biomes most in need of		
ecological study and conservation in South Africa are the dry and wet grasslands,		
marshes and estuaries, cf Mentis 'and Huntley (1982).		
Eleven are species of the Karoo and deserts:		
Egyptian Vulture	Rednecked Falcon	Rosy faced
(Endangered)	Kori Bustard	Lovebird
Cape Vulture	Stanley's Bustard	Bradfield's Swift
Martial Eagle	Ludwig's Bustard	Red Lark Sclater's
		Lark.
Eight are birds of mountains and cliffs:		
Bearded Vulture	Cape Vulture	House Martin
Egyptian Vulture	Peregrine Falcon	Mountain Pipit
(Endangered)	Bradfield's Swift	Yellowbreasted
		Pipit.
Four of the fourteen breeding seabirds are included:		
Jackass Penguin	Roseate Tern (Endangered)	
Caspian Tern		

The six species breeding on the Prince Edward islands are:

Greatwinged Petrel	Grey Shearwater	Antarctic Tern
Softplumaged Petrel	Common Diving	Kerguelen
Petrel		Tern.

All are included because of feral cat *Felis catus* predation on Marion Island. Only the Common Diving Petrel and the Kerguelen Tern do not visit South African coastal waters.

It is also instructive to examine the 102 included species in the light of major diet categories. Some species occur in more than one category: hence the totals add up to more than 102. The best represented group in relation to the South African breeding avifauna is the scavengers. Nine species are involved:

Marabou Stork	Hooded Vulture	Whiteheaded Vulture
Bearded Vulture	Cape Vulture	Bateleur
Egyptian Vulture (Endangered)	Lappetfaced Vulture	Palmnut Vulture.

The decrease in the number of large carcasses for *Gyps* vultures to scavenge is well known. But several vultures and other scavengers usually utilize small carcasses at which one or two birds feed. Here the principal factor appears to be well over a century of putting out poisoned carcasses to kill jackals *Canis* spp. and other mammalian vermin, particularly the Caracal or Lynx *Felis caracal*. As long as this Government-sanctioned practice continues we can expect the continued decrease, perhaps to extinction of birds which scavenge small carcasses. In addition, increasing human settlement leads to an increase in the number of crows *Corvus* spp. Crows rise to scavenge at first light whereas scavengers belonging to the Ciconiidae and Acciptridae have to wait for some period after sunrise when thermals have developed before they can search for carcasses. Thus in many areas man-induced changes have ensured that there are virtually no carcasses for them to scavenge with safety (Macdonald and Macdonald in press).

Thirteen species are eaters of terrestrial vertebrates:

White Stork	Martial Eagle	Rednecked Falcon
Lappetfaced Vulture	Southern Banded Snake Eagle	Dickinson's Kestrel
Whiteheaded Vulture	Bateleur	Grass Owl
Cuckoo Hawk	Peregrine Falcon	Ground Hornbill.
Bat Hawk		

Many other raptors in South Africa have reduced populations but not to a level which would warrant their inclusion in this book.

Sixteen species are eaters of aquatic

Jackass Penguin	Bittern	Caspian Tern
White Pelican	Black Stork	Roseate Tern
Pinkbacked Pelican	Woollynecked	(Endangered)
Rufousbelied	Stork Saddlebilled	Damara Tern
Heron	Stork	African Skimmer
Whitebacked Night	Yellowbilled	(Extinct)
Heron Little Bittern	Stork	Pel's Fishing Owl.

Seventeen species are eaters of nonmarine aquatic invertebrates:

Rufousbelied Heron	Greater Flamingo
Little Bittern	Pygmy Goose
Dwarf Bittern (Endangered)	Wattied Crane
Woollynecked Stork	Baillon's Crake
Yellowbilled Stork	Striped Flufftail
Openbilled Stork	Whitewinged Flufftail

Eight species are eaters of aerial invertebrates:

Redwinged
Pratincole
Natal Nightjar
Pennantwinged
Nightjar

Bradfield's Sw
Mottled Spiu

Boehm's Spi

African Finfoot Lesser Jacana Chestnutbanded Plover
Whitecrowned Plover Mangrove Kingfisher.

Blue Swallow (Endangered) House Martin.

Fortyone species are eaters of terrestrial

White Stork	Bald Ibis	Coastal Barred Owl
Cuckoo Hawk		Greyhooded
Dickinson's Kestrel		Kingfisher
Blue Quail		Rackettailed Roller
Blackrumped		Ground Hornbill
Buttonquail		African Broadbill
(Endangered) Striped		Rudd's Lark
Flufftai! Kori Bustard		Shortclawed Lark
Stanley's Bustard	Ludwig's	Red Lark Botha's
Bustard Lesser Blackwinged		Lark Sclater's Lark
Plover Whitecrowned		Whitebreasted
Plover Thickbilled Cuckoo		Cuckooshrike Spotted
Black Coucal		Thrush Arnot's Chat
		Broadtailed Warbler

Twentyseven species are eaters
of Lesser Flamingo Palmnut

Vulture Blue Quail		plants or plant parts:
Blackrumped Buttonquail		Delegorgue's Pigeon
(Endangered)		Bluespotted Dove
Wattled Crane		Cape Parrot
(Endangered) Kori Bustard		Rosy faced Lovebird
Stanley's Bustard	Ludwig's	Woodwards' Barbet
Bustard Yellowthroated		Rudd's Lark
Sandgrouse		Shortclawed Lark
		Red Lark Botha's
		Lark

Woodwards¹ Batis Wattle-
eyed Flycatcher Mountain
Pipit Shorttailed Pipit
Yellowbreasted Pipit
Pinkthroated Longclaw
Tropical Boubou
Blackfronted Bush Shrike
Longtailed Starling
Yellowbilled Oxpecker
(Extinct)
Neergaard's Sunbird
Bluethroated Sunbird
Yellow White-eye.

Sclater's Lark
Longtailed Starling
Neergaard's Sunbird
Bluethroated Sunbird
Yellow White-eye
Goldenbacked Pytilia
Pied Mannikin
Broadtailed Paradise
Whydah Lemonbreasted
Canary.

Some questions

Listed below under the species names concerned are the principal conservation orientated questions for investigation which the preparation of this Revision has shown to be desirable.

Whitebacked Night Heron: breeding distribution and numbers throughout South Africa. **Little Bittern:** breeding distribution and numbers throughout South Africa.

Dwarf Bittern: breeding distribution and numbers throughout South Africa in both wet and dry summers.

Black Stork: breeding distribution and numbers in the Cape Province, Transkei, Lesotho, Orange Free State, Natal, KwaZulu and Swaziland.

Woollynecked Stork: which nonbreeding birds are South African bred and which are migrants from the tropics?

Marabou Stork: is it an occasional breeder in Natal, KwaZulu, Swaziland and the Transvaal? **Egyptian Vulture:** does it still breed in the Transkei? If so, what does it eat and where does it forage?

Lappetfaced Vulture: what does each age class eat and where does each forage? **Whiteheaded Vulture:** what does each age class eat and where does each forage? **Cuckoo Hawk:** breeding distribution and numbers in Natal, KwaZulu, Swaziland and the Transvaal.

Bat Hawk: breeding distribution and numbers in Natal, KwaZulu, Swaziland and the Transvaal. **Southern Banded Snake Eagle:** general biology. **Peregrine Falcon:** breeding distribution and numbers throughout South Africa. Effect of pesticides on viability of eggs and young.

Rednecked Falcon: breeding distribution and numbers in the Cape Province and Bophuthatswana. **Blue Quail:** is it still an occasional summer breeder anywhere in South Africa?

Blackrumped Buttonquail: breeding distribution and numbers in the Cape Province, Transkei, Natal, KwaZulu, Swaziland and the Transvaal.

Baillon's Crake: breeding distribution and numbers throughout South Africa. General biology. **Striped Flufftail:** breeding distribution and numbers in the Cape Province, Transkei, Natal, KwaZulu, Swaziland and the Transvaal.

African Finfoot: why does it not occupy all apparently suitable stretches of rivers? **Kori, Stanley's and Ludwig's Bustards:** breeding distribution and numbers throughout South Africa. Do migratory movements on an east-west axis still occur? Are they ecologically segregated where they are sympatric? Why is Stanley's Bustard apparently the least affected by economic development?

Chestnutbanded Plover: breeding distribution, numbers and movements throughout South Africa. **Redwinged Pratincole:** do winter breeding birds in the Zambezi valley move south to breed in summer in Natal and KwaZulu?

Delegorgue's Pigeon: breeding distribution and numbers in the Transvaal. **Bluespotted Dove:** breeding distribution and numbers in the Transvaal and Venda. **Rosy faced Lovebird:** breeding distribution and

numbers in the Cape Province and

Bophuthatswana in both normal and dry seasons.

Black Coucal: does it still breed in Natal, KwaZulu, Swaziland and the Transvaal?

Grass Owl: breeding distribution and numbers in the Cape Province and the Orange Free State.

Effects of pesticides on viability of eggs and young.

Coastal Barred Owl: breeding distribution and numbers in the Cape Province, Transkei, Natal and

KwaZulu. General biology.

Natal Nightjar: breeding distribution and numbers in Natal and KwaZulu.

General biology. **Pennantwinged Nightjar:** breeding distribution and numbers in the Transvaal and Venda.

- Bradfield's Swift:** breeding distribution and numbers in the Cape Province and Bophuthatswana. General biology. **Mangrove Kingfisher:** breeding distribution, numbers and movements in the Cape Province, Transkei, Natal and KwaZulu.
- Greyhooded Kingfisher:** breeding distribution and numbers in summer in the Transvaal and
- Venda.
- Rackettailed Roller:** breeding distribution and numbers in the Transvaal and Venda. **Woodwards' Barbel:** general biology.
- Rudd's Lark:** breeding distribution and numbers throughout South Africa. General biology. **Shortclawed Lark:** breeding distribution and numbers in the Cape Province, Bophuthatswana, Orange Free State and the Transvaal. General biology. Systematic position. **Red Lark:** breeding distribution and numbers in the Cape Province. General biology. Systematic position.
- Botha's Lark:** breeding distribution and numbers in the Orange Free State and the Transvaal. General biology.
- Sclater's Lark:** breeding distribution and numbers in the Cape Province. General biology. Systematic position. **Spotted Thrush:** breeding distribution, movements and numbers in the Cape Province, Transkei, Natal and KwaZulu. General biology.
- Broadtailed Warbler:** breeding distribution, movements and numbers in Natal, KwaZulu, Swaziland and the Transvaal. General biology.
- Woodwards' Batis:** breeding distribution and numbers in Natal and KwaZulu. General biology. **Wattle-eyed Flycatcher:** breeding distribution and numbers in Natal, KwaZulu, Swaziland, the Transvaal and Venda. General biology.
- Mountain Pipit:** breeding distribution, numbers and movements throughout South Africa. General
- *
- biology. **Shorttailed Pipit:** breeding distribution and numbers in Natal, KwaZulu and the Transvaal. General biology.
- Yellowbreasted Pipit:** breeding distribution, numbers and movements throughout South Africa. General biology. **Pinkthroated Longclaw:** breeding distribution and numbers in Natal and KwaZulu.
- Tropical Bonbon:** breeding distribution and numbers in the Transvaal and Venda. Systematic position, including acoustic analysis.
- Blackfronted Bush Shrike:** is it an altitudinal migrant in the Transvaal and Venda? **Longtailed Starling:** breeding distribution and numbers in the Transvaal and Venda.
- Neergaard's Sunbird:** breeding distribution and numbers in Natal and KwaZulu. General biology.
- ;
- Bluethroated Sunbird:** breeding distribution and numbers in Natal, KwaZulu, Swaziland, the Transvaal and Venda. General biology. **Yellow White-eye:** breeding distribution and numbers in Natal, KwaZulu, Swaziland, the Transvaal and Venda. **Goldenbacked Pytilia:** breeding distribution and numbers in the Transvaal and Venda, the survey to be undertaken in conjunction with that of the Broadtailed Paradise Whydah. General biology.

Broadtailed Paradise Whydah: see Goldenbacked Pytilia above. **Lemonbreasted Canary:** breeding distribution and numbers in Natal. KwaZulu, Swaziland, the Transvaal and Venda. General biology.

SPECIES FOR CONSERVATION ACTION

1

3

Species for conservation action

The seven categories used to assess the degree of threat to each species and the priorities for conservation action by the public authorities are listed below. Each is divided into four subdivisions scoring 0 (the lowest) to 3 (the highest). The highest possible score is thus 21 and would apply if, say, the Jackass Penguin were reduced to 20 pairs breeding only on one island. The lowest possible score is 0 and would apply for instance to the Laughing Dove *Streptopelia senegalensis*.

- 1 (A) Spatial Distribution (breeding distribution when accurately known): more than
1000 1/4 degree squares 0; 101 - 1000 1/4 degree squares - 1; 11 - 100 1/4 degree squares - 2; 0 - 10 1/4 degree squares - 3.
- 2 (N) Numerical Abundance (breeding bird censuses when available): more than
5000
adults - 0; 501 - 5000 adults - 1; 51 - 500 adults - 2; 0 - 50 adults - 3.
- 3 (R) Regional Uniqueness (species or population endemic to South Africa):
widespread
in Africa - 0; significant part of the population in South Africa - 1; most of
the population in South Africa - 2; all of the population in South Africa - 3.
- 4 (T) Taxonomic/Genetic Status (could a close relative move into its niche ?):
belonging
to a genus with more than one species breeding in South Africa - 0;
belonging to a genus with only one species breeding in South Africa - 1;
belonging to a family with only one species breeding in South Africa - 2;
belonging to an order with only one species breeding in South Africa - 3.
- 5 (B) Intrinsic Rate of Increase (size of successful clutches): six or more eggs laid
per
season by females which start breeding at or before age one - 0; one to five
eggs laid per season by females which start breeding at or before age one - 1;
more than one egg laid per season by females which start to breed after age
one - 2; one egg laid or only one youngster reared per season by females
which start to breed after age one - 3.
- 6 (S) Degree of Stress (adverse factors due to human activities): no stress known -
0;
one factor causing stress - 1; two factors causing stress - 2; three or more
factors causing stress - 3.
- 7 (D) Decrease in Numbers: South African populations down by less than 25 %
this
century - 0; populations down by 25 - 50 % - 1; populations down by 50 - 75
% - 2; populations down by more than 75 % - 3.

The above scheme is based on one developed by the February 1981 Workshop on Bird Population Monitoring organized by the Nature Conservation Research Section of the National Programme for Environmental Sciences of the C S I R. It is considered to be more appropriate to South African conditions than the United States scheme adapted for South African use in Brooke (in press) drafted in 1980.

14 SPECIES FOR
CONSERVATION ACTION

In the list below the score for category 1 appears in the column headed A. Similarly for category 2 in N, 3 in R, 4 in T, 5 in B, 6 in S and 7 in D. Species are ranked by their total score. Within the same total score species are ranked by their score in column S.

Species	A	N	R	T	B	S	D	TOTAL
Blue Swallow Egyptian	3	3	3	0	2	3	3	17
Vulture Jackass	3	3	0	1	3	3	3	16
Penguin Yellowbilled	2	0	2	3	2	3	3	15
Oxpecker Roseate Tern	3	3	1	0	2	3	3	15
Wattled Crane	3	2	3	0	2	2	3	15
Blackrumped	2	2	1	1	3	3	2	14
Buttonquail African	2	3	3	0	1	2	3	14
Skimmer House Martin	3	3	0	2	2	1	3	14
Bateleur	3	3	3	3	2	0	0	14
Lappetfaced	1	1	1	1	3	3	3	13
Vulture Cape	2	2	0	1	3	3	2	13
Vulture Marabou	2	1	2	0	3	3	2	13
Stork Blue Quail	3	3	0	1	2	1	3	13
Kori Bustard	3	3	0	0	0	3	3	12
Ground Hornbill	1	1	1	1	3	3	2	12
Cape Parrot	2	2	1	1	3	2	1	12
Bearded Vulture	2	1	3	0	2	2	2	12
Bittern	2	2	1	1	3	2	1	12
Woodwards' Barbet	3	3	1	1	1	1	2	12
African Broadbill	3	2	3	1	2	1	0	12
Martial Eagle	2	2	3	2	1	1	1	12
Spotted Thrush	1	1	0	1	3	3	2	11
Rudd's Lark Pel's	2	1	3	0	2	2	1	11
Fishing Owl	2	2	3	0	1	2	1	11
Whitewinged	3	2	0	1	3	2	0	11
Flufftail Bat Hawk	3	3	3	0	1	1	0	11
Blackfronted Bush	3	3	0	1	3	1	0	11
Shrike White Stork	3	2	3	0	2	1	0	11
Yellowbreasted Pipit	3	3	3	0	2	0	0	11
Pinkthroated Longclaw	1	1	3	0	1	3	1	10
Stanley's Bustard	3	2	0	0	1	2	2	10
African Finfoot Pygmy	1	1	2	0	3	2	1	10
Goose Natal Nightjar	1	1	1	2	2	2	1	10
Damara Tern	3	3	0	1	0	2	1	10
Whiteheaded Vulture	2	2	2	0	1	2	1	10
Caspian Tern Black	2	2	1	0	3	2	0	10
Coucal Lesser Jacana	2	2	0	1	3	2	0	10
Palmnut Vulture Bald	2	2	1	0	2	1	2	10
Ibis	3	3	0	0	2	1	1	10
Broadtailed	3	3	0	1	2	1	0	10
Warbler Ludwig's	3	3	0	1	2	1	0	10
Bustard Striped	2	1	3	1	2	0	1	10
Flufftaii	2	2	0	1	1	2	1	9
Woollynecked	2	1	1	0	2	1	2	9
Stork Openbilled	2	2	3	0	1	1	0	9
Stork Bluespotted	3	3	0	0	2	1	0	9
Dove Redwinged	3	2	0	1	2	1	0	9
Pratincole Hooded	3	2	0	1	1	1	1	9
Vulture	3	2	0	1	1	1	1	9
	2	2	0	1	3	1	0	9
	A	N	R		B		D	
							TOTAL	

SPECIES FOR
CONSERVATION ACTION

15

Species	A	N	R	T	B	S	D	TOTAL
Shorttailed Pipit Wattle-	2	2	3	0	1	1	0	9
eyed Flycatcher Broadtailed	2	2	0	1	2	1	1	9
Paradise Whydah	3	3	0	0	0	0	3	9
Bradfield's Swift Grass Owl	3	1	3	0	2	0	0	9
Saddlebilled Stork	1	1	1	0	2	2	1	8
Chestnutbanded Plover	2	2	0	1	2	1	0	8
Rosy-faced Lovebird	3	2	1	0	1	1	0	8
Neergaard's Sunbird	3	2	0	1	0	1	1	8
Woodwards ¹ Batis	3	2	1	0	1	1	0	8
Whitebreasted	3	2	0	0	2	1	0	8
Cuckooshrike Southern	3	2	0	0	1	1	1	8
Banded Snake Eagle	2	2	0	0	3	1	0	8
Goldenbacked Pytilia	3	3	0	0	1	1	0	8
Mountain Pipit Coastal	2	1	3	0	1	1	0	8
Barred Owl Rufousbellied	2	2	2	0	1	1	0	8
Heron Botha's Lark Mottled	3	3	0	0	2	0	0	8
Spinetail Boehm's Spinetail	2	2	3	0	1	0	0	8
Rackettailed Roller	3	2	0	1	2	0	0	8
Yellowbilled Stork	3	2	0	1	2	0	0	8
Pennantwinged Nightjar	3	3	0	0	2	0	0	8
Whitebacked Night Heron	3	2	0	1	2	0	0	8
Black Stork Arnot's Chat	2	1	0	1	1	2	0	7
Tropical Boubou Peregrine	1	1	0	1	2	2	0	7
Falcon Mangrove	1	2	1	0	2	1	0	7
Kingfisher Shortclawed	2	2	0	0	1	1	1	7
Lark Whitecrowned Plover	2	2	0	0	1	1	1	7
Greater Flamingo Lesser	1	2	1	0	2	1	0	7
Flamingo Red Lark	2	2	0	0	1	1	1	7
Bluethroated Sunbird	2	1	2	0	1	1	0	7
Yellowthroated Sandgrouse	3	2	0	0	1	1	1	7
Lesser Blackwinged Plover	3	0	0	0	3	1	0	7
Pinkbacked Pelican	3	0	0	0	3	1	0	7
Lemonbreasted Canary	2	1	3	0	1	0	0	7
Longtailed Starling	3	3	0	0	1	0	0	7
Rednecked Falcon	3	3	0	0	1	0	0	7
Greyhooded Kingfisher	3	3	0	0	1	0	0	7
Thickbilled Cuckoo	3	3	0	0	1	0	0	7
Dickinson's Kestrel Pied	3	2	0	0	2	0	0	7
Mannikin White Pelican	3	2	1	0	1	0	0	7
Cuckoo Hawk Little Bittern	2	1	0	0	2	1	0	6
Dwarf Bittern Yellow	2	2	0	0	1	1	0	6
White-eye Delegorgue's	2	2	0	0	1	1	0	6
Pigeon Baillon's Crake	2	2	0	1	0	1	0	6
Slater's Lark	3	2	0	0	1	0	0	6
	3	3	0	0	0	0	0	6
	3	1	0	0	2	0	0	6
	2	2	0	1	1	0	0	6
	2	2	0	0	2	0	0	6
	3	2	0	0	1	0	0	6
	2	1	0	0	1	1	0	5
	2	1	1	0	0	1	0	5
	1	1	1	0	1	1	0	5
	1	1	1	0	1	0	0	4

Species for monitoring

The list below includes those species entered in the 1976 Red Data Book - Aves or otherwise proposed for inclusion in this Revision, but that have been left out for one reason or another. They merit careful monitoring in case new or existing threats cause them to move towards the red data categories.

Bank Cormorant *Phalacrocorax neglectus* - neither rare nor vulnerable (Cooper

1981b). Crowned Cormorant *P. coronatus* - neither rare nor vulnerable

(Crawford et al 1981). Goliath Heron *Ardea goliath* - neither rare nor vulnerable

(Kemp 1980a).

Booted Eagle *Hieraaetus pennatus* - neither rare nor vulnerable (Brooke et al 1980, Boshoff et al 1983).

Ayres's Eagle *H. ayresii* - does not breed in South Africa (Kemp

1980b). Longcrested Eagle *Lophaeius occipitalis* - neither rare nor

vulnerable.

African Fish Eagle *Haliaeetus vocifer* - neither rare nor vulnerable (Boshoff et al 1983, Tarboton and Allan in press).

Forest Buzzard *Buteo oreophilus* - neither rare nor vulnerable (Boshoff et al 1983, Cyrus and Robson 1980).

Ovambo Sparrowhawk *Accipiter ovampensis* - neither rare nor vulnerable (Tarboton and Allan in press).

Black Sparrowhawk *A. melanoieucus* - neither rare nor vulnerable (Tarboton and Allan in press).

Dark Chanting Goshawk *Melierax metabaias* - neither rare nor vulnerable (Tarboton and Allan in press).

Black Harrier *Circus maurus* - neither rare nor vulnerable (van der Merwe 1981, Boshoff et al 1983).

African Hobby Falcon *Falco cuvierii* - does not breed in South Africa (Steyn 1983).

Pygmy Falcon *Polihierax semitorquatus* - neither rare nor vulnerable (Boshoff et al 1983).

Crested Francolin *Francolinus sephaena* - neither rare nor vulnerable (Kemp 1980a).

Redbilled Francolin *F. adspersus* - does not breed in South Africa.

Crested Guineafowl *Guttera pucherani* - neither rare nor vulnerable (Kemp 1980a).

Striped Crake *Aenigmatolimnas marginalis* - does not breed in South Africa.

Lesser Gallinule *Porphyryla alleni* - neither rare nor vulnerable.

Blue Korhaan *Eupodotis caendescens* - neither rare nor vulnerable.

Blackbellied Korhaan *Eupodotis melanogaster* - neither rare nor vulnerable (Kemp 1980a).

Longtoed Plover *Vanellus crassirostris* - does not breed in South Africa (Kemp 1980a).

Burchell's Sandgrouse *Pterocles burchelli* - neither rare nor vulnerable.

Mourning Dove *Streptopelia decipiens* - neither rare nor vulnerable.

Brownheaded Parrot *Poicephalus cryptoxanthus* - neither rare nor vulnerable.

African Cuckoo *Cuculus gularis* - neither rare nor vulnerable.

Green Coucal *Phoenicophaeus aereus* - neither rare nor vulnerable.

Senegal Coucal *Centropus senegulensis* - does not breed in South Africa (Kemp 1980a).

Cape Eagle Owl *Bubo capensis* - neither rare nor vulnerable.

- Palm Swift *Cypsiurus parvus* - neither rare nor vulnerable.
- Woodland Kingfisher *Halcyon senegalensis* - neither rare nor vulnerable (Kemp 1980a).
- Carmine Bee-eater *Merops nubicoides* - does not breed in South Africa (Kemp 1980a).
- Purple Roller *Comcias naevia* - neither rare nor vulnerable (Kemp 1980a).
- Broadbilled Roller *Eurystomus glaucurus* - neither rare nor vulnerable (Kemp 1980a).
- White-eared Barbet *Stactolaema leucotis* - neither rare nor vulnerable (Cyrus and Robson 1980).
- Scalythroated Honeyguide *Indicator variegatus* - neither rare nor vulnerable.
- Knysna Woodpecker *Campethera notata* - neither rare nor vulnerable.
- Mosque Swallow *Hirundo senegalensis* - neither rare nor vulnerable (Newman 1980c).
- Greyrumped Swallow *Pseudhirundo griseopyga* - neither rare nor vulnerable.
- African Golden Oriole *Oriolus auratus* - does not breed in South Africa.
- Grey Penduline Tit *Anthoscopus caroli* - neither rare nor vulnerable (Kemp 1980a).
- Spotted Creeper *Salpornis spilonotus* - does not breed in South Africa (Kemp 1980a).
- Bush Blackcap *Lioptilus nigricapillus* - neither rare nor vulnerable.
- Yellowspotted Nicator *Nicator gularis* - neither rare nor vulnerable (Kemp 1980a).
- Orange Thrush *Turdus gurneyi* - neither rare nor vulnerable (Earle and Oatley 1983).
- Knysna Warbler *Bradypterus sylvaticus* - neither rare nor vulnerable.
- Victorin's Warbler *B. victorini* - neither rare nor vulnerable.
- Rudd's Apalis *Apalis ruddi* - neither rare nor vulnerable (Cyrus and Robson 1980).
- Karoo Eremomela *Eremomela gregalis* - neither rare nor vulnerable.
- Greencapped Eremomela *E. scotops* - neither rare nor vulnerable.
- Stierling's Barred Warbler *Camaroptera stierlingi* - neither rare nor vulnerable (Kemp 1980a).
- Cinnamonbreasted Warbler *Euryptila subcinnamomea* - neither rare nor vulnerable (Martin et al 1975).
- Palecrowned Cisticola *Cisticola brunnescens* - neither rare nor vulnerable.
- Namaqua Prinia *Prinia substriata* - neither rare nor vulnerable.
- Rock Pipit *Anthus crenatus* - neither rare nor vulnerable.
- Chestnutfronted Helmetshrike *Prionops scopifrons* - does not breed in South Africa (Cyrus and Robson 1980).
- Gurney's Sugarbird *Promerops gurneyi* - neither rare nor vulnerable.
- Purplebanded Sunbird *Nectarina bifasciata* ■ neither rare nor vulnerable (Cyrus and Robson 1980).
- Yellowbellied Sunbird *N. venusta* - does not breed in South Africa (Kemp 1980a).
- Brownthroated Weaver *Ploceus xanthopterus* - neither rare nor vulnerable (Cyrus and Robson 1980).
- Green Twinspot *Mandingoa nitidula* - neither rare nor vulnerable (Kemp 1980a).
- Pinkthroated Twinspot *Hypargos margaritatus* - neither rare nor vulnerable.

Grey Waxbill *Estrilda perreini* - neither rare nor vulnerable (Cyrus and Robson 1980).

Cutthroat Finch *Amadina fasciata* - neither rare nor vulnerable.

Protea Canary *Serinus leucoptents* - neither rare nor vulnerable (Milewski 1976).

Blackeared Canary *S. mennelli* - does not breed in South Africa.

Monitoring is especially required for the following 18 species which are endemic, virtually endemic, have endemic subspecies or isolated populations in South Africa. South Africa is largely responsible for the conservation of all these species on both a continental and a global basis:

Bank Cormorant (virtual endemic). Crowned Cormorant (virtual endemic). Booted Eagle (isolated population), Forest Buzzard (endemic subspecies), Black Harrier (endemic). Crested Guineafowl (endemic subspecies and an isolated population). Blue Korhaan (endemic). Cape Eagle Owl (endemic subspecies), Knysna Woodpecker (endemic). Bush Blackcap (endemic), Orange Thrush (endemic subspecies and an isolated population), Knysna Warbler (endemic). Victories Warbler (endemic), Karoo Eremomela (endemic subspecies), Namaqua Prinia (virtual endemic), Rock Pipit (endemic). Gurney's Sugarbird (endemic subspecies), Protea Canary (endemic).

NOTE ADDED IN PROOF

It appears from Dean W R J and W R Tarboton 1983 Ostrich 54; 241-242 that the Osprey *Pandion haliaetus* is an occasional breeding species in South Africa. Had this contribution appeared earlier, the Osprey would have been included in this book as Indeterminate since it is apparently not a regularly breeding species. However, it should now be added to the Species for Monitoring as an interim measure.

Tabular summary

KEY : Columns 1 and 2

-X - extinct, E - endangered, V - vulnerable, R - rare,
O - out of
danger, I - indeterminate.

Column 3

-Endemic = 90% of a species' range or numbers found
within South

Africa. SP = endemic species and SPP = subspecies.

-Population trend, U = up, S = stable, D = down.

Column 6

II 11G11U,
\1 — Up

CONSERVATION

SPECIES	STATUS	POPULATION DISTRIBUTION	CONSERVATION		TREND
			1983	1976	
artLiw					

JACKASS PENGUIN <i>Spheniscus demersus</i>	V	V	SP	-	-	D	24
GREATWINGED PETREL <i>Pterodroma macroptera</i>	V	-	-	-	-	D	27
SOFTPLUMAGED PETREL <i>Pterodroma mollis</i> GREY	V	-	-	-	-	D	28
SHEARWATER <i>Procellaria cinerea</i>	V	-	-	-	-	D	29
COMMON DIVING PETREL <i>Pelecanoides urinatrix</i>	V	-	-	-	-	D	30
WHITE PELICAN <i>Pelecanus onocrotalus</i>	V	-	-	-	-	D	31
PINKBACKED PELICAN <i>Pelecanus rufescens</i>	R	V	-	X	-	S	33
RUFOSBELLIED HERON <i>Butorides rufiventris</i>	R	V	-	X	-	U	35
WHITEBACKED NIGHT HERON <i>Gorsachius leuconotus</i>	R	R	-	-	X	S	36
LITTLE BITTERN <i>Ixobrychus minutus</i>	I	R	-	-	-	D	38
DWARF BITTERN <i>Ixobrychus sturmii</i>	R	-	-	-	-	S	40
BITTERN <i>Botaurus stellaris</i>	I	-	-	-	X	S	42
WHITE STORK <i>Ciconia ciconia</i>	V	-	-	-	-	D	44
BLACK STORK <i>Ciconia nigra</i>	R	R	-	X	-	S	46
WOOLLYNECKED STORK <i>Ciconia episcopus</i>	I	V	-	-	-	S	48
OPENBILLED STORK <i>Anastomus lamelligerus</i>	R	R	-	-	X	S	49
SADDLEBILLED STORK <i>Ephippiorhynchus senegalensis</i>	R	R	-	-	X	S	51
MARABOU STORK <i>Leptoptilos crumeniferus</i>	R	R	-	-	X	S	52
	R	R	-	-	X	D	

20 TABULAR
SUMMARY

SPECIES	CONSERVATION STATUS		POPULATION DISTRIBUTION		CURRENT DATA POPULATION TREND	SHEET PAGE NO
	1983	1976	En- demi	Isol- ate		
YELLOWBILLED STORK <i>Mycteria ibis</i>	R	R	-	X	S	54
BALD IBIS SP <i>Geronticus calvus</i>	O	R	-	-	S	55
GREATER FLAMINGO <i>Phoenicopterus ruber</i>	I	I	-	X	S	57
LESSER FLAMINGO <i>Phoenicopterus minor</i>	I	I	-	X	D	59
PYGMY GOOSE <i>Nettapus auritus</i>	R		X	-	S	60
BEARDED VULTURE <i>Gypaetus barbatus</i>	R	V	X	-	S	62
EGYPTIAN VULTURE <i>Neophron percnopterus</i>	E	E	-	-	D	63
HOODED VULTURE <i>Necrosynes monachus</i>	R		-	-	D	65
CAPE VULTURE SP <i>Gyps coprotheres</i>	V	V	-	-	D	67
LAPPETFACED VULTURE <i>Torgos tracheliotus</i>	V		-	X	D	70
WHITEHEADED VULTURE <i>Trionoceps occipitalis</i>	R		-	-	D	72
CUCKOO HAWK <i>A viceda cuculoides</i>	I	R	-	X	D	73
BAT HAWK <i>Macheiramphus alcinus</i>	R	R	-	-	D	75
MARTIAL EAGLE <i>Polemaetus bellicosii</i>	V	V	-	X	S	76
SOUTHERN BANDED SNAKE EAGLE <i>Circaetus fasciolatus</i>	R	V	-	-	S	78
BATELEUR <i>Terathopius ecaudatus</i>	V		-	X	S	79
PALMNUT VULTURE <i>Gypohierax angolensis</i>	R	R	-	X	S	81
PEREGRINE FALCON <i>Falco peregrinus</i>	R	R	-	-	D	82
REDNECKED FALCON	I	V	-	-	D	84
						85
						86
						87

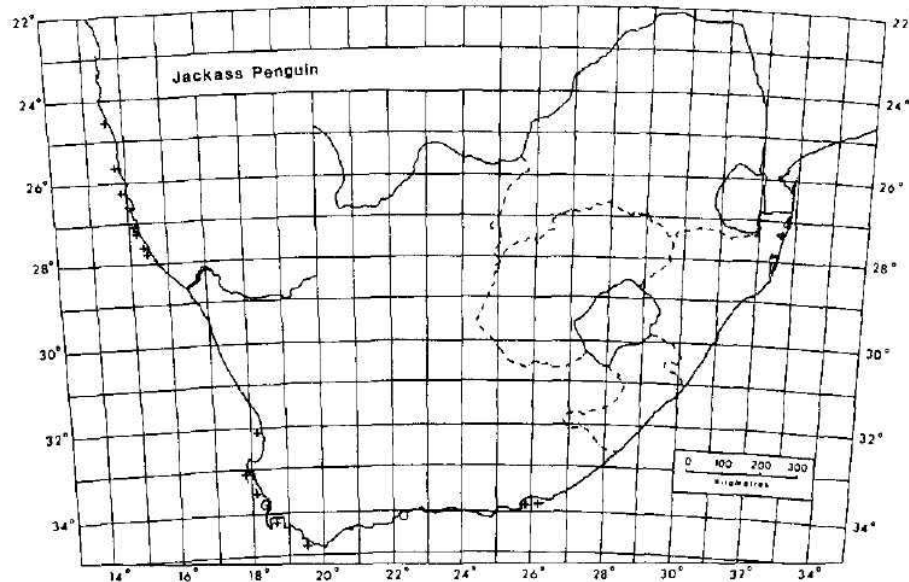
<i>Falco chicquera</i>		
DICKINSON'S KESTREL	R	R
<i>Falco dickinsoni</i>		
BLUE QUAIL	I	V
<i>Coturnix adansonii</i>		
BLACKRUMPED BUTTONQUAIL		
<i>E Turnix hottentotta</i>		

SPECIES	CONSERVATION STATUS		POPULATION DISTRIBUTION			CURRENT POPULATION TREND	DATA SHEET PAGE NO
	1983	1976	En-demic	Isolated	Peri-pheral		
WATTLED CRANE <i>Grus carunculata</i>	E	V	-	X	-	D	89
BAILLON'S CRAKE <i>Porzana pusilla</i>	I	-	-	-	-	S	91
STRIPED FLUFFTAIL <i>Sarothrura affinis</i>	R	-	-	X	-	S	92
WHITEWINGED FLUFFTAIL <i>Sarothrura ayresi</i>	R	I	-	X	-	S	93
AFRICAN FINFOOT <i>Podica senegalensis</i>	I	-	-	-	-	D	95
KORI BUSTARD <i>Ardeotis kori</i>	V	V	-	-	-	D	96
STANLEY'S BUSTARD <i>Neotis denhami</i>	V	-	SSP	-	-	D	98
LUDWIG'S BUSTARD <i>Neotis ludwigii</i>	V	-	-	-	-	D	99
LESSER JACANA <i>Microparra capensis</i>	R	V	-	-	X	S	101
CHESTNUTBANDED PLOVER <i>Charadrius pallidus</i>	R	-	-	-	-	S	102
LESSER BLACKWINGED PLOVER <i>Vanellus lugubris</i>	R	-	-	-	X	S	104
WHITECROWNED PLOVER <i>Vanellus albiceps</i>	R	R	-	-	X	D	105
REDWINGED PRATINCOLE <i>Glaucopis pratincola</i>	R	V	-	-	X	D	106
CASPIAN TERN <i>Hydroprogne caspia</i>	R	V	-	-	-	D	107
ANTARCTIC TERN <i>Sterna vittata</i>	R	-	-	-	-	S	109
KERGUELEN TERN <i>Sterna virgata</i>	R	-	-	-	-	S	110
ROSEATE TERN <i>Sterna dougallii</i>	E	V	-	X	-	D	111
DAMARA TERN <i>Sterna balaenarum</i>	R	R	-	-	-	S	113
AFRICAN SKIMMER <i>Rynchops flavirostris</i>	X	R	-	-	X	D	115
YELLOWTHROATED SAND-GROUSE <i>Pterocles gutturalis</i>	I	I	-	-	X	S	116
DELEGORGUE'S PIGEON <i>Columba delegorguei</i>	I	R	-	X	-	D	117
BLUESPOTTED DOVE <i>Turtur afer</i>	I	V	-	X	-	S	118

SPECIES	CONSERVATION STATUS		POPULATION DISTRIBUTION			CURRENT POPULATION TREND	DATA SHEET PAGE NO
	1983	1976	En- demic	Isol- ated	Peri- pheral		
CAPE PARROT <i>Poicephalus robustus</i>	V	V	SSP	-	-	D	119
ROSYFACED LOVEBIRD <i>Agapornis roseicollis</i>	I	R	-	-	X	D	121
THICKBILLED CUCKOO <i>Pachycoccyx audeberti</i>	R	-	-	-	X	S	122
BLACK COUCAL <i>Centropus bengalensis</i>	I	V	-	-	X	D	123
GRASS OWL <i>Tyto capensis</i>	I	-	-	-	-	D	125
COASTAL BARRED OWL <i>Glaucidium capense</i>	R	-	-	-	-	D	126
PEL'S FISHING OWL <i>Scotopelia peli</i>	R	R	-	-	X	D	127
NATAL NIGHTJAR <i>Caprimulgus natalensis</i>	V	R	-	-	-	D	129
PENNANTWINGED NIGHTJAR <i>Macrodipteryx vexillaria</i>	I	-	-	-	X	S	130
BRADFIELD'S SWIFT <i>Apus bradfieldi</i>	I	-	SSP	-	-	S	131
MOTTLED SPINETAIL <i>Telacanthura ussheri</i>	R	-	-	-	X	S	132
BOEHM'S SPINETAIL <i>Neafrapus boehmi</i>	R	R	-	-	X	S	133
MANGROVE KINGFISHER <i>Halcyon senegaloides</i>	I	V	-	-	-	D	135
GREYHOODED KINGFISHER <i>Halcyon leucocephala</i>	I	-	-	-	X	S	136
RACKETTAILED ROLLER <i>Coracias spatulata</i>	I	-	-	-	X	S	137
GROUND HORNBILL <i>Bucorvus leadbeateri</i>	V	-	-	-	-	D	138
WOODWARDS' BARBET <i>Cryptolybia woodwardi</i>	R	V	SSP	-	-	S	140
AFRICAN BROADBILL <i>Smithornis capensis</i>	V	-	SSP	-	-	D	141
RUDD'S LARK <i>Mirafra ruddi</i>	V	R	SP	-	-	D	143
SHORTCLAWED LARK <i>Mirafra chuana</i>	I	R	-	-	-	D	144
RED LARK <i>Mirafra burra</i>	I	I	SP	-	-	S	145
BOTHA'S LARK <i>Spizocorys fringillaris</i>	I	R	SP	-	-	S	146
SCLATER'S LARK <i>Spizocorys sclateri</i>	I	R	SSP	-	-	S	148

SPECIES	CONSERVATION STATUS		POPULATION DISTRIBUTION			CURRENT POPULATION TREND	DATA SHEET PAGE NO
	1983	1976	En- demic	Isol- ated	Peri- pheral		
BLUE SWALLOW <i>Hirundo atrocaerulea</i>	E	V	-	X	-	D	149
HOUSE MARTIN <i>Delichon urbica</i>	I	-	-	X	-	S	151
WHITEBREASTED CUCKOO- SHRIKE <i>Coracina pectoralis</i>	R	-	-	-	X	D	152
SPOTTED THRUSH <i>Turdus fischeri</i>	V	V	SSP	-	-	D	153
ARNOT'S CHAT <i>Thamnolaea arnoti</i>	R	V	-	-	X	D	155
BROADTAILED WARBLER <i>Schoenicola brevirostris</i>	I	-	-	-	-	D	156
WOODWARDS' BATIS <i>Batis fratrum</i>	I	R	-	-	X	S	157
WATTLE-EYED FLYCATCHER <i>Platysteira peltata</i>	I	R	-	-	X	D	158
MOUNTAIN PIPIT <i>Anthus cameroonensis</i>	I	-	SSP	-	-	S	159
SHORTTAILED PIPIT <i>Anthus brachyurus</i>	R	I	-	X	-	S	161
YELLOWBREASTED PIPIT <i>Anthus chloris</i>	V	R	SP	-	-	D	162
PINKTHROATED LONGCLAW <i>Macronyx ameliae</i>	V	V	-	-	X	D	163
TROPICAL BOUBOU <i>Laniarius aethiopicus</i>	R	-	-	-	X	D	165
BLACKFRONTED BUSH SHRIKE <i>Telophorus nigrifrons</i>	I	R	-	X	-	S	166
LONGTAILED STARLING <i>Lamprotornis mevesii</i>	I	R	-	-	X	S	168
YELLOWBILLED OXPECKER <i>Buphagus africanus</i>	X	I	-	-	-	D	169
NEERGAARD'S SUNBIRD <i>Nectarinia neergaardi</i>	R	V	-	-	-	S	170
BLUETHROATED SUNBIRD <i>Anthreptes reichenowi</i>	I	-	-	-	X	S	171
YELLOW WHITE-EYE <i>Zosterops senegalensis</i>	I	-	-	-	X	S	172
GOLDENBACKED PYTHILIA <i>Pytilia afra</i>	R	R	-	-	X	D	173
PIED MANNIKIN <i>Spermestes fringilloides</i>	I	-	-	-	X	S	175
BROADTAILED PARADISE WHYDAH <i>Vidua obtusa</i>	R	-	-	-	X	S	176
LEMONBREASTED CANARY <i>Serinus citrinipectus</i>	R	-	-	-	X	U	177

Red data sheets



**JACKASS
PENGUIN**
Brilpikkewyn
(Pikkewyn)

Spheniscus demersus (Linnaeus) 1758: Cape of Good Hope. Order SPHENISCIFORMES

VULNERABLE

Family
SPHENISCIDAE

Summary: a Vulnerable endemic species of southwestern Africa which has lost at least three quarters of its population this century. Nonbreeding birds reach Gabon, and Delagoa Bay, Mozambique.

Present distribution: breeds on 20 offshore islands from Hollam's Bird Island off the Namib coast to Bird Island, Algoa Bay (colonies south of the Orange River estuary are shown with a cross on the map); nonbreeders forage in inshore waters, chiefly on the west and south coasts, occasionally on the east (Cyrus and Robson 1980).

Former distribution: as above but Jackass Penguins used to breed on Seal Island, Mossel Bay, up to ca 1930 (Shaughnessy and Shaughnessy 1978) and Robben Island, Table Bay, before 1800 (Westphal and Rowan 1971, Brooke 1983).

Habitat: breeds on islands, preferably where they can tunnel into the sand or guano, otherwise under a rock. Many breed in the open when preferred sites are not available. They moult on breeding islands unless sick when they may moult on an unused island or a beach on the mainland.

Status: breeding birds forage within a few km of their breeding islands but immature and nonbreeding birds wander far along the coasts to forage, usually in the more productive cooler waters of the Benguela current.

Estimated numbers and population trends: more than 171 000 breeding pairs at 20 localities (Cooper et al in press) forms the South African and world population though Crawford (1982a) believes that there are hardly more than 50 000 pairs. It would seem from the incomplete data in Frost et al (1976) that there were more than 500 000 breeding pairs at the beginning of this century though probably less than 1 000 000 pairs. Between 1956 and 1976.

chiefly before 1967, there was a decrease in numbers in excess of 50 % at colonies west of Cape Point (Crawford and Shelton 1981). However, to the east at Dyer Island these authors report an increase of ca 500 % and there was an increase followed by a decrease in Algoa Bay. Thus while there is no doubt that there has been a great decrease in the numbers of Jackass Penguins, the picture is obscured by local factors, not to mention unsatisfactory census data.

Breeding rate in wild: normal clutch two eggs; usually single brooded (Cooper 1980a, Randall and Randall 1981a); incubation period five and a half weeks; nestling period 10-17 weeks (Newman 1982a); females first breed at age two (Leloup 1982).

Reasons for decrease: the immense cropping of eggs and destruction of incubated eggs to ensure fresh ones for collection on the next visit seems to have precipitated the decrease early this century (Frost et al 1976). Contemporaneously, the removal of guano by scraping by groups of labourers diminished the quality of the breeding habitat by forcing more birds to nest in the open (Frost et al 1976). In the 1950s and 60s overfishing of pilchards *Sardinops ocellata* reduced the food supply for breeding birds and led to lower reproductive success (Crawford and Shelton 1981). An increase in the Cape Fur Seal *Arctocephalus pusillus* population on a penguin breeding island leads to a diminution in penguin numbers since they are physically overwhelmed by moving seals (Shaughnessy 1980). Even low levels of human disturbance at a breeding colony affect reproductive output both directly and by facilitating egg predation by Kelp Gulls *Larus dominicanus* (Hockey and Hallinan 1981). Occasional oiling catastrophes do not seem to be an important mortality factor (Frost et al 1976). Fortunately, it is possible to rehabilitate oiled birds and return them to the breeding population (Morant et al 1981). The slaughter caused by underwater explosions used in building the ore jetty at Saldanha Bay (Anon 1978, Cooper 1982) probably had no long-term effect on Jackass Penguin numbers.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The breeding colonies on Brendan, Jahleel and St Croix Islands in Algoa Bay form part of a Cape Provincial Marine Reserve. Access to other breeding colonies is controlled by the Sea Fisheries Research Institute in terms of the Sea Birds and Seals Protection Act, 1973. In order to promote the conservation of the Jackass Penguin the Sea Fisheries Research Institute has virtually prohibited access except to bona fide research workers. In addition, penguin egg and guano collection is no longer permitted. Sick and oiled penguins are treated at SANCCOB's depot near Cape Town, often successfully. 2656 have been rehabilitated and released. Of these, 788 have been seen alive and 158 have been found subsequently breeding (Morant et al 1981). The Department of Transport maintains a fleet of boats able to deal with oil spills in coastal waters before they cause disasters.

Protective measures proposed: commercial fishing of surface shoaling fish should not be permitted within at least 10 km of a breeding colony (Cooper et al in press) since this will increase breeding success and post fledgling survival. Breeding success could be enhanced by the permanent cessation of guano scraping. This would improve the breeding habitat by eventually providing a deposit into which the penguins could tunnel. A tunnel provides a nest site which is more sheltered from predators and extremes of temperature and thus more productive of fledged youngsters (Erasmus and Smith 1974, Frost et al 1976, Cooper 1980a). Access to colonies must be more strictly controlled since even low levels of human disturbance have a serious effect on reproductive output (Hockey and Hallinan 1981). Efforts still need to be made to stamp out the illegal trade in eggs for food. Where seals and penguins coexist walls which keep out seals but not penguins should be restored and maintained or established and maintained (Shaughnessy 1980). Walls on islands where seals do not occur should be dismantled sufficiently to permit penguins easy access to suitable breeding sites. They should not be totally destroyed since they provide breeding sites for Crowned Cormorants *Phalacrocorax coronatus*, an endemic species which requires monitoring (p 16), and other birds.

Number held in captivity: more than 300 (Gailey-Phipps 1978c).

Breeding potential in captivity: good (Gailey, later Gailey-Phipps, 1975a ff, Leung and

Cooper 1979, Leloup 1982).

Current research effort: members of the University of Cape Town are undertaking various studies on the Jackass Penguin: J Cooper is undertaking a long-term monitoring programme; D C Duffy is examining regional and seasonal variation in growth rates of nestlings as well as problems caused by the tick *Ornithodoros capensis*; S Broni, B L Furness and R P Wilson are working on its feeding ecology. R M Randall, University of Port Elizabeth, is conducting studies on the Algoa Bay islands of feeding ecology, population dynamics, movement patterns and the effects of pollutants.

Remarks: the Jackass Penguin is included as Vulnerable in the 2nd International Council For Bird Protection (ICBP) red data book (King 1981). It is not only an endemic species of southwestern Africa, it is also the only member of its Order to breed in Africa at the present time. In the Pliocene southwestern Africa had contemporaneous species of penguins of which four have already been described (Clancey 1980a). Southwestern Africa used to have a richer penguin fauna than has been the case in the last 130 000 years. With the conservation measures already introduced and those proposed it should be possible to maintain a viable population of a species with a particular emotional attraction for the general public. Blackfooted Penguin is the commonly used name overseas for the Jackass Penguin of South African usage, particularly in the zookeeping literature.

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GREATWINGED PETREL**VULNERAB****LE****Langvlerkstormvoel***Pterodroma macroptera* (Smith) 1840: at sea off the Cape of Good Hope.

Order PROCELLARIIFORMES

Family

PROCELLARIIDAE

Summary: a Vulnerable species on Marion Island where its current production of young is negligible due to feral cat predation. It breeds widely on the warmer Subantarctic islands and some southern temperate ones. Nonbreeding migrants occur in South African waters.

Present distribution: breeds on Marion and Prince Edward Islands.

Former distribution: not known to have differed from the above.

Habitat: breeds in burrows in deep well-drained soil in sheltered areas; forages at sea.

Status: breeding winter visitor. The rest of the year is spent at sea, chiefly between 30S and 50S.

Estimated numbers and population trends: 20 - 90 000 breeding pairs (Williams et al 1979) but this guesstimate is perhaps too high by an order of magnitude for 1983. In 1979 none of the 39 observed nests produced a fledged youngster (Schramm 1983).

Breeding rate in wild: normal clutch one egg; single brooded; incubation period eight weeks; nestling period 17-18 weeks (Schramm 1983); age at which females first breed unknown.

Reasons for decrease: predation by introduced feral cats *Felis catus* (van Aarde 1980, Schramm 1983). This predation is particularly severe as the Greatwinged Petrel is one of the two burrowing petrels (the other is the Grey Shearwater) to breed on Marion Island in winter, the period of food shortage for feral cats on Subantarctic islands (Jones 1977, van Aarde 1980). In addition, the long nestling period means that breeding birds and their young are at risk for at least 27 weeks.

Protective measures taken: full legal protection is afforded all birds on the Prince Edward islands. Access is controlled by the South African Department of Transport. A cat virus, feline panleukopaenia, was introduced in 1977 to Marion Island as a preliminary feral cat control measure. This has substantially reduced the number of cats (van Aarde and Skinner 1982) though whether this will be sufficient in the long term to conserve the Greatwinged Petrel population remains to be seen: two years after the virus took hold no Greatwinged Petrel young reached fledging at any nest under observation (Schramm 1983).

Protective measures proposed: elimination of feral cats on

Marion Island. **Number held in captivity:** probably none.

Breeding potential in captivity: probably low.

Current research effort: M Schramm, then of the University of Cape Town, is writing up more of the results of his studies of the biology of burrowing petrels at Marion Island. The Mammal Research Institute, Pretoria, is conducting comparative studies of breeding success inside and outside cat free enclosures.

Remarks: the Greatwinged Petrel breeds on a number of southern temperate and warmer Subantarctic islands. The nonbreeding range is the Southern Ocean between 30S and 50S, including South African waters.

Selected bibliography: Jones E (1977), Schramm M (1983). Serventy DL, V
Serventy and
J Warham (1971). van Aarde R J (1980), van Aarde R J and J D Skinner (1982),
Williams A J,
W R Siegfried, A E Burger and A Berruti (1979).

SOFTPLUMAGED PETREL

VULNERAB

LE

Donsveerstormvoel

Pterodroma mollis (Gould) 1844: 29S 15W in the South Atlantic.
 Order PROCELLARIIFORMES Family
 PROCELLARIIDAE

Summary: a Vulnerable species on Marion Island where its current production of young is negligible due to feral cat predation. It breeds in the Tristan, Prince Edward, Crozet and Antipodes groups. It occurs regularly as a nonbreeding visitor in South African waters.

Present distribution: breeds on Marion and Prince Edward Islands.

Former distribution: not known to have differed from the above.

Habitat: breeds in burrows in steep exposed but vegetated slopes of grey ridges; forages at sea.

Status: breeding summer visitor.

Estimated numbers and population trends: less than 10 000 breeding pairs (Williams et al 1979). In 1979/80 only 7% of 29 observed nests produced fledged young (Schramm 1983).

Breeding rate in wild: normal clutch one egg; single brooded; incubation period seven weeks; nestling period 13 weeks (Schramm 1983); age at which females first breed unknown.

Reasons for decrease: predation by introduced feral cats *Felis catus* (van Aarde 1980, Schramm 1983). This predation is severe since the Softplumaged Petrel is the latest of the summer breeding burrowing petrels and the lessening food supply of late summer forces many cats to seek them out as prey.

Protective measures taken: full legal protection is afforded all birds on the Prince Edward islands. Access is controlled by the South African Department of Transport. A cat virus, feline panleukopaemia, was introduced in 1977 to Marion Island as a preliminary feral cat control measure. This has substantially reduced the number of cats (van Aarde and Skinner 1982) though whether this will be sufficient to conserve the Softplumaged Petrel population remains to be seen: two and a half years after the virus took hold only 7% of Softplumaged Petrel young fledged at observed nests (Schramm 1983).

Protective measures proposed: elimination of feral cats on Marion Island. **Number held in captivity:** probably none.

Breeding potential in captivity: probably low.

Current research effort: M Schramm, then of University of Cape Town, is writing up more of the results of his studies of the biology of burrowing petrels. The Mammal Research Institute, Pretoria, is conducting comparative studies of breeding success inside and outside cat free enclosures.

Remarks: the Softplumaged Petrel in the race *madeira* is included as Rare in the 2nd ICBP red data book (King 1981) but Bourne (1983) has cogently argued that it is a separate species. The race of the Softplumaged Petrel breeding on the Prince Edward islands is *P. m. dubia* (Clancey et al 1981). This race also breeds on the Crozet islands. The nominate race breeds on the Tristan group. *P. m. dubia* occurs freely in South African waters as a nonbreeding migrant.

Selected bibliography: Bourne W R (1983). Clancey P A, R K Brooke and J C Sinclair (1981), Cramp S and K E L Simmons (1977). King W B (1981). Schramm

M (1983), Serventy D L, V Serventy and J Warham (1971). van Aarde R J (1980), van Aarde R J and J D Skinner (1982), Williams A J, W R Siegfried, A E Burger and A Berruti (1979).

GREY SHEARWATER (Great Grey Shearwater)

VULNERABLE

Pediunker*Procellaria cinerea* Gmelin 1789: 48S in New Zealand seas. **Order PROCELLARIIFORMES**Family
PROCELLARIIDAE

Summary: a Vulnerable species on Marion Island where its current production of young is negligible due to feral cat predation. It breeds at several temperate and Subantarctic islands and occurs sparsely in South African waters as a nonbreeding migrant.

Present distribution: breeds on Marion and Prince Edward Islands.

Former distribution: not known to have differed from the above.

Habitat: breeds in burrows or in natural cavities under rocks; forages at sea. **Status:** breeding winter visitor.

Estimated numbers and population trends: less than 10 000 breeding pairs (Williams et al 1979) and probably far below this limit since in 1979 M Schramm (in litt 1982) was unable to find enough nests to provide a sufficient sample to determine the microhabitat in which they burrow. In that year none of the five observed nests produced a fledged youngster (M Schramm in litt 1982).

Breeding rate in wild: normal clutch one egg; single brooded; incubation and nestling periods and age at which females first breed unknown (Watson 1975).

Reasons for decrease: predation by introduced feral cats *Felis catus* (M Schramm in litt 1982). Grey Shearwaters are now so scarce that this predation did not show up in van Aarde's (1980) samples. The Macquarie Island population was apparently exterminated by cats (Law and Burstall 1956). Cat predation is particularly severe as the Grey Shearwater is one of two burrowing petrels (the other is the Greatwinged Petrel *q*) to breed in winter on Marion Island, the period of food shortage for feral cats on Subantarctic islands (Jones 1977, van Aarde 1980).

Protective measures taken: full legal protection is afforded all birds on the Prince Edward Islands. Access is controlled by the South African Department of Transport. A cat virus, feline panleukopaenia, was introduced in 1977 to Marion Island as a preliminary feral cat control measure. This has substantially reduced the number of cats (van Aarde and Skinner 1982) though whether this will be sufficient in the long term to conserve the Grey Shearwater population remains to be seen: two years after the virus took hold no Grey Shearwater young reached fledging at any nest under observation (M Schramm in litt 1982).

Protective measures proposed: elimination of feral cats on Marion Island. **Number held in captivity:** probably none. **Breeding**

potential in captivity: probably low.

Current research effort: the FitzPatrick Institute, Cape Town, is assembling data on the breeding biology of the Grey Shearwater over as many years as it takes to obtain statistically significant samples.

Remarks: the Grey Shearwater breeds on the Tristan, Prince Edward, Crozet, Campbell and Antipodes groups and spends the nonbreeding season at sea between 25S and 60S. It occurs sparsely in South African coastal waters. The more usual name for this species in the modern literature is Grey Petrel.

Selected bibliography: Berruti A, A M Griffiths, M J Imber, M Schramm and J C Sinclair (1981), Jones E (1977), Law P G and T Burstall (1956), Serventy D L, V Serventy and J Warham (1971), van'Aarde R J (1980), van Aarde R J and J D Skinner (1982), Watson G E (1975), Williams A J, W R Siegfried, A E Burger and A Berruti (1979).

COMMON DIVING PETREL

VULNERAB

LE

Gewone Stormduiker of Duikende Stormvoel*Pelecanoides urinatrix* (Gmelin) 1789; Queen Charlotte Sound, South Island, New Zealand.

Order PROCELLARIIFORMES

Family

PELECANOIDIDAE

Summary: a Vulnerable species which used to breed on Marion Island in large numbers before the introduction of feral cats and which still breeds on Prince Edward Island in the absence of cats. It breeds widely on islands in the Southern Ocean.

Present distribution: breeds on Prince Edward Island.

Former distribution: used to breed in large numbers on Marion Island in 1952 (Rand 1954) but could not be found breeding despite extensive search in the summer of 1965/66 (van Zinderen Bakker 1971) nor later (van Aarde 1980, Berruti et al 1981).

Habitat: breeds in burrows in sloping grassland; forages at sea. **Status:** breeding summer visitor.

Estimated numbers and population trends: no estimates available, the data in Williams et al (1979) being quite at variance with other reports cited herein.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period nearly eight weeks; nestling period nearly eight weeks (Payne and Prince 1979); age at which females first breed unknown.

Reasons for decrease: predation by introduced feral cats *Felis catus* (van Aarde 1980). Cats are not present on Prince Edward Island. Cat predation may also be responsible for the small numbers of Common Diving Petrels now breeding on Macquarie Island (Jones 1977).

Protective measures taken: full legal protection is afforded all birds on the Prince Edward Islands. Access is controlled by the South African Department of Transport.

Protective measures proposed: elimination of feral cats would probably lead to a natural recolonization of Marion Island since birds are often seen there on summer nights.

Number held in captivity: probably

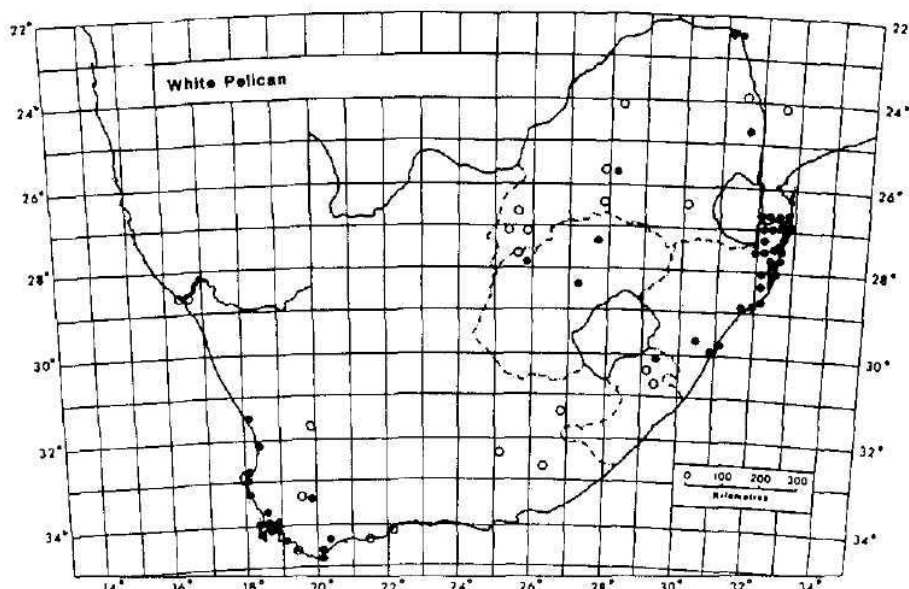
none. **Breeding potential in captivity:**

probably low. **Current research effort:**

none.

Remarks: the Common Diving Petrel is widely distributed and often abundant on Southern Ocean islands provided there is no mammalian predator. The blackbellied Storm Petrel *Fregatta tropica* breeds on Prince Edward Island but not on Marion Island (Berruti et al 1981). This distribution may be due to cat predation but it cannot be included in this book since there is no positive evidence that it bred on Marion Island before the introduction of cats. It occurs at night in summer on Marion Island but this is not sufficient proof that it has bred there in the recent past.

Selected bibliography: Berruti A, A M Griffiths, M J Imber, M Schramm and J C Sinclair (1981), Brooke R K (1980), Jones E (1977), Payne M R and P A Prince (1979), Rand R W (1954), Serventy D L, V Serventy and J Warham (1971), van Aarde R J (1980), van Zinderen Bakker E M Jnr (1971), Williams A J, W R Siegfried, A E Burger and A Berruti (1979).



**WHITE
PELICAN**
Witpelikaan

Pelecanus onocrotalus Linnaeus 1758: White Nile River,
Sudan. Order PELECANIFORMES

RARE

Family
PELECANIDAE

Summary: a Rare species since it breeds at only two colonies in South Africa. It breeds widely in Africa and Eurasia.

Present distribution: breeds on Dassen Island in the western Cape Province and Lake St Lucia in Natal. Breeding birds travel over 100 km to forage. Individuals winter far at times and may be found on any water containing suitably sized fish. The Orange River estuary is a major foraging area for nonbreeding birds, perhaps for birds breeding in South West Africa/Namibia.

Former distribution: the western Cape population bred on Robben Island in the early 1600s (Brooke 1983). For the next two and a half centuries their breeding site is unknown. In the mid 19th century they bred on Dyer Island. Eggs were first obtained there by Capt Roe ca 1869. One of the surviving eggs in the South African Museum has on it the initials E L L, ie Edgar Leopold Layard, Curator of the Museum until 1872. Neither the eggs nor breeding are mentioned in Layard (1867) but the eggs and other data are mentioned in Layard and Sharpe (1884) including the fact that the birds were persecuted by the guano staff to diminish their predation on other guano producing birds (see also Symons 1924). Other eggs were obtained in the Januaries of 1898, 1913 and 1919 (S A Museum catalogues). Between 1894 and 1904 some White Pelicans bred on Quoin Rock (Sclater 1906, Rand 1963), apparently to escape persecution on Dyer Island. Eventually they gave way to the increasing number of Cape Fur Seals *Arctocephalus pusillus* (Rand 1963) and Dyer Island remained the only known breeding site till at least 1919. Symons (1924) makes it clear that his remarks about White Pelicans breeding on Dyer Island apply to the past, not necessarily to 1923 when he visited it in winter. White Pelicans were next found breeding in November 1931 on Seal Island (Wyndham 1932, Shaughnessy in press). Breeding continued till at least February 1954 (Dr R Liversidge SAOS nest record cards) but they eventually gave way to the increasing number of Cape Fur Seals (Shaughnessy in press). Use of the island for naval target practice during or just after the Second World War may also have been involved in their abandonment of Seal Island as a breeding site. From 1956 they have bred only on Dassen Island (Winterbottom 1979). The Lake St Lucia colony has apparently always been there and no other breeding sites are known in South Africa.

Habitat: breeds colonially on flat bare ground, usually on islands in the sea or in large lakes. In west Africa they also breed on inselbergs near large rivers. They forage in flocks of varying size (Guillet and Crowe 1981) in lakes and manmade impoundments, rarely in the sea in South Africa.

Status: breeding birds are usually resident in the general area of their breeding colonies though brooding birds at Lake St Lucia travel over 100 km to forage on the Pongolo floodplain (Whitfield and Blaber 1979). Similar distances are travelled by birds breeding on Dassen Island (A Guillet, personal communication, 1983). Some birds, chiefly immatures, wander far to forage. A summer visitor to Barberspan which showed an interest in breeding there in 1968 (Milstein 1975).

Estimated numbers and population trends: 174 breeding pairs on Dassen Island in the western Cape (Cooper 1980b), ca 1100 breeding pairs at Lake St Lucia (Cooper et al in press); nearer 2 000 pairs (D P Cyrus in litt 1982). No evidence for a recent decrease as opposed to annual fluctuations in the number of adults which attempt to breed at Lake St Lucia (Berruti 1980a). Breeding on Dassen Island instead of Seal Island has led to an increase in the western Cape population from ca 30 breeding pairs in 1950 (Rand 1951) to 174 pairs in 1978 (Cooper 1980b).

Breeding rate in wild: normal clutch two eggs but only one youngster is reared (Cooper 1980b); single brooded; incubation period nearly five weeks; nestling period 10 weeks or more (Brown 1982a); females probably first breed at age four.

Reasons for decrease: no evidence for a recent decrease. Persecution to protect other guano producing seabirds as described under Former Distribution above ceased over 50 years ago. Berruti (1980a) considers that numbers have risen at Lake St Lucia since the 1950s when numbers were depressed by the effects of human disturbance as happened again in the mid 1970s (Anon 1979).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Access to Dassen Island is controlled by the Sea Fisheries Research Institute. Better control of disturbance in the Lake St Lucia Complex including prohibition of public access to the water wilderness area has caused a rise in the number of breeding White Pelicans (Berruti 1980a).

Protective measures proposed: conservation status should be given to the estuary of the Orange River where over 100 nonbreeding birds often assemble. This would also benefit the Caspian and Damara Terns as well as nonbreeding populations of ducks and waders on an otherwise desolate coast. The use of the RAMSAR Convention on wetlands of international importance, especially as waterfowl habitat, seems appropriate here. Similarly, conservation status should be given to Verlorevlei where over 200 birds may assemble, to the Berg River estuary where over 100 may assemble and to the Pongolo floodplain, cf Heeg and Breen (1982), all sites where breeding birds forage. The inclusion of Dassen Island in the proposed West Coast National Park would afford the White Pelicans breeding there enhanced protection. The defence contractors' missile test range at Lake St Lucia should be so sited and its use so timed as to reduce disturbance of breeding birds.

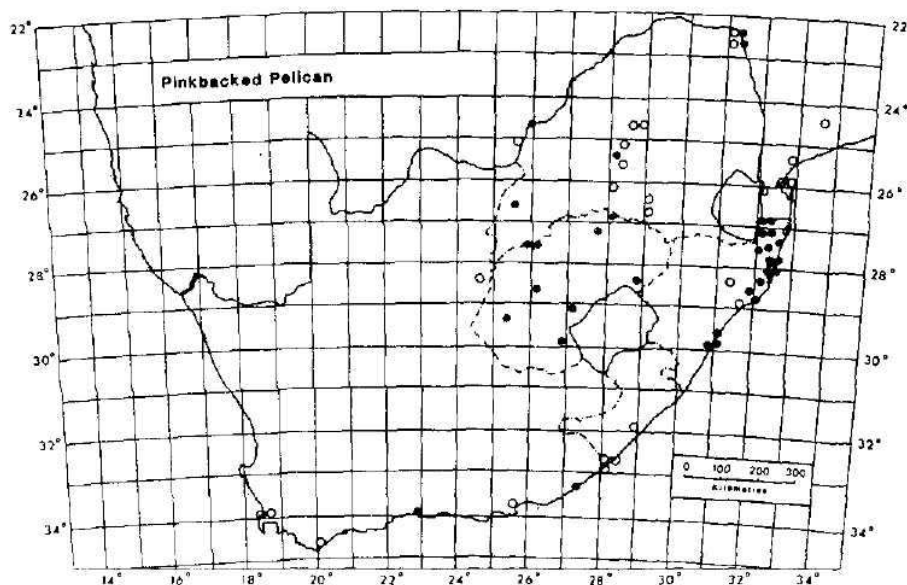
Number held in captivity: some.

Breeding potential in captivity: probably good.

Current research effort: J Cooper, University of Cape Town, has a draft paper on the population size and conservation of the White Pelican in southern Africa and undertakes annual censuses to measure breeding success in the western Cape.

Remarks: the White Pelican breeds coionially at widely scattered points in Africa (Cooper et al in press), Asia and southeastern Europe. The Walvis Bay Enclave population (Crawford et al 1981) consists of over 220 breeding pairs (Cooper et al in press). Annual aerial surveys of the Lake St Lucia breeding population are needed to ascertain numbers breeding, annual and long-term changes in the size of the breeding population. The English name of the bird should be Great White Pelican to distinguish it from the smaller American White Pelican *P. erythrorhynchos*.

Selected bibliography: Anon (1979), Baxter R M and E K Urban (1970), Berruti A (1980a), Berruti A (1980b), Berruti A (1983), Berry H H (1972), Berry H H, H P Starck and A S van Vuuren (1973), Brooke R K (1983), Brown L H (1982a), Brown L H and E K Urban (1969), Cooper J (1980b), Cooper J (1980c), Cooper J and R K Brooke (1981), Cooper J, A J Williams and P L Britton (in press). Cramp S and K E L Simmons (1977), Crawford R J M, J Cooper and P A Shelton (1981), Cyrus D and N Robson (1980), Dickinson D (1972), Din N A and S K Eltringham (1974a), Din N A and S K Eltringham (1977), Feely J M (1962), Guillet A and T M Crowe (1981), Guillet A and T M Crowe (1983), Heeg J and C M Breen (1982), Kemp A C (1980a), Layard E L (1867), Layard E L and R B Sharpe (1884), Miistein P fe S (1975), Rand R W (1951), Rand R W (1963), Sclater W L (1906), Shaughnessy P D (in press), Skead C J (1967a), Symons R E (1924), Urban E K (in press), Whitfield A K and S J M Blaber (1979), Winterbottom J M (1968), Winterbottom J M (1979), Wyndham C (1932).



**PINKBACKED
 PELICAN
 Kleinpelikaan**

Pelecanus rufescens Gmelin 1789: west
 Africa. Order PELECANIFORMES

RARE

Family
 PELECANIDAE

Summary: a Rare species which breeds at only one colony in South Africa. It is widespread in tropical Africa. Conservation action at its breeding area next to the Lake St Lucia Complex has led to an increase in numbers.

Present **distribution:** breeds on the Hluhluwe River before it reaches Lake St Lucia, Natal (Berruti 1980a, 1980b) and forages in coastal Natal; immature birds wander widely to forage, particularly in Natal and the Transvaal.

Former distribution: not known to have differed from the above though vagrants occasionally reached the Cape in the last century (Winterbottom 1979). In 1975 part of the population moved south to Richards Bay and part west to Jozini Dam to breed in newly flooded trees but they returned to their traditional site in 1976 (Berruti 1980a, Cooper et al in press). A single pair built a nest in a heronry near Pretoria, Transvaal, in the 1960s (Tarboton 1968).

Habitat: breeds colonially in waterside trees and formerly on a wrecked flying boat in Lake St Lucia; forages on large open waters containing suitably sized fish.

Status: adults are usually resident though immatures sometimes wander far to forage. A summer visitor to Barberspan (Milstein 1975).

Estimated numbers and population trends: ca 110 breeding pairs (Berruti 1980b, Cooper et al in press). Improved conservation of the area around their breeding site on the Hluhluwe River, including diminished disturbance, has led to an increase in the size of the breeding population (Berruti 1980a) or perhaps a restoration of the position that existed 100 years ago.

Breeding rate in wild: normal clutch two eggs but only one youngster is reared (Cooper 1980b); single brooded; incubation period four and a half weeks; nestling period ca 12 weeks (Brown 1982a); females probably first breed at age four.

Reasons for decrease: human disturbance at the breeding site. Now that this has abated the population has recovered (Berruti 1980a).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Its breeding site on the Hluhluwe River is protected on an ad hoc basis by the local landowners.

Protective measures proposed: the Hluhluwe River colony area should be added to the officially conserved areas at Lake St Lucia to ensure the continued survival of South Africa's only permanent Pinkbacked Pelican colony.

Number held in captivity: few.

Breeding potential in captivity: probably good.

Current research effort: none.

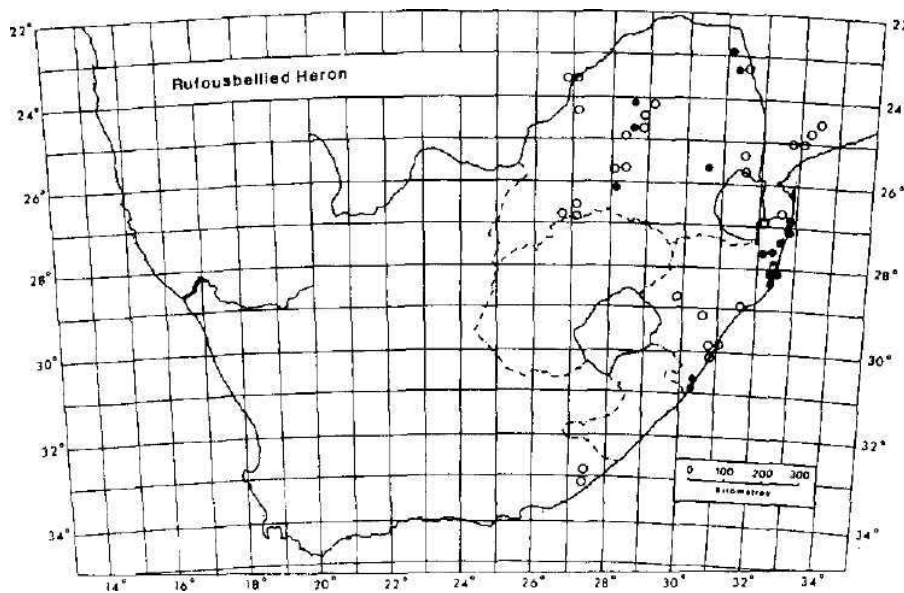
Remarks: the Pinkbacked Pelican breeds widely in tropical Africa, some 4 000 breeding pairs (Cooper et al in press), with one colony in Madagascar. South African eggs are larger than those of east Africa. B Rowlands (MS FitzPatrick Institute Library) measured 102 eggs in 1964: 88,1-105.6 x 56.2-66.7: av 96.1 x 60,8 mm. For east Africa Brown (1982a) gives 72-93 x 50-54: av 82.1 x 54.6 (sic) mm. The error is in Din and Eltringham (1974b) from which the figures were copied: they measured 159 eggs.

Selected bibliography: Berruti A (1980a). Berruti A (1980b). Berruti A (1983). Brown L H (1982a), Burke V E M and L H Brown (1970). Cooper J (1980b). Cooper J and R K Brooke (1981), Cooper J. A J Williams and P L Britton (in press). Cramp Sand K E L Simmons (1977).

Cyrus D and N Robson (1980), Din N A and S K Eltringham (1974a). Din N A and

S K Eltringham (1974b). Din N A and S K Eltringham (1977). Kemp A C (1980a).

Milstein P le S (1975), Skead C J (1967a). Skead D M and W R J Dean (1977). Tarboton W R (1968), Winterbottom J M(1979).

**RUFOSBELUED HERON****RARE****Rooipensreier**

Butorides rufiventris (Sundevall) 1850: Mooi River. Potchefstroom, Transvaal. (*Ardeola rufiventris*).

Order CICONIIFORMES

Family ARDEIDAE

Summary: a Rare species (ca 10 breeding pairs) which breeds colonially on the Nyl River floodplain, Transvaal, in years of above average rainfall. It is widespread in tropical Africa north to the equator.

Present distribution: breeds on the Nyl River floodplain in years of above average rainfall. Vagrants occur widely, chiefly in summer, in Natal and the Transvaal and rarely in the northern Cape Province.

Former distribution: not known to have differed from the above though vagrants reached the eastern Cape Province in the last century (Skead 1967a).

Habitat: breeds in trees in swamp forests or in large reedbeds; forages in lower emergent vegetation.

Status: moves and breeds irregularly in response to fluctuating water levels.

Estimated numbers and population trends: ca 10 breeding pairs on the Nyl River floodplain in years when they breed (W R Tarboton in litt 1981). No estimates available for the number of vagrants but never common in South Africa.

Breeding rate in wild: normal clutch four eggs; probably single brooded; incubation period probably three and a half weeks; nestling period four weeks (Urban 1982a); females probably *do* not breed until at least age two.

Reasons for decrease: no evidence for a decrease.

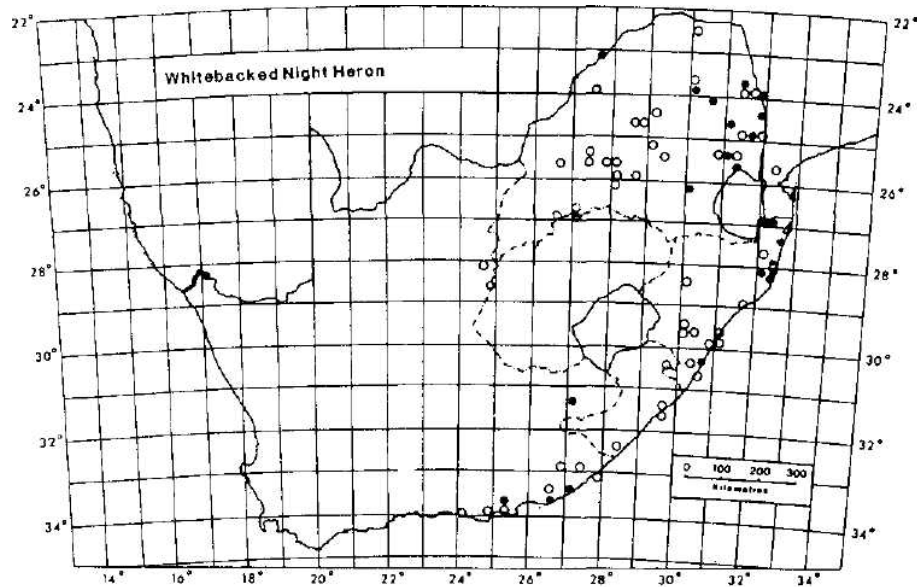
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The Nyl breeding site is on the farm Mosdene, a Private Nature Reserve (Tarboton 1971).

Protective measures proposed: conservation of the Nyl River floodplain.

Number held in captivity: probably
few. **Breeding potential in
captivity:** unknown. **Current
research effort:** none.

Remarks: the Rufousbellied Heron occurs widely in tropical Africa to just north of the equator. Payne and Risley (1976) give good reasons for placing this species in *Ardeola*.

Selected bibliography: Child G (1972). Curry-Lindahl K (1971), Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), Hancock J and H Elliott (1978), Kemp A C (1980a), Newman K (1980a), Payne R B and C J Risley (1976). Skead C J (1967a). Tarboton W R (1967), Tarboton W R (1971), Tarboton W R (1977a), Tarboton W R (1980a), Urban E K (1982a), Uys J M C and T H Ciutton-Brock (1966).



**WHITEBACKED NIGHT
HERON** *Witruagnagreier*

Gorsachius leuconotus (Wagler) 1827:
Senegambia. Order CICONIIFORMES

INDETERMINATE

Family
ARDEIDAE

Summary: a probably Rare species of the east coast, the Transvaal and the northwestern Cape which may have lost its Vaal River population. It is widespread in the Afrotropical Region.

Present distribution: the coastal regions of the eastern Cape Province from about Nature's Valley eastwards, the Transkei and Natal, the eastern and northern Transvaal, the lower Orange River.

Former distribution: as above though in the Transvaal throughout the lower Vaal River and its tributaries and down to Kimberley in the northern Cape. The lower Orange River population is a new discovery (Shaughnessy and Shaughnessy 1980). This range reduction may not be real. The species is exceedingly unobtrusive by day, foraging chiefly at night, and many records are of specimens: casual bird shooting for museums no longer takes place.

Habitat: rivers where the banks are densely wooded with trees overhanging clear water in which it forages.

Status: some birds are resident (Pike 1965) but there is an influx in summer.

Estimated numbers and population trends: no estimates available. It is probably rare and definitely exceedingly unobtrusive. It is thus difficult to be sure that the large apparent range contraction is real.

Breeding rate in wild: normal clutch three eggs; probably double brooded, cf Irwin (1981); incubation period three and a half weeks; nestling period at least six weeks (Urban 1982a); age at which females first breed unknown.

Reasons for decrease: destruction of trees overhanging water; silting of clear pools in which Whitebacked Night Herons forage as in the Siaya system. Natal (Garland 1981).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It has bred in the Tsitsikama Forest National Park (Skead and Liversidge 1967), Cape, and the Hluhluwe-Umfolozi Complex (Keep 1973), Natal.

Protective measures proposed: conservation of rivers to restore the pools of clear water in which they forage.

Number held in captivity: probably

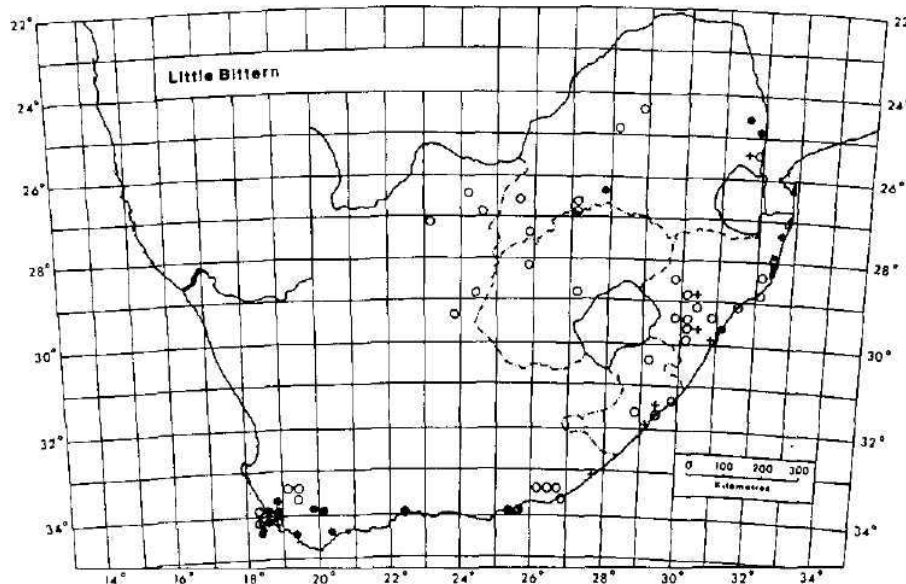
few. **Breeding potential in captivity:**

unknown. **Current research effort:**

none.

Remarks: the Whitebacked Night Heron is widespread in tropical Africa. Payne and Risley (1976) suggest that this species should be placed in *Nycticorax*. A survey is required to ascertain its present breeding distribution, particularly in the Transvaal where the main range contraction may have taken place.

Selected bibliography: Curry-Lindahl K (1971), Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), Garland I F (1981), Hancock J and H Elliott (1978), Irwin M P S (1981), Keep M E (1973), Kemp A C (1980a), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a), Niven P N F (1942), Niven P (1952), Patten G H (1979), Payne R B and C J Risley (1976), Pike E O (1965), Shaughnessy G L and P D Shaughnessy (1980), Skead C J (1967a), Skead C J and R Liversidge (1967), Tarboton W R (1968), Urban E K (1982a).



**LITTLE
BITTERN**
Woudapie

Ixobrychus minutus (Linnaeus) 1766:
Switzerland. Order CICONHIFORMES

**RAR
E**

Family
ARDEIDAE

Summary: the breeding *race payesii* which is widespread in tropical Africa is a Rare (probably less than 100 breeding pairs) resident in the northern, eastern and southwestern parts of South Africa. The nominate race is a migrant from the Palearctic and commoner in its season than *payesii* in Natal and the Transvaal but not in the eastern Cape: it has yet to be recorded in the northern and western Cape.

Present and former distribution: the breeding *race payesii* has been collected in the southwestern and eastern Cape Province, Transkei (Godfrey 1927a), Natal, Transvaal, western Orange Free State in 1838 (ffolliott and Liversidge 1971 as read with Neumann 1898) and the northern Cape (remainder Sclater 1906). It is widespread in South Africa outside the arid west and centre. The few breeding and acceptable sight records fall within this pattern. These are the records mapped together with specimen records of the nominate race. *I. m. payesii* has been bred in the southwestern Cape at Lakeside, Muizenberg, in 1928 (Winterbottom 1979), near Faure in 1968 (Myburgh 1969), at Rondevlei, Cape Town, for several years in the 1970s (Langley 1980, 1983) and near Stellenbosch (Winterbottom 1979). It bred in coastal Natal in the 1960s on the Durban Bluff and near Matubatuba (SAOS nest record cards). It bred near Potchefstroom in 1901 (Transvaal Museum coll as read with Sclater 1906) and on the Nyl River floodplain in 1977, 1979 and 1980 (W R Tarboton in litt 1983). There is no evidence for a decrease in range in the historical period once allowance has been made for the virtual cessation of casual bird shooting for museums in South Africa.

Habitat: reedbeds.

Status: resident in most areas with some dispersion; perhaps only a summer visitor in the northern Cape. Field observation is complicated by the incidence of the much commoner nominate race from the Palearctic between December and March in Natal and the Transvaal and to some extent in the eastern Cape and the Transkei.

Estimated numbers and population trends: 12 pairs at Rondevlei (Langley 1983); less than 30 pairs on the Nyl River floodplain in ecologically suitable years (W R Tarboton in litt 1983). No other estimates available but apparently rare as well as unobtrusive. As at Rondevlei (Langley 1980, 1983), it may breed at a site for a few years and then abandon it for no manifest reason. No evidence for a decrease in *payesii* and some evidence for an increase in nominate *minutus* (see Remarks below).

Breeding rate in wild: normal clutch three or four eggs; normally double brooded; incubation period two and a half weeks; nestling period two weeks; nominate race females first breed at age one but the one female *payesii* of known age was nearly two when she first bred (Langley 1983).

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The Rondevlei breeding site is in a Divisional Council Nature Reserve (Langley 1980).

Protective measures proposed: conservation of large reedbeds should ensure the continued existence of breeding and foraging sites.

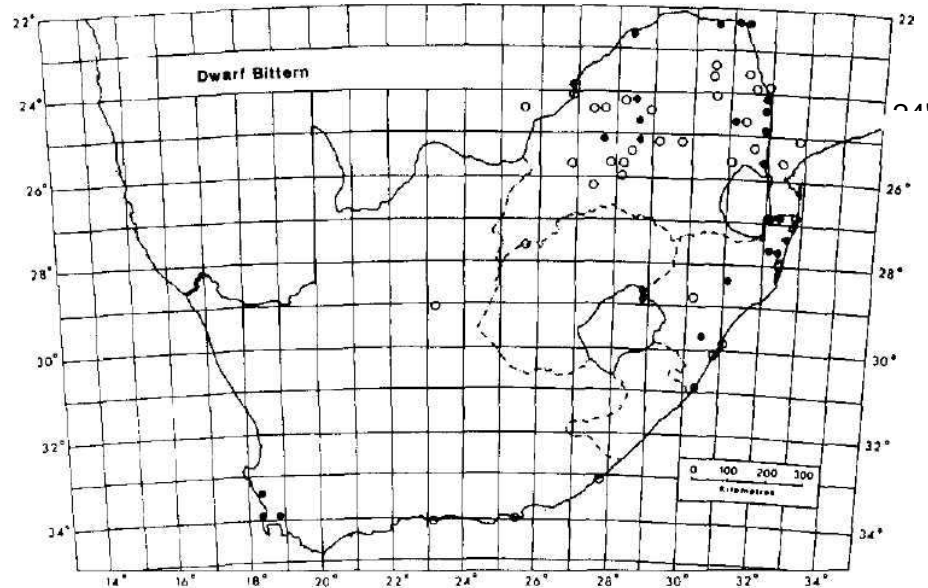
Number held in captivity: probably few.

Breeding potential in captivity: poor (Haagner 1945).

Current research effort: none.

Remarks: the Little Bittern *I.m.payesii* is a widespread breeding race throughout the Afrotropical Region with other races breeding in Madagascar, eastern Australia and western Eurasia. It is always unobtrusive. The Palearctic migrant race *I.m.minutus* during its presence from December to March in southern Africa is two or three times as common as *payesii* judging by the number of specimens in southern African museums. Most of these specimens were injured or dying birds handed in by the public (Dr P A Clancey in litt 1982). However, the 19th century specimens from South Africa in the British Museum (Natural History) only contain one nominate *minutus* (C W Benson in litt 1978). It would seem that nominate *minutus* is now more common in South Africa than it was in the last century. The most southerly specimens of nominate *minutus* I have seen are from Bizana, Transkei (Transvaal Museum coll), East London and Uitenhage (both East London Museum coll). The most westerly specimen is from Brakwater, Rustenburg District (Transvaal Museum coll). It has not been found in the northern Cape but might well occur there. A survey is needed of the breeding distribution and numbers of *I.m.payesii* in South Africa. It will be made more difficult by the unobtrusiveness of the Little Bittern, its preference for large reedbeds and the presence of greater numbers of the Palearctic migrant in high summer.

Selected bibliography: Cramp S and K E L Simmons (1977), Curry-Lindahl K (1971), Fagan M J (1982), ffolliott P and R Liversidge (1971), Forrester A K (1966), Godfrey R (1927a), Godfrey R (1927b), Haagner A K (1945), Hancock J and H Elliott (1978), Kemp A C (1980a), Koch H J (1943), Langley C H (1978a), Langley C H (1980), Langley C H (1983), Macleod G R (1969), Milstein P le S (1975), Myburgh N (1969), Neumann O (1898), Newman K (1980a), Payne R B and C J Risley (1976), Plowes D C H (1947), Sclater W L (1906), Skead D M and W R J Dean (1977), Tarboton W R (1977a), Urban E K (1982a), Winterbottom J M (1962), Winterbottom J M (1979), Winterbottom J M and H L Hare (1947).



DWARF BITTERN
Dwergrietreier
(Dwergreier)

Ixobrychus sturmii (Wagler) 1827: Senegal.
(*Ardeirallus sturmii*). Order CICONIIFORMES

INDETERMINATE

Family
ARDEIDAE

Summary: a probably Rare (probably less than 200 breeding pairs) breeding summer visitor, at least in wet seasons. It is widespread in tropical Africa.

Present distribution: breeds on the Nyl River floodplain, Transvaal, in years of full flooding (Tarboton 1980b) and similarly in the northern Kruger National Park (Kemp 1980a). It is an unobtrusive, rather crepuscular species which may breed sporadically over much of South Africa. Langley (1978b) argues that a very young bird found in a Cape Town suburb in April 1977 was locally bred and this is supported by a similar bird collected at Knysna on 18 May 1898 (Transvaal Museum coll). But there may also be a southward dispersal of postfledgling birds before they return to their nonbreeding grounds in the inner tropics (Benson and Irwin 1966a). The problem is complicated by observers confusing the Dwarf Bittern with the Greenbacked Heron *Butorides striatus* and it is quite possible that certain mapped localities are based on this misidentification.

Former distribution: breeding range not known to have differed from the above. Presumed vagrants used to be recorded more often in the Cape Province (Sclater 1906, Skead 1967a) before the virtual cessation of casual shooting for museums.

Habitat: breeds in Acacia and other trees in floodplains or beside flooded pans. Forages in temporarily flooded ground, cf Irwin (1981).

Status: breeding summer migrant, December to April or early May (Benson and Irwin 1966a, Tarboton 1980b).

Estimated numbers and population trends: ca 100 breeding pairs on the Nyl River floodplain (W R Tarboton in litt 1983). Perhaps 200 breeding pairs throughout South Africa in a wet season.

No evidence for a decrease.

Breeding rate in wild: normal clutch four eggs; single brooded: incubation period two weeks; nestling period unknown (Urban 1982a); females probably first

breed at age one.

Reasons **for** decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Nylsvley Nature Reserve (Tarboton 1977a) and probably in the northern Kruger National Park (Newman 1980a).

Protective measures proposed: Dwarf Bittern breeding is dependent on riverine floodplains and flooded grassland with scattered trees around pans and such habitat should be conserved so that breeding can continue.

Number held in captivity: probably

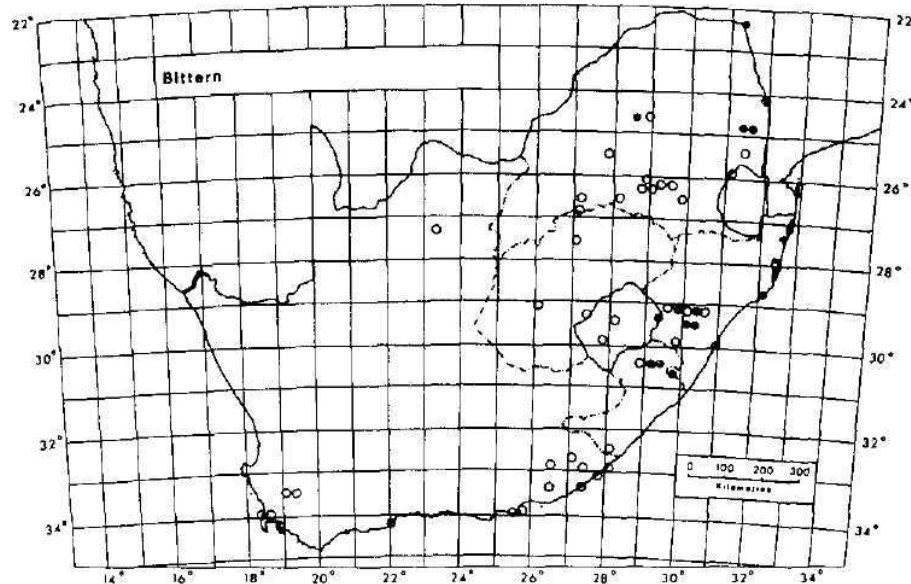
few, **Breeding potential in captivity:**

probably good. **Current research effort:**

none.

Remarks: the Dwarf Bittern is widespread in tropical Africa. Payne and Risley (1976) give good reasons for placing this species in *Ixobrychus*. A survey is required of suitable areas in wet seasons to ascertain the size of the breeding populations with due regard to confusion with the predominantly riverside frequenting Greenbacked Heron. North of South Africa this species is normally known as the Rail Heron, a translation of the generic name *Ardeirallus*, and a name that avoids the pathological implications of "dwarf".

Selected bibliography: Benson C W and M P S Irwin (1966a), Cramp S and K E L Simmons (1977), Curry-Lindahl K (1971), Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), Hancock J and H Elliott (1978), Irwin M P S (1981), Kemp A C (1980a), Langley C H (1978b), Newman K (1980a), Payne R B and C J Risley (1976), Sclater W L (1906), Skead C J (1967a), Tarboton W R (1971), Tarboton W R (1977a), Tarboton W R (1980a), Tarboton W R (1980b), Urban E K (1982a), Winterbottom J M (1979).



BITTERN

VULNERABLE

Grootrietreier (Roerdomp)

Boiaurus stellaris (Linnaeus) 1758:
Sweden. Order CICONIIFORMES

Family
ARDEIDAE

Summary: a Vulnerable species (it has lost the southern part of its breeding range) now occurring in Natal and the central Transvaal. It occurs rarely in Africa south of 8S with another race in the Palearctic.

Present distribution: Natal and the central Transvaal.

Former distribution: South Africa except the arid west and centre. The latest record for the western Cape Province was made in 1961 (Macleod 1969), for Lesotho before 1927 (Bonde 1981) and for the Orange Free State in the early 1950s (Maclean 1957). The later records from the eastern Cape do not seem to be dated.

Habitat: reedbeds and large swamps with tall vegetation, especially bulrushes *Typha* spp. **Status:** unknown but not migratory as far as known.

Estimated numbers and population trends: over 10 pairs on the Nyl River floodplain in ecologically suitable years: estimate based on booming, the call of males advertizing breeding territories (W R Tarboton in litt 1981). No. other estimates available. It bred in the western Cape in the last century (Layard 1867). The latest Cape Province breeding record is from Port Elizabeth in 1936 (Keil 1938). Found breeding at Richards Bay, Natal, in December 1982 (J C Sinclair in litt 1983) and on the Nyl River floodplain in January 1980 (W R Tarboton in litt 1983). Now that the bird is so rare few people have experience of it and sight records claimed are frequently due to confusion with other members of the family, particularly immatures of the Blackcrowed Night

Heron *Nycticorax nycticorax* (Winterbottom 1979, Berruti 1980b in rejecting sight records from the Lake St Lucia Complex, Kemp 1980a in rejecting sight records from the Kruger National Park). There seems no doubt that the species now breeds only in Natal and in the Transvaal and that it has lost its Cape and Lesotho range.

Breeding rate in wild: normal clutch three eggs; probably single brooded; incubation period three and a half weeks; nestling period seven and a half weeks (Eurasian data in Cramp and Simmons 1977); females probably first breed at age one.

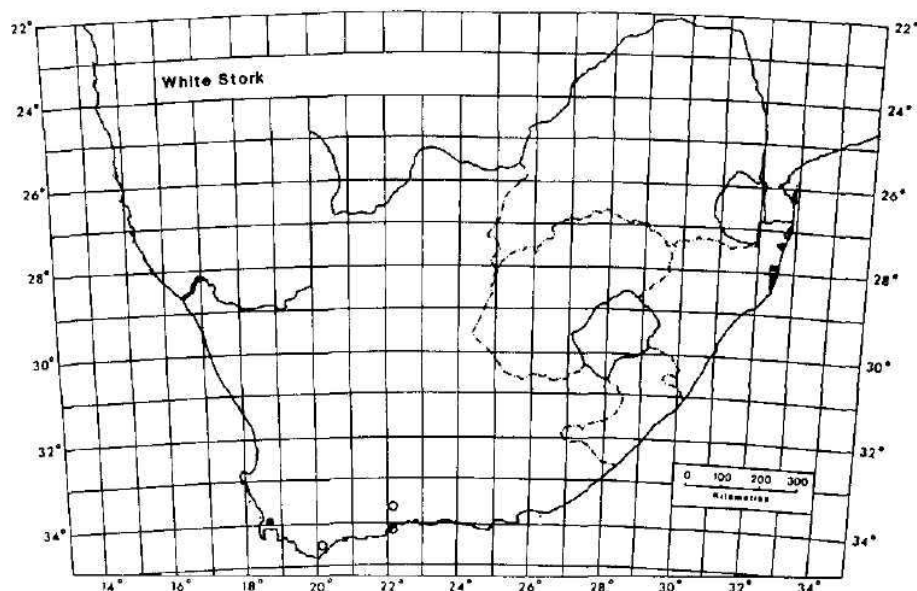
Reasons for decrease: habitat destruction or intolerance of human activity, presumably.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: conservation of large reed and bulrush beds in big swamps. **Number held in captivity:** probably few. **Breeding potential in captivity:** unknown. **Current research effort:** none.

Remarks: the African race of the Bittern *B.s.capensis* is known from South Africa where it is now scarce and Vulnerable; Mozambique (two or three localities Clancey 1970a); Malawi (one locality Benson and Benson 1977); southwestern Tanganyika (one locality Britton 1980); Zambia (at least six localities Benson et al 1971); Angola (one locality Traylor 1963); Botswana (one locality Smithers 1964); South West Africa/Namibia (three localities Winterbottom 1971b). Many of these records are old and there is no doubt that *aipensis* is now exceedingly rare or extinct over much of its former range. It is only in Zambia (and perhaps the very poorly known eastern Angola) that the Bittern survives in any numbers and even there it is rare. The species should be called the Eurasian Bittern to distinguish it from the Little Bittern and the Dwarf Bittern.

Selected bibliography: Benson C W and M F Benson (1977), Benson C W, R K Brooke, R J Dowsett and M P S Irwin (1971). Berruti A (1980b). Bonde K (1981). Britton P L (1980). Brown J G (1905), Clancey P A (1964). Clancey P A (1970a), Courtenay-Latimer M (1964). Cramp S and K E L Simmons (1977), Cyrus D and N Robson (1980). Davies C G (1907), Davies C G (1912). Hancock J and H Elliott (1978), Keil S F (1938). Kemp A C (1980a). Lane A A (1936). Layard E L (1867), Layard E L and R B Sharpe (1884), Maclean G L (1957), Macleod J G R (1969), Mees G F (1970). Payne R B and C J Risley (1976), Pike E (1954). Roberts A (1905), Roberts A (1935), Roberts A (1936). Selater W L (1906), Skead C J (1967a). Smithers R H N (1964). Tarboton W R (1971). Tarboton W R (1977a). Thompson L C (1933). Traylor M A (1963). Urban E K (1982a). von Etzdorf T J R and J M Winterbottom (1967b). West O, Wright F B and G Symons (1964). Winterbottom J M (1971b), Winterbottom J M (1979).



WHITE STORK
Witooievaar (Witsprinkaanvoel)
Ciconia ciconia (Linnaeus) 1758:
 Sweden. Order CICONIIFORMES

RAR
E

Family
 CICONIIDAE

Summary: a Rare species (less than 10 breeding pairs) breeding in the southern Cape. The great majority of its race breeds in western Eurasia and migrates to Africa where they may be seen anywhere outside forests in summer.

Present and former breeding distribution: Tygerberg Zoo, Bellville, 1974 and 1982 (Winterbottom 1977, The Argus 13 October 1982); Prinskraal and adjoining farm south of Bredasdorp (Broekhuysen 1965); Arum Valley Farm west of Mossel Bay (Uys 1968, Vincent 1973); Welbedacht Farm east of Calitzdorp (Roberts 1941a and b); all in the southern Cape Province. These are the records mapped. Nonbreeding Palearctic migrants may occur anywhere outside forest.

Habitat: grassland and cropland with large isolated trees in which to breed. Nonbreeding birds occur in any open country.

Status: breeding adults are resident but their young migrate to tropical Africa (McLachlan 1963); Palearctic birds probably do not breed in South Africa.

Estimated numbers and population trends: less than 10 pairs breed in the southern Cape (Dr G Currie in litt 1983); Winterbottom (1977) knew of six nests in the 1974/1975 breeding season. No evidence for a decrease. Palearctic migrants occur throughout the nonforested areas, chiefly in summer.

Breeding rate in wild: normal clutch four or five eggs; single brooded (both Broekhuysen 1965); incubation period four and a half weeks; nestling period nine weeks; females may first breed at age three (Eurasian data in Cramp and Simmons 1977).

Reasons for decrease: no evidence for a decrease in the breeding population.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal.

Protective measures proposed: education of the farmer, his labourers and their families by the Cape Department of Nature and Environmental Conservation when a pair is found breeding on a farm. This should lead to diminished disturbance and increased breeding success (Dr G Currie in litt 1983).

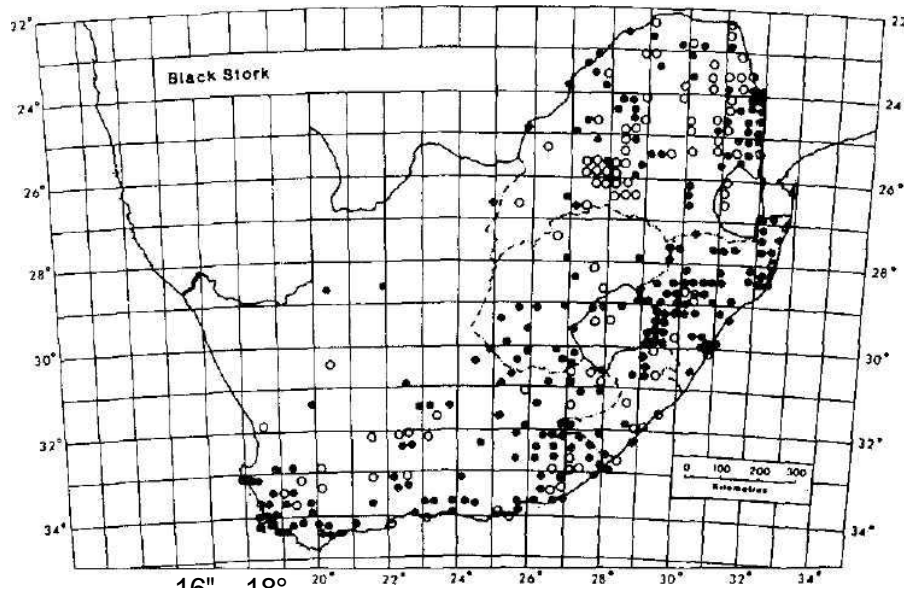
Number held in captivity: many in Europe, few in South Africa.

Breeding potential in captivity: good, cf Bloesch et al (1977). The Tygerberg Zoo breeding is of a former captive bird with a freeflying mate attracted from the wild.

Current research effort: none.

Remarks: the White Stork breeds widely in western Eurasia with the race *boycciana* in east Asia. This last is included as Endangered in the 2nd ICBP red data book (King 1981). Like the Black Stork, the Booted Eagle *Hieraaetus pennatus* and the European Bee-eater *Merops apiaster* the population of the White Stork breeding in the Cape is taxonomically indistinguishable from the populations breeding far away in Eurasia. The well being of the White Stork is not dependent on the continued well being of the few pairs which breed in the southern Cape.

Selected bibliography: Bloesch M, M Dizerens and E Sutter (1977), Broekhuysen G (1965), Broekhuysen G (1967), Broekhuysen G (1973), Broekhuysen G and D Uys (1966), Brown L H (1982b), Cramp S and K E L Simmons (1977), Currie G (1972), Currie G (1982), Kahl M P (1971a), Kahl M P (1971b), Kahl M P (1972a), Kahl M P (1972b), King W B (1981), Martin E, R Martin and J Robinson (1962), McLachlan G R (1963), Roberts A (1941a), Roberts A (1941b), Roberts A (1942), Schütz E (1973), Uys C J (1966), Uys C J (1968), Vincent P N (1973), Winterbottom J M (1977), Winterbottom J M (1979).



BLACK STORK
Grootswartooievaar
(Swartooievaar)
Ciconia nigra (Linnaeus) 1758:
 Sweden Order CICONIIFORMES

INDETERMINATE

Family
 CICONIIDAE

Summary: a probably Rare species (probably over 200 breeding pairs) widespread in South Africa. It breeds north to Malawi and Zambia and has a large population in the Palearctic.

Present distribution: throughout South Africa but scarcest in the lower Orange River basin and the northern Cape.

Former distribution: not known to have differed from the above.

Habitat: breeds on cliffs outside the wetter parts of the winter rainfall area; forages at any open water body, particularly pools in rivers.

Status: breeds in winter near suitable foraging sites: thus depending on the previous summer's rainfall; not all breeding sites are used every year; nonbreeding birds wander to forage wherever conditions are favourable, often to estuaries in the eastern Cape Province (Siegfried 1967) and to pools in lowveld rivers (Tarboton 1982), particularly when the rains of the previous summer have been poor.

Estimated numbers and population trends; 50 to 70 breeding pairs in the Transvaal (Tarboton 1982). No other estimates available. The South African breeding population almost certainly exceeds 200 breeding pairs: search of suitable habitat will almost certainly reveal many more breeding pairs (Lorber 1982a, Tarboton 1982) just as a similar search has revealed the widespread breeding of the Booted Eagle *Hieraaetus pennatus* (Brooke et al 1980). No evidence for a decrease.

Breeding rate in wild: normal clutch three eggs; single brooded (Tarboton 1982); incubation period about five weeks; nestling period 9-10 weeks; females first breed at age three (Eurasian data in Cramp and Simmons 1977).

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Augrabies National Park in the Cape and in the Kruger National Park (Tarboton 1982).

Protective measures proposed: conservation of rivers to ensure that there are winter pools in which breeding birds forage. Conservation of nonbreeding foraging grounds such as estuaries and lowveld rivers.

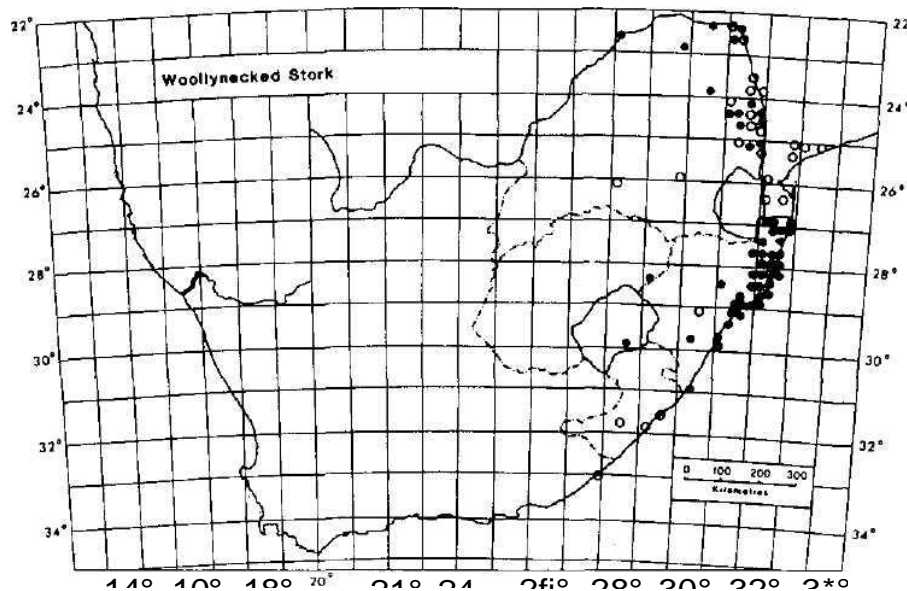
Number held in captivity: probably few.

Breeding potential in captivity: probably

good. **Current research effort:** none.

Remarks: the African population of the Black Stork breeds from the Cape to Malawi and there is a taxonomically inseparable one breeding widely in the Palearctic, often in trees unlike South African birds. There is no evidence that Palearctic birds cross the equator on migration.

Selected bibliography: Bonde K (1981), Brooke R K, R Martin, J Martin and E Martin (1980), Brown L H (1982b), Craib C L (1979), Cramp S and K E L Simmons (1977), Cyrus D and N Robson (1980), Fincham J E (1971), Kahl M P (1971a), Kahl M P (1971b), Kahl M P (1972a), Kahl M P (1972b), Kemp A C (1980a), Kieser J A and G A Kieser (1978), Lorber P (1982a), Macdonald I A W and P J Birkenstock (1980), Martin J, E Martin and R Martin (1976), Newman K (1980a), Quinton W F (1976), Siegfried W R (1967), Skead C J (1967a), Tarboton W R (1968), Tarboton W (1977a), Tarboton W R (1977b), Tarboton W (1982), Tarboton W and P Cardwell (1968), Tilson R L and O B Kok (1980), Tree A J (1982), Tuer F V (1977), Tuer F V (1978), Winterbottom J M (1968), Winterbottom J M (1979).



**WOOLLYNECKED
STORK** Wolnekoöievaar

Ciconia episcopus (Boddaert) 1783: Coromandel Coast,
India. Order CICONIIFORMES

**RAR
E**

Family
CICONIIDAE

Summary: a Rare species (probably less than 30 breeding pairs) breeding in the low lying country of Zululand and the eastern Transvaal. It is widespread in tropical Africa and Asia.

Present distribution: breeds in low lying Natal north of the Tugeia River and in the lowveld of the eastern Transvaal; nonbreeding birds wander south and west.

Former distribution: not known to have differed from the above though vagrants have not been recorded recently in the Transkei and eastern Cape.

Habitat: breeds solitarily in trees; forages in wetlands, usually close to trees.

Status: breeding birds seem to be resident while immature birds disperse locally; there is also a summer influx of nonbreeding birds from the north, cf Irwin (1981).

Estimated numbers and population trends: no estimates available but perhaps 30 breeding pairs in South Africa. No evidence for a decrease.

Breeding rate in wild: normal clutch three or four eggs; single brooded; incubation period four and a half weeks; nestling period eight weeks (Scott 1975); females probably first breed at age three.

Reasons **for** decrease: no evidence for a decrease though the habitat of the breeding site reported in Garland (1963) has been destroyed (Garland 1981).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Hluhluwe-LJmfolozzi Complex (Macdonald and Birkenstock 1980), probably in the Mkuzi and Ndumu Game Reserves in Natal (Cyrus and Robson 1980) and in the Transvaal in the Kruger National Park (Newman 1980a).

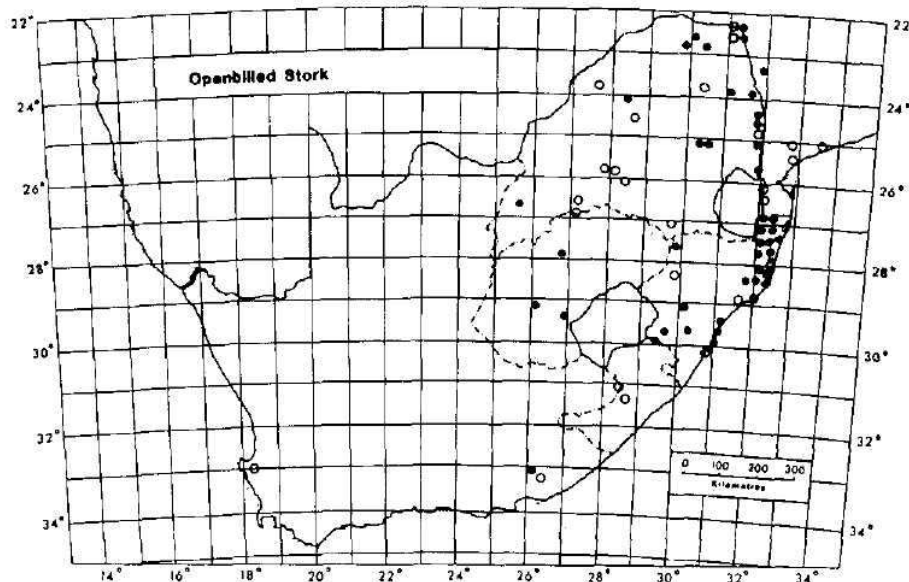
Protective measures proposed: none.

Number held in captivity: probably few.

Breeding potential in captivity: probably feasible. **Current research effort:** none.

Remarks: the Woollynecked Stork in the race *stormi* of southeast Asia is included as Indeterminate in the 2nd ICBP red data book (King 1981). The Woollynecked Stork is widespread in tropical Africa and Asia. Study is needed to ascertain which elements belong to the South African breeding population and where they occur and which to the migratory nonbreeding population from the tropics.

Selected bibliography: Anthony A J (1977), Berruti A (1980), Brown L H (1982b), Cyrus D and N Robson (1980), Dunning J (1977), Garland I (1963), Garland I F (1981), Hitchins P M (1974), Irwin M P S (1981). Kahl M P (1971a). Kahl M P (1971b), Kahl M P (1972a), Kahl M P (1972b), Kemp A C (1980a), King W B (1981), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a), Scott J A (1975), Skead C J (1967a).



OPENBILLED STORK
(Openbifl) Oopbekooievaar
Anastomus lamelligerus Temminck 1823:
Senegal. Order CICONIIFORMES

RAR
E

Family
CICONIIDAE

Summary: a Rare species (normally less than 100 breeding pairs) which breeds in wet years in northern Zululand and the northeastern Transvaal. It is widespread in tropical Africa and Madagascar.

Present distribution: breeds whenever the season is wet enough in northern Zululand and the northeastern Transvaal; attempted breeding near Eureka, Orange Free State, in May 1974 (Orange Free State Nature Conservation Division records). Nonbreeding birds wander widely in small numbers.

Former distribution: not known to have differed from the above.

Habitat: breeds colonially in trees in flooded ground; forages in water bodies with large populations of accessible snails and mussels on which they principally feed.

Status: breeding birds are resident as long as foraging conditions permit; immatures wander widely to forage.

Estimated numbers and population trends: ca 50 breeding pairs in northern Zululand (Dutton 1972); 40 breeding pairs at Spokinjolo Pan, northern Kruger National Park, in 1978 and the highest number ever recorded there (W R Tarboton in litt 1983: see Remarks below). No evidence for a decrease.

Breeding rate in wild: normal clutch three or four eggs; single brooded; incubation period three and a half to four weeks; nestling period eight weeks (Brown 1982b) or eleven and a half weeks (Anthony and Sherry 1980); age at which females first breed unknown.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Probably breeds in the Ndumu Game Reserve in Natal (Cyrus and Robson 1980) and certainly in the Kruger National Park (W R Tarboton in litt 1983).

Protective measures proposed: conservation of the Pongolo floodplain, cf Heeg and Breen (1982), a major breeding and foraging area for Openbilled Storks (D P Cyrus in litt 1983).

Number held in captivity: probably

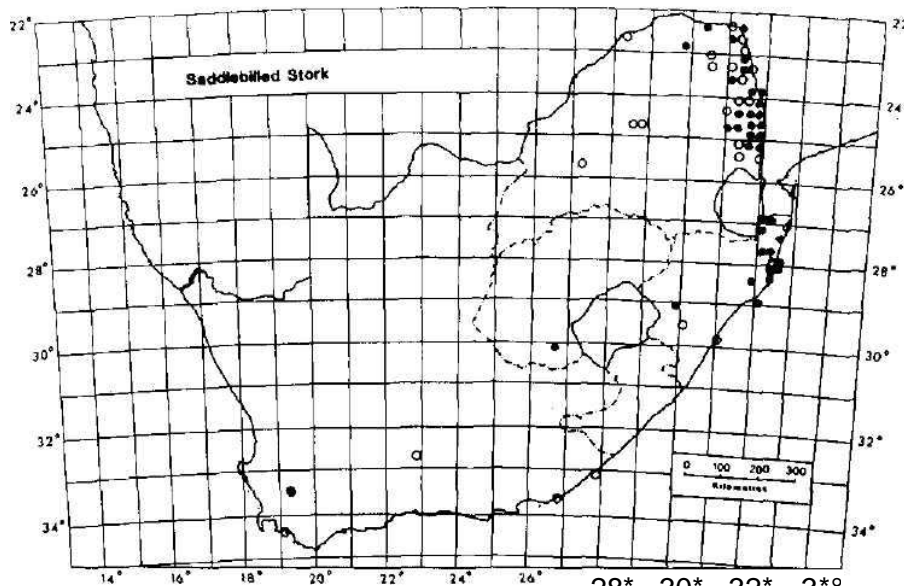
few. **Breeding potential in**

captivity: unknown. **Current**

research effort: none.

Remarks: the Openbilled Stork occurs widely in tropical Africa with another race in Madagascar. W R Tarboton (in litt 1983) gives counts for the Spokinjolo Pan breeding site: 1971 seven breeding pairs or nests, 1975 27 nests, 1977 16 nests, 1978 40 nests, 1979-1982 no breeding attempts.

Selected bibliography: Anthony A J and B Y Sherry (1980), Braine J W S (1974), Brown L H (1982b), Cyrus D and N Robson (1980), Dutton T P (1972), Heeg J and C M Breen (1982), Jacot-Guillarmod C (1965), Kahl M P (1971a), Kahl M P (1971b), Kahl M P (1971c), Kahl M P (1972a), Kahl M P (1972c), Kemp A C (1980a), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a), Newman K and M English (1975), Niven C K and J P M M Niven (1966a).

**SADDLEBILLED STORK****(Saddlebill) Saalbekooievaar***Ephippiorhynchus senegalensis* (Shaw) 1800:

Senegal. Order CICONIIFORMES

**RAR
E**Family
CICONIIDAE

Summary: a Rare species (less than 50 breeding pairs) breeding in coastal Zululand and the northeastern Transvaal Iowveld. It is widespread in tropical Africa.

Present distribution: breeds at Lake St Lucia, northern Natal, and in the northeastern Transvaal Iowveld; occurs freely in nearby areas and occasionally wanders far to the southwest.

Former distribution: as above but a pair used to breed on the Nyl River floodplain (Tarboton 1971).

Habitat: breeds solitarily in trees; forages in flooded grasslands, estuaries and other muddy wetlands.

Status: breeding birds are resident but immatures wander widely to forage and look for breeding sites.

Estimated numbers and population trends: less than ten pairs in northern Natal (Berruti 1980a and b); less than 50 breeding pairs for the whole of South Africa. Clancey (1964) considers that the Saddlebilled Stork used to visit Durban freely in the past but Woodward and Woodward (1899) suggest that it was only an occasional nonbreeding visitor there. There are probably a few less breeding pairs now than at the turn of the century.

Breeding rate in wild: normal clutch three eggs; single brooded; incubation period about five weeks; nestling period unknown (Brown 1982); age at which females first breed unknown but unlikely to be less than three.

Reasons for decrease: if a decrease has taken place, it is probably due to habitat destruction.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Lake St Lucia Complex in Natal (Berruti 1980a) and in the Kruger National Park in the Transvaal (Newman 1980a).

Protective measures proposed: none.

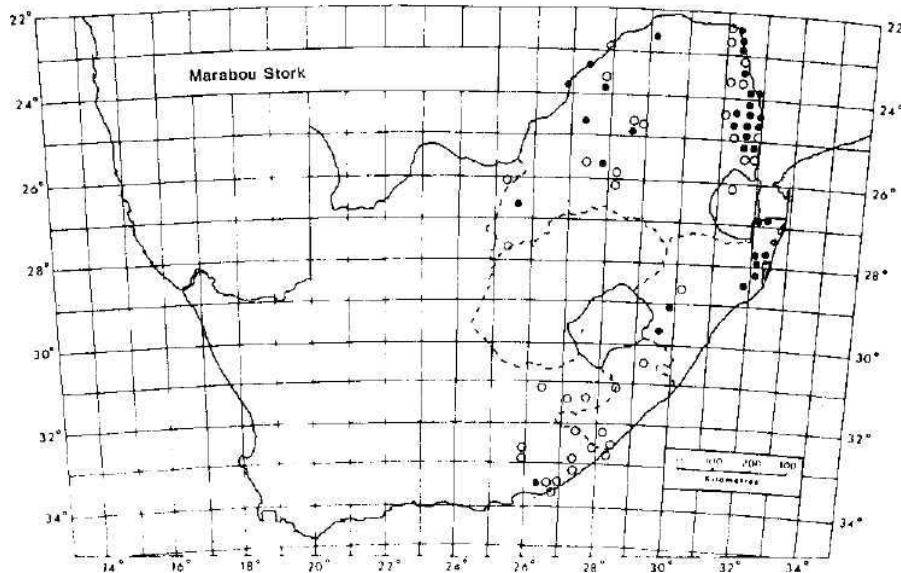
Number held in captivity: probably few.

Breeding potential in captivity: unknown.

Current research effort: none.

Remarks: the Saddlebilled Stork breeds widely but sparsely throughout tropical Africa.

Selected bibliography: Berruti A (1980a), Berruti A (1980b), Berruti A, F Joubert, M Skinner and R H Taylor (1977), Brown L H (1982b), Clancey P A (1964), Cyrus D and N Robson (1980). Kahl M P (1971a), Kahl M P (1971b), Kahl M P (1972a), Kahl M P (1973), Kemp A C (1980a), Morris K (1979), Newman K (1980a), Niven C K and J P M Niven (1966b), Pitman C R S (1965a), Skead C J (1967a), Tarboton W R (1971), Vernon C J (1975a).



MARABOU STORK

(Marabou) Maraboe

Leptoptilos crumeniferus (Lesson) 1831:
Senegal. Order CICONIIFORMES

**RAR
E**

Family
CICONIIDAE

Summary: a Rare species (ca 10 breeding pairs) which occasionally breeds in South Africa. Its main breeding site in Swaziland was destroyed in the 1960s. Vagrants occur widely throughout eastern and northern South Africa. The

species breeds widely in tropical Africa.

Present distribution: not known to have bred in South Africa in the 1970s but nonbreeding birds

occur widely, chiefly in northern Natal and the eastern Transvaal, but not in the western and northern Cape.

Former distribution: 10 pairs used to breed (regularly?) near Stegi in Swaziland (Elwell 1970) and there is one breeding record from near Pafuri in the northern Kruger National Park. The nonbreeding range has not changed.

Habitat: breeds in trees, including low swamp forest, in southern Africa (also on cliffs from Zambia to the Sudan) either singly, in small groups or colonially. It forages for carrion wherever this is available in the open, otherwise for aquatic vertebrates which are the obligate food of nestlings.

Status: normally a nonbreeding visitor with little seasonality though commoner in summer (Macdonald and Birkenstock 1980).

Estimated numbers and population trends: no estimates available. The largest flock recorded seems to be the nearly 200 birds recorded by Elwell (1970). Like all carrion eating birds, the majority of modern records come from game reserves. It is not clear that South Africa has ever been part of the regular breeding range of the Marabou Stork: it is probably an opportunist breeder in the extreme south of its range. The last known breeding attempt took place in 1969 but it is too early to claim that the Marabou Stork is extinct as a South African breeding species.

Breeding rate in wild: normal clutch two or three eggs; single brooded; incubation period four and a half weeks; nestling period thirteen and a half weeks (Brown 1982b); age at which females first breed unknown but unlikely to be less than three.

Reasons for decrease: the Swaziland breeding site was destroyed for sugar cane development (Elwell 1970).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. If breeding in South Africa occurs again, it is likely to do so in a game reserve.

Protective measures proposed: none.

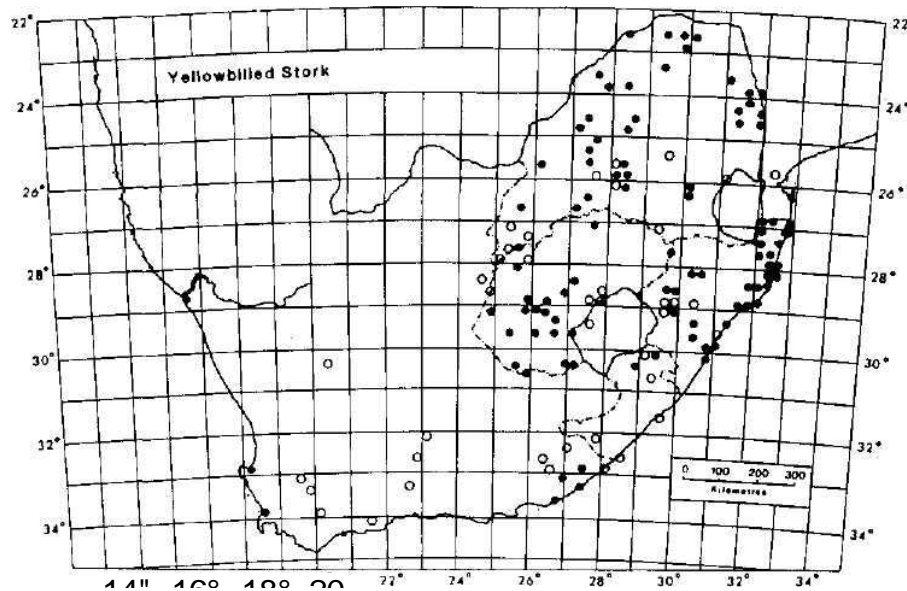
Number held in captivity: some.

Breeding potential in captivity: probably good.

Current research effort: none.

Remarks: the Marabou Stork is widespread in tropical Africa.

Selected bibliography: Brooke R K and A N B Masterson (1971), Brown L H (1982b), Child G (1972), Cyrus D and N Robson (1980), Din N A and S K Eltringham (1974b), Eltringham S K (1968), Elwell N (1970), Evans S M, M A Cantrell and A Cram (1981), Kahl M P (1966a), Kahl M P (1966b), Kahl M P (1971a), Kahl M P (1971b), Kahl M P (1972a), Kemp A C (1980a), Macdonald I A W and P J Birkenstock (1980), Marshall B E (1982), Moriearty P L, D E Pomeroy and B Wanjala (1972), Newman K (1980a), Pierce M A and J E Cooper (1977), Pollard C J W (1981), Pomeroy D E (1973), Pomeroy D E (1975), Pomeroy D E (1977), Pomeroy D E (1978a), Pomeroy D E (1978b), Reilly T E and B Wasdell (1965), Skead C J (1967a).



**YELLOWBILLED
STORK** Nimmersat
Mycleria ibis (Linnaeus) 1766:
Egypt. Order CICONIIFORMES

**RAR
E**

Family
CICONIIDAE

Summary: a Rare species (probably less than 25 breeding pairs) which breeds regularly in northern Zululand and occasionally in the eastern Transvaal. Nonbreeding visitor, chiefly in summer, to all parts of South Africa except the southwestern and northern Cape Province. It is widespread in tropical Africa and Madagascar.

Present distribution: breeds fairly regularly in the Ndumu Game Reserve in northern Zululand and occasionally in the Kruger National Park, Transvaal. A regular nonbreeding visitor, usually in summer, throughout Natal, the Orange Free State and the Transvaal, occasionally in the eastern Cape Province and the Karoo, rarely in the southwestern Cape.

Former distribution: as above but has bred occasionally at Lake St Lucia (Berruti 1980a) and Mkuzi Game Reserve (Pooley 1967).

Habitat: breeds cokmially in trees; forages by any fresh waterbody.

Status: resident in its breeding areas; chiefly a summer visitor elsewhere. The majority of birds seen in South Africa were bred in tropical Africa.

Estimated numbers and population trends: no estimates available; no South African colony has exceeded a dozen breeding pairs. The total South African breeding population probably does not exceed 25 breeding pairs. No evidence for a decrease,

Breeding rate in wild: normal clutch two or three eggs; single brooded; incubation period probably over four weeks; nestling period probably eight weeks; age at which females first breed unknown (Brown 1982b).

Reasons for decrease: no evidence for a decrease. Breeding is notoriously irregular, even at established breeding sites (Brown 1982b).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It has bred in the 1970s in the Ndumu Game Reserve, northern Zululand (Cyrus and Robson 1980) and once in the Kruger National Park, Transvaal (Newman 1980a).

Protective measures proposed: none. All known records of breeding in South Africa have been in conserved areas so it may be assumed that this will continue.

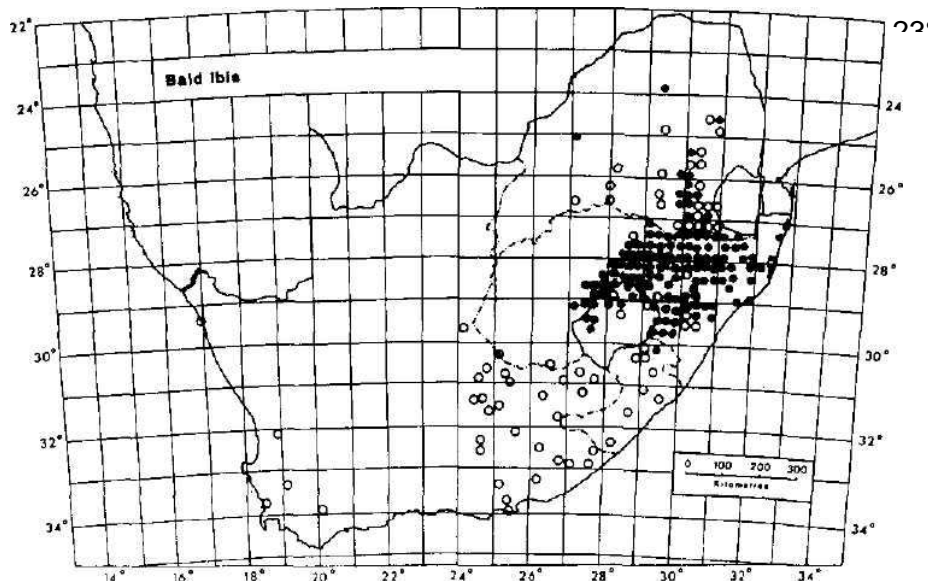
Number held in captivity: some.

Breeding potential in captivity: probably good.

Current research effort: none.

Remarks: the Yellowbilled Stork breeds widely in tropical Africa and also on Madagascar.

Selected bibliography: Berruti A (1980a), Berruti A (1980b), Berruti A (1983), Bonde K (1981), Brown L H (1982b), Child G (1972), Cyrus D and N Robson (1980), Kahl M P (1971a), Kahl M P (1971b), Kahl M P (1972a), Kahl M P (1972d), Kemp A C (1980a), Newman K (1980a), Pooley A G (1967), Skead C J (1967a), Winterbottom J M (1968), Winterbottom J M (1979).



BALD IBIS

OUT OF DANGER

Kalkoenibis (Wildekalkoen)

Geronticus calvus (Boddart) 1783: Cape of Good Hope.

Order CICONIIFORMES

Family PLATALEIDAE

(Threskiornithidae)

Summary: an endemic species which has decreased in numbers and range to ca 1 250 breeding pairs but which shows no sign of further decrease and is thus Out of Danger.

Present distribution: the slopes of the Drakensberg massif (including outliers in Natal) other than the southwest side, from Mt Currie in southern Natal to the

northeastern Transvaal near Pietersburg (Siegfried 1971, Milstein 1973).

Former distribution: the eastern, southern and western Cape Province north to the Orange River

on the west coast though breeding was confined to the eastern Cape (Siegfried 1966, 1971); the interior of the Transkei, Lesotho, western Natal, northeastern Orange Free State, the southeastern and central Transvaal.

Habitat: breeds on cliffs, usually by a waterfall, where there are ledges on or potholes in which nests are placed; feeds in open short grassland or burnt grassland (Manry 1982), usually between 1 200 and 1 850 m asl.

Status: largely resident.

Estimated numbers and population trends: ca 1 250 breeding pairs (Siegfried 1971, W R Tarboton in litt 1981); no evidence of decrease since 1970. The population was obviously greater in the last century when the species bred widely in the eastern Cape.

Breeding rate in wild: normal clutch two eggs; single brooded though colonies are not noticeably synchronized in egg laying; incubation period four weeks; nestling period six to six and a half weeks (Manry 1983); females probably first breed at age three (Milstein and Siegfried 1970) though younger birds sometimes occupy nest sites (Milstein and Wolff 1973).

Reasons for decrease: the most probable reasons seem to have been overgrazing in the eastern Cape leading to loss of grass and surface moisture followed by False Karoo vegetation invading their feeding grounds; hunting for food, particularly in times of social stress such as the Anglo-Boer War (1899-1902).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal. In Natal the Bald Ibis breeds in the Highmoor Forest Reserve, the Hluhluwe-Umfolozi Complex (Macdonald and Birkenstock 1980) and Itala Game Reserves and in the Orange Free State in the Vaalbank Training Area of the Department of Defence, also a conserved area. The present practice of creating irrigated pastures in the Natal Midlands increases the foraging habitat available in winter (Manry 1982).

Protective measures proposed: conservation status should be given to as many of the larger colonies as is practicable, together with their immediate environs, since it is disturbance and destruction of breeding birds which is the greatest hazard to the continued well-being of the species (Milstein and Wolff 1973, Orange Free State Nature Conservation Annual Report 1972/73). Current land use and management practices normally ensure a succession of suitable feeding areas within the normal range (Manry 1982).

Number held in captivity: less than 20, all at the Pretoria Zoo.

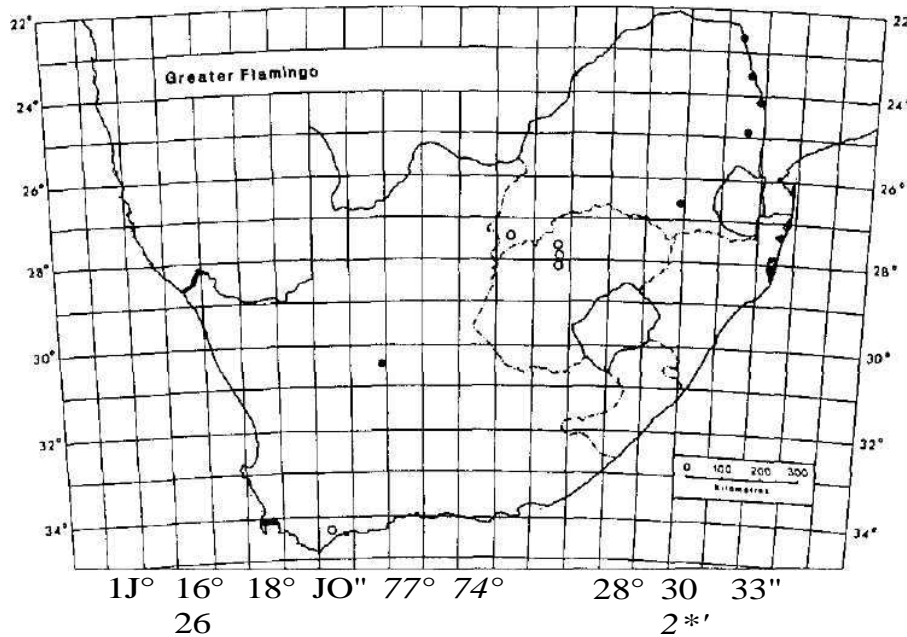
Breeding potential in captivity: probably good since its only congener, the Waldrapp *G. eremita*, breeds in the Basel Zoo, Switzerland (Siegfried 1971), and the Innsbruck Zoo, Austria (Thaler et al 1981).

Current research effort: the behaviour and ecology of the Bald Ibis have been studied by D E Manry, then of the University of Cape Town. One paper arising from the work has been published (Manry 1982) and other papers are in preparation.

Remarks: the Bald Ibis is included as Rare in the 2nd ICBP red data book (King 1981). It is a South African endemic species and its only congener breeds in the western Palearctic. Several other ibises around the world are rare or vulnerable.

Selected bibliography: Coghlan A (1966), Cooper K H and K Z Edwards (1969), Cyrus D and N Robson (1980), Day D (1978a), Grafton R N (1972), King W B (1981), Macdonald I A W and P J Birkenstock (1980), Manry D E (1982), Manry D E (1983), Milstein P le S (1973), Milstein P le S and W R Siegfried (1970), Milstein P le S and S W Wolff, (1973), Pocock T N and C J Uys (1967), Siegfried

W R (1966), Siegfried W R (1971), Skead C J (1967a), Thale E, E Ettel and S Job (1981), Urban E K (1982b), van Jaarsveld J (1979), van Jaarsveld J (1980), Vincent J and G Symons (1948).



**GREATER
FLAMINGO**
Grootflamink

Phoenicopterus ruber Linnaeus 1758:

Bahamas. Order

PHOENICOPTERIFORMES

**INDETERMIN
ATE**

Family

PHOENICOPTERIDAE

Summary: facultative breeding, successful or unsuccessful, may occur anywhere in South Africa by the population based on Etosha Pan, South West Africa/Namibia, and Lake Makgadikgadi, Botswana. Other populations of this race occur in east Africa and the southern Palearctic.

Present and former breeding distribution: it has bred successfully in and around the De Hoop Nature Reserve in 1960 (Uys et al 1963, Uys and Macleod 1967, Broekhuysen 1975) and at Lake St Lucia in 1972 (Porter and Forrest 1974). Breeding attempts which apparently did not produce flying young have been made in the Cape Province at Middelwater se Pan (30 10S, 22 47E) on Rooivloer Farm in 1974/75 when egg laying was markedly unsynchronized (Hey 1975), Vanwyksvlei in 1977/78 and earlier (Boshoff 1979) and on the Orange Free State goldfields dams in 1951 (Daneel and Robertson 1982), 1957? (Liversidge 1958), 1959 (Liversidge 1962) and 1967 (Daneel and Robertson 1982). The breeding sites are the only records shown on the accompanying map. Nonbreeding birds may occur on any open water, particularly estuaries, coastal lagoons and pans in the Kimberley-Kroonstad-Lichtenburg triangle and around Lake Chrissie in the southeastern Transvaal.

Habitat: large open eutrophic waters, including estuaries, where birds may evade approaching enemies by moving to another part of the water or to a nearby one. The Greater Flamingo tolerates or seeks out fresher water bodies than does the Lesser Flamingo.

Status: an occasional breeder, either when conditions are particularly favourable at some South African locality or when conditions are unfavourable at Etosha Pan and Lake Makgadikgadi.

Estimated numbers and population trends: no meaningful estimate feasible. Flamingos are opportunist species and breed and forage where conditions are suitable. Among the nonbreeding wetlands which they now use less than of old is the Durban Bay, due to

economic development there accompanied by industrial pollution.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period four weeks; nestling period 10-11 weeks (Brown 1982c); females may first breed at age two in Europe (Cramp and Simmons 1977).

Reasons for decrease: no evidence for a decrease. A manmade hazard to which they are subject is flying into wire fences across waterbodies (personal observation) and into overhead lines (Hall 1983).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The Cape Department of Nature and Environmental Conservation has twice mounted rescue operations when receding waters have caused the parents to desert unfledged young (Hey 1975, Boshoff 1979). The latter, at least, permitted some young to fledge.

Protective measures proposed: when flamingos start a breeding attempt every effort should be made to protect them from any form of disturbance, including by lowflying aircraft, and to ensure that in commercial saltworks the water level remains within acceptable limits to prevent desertion through access by mammalian predators.

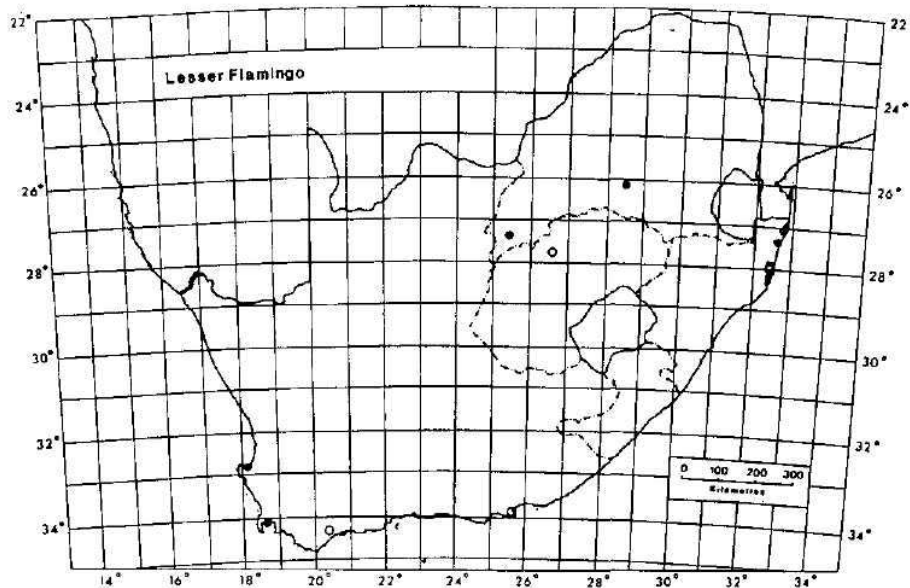
Number held in captivity: many.

Breeding potential in captivity: good (Johnstone 1973, Kear and Duplaix-Hall 1975)

Current research effort: none.

Remarks: the Greater Flamingo breeds in a number of populations, divided into two subspecies. South African birds belong to the population based on Etosha Pan and Lake Makgadikgadi (Berry 1975a). There is another population in east Africa and our subspecies *roseus* also breeds in the southern Palearctic and western India. Another subspecies breeds in the Caribbean and the Galapagos Islands. All flamingo populations are under stress. South Africa's principal contribution to flamingo wellbeing is to conserve the major waterbodies which nonbreeding flamingos frequent.

Selected bibliography: Berruti A (1980a), Berruti A (1980b), Berruti A (1983), Berry H H (1972b), Berry H H (1972c), Berry H H (1975a), Berry H H and C U Berry (1976), Boshoff A F (1979), Broekhuysen G J (1975), Brown L H (1982c), Cramp and Simmons (1977), Cyrus D and N Robson (1980), Daneel A B C and H G Robertson (1982), Hall D G (1983), Hall-Martin A (1980), Hey D (1975), Johnstone T S (1973), Kear J and N Duplaix-Hall (1975), Liversidge R (1958), Liversidge R (1962), Middlemiss E (1961), Milstein P ie S (1975), Porter R N and G W Forrest (1974), Robertson H G and P G Johnson (1979), Skead C J (1967a), Taylor R H (1981), Uys C J, G J Broekhuysen, J Martin and J G Macleod (1961), Uys C J, G J Broekhuysen, J Martin and J G Macleod (1963), Uys C J and J G R Macleod (1967), Winterbottom J M (1968), Winterbottom J M (1979).



LESSER FLAMINGO

INDETERMINA

TE

Kleinflamink

Phoenicopterus minor Geoffroy 1798: Senegal. (*Phoeniconaias minor*).

Order PHOENICOPTERIFORMES

Family

PHOENICOPTERIDAE

Summary: facultative breeding, seldom if ever leading to the production of fledged young, may occur in the southern Cape Province or the middle Vaal River basin by the population based on the Etosha Pan, South West Africa/Namibia and Lake Makgadikgadi, Botswana. Other populations occur in northern Tanzania, Mauritania and western India.

Present and former breeding distribution: attempted breeding occurred in the southwestern Cape Province in 1965 in the De Hoop Nature Reserve (Uys and Macleod 1967), in 1972 at Strandfontein Sewage Works (Broekhuysen 1975), in 1974 at Velddrif (Winterbottom 1979); in the eastern Cape at Port Elizabeth in 1961 (Taylor 1964); in the Orange Free State in 1959 at Allanridge (Liversidge 1962) and again in 1960 (Patten 1979); in the southwestern Transvaal in 1973 at Leeuwpans (Barberspan) (Skead and Dean 1977), in 1978 near Bloemhof (Gillard 1979) and Delareyville (Dr D M Skead in litt 1983), in 1980 near Wolmaransstad (Grobler 1981), in 1981 at Vaalkop and Geysdorp (Dr D M Skead in litt 1983). These are the records shown on the accompanying map. Nonbreeding birds may occur on any open water, particularly estuaries, coastal lagoons and pans in the Kimberley-Kroonstad-Lichtenburg triangle and around Lake Chrissie in the southeastern Transvaal.

Habitat: large open eutrophic waters, including estuaries, where birds may evade approaching enemies by moving to another part of the water or to a nearby one. The Lesser Flamingo tolerates or seeks out more alkaline water bodies than does the Greater Flamingo since it feeds primarily on bluegreen algae (Brown 1982c).

Status: an occasional attempted breeder, either when conditions are particularly favourable at some South African locality or when conditions are unfavourable at Etosha Pan or Lake Makgadikgadi.

Estimated numbers and population trends: no meaningful estimate feasible since South Africa is not part of the normal breeding range. Flamingos are opportunist species and breed and forage where conditions are suitable.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period four weeks; nestling period 10-11 weeks; females probably first breed at age four (Brown 1982c).

Reasons for decrease: no evidence for a decrease. A manmade hazard to which they are

subject is
flying into wire fences across waterbodies and into overhead lines.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: when flamingos start a breeding attempt every effort should be made to protect them from any form of disturbance and to ensure that the water level in commercial saltworks remains within acceptable limits to prevent desertion through access by mammalian predators.

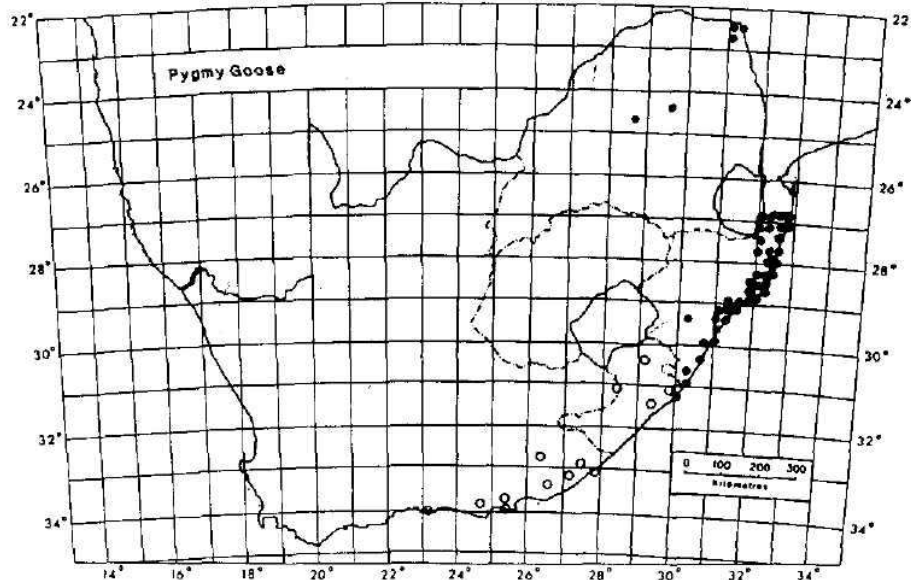
Number held in captivity: many.

Breeding potential in captivity: unknown (Kear and Duplaix-Hall 1975).

Current research effort: none.

Remarks: the Lesser Flamingo breeds in four populations subspecifically undifferentiated. South African birds belong to the population based on Etosha Pan and Lake Makgadikgadi (Berry 1975b). There are other populations in northern Tanzania, Mauritania and western India. All flamingo populations are under stress. South Africa's principal contribution to flamingo wellbeing is to conserve the main water bodies which nonbreeding flamingos frequent. Most flamingo workers recognize the genus *Phoeniconaias* for this species (Kear and Duplaix-Hall 1975, Dowsett and Dowsett-Lemaire 1980).

Selected bibliography: Berruti A (1980b), Berry H H (1972b), Berry H H (1972c), Berry H H (1975a), Berry H H (1975b), Broekhuysen G J (1975), Brown L H (1982c), Cramp S and K E L Simmons (1977), Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), du Preez L (1973), Gillard L (1979), Grobler N (1981), Kear J and N Duplaix-Hall (1975), Liversidge R (1962), Milstein P le S (1975), Patten G H (1979), Pennycuik C J and G A Bartholomew (1973), Robertson H G and P G Johnson (1979), Skead C J (1967a), Skead D M and W R J Dean (1977), Taylor J S (1964), Uys C J and J G R Macleod (1967), Winterbottom J M (1968), Winterbottom J M (1979).



**PYGMY
GOOSE
Dwerggans**

Nettapus auritus (Boddaert) 1783:
Madagascar. Order ANSERIFORMES

**RAR
E**

Family
ANATIDAE

Summary: a Rare species (very few breeding pairs) which breeds in coastal Zululand and the Nyl River floodplain. Nonbreeding birds occur throughout coastal Natal and in the extreme northeastern Transvaal. The species occurs widely throughout the African tropics and on Madagascar.

Present distribution: breeds occasionally in the Lake St Lucia Complex (Berruti 1980a), Kosi Bay and probably elsewhere in coastal Zululand. Breeds regularly but in very small numbers on the Nyl River floodplain (W R Tarboton in litt 1983). Nonbreeding birds occur throughout coastal Natal and around the Pafuri/Limpopo confluence with occasional vagrants elsewhere in the Transvaal.

Former distribution: as above but vagrants were shot in the last century in the eastern and northern Cape Province at a time when the species bred in the Durban area (Woodward and Woodward 1899). The 1937 Cape Flats specimen was probably an escaped bird from a waterfowl collection (Winterbottom 1979).

Habitat: still waterbodies with a large growth of water lilies *Nymphaea* spp. and *Potamogeton* beds; breeds in holes in trees close to such waters.

Status: breeding birds are largely resident in northern coastal Natal. Many birds visit South Africa, chiefly Zululand and the northeastern Transvaal, during the period July to October.

Estimated numbers and population trends: ca 1 000 birds in Zululand at the height of the migratory influx (Dr E A Zaloumis in litt 1983). Breeding pairs are undoubtedly rare. There has probably been a decrease in the number of breeding pairs in Natal.

Breeding rate in wild: normal clutch at least six eggs; probably single brooded; incubation period three and a half weeks (Zaloumis 1976); nestling period nine weeks; females probably first breed at age one.

Reasons for decrease: habitat destruction in the form of loss of trees in holes of which they normally breed; loss of suitable wetlands.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds occasionally in the Lake St Lucia Complex (Berruti 1980a) and probably does so in the Mkuzi and Ndumu Game Reserves, northern Zululand (Cyrus and Robson 1980).

Protective measures proposed: conservation of the Pongolo floodplain, cf Heeg and Breen (1982), a major foraging area for wintering birds (D P Cyrus in litt 1983).

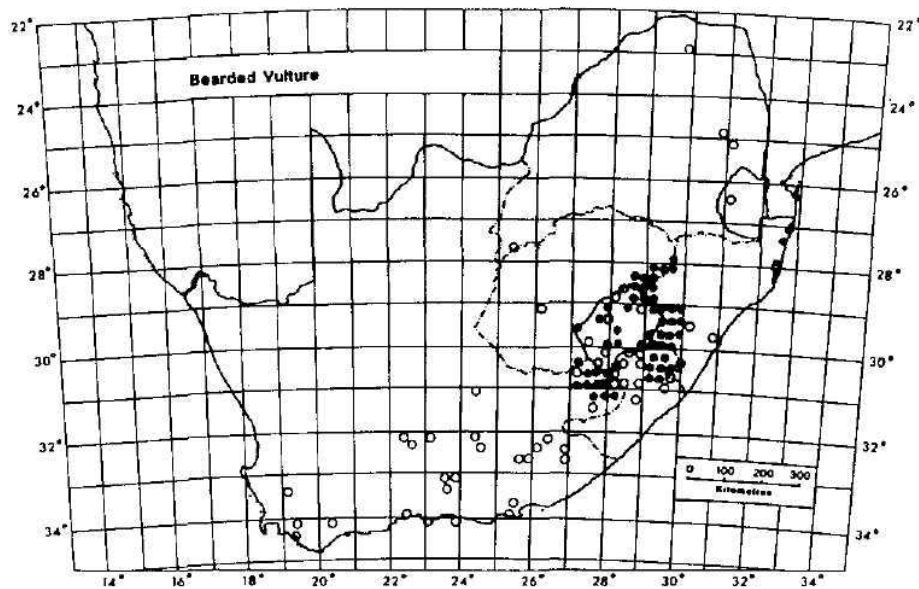
Number held in captivity: few.

Breeding potential in captivity: low (Delacour 1959).

Current research effort: Dr E A Zaloumis is conducting a study of its breeding ecology.

Remarks: the Pygmy Goose occurs widely in tropical Africa and on Madagascar.

Selected bibliography: Berruti A (1980a), Berruti A (1980b), Brickell N (1980a), Brown L H and M K Seely (1973), Clancey P A (1967a), Cyrus D and N Robson (1980), Delacour J (1959), Heeg J and C M Breen (1982), Johnsgard P A (1965), Johnsgard P A (1978), Kemp A C (1980a), Macdonald I A W and P J Birkenstock (1980), Mentis M T (1974), Newman K (1980a), Newman K (1982b), Skead C J (1967a), Tarboton W R (1971), Winterbottom J M (1979), Woodward R B and J D S Woodward (1899), Zaloumis E A (1976).



BEARDED VULTURE

**Baardaasvoel
(Lammergeyer)**

Gypaetus barbatus (Linnaeus) 1758: Oran,
Algeria. Order FALCONIFORMES

RARE

Family
ACCIPITRIDAE

Summary: a Rare species (ca 120 breeding pairs) now confined in South Africa to high altitudes in the Drakensberg. It used to breed in the mountains of the southern Cape Province. There is another African population from Tanzania to Ethiopia and further populations in Eurasia.

Present distribution: the higher altitudes of the Drakensberg/massif, thus chiefly in Lesotho but peripherally in the northeastern Cape Province, Transkei, Natal and the northeastern Orange Free State.

Former distribution: as above but also sparsely as a breeding species in the mountains of the southern Cape Province; probably always a vagrant in the Transvaal.

Habitat: breeds on cliffs in grassland or, formerly, fynbos; forages in open country. **Status:** resident.

Estimated numbers and population trends: ca 120 breeding pairs in South Africa, nearly all in Lesotho (Brown 1977) but one or two pairs in the northeastern Cape Province (Dr A F Boshoff in litt 1982). It bred sparsely in the mountains of the southern Cape Province in the last century but there is no evidence for a decrease in the Drakensberg (Clancey 1966, Brown 1977).

Breeding rate in wild: normal clutch two eggs but only one youngster reared; single brooded; incubation period 7-8 weeks; nestling period over 17 weeks; (Brown 1982d); females do not breed till at least age five (Brown 1977).

Reasons for decrease: Brown (1977) discounts the impact of eating poisoned carcasses and direct persecution, even in South Africa where it certainly occurs. He considers that improvements in stock keeping practices coupled with the increasing tendency not to leave edible rubbish lying about have diminished its food supply and eliminated what was never a large breeding population in the Cape Province (Boshoff et al 1983). But when Bearded Vulture numbers have fallen the death of eaters of poisoned carcasses becomes important to the population. In Lesotho

Bearded Vultures are killed for their plumage used in tribal functions (Dr A F Boshoff in litt 1982).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. In Natal it is a specially protected bird. It breeds in the Giants Castle Game Reserve in Natal. A vulture restaurant has long been established in the Giants Castle Game Reserve but how important this is to the wellbeing of the birds is unknown. As part of its rural

community education programme the Cape Department of Nature and Environmental Conservation has sent copies of Lewis (1980) or its Afrikaans equivalent to all farmers in the Cape Province.

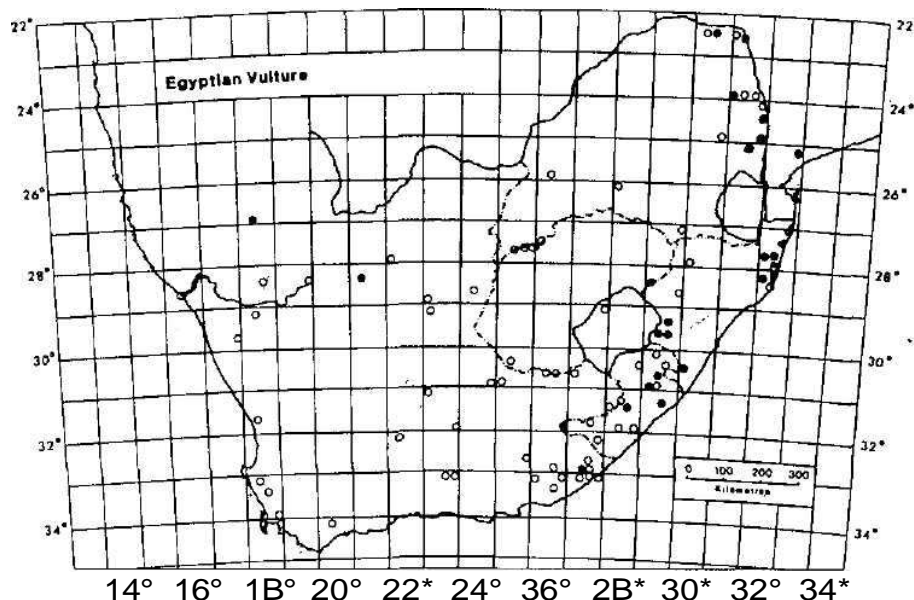
Protective measures proposed: none until more is known about its food, where and how it gets it. **Number held in captivity:** none in southern Africa (Mundy and Marais 1981).

Breeding potential in captivity: good - has bred in European zoos (Louman 1981).

Current research effort: the behaviour and ecology of the Bearded Vulture have been studied by C J Brown, then of the University of Natal (Pietermaritzburg campus). The Vulture Study Group, Johannesburg, collects data on this species.

Remarks: Bearded Vultures are widespread in the mountains of the old world and the Afrotropical race *G. b. meridionalis* exists in two populations, the small South African and the much larger one in east Africa from northern Tanzania to Ethiopia in parts of which it is common. Vulture is an ecological term meaning a large raptor which frequents carcasses and which may get much or all of its food there. It is not a phylogenetic term implying that all vultures are more closely related to each other than any is to any other raptor. Only in this sense can the Bearded Vulture and the Palmnut Vulture be called vultures.

Selected bibliography: Bell J (1970), Boshoff A F, R K Brooke and T M Crowe (1978), Boshoff A F, C J Vernon and R K Brooke (1983), Boswall J (1970), Brown C J and S E Rennie (1981), Brown L H (1977), Brown L H (1982d), Clancey PA (1966), Clancey P A (1968a), Cramp S and K E L Simmons (1980), Cyrus D and N Robson (1980), Kemp A C (1980a), Kemp A (1980b), Lewis R (1980), Louman J W W (1981), Macdonald I A W and S A Macdonald (in press), Mundy P J and E Marais (1981), Newman K B (1969), Penzhorn B L (1975), Pringle J A (1967), Siegfried W R and P G H Frost (1973), Skead C J (1967a), Steyn P (1982), Tarboton W (1977c), Tarboton W R and D G Allan (in press).



EGYPTIAN VULTURE

ENDANGERED

Egiptiese Aasvoel

Neophron percnopterus (Linnaeus) 1758:

Egypt." Order FALCONIFORMES

Family ACCIPITRIDAE

(Aegyptiidae)

Summary: an Endangered species on the verge of extinction in South Africa if indeed the Transkei population is not already extinct.

Present distribution: may still breed in the high interior of the Transkei (Mundy 1978a, J C Sinclair, personal communication, 1978); vagrants may be seen anywhere except perhaps in the western Cape.

Former distribution: throughout South Africa outside forested country.

Habitat: breeds solitarily on cliff faces; forages in open country including semidesert, less often in heavily wooded country.

Status: resident. South African birds laid eggs between August and November (Brooke 1982a). Of the dated South African records 16 fall in the four summer months of November to February when Palearctic birds could be present (Cramp and Simmons 1980) but 26 are scattered through the other eight months. This pattern of occurrence is not that of a migratory population or of one receiving a migratory influx from the north. Clancey's (1980a) and Curry-Lindahl's (1981) beliefs to the contrary are not supported by the facts. The more than 100 birds seen travelling (in which direction?) over the Zambezi valley east of Chioa, Mozambique, on 1 September 1898 (Alexander 1900), if correctly identified, did not belong to any population occurring in South Africa.

Estimated numbers and population trends: the relict population in the high interior of the Transkei, if it still exists, can hardly exceed 10 breeding pairs. 150 years ago the species was sparsely but widely distributed throughout South Africa. Liversidge (1973) said that it was not present in the 18th century. However, Dr P J Mundy (in litt 1982) finds that their reputed absence in the 18th century is no more than an artifact of fragmentary reporting and this is strongly supported by Burchell (1953) who found them widespread in the Orange River basin in 1811 and 1812 with an Afrikaans name, Wittekraai, apparently translated from the Hottentot name.

Breeding rate in wild: normal clutch two eggs but only one youngster reared; single brooded; incubation period probably six weeks; nestling period probably 11 weeks (Brown 1982d); females normally first breed at age five (Eurasian data in Cramp and Simmons 1980).

Reasons for decrease: eating poisoned carcasses and attacking domestic Ostrich *Struthio camelus* eggs and chicks which led to retaliation by farmers certainly occurred (Brooke 1978, 1979a). Mundy (1978a) holds that the feeding ecology of South African Egyptian Vultures was in some way tied to the great herds of wandering antelope. With the destruction of the herds by shooting after 1870 followed by the destruction of the cattle herds that replaced them by rinderpest in 1896 the vultures could no longer maintain a viable population. Similarly, Kemp (1980b) suggests that immature birds relied for food on the carcasses of large mammals and that the sudden shortage of these starved the birds and prevented recruitment to the breeding population to such an extent that it collapsed. Clancey (1980a) suggests that the decrease in the size of the population breeding in Europe (Cramp and Simmons 1980) has led to fewer migrants reaching South Africa and breeding here. There is no evidence for Palearctic birds reaching South Africa (see Status above). While in Tanzania Egyptian Vultures are dependent on antelope for food, in Ethiopia, the Middle East and India they scavenge freely about human settlements, even to the extent of eating faeces. It is not known what Egyptian Vultures ate in South Africa 150 years ago but it is difficult to see why farm refuse should not have provided adequately for the sparse but widespread population unless poisoning, shooting and trapping were more widely practised against them than now appears likely (Brooke 1979b).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal.

Protective measures proposed: if a breeding population still exists in the Transkei, a reserve should be created for its protection but it may well be undesirable to move the inhabitants from the area since their litter is probably the major source of food for the birds. Education of the local inhabitants would be of primary importance.

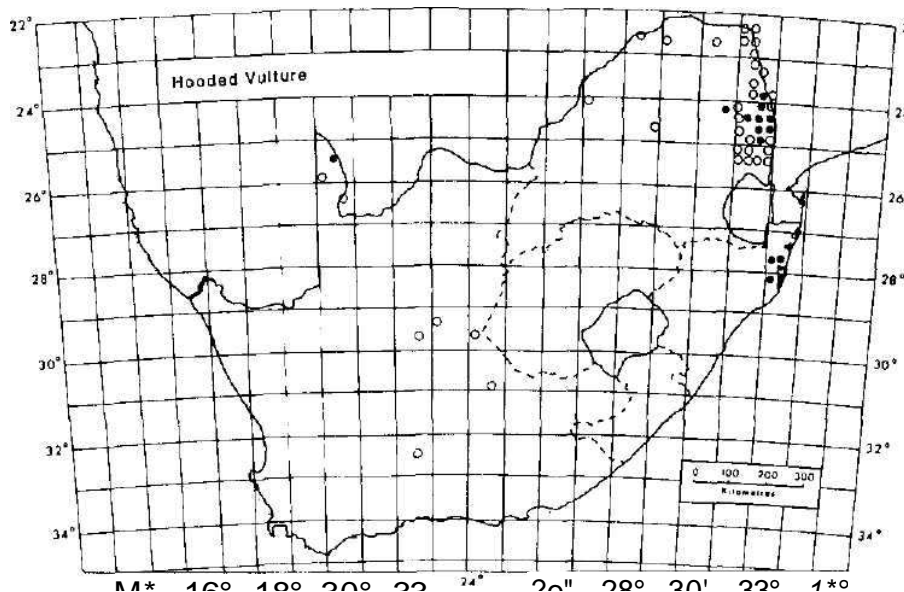
Number held in captivity: two in Zimbabwe, none in South Africa (Mundy and Marais 1981); 14 in North America (Clinton-Eitniear and Henckel 1982).

Breeding potential in captivity: good (Mundy 1981, Clinton-Eitniear and Henckel 1982).

Current research effort: the Vulture Study Group, Johannesburg, collects data on this species.

Remarks: substantial populations of the nominate race of the Egyptian Vulture occur from Tanzania to Ethiopia, usually in drier country, and smaller populations just south of the Sahara from the Sudan to Senegal. The European populations have decreased greatly this century (Cramp and Simmons 1980) as have those in southwestern Asia but *N. p. ginginianus* is still widespread and common in the Indian peninsula. Before action can be taken to conserve South Africa's Egyptian Vultures a survey in summer is needed to establish whether a breeding population still exists in the high interior of the Transkei and, if so, how many breeding pairs are involved. Then it will be necessary to find out what they eat and where they get it.

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**HOODED
VULTURE**

RARE

Monnikaasvoel

Necrosyrtes monachus (Temminck) 1823:
Senegal. Order FALCONIFORMES

Family ACCIPITRIDAE
(Aegyptiidae)

Summary: a Rare species (less than 50 breeding pairs) nearly confined in South Africa to the Kruger National Park. It is widespread to the north, virtually throughout subsaharan Africa.

Present distribution: breeds in the Kruger National Park and adjacent private game reserves; nonbreeding birds may occur in almost any woodland.

Former distribution: not known to have differed from the above though vagrants were recorded more often in the last century.

Habitat: woodland with densely leaved trees in which to nest.

Status: breeding birds are apparently resident but immatures wander to forage in areas unsuitable for breeding (Mundy 1982).

Estimated numbers and population trends: less than 50 breeding pairs in the Transvaal (Tarboton and Allan in press), the only breeding population in South Africa. There is no direct evidence for a decrease in numbers but vagrant birds used to be recorded more frequently in the Cape Province (Boshoff et al 1983).

Breeding rate in wild: normal clutch one egg; single brooded; incubation period seven and a half weeks; nestling period 13-17 weeks (Brown 1982d); females probably first breed at age six (Mundy 1982).

Reasons for decrease: while there is no direct evidence for a decrease in numbers it is probably significant that the Hooded Vulture used to occur more frequently in the past as a vagrant in the Cape Province (Boshoff et al 1983). It suffered from the usual fate of large raptors of being shot as vermin. Feeding at poisoned carcasses probably killed many birds.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The only known breeding population is in the Kruger National Park (Newman 1980a) and adjacent private game reserves (Tarboton and Allan in press).

Protective measures proposed: none.

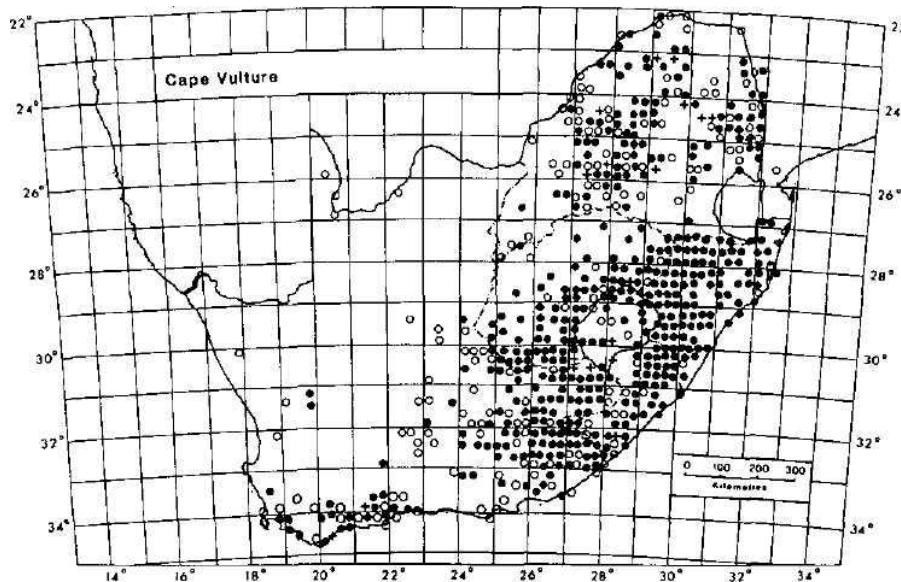
Number held in captivity: two in Zimbabwe, none in South Africa (Mundy and Marais 1981); seven in North America (Clinton-Eitnienar and Henckel 1982).

Breeding potential in captivity: probably good (Clinton-Eitnienar and Henckel 1982).

Current research effort: the Vulture Study Group, Johannesburg, collects data on this species.

Remarks: the Hooded Vulture is widely distributed in tropical Africa and often common. The smaller nominate race of west Africa and the somewhat larger race *N. m. pileatus* of south and east Africa are often virtually commensal on Man though this is and always has been unusual in southern Africa except in Beira, Mozambique (Haagner 1945, personal observation, 1962). It remains to be discovered why southern African populations have not often adapted to using the food provided by human societies without sophisticated refuse disposal systems. Mundy (1976a) considers that the presence of larger vultures in the general area inhibits Hooded Vultures foraging around human settlements.

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CAPE VULTURE
Kransaasvoel

Gyps coprotheres (Forster) 1798: Cape
Town. Order FALCONIFORMES

VULNERABLE

Family ACCIPITRIDAE
(Aegypiidae)

Summary: a Vulnerable endemic species of southern Africa which has lost much of its population and abandoned many of its traditional breeding sites.

Present distribution: breeds at three sites regularly in the Cape Province and several in the Transkei (Boshoff and Vernon 1981), several in Natal, three in Lesotho (Jilbert 1979), one in the Orange Free State and one in the Qwaqwa Homeland (O'Connor 1980), 11 in the Transvaal (Tarboton and Allan in press). Foraging birds may be seen anywhere and birds between ages one and four or five habitually occur in areas where there are no breeding colonies (Mundy 1982).

Former distribution: extinct colonies in the Cape Province have been mapped by Boshoff and Vernon-(1980a) and in the Orange Free State by O'Connor (1980). Tarboton (1978) refers to abandoned colonies in the Transvaal.

Habitat: breeds, normally colonially, on cliffs with suitable ledges and potholes which usually face south (Mundy 1982); forages over open country including bushveld where areas of closed canopy are not great.

Status: adults are resident at their breeding sites, normally foraging within 100 km; fledglings stay with their parents until the start of the next breeding season; immature birds live in areas outside the normal foraging range of birds living at breeding colonies (Mundy 1982).

Estimated numbers and population trends: Cape Province 65 breeding pairs in 1979 (Boshoff and Vernon 1981); Transkei 314 breeding pairs at Colleywobbles in 1981 (Vernon et al 1982b), 49 breeding pairs on the Gcuwa River cliffs in 1981 (Vernon 1982b); Natal at least 37 breeding pairs at Umtamvuna in 1982 (Piper 1982); Lesotho over 90 breeding pairs in 1977 (Jilbert 1979, 1982); Orange Free State 18 breeding pairs in 1975 (O'Connor 1980); Transvaal ca 1 300 breeding pairs (Tarboton and Allan in press). The 1982 South African population amounted to ca 1 900 breeding pairs. However, Dr P J Mundy (in Htt 1982) considers the figure of 1 900 breeding pairs to be too low and believes it to be 2 500 pairs divided as follows; Cape Province 100 pairs, Transkei 400 pairs, Natal 200 pairs. Lesotho 200 pairs, Orange Free State 50 pairs, Transvaal 1 500 pairs, Swaziland perhaps 50 pairs. The real figure was probably just over 2 000 breeding pairs.

Counts of occupied nests or of breeding pairs at each site during the 1970s usually show a progressive decrease despite more intensive coverage and better counting techniques, eg Mundy et al (1980). Boshoff and Vernon (1980a) show that during the historical period numbers of breeding Cape Vultures have risen and fallen, usually in response to available food supplies. There is no doubt that present populations are much less numerous than they were 100 years ago and that numbers of breeding birds at most colonies are falling and have been falling since ca 1970 (Boshoff and Vernon 1980a). Less than 11 % of fledglings now reach age four (Piper et al 1981).

Breeding rate in wild: normal clutch one egg; single brooded; incubation period seven and a half

weeks; nestling period probably 16-17 weeks (Brown 1982d); fledgling period ca 16 weeks (Vernon and Robertson 1982); females can breed earlier but probably normally do not do so until age six (Mundy 1982, Robertson 1983).

Reasons for decrease: Cape Vultures were originally dependent for food on the herds of large migratory mammals (Kemp 1980b) and then on the open range domestic stock which replaced them. The domestic stock population crashed in 1896 with the rinderpest epidemic. Subsequent changes in farming practices have reduced the number of cattle and sheep left dead in open veld thus reducing the food supply of Cape Vultures (Jarvis et al 1974, Boshoff and Vernon 1980a, van Heerden 1980). There is now a shortage of bone fragments discarded by mammalian carnivores from which nestlings can get sufficient calcium to prevent osteodystrophy (Mundy and Ledger 1976, Mundy 1982). Eating poisoned carcasses whether poisoned to destroy a human health hazard or to kill jackals *Canis* spp, *Lynx Felis caracal*, other predatory mammals and even vultures themselves is a particularly serious matter since assembly at such a carcass may destroy most or even all the Cape Vultures inhabiting a district (Boshoff and Vernon 1980a, Ledger 1980, van Heerden 1980, Robertson in press).

Shooting vultures as pests either in the veld or at roosting/breeding sites is still an active source of mortality (van Heerden 1980, Mundy 1982). Hunting birds for purposes of witchcraft and its prevention is an important cause of death in Botswana (Ledger and Mundy 1977b) and the Transvaal (Stott 1982). Electrocutation by overhead power lines is less of a hazard than it was a few years ago owing to changes in design of power towers (Ledger and Annegarn 1981). It is unlikely that corona discharge or the electric field around over-head cables affects the fertility of Cape Vultures and other raptors which roost or loaf on power towers (Berliner and Ledger 1982). Collisions, particularly in cloudy weather, with high structures such as communications masts may kill substantial numbers (Dobbs and Benson in press). Drowning while trying to drink from water tanks is still a source of mortality which could be reduced by altering the design of water tanks (Boshoff and Vernon 1980a, Mundy 1982).

Disturbance at breeding sites by mountaineers and others causes desertion of eggs by parents, chilling of eggs and small nestlings which may not recover despite continued parental attention (Ledger and Mundy 1976, Boshoff and Currie 1981, Benson and Dobbs in press, Dobbs and Benson in press, Komen in press). Among the natural hazards to which Cape Vultures are exposed and which are exacerbated by human interference at breeding colonies is the wetting and cooling effect of exposure to the clouds which sometimes settle on normally south facing colonies (Dobbs and Benson in press) and the clumsiness in flying and landing of newly fledged birds (Mundy 1982). Predation of eggs and nestlings by Whitenecked Ravens *Corvus albicollis*, Black Eagles *Aquila verreauxii* and Baboons *Papio ursinus* has always occurred but it is facilitated by human disturbance of breeding birds. Pesticide residues causing egg shell thinning are not a significant factor in the Cape Vulture's population dynamics (Mundy et al 1982) but the effects of dieldrin which have been found in their eggs have not been studied (A S Robertson, personal communication, 1983).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The Potberg colony in the Cape Province has recently been added to the De Hoop Nature Reserve (Boshoff and Currie 1981). One of the Natal colonies is in the Umtamvuna Nature Reserve (Abbot 1982). The Electricity Supply Commission is no longer erecting towers for overhead power lines on which Cape Vultures are likely to be electrocuted and is replacing or modifying, albeit slowly, the towers on which electrocutions are frequent (Ledger and Annegarn 1981). Vulture restaurants are being established at which carcasses are regularly provided together with suitably broken bones to provide calcium for nestlings (Mundy et al 1980, Hancock 1981, Mundy 1982). Owners of roosting and, more particularly, of breeding sites are being approached by the Vulture

Study Group and the Provincial Nature Conservancies on an individual basis to see if local measures for conservation can be effected, sometimes with success.

Protective measures proposed: increased education of the farming community is needed to disabuse them of the idea that Cape Vultures are a danger to healthy stock (Jarvis et al 1974). Increased efforts should be made in consultation and cooperation with landowners to protect extant colonies from disturbance: this can be successful (Ledger and Mundy 1976, Boshoff and Currie 1981). Vulture restaurants should be organized and funded on a long-term basis provided that further research shows that this is both beneficial and required.

Number held in captivity: more than 30 in South Africa (Mundy and Marais 1981).

Breeding potential in captivity: probably good (van Ee 1981). Not yet fully successful attempts are being made to breed Cape Vultures in the Pretoria Zoo (Dr A C Kemp in litt 1982). They seem particularly subject to epileptiform seizures in aviaries (Mundy and Foggin 1981).

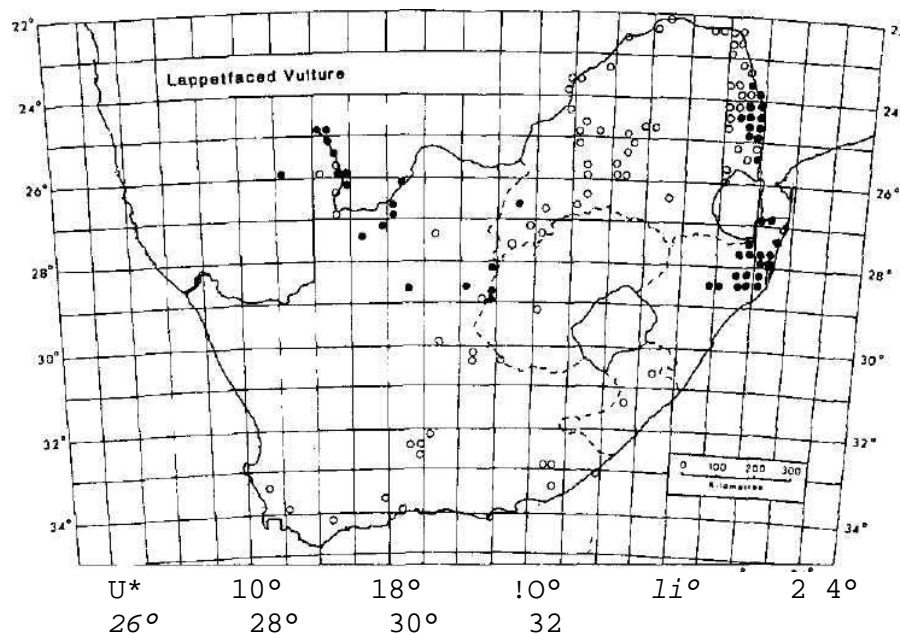
Current research effort: the Cape Department of Nature and Environmental Conservation had a researcher, A S Robertson, stationed at the Potberg colony, primarily to investigate the breeding and feeding ecology of the Cape Vulture (Robertson 1982). The Department is also monitoring the Cape Vulture throughout the Province on a long-term basis. The Transvaal Nature Conservation Division through W R Tarboton conducts an annual photosurvey of breeding colonies. The University of the Witwatersrand has two researchers, Dr J C Dobbs and Dr P C Benson, working at the Groothoek or Kransberg colony in the western Transvaal, primarily on calcium requirements. The Vulture Study Group, Johannesburg, had a researcher, J Komen, studying food requirements and energetics at the Magaliesberg colony. It also coordinates the collection and interpretation of data on the Cape Vulture.

Remarks: the Cape Vulture is included as Vulnerable in the 2nd ICBP red data book (King 1981). Except for two rapidly decreasing colonies in Botswana estimated to contain 350 breeding pairs (Dr P J Mundy in litt 1982) though Tarboton and Allan (in press) accept four colonies with ca 250 breeding pairs, the world population (ca 2 500 breeding pairs) of the Cape Vulture is now restricted to South Africa as a breeding species. Nonbreeding, chiefly immature individuals still regularly visit neighbouring countries and occasionally even cross the Zambezi River into southern Zambia (Mundy 1982). It has not bred in Zimbabwe since 1971 (Mundy and Steyn 1977, Mundy 1982) nor in South West Africa/Namibia since the mid 1970s (Ledger and Mundy 1977b). The relation between Cape Vultures and the spread of anthrax requires further study (de Vos 1973, Mundy and Brand 1978) in the light of the need for anthrax as a population control agent of large ungulates in conserved areas. The Cape Vulture and the Jackass Penguin are the best studied of our rare, endangered and vulnerable breeding birds in the last ten years (see below).

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VULNERABLE

**LAPPETFACED
VULTURE Swartaasvoel**

Torgos tracheliotus (Forster) 1796: southern Great Namaqualand, South West Africa/Namibia.

Order FALCONIFORMES
(Aegypiidae)

Family ACCIPITRIDAE

Summary: a Rare species (a little over 50 breeding pairs) of the northern game areas of South Africa whose breeding range contraction shows that it is also vulnerable to as yet undetermined factors. The species is widespread in tropical Africa and occurs in the Middle East.

Present distribution: breeds in the Zululand game reserves, the Kruger National Park and the northern Cape Province and may be found in nearby districts.

Former distribution: throughout South Africa but always a rare visitor to high altitude grasslands.

Habitat: usually breeds in scrub bushveld with isolated taller trees in which it nests (Anthony 1976, Mundy 1982). Immatures wander widely to feed away from adult territories but seldom into large areas of grassveld or forest. It frequents even desert country and breeds freely in the Namib Desert of South West Africa/Namibia (Ginning 1978a).

Status: adults are permanently territorial and forage nearby; fledglings stay with their parents until the start of the next breeding season; immature birds occur in areas not frequented by breeding adults (Mundy 1982).

Estimated numbers and population trends: Cape Province perhaps 20 breeding pairs; Transvaal less than 40 breeding pairs (Tarboton and Allan in press); Natal perhaps 20 breeding pairs. The present South African population is probably closer to 50 breeding pairs than to 100. Whether populations have decreased in the areas to which the Lappetfaced Vulture is now restricted in South Africa is unknown. However, in the last century it bred widely across the whole southern Cape Province and was seen in many places (Boshoff et al 1983) and it bred up to the first decade of this century in the western Transvaal (Tarboton 1978).

Breeding rate in wild: normal clutch one egg; single brooded; incubation period seven and a half weeks; nestling period at least 18 weeks (Brown 1982d); females probably first breed at age six (Mundy 1982).

Reasons for decrease: although Lappetfaced Vultures get little of their food from scavenging large carcasses (Coulson 1981, Mundy 1982, Richardson in press) it seems likely that eating poisoned carcasses coupled with shooting has eliminated them from the Cape Province south of the Orange River and from the western Transvaal. In the southwestern Transvaal much suitable bushveld habitat has been cut out and the land ploughed (Dr D M Skead in Htt 1982). It is possible that populations of Pied Crows *Corvus albus* which have increased with denser human settlement now scavenge many of the small carcasses that Lappetfaced Vultures would have scavenged (Macdonald and Macdonald in press).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Lappetfaced Vultures breed in the Cape Province in the Kalahari Gemsbok National Park (Boshoff et al 1983); in the Transvaal in the Kruger National Park (Newman 1980a) and adjacent private game reserves; in Natal in the Hluhluwe/Umfolozzi Complex (Hitchins 1980) and probably in the Mkuzi Game Reserve (Cyrus and Robson 1980).

Protective measures proposed: none until its feeding and other ecological requirements have been elucidated.

Number held in captivity: five in southern Africa (Mundy and Marais 1981); 29 in North America (Clinton-Eitnien and Henckel 1982).

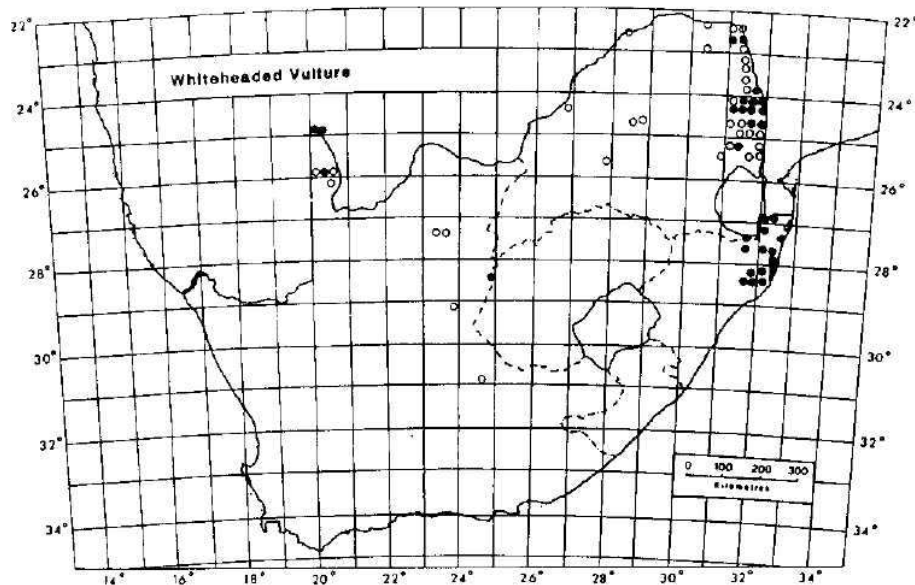
Breeding potential in captivity: fairly good (Bruun et al 1981).

Current research effort: The Vulture Study Group, Johannesburg, collects data on this species. A J Anthony is continuing his field studies in the Gonarezhou National Park, southeastern Zimbabwe. C F Clinning, University of the Witwatersrand, has been collecting data on their breeding biology in the Namib Desert National Park.

Remarks: the Lappetfaced Vulture is found throughout the drier parts of Africa and in parts of Arabia (Gallagher 1982). North of the equator several populations have decreased very seriously (Bruun 1980, Bruun et al 1981). The reasons are believed to be associated with food supply and persecution. Until it has been established what they eat at different ages and how and where they get food it is not possible to say why the species is endangered in some areas and vulnerable in others and what, if anything, should be done to conserve it. Bruun et al (1981) have shown that the nominate race which occurs in South Africa is the most widespread and least scarce of the three races they recognize. The date of publication of the name *Torgos tracheliotus* is 1796, as Bruins (1968) pointed out, and not 1791 as in Stresemann and Amadon (1979), Clancey (1980a) and other recent works.

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WHITEHEADED VULTURE

RAR

E

Witkopaasvoel

Trigonoceps occipitalis (Burchell) 1824: Matlowing River near Kuruman, Cape Province.
Order FALCONIFORMES Family ACCIPITRIDAE
(Aegypiidae)

Summary: a Rare species (ca 120 breeding pairs) of the northern game areas of South Africa which wanders to forage. It is widely distributed in the African savannas.

Present distribution: breeds in the game reserves of Zululand, the eastern Transvaal and the Kalahari Gemsbok National Park; nonbreeding birds occur in the western Transvaal and the northern Cape.

Former distribution: not known to have differed from the above though it may have bred more widely in the Transvaal bushveld in the past (Tarboton and Allan in press).

Habitat: woodland or savanna with tall trees in which they nest.

Status: breeding birds are apparently resident but immatures wander to forage in areas which are unsuitable for breeding (Mundy 1982).

Estimated numbers and population trends: just over 100 breeding pairs in the Transvaal (Tarboton and Allan in press) and perhaps 10 breeding pairs in Natal. The South African breeding population probably consists of ca 120 pairs. There is little evidence for a decrease.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period at least six weeks; nestling period probably 14 weeks (Brown 1982d); females probably first breed at age six (Mundy 1982).

Reasons for decrease: the evidence for decrease is circumstantial in that it is now confined as a breeding species to game reserves. It does not obtain much of its food from scavenging large carcasses and probably kills some of its food (Mundy 1982, Richardson in press) but until its feeding ecology has been elucidated it is not possible to be precise about the factors that have reduced its numbers. Like all large raptors it has been subject to shooting as vermin and to poisoning of carcasses.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Hluhluwe-Umfolozi Complex (Hitchins 1980) and probably in the Mkuzi Game Reserve in Natal (Cyrus and Robson 1980); in the Kruger

National Park (Newman 1980a) and adjacent private game reserves (Tarboton 1978) in the Transvaal; the Kalahari Gemsbok National Park (W R Tarboton in litt 1982).

Protective measures proposed: until it is known what Whiteheaded Vultures eat and how they get it, it is not practicable to make suggestions on what further conservation action is required.

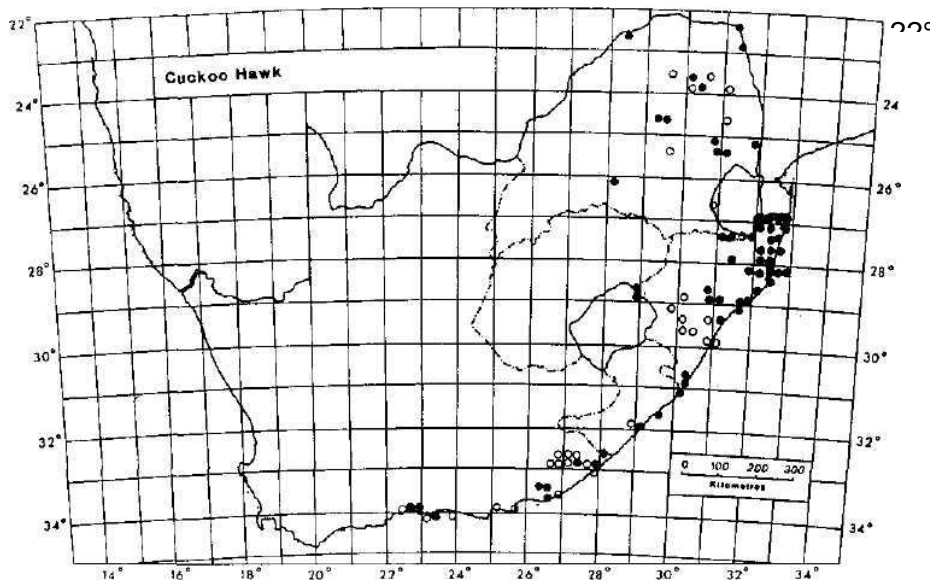
Number held in captivity: two in Zimbabwe, none in South Africa (Mundy and Marais 1981); four in North America (Clinton-Eitniew and Henckel 1982).

Breeding potential in captivity: probably low (Dr P J Mundy in litt 1982).

Current research effort: the Vulture Study Group, Johannesburg, collects data on this species.

Remarks: the Whiteheaded Vulture is widely distributed in Africa outside evergreen forest and semidesert country. Research is required to determine its ecological requirements at different ages so that suitable conservation action can be planned.

Selected bibliography: Boshoff AF, CJ Vernon and R K Brooke (1983), Broekhuysen G J, M H Broekhuysen, J Martin, E Martin, R Martin and H K Morgan (1968), Brown L H (1982d), Butchart D and R Friedman (1980/81), Clinton-Eitniew J and E Henckel (1982), Cyrus D and N Robson (1980), Hitchins P M (1980), Kemp A C (1969b), Kemp A C (1980a), Kemp A (1980b), Macdonald I A W and S A Macdonald (in press), Morris A and P J Mundy (1981), Mundy P J (1982), Mundy P J and E Marais (1981), Newman K (1980a), Pennycuik C J (1976), Plug I (1978), Pollard C J W (1981), Richardson P R K (in press), Steyn P (1982), Tarboton W (1978), Tarboton W R and D G Allan (in press), Thomson W R (1974).



**CUCKOO HAWK (Cuckoo
 Falcon) Koekkoekvalk**

Aviceda cuculoides Swainson 1837:
 Senegal. Order FALCONIFORMES

INDETERMINATE

Family ACCIPITRIDAE
 (Falconidae)

Summary: a probably Rare but perhaps chiefly unobtrusive species of eastern South Africa which is still maintaining its numbers. It is widespread in tropical Africa where there is woodland or forest.

Present distribution: breeds in Natal and perhaps in the escarpment country of the eastern Transvaal (Tarboton and Allan in press); wanders southwards in the Transvaal and through the Transkei to the eastern Cape as far west as the George District.

Former distribution: not known to have differed from the above.

Habitat: woodland and evergreen forest.

Status: resident with much wandering by immatures and nonbreeding adults.

Estimated numbers and population trends: no estimates available: perhaps 100 breeding pairs in South Africa. Nonbreeding birds used to occur more frequently in the eastern Cape in the early part of this century which suggests that there has been some decrease in numbers (Boshoff et al (1983), cf Macdonald and Birkenstock (1980) on an apparent decrease in the Hluhluwe-Umfolozi Complex). However, it was "fairly common" in the Tsitsikama Forest National Park (Skead and Liversidge 1967) though less common now (Dr R J M Crawford in litt 1981).

Breeding rate in wild: normal clutch two eggs; single brooded; incubation period probably four and a half weeks; nestling period four weeks (Brown 1982d); females probably first breed at age one.

Reasons for decrease: evidence for a decrease tenuous. In Zimbabwe it breeds and roosts in plantations of exotics such as *Eucalyptus* so it can adapt to manmade habitats (Jeffery 1977, Weaving 1977, Vernon 1979a).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. In Natal it probably breeds in the Hluhluwe-Umfolozi Complex (Macdonald and Birkenstock 1980), the Itala, Mkuzi and Ndumu Game Reserves and the Lake St Lucia Complex.

Protective measures proposed: none.

Number held in captivity: probably

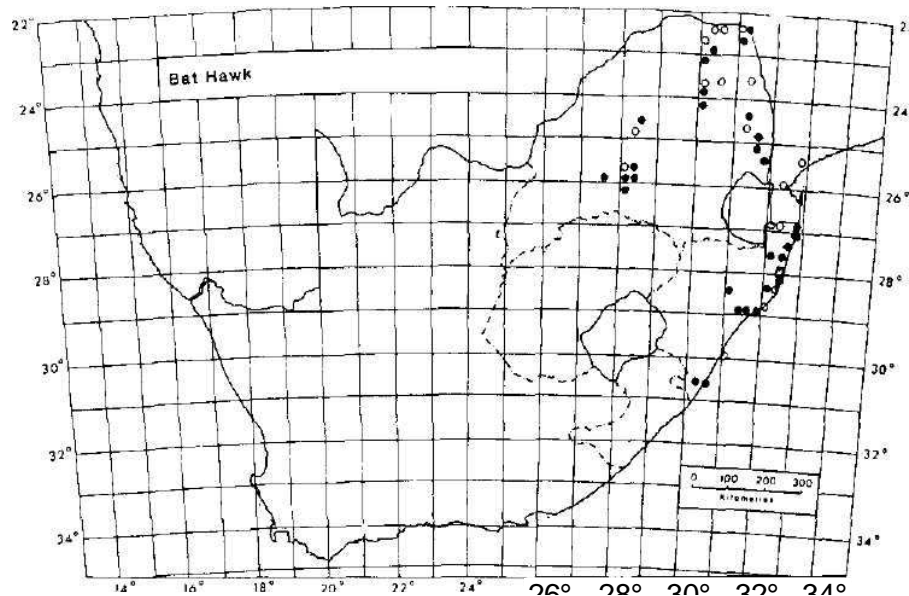
few. **Breeding potential in captivity:**

probably low.

Current research effort: H Chittenden has two breeding pairs at Ntumeni, Natal, under observation.

Remarks: the Cuckoo Hawk is widely distributed in the better wooded and forested areas of Africa with close relatives in Asia. It is a very unobtrusive species which is why little is known about it. A survey of its Natal and Transvaal breeding populations is a necessary preliminary to deciding whether conservation action is needed and, if so, in what form. The name Cuckoo Falcon is inept since the species is not a member of the Falconidae despite the falconlike notching of the upper mandible.

Selected bibliography: Berruti A (1980b), Boshoff AF, CJ Vernon and R K Brooke (1983), Brown L H (1982d), Cyrus D and N Robson (1980), Hall D G (1983), Jeffery R D (1977), Kemp A (1980b), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a), Skead C J (1967a), Skead C J and R Liversidge (1967), Steyn P (1982), Tarboton W (1978), Tarboton W R and D G Allan (in press), Vernon C J (1979a), Weaving A (1977).



BAT HAWK

Vermuisvalk

Macheiramphus alcinus Bonaparte 1850: Malacca, Malay Peninsula.

Order FALCONIFORMES

Family ACCIPITRIDAE

RARE

Summary: a Rare species with two breeding pairs known in the northeastern Transvaal. It wanders widely to feed. It occurs widely but sparsely in the forests and moist woodlands of the old world.

Present distribution: breeds in the escarpment of the northeastern Transvaal (Tarboton and Allan in press); nonbreeding birds occur thinly but widely in the eastern Transvaal and on the Witwatersrand, in the lowveld of Zululand and occasionally southward in Natal to Hibberdene.

Former distribution: as above but breeding around Durban before the turn of the century (former specimens in the Durban Museum Dr P A Clancey in litt 1982).

Habitat: breeds and roosts normally in tall trees including *Eucalyptus* close to bat colonies or communal roosts of small birds including swifts.

Status: breeding birds are probably resident but nonbreeding birds wander extensively seeking bat colonies on which to prey.

Estimated numbers and population trends: two breeding pairs are known in the northeastern Transvaal (Tarboton and Allan in press) but the bird and its nests are so unobtrusive that the breeding population may well be larger. It may also nest in northern Zululand. It bred formerly in the Durban area.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period probably four and a half weeks; nestling period 5-6 weeks (Brown 1982d); females probably first breed at age two or later.

Reasons for decrease: urbanization or persecution may have eliminated the Durban population (one pair?).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It probably breeds in the Kruger National Park (Newman 1980a).

Protective measures proposed: none.

Number held in captivity: probably

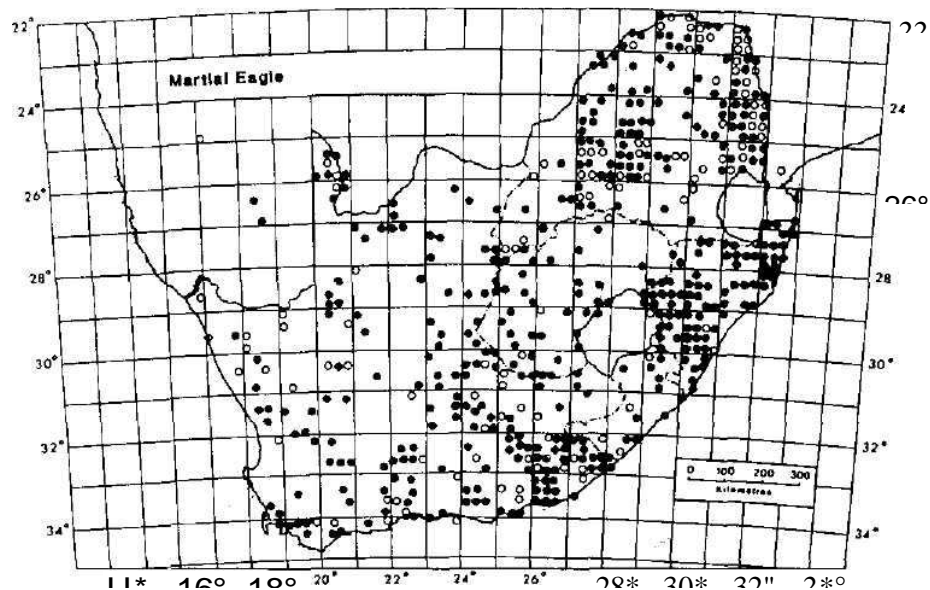
none. **Breeding potential in captivity:**

probably low. **Current research effort:**

none.

Remarks: the Bat Hawk is widely but usually thinly distributed in tropical Africa west to Ghana and on Madagascar. Other races occur in Malaysia, Indonesia and Papua New Guinea but the genus is monotypic. The difficult aspect in studying the Bat Hawk is that it usually feeds only after sunset and outside the early breeding season does not move in daylight except when disturbed (Thomson 1975a). It would be desirable to search the northeastern Transvaal and northern Zululand to census the breeding population to ascertain just how rare the Bat Hawk is and whether any conservation action is practicable.

Selected bibliography: Balance T C (1981), Black H L, G Howard and R Stjernstedt (1979), Brooke R K and P A Clancey (1981), Brown L H (1982d), Colebrook-Robjent J F R (1971), Cooper P J (1976), Cyrus D and N Robson (1980), Fenton M B, D H M Cumming and D J Oxley (1977), Hustler K (1983a), Kemp A C (1980a), Kemp A (1980b), Milstein P le S, C D Olwagen and D J Stein (1975), Newman K (1980a), Pooley A G (1967), Steyn P (1982), Tarboton W (1978), Tarboton W R and D G Allan (in press), Thomson W R (1975a), Vernon C J (1979a).



VULNERABLE

MARTIAL EAGLE

Breekoparend

Polemaetus bellicosus (Daudin) 1800: Namaqualand north of 28S, Cape Province.

Order FALCONIFORMES

Family

ACCIPITRIDAE

Summary: a Vulnerable species still widespread throughout South Africa (except at the highest altitudes) which has lost much of its population and abandoned many breeding sites. It is widely distributed outside evergreen forest throughout Africa south of the Sahara.

Present distribution: throughout South Africa but not recorded in Lesotho or other areas above 1900masl.

Former distribution: not known to have differed from the above.

Habitat: all terrestrial habitats except montane grasslands and the interior of evergreen forests. Pairs require 100 square km for a territory, more in arid areas (Kemp 1980b).

Status: adults are resident; immatures wander to forage and seek breeding sites.

Estimated numbers and population trends: ca 150 breeding pairs in the Cape Province (Dr A F Boshoff in litt 1982); ca 500 pairs in the Transvaal (Tarboton and Allan in press); no figures available for other areas; probably less than 1 000 pairs in all. While decrease in numbers as opposed to range is indubitable, based primarily on anecdotal evidence of breeding sites no longer occupied, the only figures are from the Cape Province: the Laingsburg Division where Siegfried (1963) recorded seven pairs but Boshoff and Vernon (1980b) none; the Philipstown Division where Siegfried (1963) recorded four pairs but Boshoff and Vernon (1980b) two nests. The decrease is continuing in the stock farming areas: Boshoff and Vernon (1980b) and Tarboton and Allan (in press) both record loss of breeding pairs in the 1970s.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period seven and a half weeks; nestling period 14-15 weeks (Brown 1982d); females probably first breed at age four.

Reasons for decrease: shooting by landholders who consider them a threat to small stock; eating poisoned carcasses; electrocution on power lines.

Protective measures taken: in the Cape Province and Natal the Martial Eagle may not be hunted by any means. In the Orange Free State and the Transvaal Martial Eagles may only be hunted when actively attacking domestic stock. It is the policy of the Cape Department of Nature and Environmental Conservation to encourage farmers to report problem eagles to the Department so that they can trap the offending birds and transport them to a conserved area. As part of its rural community education programme the Cape Department of Nature and Environmental Conservation has sent copies of Lewis (1980) or its Afrikaans equivalent to all farmers in the Cape Province. Martial Eagles breed or probably breed in many conserved areas, among them: Cape Province -Alexandria, Hogsback, Pirie and Suurberg State Forests; Orange Free State - Sandveld Nature Reserve, Tussen die Riviere Wilderness Area and Willem Pretorius Game Reserve; Natal -Cathedral Peak, Cobham, Giants Castle, Hluhluwe-Umfolozi Complex (Macdonald and Birkenstock 1980), Itala, Mkuzi, Ndumu, Ngome, Oribi Gorge, Umtamvuna, Vernon Crooks; Transvaal - Kruger National Park (110 pairs Tarboton 1978), Nylsvley Nature Reserve (Tarboton 1977a), Wolkberg Wilderness Area; Bophuthatswana - Pilanesberg Game Reserve.

Protective measures proposed: the size of breeding territories means that only in the largest game reserves can a pair of Martial Eagles spend their whole life in a conserved area. In most cases even if the nest is in a conserved area, the adults forage outside it and are then at risk. It should be the legal position in all areas that the Martial Eagle and other eagles may not be hunted by the landholder even if they are attacking stock but that the appropriate Nature Conservation Department must be asked to deal with the problem animal. This coupled with continued education of the farming community will reduce the number of eagles destroyed as vermin, the principal threat to the continued well-being of this species. The Division of Veterinary Services in the Department of Agriculture should be asked to phase out the distribution of poison baited carcasses for jackal control. This is a matter of importance for all vultures in this book and the Bateleur.

Number held in captivity: probably few.

Breeding potential in captivity:

probably low.

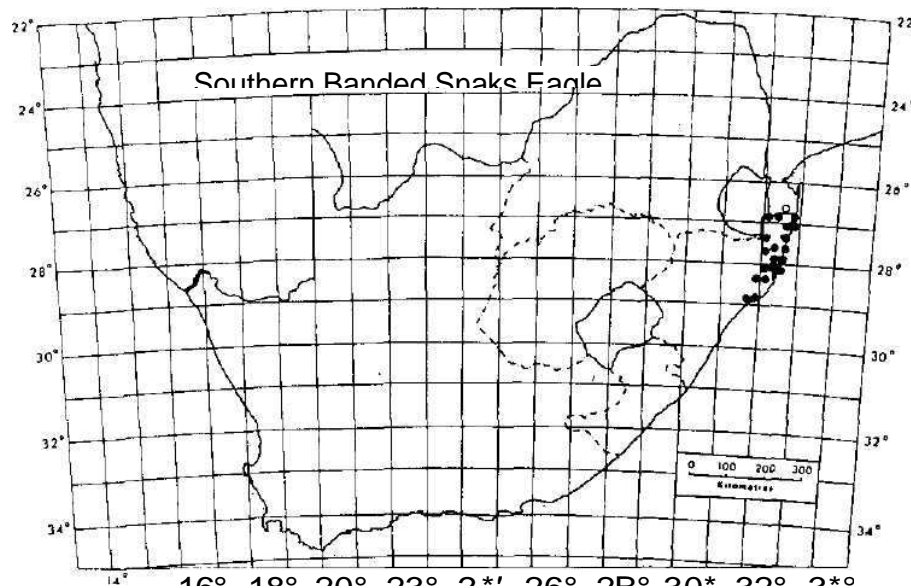
Current research effort: Dr A F Boshoff of the Cape Department of Nature and Environmental Conservation is investigating the breeding density, frequency and success of the Martial Eagle, chiefly in the southern Great Karoo.

Remarks: The Martial Eagle occurs widely throughout Africa outside the forested areas where it is replaced as the largest eagle by the Crowned Eagle *Stephanoaetus coronatus* to

which it is not closely related (Amadon 1982). Amadon (1982) argues for placing the Martial Eagle in *Hieraaetus*. Wherever stock farmers have guns in Africa the Martial Eagle is decreasing. It is a predator of vertebrate animals chiefly in the 1-4 kg range (Boshoff and Palmer 1980) and some

individuals, probably nearly always immature birds, do take young stock, chiefly lambs and kids within seven weeks of birth, usually within the first week. It is not known what percentage of these are dead or dying before being taken by a Martial Eagle but it is probably high in view of the ease with which they may be trapped or poisoned with carrion bait (Siegfried 1963). Martial Eagles took no more than 0,1 % of the sheep on farms in the Philipstown District of the northeastern Cape, an area where they were alleged to be pests (Siegfried 1963).

Selected bibliography: Amadon D (1982), Boshoff A F and N G Palmer (1980), Boshoff A F and C J Vernon (1980b), Boshoff A F, C J Vernon and R K Brooke (1983), Broekhuysen G and R Attwell (1967), Brown L H (1982d), Conradie H D (1978), Cyrus D and N Robson (1980), Dean W R J (1975), Fraser W (1982a), Kemp A C (1980a), Kemp A (1980b), Kemp A C and M I Kemp (1977), Lewis R (1980), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a), Pienaar UdeV (1969), Prozesky O P M (1977a), Siegfried W R (1963), Skead C J (1967a), Snelling J C (1969), Snelling J C (1971), Steyn P (1973a), Steyn P (1980a), Steyn P (1982), Tarboton W (1976a), Tarboton W R (1977a), Tarboton W (1978), Tarboton W R and D G Allan (in press), Winterbottom J M (1968), Winterbottom J M (1979).



SOUTHERN BANDED SNAKE EAGLE
Dubbelbandslangarend (Suidelike Gebande
Slangarend)

RARE

Circaetus fasciolatus Kaup 1850:
Durban. Order FALCONIFORMES

Family
ACCIPITRIDAE

Summary: a Rare species (less than 50 breeding pairs) in Zululand. It occurs sparsely up the east coast of Africa to Kenya.

Present distribution: found regularly in coastal Zululand from Mtunzini northwards. Vagrants wander south down the Natal coast to Tongaat.

Former distribution: as above but extending southwards to around Durban though breeding not proved there.

Status: breeding birds are apparently resident; immatures appear to wander in search of breeding territories.

Habitat: coastal, lowland and riverine forests and dense mixed woodlands.

Estimated numbers and population trends: less than 50 breeding pairs in South Africa (D P Cyrus in Htt 1982). In the last century it was collected in the Durban and Pinetown areas (Clancey 1964) and it probably occurred sparsely (it is nowhere common) in coastal and riverine forest from there northwards. There is no evidence of a decrease in numbers in the last decade.

Breeding rate in wild: normal clutch one egg; single brooded; incubation and nestling periods unknown (Brown 1982d); females probably first lay at age four.

Reasons for decrease: fragmentation and destruction of coastal and riverine forests and dense mixed woodlands in coastal Natal for economic development have destroyed much of its habitat. It has not been much persecuted by landholders since it is an unobtrusive predator of reptiles and amphibians.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It presumably breeds in the Mkuzi and Ndumu Game Reserves (Cyrus and Robson 1980) and perhaps in the Lake St Lucia Complex and the Dukuduku State Forest.

Protective measures proposed: since little is known of its biological requirements and since it seems to hold its own in conserved areas, the continued conservation of large areas of coastal and riverine forests and dense mixed woodlands is necessary for its continued wellbeing as a breeding species in South Africa.

Number held in captivity:

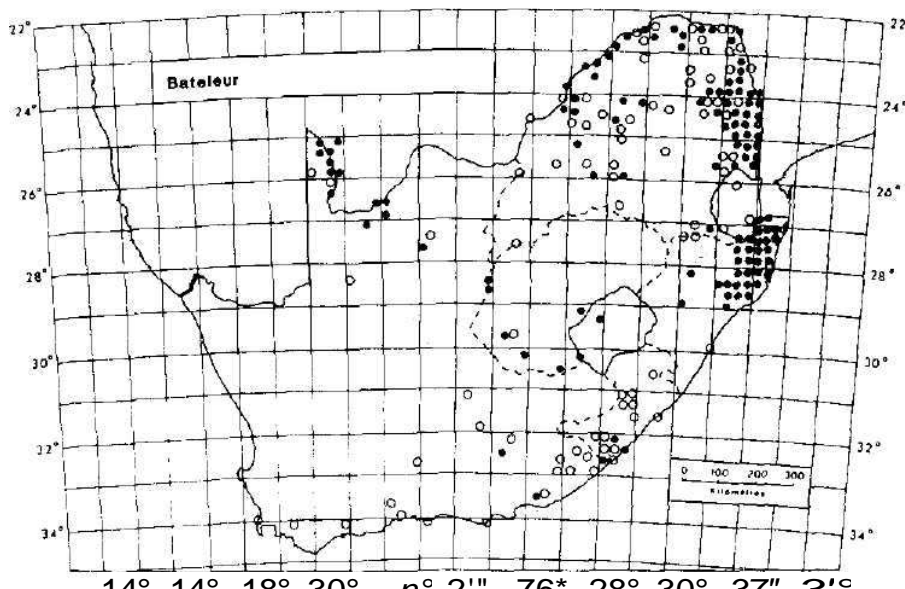
probably none. **Breeding potential**

in captivity: unknown. **Current**

research effort: none.

Remarks: the Southern Banded Snake Eagle occurs sparsely to the north of South Africa in the lowlands of Mozambique and east Africa north to Kenya. Its biology has never been studied.

Selected bibliography: Berruti A (1980b), Brown L H (1982d), Clancey P A (1964), Cyrus D and N Robson (1980), Kemp A (1980b), Macdonald I A W and P J Birkenstock (1980), Sinclair J C (1983), Steyn P (1982).



BATELEU
R Berghaan

Terathopus ecaudatus (Daudin) 1800: George, Cape

Province. Order
FALCONIFORMES

VULNERABLE

Family
ACCIPITRIDAE

Summary: a Vulnerable species whose numbers and range have decreased greatly both in South Africa and Zimbabwe. It is widespread in tropical Africa.

Present distribution: breeds in the game reserves of northern Zululand, the Transvaal lowveld and in the Kalahari Gemsbok National Park. Immatures wander widely but are seldom seen south of the Vaal and Tugela Rivers.

Former distribution: as above but also throughout the bushveld of the Transvaal and the northern Cape. Wandering birds used to occur occasionally throughout the southern parts of South Africa but there is no evidence that they ever bred there (Boshoff et al 1983).

Habitat: any woodland or savanna but not evergreen forest; prefers tall leafy trees in which to place its nests.

Status: breeding birds are apparently resident but immatures wander widely to forage.

Estimated numbers and population trends: ca 600 breeding pairs in the Transvaal (Tarboton and Allan in press); no estimates for Swaziland and Zululand but the total South African population is unlikely to exceed 700 breeding pairs. Tarboton (1978) estimates that there were 2 500 breeding pairs in the Transvaal 100 years ago. South of the breeding areas wandering birds are now rarely seen.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period at least seven and a half weeks; nestling period ca 16 weeks (Brown 1982d); females probably first breed at age eight (Brown and Cade 1972).

Reasons for decrease: immature and breeding Bateleurs are largely dependent on carrion for food (Steyn 1980, RT Watson in litt 1982). Tarboton (1978) has drawn attention to their potential for eating poisoned carcasses. This means that few young birds reach maturity and enter the breeding population. In addition, while adults are easily recognisable and less persecuted, the brown immatures are destroyed as 'hawks'. As human numbers rise in an area it becomes less acceptable to breeding Bateleurs who do not tolerate excessive disturbance near the nest. Another effect of increasing human numbers is an increase in Pied Crows *Corvus albus*. They commonly search for road kills at first light, long before soaring raptors are about (personal observation). It is likely that they scavenge small carcasses that Bateleurs, Lappetfaced Vultures and Whiteheaded Vultures would otherwise have found and eaten (Macdonald and Macdonald in press). Bush clearance reduces available habitat.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The Bateleur breeds in the Hluhluwe-Umfolozi Complex (Macdonald and Birkenstock 1980), and probably in the Mkuzi and Ndumu Game Reserves in Natal (Cyrus and Robson 1980); the Kruger National Park (Newman 1980a) and adjacent private game reserves in the Transvaal (Tarboton 1978); the Kalahari Gemsbok National Park (Dr A C Kemp and W R Tarboton in litt 1982). As part of its rural community education programme the Cape Department of Nature and Environmental Conservation has sent copies of Lewis (1980) or its Afrikaans equivalent to all farmers in the Cape Province.

Protective measures proposed: a difficult species to protect since immatures disperse widely in search of carrion and either succumb to feeding at poisoned carcasses or are shot as 'hawks'. Strychnine is so generally dangerous a poison that its use should not be permitted for application to unattended carcasses. The Division of Veterinary Services in the Department of Agriculture should be asked to phase out the distribution of poison baited carcasses for jackal control. More intensive education of farming communities against shooting 'hawks' will help the survival of young Bateleurs until they are old enough to breed.

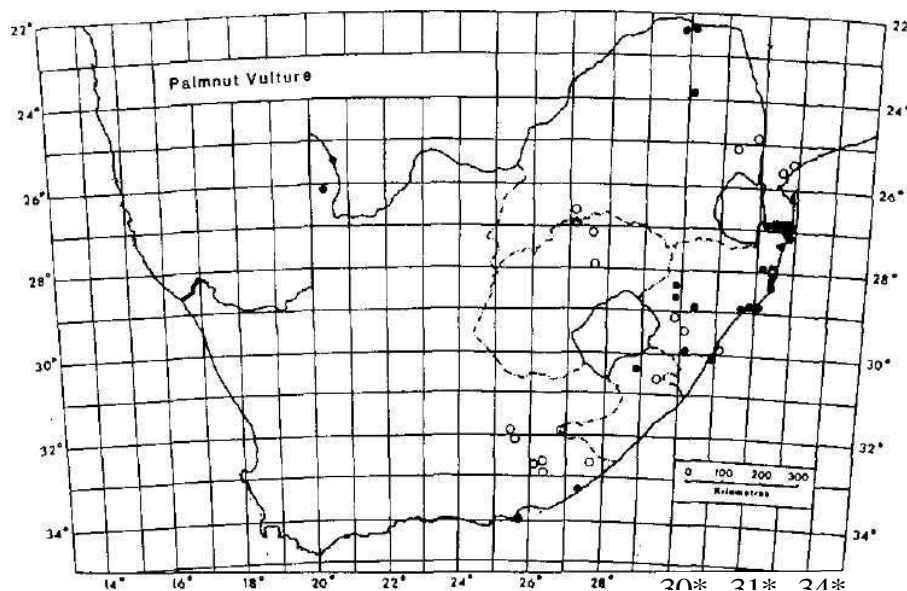
Number held in captivity: few.

Breeding potential in captivity: probably good as it has bred in a United States and a German Zoo (Dr AC Kemp in litt 1982).

Current research effort: R T Watson, University of the Witwatersrand, is studying the Bateleur's ecology in the Kruger National Park and may ascertain some of the factors responsible for its decrease (Watson 1982).

Remarks: the Bateleur is widely distributed in Africa outside the evergreen forests. It is not only in South Africa that there has been a marked decrease in numbers but also in Zimbabwe (eg Hornby 1974, Steyn 1980, Irwin 1981) and perhaps elsewhere.

Selected bibliography: Anon (1980), Bonde K (1981), Boshoff A F, C J Vernon and R K Brooke (1983), Brown L H (1982d), Brown L H and T J Cade (1972), Cramp S and K E L Simmons (1980), Cyrus D and N Robson (1980), Harris G and G Wurts (1973), Horn P (1973), Hornby H E (1974), Button J M (1977), Irwin M P S (1981), Kemp A (1978a), Kemp A C (1980a), Kemp A (1980b), Lewis R (1980), Macdonald I A W and P J Birkenstock (1980), Macdonald I A W and S A Macdonald (in press), Newman K (1980a), Osborne T O (1982), Pooiey A G (1967), Skead C J (1967a), Sneljing J C (1969), Snelling J C (1971), Steyn P (1973b), Steyn P (1980), Steyn P (1982), Tarboton W (1978), Tarboton W R and D G Allan (in press), Tree A J (1978), van Jaarsveld J (1982), Vernon C J (1979b), Vernon C J (1980a), Watson R T (1982), Winterbottom J M (1968).



**PALMNUT
VULTURE**
Witaasvoel

RARE

Gypohierax angolensis (Gmelin) 1788: Luanda, Angola. Order FALCONIFORMES

Family ACCIPITRIDAE
(Aegypiidae)

Summary: a Rare species (three breeding pairs) breeding in coastal Zululand. It is common in some parts of humid tropical Africa.

Present distribution: breeds at Mtunzini and Kosi Bay in coastal Zululand; nonbreeding birds, often immatures, wander to all parts of South Africa except the-western Cape.

Former distribution: not known to have differed from the above.

Habitat: normally breeds in association with the oil palm *Elaeis guineensis* and *Raphia australis*, the latter in South Africa, on the fruits of which the adults feed freely. Nonbreeders may forage in any forest or woodland habitat or along the coast.

Status: breeding birds are apparently resident but immatures wander to forage in areas which are unsuitable for breeding. It is probable that the majority of birds seen in South Africa were bred outside the country.

Estimated numbers and population trends: there are two breeding pairs in the naturally occurring *Raphia* at Kosi Bay and one in the planted *Raphia* grove at Mtunzini (Brooke and Cooper 1978). There is no evidence for a decrease in a species which has always been rare in South Africa. The *Raphia* grove at Mtunzini was planted ca 1915 and until the trees were well grown they could not be exploited by Palmnut Vultures.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period more than six weeks; nestling period 13 weeks (Brown 1982d); females normally first breed at age four (Brooke and Jeffrey 1972a).

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal.

Protective measures proposed: planting suitably sized *Raphia* groves in coastal Zululand would increase its breeding habitat and probably lead to an increase in the South African population.

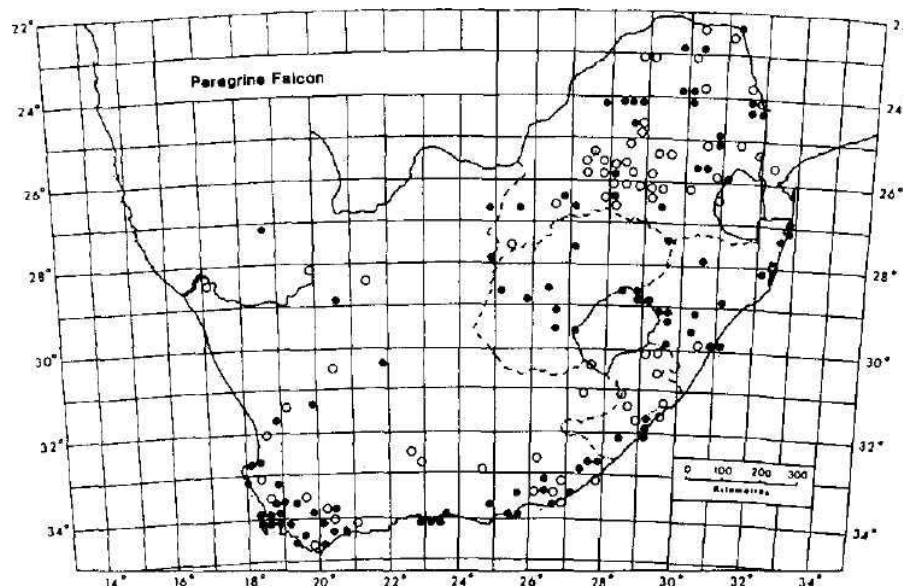
Number held in captivity: few.

Breeding potential in captivity: unknown.

Current research effort: the Vulture Study Group, Johannesburg, collects data on this species.

Remarks: the Palmnut Vulture is widespread in the moister parts of tropical Africa and often common. Conservation of the two *Raphia* groves will do much to ensure that it remains a South African breeding species.

Selected bibliography: Austen W M (1953), Berruti A (1980b), Boshoff A F, C J Vernon and R K Brooke (1983), Brooke R K and K H Cooper (1978), Brooke R K and R D Jeffrey (1972a), Brooke R K and R D Jeffrey (1972b), Brown C J (1982), Brown L H (1982d), Cyrus D and N Robson (1980), Donnelly B G and M P S Irwin (1972a), Donnelly B G and M P S Irwin (1972b), Kemp A C (1980a), Kemp A (1980b), Skead C J (1967a), Steyn P (1982), Tarboton W R and D G Allan (in press).



PEREGRINE FALCON
(Peregrine) Swerfvalk (Slegvalk)

Falco peregrinus Tunstall 1771: Northamptonshire,
U K. Order FALCONIFORMES

RARE

Family
FALCONIDAE

Summary: a Rare species (probably less than 100 breeding pairs) occurring throughout South Africa. The problem of its status is complicated by the arrival every summer of migrants from the far northern Palearctic. The species has a nearly worldwide distribution

but some races are Vulnerable and at least two are Endangered.

Present distribution: throughout South Africa, chiefly near cliffs, though there are no recent records from Lesotho (Bonde 1981) where it should be looked for.

Former distribution: as above but it bred in Lesotho earlier this century (Bonde 1981). It bred in the last century near Uppington on the lower Orange River and it has been seen near there recently in May, an unlikely date for a Palearctic migrant. Not all Karoo and northern Cape records are of migrants as suggested by Boshoff et al (1983).

Status: the breeding race *F. p. minor* is a resident though immature birds may wander in search of food and breeding territories. The Palearctic race *F. p. calidus* is present chiefly from November to February after *F. p. minor* has bred.

Habitat: breeds on ledges of cliffs; rarely of tall buildings; forages in nearby open country and along cliffs.

Estimated numbers and population trends: less than 40 breeding pairs in the Transvaal (Tarboton and Allan in press); rare in Natal (Cyrus and Robson 1980); rare in the Cape Province; present and breeding in the Orange Free State; not recently recorded in Lesotho (Bonde 1981). The total South African population may not exceed 100 breeding pairs. No evidence for a decrease outside Lesotho and it can occur in the centres of large cities.

Breeding rate in wild: normal clutch three eggs; single brooded; incubation period ca four and a half weeks; nestling period ca six weeks (Brown 1982e); females probably first breed at age two.

Reasons for decrease: little evidence for a decrease though it is subject to casual persecution, including by falconers. However, it seems always to have been scarce in South Africa and has thus escaped intensive persecution. Nothing is known in South Africa about the incidence of pesticide residues leading to thinning of egg shells causing eggs to break before hatching though it has been a major problem in parts of the northern hemisphere (Ratcliffe 1980) and has been noted in Zimbabwe (Irwin 1981, Thomson 1982a, Tarboton and Allan in press).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. In Natal it is a specially protected bird. In the Cape it breeds in the De Hoop Nature Reserve. In the Transvaal it breeds in the northern Kruger National Park (Newman 1980a).

Protective measures proposed: none.

Number held in captivity: several, including those in the possession of private falconers.

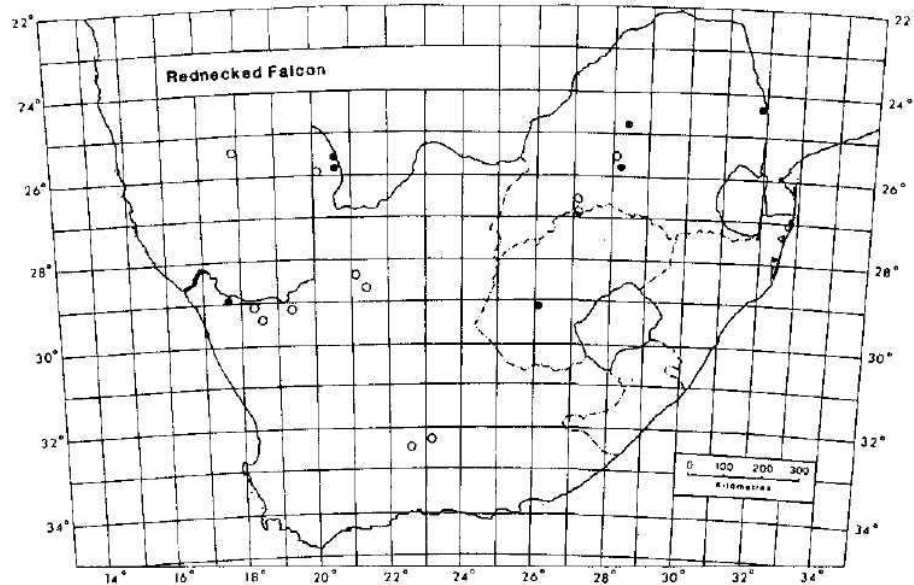
Breeding potential in captivity: good.

Current research effort: none.

Remarks: the Peregrine Falcon is included as Vulnerable in the 2nd ICBP red data book (King 1981). It has a nearly worldwide breeding range except in the warmer parts of the Neotropics and even there nonbreeding migrants occur. The race breeding in South Africa is *F. p. minor* which occurs throughout tropical Africa outside the evergreen forests but is nowhere common. It is apparently outcompeted by the much commoner Lanner Falcon *F. biarmicus* (Tarboton and Allan in press). Tarboton (1978) gives the current ratio of sightings in the Transvaal as 103: 7 in favour of the Lanner Falcon; in the eastern Cape it is 125: 4 (C J Vernon in litt 1982). Similar situations exist elsewhere in Africa. The much larger north Palearctic race *F. p. calidus* occurs as a nonbreeding migrant throughout South Africa which greatly complicates field surveys of the breeding race. A study to supplement the preliminary study of Snelling (1975) should be conducted on pesticide residues in the ecologically similar but much commoner Lanner Falcon to see if they are causing breeding failure or mortality on the assumption that what applies to the Lanner Falcon applies to the Peregrine Falcon. Peregrine Falcon populations in Japan and parts of North America and western Europe are endangered and others are vulnerable (Ratcliffe 1980).

Selected bibliography: Bonde K (1981), Boshoff A F, C J Vernon and R K Brooke (1983), Brown L H (1982e), Cade T J (1982), Condy J B-(1973), Cramp S and K E L Simmons (1980), Cyrus D and N Robson (1980), Hallamore C (1972), Hustler K (1983b), Irwin MPS (1981), Kemp A C (1980a), Kemp A (1980b), King W B (1981), Macdonald I A W and P J Birkenstock (1980), Martin R and P Neatherway (1980), Newman K (1980a), Ratcliffe D (1980), Ross G J B and RAR Black (1972), Snelling J C (1975), Skead C J

(1967a), Steyn P (1982), Tarboton W R (1968), Tarboton W (1978), Tarboton W R and D G Allan (in press), Thomson W R (1982a), Winterbottom J M (1968), Winterbottom J M (1979).



**REDNECKED
FALCON**

Rooinekvalk

Falco chicquera Daudin 1800:

Bengal. Order

FALCONIFORMES

**INDETERMIN
ATE**

Family

FALCONIDAE

Summary: a probably Rare species in the northern Cape Province which irrupts into the western Transvaal when there are rodent plagues and breeds there. It is widespread in tropical Africa and India.

Present distribution: the lower Orange River valley and the Kalahari Gemsbok National Park in the Cape Province and the western bushveld of the Transvaal.

Former distribution: not known to have differed from the above. The last century record from Nelspoort in the Great Karoo seems to have been of a wandering or irruptive bird and does not by itself indicate that there was a population there which has since become extinct.

Habitat: dry bushveld with many open spaces and riparian *Acacia* in arid areas: uses telephone posts as bases from which to forage (Dr P A Clancey in litt 1982).

Status: probably resident but breeding not proved in the lower Orange River valley and the Kalahari Gemsbok National Park; perhaps only an irruptive breeding visitor in the western Transvaal.

Estimated numbers and population trends: no estimates available. It is very uncommon within South Africa. There is no evidence for a decrease in the Cape Province (Boshoff et al 1983) and in the western Transvaal numbers and local distribution seem to depend on rodent plagues (Malherbe 1963, Tarboton 1978 who did not record the species in his survey). Alternatively, birds enter the western Transvaal and even breed in a suboptimal habitat when prolonged drought makes their normal range unable to support them (I A W Macdonald in litt 1983).

Breeding rate in wild: normal clutch three or four eggs; single brooded; incubation period four and a half weeks; nestling period five weeks (Brown 1982e); females probably first breed at age one.

Reasons for decrease: no evidence for a decrease save after the collapse of irruptions induced by rodent plagues (Malherbe 1963, W R Tarboton in litt 1982).

Protective measures taken: full legal protection is afforded by provincial and

homeland conservation ordinances. It probably breeds in the Kalahari Gemsbok National Park (Cade 1982).

Protective measures proposed: none.

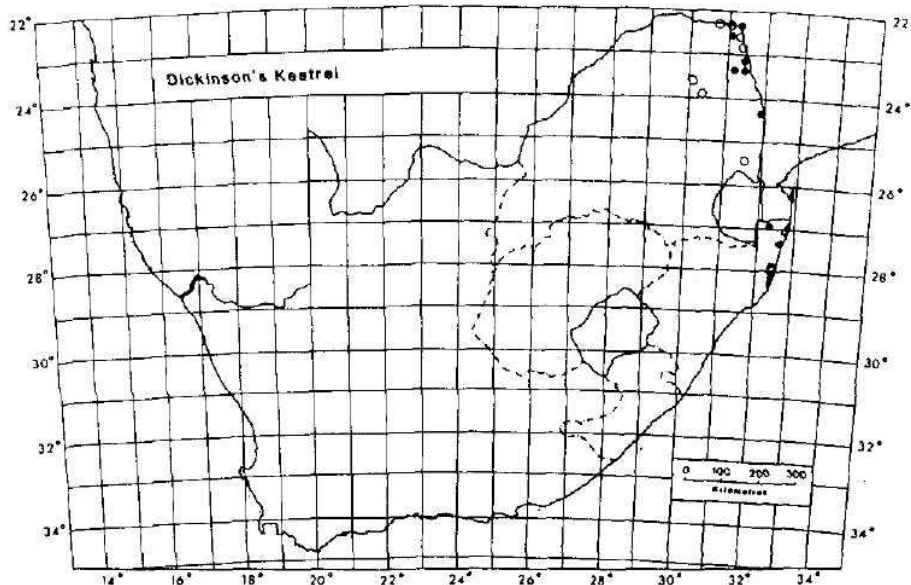
Number held in captivity: eight *F. c. horsbrughi* in the Transvaal.

Breeding potential in captivity: probably good: two pairs have bred in the Transvaal (Dr ACKempinlitt 1982)."

Current research effort: C Olwagen is studying captive birds in the Transvaal.

Remarks: two races occur in southern Africa. *F. c. horsbrughii* of the southwest arid region with which this data sheet is concerned and *F. c. ruficollis* which occurs widely in tropical Africa outside the evergreen forests south to Mozambique north of the Save River and often associated with palm trees. The nominate race occurs in India. In areas where it is largely resident, including South West Africa/Namibia, it is a predator of small birds, not rodents.

Selected bibliography: Boshoff A F, C J Vernon and R K Brooke (1983), Brown L H (1982e), Cade T J (1982), Colebrook-Robjent J F R and T O Osborne (1974), Hanmer D B (1983), Kemp A C (1980a), Kemp A (1980b), Malherbe A P (1963), Newman K (1980a), Steyn P (1982). Tarboton W (1978), Tarboton W R and D G Allan (in press), Winterbottom J M (1968).



**DICKINSON'S
KESTREL** *Dickinsonse*
Valk

RARE

Falco dickinsoni Sclater 1864: Chibisa,
Malawi. Order FALCONIFORMES

Family
FALCONIDAE

Summary: a Rare species (less than 50 breeding pairs) whose breeding range in South Africa is virtually confined to the northern Kruger National Park. It is widespread in southern tropical Africa.

Present distribution: breeds in the northern Kruger National Park in the Punda Milia region and the nearby Hlamalala Flats eastwards to the sandveld plateau south of Pafuri (Newman 1980a); wanders southwards in the Park and westwards in the Limpopo drainage. Also wanders to the Ndumu Game Reserve, extreme northern Zululand, from Mozambique.

Former distribution: breeding range not known to have differed from, the above; there are old specimen records of wanderers from Duiwelskioof near which Tarboton (1978) saw it and Hectorspruit in the Transvaal.

Habitat: deciduous woodland and palm savanna.

Status: some adults are resident in the areas in which they breed but many

birds wander extensively, particularly in winter.

Estimated numbers and population trends: less than 50 breeding pairs in the Transvaal and South Africa (Tarboton and Allan in press). No evidence for a decrease.

Breeding rate in wild: normal clutch three eggs; single brooded; incubation and nestling periods unknown but probably both four and a half weeks (Brown 1982e); females probably first breed at age one.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Most of the breeding population is in the Kruger National Park.

Protective measures proposed: none.

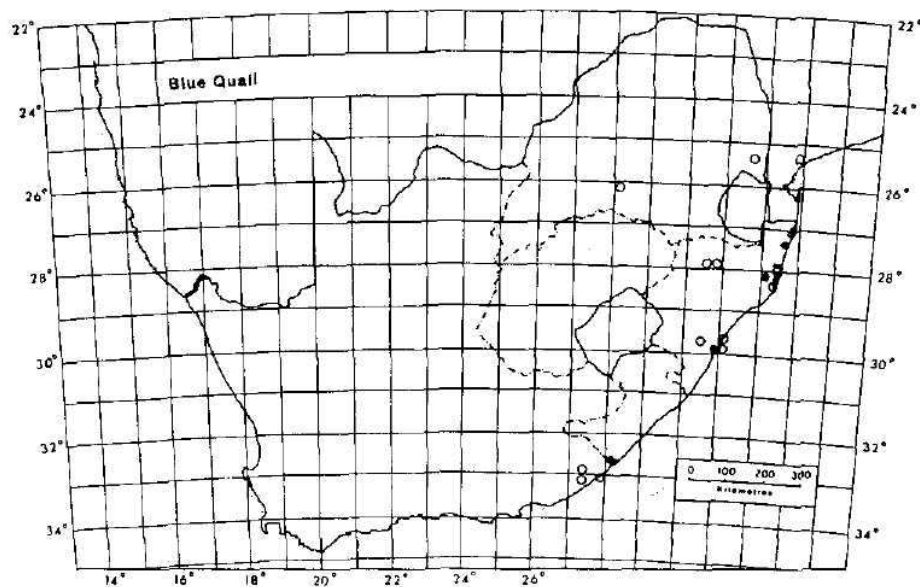
Number held in captivity: few.

Breeding potential in captivity:

probably good, **Current research effort:**
none.

Remarks: Dickinson's Kestrel is a widespread and sometimes common species in deciduous woodland in tropical Africa up to 5S.

Selected bibliography: Brown L H (1982e), Cade T J (1982), Clancey P A (1968b), Colebrook-Robjent J F R and I C Tanner (1979), Cyrus D and N Robson (1980), Hanmer D B and J G V Blackwood (1982), Hanmer J A and D B Hanmer (1978), Kemp A C (1980a), Kemp A (1980b), Meinesz A, S Meinesz and G Bennett (1982), Newman K (1980a), Steyn P (1982), Tarboton W (1978), Tarboton W R and D G Allan (in press).



BLUE QUAIL

Bloukwartel

Coturnix adansonii Verreaux & Verreaux 1851:
Gabon. Order GALLIFORMES

INDETERMINATE

Family
PHASIANIDAE

28° 30° 31° 34°

Summary: a Rare, perhaps only former breeding summer visitor to eastern South Africa which sometimes overwinters. Widespread in tropical Africa.

Present distribution: vagrants in the eastern Cape and coastal Natal.

Former distribution: one breeding record from coastal Natal in March 1925 (Transvaal Museum coll); nonbreeding birds collected in July 1910 at Hectorspruit, eastern Transvaal (Transvaal Museum coll); vagrants? in the high interior of Natal (Clancey 1964).

Habitat: marshy grassland.

Status: former? breeding summer visitor, particularly in wet seasons when it also overwintered.

Estimated numbers and population trends: no estimates available. The paucity of records from the 1970s suggests that habitat degradation in South Africa has led to the cessation of breeding by the population which used to breed here, at least occasionally.

Breeding rate in wild: normal clutch six to eight eggs; probably single brooded; incubation period two and a half weeks; nestling period and age at which females first breed unknown.

Reasons for decrease: degradation of habitat by overgrazing and excessive burning; converting coastal moist grasslands to sugar cane cultivation.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

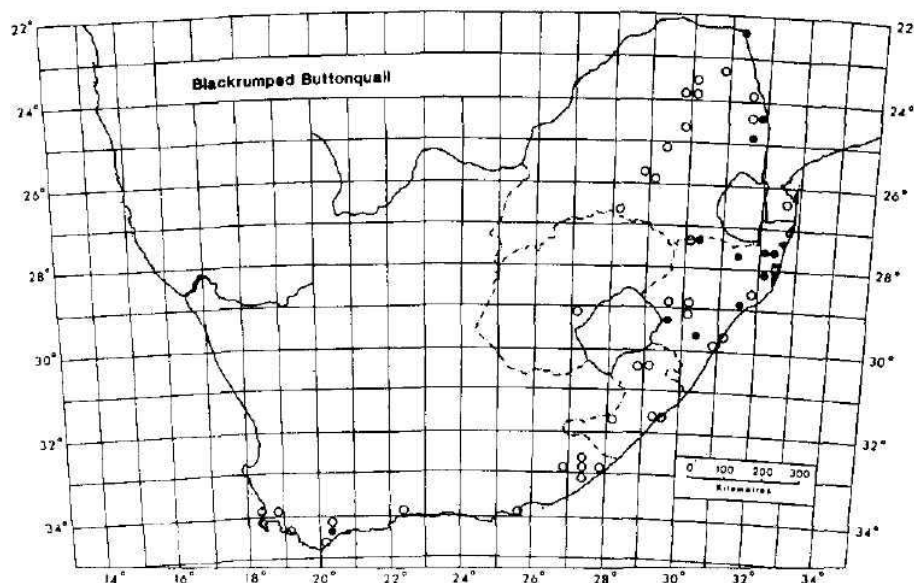
Number held in captivity: many.

Breeding potential in captivity: good (Harrison 1973, 1975).

Current research effort: none.

Remarks: the Blue Quail is widespread in tropical Africa and, if it is conspecific with the Painted Quail *C. chinensis* as many hold, also in the Oriental Region and eastern Australia.

Selected bibliography: Clancey P A (1964), Clancey P A (1967a), Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), Harrison C J O (1973), Harrison C J O (1975), Jones M A (1979), Kemp A C (1980a), Manson A J (1981), Skead C J (1967a).



**BLACKRUMPED BUTTONQUAIL (Hottentot
Buttonquail) Kaapse Kwarteltjie**
Turnix hottentotta Temminck 1815: Cape of Good
Hope. Order GRUIFORMES

**ENDANGER
ED**

Family
TURNICIDAE

Summary: an Endangered species (now seldom recorded and with only one probable modern breeding record) of southern and eastern South Africa. The most northerly race is widespread in moist tropical Africa.

Present distribution: occasionally recorded in the southern Cape Province. Natal and the eastern Transvaal.

Former distribution: the southern Cape Province from Cape Town eastwards through the eastern Cape to the Transkei and Natal, widely in the eastern and central Transvaal with one record each from the Great Karoo and the eastern Orange Free State.

Habitat: in Zimbabwe short moist well drained grassland with bare ground between the tufts of grass (Masterson 1973a).

Status: formerly a breeding resident in most parts of its range but probably only a breeding summer visitor to the plateaus of the Orange Free State and the Transvaal. It is difficult to be sure about the status of the Blackrumped Buttonquail since the great majority of early records were of shot birds and casual shooting for museums has virtually now ceased. As pointed out by Masterson (1973a), the birds rise suddenly at one's feet only to drop a few metres away, never to be seen again. Thus field identification is not easy. Cyrus and Robson (1980) record only eight localities/months for Natal in the 1970s which suggests vagrants rather than a resident population. However, a newly fledged bird in the Durban Museum coll (Dr P A Clancey in litt 1983) was found accidentally killed near Pietermaritzburg in the early 1970s. This suggests local breeding.

Estimated numbers and population trends: no estimates available but undoubtedly "very rare" (Kemp 1980a). It has lost most of its South African range and may no longer breed here.

Breeding rate in wild: normal clutch three eggs; probably single brooded; incubation period two weeks; nestling period and age at which females first breed unknown.

Reasons for decrease: destruction of its habitat through overgrazing, trampling and excessive burning is presumed to be at least partly responsible for the decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none until the survey proposed in Remarks below is carried out.

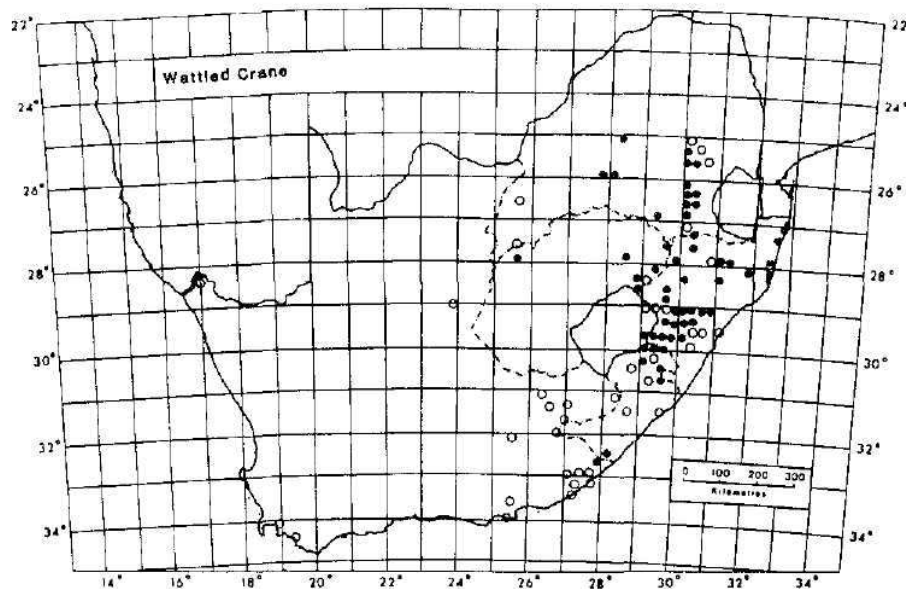
Number held in captivity: probably few.

Breeding potential in captivity: probably good, cf Flieg (1973).

Current research effort: none.

Remarks: the Blackrumped Buttonquail is widespread in tropical Africa. The nominate race endemic to the southern Cape Province may be extinct: the last breeding record was made near De Hoop Vlei, Bredasdorp District, in 1968 (SAOS nest record cards) though it has been seen there in 1972. In its southern Cape range it is the only buttonquail since the Kurrichane Buttonquail *T. sylvatica* does not occur so far south; thus all sight records of buttonquails may be referred to the Blackrumped Buttonquail. The evidence that *T. h. nana* of the eastern Cape to the Transvaal still breeds in South Africa is tenuous, cf Cyrus and Robson (1980). *T. h. nana* also occurs in southern Mozambique (Clancey 1970a). The purely tropical race *T. h. luciana* does not occur in South Africa. A survey is urgently required to establish the present status, distribution and habitat requirements of this species. Only then can an adequate conservation programme be planned and implemented. Blackrumped Buttonquail is a better English name since this is a major field character for separating buttonquails.

Selected bibliography: Clancey P A (1967a), Clancey P A (1970a), Cyrus D and N Robson (1980), Flieg G M (1973), Kemp A C (1980a), Masterson A N B (1973a), Newman K (1980a), Skead C J (1967a). Winterbottom J M (1968), Winterbottom J M (1979).

**WATTLED CRANE****Lelkraanvoel (Lelkraan)**

Grus carunculata (Gmelin) 1789: Cape of Good Hope.

Order GRUIFORMES

ENDANGERED

Family
GRUIDAE

Summary: an Endangered species now reduced to ca 100 breeding pairs and confined in South Africa to swampy ground in high altitude grasslands. It is a species which, formerly widely distributed and reasonably numerous, could easily become extinct as a South African breeding species before 2 000 AD. It is locally distributed north to Ethiopia and everywhere vulnerable.

Present distribution: breeds locally from extreme northeastern Cape Province to the Belfast District of the southeastern Transvaal; wanders outside this range to forage.

Former distribution: the southern Cape Province west to Cape Town, the eastern Cape, Transkei, more widely in the eastern and northern Orange Free State, the southwestern Transvaal and more widely in the southeastern Transvaal and Swaziland. It is not known to have bred west of the eastern Cape but may well have done so since the species occurred around Cape Town early in the last century: for a contrary opinion see Winterbottom (1968). It has not been sighted in the Cape Province outside the northeast since the 1960s. It no longer occurs in Swaziland (Konrad 1981).

Habitat: medium or large sized swamps in open grassland. Known breeding sites in South Africa have all been above 1 000 m asl though coastal breeding is recorded in central Mozambique (Haagner 1948).

Status: breeding adults are residents but younger birds wander to forage, occasionally forming large flocks.

Estimated numbers and population trends: 100 breeding pairs (Day 1981) of which less than 30 occur in the Transvaal (W R Tarboton in Htt 1983) and two pairs in the Orange Free State (Konrad 1981). The decrease implied by the diminution of its historical breeding range is still continuing (Tarboton in press).

Breeding rate in wild: normal clutch one, less often two eggs but only one youngster reared (Tarboton in press); single brooded; incubation period four and half to five and a half weeks; the nestling period is nearly five months, the longest of any crane species; a new breeding cycle is started ca 14 months after the start of the preceding one if it was successful; annual

productivity to fledgling in Botswana and Zambia 13% (both Konrad 1981): females probably first breed at age five or more.

Reasons for decrease: intolerance of human activity within 250-300 m of the nest; nesting habitat flooded by dam building; draining swamps for crop growing, including afforestation (Tarboton in press); degradation of grassland to False Karoo in the Cape Province has destroyed most of its breeding habitat there; eating poisoned grain bait (Day 1979).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal. In Natal it breeds in the Himeville and Kamberg Nature Reserves and the Highmoor State Forest and in the Transvaal in the Belfast State Forest.

Protective measures proposed: suitable breeding swamps and ca 300 ha of surrounding open grassland should be preserved from economic activity, other than open range sheep farming, and disturbance by passing people (Konrad 1981, Tarboton in press).

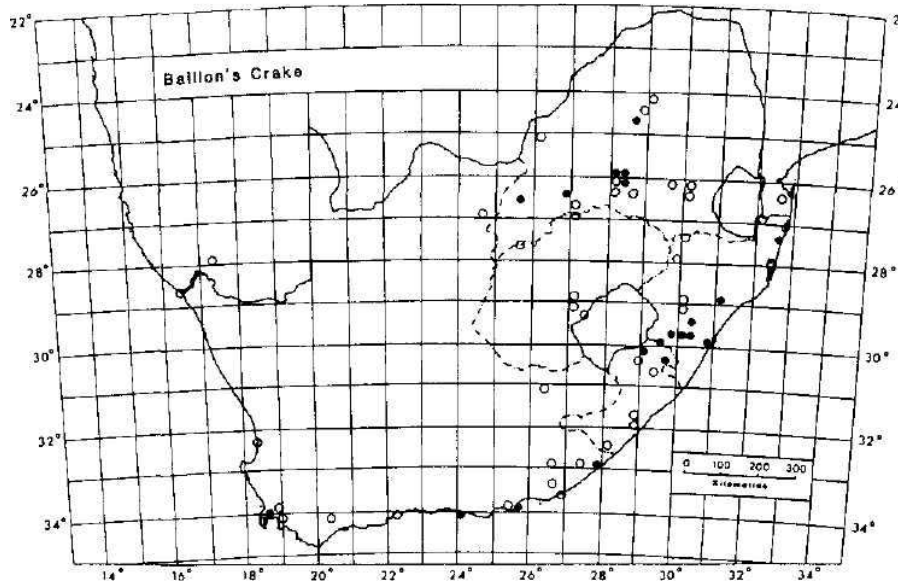
Number held in captivity: at least four in South Africa and quite a few overseas, mostly obtained from the Okavango swamps of Botswana in the last few years.

Breeding potential in captivity: the Wattled Crane is among the most difficult crane species to breed in captivity. It has been achieved twice in the United States, once each in Germany and Japan (D H Day in litt 1982) and once in the Pretoria Zoo (Dr A C Kemp in litt 1982).

Current research effort: the Natal Parks, Game and Fish Preservation Board has a researcher, W Barnes, studying the cranes of the Province. The Nature Conservation Division of the Transvaal is conducting quarterly monitoring surveys. The Southern African Crane Study Group is conducting surveys to ascertain the total population and the breeding population in South Africa as well as collecting ecological data which may be relevant to its active conservation.

Remarks: the Wattled Crane occurs in suitable areas from South Africa to Tanzania and again in highland Ethiopia and is decreasing in most, if not all parts of its range (West 1977, Konrad 1981). At the present rate of development in the interior of Natal and the southeastern Transvaal virtually no suitable breeding sites will remain by 2 000 AD. The very low annual production of young coupled with the unknown mortality of immature birds makes the conservation management of the Wattled Crane particularly difficult. Although the generic name *Grus* has been treated as masculine in South Africa it is in fact feminine as witnessed by overseas usage and the correct combination is *G. carunculata*.

Selected bibliography: Archibald G (1981), Bauer D (1982), Bonde K (1981), Boulton R, D Brown and A Morris (1982), Cyrus D and N Robson (1980), Day D (1978b), Day D H (1979), Day D H (1980), Day D (1981), Douthwaite R J (1974), Dowsett R J and F Dowsett-Lemaire (1980), Field D (1978), Haagner A K (1948), Konrad P M (1981), Mendelsohn J M, J C Sinclair and W R Tarboton (1983), Skead C J (1967a), Tarboton W (in press), Tarboton W and D Day (1980), Walkinshaw L H (1965), Walkinshaw L (1973), West O (1963), West O (1976), West O (1977), West O (1982), West O, D H Day and W Conradie (1979), Winterbottom J M (1968).



BAILLON'S CRAKE
Kleinriethaan (Kleinste
Riethaantjie)

Porzana pusilla (Pallas) 1776: Dauria,
Siberia. Order GRUIFORMES

INDETERMIN
ATE

Family
RALLIDAE

Summary: a probably Rare but undoubtedly unobtrusive species widely distributed in South Africa except in arid areas. Baillon's Crake is widely distributed in the old world.

Present distribution: southern, eastern and northern Cape Province, Transkei, Natal and Transvaal south of the Tropic of Capricorn.

Former distribution: as above but more widely distributed in the southwestern Transvaal, also the Orange Free State and the Orange River estuary. Baillon's Crake is so unobtrusive and so seldom reported that only a thorough search of its former areas of distribution would prove that a range reduction has really taken place.

Habitat: swamps and marshy grasslands including temporarily flooded grassland.

Status: probably resident in permanently marshy conditions but there is some evidence for its being a breeding summer visitor to temporarily suitable areas, cf Irwin (1981).

Estimated numbers and population trends: no estimates available but probably rare as well as very unobtrusive. No satisfactory evidence for a decrease (see Former distribution above).

Breeding rate in wild: normal clutch five eggs; probably single brooded; incubation period nearly three weeks; nestling period ca five weeks; females first breed at age one (Eurasian data in Cramp and Simmons 1980).

Reasons for decrease: no satisfactory evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

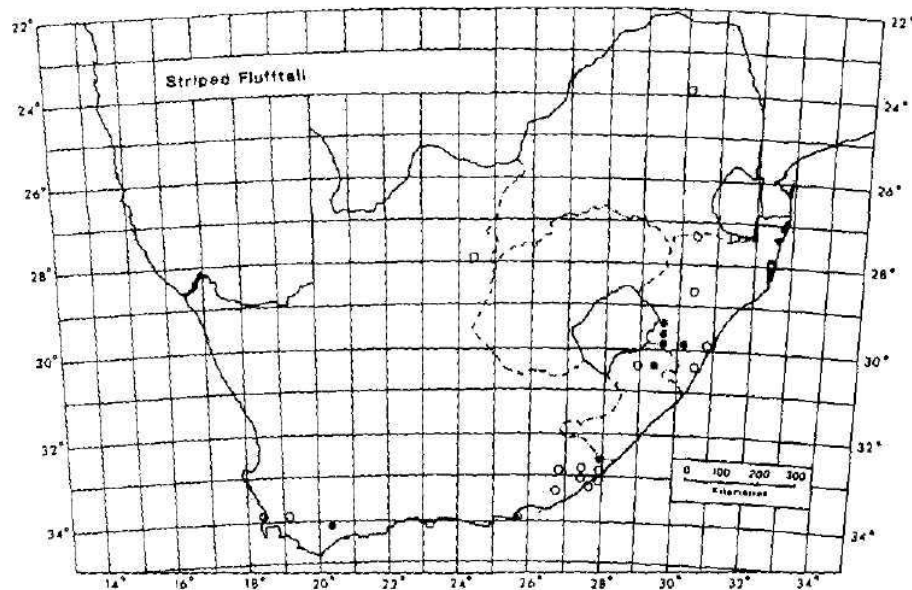
Protective measures proposed: conservation of swamps. **Number held in captivity:** probably few.

Breeding potential in captivity: unknown.

Current research effort: none.

Remarks: Baillon's Crake is widely but disjunctly distributed through the old world. So little is known about Baillon's Crake in South Africa, or anywhere else (Cramp and Simmons 1980), that some attempt should be made to ascertain its present range, breeding habitat and numbers to see whether it is as rare as is now thought, whether a decrease has taken place and, if so, why. Only then would the need for conservation action be apparent as well as what should be done.

Selected bibliography: Baur S (1980), Benson C W (1964). Benson C W and C R S Pitman (1966). Cramp S and K E L Simmons (1980), Cyrus D and N Robson (1980), Irwin M P S (1981), Newman K (1980a), Olson S L (1973), Ripley S D (1977), Skead C J (1967a), Tarboton W R (1968), Tarboton W R (1977a), Uys C J (1981), Winterbottom J M (1968), Winterbottom J M (1979).



STRIPED FLUFFTAIL
Streepborsvieikuiken (Gestreepte
Vleikuiken)

Sarothrura affinis (Smith) 1828: Cape Province,
 South Africa. Order GRUIFORMES

RAR
E

Family
RALLIDAE

Summary: a Rare species (very few records) of southern and eastern South Africa with other races north to Ethiopia.

Present distribution: the southern Cape Province from Cape Town eastwards through the eastern Cape and Transkei to Natal.

Former distribution: as above but also in the eastern and northern Transvaal. The Striped Flufftail is so unobtrusive that lack of modern records from the Transvaal may not mean a real reduction in range but be the result of the virtual cessation of causal shooting for museums.

Habitat: rank vegetation and grass, often beside forest, also marshes, particularly in the dry season. In the southern Cape it occurs down to sea level but elsewhere it is an inland and submontane species.

Status: resident as far as is known. No fully authentic breeding record has been made in South Africa but it probably breeds in the areas it frequents since the South African populations form the endemic nominate race.

Estimated numbers and population trends: no estimates available. Probably widespread but rare within-its range with no firm evidence for a decrease.

Breeding rate in wild; normal clutch four or five eggs; nothing known of the number of broods, incubation and nestling periods and age at which females first breed (Keith et al 1970).

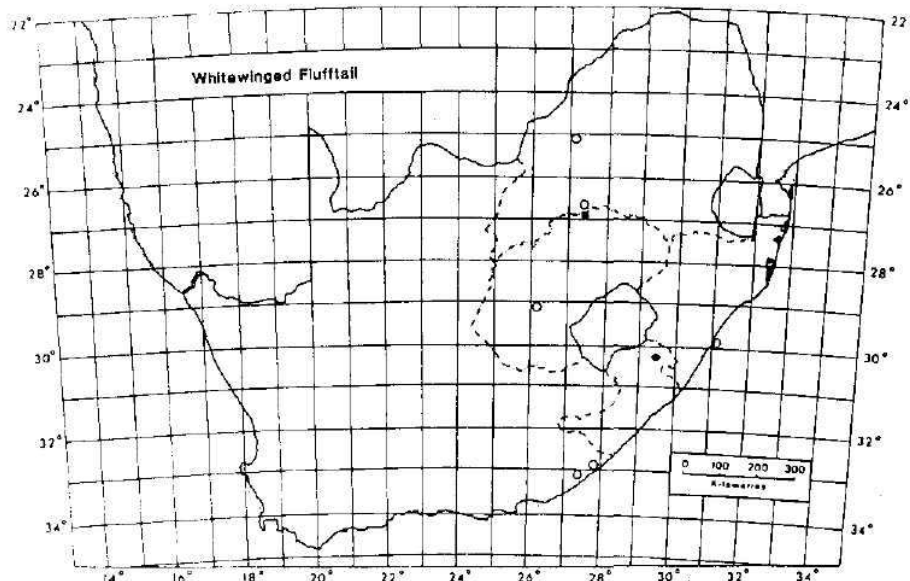
Reasons for decrease: no firm evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: conservation of swamps. **Number held in captivity:** probably few. **Breeding potential in captivity:** probably good. **Current research effort:** none.

Remarks: the nominate race of the Striped Flufftail is confined to South Africa. Other races occur in eastern Africa north to Ethiopia but the number to be recognized is uncertain (Keith et al 1970). A survey of the distribution, habitats (including seasonal changes, if any), numbers and breeding of the endemic nominate race of the Striped Flufftail is required. Although the species is very unobtrusive it responds readily to recordings of its territorial call and thus reveals its presence (Keith et al 1970).

Selected bibliography: Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), Keith S, C W Benson and M P S Irwin (1970), Olson S L (1973), Ripley S D (1977), Skead C J (1967a), Winterbottom J M (1979).



**WHITEWINGED
FLUFFTAIL
Witvlervkleikuiken**

Sarothrum ayresi (Gurney) 1877: Potchefstroom,
Transvaal. Order GRUIFORMES

**RAR
E**

Family
RALLIDAE

Summary: a Rare species (two modern localities with repeat observations) in eastern South Africa. It reappears on the plateau of Ethiopia with a few records in between.

Present distribution: Franklin in southwestern Natal (Mendelsohn et al 1983); in the Transvaal the Suikerbosrand Nature Reserve (Wolff and Milstein 1976) and near Belfast (Mendelsohn et al 1983); in the northern Cape Province Ganspan, Jan

Kempdorp (Dr R Liversidge in litt 1983).

Former distribution: Keith et al (1970) doubted all sight records of the Whitewinged Flufftail but having seen the bird in Zambia (Brooke 1964) I do not believe that any reasonably competent observer who sees it can misidentify it. I therefore accept all claimed sight records known to me. In the eastern Cape Province King Williams Town and East London; in Natal Durban; in the Orange Free State Bloemfontein; in the Transvaal Potchefstroom (all Keith et al 1970) and Rustenburg (Wolff and Milstein 1976).

Habitat: wet grassland and short to medium emergent vegetation, particularly when it forms a mat on the water.

Status: resident with local movements as vleis dry out. A not fully grown but flying youngster was seen at Franklin in January 1983 (Mendelsohn et al 1983) and an empty nest associated with Whitewinged Flufftails was found near Dullstroom in December 1982 (W R Tarboton in litt 1983).

Estimated numbers and population trends: no estimates available but undoubtedly rare. No evidence for a decrease in view of the virtual cessation of casual bird shooting for museums and the reluctance of most observers to plough through the swamps in which they usually live.

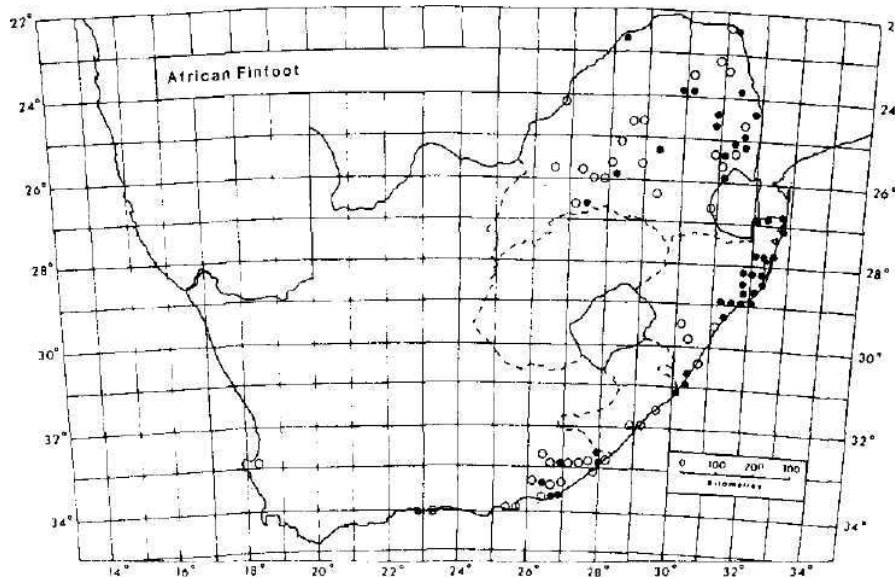
Breeding rate in wild: nothing known in detail (Keith et al 1970). **Reasons for decrease:** no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: conservation of large swamps as for the Bittern and Wattled Crane. **Number held in captivity:** probably none. **Breeding potential in captivity:** probably good. **Current research effort:** none.

Remarks: examination of the specimens of the Whitewinged Flufftail does not show any characters suggestive of subspeciation between South African and Ethiopian females (Keith et al 1970, Benson and Irwin 1971). The males probably show subspecific characters (Benson and Irwin 1971). Outside South Africa it has been seen in Zimbabwe (Hopkinson and Masterson 1977) and Zambia (Brooke 1964). There is a population in the highlands of Ethiopia (Keith et al 1970) which may be extinct (Ash 1978).

Selected bibliography: Ash J S (1978), Benson C W and M P S Irwin (1971), Benson C W and MPS Irwin (1974), Brooke R K (1964), Courtenay-Latimer M (1964), Dowsett R J and F Dowsett-Lemaire (1980), Hopkinson G and A N B Masterson (1977), Keith S, C W Benson and M P S Irwin (1970), Mendelsohn J M, J C Sinclair and W R Tarboton (1983), Olson S L (1973), Ripley S D (1977), Sclater W L (1906), Wolff S W and P le S Milstein (1976).



AFRICAN FINFOOT
(Finfoot) Watertrapper
Podica senegalensis (Vieillot) 1817:
 Senegal. Order GRUIFORMES

INDETERMINATE

Family
 HELIORNITHIDAE

Summary: a Rare species (it does not occupy all apparently suitable areas within its range and it has lost some breeding areas to riverine degradation) of eastern and northern South Africa. It occurs widely in tropical Africa.

Present distribution: the coastal districts of the eastern Cape Province from Nature's Valley eastwards reappearing in the middle altitudes of Natal and widespread in the northern and central Transvaal; vagrants occur in the southern Cape, rarely as far west as Cape Town (see Remarks below).

Former distribution: as above but also in the intervening Transkei.

Habitat: clear waterbodies with reeds and overhanging trees in which they breed.

Status: resident but not all apparently suitable stretches of river are occupied; some wandering takes place, perhaps by immatures in search of a territory.

Estimated numbers and population trends: no estimates available but probably rare since much apparently suitable habitat is not occupied and never has been. Habitat destruction in the Transkei (Skead 1967a) and Natal (Garland 1981) has led to some loss of population.

Breeding rate in wild: normal clutch two eggs; number of broods, incubation and nestling periods and age at which females first breed unknown.

Reasons **for** decrease: habitat destruction in the form of cutting overhanging waterside trees and increasing levels of silt and turbidity of rivers which diminishes their foraging habitats as in the Siaya system, Natal (Garland 1981).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. In Natal it breeds in the Hluhluwe-Umfolozi Complex (Macdonald and Birkenstock 1980) and probably in the Ndumu Game Reserve (Cyrus and Robson 1980); in the Transvaal it breeds in the Kruger National Park (W R Tarboton in litt 1983).

Protective measures proposed: conservation of rivers to restore the pools of clear water in which they forage.

Number held in captivity: probably

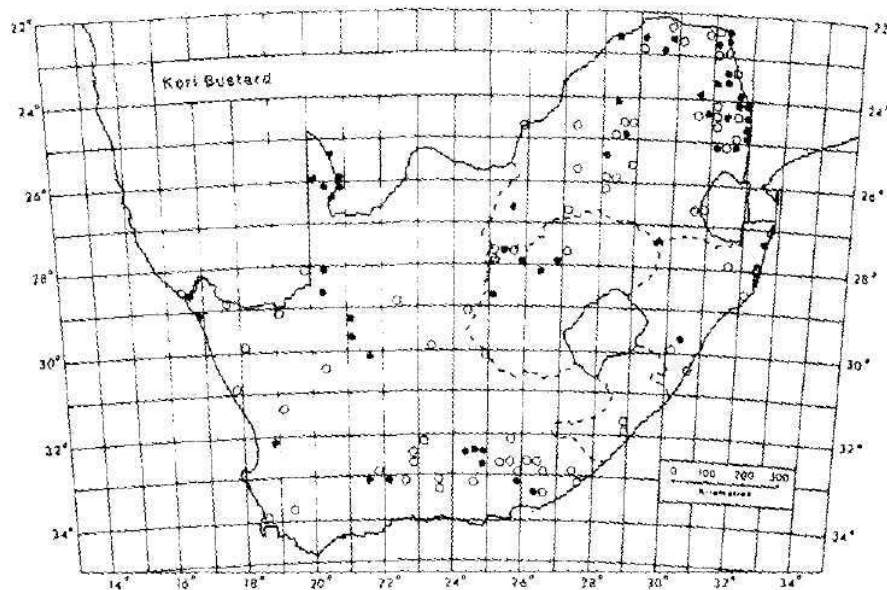
few. **Breeding potential in captivity:**
unknown.

AFRICAN FINFOOT, KORI BUSTARD

Current research effort: none,

Remarks: the African Finfoot is widespread in tropical Africa and the South African race *P. s. petersii* extends north to southern Kenya. There are three records of African Finfoot in the southwestern Cape for the last century (Layard 1867, Roberts 1936) and one was seen a few years ago. It is clearly a vagrant in the southwestern and southern Cape,

Selected bibliography: Craib C (1969), Cyrus D and N Robson (1980), Garland I F (1981), Ginn P (1977a), Ginn P (1977b), Hall D G (1983), Hosken J H (1966), Johnson A W (1964), Jubb R A (1982), Kemp A C (1980a), Krienke W (1943), Lawson W J (1966), Layard E L (1867), Macdonald I A W and P i Birkenstock (1980), Mitchell S and J N Taibot (1977), Newman K (1980a), Percy Wand CRS Pitman (1963), Pitman CRS (1962), Roberts A (1936), Skead C J (1962), Skead C J (1967a), Whately A (1982).



VULNERABLE

KORI BUSTARD

Gompou

Ardeotis kori (Burchelli) 1822: Matzeisfontein, Cape Province. (*Otis kori*).

Order GRUIFORMES

Family OTIDIDAE

(Otidae)

Summary: a Vulnerable species (present in much reduced numbers) still widely distributed in the interior of South Africa though avoiding montane and densely wooded country and settled areas; a vagrant to coastal areas. The species is widespread in southern Africa with another race from Tanzania to Ethiopia.

Present distribution; the interior of the Cape Province, the western Orange Free State and the

Transvaal outside the southeastern highlands; now (V, R Tarboton in lit! 1983) confined to the Kruger National Park and adjacent conserved areas and the Limpopo valley where it forms the frontier with Botswana; vagrant in the coastal areas of the Cape Province and anywhere in Natal.

Former distribution: not known to have differed from the above: there are no recent records of vagrants from the Transkei.

Habitat; karoo and savanna with minimal human populations.

Status: resident with a tendency for some birds to move east for the winter.

Estimated numbers and population trends: Dr R Liversidge (in litt 1983) has counted ca 75 a day in favourable seasons in the Kalahari Gemsbok National Park. No other estimates available. It is clear that numbers are less than they were a century and more ago but the extent of the reduction is unknown.

Breeding rate in wild: normal clutch one or two eggs; single brooded; incubation period ca four

and a half weeks; nestling period and age at which females first breed unknown.

Reasons for decrease: hunting pressure on a slow breeding species and the unacceptability of increasing levels of disturbance due to human population growth. Little is known of the diet of the Kori Bustard but it is possible that ploughing and other agricultural practices diminish their food supply. These factors presumably also apply in Zimbabwe where it is also Vulnerable (Tree et al 1979, Irwin 1981).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal. It breeds in the Kalahari Gemsbok National Park in the extreme northern Cape and in the Kruger National Park (Newman 1980a).

Protective measures proposed: enforcement of conservation legislation coupled with education of the gun-using community to the need to conserve the decreasing populations of large bustards.

Number held in captivity: probably

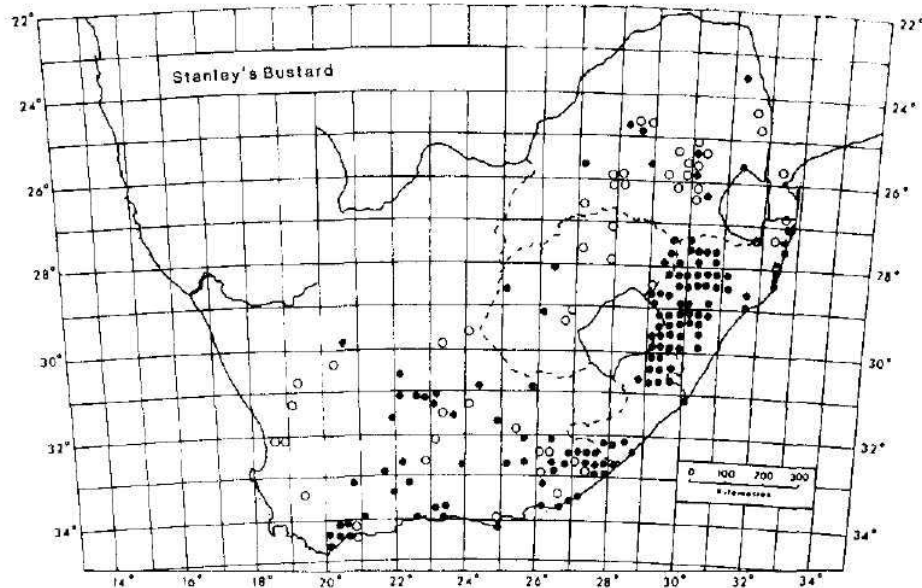
few. **Breeding potential in captivity:**

unknown.

Current research effort: D Mostert of the Orange Free State Nature Conservation Division is studying the distribution and biology of the Kori Bustard in that Province.

Remarks: the Kori Bustard exists in two races, the nominate race of interior southern Africa and extreme southern Angola and the larger *A. k. struthiunculus* from Tanzania to Ethiopia. A survey is needed to ascertain its present numbers and breeding range in South Africa as well as the extent to which it is still migratory (on an east-west axis). Only then will the need for and nature of conservation action become apparent.

Selected bibliography: Clancey P A (1967a), Clancey P A (1972), Cyrus D and N Robson (1980), Fraser W (1982a), Irwin M P S (1981), Jubb R A (1981), Kemp A C (1980a), Newman K (1980a), Prozesky O P M (1977b), Skead C J (1967a), Tree A J, B J M Foggin and R Boulton (1979), Urban E K, L H Brown, B Brown and K B Newman (1978), Winterbottom J M (1968), Winterbottom J M (1979).



**STANLEY'S
BUSTARD** Veldpou

Neotis denhami (Children) 1826: Lake Chad. (*Otis denhami*). Order GRUIFORMES

VULNERABLE

Family OTIDIDAE
(Otidae)

Summary: a Vulnerable species (present in reduced numbers) of South Africa occurring outside the northern Cape Province and the northern Transvaal. Other races occur in tropical Africa.

Present distribution: Cape Province south of the Orange River to the south coast but only a vagrant west of 20E, the Orange Free State and western Lesotho, the interior of the Transkei, Natal except the south coast, the southern and central Transvaal.

Former distribution: not known to have differed from the above.

Habitat: open country other than the higher parts of the Drakensberg.

Status: largely resident except when droughts force the birds to move eastwards. In northern Zululand it is a breeding summer visitor (see Remarks below).

Estimated numbers and population trends: probably less than 100 breeding pairs in the Transvaal (W R Tarboton in litt 1983); nearer 50 than 100 breeding pairs in the eastern Cape (C J Vernon in litt 1983). No other estimates available. While numbers have decreased they have done so to a lesser extent than in the Kori Bustard.

Breeding rate in wild: normal clutch one or two eggs; single brooded; incubation and nestling periods and age at which females first breed unknown.

Reasons for decrease: hunting pressure (Kieser and Kieser 1978) on a slow breeding species and the unacceptability of increasing levels of disturbance due to expanding human populations, It is however, more tolerant of human populations than is the Kori Bustard.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Bontebok National Park, Cape Province, and the Kamberg Nature Reserve, Natal (Wright 3969).

Protective measures proposed: enforcement of conservation legislation coupled with education of the gun-using community to conserve the decreasing populations of large

bustards.

Number held in captivity: probably few.

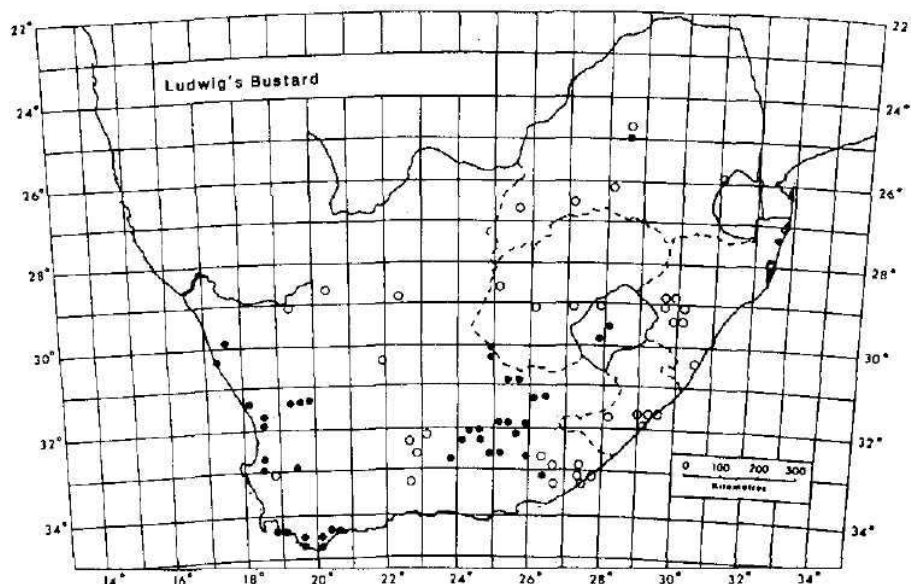
Breeding potential in captivity:

unknown.

Current research effort: D Mostert of the Orange Free State Nature Conservation Division is studying the distribution and biology of Stanley's Bustard in that Province.

Remarks: Stanley's Bustard, more usually known as Denham's Bustard north of the Limpopo, is represented in South Africa by the virtually endemic race *N. d. stanleyi*. Two other races occur in moist grasslands north of South Africa. The position in the lowlands of Zululand and southern Mozambique is obscure: it is regarded as a rare nonbreeding visitor by Clancey (1964, 1967a, 1970a, 1972, 1980a) and by Cyrus and Robson (1980). However the Transvaal Museum has eggs taken at Lake St Lucia (for which Berruti 1980 records it as a migrant arriving in September and displaying) on 24 November 1926, 6 November 1927 and 22 October 1931 and from near Muzi in extreme southern Mozambique on 24 November 1935. That museum also has a male specimen from Muzi. The only problem in identifying large bustard eggs is deciding which species laid them: there is no doubt that they are large bustard eggs. In view of the collected specimen and Berruti's (1980b) comments there seems to be no doubt that there was and maybe still is a small migratory summer breeding population on the tropical coastal plain of Zululand. Whether Stanley's Bustard should rather be placed in *Otis* is still an open question (Dowsett and Dowsett-Lemaire 1980).

Selected bibliography: Berruti A (1980b), Clancey P A (1964), Clancey P A (1967a), Clancey P A (1970a), Clancey P A (1972), Clancey P A (1980a), Collet J (1982), Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), Kemp A C (1980a), Kieser J A and G A Kieser (1978), Skead C J (1967a), Skead C J (1967b), Tarboton W R (1968), Uys C J (1963), Uys C J and J G R Macleod (1967), Winterbottom J M (1968), Winterbottom J M (1979), Wright FB (1969).



LUDWIG'S BUSTARD

Ludwigse Pou

Neotis ludwigii (Rueppell) 1837: Graaff-Reinet, Cape Province. (*Otis ludwigii*).

Order GRUIFORMES

VULNERABLE

Family OTIDIDAE (Otidae)

Summary: a Vulnerable species (present in reduced numbers and no longer occurs in the eastern and northeastern parts of its former range) of the dry interior of South Africa. It also occurs in South West Africa/Namibia and southwestern Angola.

Present distribution: the dry interior of the Cape Province south of the Orange River with records from the Kalahari Gemsbok National Park and one sight record from the central Transvaal.

Former distribution: as above but reaching further towards the coast in the southeastern Cape; it occurred, chiefly as a nonbreeding visitor, in the Orange Free State, western Lesotho, western Natal where it bred occasionally and the southern Transvaal.

Habitat: open country.

Status: resident and breeds even in the northwestern Cape: a week old chick was found on 11 September 1980 between Hondeklipbaai and Springbok (J Visser, personal communication 1980). Migratory movements into the east and northeast of its former range no longer take place, perhaps because the now sparse population can be sustained on its western breeding grounds.

Estimated numbers and population trends: no estimates available. It no longer occurs in the eastern and northeastern part of its former range.

Breeding rate in wild: normal clutch two eggs; single brooded; incubation and nestling periods and age at which females first breed unknown.

Reasons for decrease: hunting pressure (Kieser and Kieser 1978) on a slow breeding species has eliminated it as a breeding species in the eastern parts of its range. In addition, changed land use practices have probably played a part in its disappearance there.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal.

Protective measures proposed: enforcement of conservation legislation coupled with education of the gun-using community to the need to conserve the decreasing populations of large bustards.

Number held in captivity: probably

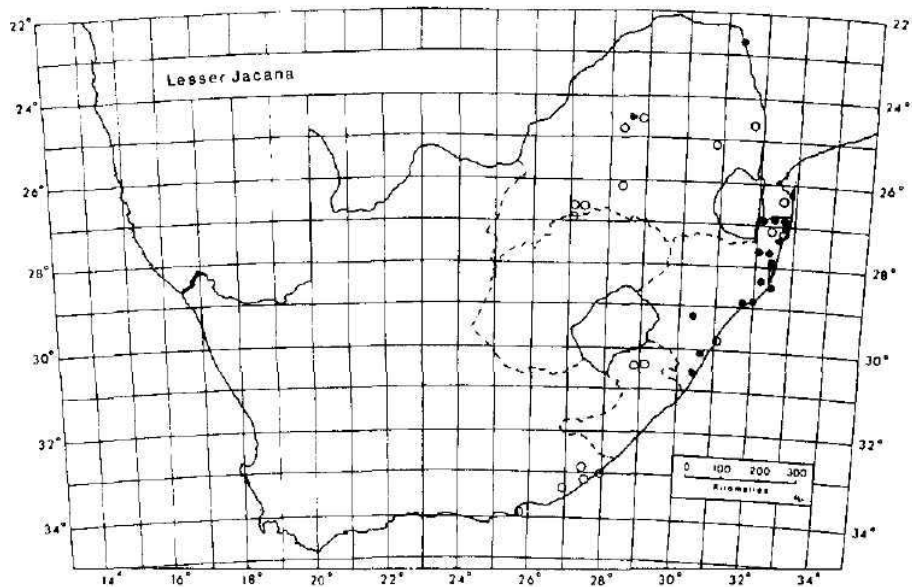
few. **Breeding potential in captivity:**

unknown. **Current research effort:**

none.

Remarks: Ludwig's Bustard is widespread in South West Africa/Namibia and reaches southwestern Angola. A study of the comparative ecology of the three large bustards of South Africa, Ludwig's, Stanley's and Kori, is needed to understand their present and past distributions and why Stanley's Bustard appears to have the least diminished population. Only then can an effective conservation programme be planned.

Selected bibliography: Bonde K (1981), Clancey P A (1967a), Clancey P A (1972), Collet J (1982), Cyrus D and N Robson (1980), Kieser J A and G A Kieser (1978), Skead C J (1967a), Winterbottom J M (1968).

**LESSER JACANA****Dwerglangtoon**

Microparra capensis (Smith) 1839: near Algoa Bay, eastern Cape Province.

Order CHARADRIIFORMES

RARE

Family JACANIDAE

Summary: a Rare visitor (seldom found breeding) to eastern and northern South Africa. It is widespread in tropical Africa.

Present distribution: coastal Natal, occasionally inland, and the central and northern Transvaal. **Former distribution:** as above but vagrants used to reach the eastern Cape Province.

Habitat: waters with many water lilies *Ny/nphaea* spp.

Status: irregular visitor, at any time of the year in Natal but chiefly in summer in the Transvaal. There are a few breeding records from Durban (Clancey 1964) and a recent one (two nestlings on Nsunu Pan, northern Zululand, on 1 March 1980: J C Sinclair in Iitt 1983). It is, however, an unobtrusive species and not easily identified in the field by those unfamiliar with it due to confusion with the young of the African Jacana *Actophilornis africanus*. In addition, nowadays people are reluctant to enter the bilharzia infested waters it frequents.

Estimated numbers and population trends: no estimates available but undoubtedly rare. At least as a vagrant it was more widely distributed in the past.

Breeding rate in wild: normal clutch three eggs; probably single brooded; incubation and nestling periods and age at which females first breed unknown. It is not known whether this species, like most jacanas, is polyandrous but females are not mensurally larger than males which strongly suggests that they are not polyandrous (Johnsgard 1981).

Reasons for decrease: unknown. It is a scarce species throughout its range.

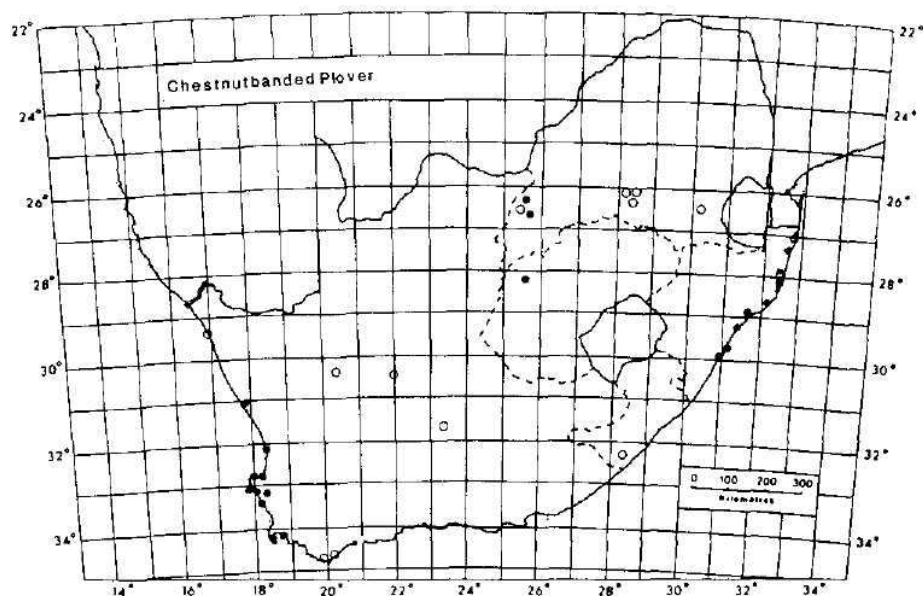
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It bred in 1980 in the Mkuzi Game Reserve, Natal (J C Sinclair in Iitt 1983).

Protective measures proposed: conservation of swamps. **Number held in captivity:** probably none. **Breeding potential in captivity:** unknown.

Current research effort: none.

Remarks: the Lesser Jacana is widespread but normally scarce in the moist tropical lands of Africa. It does not occur in the evergreen forest belt.

Selected bibliography: Berruti A (1980b), Clancey P A (1964), Cyrus D and N Robson (1980), Johnsgard P A (1981), Kemp A C (1980a), Newman K (1980a), Skead C J (1967a), Steyn P (1970), Tarboton W (1976b), Tarboton W R (1977a).



CHESTNUTBANDED PLOVER (Chestnut-banded Sandplover) Rooibandstrandkiewiet (Rooibandstrandlopertjie)

RARE

Charadrius pallidus Strickland 1852: Walvis Bay, South Africa. Order CHARADRIIFORMES

Family
CHARADRIIDAE

Summary: a Rare species with a few localized areas in which it breeds in South Africa. It occurs widely in southern Africa being commonest in Botswana and South West Africa/Namibia and there is another race based on the soda lakes of east Africa.

Present distribution: breeds in the Cape Province at the Orange River estuary, the Olifants River estuary?, the Berg River estuary to Yzerfontein Salt Pan, the Bredasdorp/Agulhas area eastwards to De Hoop Vlei and the Algoa Bay area; at Barberspan and Delareyville Saltworks in the southwestern Transvaal. Vagrants may occur at any waterbody in South Africa.

Former distribution: not known to have differed from the above. Claimed breeding records from Durban are due to confusion with the sometimes reddish breasted race of the Whitefronted Plover *C. marginatus arenaceus*.

Habitat: the shores of salt pans, also the shores of other open waterbodies when much contracted by drought and sometimes in estuaries.

Status: Winterbottom's (1968) comment still holds: "It appears to be a nomadic species, whose appearances and disappearances defy analysis at present."

Estimated numbers and population trends: no estimates available but the total breeding population is unlikely to exceed 250 pairs. Numbers present at a locality fluctuate: in the southwestern Cape Robertson (1981) for Langebaan Lagoon records counts from zero to 581. For Algoa Bay Underhill et al (1980) recorded 34 birds. There is no evidence for a decrease.

Breeding rate in wild: normal clutch two eggs; probably single brooded; incubation and nestling periods and age at which females first breed unknown.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland ordinances. It sometimes breeds at De Hoop Vlei, Cape Province, and Barberspan, Transvaal (Milstein 1975, Skead and Dean 1977).

Protective measures proposed: when breeding starts controllers of commercial salt works should be encouraged to adjust waterlevels to ensure successful breeding undisturbed by terrestrial predators.

Number held in captivity:

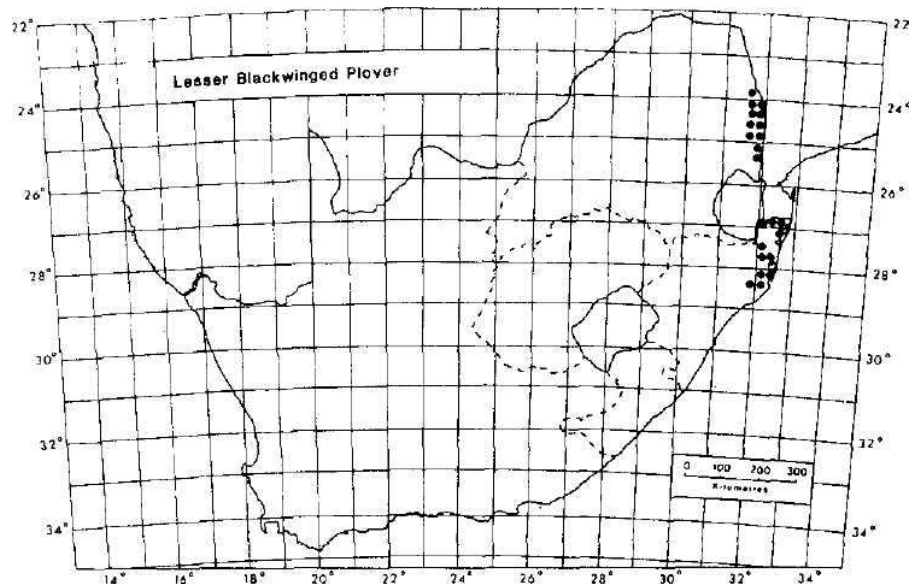
probably none. **Breeding potential**

in captivity: unknown. **Current**

research effort: none.

Remarks: the Chestnutbanded Plover occurs in two races, the nominate of southern Africa and southwestern Angola and *C. p. venustus* of the soda lakes of northern Tanzania and southern Kenya. A study of its movements, cf Robertson (1981), breeding and feeding ecology would be interesting and would probably reveal additional areas in which it breeds when conditions permit including Vanwyksvlei as claimed by McLachlan and Liversidge (1978) and more widely in the Kimberley-Kroonstad-Lichtenburg triangle. The Walvis Bay Enclave is a major station: over 1900 were counted in 1977 (Whitelaw et al 1978).

Selected bibliography: Blaker D (1966), Cyrus D and N Robson (1980), Jeffery R G and R Liversidge (1951), Johnsgard P A (1981), Lawson W J (1971), Little J de V (1966), McLachlan G R and R Liversidge (1978), Milstein P le S (1975), Newman K (1980a), Robertson H G (1981), Skead C J (1967a), Skead D M and W R J Dean (1977), Summers R W, J Cooper and J S Pringle (1977), Tree A J (1980), Underhill L G, J Cooper and M Waltner (1980), Uys C J and J G R Macleod (1967), Whitelaw D A, L G Underhill, J Cooper and C F Clinning (1978), Winterbottom J M (1968), Winterbottom J M (1979).



**LESSER BLACKWINGED
PLOVER** Kleinswartvlerkkiewiet
Vanellus lugubris (Lesson) 1826:
Senegal. Order
CHARADRIIFORMES

RARE

Family
CHARADRIIDAE

Summary: a Rare species (very few breeding pairs) breeding in northern lowlying Zululand; a regular nonbreeding visitor to the eastern Transvaal lowveld. It is widespread in tropical Africa outside evergreen forest and high grass savanna.

Present distribution: breeds in the lowlands of Zululand; a nonbreeding visitor to the eastern Transvaal lowveld.

Former distribution: as above with a single record from Durban.

Habitat: grassland and lightly wooded savanna burnt or heavily grazed by ungulate mammals.

Status: breeds in lowlying Zululand but some move away when the grass grows too tall; nonbreeding visitor (from Mozambique?), chiefly in summer, to the eastern Transvaal lowveld.

Estimated numbers and population trends: no estimates available. It no longer occurs regularly in the Hluhluwe-Umfolozi Complex (Macdonald and Birkenstock 1980) due to a change in veld burning practice whereby burnt ground or short grass is not available in the breeding season (I A W Macdonald, personal communication, 1983). The old Durban record was presumably of a vagrant. Thus there is no firm evidence for a decrease.

Breeding rate in wild: normal clutch three eggs; single brooded; incubation period less than three weeks; nestling period and age at which females first breed unknown.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

Number held in captivity: probably few.

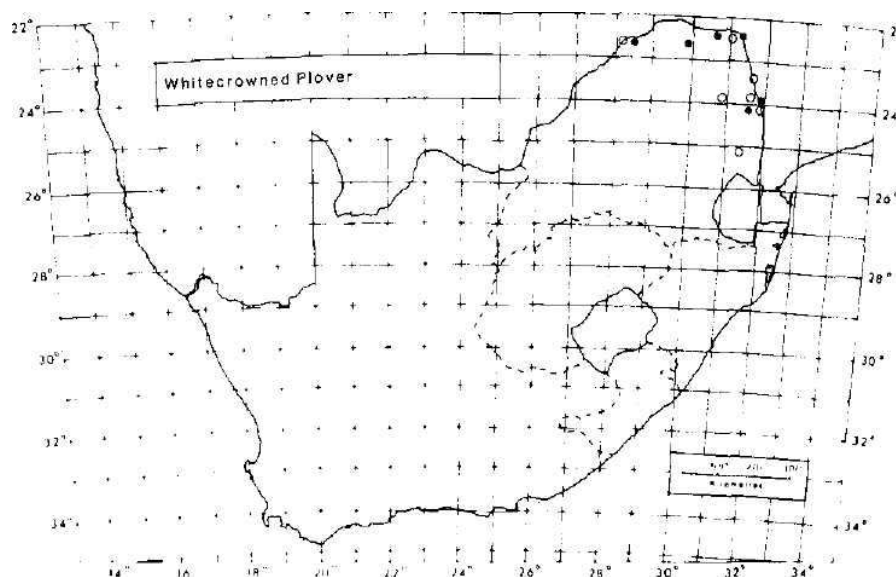
Breeding potential in captivity:

probably good. **Current research effort:**

none.

Remarks: the Lesser Blackwinged Plover occurs widely in tropical Africa outside evergreen forest and high grass savannas. It appears to be competitively inferior to the Crowned Plover *V. coronatus*, another species of short, dry grass and bare ground (Irwin 1977, 1981).

Selected bibliography: Berruti A (1980b), Cyrus D and N Robson (1980), Irwin M P S (1977), Irwin M P S (1981), Kemp A C (1980a), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a).



WHITECROWNED PLOVER

RARE

Witkopkiewiet

Vanellus albiceps Gould 1834: Bioko (Fernando Poo Island), Gulf of Guinea.

(*Xiphidiopterus albiceps*).

Order CHARADRIIFORMES

Family CHARADRIIDAE

Summary: a Rare species (ca 90 breeding pairs) of the sandy rivers of the northern Transvaal lowveld. It occurs widely in Africa on the larger rivers.

Present distribution: rivers of the northern Transvaal lowveld.

Former distribution: not known to have differed from the above although there is an old record of a vagrant from the Vaal River.

Habitat: rivers, occasionally lakes, with sandbanks on which they breed. **Status:** resident with local movements when rivers are in flood.

Estimated numbers and population trends: ca 90 breeding pairs in the northern Kruger National Park (Tarboton and Nel 1980). Kemp (1980a) considers that it no longer breeds on the Limpopo River west of the Park.

Breeding rate in wild: normal clutch three or four eggs; probably single brooded; incubation period probably ca four weeks; nestling period and age at which females first breed unknown.

Reasons **for** decrease: "degradation of riparian habitat" (Kemp 1980a).

Protective measures taken: full legal protection is afforded by provincial and

homeland conservation ordinances. The South African population breeds in the Kruger National Park (Newman 1980a, Tarboton and Nel 1980).

Protective measures proposed: restoration of habitat on the lower Limpopo River should lead to an expansion of present range and increase of population.

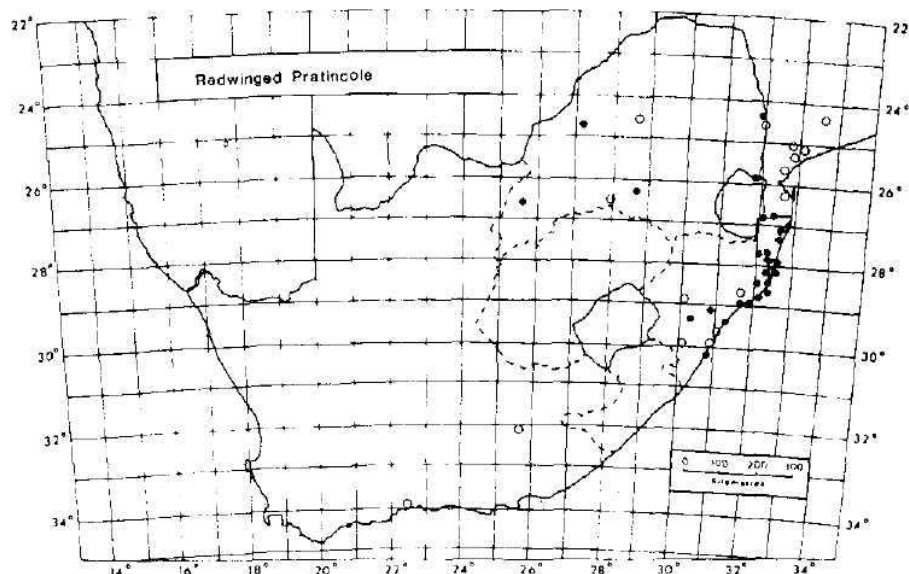
Number held in captivity: probably none.

Breeding potential in captivity: probably good.

Current research effort: none.

Remarks: the Whitecrowned Plover is widespread on the larger rivers of tropical Africa.

Selected bibliography: Bainbridge W R (1965), Begg G W and G L Maclean (1976), Johnsgard P A (1981), Kemp A C (1980a), Milstein P le S and D A Milstein (1981), Newman K (1980a), Reynolds J F (1968), Tarboton W R and F Nel (1980).



REDWINGED PRATINCOLE
Rooivierksprinkaanvoel (Gewone
Kleinsprinkaanvoel)

RARE

Glareola pratincola (Linnaeus) 1766:
Austria. Order CHARADRIIFORMES

Family
GLAREOLIDAE

Summary: a Rare species (probably less than 100 breeding pairs) of northern coastal Natal and eastern Swaziland; vagrant in inland Natal and the Transvaal. The species is widespread in Africa, southern Europe and southwestern Asia.

Present distribution: coastal Natal from Umhlanga northwards and eastern Swaziland; vagrant to inland Natal and the Transvaal.

Former distribution: as above but used to breed south to Isipingo (Clancey 1964).

Habitat: bare ground and short grass by water.

Status: some birds are resident but there is an influx for the summer breeding season.

Estimated numbers and population trends: no estimates available. Probably less than 100 pairs breed in South Africa. The Isipingo colony was lost to economic

development (Maclean 1973).

Breeding rate in wild: normal clutch two eggs; single brooded; incubation period two and a half weeks; nestling period three and a half to four weeks; females probably first breed at age one (Eurasian data in Cramp and Simmons 1983).

Reasons for decrease: economic development.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in some seasons in the Lake St Lucia Complex (Berruti 1980a).

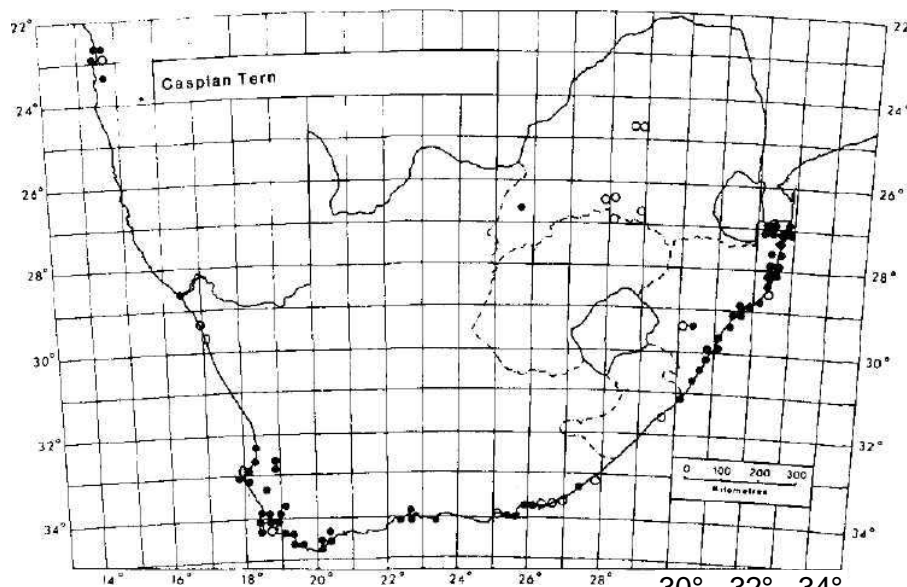
Protective measures proposed: occupiers of sites where they breed should be encouraged to offer local protection to the birds as outlined by Maclean (1973).

Number held in captivity: probably few. **Breeding potential in captivity:**

unknown. **Current research effort:** none.

Remarks: the Redwinged Pratincole has a wide range in Africa, including north of the Sahara, as well as in southern Europe and southwestern Asia. The possibility that the winter breeding birds of the Zambezi River (Irwin 1981) move south to breed in Natal should be investigated.

Selected bibliography: Berruti A (1980a), Berruti A (1980b), Clancey P A (1964), Clancey P A (1979a), Cramp S and K E L Simmons (1983), Cyrus D and N Robson (1980), Irwin M P S (1981), Kemp A C (1980a), Little J de V (1961), Maclean G (1973), Madden S (1972).



CASPIAN TERN

Reuse Seesterretjie (Reuse Seeswael)

Hydroprogne caspia (Pallas) 1770: Caspian Sea,
USSR.

Order CHARADRIIFORMES

RARE

Family LARIDAE
(Sternidae)

Summary: a Rare species with ca 150 breeding pairs in South Africa, mostly in the coastal areas. It has a vast patchy distribution outside South Africa.

Present distribution: breeds on offshore islands, coastally in the Cape Province, and islands in coastal lakes, particularly Lake St Lucia, Natal, also on an island in the Vaal Dam, Orange Free State/Transvaal border; forages chiefly in estuaries, sheltered bays and coastal lakes but wanders inland where it may occasionally be found at any water containing suitably sized fish.

Former distribution: as above but one pair bred for three years at Barberspan, southwestern Transvaal (Milstein 1975).

Habitat: see Present distribution above.

Status: breeding birds are resident in the general area of their breeding colonies but some immatures wander far to forage.

Estimated numbers and population trends: along the coast of the Cape Province ca 40 breeding pairs (Cooper et al in press) and ca 100 breeding pairs at Lake St Lucia, Natal (Berruti 1980b). The South African population is thus less than 150 breeding pairs. While there is no evidence for a decrease in the western Cape there is in the eastern Cape. Courtenay-Latimer (1937) guesstimated that there were 35-50 breeding pairs on Stag Island, Algoa Bay, whereas now there are two pairs (Randall et al 1981). At Lake St Lucia there were 150-180 breeding pairs in the 1950s rising to 500-1 000 pairs in 1972 and falling to ca 100 pairs at the end of the decade (Berruti 1980a).

Breeding rate in wild: normal clutch two eggs (Hockey and Hockey 1980); single brooded; incubation period three and a half weeks; nestling period 4-5 weeks; care of the fledglings is prolonged and continues after the birds leave their breeding grounds; females probably first breed at age three.

Reasons for decrease: disturbance by man or mammalian predators adversely affects breeding success (Clinning 1978b). No reasons for the fluctuation in numbers breeding at Lake St Lucia have been given though Berruti (1980a) believes that the recent decrease is due to disturbance by Defence Department personnel and contractors who use part of the area as a missile test range. The fluctuations appear to correlate well with the 20 year wave in South African weather patterns (I A W Macdonald in litt 1983).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The majority of the population breeds in the Lake St Lucia Complex and other colonies occur in the Heuningnes Forest Reserve and the Keurbooms Nature Reserve, both in the Cape Province. Access to offshore islands where they sometimes breed is controlled by the Sea Fisheries Research Institute.

Protective measures proposed: when Caspian Terns show signs of starting to breed in a conserved area the responsible authority should take steps to ensure minimal disturbance of the birds.

Number held in captivity: probably few. **Breeding potential in captivity:** probably low.

Current research effort: J Cooper, University of Cape Town, is conducting surveys to ascertain the Cape Province distribution and numbers of the Caspian Tern,

Remarks: the Caspian Tern breeds widely but patchily in all continents except South America, both coastally and inland. In Africa inland breeding is rare. Caspian Terns have bred in the Walvis Bay Enclave but seldom successfully due to human disturbance (Clinning 1978b) and attempts have now ceased (J Cooper in litt 1983). It would be worth studying the ecology and population dynamics of the Caspian Terns at Lake St Lucia to find out why numbers have apparently risen and then fallen since 1945 so as to frame a management plan which would stabilize and then increase the breeding population. *Hydroprogne* is only doubtfully separable generically from *Sterna*, cf Dowsett and Dowsett-Lemaire (1980).

Selected bibliography: Berruti A (1980a), Berruti A (1980b), Berruti A (1983), Clancey P A (1971a), Clinning C F (1978b), Cooper J and R K Brooke (1981), Cooper J, A J Williams and P L Britton (in press), Courtenay-Latimer M (1937), Cyrus D and N Robson (1980), Daneel A B (1969), Dowsett R J and F Dowsett-Lemaire (1980), Hockey P A R and C T Hockey (1980), Longrigg T D (1982), Milstein P le S (1975), Randall R M, B M Randall, A L Batchelor and G J B Ross (1981), Skead C J (1967a), Uys C J and J G R Macleod (1967), Whitfield A K and S J M Blaber (1978), Winterbottom J M (1979).

ANTARCTIC TERN

RAR

E

Grysborsseesterretjie (Grysborsseeswael)*Sterna vittata* Gmelin 1789: Port Christmas, Kerguelen Island.

Order CHARADRIIFORMES

Family LARIDAE

(Sternidae)

Summary: a Rare species (less than 25 breeding pairs) breeding on the Prince Edward Islands. The species breeds widely on islands in the Southern Ocean and the Antarctic Peninsula. It is a regular nonbreeding winter visitor to the coastal waters and coasts of the Cape Province and, to a lesser extent, Natal.

Present distribution: breeds on Marion and Prince Edward

Islands. **Former distribution:** not known to have differed from the above.

Habitat: breeds solitarily or in loose aggregations on flat ground fairly free of vegetation and usually close to the sea; forages over inshore waters (Burger 1978).

Status: some birds are resident throughout the year but the majority migrate north to the Cape Province and Natal for the winter (Burger 1978, Brooke et al in prep).

Estimated numbers and population trends: less than 50 breeding pairs (Williams et al 1979). Less than 20 breeding pairs on Marion Island in 1979 and four pairs on Prince Edward Island in 1980 (J C Sinclair in litt 1983). Van Zinderen Bakker (1971) estimated that there were less than 150 Antarctic Terns and Kerguelen Terns taken together on Marion Island in 1965. One may view this figure as 25 breeding pairs and 100 juveniles and immatures and regard it as the same sized population of less than 30 breeding pairs reported by J C Sinclair (in litt 1983) for both species taken together on Marion Island in 1979. Thus there is no evidence for a recent decrease.

Breeding rate in wild: normal clutch two eggs; single brooded; incubation period three and a half weeks (Parmelee and Maxson 1975); nestling period probably four weeks; females probably do not breed until age three.

Reasons for decrease: no evidence for a decrease. The introduced feral Cats *Felis catus* may pose a threat since they eliminated a colony on a stack off Macquarie Island (Law and Burstall 1956).

Protective measures taken: full legal protection is afforded all birds on the Prince Edward islands. Access is controlled by the South African Department of Transport.

Protective measures proposed: elimination of feral Cats on Marion

Island. **Number held in captivity:** probably none. **Breeding potential**

in captivity: probably low.

Current research effort: R K Brooke, J Cooper and W Suter, University of Cape Town, are

studying the migrations, feeding ecology, moult and taxonomy of the Antarctic Tern.

Remarks: the Antarctic Tern breeds very widely but usually in small numbers throughout the islands of the Southern Ocean as well as some southern temperate ones and on the Antarctic Peninsula. The nominate race which breeds at the Prince Edward islands also breeds on the Crozet and Kerguelen groups.

Selected bibliography: Berruti A and A Harris (1976), Burger A E (1978), Law P G and T Burstall (1956), Parmelee D F and S J Maxson (1975), van Zinderen Bakker E M Jnr (1971), Williams AJ,WR Siegfried, A E Burger and A Berruti (1979).

KERGUELEN
TERN *Kerguelense*
Seesterretjie

RARE

Sterna virgata Cabanis 1875: Kerguelen
Island. Order CHARADRIIFORMES

Family LARIDAE
(Sternidae)

Summary: a Rare species (less than 15 breeding pairs) breeding on the Prince Edward Islands. It also breeds on the Crozet and Kerguelen groups in small numbers.

Present distribution: breeds on Marion and Prince Edward Islands. **Former distribution:** not known to have differed from the above.

Habitat: breeds solitarily or in loose aggregations on flat ground fairly free of vegetation and usually close to the sea; forages chiefly over marshy areas.

Status: resident.

Estimated numbers and population trends: less than 50 breeding pairs (Williams et al 1979). Less than 10 breeding pairs on Marion Island in 1979 and six pairs or less on Prince Edward Island in 1980 (J C Sinclair in litt 1983). No evidence for a decrease for the reasons given for the Antarctic Tern.

Breeding rate in wild: normal clutch one egg (Despin et al 1972); single brooded; incubation period probably three and a half weeks; nestling period probably four weeks; females probably first breed at age three.

Reasons for decrease: no evidence for a decrease. The introduced feral Cats *Felis calus* may pose a threat since they eliminated a colony of Antarctic Terns on a stack off Macquarie Island (Law and Burstall 1956).

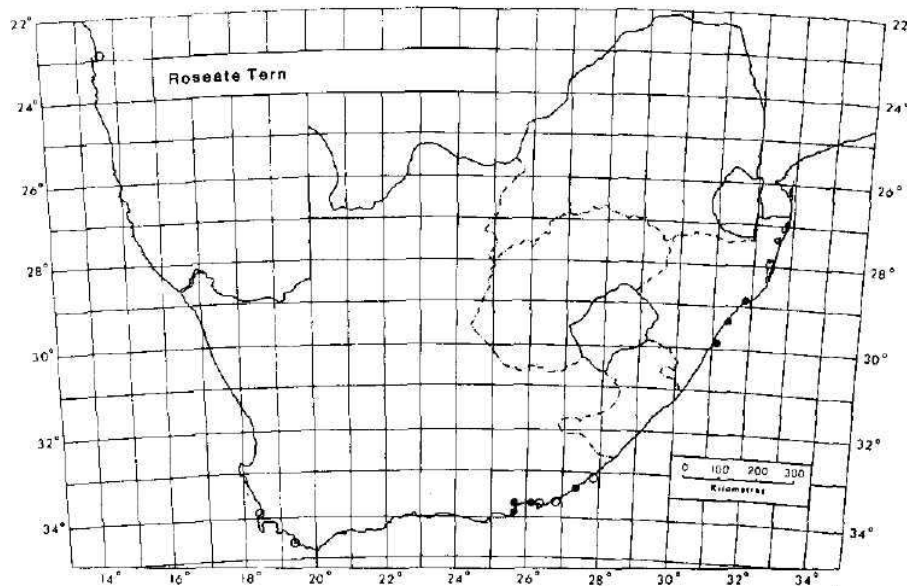
Protective measures taken: full legal protection is afforded all birds on the Prince Edward Islands. Access is controlled by the South African Department of Transport.

Protective measures proposed: elimination of feral Cats on Marion Island. **Number held in captivity:** probably none.

Breeding potential in captivity: probably low.

Remarks: the Kerguelen Tern breeds only on the Prince Edward, Crozet and Kerguelen groups and is everywhere scarce: the world population is well below 10 000 breeding pairs. Biologically, it is one of the least known Southern Ocean seabirds.

Selected bibliography: ~~Berruti A and A Harris (1976), Despin B, J L Mouglin and M Segonzac (1972), Law P G and T Burstall (1956), van Zinderen Bakker E M Jnr (1971), Williams A J, W R Siegfried, A E Burger and A Berruti (1979).~~



ROSEATE TERN
Rooiborsseesterretjie
(Rooiborsseeswael)

Sterna dougallii Montagu 1813: Firth of Clyde, Scotland,
 U K. Order CHARADRIIFORMES

ENDANGERED

Family LARIDAE
 (Sternidae)

Summary: an Endangered species of coastal South Africa which has lost much of its breeding population, is not producing enough young to maintain a stable population and has lost one of its two breeding sites. It has a vast patchy distribution outside South Africa.

Present distribution: breeds on islands in Algoa Bay, eastern Cape; some nonbreeding birds stay in Algoa Bay and others move north to Natal (Cyrus and Robson 1980, Randall and Randall 1980c, 1981b, Randall et al 1981) and perhaps Mozambique. Not all birds on the Natal coast belong to the population breeding in Algoa Bay (Clancey 1967b, 1980). Only vagrant individuals have been seen recently in the western Cape.

Former distribution: as above with a small colony breeding on Dyer Island, Bredasdorp District, western Cape, where breeding was last reported in 1971 (Randall and Randall 1980c). The Algoa Bay population bred at Cape Recife in the 1960s. There is no evidence that the Roseate Tern ever bred at Kommetjie on the Cape Peninsula (Randall and Randall 1980c).

Habitat: breeds on flattish ground, either bare or with low vegetation, usually on offshore islands but occasionally on peninsulas (Randall and Randall 1980c). Forages at sea in clear water often more than 10 km from land or breeding islands (Nisbet 1981).

Status: a winter breeder in Algoa Bay. It appears that most birds move northeast to the Transkei and Natal for the summer. There is no evidence that Palearctic migrants which are taxonomically inseparable reach South Africa but some form breeding in the Indian Ocean (*arideensis?*, *bangsi?*) sometimes reaches Natal (Clancey 1967b, 1980a).

Estimated numbers and population trends: the 74 or so breeding pairs in 1977 on St Croix Island, Algoa Bay, (Randall and Randall 1981b) formed the total South African breeding population. In August 1937 on Stag Island, Algoa Bay, "hundreds" of nests were found (Courtenay-Latimer and Gibson-Hill 1946). A decrease has probably taken place. In addition, the breeding colony at Dyer Island, probably always small, has been extinct since the early 1970s (Randall and Randall 1980c). A difficult aspect of studying Roseate Tern population trends is the species habits of frequently changing its breeding sites and having

many nonbreeding adults in some seasons (Britton and Brown 1974).

Breeding rate in wild: normal clutch one egg, sometimes two; single brooded; incubation period three and a half weeks; nestling period four weeks (all Randall and Randall 1981b); females probably first breed at age three.

Reasons for decrease: Roseate Tern breeding success is greatly dependent on lack of disturbance by man or mammalian predators. The birds are slow to return to their eggs when disturbed and this permits Kelp Gulls *Larus dominicanus* to take and eat the eggs (Brooke and Cooper 1979, Randall and Randall 1981b). When nestlings are disturbed they enter the territories of other breeding adults who attack and sometimes kill them (Randall and Randall 1981). Randall et al (1981) show that with the cessation of persecution of Kelp Gulls there has been an increase in the gull breeding population in Algoa Bay which with casual disturbance of breeding Roseate Terns has been able to reduce tern breeding success below the level needed to maintain a stable population. There is no evidence either way for changes in the numbers of Kelp Gulls frequenting Dyer Island (Crawford et al 1982) so it is not possible to say if this was a major factor in the extinction of that colony. Guano scraping normally takes place in winter when Roseate Terns breed and the concomitant disturbance may have caused the extinction of the colony. It is possible that at Dyer Island unsuccessful competition with the Antarctic Tern played a role since that tern is mensurally similar and appears to use similar foraging techniques and sites: up to four thousand Antarctic Terns are sometimes present at Dyer Island (Dr W Suter, personal communication, 1983) during the winter breeding season of the Roseate Tern. North Atlantic populations of the Roseate Tern have decreased, in large part due to human predation of wintering birds in the tropics (Nisbet 1981). It is not known if this applies to South African breeding birds since little is known of their nonbreeding range.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. St Croix Island is now in a Cape Provincial Marine Reserve, Access to other islands in Algoa Bay is controlled by the Sea Fisheries Research Institute in collaboration with the South African Transport Services who have a lighthouse on Bird Island.

Protective measures proposed: disturbance of breeding Roseate Terns must be reduced to a minimum, cf Warman (1979), not least because it facilitates gull predation on their nest contents. It may well be necessary to reduce Kelp Gull numbers since their numbers seem to correlate inversely with the terns' breeding success, as in the eastern United States with closely related gulls (Nisbet 1981). When Roseate Terns are about to breed on Bird Island the Sea Fisheries Research Institute should not permit guano collection for that season in order to reduce disturbance. Spendelow (1982) gives simple, practical methods of microhabitat improvements that enhance breeding success and these should be tried on the Algoa Bay breeding islands. The impact of European Rabbits *Oryctolagus cuniculus* on breeding habitat on Bird Island, Algoa Bay, when Roseate Terns breed there is likely to be beneficial on balance (Spendelow 1982).

Number held in captivity: probably

few. **Breeding potential in captivity:**

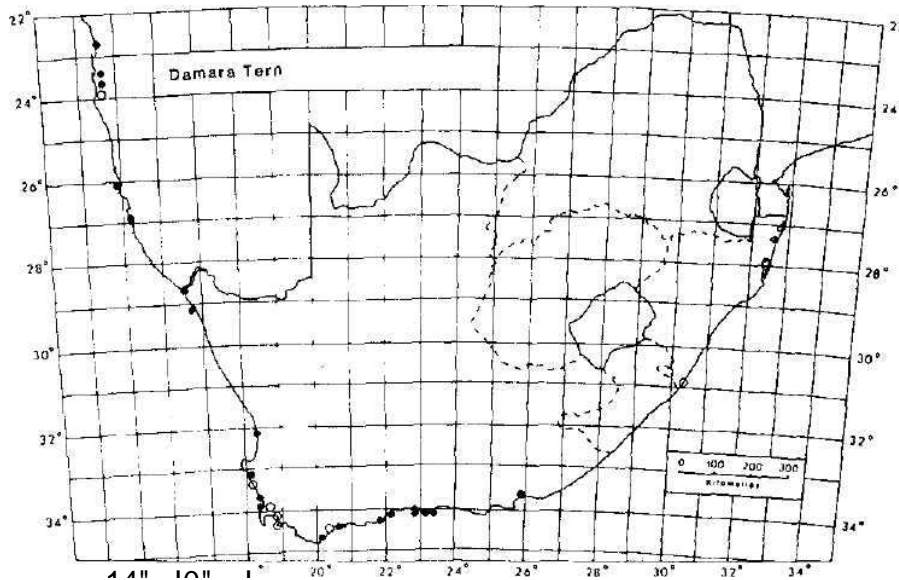
probably low, **Current research effort:**

none.

Remarks: the Roseate Tern is most abundant in the tropical Indian Ocean and in western Australia. The European and eastern North American populations have undergone substantial decreases and the Caribbean ones lesser decreases (Gochfeld 1983). It appears that only active management (total prevention of disturbance and a campaign to reduce and keep reduced the number of Kelp Gulls in Algoa Bay) will conserve the South African population of the Roseate Tern and keep it from extinction by the year 2000.

Selected bibliography: Britton P L and L H Brown (1974). Brooke R K and J Cooper (1979). Clancey P A (1967b), Clancey P A (1980a), Cooper J and R K Brooke (1981), Cooper J, A J Williams and P L Britton (in press), Courtenay-

Latimer M and C A Gibson-Hill (1946). Crawford R J M, J Cooper and P A Shelton (1982), Cyrus D and N Robson (1980), Every B (1975), Gochfeld M (1983), Nichol W (1967). Nisbet I C T (1981). Randall R M and B M Randall (1978), Randall R M and B M Randall (1980c). Randall R M and B M Randall (1981b), Randall R M. B M Randall. A L Batchelor and G J B Ross (1981). Skead C J (1967a). Spendelow J A (1982), Warman S R (1979), Winterboltom J M (1979).



DAMARA TERN
Damaraseesterretjie
(Damaraseeswael)

Sterna balaenarum (Strickland) 1852: Walvis Bay, South Africa. Order CHARADRIIFORMES

RARE

Family LARIDAE
 (Sternidae)

Summary: a Rare summer visitor (ca 120 breeding pairs) in South Africa. It breeds more abundantly in South West Africa/Namibia including the Walvis Bay Enclave. It winters in the Gulf of Guinea west to Ghana.

Present distribution: breeds patchily along the coast of the Cape Province from Oranjemund to Algoa Bay; migrates to west Africa (Cameroun to Ghana) for the winter.

Former distribution: not known to have differed from the above though breeding east of Cape Town is a discovery of the last few years.

Habitat: breeds on gravel or shell slacks between coastal sand dunes, dry salt pans, and rehabilitated opencast mines; forages in estuaries and sheltered bays in the breaker zone, rarely in the open sea behind the breakers.

Status: a breeding summer visitor, chiefly November to March.

Estimated numbers and population trends: ca 120 breeding pairs in South Africa (Cooper et al in press) of which half are in the northwestern Cape Province. The former colony just north of Cape Town (Vincent 1946) has been extinct for many years. The Damara Tern is not easily separated in the field from the Little Tern *S. albifrons*, a Palearctic migrant also present throughout the former's range in summer. However, recent work has revealed a number of small previously unsuspected breeding sites in the northwestern, southern and eastern Cape of which a few are no longer used through habitat alteration - vegetating sand dunes at Heuningsnesmond and elsewhere in the southern Cape. In the eastern Cape there is apparently much suitable breeding terrain which is not utilized, the population being much less than the apparent carrying capacity. The reason/s are unknown but there is no evidence for a recent decrease (R M Randall in litt 1983). There is no evidence for a substantial decrease in the breeding population.

Breeding rate in wild: normal clutch one egg; single brooded; incubation period three weeks; nestling period three weeks; fledgling period more than 10 weeks (Ginning 1978c); females probably first breed at age three.

Reasons for decrease: natural or artificial vegetating of sand dunes destroys their breeding habitat since it gives cover to ground based predators approaching the nest. At Heuningsnesmond the Damara Terns now have to breed several km from their main foraging area, the estuary, due to dune afforestation. Other geomorphologically suitable sites in the southern Cape exist which are not used, apparently due to excessive vegetation. If the former colony just north of Cape Town was among the Koeberg dunes, increasing vegetation, much of it exotic *Accacia*, rather than human disturbance was the probable reason for its extinction. Opencast diamond mining on the northern Cape coast may eliminate some breeding sites, at least for a while, but the security measures associated with the industry greatly reduce possible disturbance in areas where active working is not taking place. Off road vehicles may destroy nests or create so much disturbance that breeding fails (Earle 1976).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The Heuningsnesmond and Sundays River estuary colonies are in State Forest Reserves and the Brandfontein colony is in a Private Nature Reserve.

Protective measures proposed: as many breeding sites as possible should be included in conserved areas. Access to such areas should be strictly controlled in summer when the Damara Terns breed. This includes vehicles on beaches where the conservation boundaries of colonies could be demarcated by a bollarded fence or chain. The vegetating of sand dunes should not be pursued in the vicinity of colonies.

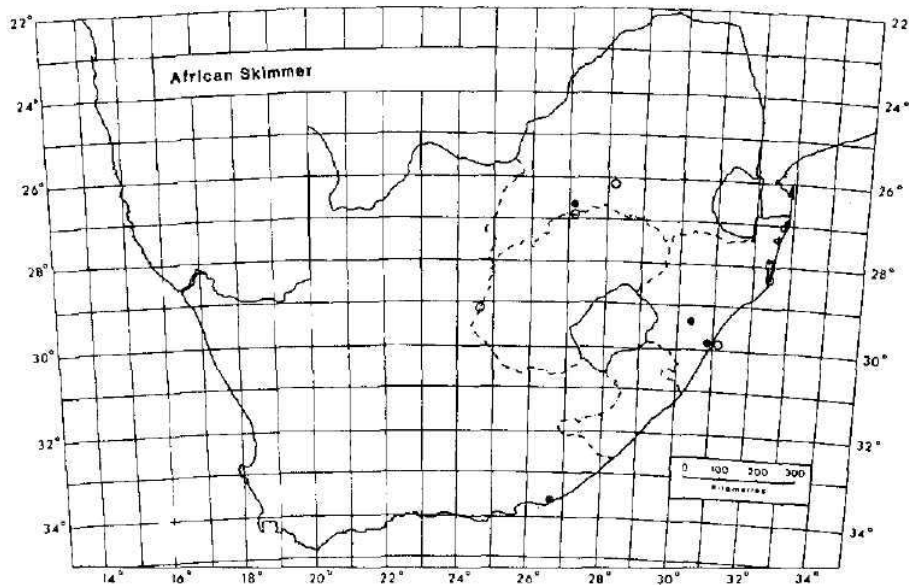
Number held in captivity: probably none.

Breeding potential in captivity: probably low.

Current research effort: surveys by J Cooper, University of Cape Town, and Dr A McLachlan and R M Randall, University of Port Elizabeth, are being continued to make sure that all breeding areas have been found and the size of the breeding population established.

Remarks: the Damara Tern is included as Rare in the 2nd ICBP red data book (King 1981). It appears from recent surveys that the main population of the Damara Tern breeds in South West Africa/Namibia, the majority north of Swakopmund. though at the very least 25 pairs breed in the Walvis Bay Enclave. There is suitable breeding habitat in extreme southern Angola but it has yet to be established that the Damara Tern breeds there (Brooke 1982b). All populations winter in west Africa from Cameroun to Ghana (Sutton 1970) where they are subject to human predation along with other migratory terns. This is a serious problem for some European tern populations but it is not known what the effect is on the Damara Tern. It does not occur in the Indian Ocean proper (Feare and Bourne 1978).

Selected bibliography: Brooke R K (1982b), Clinning C F (1978c), Cooper J and R K Brooke (1981), Cooper J, A J Williams and P L Britton (in press), Earle R (1976), Feare C J and W R P Bourne (1978), Frost P G H and P Johnson (1977), Frost P G H and P Johnson (1978), Frost P G H and G Shaughnessy (1976), Johnson P (1979), King W B (1981), Randall R M and A McLachlan (1982), Siegfried W R and P Johnson (1977), Sutton R W W (1970), Underhill L G, J Cooper and M Waltner (1980), Underhill L G and D A Whitelaw (1977), Vincent A W (1946), Winterbottom J M (1979).



AFRICAN SKIMMER
(Skimmer) Waterplover

Rynchops flavirostris Vieillot 1816: Senegal River,
Senegal. Order CHARADRIIFORMES

EXTIN
CT

Family
RYNCHOPIDAE

Summary: the one breeding colony at Lake St Lucia has been Extinct since 1944 though vagrants from the north still occur rarely. It is widespread in tropical Africa.

Present distribution: three vagrants were seen in 1971 on the Bushmans River, eastern Cape Province (Jubb 1972). The species was not recorded in Natal in the 1970s (Cyrus and Robson 1980). One was seen on the Nyl River floodplain, Transvaal, in 1982 (Sinclair 1983).

Former distribution: bred at Lake St Lucia, Natal, up to and including 1943 (Berruti 1980a); nonbreeding birds sometimes wandered down the Natal coast to at least Durban and inland in Natal and the Transvaal (Clancey 1964).

Habitat: normally breeds on sandbanks in rivers or lakes but at Lake St Lucia it bred among the sand dunes between the lake and the sea (Berruti 1980a). Forages over open water.

Estimated numbers and population trends: nine breeding pairs were counted in 1942 (Berruti 1980a). It is not known whether the population was greater in earlier years.

Breeding rate in wild: normal clutch three eggs; single brooded; incubation and nestling periods unknown; females probably first breed at age three.

Reasons for decrease: habitat alterations, both natural and manmade (Berruti 1980a).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

Number held in captivity: probably few.

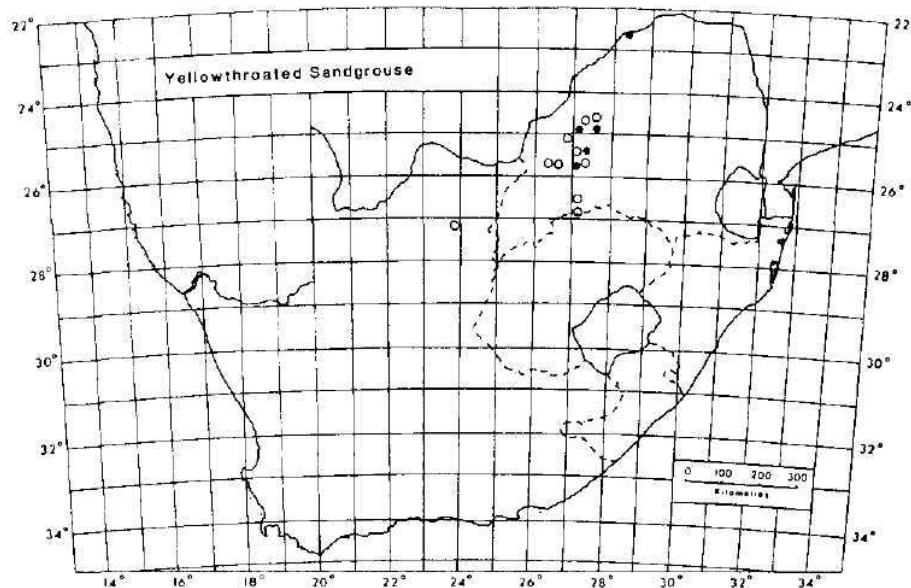
Breeding potential in captivity: probably

low. **Current research effort:** none.

Remarks: the African Skimmer occurs widely on large rivers in tropical Africa with breeding pairs numbered in four figures for the continent. When work has been done

on its ecological requirements elsewhere in Africa consideration could be given, if conditions permit, to its reintroduction to the Lake St Lucia Complex.

Selected bibliography: Berruti A (1980a), Berruti A (1980b), Berruti A (1983), Clancey P A (1964), Cyrus D and N Bobson (1980), Jubb R A (1972), Sinclair J C (1983).



**YELLOWTHROATED
SANDGROUSE**

Geelkeelsandpatrys

Pterodes gutturalis Smith 1836: Zeerust,
Transvaal. Order PTEROCLIDIFORMES

INDETERMINATE

Family PTEROCLIDIDAE
(Pteroclididae)

Summary: a Rare occasional breeder in the western Transvaal. It occurs in eastern Africa north to Ethiopia but the breeding range is patchy within this area.

Present distribution: western Transvaal.

Former distribution: as above with two records from the northern Cape Province, one of the ornithologically least studied areas in South Africa.

Habitat: short grassland, usually near water.

Status: an irruptive species from the north which occasionally breeds: there is only one breeding record for this century (Brooke 1968).

Estimated numbers and population trends: no estimates available but irruptive species are particularly difficult to estimate because of the difficulty of making repeat observations. No evidence for a decrease since 1970.

Breeding rate in wild: normal clutch two or three eggs; probably single brooded; incubation period probably two and a half weeks; nestling period and age at which females first breed unknown.

Reasons for decrease: no evidence for a decrease. Even if a decrease had taken place (the difficulty of detecting it in irruptive species has been mentioned above), the cause would probably lie in the more regularly used breeding grounds to the north of South Africa.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

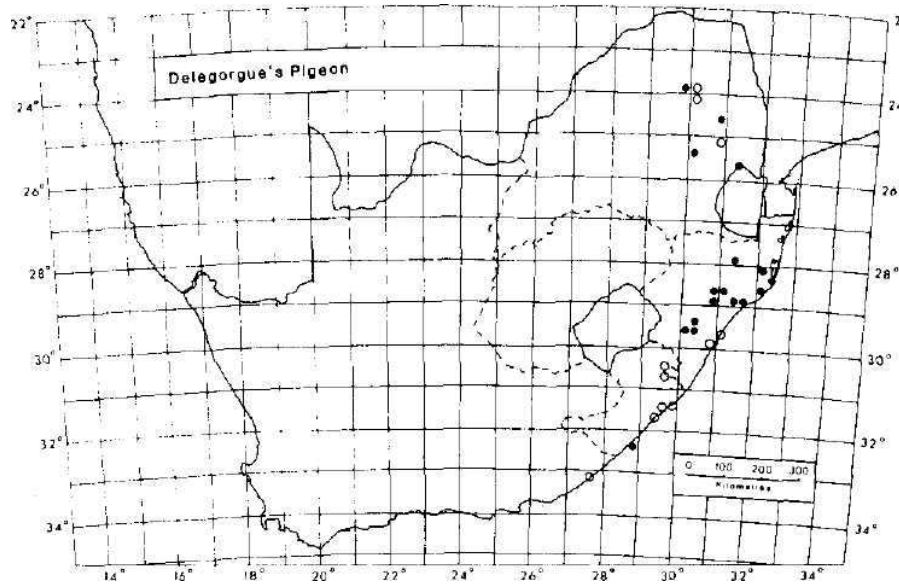
Protective measures proposed: none.

Number held in captivity: probably few. **Breeding potential in captivity:** unknown. **Current research effort:** none.

Remarks: the Yellowthroated Sandgrouse is represented by two races: the nominate southern one has its main breeding grounds in southern Zambia and northern Botswana and *P. g. saturator* breeds locally from northern Zambia to Ethiopia.

The problem of whether the sandgrouse are related to the pigeons or the wading birds has been discussed by several authors of late with no consensus yet emerging. Clancey (1980a) has sidestepped the question by recognizing a separate order Pteroclidiformes for them, an interim measure pending development of a consensus.

Selected bibliography: Brooke R K (1968). Clancey P A (1980a).



DELEGORGUE'S PIGEON (Bronze-naped Pigeon)

INDETERMINATE

Withalsbosduif

Cotumba delegorguei Delegorgue 1847: Durban. (*Turturoena delegorgtiei*).

Order COLUMBIFORMES

Family COLUMBIDAE

Summary: a probably Rare species which seldom shows itself and occurs in various forests from the eastern Cape Province north to the Transvaal escarpment around Tzaneen, It occurs north to the southern Sudan.

Present distribution: from the coastal forests of the eastern Cape north through the Transkei and Natal to the northeastern Transvaal escarpment but not in the Soutpansberg.

Former distribution: not known to have differed from the above. **Habitat:** the canopy of evergreen forest.

Status: breeds in summer in middle and higher altitude forests; some move to coastal forests in winter; perhaps only a nonbreeding visitor to the coastal forests of the eastern Cape.

Estimated numbers and population trends: no estimates available. Delegorgue's Pigeon is very seldom noticed except when calling but is probably not as rare as is thought. No evidence for a decrease other than that it no longer occurs around Durban, the type locality, where the forests it visited or bred in have been destroyed by urban development. The latest Durban specimen record is 1912 though one was seen in the 1950s. It no longer occurs in the Weza/Ingeli Forests in southern Natal.

Breeding rate in wild: normal clutch two eggs; probably multiple brooded; incubation period probably two and a half weeks; nestling period probably four to five weeks; age at which females first breed unknown.

Reasons **for** decrease: habitat destruction.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. In Natal it breeds in the Eshowe State Forest (Dr J M Mendelsohn in litt 1982) and it is thought to breed in some numbers in the Ngome, Nkandhla, Qudeni and Umgoye State Forests and perhaps very sparsely in the Hluhluwv-c-Umfolozi Complex (Maedonald and, Birkenstock 1980).

Protective measures proposed: conservation of indigenous evergreen forests, particularly at middle and higher altitudes.

Number held in captivity: probably few.

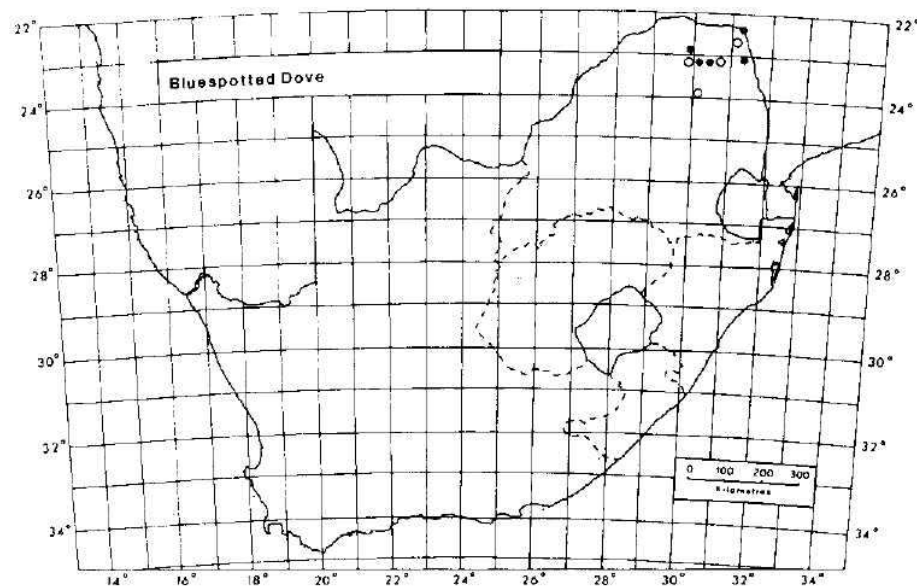
Breeding potential in captivity:

probably good. **Current research effort:**

none.

Remarks: Delegorgue's Pigeon occurs in a number of forests at various altitudes from South Africa to the southern Sudan. It stays almost entirely in the canopy and is thus seldom seen or collected. Benson and Irwin (1966b) believe that the distinctive cooing is confined to the breeding season. If so, it makes the species even more difficult to find. A survey of its distribution and numbers, particularly in the Transvaal, is needed to assess its status and conservation requirements,

Selected bibliography: Allan D and G Allan (1979), Benson C W and M P S Irwin (1966b), Clancey P A (1975), Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), Goodwin D (1967), Irwin M P S and C W Benson (1970), Macdonald I A W and P J Birkenstock (1980), Newman K (1980b), Rowan M K (1983), Skead C J (1967a).



**BLUESPOTTED DOVE (Blue-spotted
Wood Dove) Blouvlekuifie**
Turtur afer (Linnaeus) 1766:
Senegal. Order
COLUMBIFORMES

Family
COLUMBIDAE

Summary: a probably Rare isolated population in the southern base of the Soutpansberg in the northern Transvaal. It is widespread in tropical Africa.

Present distribution: the southern base of the Soutpansberg.

Former distribution: not known to have differed from the above.

Habitat: thickets on the edge of forest, including riparian forest, or in woodland.

Status: presumably resident but breeding not recorded in South Africa.

Estimated numbers and population trends: no estimates available. No evidence for a decrease.

Breeding rate in wild: normal clutch two eggs; probably multiple brooded; incubation period probably two and a half weeks; nestling period probably less

than three weeks; age at which females first breed is probably below age one.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: conservation of thicket edges of indigenous forests and in woodland.

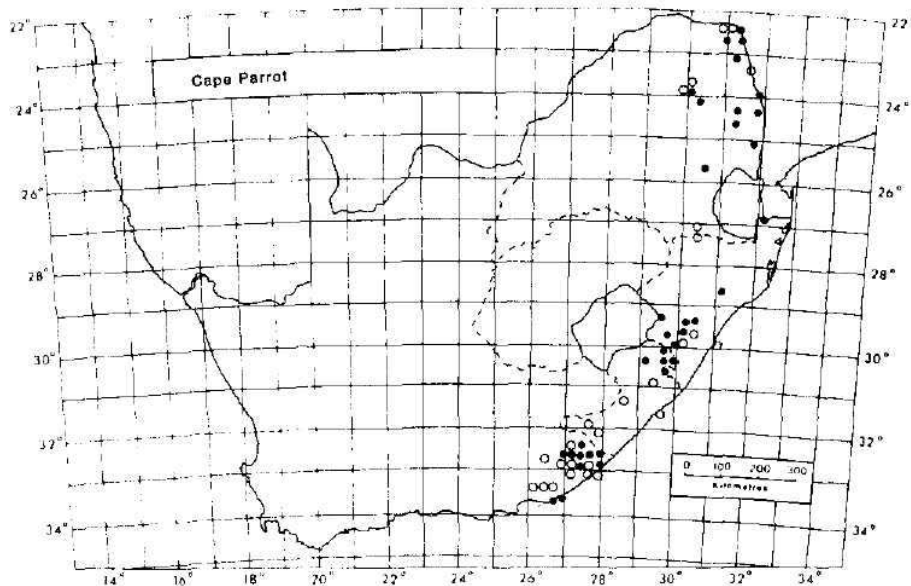
Number held in captivity: probably few.

Breeding potential in captivity: probably good (Royston 1981).

Current research effort: none.

Remarks: the South African population of the widespread tropical Bluespotted Dove is an isolate. It reappears in Mozambique and Zimbabwe north of the Save/Sabi River. Its rarity is partly an artifact of handbooks failing to tell readers how to distinguish it in the field from the much commoner Emeraldspotted Dove *T. chalcospilos* with which it overlaps when foraging. Again, it takes a skilled ear to distinguish its call from that of the Emeraldspotted Dove and the sympatric forest Tambourine Dove *T. lymanistria*. Before a conservation management programme can be formulated for the Bluespotted Dove, if indeed it is needed, a survey to ascertain its numbers and habitat requirements in South Africa must be undertaken.

Selected bibliography: Goodwin D (1967), Kemp A C (1980a), Rowan M K (1983), Royston A (1981).



**CAPE PARROT {Brown-necked
Parrot) Grootpapegaai
(Knysnapapegaai)**

VULNERABLE

Poicephalus robustus (Gmelin) 1788: eastern Cape
Province. Order PSITTACIFORMES

**Family
PSITTACIDAE**

Summary: the nominate race is confined to South Africa and is Vulnerable, having lost much of its population. *P. r. sita/wlicus* is confined to the northeastern Transvaal lowveld where it is common: it occurs north to Tanzania and southern Zaire.

Present distribution: the nominate race breeds in cool inland forests from the eastern Cape through the Transkei and Natal to Entabeni Forest in the eastern Soutpansberg, Transvaal. Eastern Cape and Transkeian populations regularly feed in coastal forests travelling up to 80 km to and fro each day. *P. r. suahelicus* breeds in

deciduous woodland in the northeastern Transvaal lowveld.

Former distribution: not known to have differed from the above. In the last century southern Natal populations occasionally visited the coast as far north as Durban (Woodward and Woodward 1899, Lawson 1971). It no longer occurs in the Ngome Forest, Natal (D P Cyrus in litt 1982).

Habitat: the nominate race breeds in cool evergreen inland forests in summer but travels far to feed in permanently or temporarily suitable places (Skead 1964). These journeys are much less extensive in the Natal (Skead 1971b) and Transvaal populations. *P. r. suahelicus* breeds in deciduous woodland in winter but often forages in riparian forest. They seldom make the long journeys of up to 80 km each way of the southern populations of the nominate race.

Status: resident with large scale foraging journeys.

Estimated numbers and population trends: no estimates available. The nominate race has decreased greatly in the eastern Cape and the Transkei (Skead 1964, 1971b), less so in Natal (Skead 1971b, Cyrus and Robson 1980) and perhaps hardly at all in the Transvaal where it was probably always scarce. There is no evidence for a decrease in *P. r. suahelicus*.

Breeding rate in wild: normal clutch three or four eggs; probably single brooded; incubation period nearly four weeks; nestling period 9-11 weeks (Isert and Isert 1980, Low 1982); females probably first breed at age two.

Reasons for decrease: trapping for the local cage bird trade seems to be the most important reason for the decrease (Skead 1964, 1971b) followed by selective destruction of the large forest trees in which they breed or on which they feed.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal. In the eastern Cape it breeds in the Gwilika, Hogsback, Katberg, Pirie and Wolfridge State Forests. In Natal it breeds in the Weza/Ingeli, Xumeni and Karkloof Forests, all conserved areas (Dr P A Clancey, D P Cyrus, T B Oatley in litt 1982). In the Transvaal the nominate race probably breeds in the Wolkberg Wilderness Area and the De Hoek, Entabeni, New Agatha and Woodbush State Forests. *P. r. suahelicus* breeds in the extreme northern Kruger National Park (Newman 1980a).

Protective measures proposed: a more intensive effort to stamp out taking nestlings of the nominate race for the local cage bird trade must be made. This is all the more important since the Cape Parrot does not breed freely in captivity (Isert and Isert 1980). The Cape Parrot is not much in demand overseas (Low 1982). Conservators of forests should be encouraged not to cut out trees in which they might breed, even if they are otherwise either undesirable or commercially valuable. Even better would be a total ban on cutting down any tree on State Land in which Brownnecked Parrots breed.

Number held in captivity: many.

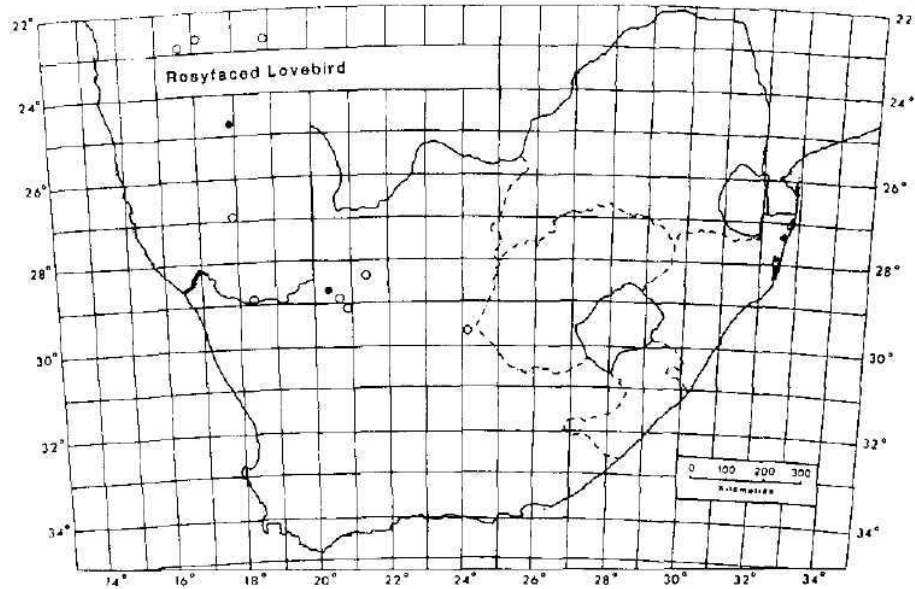
Breeding potential in captivity: not good for a parrot (Lang 1969, Isert and Isert 1980, Low 1982).

Current research effort: none.

Remarks: it is the endemic nominate race of the Cape Parrot which requires conservation action, particularly in the eastern Cape and the Transkei. *P. r. suahelicus* which has extensive populations north of South Africa up to Tanzania has its total South African population within the Kruger National Park. There is also a west African race. These races are very distinct morphologically and have different habitat requirements. Whether they really form one species should be re-examined. The nominate race might prove to be an endemic species of South Africa.

Selected bibliography: Ackermann R (1978), Clancey P A (1975), Cyrus D and N Robson (1980), Forshaw J M (1977), Holyoak DM and DT Holyoak (1972), Isert G and H Isert (1980), Kemp A C (1980a), Lang E M (1969), Lawson W J (1971).

Low R (1982). Newman K (1980a), Rowan M K (1983), Skead C J (1964). Skead C J (1967a). Skead C J (1971b). Skead C J and R Liversidge (1967). Woodward R B and J D S Woodward (1899).



ROSYFACED LOVEBIRD

INDETERMINATE

Rooiwangparkiet

Agapornis roseicollis (Vieillot) 1817: Goodhouse, lower Orange River, northwestern Cape

Province.

Order PSITTACIFORMES

Family PSITTACIDAE

Summary: a probably Rare species (very seldom sought out or recorded) in the northwestern Cape Province. It is abundant over large parts of South West Africa/Namibia and southern Angola.

Present distribution: the area of the Riemvasmaak Defence Training Area and the adjacent Augrabies Falls National Park in the lower Orange River valley; Mata-Mata in the Kalahari Gemsbok National Park. There is a feral population in the Simonstown area of the Cape Peninsula (T B Oatley, personal communication, 1983).

Former distribution: the lower Orange River valley from Upington westwards. An old record from the Orange River in the Hopetown District (Winterbottom 1965a) is probably of escaped cage birds.

Habitat: arid woodland.

Status: somewhat nomadic within its range dependent on rainfall.

Estimated numbers and population trends: no estimates available. The paucity of records from the 1970s suggests that either the Rosy-faced Lovebird now seldom occurs in the Orange River valley or that its range fluctuates in response to ecological conditions in Namibia. But the area is seldom visited by ornithologists and nomadic species can easily be missed on short visits (Winterbottom 1970).

Breeding rate in wild: normal clutch three to five eggs; probably multiple brooded, at least in ecologically favourable seasons (Mebes 1981b); incubation period just over three weeks; nestling period six weeks; females probably first breed before age one.

Reasons for decrease: trapping for the cage bird trade has probably eliminated the Upington population (Dr R Liversidge in iitt 1983). Nomadic species seldom continuously occupy the peripheries of their range.

Protective measures taken: full legal protection is afforded by provincial and

homeland conservation ordinances. In Natal free trade in aviary bred birds is permitted. It is more or less resident in the Augrabies Falls National Park.

Protective measures proposed: trapping for the cage bird trade should not be permitted in the Cape Province, irrespective of the birds' abundance in Namibia.

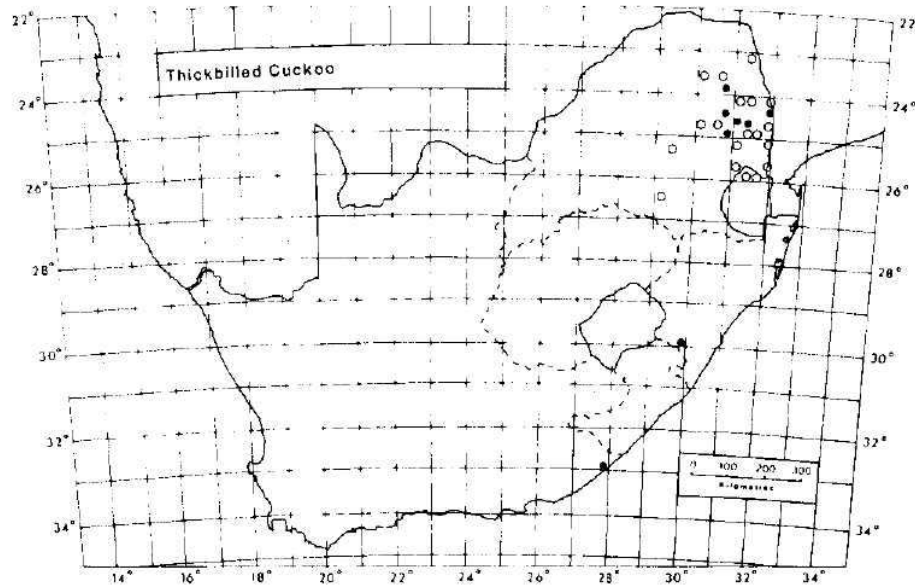
Number held in captivity: many.

Breeding potential in captivity: very good (Mebes 1981b, Brickell 1982a).

Current research effort: none.

Remarks: South African populations of the Rosy-faced Lovebird belong to the nominate race which is abundant in Namibia. There is another race in southern Angola. There is no need to interfere with aviculturists keeping Rosy-faced Lovebirds in aviaries in South Africa since the species breeds prolifically in captivity and most stocks originate in Namibia. This species is often called the Peach-faced Lovebird in avicultural and overseas literature.

Selected bibliography: Brickell N (1982a), Forshaw J M (1977), Mebes H D (1977a), Mebes H D (1977b), Mebes H D (1978), Mebes H D (1979), Mebes H D (1981b), Rowan M K (1983), Winterbottom J M (1965a), Winterbottom J M (1968), Winterbottom J M (1970).



RARE

**THICKBILLED
CUCKOO**

Dikbekkoekoek

Pachyoccyx audeberti (Schlegel) 1879: Ambodikilo, near Mananara, northeastern Madagascar.

Order CUCULIFORMES

Family CUCULID

AE

Summary: a Rare species (very seldom recorded) in northern Zulufand and the eastern Transvaal.

It is widespread in tropical Africa and formerly on Madagascar.

Present distribution: extreme northern Zuluiand and the eastern Transvaal; vagrants in southern Natal and the eastern Cape Province.

Former distribution: not known to have differed from the above but no records of southern vagrants were made of this unobtrusive species before the 1970s.

Habitat: woodland and forest edges below 1 500 m asl.

Status: resident.

Estimated numbers and population trends: no estimates available. No evidence for a decrease.

Breeding rate in wild: unknown. It is an apparently obligate parasite of the Redbilled Helmetshrike *Prionops retzii* (Vernon 1971b and in press).

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is uncommon in the Kruger National Park (Newman 1980a) but it probably breeds there as Kemp (1980a) mentions a breeding record from just outside the Park.

Protective measures proposed: its continued wellbeing is dependent on the survival of woodland in the eastern Transvaal lowveld and of its principal host, the Redbilled Helmetshrike.

Numbers held in captivity: probably

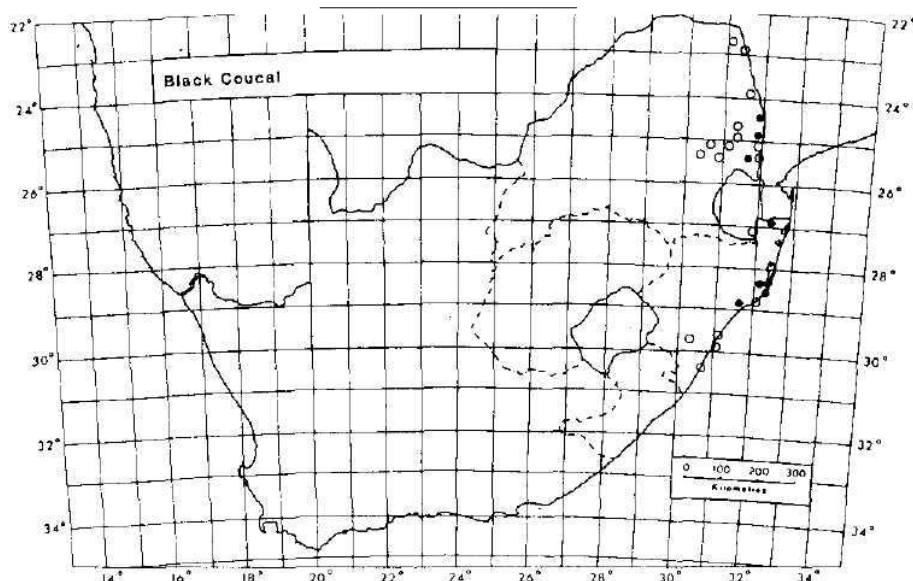
none. **Breeding potential in**

captivity: low. **Current research**

effort: none.

Remarks: the Thickbilled Cuckoo is widespread in tropical Africa but nowhere common. The nominate race of Madagascar is probably extinct: at least there are no recent records of it (Benson and Irwin 1972, King 1981 who includes it as Indeterminate in the 2nd ICBP red data book).

Selected bibliography: Benson C W and M P S Irwin (1972). Benson C W and M P S Irwin (1973), Benson C W and M P S Irwin (1980), Jensen R A C and M K Jensen (1969), Kemp A C (1980a), King W B (1981), Newman K (1980a), Rowan M K (1983), Schuette G W (1969), Vernon C (1971a), Vernon C J (1971b), Vernon C J (in press).



INDETERMINATE

BLACK COUCAL

Swartvleiloerie

Centropus bengalensis (Gmelin) 1788: Bengal. (*Centropus grillii* Hartlaub 1861: Gabon).

Order CUCULIFORMES

Family CUCULIDAE

Summary: a summer migrant to eastern South Africa which has bred once in coastal Zululand. It is widespread in moist tropical Africa outside the major rain forests.

Present distribution: recorded in the Lake St Lucia Complex in Natal and the southern Kruger National Park but breeding has not been proved in either area.

Former distribution: coastal Natal and the eastern Transvaal. **Habitat:** rank grass.

Status: resident where conditions remain suitable but usually a summer visitor, perhaps only in very wet seasons.

Estimated numbers and population trends: no estimates available but does not now occur regularly anywhere in South Africa. Even Vernon (1971c) was unable to clarify the status of the Black Coucal in South Africa as opposed to Zimbabwe. There is only one breeding record for South Africa : Richard's Bay in Natal on 27 October 1920 (Roberts 1940) though the nests are difficult to find. While the species has been recorded over a fairly wide area in the past, it is uncertain how many of the records were of birds breeding in the area and how many of wandering birds.

Breeding rate in wild: normal clutch three or four eggs; a single brood is provided for each male mate who incubates the eggs and rears the nestlings; incubation and nestling periods unknown; females probably first breed at age three (Vernon 1971c).

Reasons for decrease: perhaps habitat destruction has been important, particularly in coastal Natal. It is also possible that problems in the unknown wintering grounds are responsible for the apparent decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. If the occasional modern records from the Lake St Lucia Complex (Berruti 1980b) and the Kruger National Park (Newman 1980a) represent breeding birds, they are thus protected.

Protective measures proposed: none.

Number held in captivity: probably

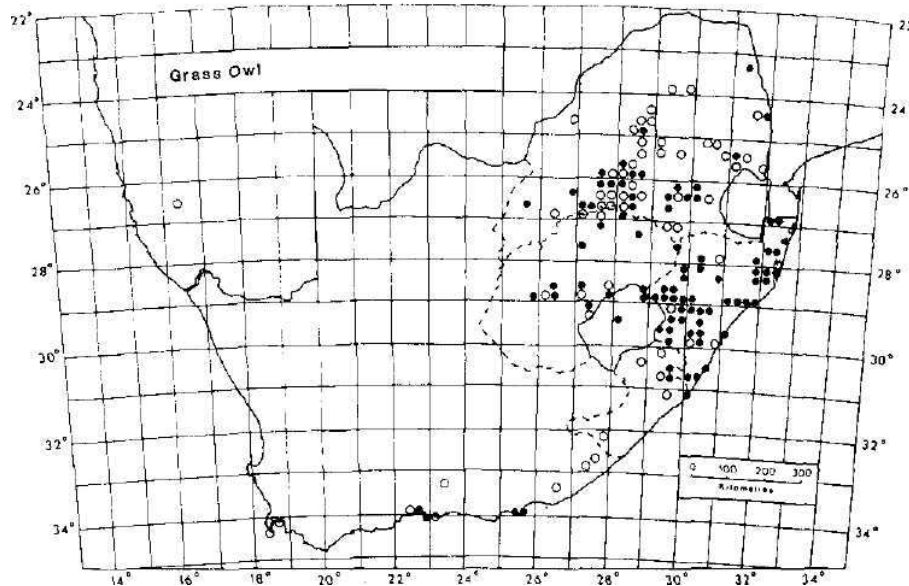
none. **Breeding potential in captivity:**

probably low. **Current research effort:**

none.

Remarks: the Black Coucal is widely but sparsely distributed in moist tropical Africa outside the major rain forests. If the African form *grillii* is truly conspecific with *C. bengalensis*, cf Dowsett and Dowsett-Lemaire (1980). it occurs in suitable habitat throughout the Oriental Region as well.

Selected bibliography: Berruti A (1980b), Cyrus D and N Robson (1980), Dowsett R J and F Dowsett-Lemaire (1980), Kemp A C (1980a), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a), Roberts A (1940), Rowan M K (1983), Vernon C J (1971c), Vernon C J (1975b).

**GRASS
OWL**

Tyto capensis (Smith) 1835: Cape
Town. Order STRIGIFORMES

**INDETERMIN
ATE**

Family TYTONID
AE

Summary: a species which has lost its Lesotho breeding population and most of its Cape Province breeding population. It is Vulnerable to habitat degradation. It is widespread in Africa north to 5N.

Present distribution: the south coast of the Cape Province, the northern Transkei and Orange Free State northwards as a breeding species.

Former distribution: as above but used to breed in the western Cape (Bellville - South African Museum catalogues) and used to occur in Lesotho (Bonde 1981). N G Palmer (in litt 1983) believes that the number of immature birds found in the southern Cape in the George-Knysna area indicates that the species still breeds there.

Habitat: areas of perennial grassland ca 1 m high, often moist to sodden, in which it breeds; forages more widely over grassland.

Status: largely resident but some wandering occurs, perhaps in relation to drought or rodent plagues.

Estimated numbers and population trends: no estimates available but only common in Natal, Drainage schemes and farming practices have led to loss of habitat and thus a diminishing population size, most noticeably in the Cape Province and Lesotho.

Breeding rate in wild: normal clutch three to five eggs, probably dependent on rodent abundance; probably double brooded in years of rodent abundance and high rainfall; incubation period four and a half weeks; nestling period seven weeks (Steyn 1982); females probably first breed at age two or more.

Reasons for decrease: habitat destruction by drainage but more often by too frequent burning, overgrazing and trampling by stock leading to False Karoo formations, cf Macdonald and Birkenstock (1980). The possibility of excessive accumulations of pesticide residues depressing their reproductive output should not be ignored, at least in the grassveld of the Transvaal.

Protective measures taken: full legal protection is afforded by provincial and homeland

conservation ordinances. It breeds in the Barakalalo Nature Reserve in Bophuthatswana and in the Transvaal at Barberspan (Skead and Dean 1977) and perhaps in the Kruger National Park (Newman 1980a).

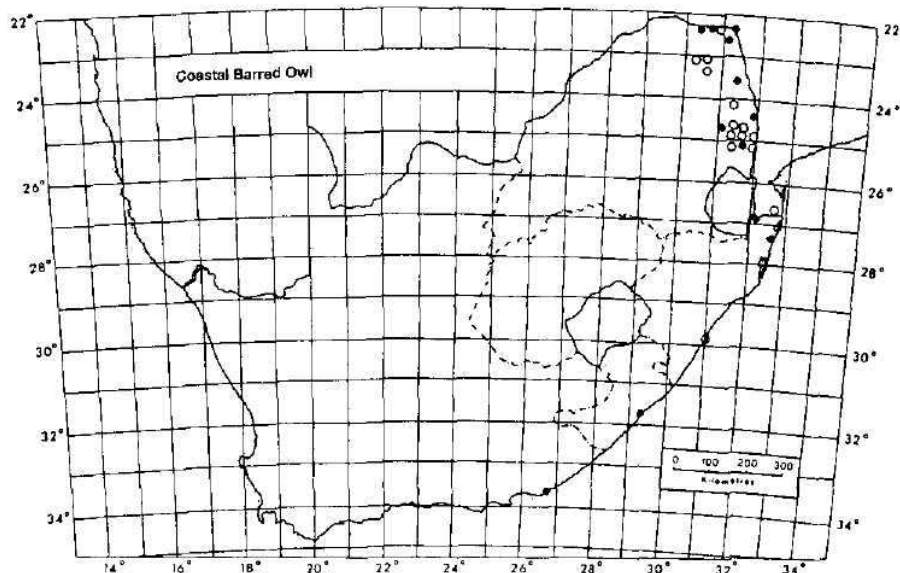
Protective measures proposed: habitat conservation. **Number held in captivity:** probably few.

Breeding potential in captivity: good - has bred in the Johannesburg and Pretoria Zoos (Dr A C Kemp, personal communication, 1982).

Current research effort: none.

Remarks: the Grass Owl is widespread in grassland in Africa north to Ethiopia but not in west Africa. A closely related Grass Owl *T. longimembris*, perhaps conspecific, occurs in southeast Asia and Australia.

Selected bibliography: Benson C W (1981), Bonde K (1981), Cyrus D and N Robson (1980), Davidson I H and H C Biggs (1974), Dean W R J (1979), Earle R A (1978), Irwin M P S (1982), Kemp A (1980a), Kemp A C (1980b), Lees S G and A D Wood (1978), Macdonald I A W and P J Birkenstock (1980), Masterson A (1973b), Newman K (1980a), Ranger G (1965), Skead C J (1967a), Skead DMandWRJ Dean (1977), Steyn P (1982), Tarboton W R (1968), Vernon C J (1972), Vernon C J (1980b), Winterbottom J M (1968), Winterbottom J M (1979).



**COASTAL BARRED
OWL** Gebande Uil

Glaucidium capense (Smith) 1834: eastern Cape Province. Order STRIGI FORMES

RARE

Family STRIGIDAE
(Bubonidae)

Summary: a Rare species of dense cover at low altitudes occurring along the coastal strip from the eastern Cape Province to extreme southern Mozambique.

Present distribution: a specimen from Kenton-on-Sea, eastern Cape Province, on 7 March 1980 (Arnott 1980, Clancey 1980b) and one photographed in the Hluleka Nature Reserve, Transkei, on 17 August 1981 (Brooke et al 1983).

Former distribution: eastern coastal regions of South Africa (three eastern Cape, one Transkei and four Natal records) including the two in Present distribution above (Brooke et al 1983).

Habitat: dense cover.

Status: presumably resident.

Estimated numbers and population trends: no estimates available. No evidence for a decrease in a very unobtrusive species whose identifying call has only just been discovered.

Breeding rate in wild: nothing known but presumably similar to that of the Savanna Barred Owl *G. scheffleri ngamiense* for which see Steyn (1982).

Reasons for decrease: no evidence for a decrease though habitat destruction has probably affected the unknown size of the population.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

Number held in captivity: probably

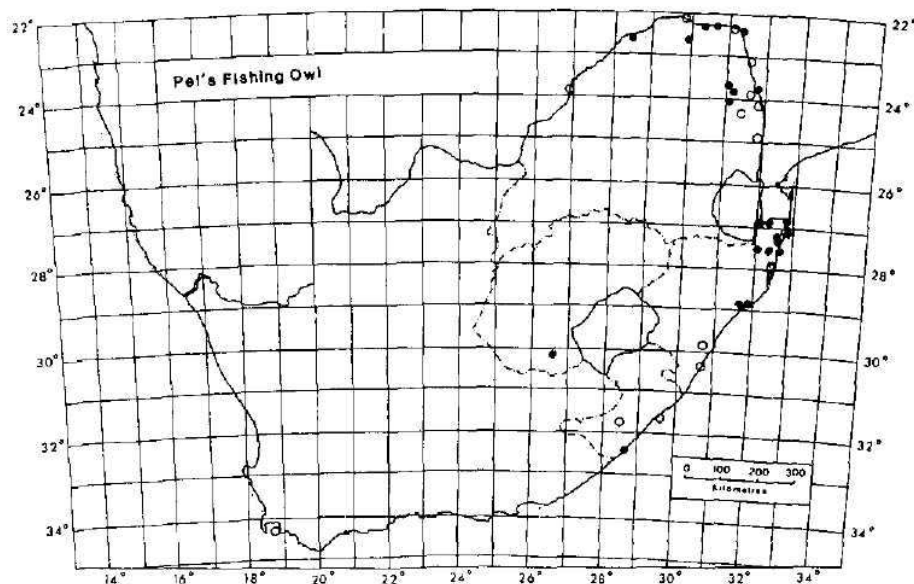
none. **Breeding potential in captivity:**

probably good. **Current research effort:**

none.

Remarks: the Coastal Barred Owl is here treated as a separate monotypic species now that its identifying call has been found to be different from that of the Savanna Barred Owl *G. scheffleri ngamiense* (Dr R Liversidge, personal communication, 1983). Morphological and ecological differences have been noted by Clancey (1980b), Steyn (1982) and Brooke et al (1983) for these taxa and Colston (1978) has already noted similar problems in the tropical elements of the *G. capense* species group. The distribution of the Coastal Barred Owl is not well established and nothing significant is known of its biology (Brooke et al 1983).

Selected bibliography: Arnott G (1980). Brooke RKJB Oatley, M E urly and D W Kurtz (1983), Clancey P A (1964), Clancey P A (1980b), Colston (1978), Cyrus D and N Robson (1980), Lawson W J (1971), Skead C J (1967a), Steyn P (1982).



PEL'S FISHING OWL (Fishing Owl) Visuil

Scotopeliapeli Bonaparte 1850: Ashanti, Ghana. Order STRIGIFORMES

RARE

Family STRIGIDAE
(Bubonidae)

Summary: a Rare species (probably less than 30 breeding pairs) in Zululand and the northeastern Transvaal. It occurs widely in tropical Africa.

Present distribution: breeds in riparian forest along the Olifants, Levubu and Limpopo Rivers in the Transvaal and in similar habitat in extreme northern Zululand. Immatures sometimes wander great distances, reaching the eastern Cape and the southern Orange Free State.

Former distribution: not known to have differed from the above.

Habitat: riparian forest overhanging clear pools in rivers or lakes where it forages.

Status: adults are resident and juveniles stay with them until the start of the next breeding season (Liversedge 1980). Immatures, at least some of them, wander widely.

Estimated numbers and population trends: 1 pair per 2,3 km of the lower Levubu River in the northern Kruger National Park (P G H Frost, personal communication, 1982). The South African breeding population is unlikely to exceed 30 pairs. Destruction of riparian forest diminishes the available breeding habitat but with so unobtrusive a species it is not known whether this is only of local importance or whether they once bred more widely in Natal and along the Limpopo River.

Breeding rate in wild: normal clutch two eggs but only one youngster is reared (Liversedge 1980); single brooded; incubation period five weeks; nestling period ten weeks (Steyn 1982); females probably first breed at an age in excess of two years.

Reasons for decrease: destruction of riparian forest; destruction of river pools through silting from eroded catchment areas as in the Siaya system. Natal (Garland 1981).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Pel's Fishing Owl probably breeds in the Mkuzi Game Reserve (Cyrus and Robson 1980) and the Ndumu Game Reserve, both in Natal, and does breed in the northern Kruger National Park (P G H Frost, personal communication, 1982).

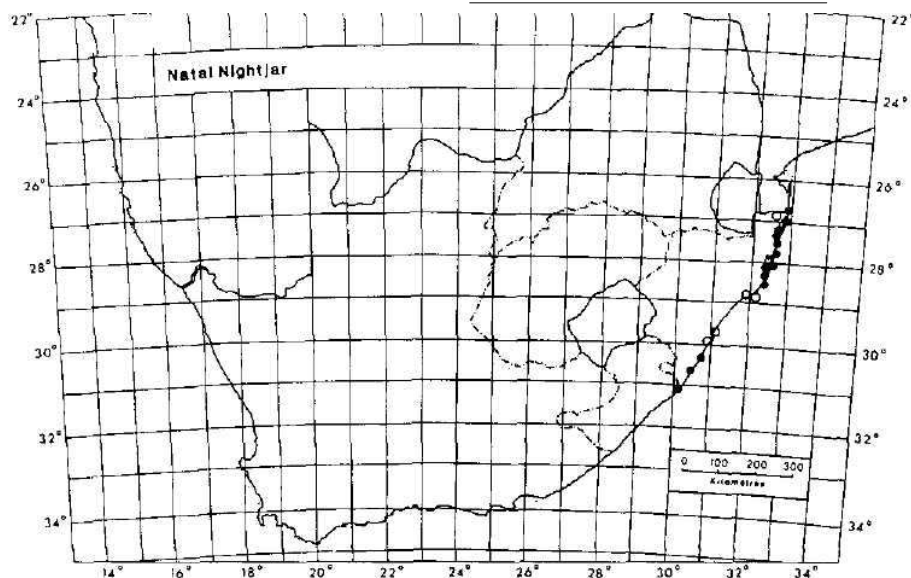
Protective measures proposed: protection of the remaining well grown riparian forests where they breed. Conservation of rivers to restore the pools of clear water in which they forage.

Number held in captivity: probably few.

Breeding potential in captivity: probably good. **Current research effort:** none.

Remarks: Pel's Fishing Owl is widespread in tropical Africa and probably common along rivers with well grown dense riparian forest. In southern Africa it is the only nocturnal avian predator of moderately large fish whereas there are several such diurnal predators.

Selected bibliography: Cyrus D and N Robson (1980), Fabian D T (1968), Garland I F (1981), Kemp A (1980a), Kemp A C (1980b), Liversedge T N (1980), Newman K (1980a), Pooley A G (1967), Pooley A C (1968), Skead C J (1967a), Steyn P (1982).



**NATAL
NIGHTJAR**
Natalse Naguil

Caprimulgus natalensis Smith 1845:
Durban. Order
CAPRIMULGIFORMES

VULNERABLE

Family
CAPRIMULGIDAE

Summary: a Vulnerable species (habitat destruction has fragmented its range) whose paucity of records is not solely explained by its difficulty of field recognition. The nominate race is an isolate in southeastern Africa but other populations occur in tropical Africa.

Present distribution: coastal northern Transkei, south coast and north coast of Natal.

Former distribution: as above but continuously along the Natal coast. Claimed records from the Kruger National Park are presently unacceptable.

Habitat: moist short grassland by waterbodies and in palm savanna. **Status:** probably resident.

Estimated numbers and population trends: no estimates available. Undoubtedly rare despite the difficulty most observers have in identifying nightjars. Numbers have decreased since the central Natal coastal range is no longer occupied.

Breeding rate in wild: normal clutch two eggs; probably single brooded; incubation and nestling periods about two and a half weeks each; females probably first breed at age one.

Reasons for decrease: destruction of habitat for economic development.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Lake St Lucia Complex (Dr J M Mendelsohn in litt 1982).

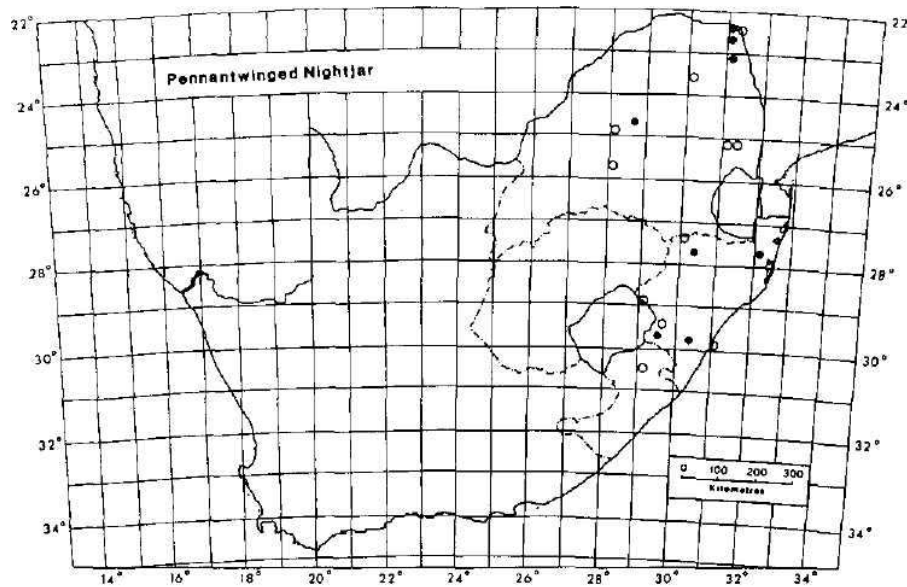
Protective measures proposed: none.

Number held in captivity: probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: the nominate race of the Natal Nightjar is an isolate with a restricted range, now fragmented, in Natal and extreme southern Mozambique (Clancey 1970a). Conservation action is almost certainly needed but before this can be

planned and executed a survey of its numbers, distribution, habitat requirements and breeding productivity is required. Several other populations of the Natal Nightjar are found in tropical Africa as far west as Liberia.

Selected bibliography: Berruti A (1980b), Clancey P A (1970a). Cyrus D and N Robson (1980), SkeadCJ (1967a).



**PENNANTWINGED
NIGHTJAR**

Wimpelvlerknaguil

Macrodipteryx vexillaria (Gould) 1838:

Sierra Leone. Order

CAPRIMULGIFORMES

INDETERMINATE

Family

CAPRIMULGIDAE

Summary: a summer visitor to the northern and eastern Transvaal which may breed there. Vagrants reach the central Transvaal and Natal. It is widespread and sometimes common in tropical Africa.

Present distribution: the Kruger National Park with vagrants reaching the Nyl River floodplain, Transvaal, and Natal.

Former distribution: as above with vagrants reaching the eastern Cape Province. **Habitat:** broadleaved woodland.

Status: breeding summer visitor between September and February in Zimbabwe (Jackson 1978). It probably only reaches South Africa when drought has reduced the size of its habitat to the north and breeding has not been proved here.

Estimated numbers and population trends: no estimates available. Newman (1980a) calls it 'fairly common but localised' in the Kruger National Park. No evidence for a decrease.

Breeding rate in wild: normal clutch two eggs; single brooded; incubation and nestling periods about two and a half weeks each; females probably first breed at age one.

Reasons for decrease: no evidence for a decrease. Like many nightjars it is often killed by road traffic.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It probably breeds in the Kruger National Park (Kemp 1980a, Newman 1980a) where display flights have been filmed near Punda Milia (P G H Frost, personal communication, 1983).

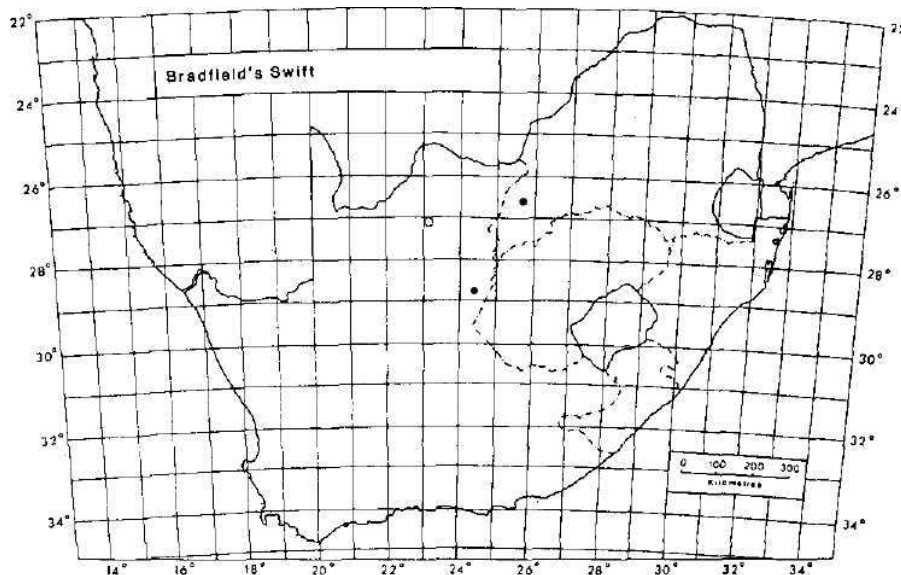
Protective measures proposed: none.

Number held in captivity: probably

none. **Breeding potential in captivity:**
probably low. **Current research effort:**
none.

Remarks: the Pennantwinged Nightjar is widespread in tropical Africa. It is a breeding summer migrant in southern Africa where it is common south to the Lundi River in Zimbabwe but rare south of that river with breeding not well established. Proof that it is a South African breeding species is required.

Selected bibliography: Cyrus D and N Robson (1980). Jackson H D (1978), Kemp A C (1980a). Newman K (1980a), Skead C J (1967a).



BRADFIELD'S SWIFT

INDETERMINATE

Muiskleurwindswael

Apus bradfieldi (Roberts) 1926: Quickborn, Otjiwarongo District, South West Africa/Namibia.

Order APODIFORMES
(Micropodidae)

Family APODIDAE

Summary: a possibly Rare species (three localities recorded) in the northern Cape Province. It is common in Namibia and southern Angola.

Present distribution: known from Kuruman (Brooke 1970) and Kimberley (McLachlan and

Liversidge 1978) where it probably breeds in the Big Hole (Dr R Liversidge, personal communication, 1980) and Taung (Dr R Liversidge in litt 1983). It is possible that most plain dark swifts seen in the northern Cape and the southwestern Transvaal belong to this species but critically evaluated evidence for this is not available.

Former distribution: not known to have differed from the above.

Habitat: breeds in dry horizontal cracks in overhanging rock faces; forages over any country.

Status: probably resident.

Estimated numbers and population trends: no estimates available but probably common in the northern Cape (Dr D N Johnson in litt 1983. Dr R Liversidge, personal communication, 1980). No evidence for a decrease.

Breeding rate in wild: nothing known beyond the data in Dean and Jensen

(1974) though it is likely to be similar to that of other similarly sized *Apus* swifts (Brooke 1971a).

Reasons for decrease: no evidence for decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed:

none. **Number held in captivity:**

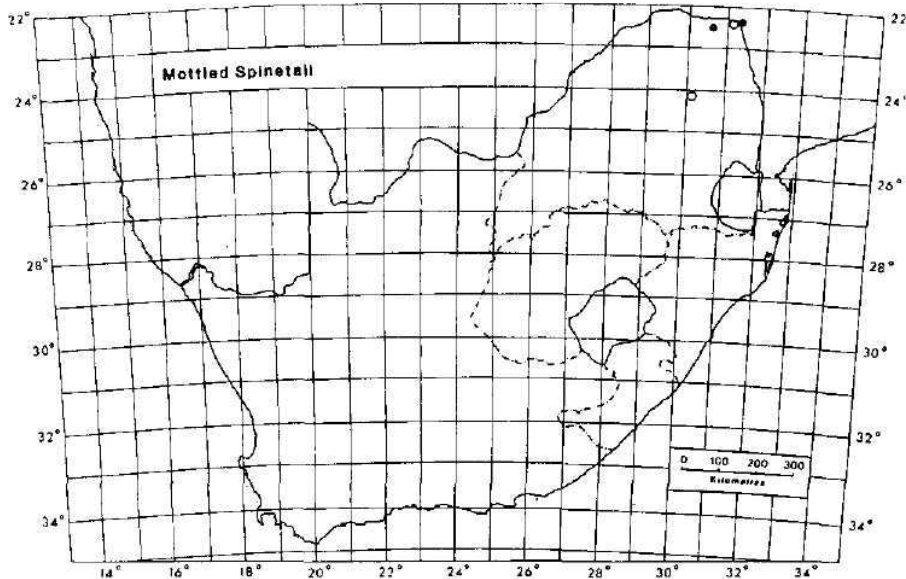
probably none. **Breeding potential**

in captivity: low. **Current research**

effort: none.

Remarks: Bradfield's Swift is widespread and common in Namibia and southern Angola and represented in South Africa by the race *A. b. deserticola* Brooke (1970). The reason so little is known about it is due to the difficulty of separating plain dark swifts in the field: Kieser and Kieser (1978) declined to identify any plain dark swift from the De Aar District. It may well be that the tentative record from Cradock (Collett 1982) is valid and it probably occurs in the northern Karoo. Careful study, including collecting such swifts, in the northern Cape Province is required to establish that within its range Bradfield's Swift is common.

Selected bibliography: Brooke R K (1970), Brooke R K (1971a), Brooke R K (1971b), Collett J (1982), Dean W R J and R A C Jensen (1974), Kieser J A and G A Kieser (1978), Loutit R (1980), McLachlan G R and R Liversidge (1978).



MOTTLED SPINETAIL
Gevlekte Stekelstert
(Stekelstert)

Tetacanthum ussheri (Sharpe) 1870: Fort Victoria, Ghana. Order APODIFORMES

Family APODIDAE
(Micropodidae)

RARE

Summary: a Rare species (probably less than 50 breeding pairs) virtually restricted in South Africa to the northern Kruger National Park. It is widespread and sometimes common in tropical Africa.

Present distribution: the northeastern Transvaal.

Former distribution: not known to have differed from the above.

Habitat: deciduous woodland with Baobabs *Adansonia digitata* in which they roost and breed, also cliffs (Newman 1974).

Status: largely resident.

Estimated numbers and population trends: probably over 300 birds (W R Tarboton in litt 1981). A Baobab with probably four or five nests in it was found in the Madzaringwe valley in the northern Kruger National Park on 20 May 1982 (P G H Frost in litt 1982), the first breeding record for South Africa. No evidence for a decrease.

Breeding rate in wild: normal clutch probably three or four eggs; probably single brooded; incubation and nestling periods unknown; females probably do not first breed till after age two,

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. As noted above, it breeds in the Kruger National Park whence most sight records come (Kemp 1980a).

Protective measures proposed: none.

Number held in captivity: probably

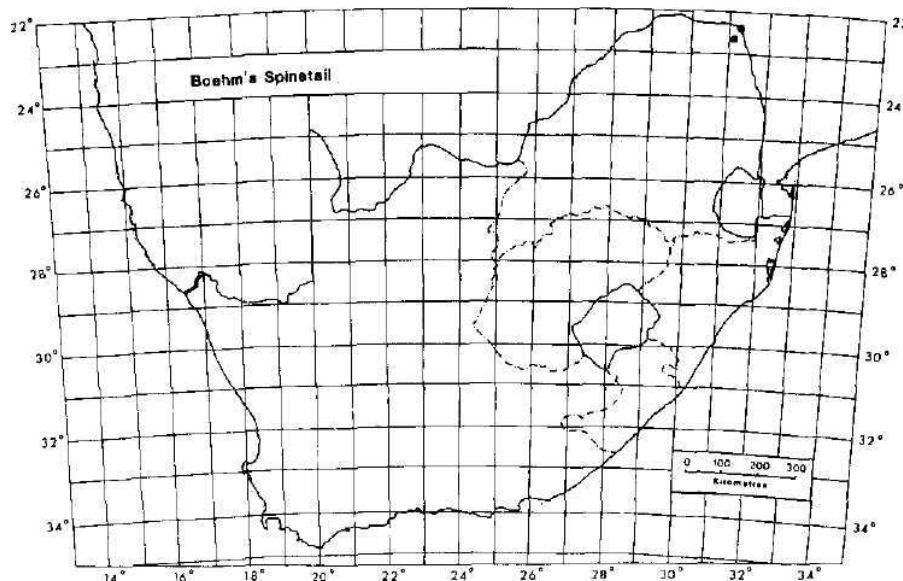
none. **Breeding potential in**

captivity: low. **Current research**

effort: none.

Remarks: the Mottled Spinetail is widespread in tropical Africa and sometimes common. The South African race *T. u. benguellensis* occurs from Angola to Mozambique.

Selected bibliography: Brooke R K (1971a), Brooke R K (1971c), Kemp A C (1980a), Milstein P le S and D A Milstein (1981), Newman K B (1974), Newman K (1980a).



BOEHM'S SPINETAIL

Witpensstekelstert (Boehmse Stekelstert)

Neafrapus boehmi (Schalovv) 1882: Kakoma.
Tanzania. Order APODIFORMES

RARE

Family APODIDAE (Micropodidae)

Summary: a Rare species (probably less than 50 breeding pairs!) of the extreme northeastern Transvaal. It is widely but discontinuous!} distributed in tropical Africa north to Somalia.

Present distribution: the northern Kruger National Park, the Limpopo valley east of Messina, Transvaal.

Former distribution: not known to have differed from the above.

Habitat: semi-arid densely wooded valleys of large rivers. Normally breeds in pre-existing vertical holes in the ground (Brooke 1971a).

Status: resident with some wandering to forage.

Estimated numbers and population trends: no estimates available. Described as "uncommon and localised" in the northern Kruger National Park (Newman 1980a). No evidence for a decrease.

Breeding rate in wild: normal clutch three eggs; perhaps double brooded; incubation period two weeks; nestling period nearly six weeks (Brooke 1966, 1971a); females probably do not first breed till after age two.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the northern Kruger National Park: a nest with three eggs was found 2 km north of the Levubu River on 11 April 1981, the site being a hollow Baobab *Adansonia digitata* with entrance 4,8 m above the ground (W R Tarboton in litt 1983).

Protective measures proposed:

none. **Number held in captivity:**

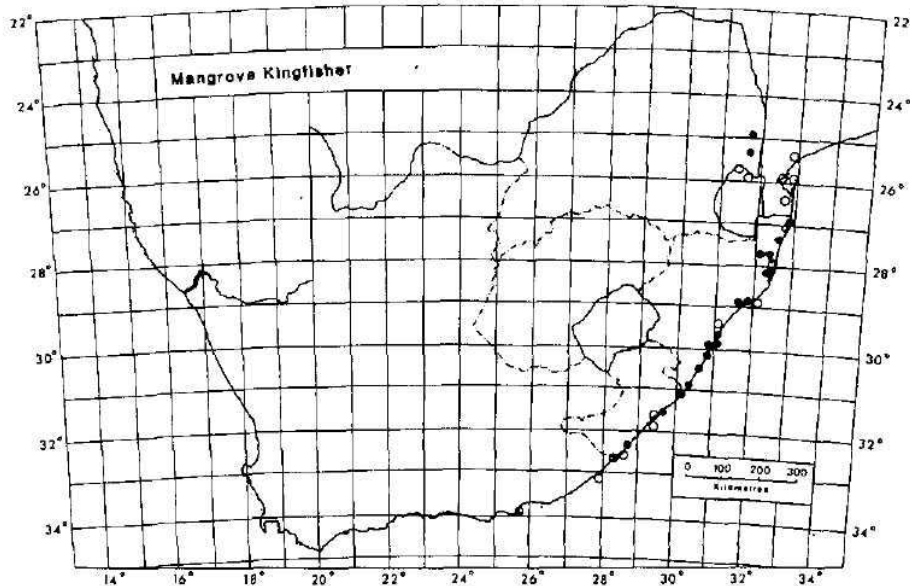
probably none. **Breeding potential**

in captivity: low. **Current research**

effort: none.

Remarks: Boehm's Spinetail is widespread in eastern tropical Africa north to southern Somalia and across to Angola.

Selected bibliography: Brooke R K (1966a), Brooke R K (1971a), Brooke R K (1971d), Kemp A C (1980a), Milstein P le S and D A Milstein (1981), Newman K (1980a).



**MANGROVE
KINGFISHER** Manglied
visvanger

Halcyon senegaloides Smith 1834:
Durban. Order CORACIIFORMES

INDETERMINATE

Family HALCYONIDAE
(Alcedinidae)

Summary: a probably scarce and Vulnerable but certainly unobtrusive species of the coastal districts of the Transkei and Natal. It occurs up the east coast of Africa to Kenya.

Present distribution: coastal districts of the Transkei and Natal, wandering occasionally to the Transvaal lowveld.

Former distribution: as above but also wandering down the coast of the eastern Cape Province as far as Port Elizabeth.

Habitat: breeds in the banks of forested streams as near forested estuaries and mangrove forests, the nonbreeding winter habitat, as practicable.

Status: essentially resident except when breeding sites are not beside the nonbreeding habitat; some tendency to vagrancy, probably associated with seeking a breeding habitat.

Estimated numbers and population trends: no estimates available despite its noisy calling in summer but apparently rare. Economic development of Durban Bay has eliminated one of its major wintering grounds and this may apply elsewhere on the Natal coast.

Breeding rate in wild: normal clutch three eggs; probably single brooded; incubation period probably two weeks; nestling period and age at which females first breed unknown.

Reasons for decrease: habitat destruction for economic development.

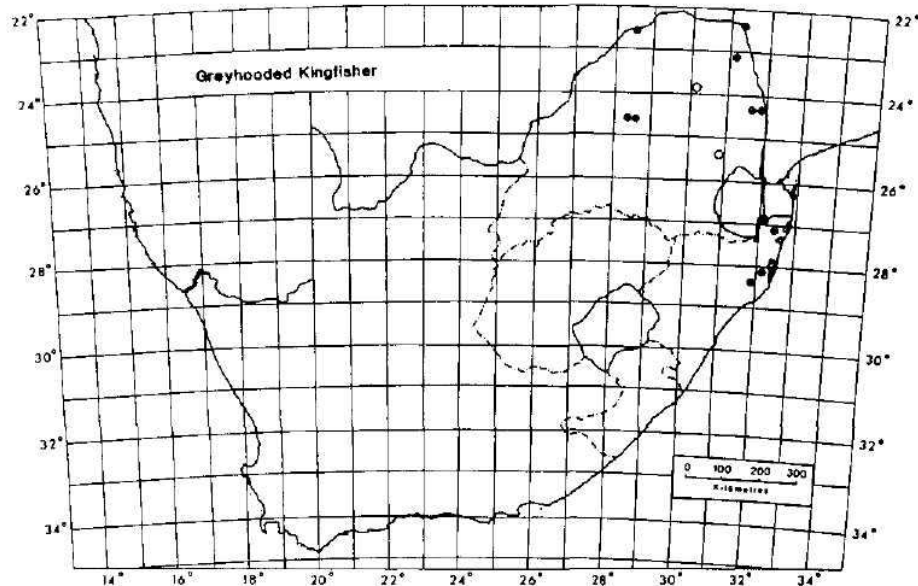
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: conservation of the remaining mangrove forests and other forests lining estuaries.

Number held in captivity: probably none. **Breeding potential in captivity:** unknown. **Current research effort:** none.

Remarks: the Mangrove Kingfisher occurs through the coastal districts of eastern Africa north to Kenya.

Selected bibliography: Clancey P A (1965), Cyrus D and N Robson (1980), Jonsson G N (1965). Kemp A C (1980a), Pike E O (1966). Skead C J (1967a).



GREYHOODED KINGFISHER

Gryskopvisvanger

Halcyon leucocephala (Statius Mueller) 1776:
Senegal. Order CORACIIFORMES

Family HALCYONIDAE
(Alcedinidae)

Summary: a probably Rare breeding summer visitor to the northern Transvaal and a vagrant to northern Zululand. It is widespread in tropical Africa and occurs in southern Arabia.

Present distribution: breeds in the central and northern Transvaal; a vagrant in extreme northern Zululand.

Former distribution: not known to have differed from the above although the Natal records of vagrancy are modern.

Habitat: woodland; breeds in holes dug in earthen banks.

Status: breeding summer visitor to the northern Transvaal; vagrant to northern Zululand.

Estimated numbers and population trends: no estimates available but described by W R Tarboton

(in litt 1981) as "scarce" in the Transvaal. No evidence for a decrease.

Breeding rate in wild: normal clutch four eggs; probably single brooded; incubation period probably two weeks; nestling period and age at which females first breed unknown.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Kruger National

Park (Newman 1980a).

Protective measures proposed:

none. **Number held in captivity:**

probably few.

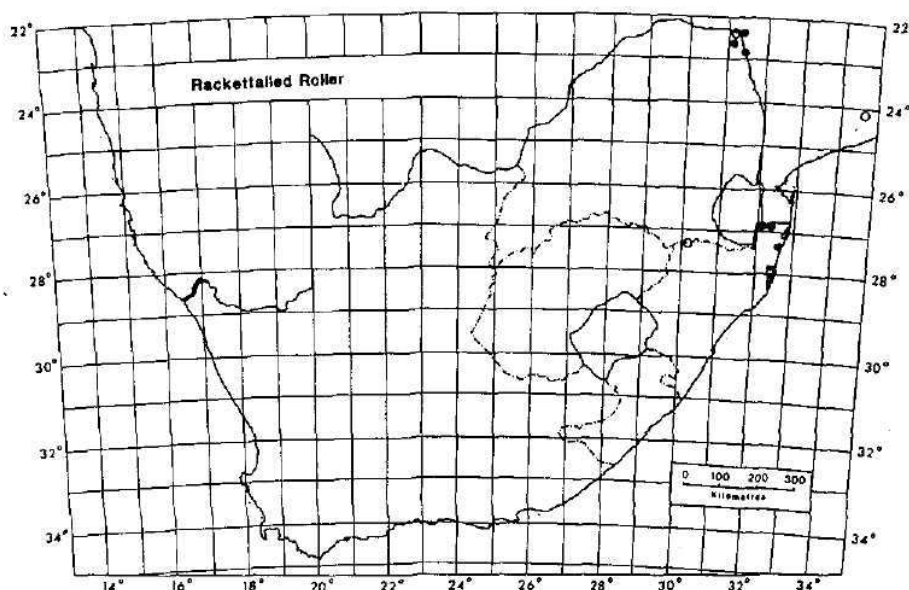
Breeding potential in captivity:

unknown. **Current research effort:**

none.

Remarks: the Greyhooded Kingfisher is widespread in tropical Africa and also breeds in southern Arabia. Chestnutbelied would be a better name for this species as it is the standard name north of the Zambezi River and it draws attention to a major field character.

Selected bibliography: Beesley J S S (1976b), Day D H (1975), Hanmer D B (1980), Kemp A C (1980a), Newman K (1980a), Tarboton W R (1977a).



RACKETTAILED ROLLER

INDETERMINATE

Knopstertroupan

Coracias spatulata Trimen 1880: Leshumo valley, Victoria Falls, Zimbabwe.

Order CORACIIFORMES

Family CORACIIDAE

Summary: a probably Rare species which may breed in the extreme northeastern Transvaal and which occurs as a vagrant in extreme northern Zululand. It is widespread in tropical Africa south of the equator.

Present distribution: the far north of the Kruger National Park where it is apparently resident (Newman 1980a); vagrant to extreme northern Zululand.

Former distribution: not known to have differed from the above. **Habitat:** broadleaved woodland, usually Miombo.

Status: apparently resident but breeding not proved in the northeastern Transvaal; vagrant in northern Zululand.

Estimated numbers and population trends: no estimates available. Described as 'uncommon' in the extreme northern Kruger National Park (Newman 1980a). No evidence for a decrease.

Breeding rate in wild: normal clutch three eggs; single brooded; incubation period probably two and a half weeks; nestling period probably four weeks; females probably do not first breed until at least age two.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. If it breeds in South Africa, it does so in the Kruger National Park.

Protective measures proposed: none. **Number**

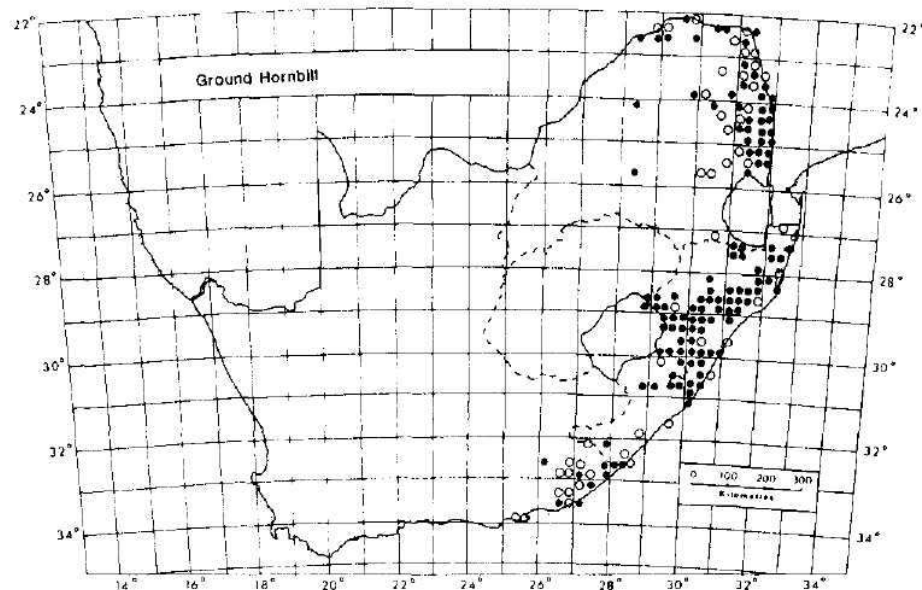
held in captivity: probably few. **Breeding**

potential in captivity: probably fairly good.

Current research effort: none.

Remarks: the Rackettailed Roller is widespread in the woodlands of tropical Africa south of the equator.

Selected bibliography: Clancey P A (1969b), Cyrus D and N Robson (1980), Kemp A C (1980a), Newman K (1980a).



GROUND HORNBILL

VULNERAB

LE

Bromvoel

Bucorvus leadbeateri (Vigors) 1825: lower Bushman River, eastern Cape Province.

Order CORACIIFORMES

Family

BUCEROTIDAE

Summary: a Vulnerable species whose numbers are much reduced-outside conserved areas. It is widespread in Africa south of the equator.

Present distribution: from the Alexandria District of the eastern Cape Province northwards through the Transkei, Natal, eastern and northern Transvaal.

Former distribution: not known to have differed from the above.

Habitat: normally breeds in holes in trees, occasionally in rockfaces; forages in grassland with a few trees or savanna woodland but not in arid areas or tropical coastal lowlands in Natal.

Status: resident. Immatures live with their parents. Females move away from the parental group when sexually mature to found a new family group (Kemp 1978b, Kemp and Kemp 1980).

Estimated numbers and population trends: ca 720 birds in the Kruger National Park (Kemp and Kemp 1974). No other estimates available. Decreases in several districts

of the Transvaal have been reported to Dr A C Kemp (personal communication, 1982).

Breeding rate in wild: normal clutch two eggs but only one youngster is reared; single brooded; incubation period four weeks or so; nestling period 12 weeks; females probably first breed at age six (Kemp 1978b, Kemp and Kemp 1980).

Reasons for decrease: eating small poisoned carcasses and poisoned grain baits; shooting by irate householders when they make a habit of smashing window panes which reflect their images, making the birds believe that there is an intruding party in their territory.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is resident in a number of conserved areas in Natal: Cathedral Peak and Coleford Forest Reserves, the Hluhluwe/Umfolozzi Complex where there are ca 30 birds in 900 square km (Macdonald and Birkenstock 1980), the Itala, Mkuzi, Ndumu, Oribi Gorge, Stainbank and Umtamvuna Game Reserves. It breeds widely in the Kruger National Park (Newman 1980a) and probably in adjacent private game reserves.

Protective measures proposed:

none. **Number held in captivity:**

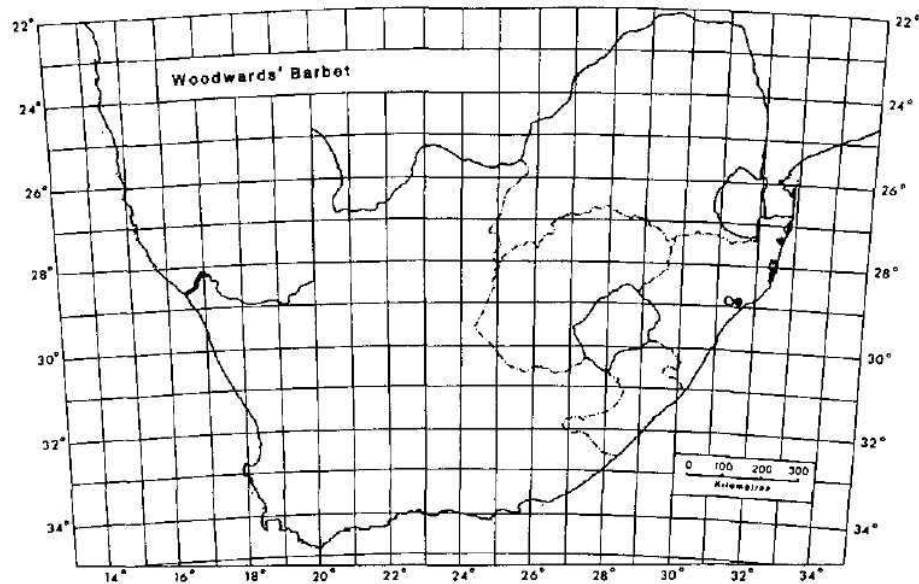
few.

Breeding potential in captivity: probably good - the Northern Ground Hornbill *B. abyssinicus* breeds freely in the San Diego Zoo, California (Penny 1975).

Current research effort: none.

Remarks: the Ground Hornbill is widely distributed in Africa south of the equator. It shares with the Wattled Crane the lowest recruitment rate of any southern African bird since pairs do not breed regularly and most fledglings do not survive to breed themselves (Kemp and Kemp 1980). The species should be called the Southern Ground Hornbill to distinguish it from the Northern Ground Hornbill.

Selected bibliography: Behr M G (1970), Brooke R K and A C Kemp (1973), Cyrus D and N Robson (1980), Jones B C (1969), Kemp A C (1971), Kemp A C (1978b), Kemp A C (1979), Kemp A C (1980a), Kemp A and M Kemp (1974), Kemp A C and M I Kemp (1975b), Kemp A C and M I Kemp (1980), Kemp M I and A C Kemp (1979), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a), Penny C G (1975), Prozesky O P M (1977c), Sclater W L (1902), Skead C J (1967a). Woodward R B and J D S Woodward (1875).



WOODWARDS' BARBET (Green Barbet)

RAR

E

Groenhoutkapper

Cryptolybia woodwardi (Shelley) 1895: Umgoye Forest, Eshowe, Natal. (*Buccanodon olivaceum* (Shelley) 1880: Rabai, Kenya).

Order PICIFORMES
CAPITONIDAE

Family

Summary: a Rare species confined in South Africa to the Umgoye Forest where it is numerous with another subspecies (perhaps extinct) in the forests of the Rondo Plateau, Tanzania.

Present distribution: the Umgoye Forest, Zululand.

Former distribution: not known to have differed from the above. The breeding record from Lake Mzingazi, Zululand (Roberts 1940) is not acceptable as the species has never otherwise been seen in that vicinity. The record is almost certainly referable to the White-eared Barbet *Stactolaema leucotis*.

Habitat: breeds in tall trees, usually dead; forages in the canopy of evergreen forest growing on the granite Umgoye hills.

Status: resident.

Estimated numbers and population trends: no estimates available but common in the forest canopy (T B Oatley, personal communication, 1982). No evidence for a decrease.

Breeding rate in wild: nothing known though probably similar to that of the White-eared Barbet. The breeding record in Roberts (1940) is almost certainly referable to the White-eared Barbet. This means that the egg measurements in Winterbottom (1971a) and McLachlan and Liversidge (1978) are also those of the White-eared Barbet with which they correspond very closely. The only published data on the breeding of Woodward's Barbet is that in Holliday and Tait (1953). A nest was found ca 4 m up in a dead tree in December 1980 containing two nestlings and three eggs (P G H Frost in litt 1983).

Reasons for decrease: no evidence for a decrease. All forms of *Cryptolybia* have highly disjunct ranges and all are presumably highly specialized for the places where they occur

and do not take readily to slightly different conditions.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is a specially protected bird in Natal. The Umgoye Forest is a Kwazulu Forest Reserve.

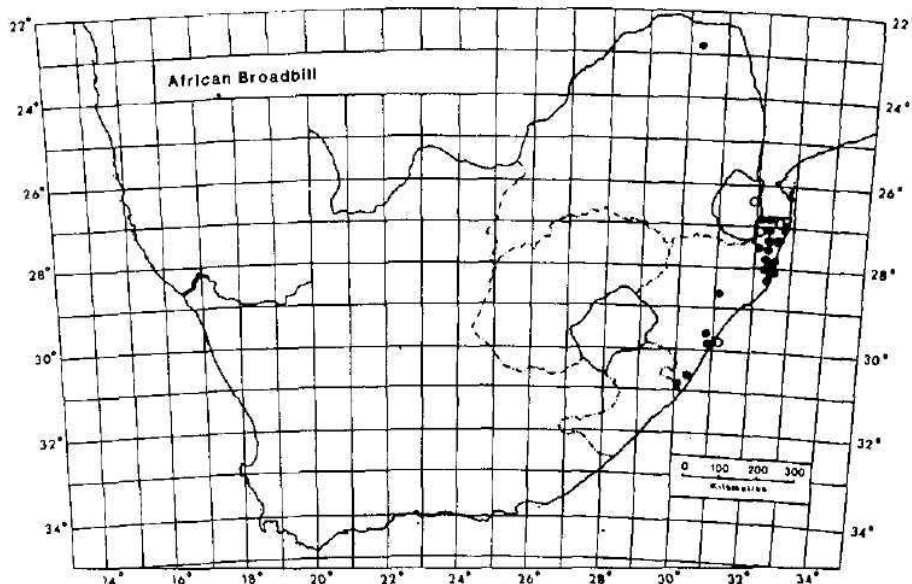
Protective measures proposed: improved conservation of the Umgoye Forest Reserve is the essential element in the continued wellbeing of Woodward's Barbet on a world basis.

Number held in captivity: probably none.

Breeding potential in captivity: probably fairly good. **Current research effort:** none.

Remarks: Woodward's Barbet is included as Rare in the 2nd ICBP red data book (King 1981). The species exists in two highly isolated populations which are racially distinct (Clancey 1979b, Jensen and Stuart 1982): the nominate in the Umgoye Forest which is maintaining itself and *hylophona* in the Nchingidi Forest on the Rondo Plateau of southeastern Tanzania. There has been much destruction of forests in Tanzania including on the Rondo Plateau and it is not known whether this population which was sampled in May 1939 (Peters and Loveridge 1942) still survives. Anything to be discovered about the biology and ecology of Woodward's Barbet must be discovered by studying the Umgoye population.

Selected bibliography: Clancey P A (1964), Clancey P A (1979b), Clancey P A (1979c), Cyrus D and N Robson (1980), Holliday C S and I C Tait (1953), Jensen F P and S N Stuart (1982), King W B (1981), McLachlan G R and R Liversidge (1978), Peters J L and A Loveridge (1942), Roberts A (1940), Winterbottom J M (1971a), Woodward R B and J D S Woodward (1899).



VULNERABLE

AFRICAN BROADBILL (Broadbill) Breebek

Smithornis capensis (Smith) 1839: between the Tugela and St Lucia estuaries, Natal.

Order PASSERIFORMES

Family EURYLAIMIDAE

Summary: the endemic nominate race is Vulnerable having lost its populations in coastal Natal in the Durban area. Its present populations are based on the Oribi Gorge Nature Reserve and the Lake St Lucia Complex. *S. c. cryptoleucus* occurs in northern Zululand and the Lebombo Mountains of Swaziland. The species occurs in

eastern Africa north to Kenya and west to Angola.

Present distribution: the nominate race occurs in southern coastal Natal and southern coastal Zululand. *S. c. cryptoleucus* occurs in northern coastal Zululand and the Lebombo Mountains of Swaziland. A displaying male was observed on 16 October 1976 in forest by Lake Vanduzi, Venda, Transvaal.

Former distribution: as above but along the whole Natal coastal belt (Clancey 1964). **Habitat:** thickets in coastal and riparian forests and dense deciduous woodland. **Status:** resident in coastal areas; perhaps a breeding summer visitor to the Transvaal.

Estimated numbers and population trends: no estimates available. Undoubtedly rare in most places where it occurs. Numbers have decreased, particularly in the Durban area of Natal.

Breeding rate in wild: normal clutch two or three eggs; probably double brooded.

Reasons for decrease: destruction of coastal forest and opening up of other habitats that it frequents coupled with inability to adapt to manmade habitats such as gardens which are too open.

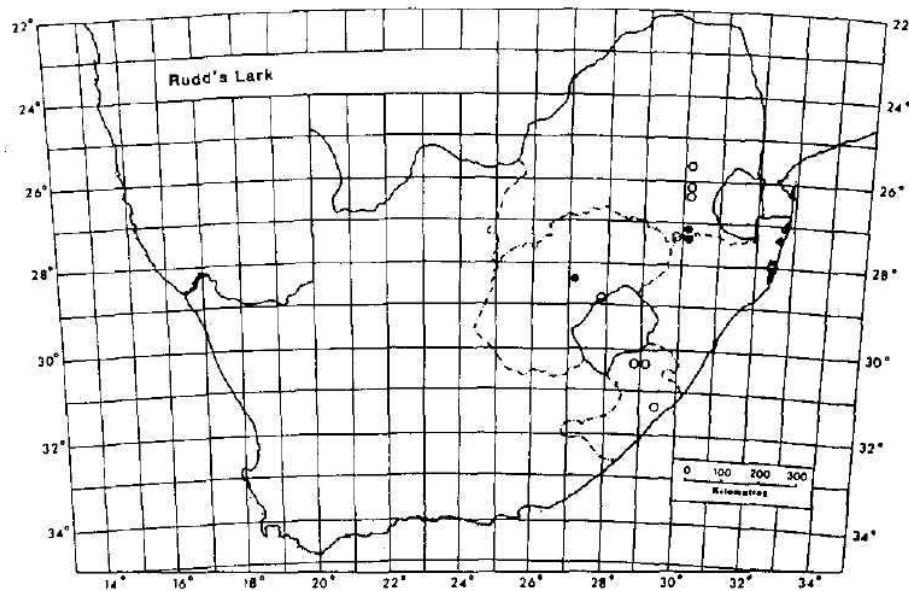
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The endemic nominate race probably breeds in the Oribi Gorge Nature Reserve and the Lake St Lucia Complex (Cyrus and Robson 1980). *S. c. cryptoleucus* probably breeds in the Mkuzi and Ndumu Game Reserves (Cyrus and Robson 1980).

Protective measures proposed: conservation of thickets under cover of trees. **Number held in captivity:** probably none.

Breeding potential in captivity: probably low. **Current research effort:** none.

Remarks: the African Broadbill occurs in eastern Africa north to Kenya and across south central Africa to Angola.

Selected bibliography: Berruti A (1980b), Clancey P A (1963a), Clancey P A (1964), Clancey P A (1970b), Cyrus D and N Robson (1980), Kemp A C (1980a). ~~Pinto A A da Rosa and D W Lamm (1953), Pooley A C and J E W Dixon (1966).~~



RUDD'S LARK

Drakensberglewrik

Mirafra ruddi (Grant) 1908: Wakkerstroom, Transvaal. (*Heteromirafra ruddi*).

Order PASSERIFORMES

VULNERABLE

Family ALAUDIDAE

Summary: a Vulnerable species which has lost its East Griqualand and Natal populations. It is endemic to South Africa with a very closely related species in Somalia.

Present distribution: high altitude grasslands of the eastern and northeastern Orange Free State and Lesotho to Dullstroom in the Transvaal.

Former distribution: as above but it used to occur on the southeastern and eastern grassland slopes of the Drakensberg: it was "common on the flats" near Matatiele, Griqualand East (Davies 1911). Not reported in Natal in the 1970s (Cyrus and Robson 1980) and not found in recent surveys of its former range in East Griqualand and Natal by the Durban Museum (J C Sinclair, personal communication, 1983).

Habitat: high altitude moist short grasslands; also forages in old croplands. **Status:** probably resident.

Estimated numbers and population trends: no estimates available. The paucity of modern records suggests that Rudd's Lark has decreased in numbers, particularly in the southern part of its range where it is no longer recorded.

Breeding rate in wild: normal clutch three eggs; probably single brooded.

Reasons for decrease: habitat degradation through overgrazing and excessive burning, presumably.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

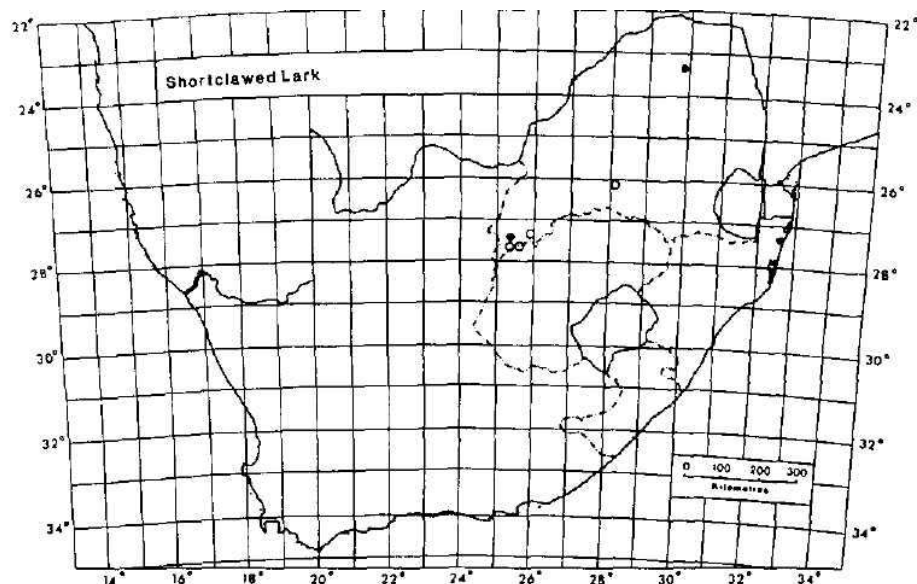
Protective measures proposed: none until the species has been studied. **Number held in captivity:** probably none.

Breeding potential in captivity: low since an aviary would inhibit male courtship flights (Maclean 1969).

Current research effort: none.

Remarks: Rudd's Lark, often placed in the genus *Heteromirafra*, is here treated as an endemic species of South Africa following Clancey (1980a). It is very closely related to, perhaps conspecific with the Somali Longclawed Lark *M. archeri* which is a rare species of the submontane grasslands of extreme northwestern Somalia. Before an effective conservation programme can be devised for Rudd's Lark, a study of its distribution, habitat requirements and biology is required.

Selected bibliography: Boddam-Whetham A D (1963), Bonde K (1981), Clancey P A (1980a), Cyrus D and N Robson (1980), Davies C G (1911), Maclean G L (1969), Sinclair J C (1983).



**SHORTCLAWED
LARK Kortkloulewerik**

Mirafra chuana (Smith) 1836: north of Kuruman, northern Cape Province.
Order PASSERIFORMES Family
ALAUDIDAE

Summary: a probably Rare endemic species of central southern Africa.

Present distribution: locally in the northern Cape east of 22 E, adjacent northwestern Orange Free State and southwestern Transvaal, western Transvaal northeast to Bandolierkop.

Former distribution: not known to have differed from the above.

Habitat: *Acacia* and *Tarchonanthus camphoratus* savannas where the grass does not exceed 30 cm in height. Not above 1 500 m asl.

Status: a breeding visitor to the Pietersburg Municipal Nature Reserve (W R Tarboton in litt 1982) but it is not likely to move far.

Estimated numbers and population trends: no estimates available. No evidence for a decrease. **Breeding rate in wild:** normal clutch two or three eggs; probably single brooded.

Reasons for decrease: clearing *Acacia* and *Tarchonanthus* savanna for agriculture removes their habitat. The localized distribution strongly suggests that it has unknown but strict requirements for breeding and foraging habitats.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Several pairs breed in the Pietersburg Municipal Nature Reserve (P G H Frost in litt 1982).

Protective measures proposed: none.

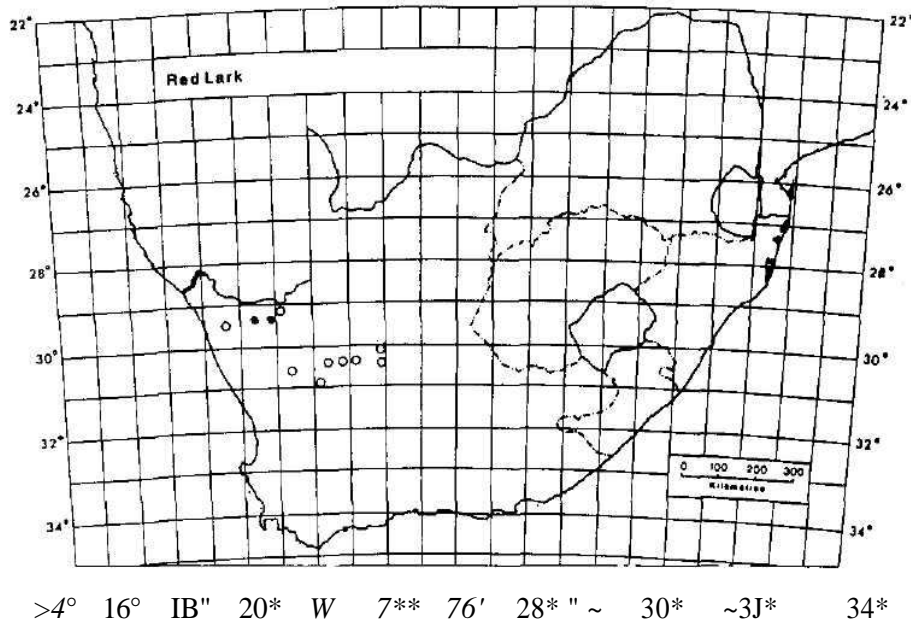
Number held in captivity: probably none.

Breeding potential in captivity: low since an aviary would probably inhibit male courtship flights (Maclean 1969).

Current research effort: none.

Remarks: small populations of the Shortclawed Lark are also found in southeastern Botswana. As with several other southern African larks very little is known about the Shortclawed Lark, its' habitat requirements, biology and systematics. Clancey (1980a) regards it as forming a superspecies with the Longbilled Lark *M. curvirostris*, a view which W R Tarboton (in litt 1982) supports, remarking that it has "an identical display flight and call". However, R J Dowsett and F Dowsett-Lemaire (in litt 1983) regard it as very close to the Red Lark, including its call.

Selected bibliography: Clancey P A (1980a), Maclean G L (1969).



RED LARK
Rooilewerik

Mirafra burra (Bangs) 1930: Great Bushmanland, northwestern" Cape Province.
(*Certhilauda burra*).

Order PASSERIFORMES

INDETERMINATE

Family ALAUDIDAE

Summary: the Red Lark is probably Rare and probably a full species. It is endemic to the red sand country of the northwestern Cape Province south of the Orange River.

Present distribution: the lower drainage basin of the Orange River on the south side east nearly to Prieska.

Former distribution: not known to have differed from the

above. **Habitat:** open semi-desert karoo, usually on reddish sandy soils. **Status:** highly nomadic within its range depending on localized rainfalls.

Estimated numbers and population trends: no estimates available. No evidence for a decrease.

Breeding rate in wild: nothing known.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed:

none. **Number held in captivity:**

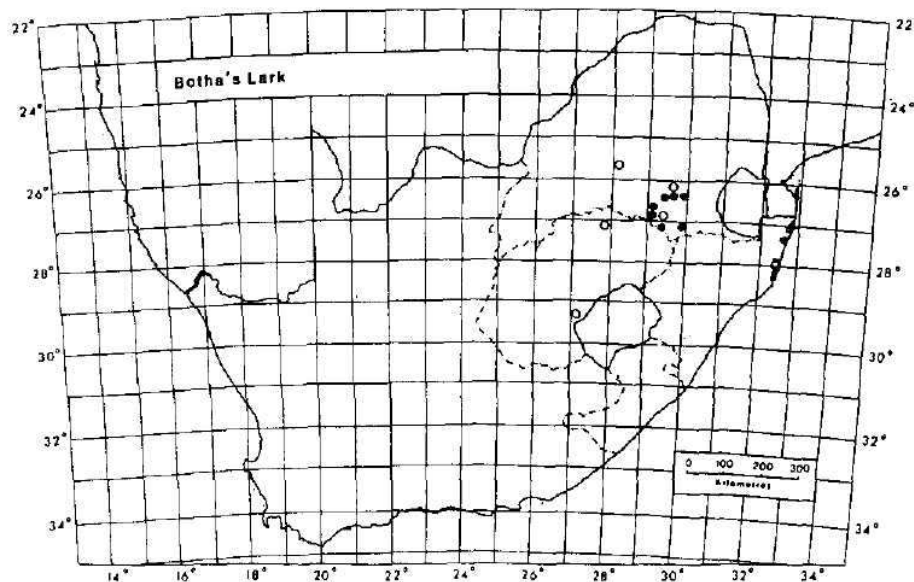
probably none.

Breeding potential in captivity: low since an aviary would probably inhibit male courtship flights (Maclean 1969).

Current research effort: none.

Remarks: the Red Lark is an endemic taxon of the Cape Province and there is no satisfactory evidence that it occurs anywhere north of the Orange River. Its generic allocation has shifted between *Ammomanes*, *Certhilauda* and *Mirufra* and whether it is a species or subspecies has been much disputed (Clancey 1967c). Even if it is a subspecies, there is no agreement on what species it is a subspecies of. R J Dowsett and F Dowsett-Lemaire (in litt 1983) consider the Red Lark to be closely related to the Shortclawed Lark on the grounds of similarity of shape and call. The whole complex of forms which a broad treatment would place in the Karoo Lark *M. albescens* (Lawson 1961) needs to be studied taxonomically, biologically and ecologically to see what taxa are recognizable and at what taxonomic rank. Only then will it be possible to say which forms are rare or vulnerable and in need of conservation action.

Selected bibliography: Clancey P A (1967c), Clancey P A (1980a), Lawson W J (1961), Maclean G L (1969), Winterbottom J M (1963), Winterbottom J M (1968).



INDETERMINATE

**BOTHA'S
LARK**
Vaalrivierleweri
k

Spizocorys fringillaris (Sundevall) 1850: Leeuspruit, Vredefort, Orange Free State.
(*Botha*
fringillaris).
Order PASSERIFORMES Family
ALAUDIDAE

Summary: a probably Rare species (very seldom reported) endemic to higher altitude grasslands west of the Drakensberg watershed.

Present distribution: probably much as the former distribution below but the extreme paucity of modern (post 1969) record makes the framing of a statement virtually impossible. However, it is now known from the Wakkerstroom District, Transvaal (Sinclair 1983).

Former distribution: from Vredefort, Orange Free State, locally northeastwards to Estancia, just west of Breyten, Transvaal.

Habitat: open *Themeda triandra* grassveld. The localized distribution strongly suggests that it has unknown but strict requirements for breeding and foraging habitats.

Status: resident.

Estimated numbers and population trends: at least 1 000 birds in the Transvaal (Allan et al 1983). Few observers can be sure of recognizing this scarce species and almost all we know is based on the few collected specimens.

Breeding rate in wild: normal clutch three eggs; nothing else known (Allan et al 1983).

Reasons for decrease: no evidence for a decrease once allowance is made for the little effort made to find it and its difficulty of recognition.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It may benefit from the protection afforded to the surroundings of certain large dams in its range in the Orange Free State.

Protective measures proposed: none.

Number held in captivity: probably

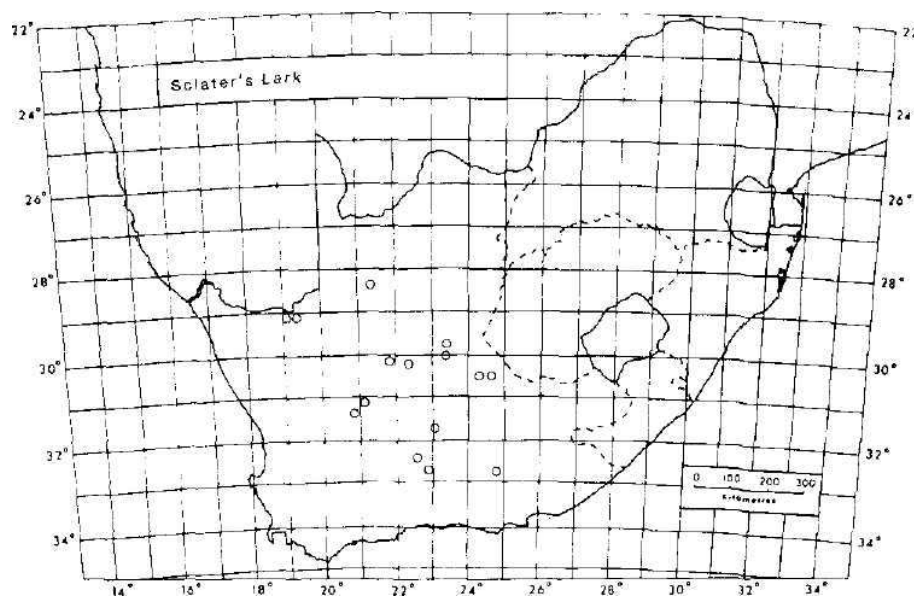
none. **Breeding potential in captivity:**

probably low, **Current research effort:**

none.

Remarks: Botha's Lark is a South African endemic species with a restricted range in the moist grasslands of the northeastern Orange Free State and southeastern Transvaal. Its distribution, numbers, breeding biology, feeding ecology and systematic position need to be studied before a conservation management plan can be framed and executed.

Selected bibliography: Allan D G, G R Batchelor and W R Tarboton (1983), Clancey P A (1963b), Hall B P and R E Moreau (1962), Maclean G L (1969), Sinclair J C (1983).

**SCLATER'S LARK****INDETERMIN****ATE****Namakwalewerik**

Spizocorys sclateri (Shelley) 1902: Hutup River west of Maltahoehe, South West Africa/Namibia.

Order PASSERIFORMES

Family

ALAUDIDAE

Summary: a possibly Rare but very poorly known species endemic to the heart of the southwestern arid region of Africa.

Present distribution: Orange River basin west of the Orange Free State and the northern Great Karoo.

Former distribution: not known to have differed from the above.

Habitat: flat open karoo within accessible distance of surface water for drinking (Winterbottom 1963).

Status: highly nomadic in response to rainfall (Winterbottom 1961).

Estimated numbers and population trends: no estimates available. Estimates would be difficult to obtain for a small unobtrusive, often gregarious bird in open semi-desert country. No evidence for a decrease.

Breeding rate in wild: little known (Hockey and Sinclair 1981). **Reasons for decrease:** no evidence for a decrease.

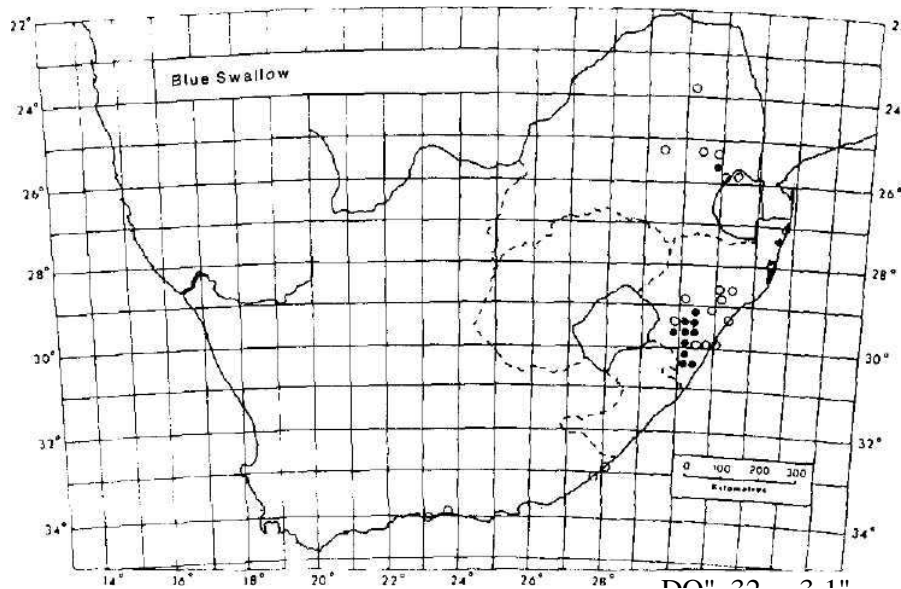
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The species benefits from the provision of open drinking water for stock and other purposes.

Protective measures proposed: none.

Number held in captivity: probably none, **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: the nominate race of Sclater's Lark also occurs in southern South West Africa/Namibia but the other race, *V. s. capensis*, is endemic to the Cape Province. This is another very little known South African lark whose systematic position at the genus level is still disputed (Hockey and Sinclair 1981).

Selected bibliography: Hockey P A R and J C Sinclair (1981). Maclean G L(1969). Winterbottom J M (1961), Winterbottom J M (1963). Winterbottom J M(1968). Winterbottom J M(1972).



**BLUE
SWALLOW**
Blouswael

Hirundo atrocaerulea Sundevall 1850:
Umvoti, Natal. Order PASSERIFORMES

**ENDANGER
ED**

Family
HIRUNDINIDAE

Summary: an Endangered species which has lost most of its breeding sites in the last 50 years. It reappears in eastern Zimbabwe where it is Vulnerable, in western Malawi where it is well established and in southwestern Tanzania where it is probably Endangered.

Present distribution: southern Natal north to Greytown between 1 200 and 1 500 m asl; at similar altitudes in the eastern Transvaal from Barberton to Pilgrim's Rest. Solitary vagrants may occur anywhere in eastern South Africa.

Former distribution: in Natal and western Zululand between 400 and 1 500 m asl (Sclater 1911, Clancey 1964); in western Swaziland (Tucker 1957); in the eastern Transvaal between 1 200 and 1 500m asl from Barberton to Tzaneen (Sclater 1911).

Habitat: grassy hillsides in high rainfall areas; nests are placed in potholes in subterranean streams or Antbear *Orycteropus afer* holes.

Status: breeding summer visitor; solitary individuals occasionally wander far outside their normal range and habitat.

Estimated numbers and population trends: no estimates available. In Natal in the 1970s it was recorded in 10 quarter degree squares but only regularly in one of them, the Blinkwater Ridge square (Cyrus and Robson 1980, Snell 1979). However, two other modern breeding sites in Natal are known to T B Oatley (personal communication, 1983). W R Tarboton (in litt 1982) only knows of three Transvaal localities where Blue Swallows now occur. The decrease is shown not only by loss of range but by its scarcity where it does occur.

Breeding rate in wild: normal clutch three eggs; usually double brooded; incubation period two weeks; nestling period three and half weeks (Snell 1979).

Reasons for decrease: loss of breeding sites as defined in Habitat above. Many areas where Blue Swallows used to occur have been planted with pines, wattles, eucalypts and, occasionally, sugar. Even if the underground streams in which they usually nest remain, the lack of an unvegetated flyway to the nest means that the site is abandoned (Snell 1979). Control of fires may lead to the entrances to nest sites becoming cluttered with dead vegetation and thus unsuitable (Snell 1979). Overgrazing and excessive burning may lead to flash floods which erode streams into forms which are unsuitable as nest sites (Snell 1979). Unlike many species of swallows the Blue Swallow very seldom uses manmade structures as nest sites so that it is unable to compensate for the loss of natural habitats (Snell 1979).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. In Natal it is a specially protected bird.

Protective measures proposed: the managers of State and private forests should be encouraged to desist from planting pines in areas where Blue Swallows still occur and to keep open the underground breeding sites by a suitably devised burning programme. Consideration should be given to granting conservation status to the Blinkwater site.

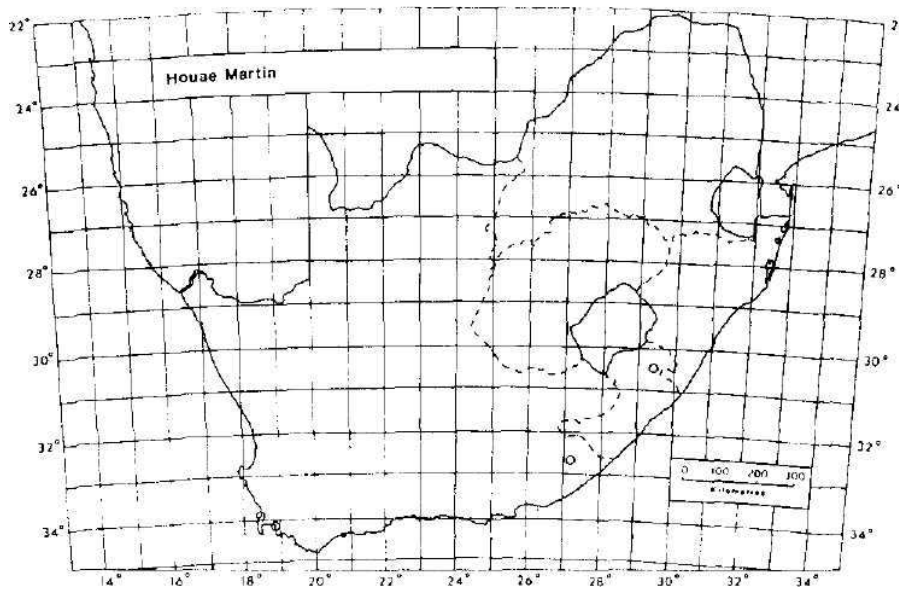
Number held in captivity: none.

Breeding potential in captivity: probably feasible, cf Hamilton (1981).

Current research effort: none.

Remarks: the Blue Swallow is a breeding summer visitor to eastern South Africa where it is Endangered, to eastern Zimbabwe where it is Vulnerable, to western Malawi where the population is well established, to southwestern Tanzania where it is probably Endangered (Snell 1979). Its nonbreeding quarters are in Uganda and western Kenya (Britton 1980). Roberts (1922) erected the genus *Natalornis* for this species, probably correctly. It lacks red in the plumage and white spots in the tail feathers which most *Hirundo* species have. It is the only old world swallow to have sexually dimorphic plumage. It is the only mud nest building swallow not to use pellets of mud for building: it lays down layers of premixed mud and straw.

Selected bibliography: Britton P L (1980), Clancey P A (1964), Cyrus D and N Robson (1980). Hall D G (1983), Hamilton N (1981). Roberts A (1922), Sclater W L (1911), Snell M L (1963), Snell M L (1969), Snell M L (1970), Snell M L (1979), Tucker B (1957).

**HOUSE
MARTIN**

Huisswael
Delichon urbica (Linnaeus) 1758:
Sweden. Order PASSERIFORMES

**INDETERMIN
ATE**

Family
HIRUNDINIDAE

Summary: an occasional breeder in the Cape Province and the Transkei, also South West Africa/Namibia; otherwise a nonbreeding summer visitor from the Palearctic to all parts of South Africa.

Present and former breeding distribution: central Cape Town a pair in November/December 1892 and 1893 (Stark and Sclater 1901); Otjiwarongo, South West Africa/Namibia, a small colony? in May 1928 and later; Keiskammahoek, eastern Cape, a pair in January 1946 and earlier (both McLachlan and Liversidge 1957); Kokstad, Natal, a pair in December 1967 (Vernon 1970); Somerset West a pair in August/October 1969 (Lockhart 1970). These are the records mapped. Nonbreeding Palearctic migrants may occur anywhere.

Habitat: breeds on buildings; forages in the air, often high up or around mountain tops.

Status: unknown for the occasional pair which breeds in South Africa. Otherwise a nonbreeding migrant from the Palearctic, normally present between September and April (Broekhuysen 1974).

Estimated numbers and population trends: occasional breeding is by single pairs. No estimates are available for the number of Palearctic migrants in South Africa though it may be large (Moreau 1972: 119-121). No evidence for a decrease.

Breeding rate in wild: normal clutch four to six eggs; double brooded in temperate Eurasia (Demenfev and Gladkov 1968); incubation period two weeks; nestling period three weeks.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

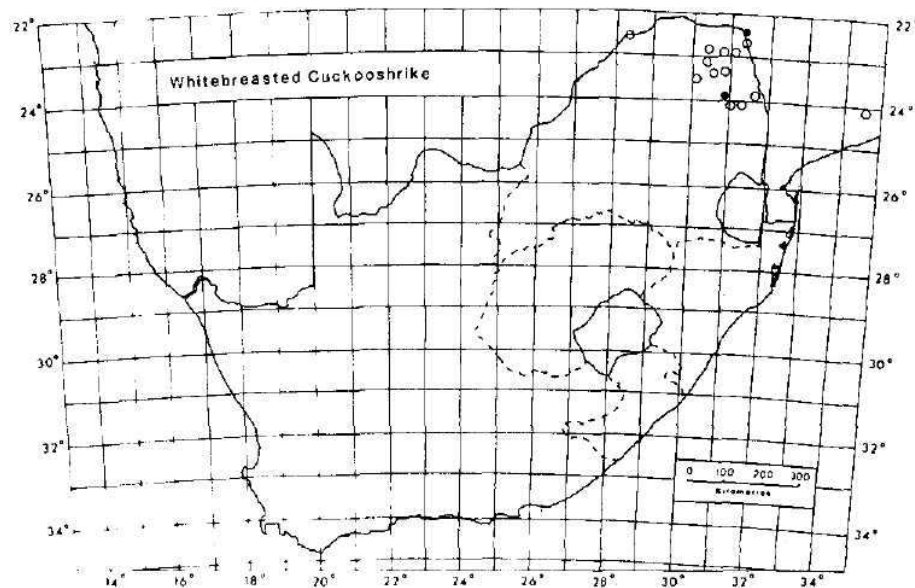
Number held in captivity: probably few.

Breeding potential in captivity: feasible, cf Hamilton (1981).

Current research effort: none.

Remarks: South African breeding by the House Martin happens so sporadically and in such small numbers that no conservation action would be practicable. *Delichon* is only doubtfully generically separable from *Hirundo*.

Selected bibliography: Broekhuysen G J (1974), Cyrus D and N Robson (1980), Dement'ev G P and N A Gladkov (1968), Hamilton N (1981), Kemp A C (1980a), Lockhart P S (1970), McLachlan G R and R Liversidge (1957), Moreau R E (1972), Newman K (1980a), Skead C J (1967a), Stark A C and Sclater (1901), Vernon C J (1970), Winterbottom J M (1979).



**WHITEBREASTED
CUCKOOSHRIKE**
Witborskatakoeroe

Coracina pectoralis (Jardine & Selby) 1828:
Sierra Leone. Order PASSERIFORMES

RARE

Family
CAMPEPHAGIDAE

Summary: a Rare species (Newman 1980a) of the northeastern Transvaal. It is widespread in tropical Africa.

Present distribution: northeastern and northern Transvaal below 1 000 m asl from 24S to the Tuli/Limpopo confluence.

Former distribution: not known to have differed from the above. **Habitat:** well grown deciduous woodland. **Status:** resident.

Estimated numbers and population trends: no estimates available. The paucity of modern records suggests that numbers of the Whitebreasted Cuckooshrike are decreasing.

Breeding rate in wild: normal clutch two eggs; probably single brooded.

Reasons for decrease: clearing well grown timber for firewood or agricultural development has diminished its habitat at the base of the Transvaal escarpment.

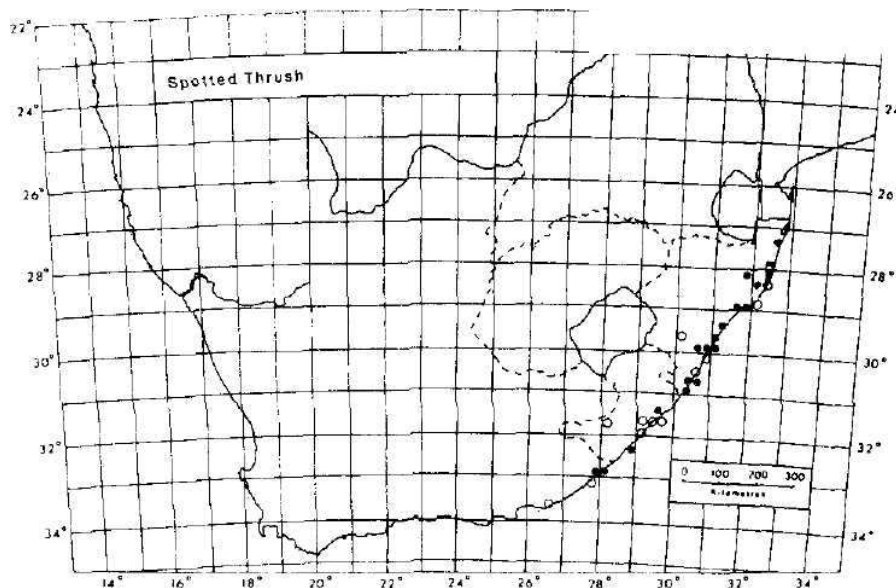
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the northern Kruger National Park (Newman 1980a).

Protective measures proposed: none.

Number held in captivity: probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: the Whitebreasted Cuckooshrike is widespread in well grown deciduous woodland throughout tropical Africa.

Selected bibliography: Kemp A C (1980a), Milstein P le S and D A Milstein (1981), Newman K (1980a), Pinto A A da Rosa and D W Lamm (1958). Whittingham A P (1964).



SPOTTED THRUSH (Natal Thrush) Natallyster

VULNERABLE

Tunlus fischeri Hellmayr 1901: Pangani River. Kenya. Order *PASSERIFORMES*

Family
TURDIDAE

Summary; a Vulnerable species (it has lost its central coastal Natal breeding range to economic development) of the coastal forests of Transkei and Natal. Isolated endangered populations occur in Malawi, Zaire, Kenya and the Sudan. It is to be included in the International Bird Red Data Book, 3rd edition (Collar 1982).

Present distribution: East London to Lake St Lucia, Natal, along the coastal belt.

Former distribution: not known to have differed from the above. Older records southwest of East London as far west as the Gamtoos River (Courtenay-Latimer in Benson 195(1), doubted by Skead (1967a), are unsubstantiated and unacceptable.

Habitat: coastal evergreen forest, foraging in leaf litter on the ground under trees, not thickets: migrates at night and then may crash into buildings: forages in shady

gardens while on passage.

Status: breeds from Pondoland, Transkei, to Umgoye Forest, Zululand; southern populations move north into Natal for the winter as far north as Lake St Lucia. East London records fall in the winter and may be of southward migrating birds from the Transkei rather than locally breeding birds. Quickelberge (1969) points out that the first East London record was made during a drought in Pondoland.

Estimated numbers and population trends: no estimates available. Some decrease takes place when forests are partly or totally cleared for grazing or other development. It no longer seems to breed in the Durban area (Chubb 1914, Liversidge 1957) though Cyrus and Robson (1980) show it as present throughout the year in the 1970s in the southern suburbs of Durban.

Breeding rate in wild: normal clutch three eggs; probably single brooded. **Reasons for decrease:** habitat destruction.

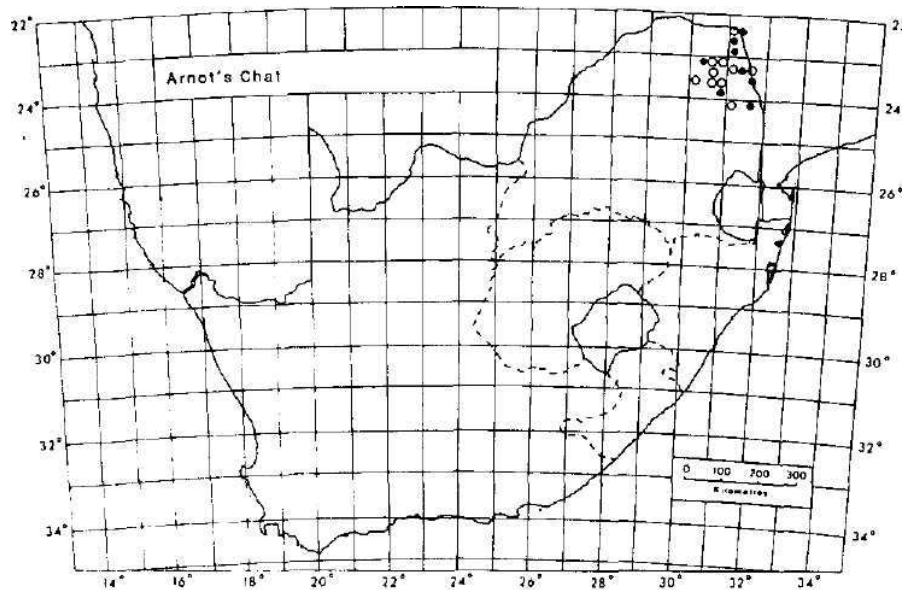
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. In Natal it is a specially protected bird. Some of the forests in which it breeds are conserved in one way or another.

Protective measures proposed: none.

Number held in captivity: probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: The South African race of the Spotted Thrush *T. f. natalicus* is endemic. There are three races to the north, on two mountains of southern Malawi, the coastal forests of Kenya and the Imatong Mountains of southern Sudan as well as an unnamed form known from one specimen from the Upemba National Park, Zaire (Nikolaus 1982). The three northern races are Endangered due to excessive habitat destruction. Thus the South African endemic race is the only one holding its own and for practical purposes its conservation is the conservation of the species. The species itself is considered to be Rare (Collar 1982). A biological and ecological study is needed to discover its real numbers, present breeding range and its requirements for effective conservation beyond conserving some of the forests in which it occurs.

Selected bibliography: Benson C W (1950), Berruti A (1980b), Chubb E C (1914), Clancey P A (1955), Clancey P A (1957a), Clancey P A (1957b), Clancey P A (1964), Collar N J (1982), Cyrus D and N Robson (1980), Liversidge R (1957), Nikolaus G (1982), Quickelberge C D (1969), Skead CJ (1967a).

**ARNOT'S CHAT****RARE****Bontpiek (Arnotse Swartpiek)***Thamnolaea arnoti* (Tristram) 1869: Victoria Falls, Zimbabwe. (*Myremcocichla arnoti*).

Order PASSERIFORMES

Family **TURDIDAE**

Summary: a Rare species (not common and with a restricted range) of the northeastern Transvaal. It is widespread in southern central Africa.

Present distribution: the northeastern Transvaal at middle and low altitudes east of 30E and north of 24S.

Former distribution: not known to have differed from the above.

Habitat: tall Mopane *Colophospermum mopane* woodland; sometimes in closed canopy broadleaved woodland; always with much bare ground beneath the trees.

Status: resident; breeding presumed but not proven.

Estimated numbers and population trends: no estimates available. Destruction of Mopane woodland has removed much of the habitat since Arnot's Chat does not frequent the resulting Mopane scrub.

Breeding rate in wild: normal clutch three eggs; probably single brooded. **Reasons for decrease:** habitat destruction.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Populations exist in the Hans Merensky Nature Reserve (Payne 1968) and the northern part of the Kruger National Park (Newman 1980a).

Protective measures proposed: none.

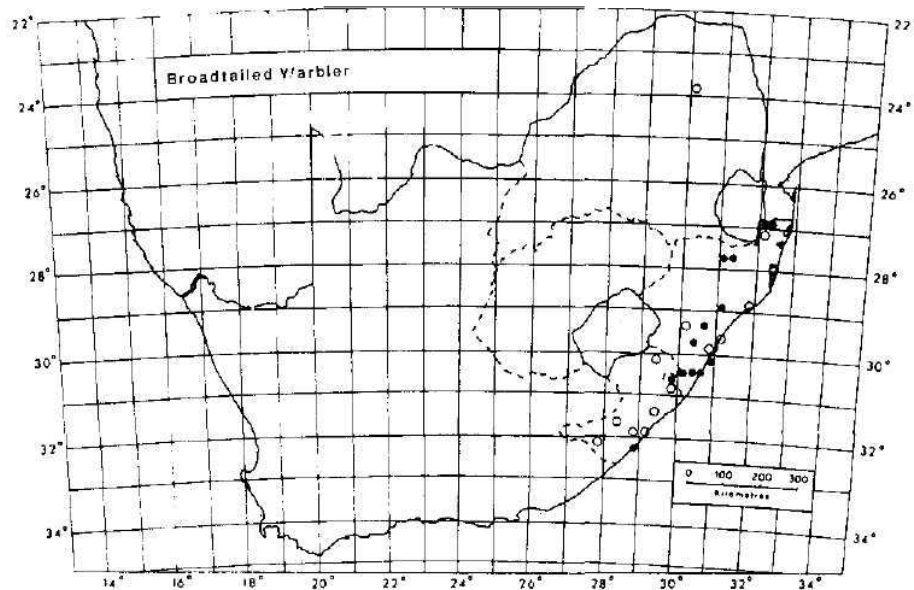
Number held in captivity: none.

Breeding potential in captivity: probably low.

Current research effort: none.

Remarks: Arnot's Chat is widespread and numerous in most deciduous woodlands of southern central Africa.

Selected bibliography: Kemp A C (1980a), Newman K (1980a), Payne R B (1968).



BROADTAILED WARBLER (Fan-tailed Warbler) Breestertsanger
Schoenicola brevirostris (Sundevall) 1850: upper Umlaas River, Natal. Order PASSERIFORMES

INDETERMINATE

Family
SYLVIIDAE

Summary: a species which has yet to be proved to breed in South Africa. It is widespread in eastern and central Africa.

Present distribution: coastal Transkei and southern Natal and middle altitudes throughout Natal; the Transvaal escarpment.

Former distribution: as above but more widely in the Transkei and coastal Natal. **Habitat:** dense rank grass, usually near water.

Status; probably resident at lower altitudes but a presumed breeding summer migrant above 1 200 m asl. Breeding is assumed since it is present during its Zimbabwean breeding season of November to February (Irwin-1981). gives its territorial display flight and sings.

Estimated numbers and population trends: no estimates available but rare in Natal (Cyrus and Robson 1980). 13 territorial males were observed in a 20 ha area of The Downs, Transvaal, in December 1981 (W R Tarboton in litt 1983). The species is seldom noticed except when males make territorial display flights during the breeding season. The paucity of modern records suggests a decrease.

Breeding rate in wild: normal clutch two or three eggs; probably double brooded.

Reasons for decrease: vlel degradation through excessive burning and grazing is one of the reasons for its apparent decrease (Macdonald and Birkenstock 1980).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Although it has been noted in certain conserved areas in Natal, particularly the Vernon Crookes Nature Reserve, it has never been proved to breed in South Africa.

Protective measures proposed: none.

Number held in captivity: probably

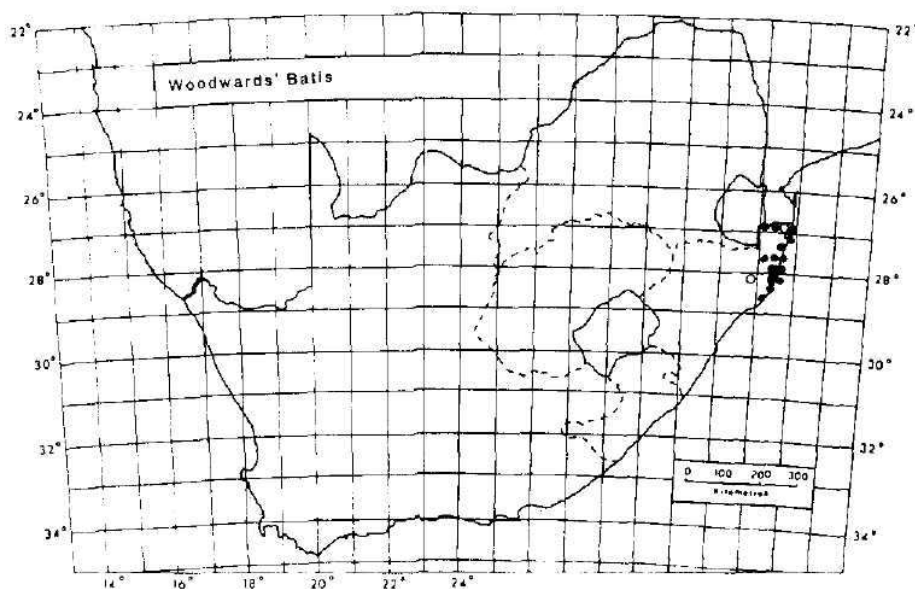
none. **Breeding potential in captivity:**

probably low. **Current research effort:**

none.

Remarks: the Broadtailed Warbler is widely distributed in eastern and central Africa with isolated populations further west and is very closely related to, perhaps conspecific with the Broadtailed Grass Warbler *S. platyura* of southwest India. It is only southern populations which are largely migratory (Brooke 1966b). A survey needs to be carried out in Natal to see whether the Broadtailed Warbler breeds there and, if so, in what habitats and whether it is a migrant in some areas. Only then can the need for and type of conservation action be determined.

Selected bibliography: Brooke R K (1966b), Brooke R K (1977), Cyrus D and N Robson (1980), Irwin M P S (1981), Macdonald I A W and P J Birkenstock (1980), Skead C J (1967a).



WOODWARDS' BATIS

Woodwardse

Bosbontrokkie

Batis fratrum (Shelley) 1900: Lake St Lucia, Natal. Order PASSERIFORMES

INDETERMINATE

Family MUSCICAPIDAE

It' n° 30" 3?" 3'*

Summary: a probably Rare species (restricted in range and seldom reported) of the forests of northern Zululand. It occurs widely in Mozambique and also in southern Malawi. It is to be included in the International Bird Red Data Book (ed 3) (Collar 1982).

Present distribution: coastal Zululand from Lake St Lucia northwards and riverine forest running into the interior up to 600 m asl in Swaziland.

Former distribution: as above but used to occur further south to Mtunzini (Clancey 1964) though Garland (1967) does not admit it for Mtunzini.

Habitat: evergreen coastal dune forest and at least partly evergreen riparian forest in both of which it forages in the middle levels.

Status: resident.

Estimated numbers and population trends: no estimates available. No firm evidence for a decrease.

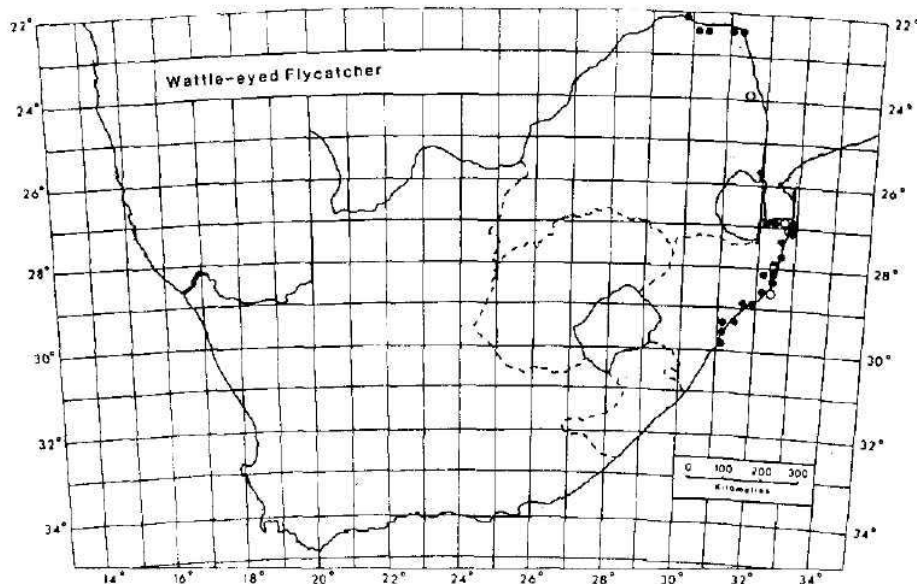
Breeding rate in wild: normal clutch two eggs; probably single brooded. **Reasons for decrease:** no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Populations live in the Lake St Lucia Complex (Berruti 1980b) and the Mkuzi and Ndumu Game Reserves (Cyrus and Robson 1980).

Protective measures proposed: conservation of multilayered forests. **Number held in captivity:** probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: Woodward's Batis occurs widely in coastal Mozambique and in southern Malawi. It is considered to be Rare by Collar (1982).

Selected bibliography: Berruti A (1980b), Clancey P A (1964), Collar N J (1982), Cyrus D and N Robson (1980), Garland I F (1967), Pinto A A da Rosa and D W Lamm (1955).



**WATTLE-EYED
FLYCATCHER**
Beloogbosontrokkie

Platysteira peltata Sundevall 1850: Umlalazi River,
Zululand. Orde PASSERIFORMES

INDETERMINATE

Family
MUSCICAPIDAE

Summary: a probably Rare species (restricted habitat and range) of riparian and

coastal forests and mangroves in Natal, Zululand and the extreme northeastern Transvaal. It is widespread in tropical Africa north to Kenya.

Present distribution: coastal Natal from Durban northwards and inland along the larger rivers, also the Limpopo valley of the Transvaal as far west as Beit Bridge.

Former distribution: not known to have differed from the above.

Habitat: coastal evergreen forest, mangroves, riparian forest when at least partially evergreen.

Status: resident.

Estimated numbers and population trends: no estimates available. Loss of habitat in the Durban area, along the Limpopo River and elsewhere has reduced its numbers.

Breeding rate in wild: normal clutch two eggs; double brooded; incubation period over two weeks; nestling period two weeks; fledgling period more than four weeks; older immatures probably feed younger siblings (Brooke and Manson 1979, Hanmer 1979).

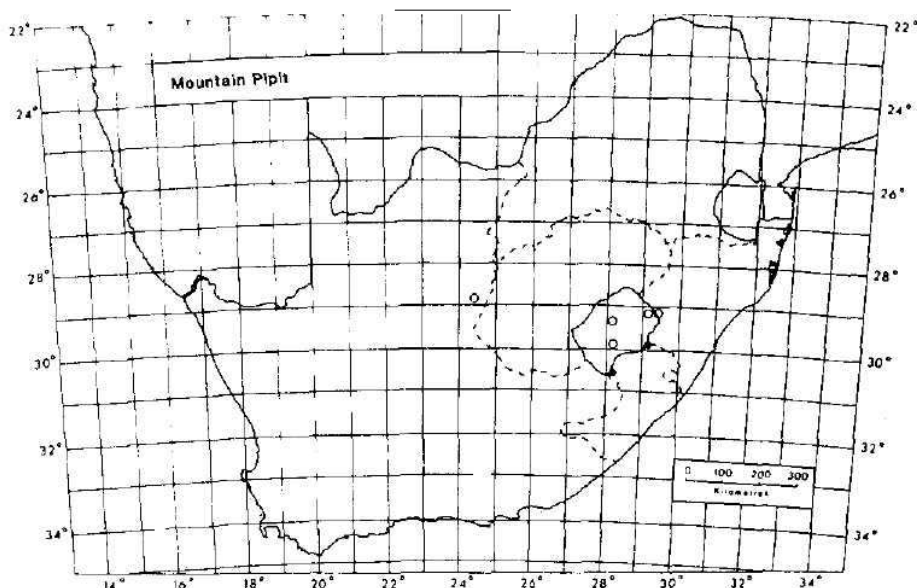
Reasons for decrease: habitat destruction.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Populations exist in the Lake St Lucia Complex (Berruti 1980b), the Ndumu Game Reserve (Cyrus and Robson 1980) and in the extreme north of the Kruger National Park (Newman 1980a).

Protective measures proposed: conservation of mangroves and riparian forests. **Number held in captivity:** probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: the Wattle-eyed Flycatcher is widespread in eastern and central Africa north to Kenya but everywhere it is sensitive to habitat destruction.

Selected bibliography: Berruti A (1980b), Brooke R K and A J Manson (1979), Clancey P A (1963c), Cyrus D and N Robson (1980), Hanmer D (1979), Kemp A C (1980a), Newman K (1980a), Pinto A A da Rosa and D W Lamm (1955).



**MOUNTAIN
PIPIT**

Bergkoester

Anthus cameroonensis Shelley 1900: Mt Cameroun,
Cameroun. Order PASSERIFORMES

INDETERMINA
TE

Family
MOTACILLIDAE

Summary: a probably Rare species not previously recognized as a species except by Wolters (1979). It is a breeding summer visitor to mountains above 2 000 m asl in northeastern Cape Province and Lesotho. Other races breed in the highlands of Angola (probably) and of Cameroun. All migrate to lower altitudes when not breeding.

Present and former distribution: mountains above 2 000 m asl in the northeastern Cape Province and Lesotho, perhaps also in the interior of the Transkei and western Natal. More precisely the known localities are: in the Thaba Pitsoa Mountains of Lesotho Liqaleneng (Quickelberge 1972) and Malutsenyene or Le Bihan Falls (Clancey 1954); in the Lesotho Drakensberg in the Sangebethu valley (Vincent 1951), three localities in the Lekalebalele valley (Bonde 1981), visually in the Sehlabathebe National Park (Bonde 1981); in the northeastern Cape at Naude's Nek (Dr J M Mendelsohn and J C Sinclair in litt 1983). It has been obtained on northward migration near Kimberley, northern Cape (Clancey 1978b).

Habitat: short montane grassland.

Status: breeding summer visitor, arriving in September and October and leaving in March and April.

Estimated numbers and population trends: no estimates available but apparently rare. No evidence for a decrease.

Breeding rate in wild: nothing known.

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed:

none. **Number held in captivity:**

probably none. **Breeding potential**

in captivity: unknown. **Current**

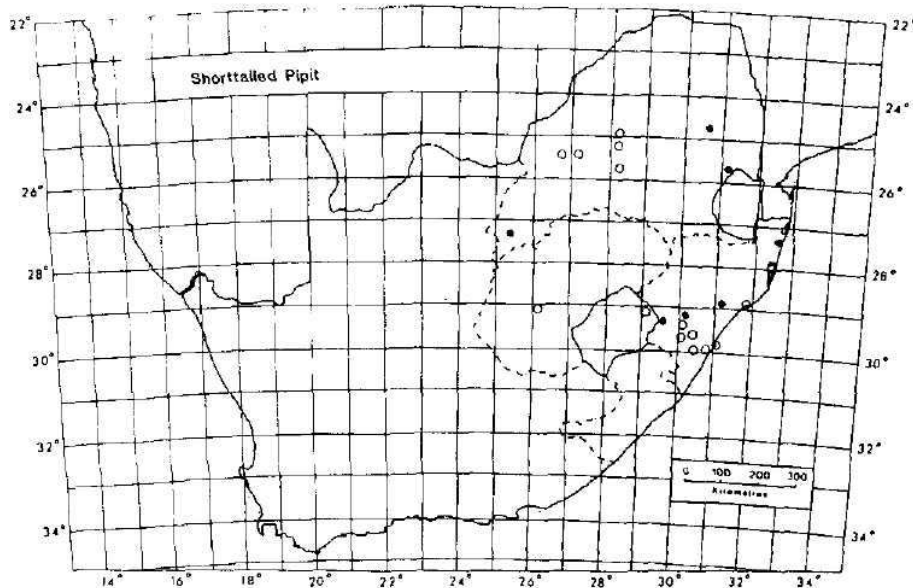
research effort: none.

Remarks: Clancey (1978b) discussed the montane pipits of Africa and showed that it was very probable that most or all of them formed a separate species from the widespread Richard's Pipit *A. novaeseelandiae*, the African Pipit *A. cinnamomeus* of Prigogine (1981). The Durban Museum has recently collected breeding examples of *A. n. ntfuloides* and *A. c. Iwenarum* White (1946) at Naude's Nek segregated by altitude, not habitat, with no evidence of character intergradation (Dr J M Mendelsohn in litt 1983). Arising from these authors' findings and recent work by the Durban Museum it seems clear that there is a separate species, the Mountain Pipit *A. cameroonensis* with four races *A. c. cameroonensis* and *lynesei* breeding in Cameroun, *hoeschi* probably breeding in Angola and *Iwenarum* breeding in the northeastern Cape and Lesotho. This species is distinguished from Richard's Pipit by its longer wings and proportionately as well as absolutely longer tail which has no white in the two outer feathers and greatly reduced pale areas. The call is somewhat deeper and perhaps slower than that of Richard's Pipit (R J Cassidy, personal communication, 1983). Two parapatric species are involved (see map in Clancey 1980a: 233) and the Mountain Pipit which is represented by the endemic race *Iwenarum* is apparently rare.

After breeding, Mountain Pipits appear to travel in March and April through the northern Cape Province and South West Africa/Namibia (Clancey 1978b) to winter in Angola in the Provinces of Lunda (Traylor 1962) and probably Moxico (Pinto 1965); in Zaire in the Provinces of Kwango (Schouteden 1965a), Kasai (Schouteden 1964), Dilofo and Kolwezi (Schouteden 1965b) (though some of Schouteden's records seem to be misidentifications judging by the dates given) and Shaba (Clancey 1978b reinterpreting the data on specimens 668 and 3083 listed as *A. campestris dewittei* by Verheyen 1953); the Northwestern Province of Zambia (Irwin and Benson 1967, Benson et al 1971). They return to their breeding grounds through eastern Botswana in September and October (Quickelberge 1972, Clancey 1978b).

Selected bibliography: Benson C W, R K Brooke, R J Dowsett and M P S Irwin (1971), Bonde K (1981), Clancey P A (1954), Clancey P A (1978b), Clancey P A (ed) (1980a), Hall B P (1961), Irwin M P S and C W Benson (1967), Pinto A A da Rosa (1965), Prigogine A (1981), Quickelberge C D (1972), Schouteden H (1964), Schouteden H (1965a), Schouteden H (1965b), Traylor M A (1962),

Verheyen R (1953). Vincent J (1951). White CM N (1946). Wolters H E (1979).

**SHORTTAILED
PIPIT****RARE****Kortstertkoester***Anthus brachyurus* Sundevall 1850: upper Umlaas River,
Natal. Order PASSERIFORMESFamily
MOTACILLIDAE

Summary: a Rare species (restricted range and seldom reported) of grasslands in Natal and the Transvaal. Other isolated populations occur in tropical Africa north to the equator.

Present distribution: the Natal midlands; the eastern and southwestern Transvaal.

Former distribution: as above but more widely in southern Natal; single records from Lesotho and the Orange Free State; west-central and eastern Transvaal. The apparent range reduction is probably an artifact of the difficulty of finding and identifying the Shorttailed Pipit.

Habitat: short open grassland, usually moist, sometimes recently burnt (Lawson 1980). When short grassland is overgrazed the Shorttailed Pipit is replaced by the Bushveld Pipit *A. caffer* (C J Vernoninlitt 1982).

Status: probably resident.

Estimated numbers and population trends: no estimates available. No firm evidence for a decrease.

Breeding rate in wild: normal clutch three eggs; nothing else known.

Reasons for decrease: no firm evidence for a decrease as opposed to purely local losses due to overgrazing or open-cast coal mining (Connor 1980).

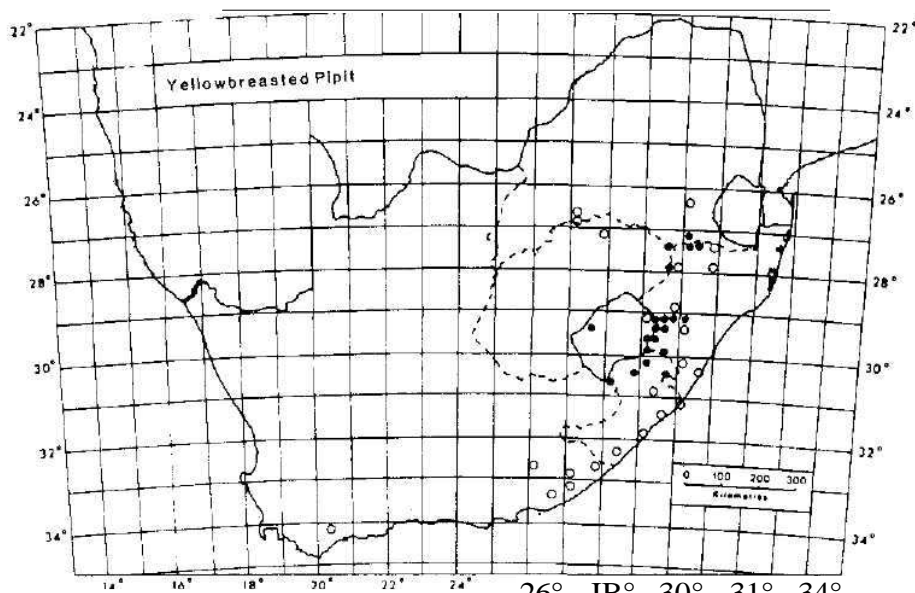
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

Number held in captivity: probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: the Shorttailed Pipit has a patchy distribution in short moist grasslands at various altitudes north of South Africa up to about the equator and nowhere has it been studied biologically. The nearest populations to South Africa are in the Beira area of Mozambique and in northwestern Zambia. Thus the rare population in South Africa while not taxonomically differentiated from the Beira population (Clancey 1969a) is isolated and worthy of special study to see whether some conservation measures can practicably be applied for its maintenance.

Selected bibliography: Clancey P A (1969a), Connor M A (1980), Cyrus D and N Robson (1980), Hall D G (1983), Lawson P (1980).



YELLOWBREASTED PIPIT

VULNERAB

LE

Geelborskoester

Anthus chloris Lichtenstein 1842: Vaal and Modder Rivers, Orange Free State.

Order PASSERIFORMES

Family

MOTACILLIDAE

Summary: a Vulnerable endemic species of high altitude grasslands. Burning and grazing diminish its habitat and fewer migrants are now seen in winter at lower altitudes.

Present distribution: high grasslands on the Stormberg and Drakensberg in the northeastern Cape Province and from the extreme northern Transkei through Lesotho and Natal along the watershed to Dullstroom, eastern Transvaal.

Former distribution: as above but reaching the Natal south coast as a nonbreeding visitor, also the coastal Transkei and eastern Cape Province west inland to Bedford; a record of a vagrant from Swellendam, Cape, in the middle of the last century; the Vaal basin west to about Potchefstroom.

Habitat: open dense grassland, usually at high altitudes. Areas that have been grazed by stock or have been burnt are not occupied for at least 12 months.

Status: resident with some tendency to visit lower altitudes in winter.

Estimated numbers and population trends: no estimates available. Apparently rare in Lesotho (Bonde 1981) and Natal (Cyrus and Robson 1980). Fewer birds are now seen in winter at middle and lower altitudes which suggests a decreasing population.

Breeding rate in wild: normal clutch three eggs; probably single brooded.

Reasons for decrease: excessive burning and grazing of high altitude grasslands diminishes its breeding habitat as does afforestation.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Giants Castle Game Reserve (D P Cyrus, T B Oatley, Dr D M Skead in litt 1983).

Protective measures proposed: reduction of the incidence of fires and grazing in high altitude grassland.

Number held in captivity: probably

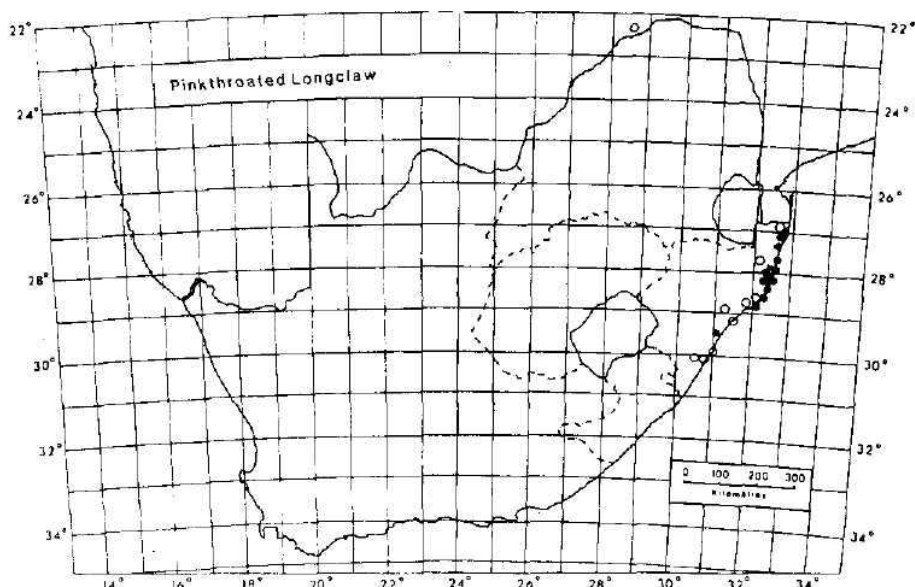
none. **Breeding potential in captivity:**

probably low. **Current research effort:**

none.

Remarks: the Yellowbreasted Pipit is a South African endemic species with no close relatives outside the country just as is the other endemic pipit, the South African Rock Pipit *A. crenatus*. It requires biological and ecological study to determine its true status, numbers, range and ecological requirements before a conservation management programme can be framed for it.

Selected bibliography: Bonde K (1981), Cyrus D and N Robson (1980), Skead C J (1967a), Vernon C (1983), Winterbottom J M (1968).



**PINKTHROATED
LONGCLAW**

Rooskeelkalkoentjie

Macronyx ameliae de Tarragon 1845:
Durban. Order PASSERIFORMES

VULNERABLE

Family
MOTACILLIDAE

Summary: a Vulnerable species which has lost the southern part of its breeding

range in South Africa. It is widespread in east and central Africa north to the equator.

Present distribution: coastal Zululand with a single record from southern Natal.

Former distribution: coastal Natal around Durban and from Richard's Bay northwards. **Habitat:** short moist grassland, usually on floodplains. **Status:** largely resident with some wandering.

Estimated numbers and population trends: no estimates available. It appears that except for vagrants the species is now confined to the Lake St Lucia Complex (Cyrus and Robson 1980) whereas it formerly occurred in suitable habitat around Durban (Clancey 1964).

Breeding rate in wild: normal clutch three eggs; probably single brooded.

Reasons for decrease: economic development as in the Durban and Richards Bay areas has destroyed much of its habitat. But it seems that some form of degradation of moist coastal grasslands has also affected its numbers.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. The present breeding population appears to be confined to the Lake St Lucia Complex (Berruti 1980b).

Protective measures proposed: an end to afforestation of its habitat on the east side of Lake St Lucia.

Number held in captivity: probably

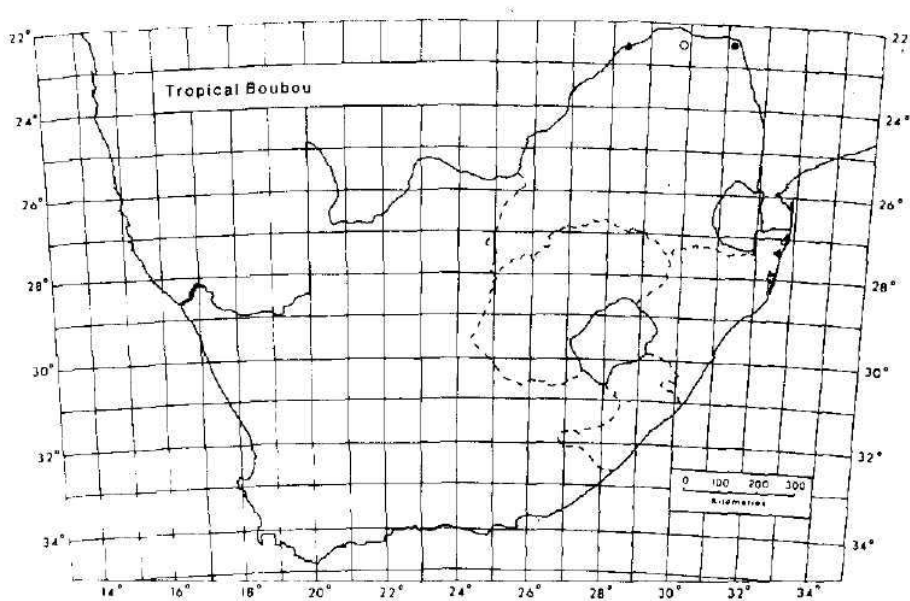
none. **Breeding potential in captivity:**

probably low. **Current research effort:**

none.

Remarks: the Pinkthroated Longclaw is widespread in east and central Africa north to about the equator. A study of its ecology is required to find out why it is now apparently restricted to the Lake St Lucia Complex and what should be done to conserve that population.

Selected bibliography: Berruti A (1980b), Clancey P A (1964), Clancey P A (1967d), Cyrus D and N Robson (1980), Pinto A A de Rosa and D W Lamm (1955).



TROPICAL BOUBOU (Boubou)
Tropiese Waterfiskaal (Waterfiskaal)

RARE

Laniarius aethiopicus (Gmelin) 1788: Ethiopia. (*Laniarius ferrugineus* (Gmelin) 1788: Cape of Good Hope).

Order PASSERIFORMES

Family MALACONOTIDAE (Laniidae)

Summary: a Rare species (restricted range and seldom reported) of the tropical Limpopo valley. It is widespread in tropical Africa.

Present distribution: the tropical valley of the Limpopo River and its tributaries in the Transvaal north of the Soutpansberg.

Former distribution: not known to have differed from the above. **Habitat:** thickets under trees, usually riverine. **Status:** resident; breeding presumed but not proven.

Estimated numbers and population trends: no estimates available. Numbers are not great and almost certainly decreasing.

Breeding rate in wild: normal clutch two eggs; some females double brooded. **Reasons for decrease:** clearing riverine thicket destroys its habitat.

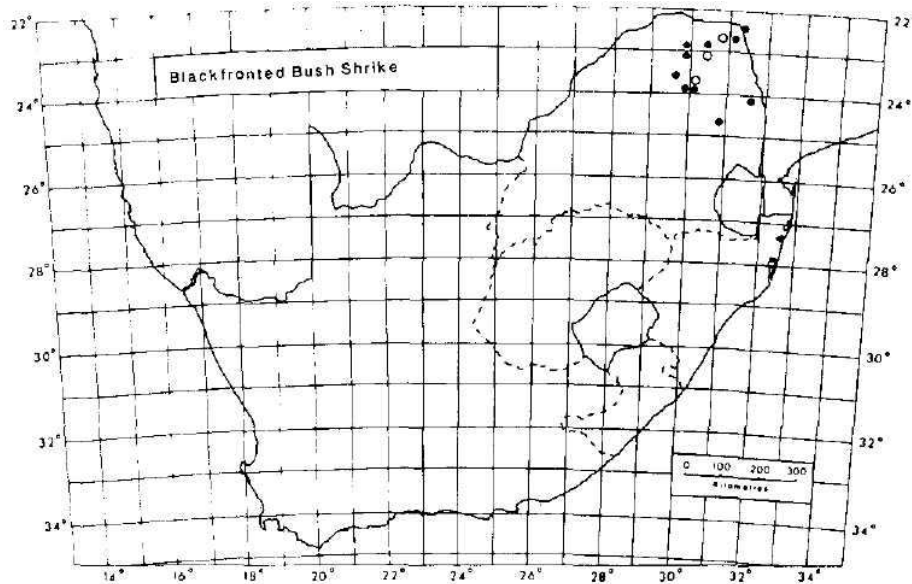
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It is resident and presumably breeds in the far north of the Kruger National Park.

Protective measures proposed: conservation of riparian forest and its underlying thickets. **Number held in captivity:** probably none. **Breeding potential in captivity:** probably low.

Current research effort: none.

Remarks: the Tropical Boubou as here understood is the species of Quickelberge (1966) and Clancey (1980a). It ranges north to Ethiopia. It is not, I think, conspecific with the Southern Boubou *L. ferrugineus* as McLachlan and Liversidge (1978) and Newman (1980a) have held. The Tropical Boubou is morphologically distinct as shown by Quickelberge (1966) and ecologically distinct in southeastern Zimbabwe (Irwin 1977). Whether it is vocally distinct is debatable. North and Haagner (1966) and Dowsett and Dowsett-Lemaire (1980) holding that on vocal grounds the boundary between the Tropical and Southern Boubous should lie in southern Zambia. I know the calls of the Tropical Boubou in Mashonaland, Zimbabwe, very well. When I heard the calls of Southern Boubous in the Dwesa Nature Reserve, Transkei, I did not realise that I was listening to a boubou. It is clear that in addition to morphological and ecological analysis acoustical analysis is required to elucidate the nature of the different forms.

Selected bibliography: Clancey P A (1980a), Dowsett R J and F Dowsett-Lemaire (1980), Irwin M P S (1977), McLachlan G R and R Liversidge (1978), Newman K (1980a), North M E and H C Haagner (1966), Quickelberge C D (1966).



BLACKFRONTED BUSH SHRIKE

INDETERMIN

ATE

Swartoogboslaksman

Telophorus nigrifrons (Reichenow) 1896: Marangu, Mt Kilimanjaro, Tanzania.

(*Chlorophoneus nigrifrons*).

Order PASSERIFORMES
(Laniidae)

Family MALACONOTIDAE

Summary: a localized species, fairly common where found, of the escarpment forests of the northeastern Transvaal with other populations in eastern Africa north to about the equator.

Present distribution: escarpment forests of the northeastern Transvaal in the Haarnertsburg/Tzaneen area and the Soutpansberg.

Former distribution: as above with winter sight records from the extreme northern

Kruger National Park (Newman 1980a). These records are doubted by Kemp (1980a) but in Zimbabwe this species does descend to lower altitudes where it occurs in dry dense thickets (Irwin 1981) so the same is feasible in the extreme northern Kruger National Park.

Habitat: breeds and forages in the canopy of montane evergreen forests but some descend to drier formations at lower altitudes in the winter.

Status: largely resident with some altitudinal migration.

Estimated numbers and population trends: no estimates available. Described as 'relatively common*' in the Woodbush Forest Reserve (Clancey 1975). No evidence for a decrease.

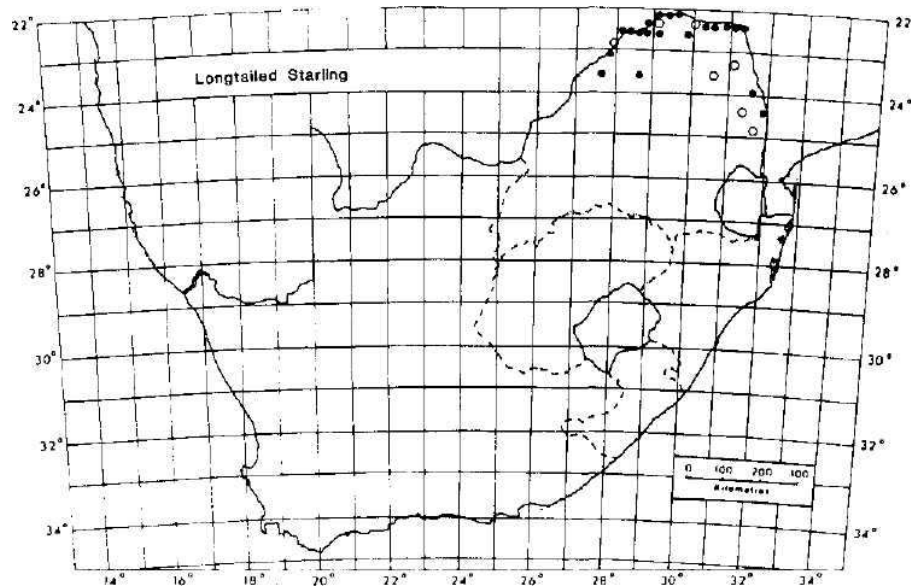
Breeding rate in wild: normal clutch two eggs; probably single brooded. **Reasons for decrease:** no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Woodbush State Forest (Clancey 1975) and probably in the De Hoek State Forest. It also breeds in the Wonderwoud Forest in the Wolkberg Wilderness Area.

Protective measures proposed: continued conservation of indigenous forests within its range. **Number held in captivity:** probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: the Blackfronted Bush Shrike occurs patchily, normally in the canopy of montane forests, from the northeastern Transvaal to Kenya and is usually unobtrusive but fairly common where found. Conservation action for this species would be more efficient when it is known to what extent altitudinal migration is necessary for the Transvaal population.

Selected bibliography: Clancey P A (1975), Irwin M P S (1981), Kemp A C (1980a), Newman K (1980a).



LONGTAILED STARLING (Long-tailed Glossy Starling) Langstertglansspreeu
Lamprotornis mevesii (Wahlberg) 1856: Okavango River, Botswana. Order PASSERIFORMES

INDETERMINATE

Family
STURNIDAE

Summary: a localized species, though common where found, of the Limpopo valley in the far northern Transvaal. It occurs in semi-arid valleys in southern tropical Africa.

Present distribution: the Limpopo valley of the Transvaal west to about the Tropic of Capricorn.

Former distribution: not known to have differed from the above.

Habitat: woodland, usually cicada, growing on alluvial soils.

Status: resident.

Estimated numbers and population trends: no estimates available. No evidence for a decrease.

Breeding rate in wild: normal clutch three eggs; single brooded; incubation period unknown; nestling period three weeks (Dowsett 1967).

Reasons for decrease: no evidence for a decrease.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the extreme north of the Kruger National Park (Kemp 1980a) and in the Vhembe Defence Reserve opposite the Shashi/Limpopo confluence.

Protective measures proposed: conservation of woodland growing on alluvial soils.

Number held in captivity: probably few.

Breeding potential in captivity: probably good, cf Thomson (1969).

Current research effort: none.

Remarks: the Longtailed Starling is largely confined to the Limpopo, Sabi/Save, Zambezi, Okavango and Kunene basins in southern tropical Africa. It is one of the very few species to have its complete annual moult before breeding instead of afterwards (Brooke 1967).

Selected bibliography: Brooke R K (1965), Brooke R K (1967), Brooke R K (1971e), Clancey P A (1973), Dowsett R J (1967), Kemp A C (1980a), Newman K (1980a), Pinto A A da Rosa and D W Lamm (1958), Thomson T S (1969), Thomson W R (1975), Wilson GT (1975).

YELLOWBILLED OXPECKER

EXTINC

T

Geelbekrenostervoel

Buphagus africanus Linnaeus 1766: Senegal.

Order PASSERIFORMES

Family

BUPHAGIDAE

Summary: Extinct as a breeding species in South Africa by 1910 though formerly breeding in the bushveld of Natal, Swaziland, the eastern and northern Transvaal. Vagrants are occasionally observed in the Transvaal. Widespread in tropical Africa outside evergreen forests.

Present distribution: vagrants observed near Rustenburg and in the northern Kruger National Park : not mapped but see map in Stutterheim and Brooke (1981).

Former distribution: the interior bushveld of Natal from Pietermaritzburg northwards through Swaziland, the eastern and northern Transvaal south to the Magaliesberg (Stutterheim and Brooke 1981).

Habitat: wooded savannas where they feed chiefly on the ticks *Amblyomma hebraeum* and *Rhipicephalus appendiculatus*, normally when the ticks occur on Buffalo *Syncerus caffer*. White Rhinoceros *Ceratotherium simum* and Black Rhinoceros *Diceros bicornis* (Grobler and Charsley 1978, Stutterheim and Brooke 1981). Yellowbilled Oxpeckers nest in pre-existing holes in trees.

Status: extinct as a breeding species but vagrants still occur, probably from the southern Zimbabwe populations.

Estimated numbers and population trends: no estimates available for this rare vagrant. Substantial breeding populations once existed but were extinct by 1910 (Stutterheim and Brooke 1981).

Breeding rate in wild: normal clutch three eggs; probably normally multiple brooded as in the Redbilled Oxpecker *B. erythrorhynchus*; incubation period probably two weeks; nestling period probably four and a half weeks; females probably do not breed until at least age two since the Yellowbilled Oxpecker is likely to be as much a cooperative breeder as the Redbilled Oxpecker (Stutterheim 1982).

Reasons for decrease: from about 1875 with the introduction of the rifle for hunting there was a rapid decrease in the number of Buffalo and Rhinoceros on which Yellowbilled Oxpeckers prefer to forage. Their place was taken in part by cattle on which Yellowbilled Oxpeckers will forage fairly freely and maintain a population. The cattle population was vastly diminished by the Rinderpest outbreak in 1896. As cattle populations were rising again arsenical dipping to control ticks (the principal food of oxpeckers) was introduced into their range from 1902 onwards and soon became widespread under Government pressure. Oxpeckers die within 48 hours of ingesting arsenic coated ticks (Bezuidenhout and Stutterheim 1980). Thus three successive assaults on the foraging microniche of the Yellowbilled Oxpecker caused its extinction as a breeding species in South Africa by 1910

(Stutterheim and Brooke 1981).

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. Their foraging microniche is now confined to game reserves.

Protective measures proposed; ^introduction of flocks of the southern African race *B. a.*

haematophagus (Clancey 1980d) to the Hluhluwe-Umfolozi Complex and the Kruger National Park, where they used to be common, should be undertaken (Stutterheim and Brooke 1981) since such introductions have led to the establishment of breeding populations in Zimbabwe (Grobler 1979).

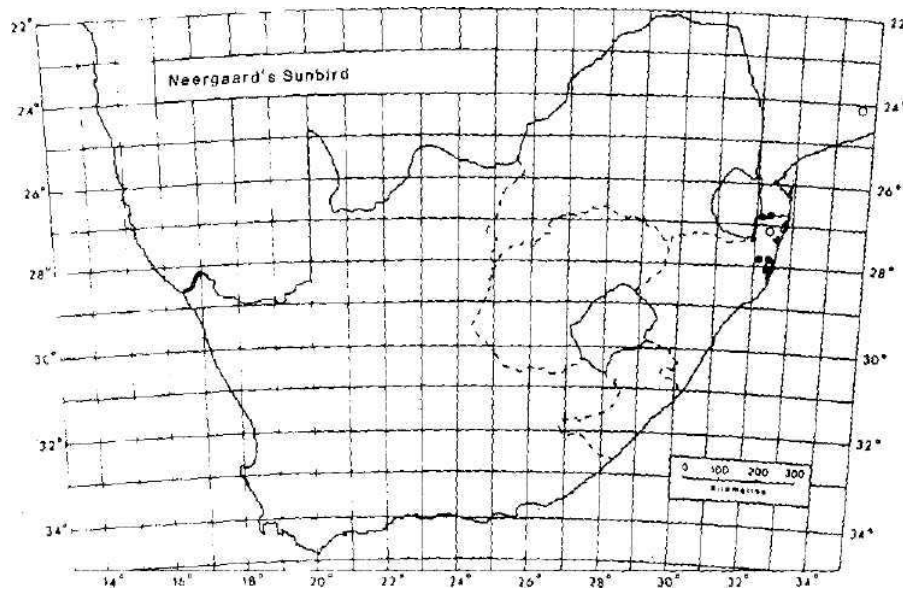
Number held in captivity: probably few.

Breeding potential in captivity: probably fairly good.

Current research effort: none.

Remarks: the Yellowbilled Oxpecker which is widespread in the wooded savannas of Africa is the only species with a substantial breeding range and population in South Africa which has become extinct within the country during the historical period (Kemp 1980a).

Selected bibliography: Bezuidenhout J D and C J Stutterheim (1980), Qancey P A (1980d), Dowsett R J (1965), Dowsett R J (1968), Elwell N (1976), Grobler J H (1979), Grobler J H and G W Charsley (1978), Kemp A C (1980a), Macdonald I A W and P J Birkenstock (1980), Newman K (1980a), Skead C J (1967a), Stutterheim C J (1982), Stutterheim C J and R K Brooke (1981), Stutterheim C J, P J Mundy and A W Cook (1976), Thomson W R(1982).



NEERGAARD'S SUNBIRD

RAR

E

Bloukruissuikerbekkie (Neergaardse Suikerbekkie)

Nectarinla neergaardi (Grant) 1908: Coguno, southern Mozambique. (*Cinnyris neergaardi*).

Order PASSERIFORMES

Family

NECTARINIIDAE

Summary: a Rare predominantly nonbreeding winter visitor found in three of the northern Zululand game reserves. It is an endemic species of southeastern Africa north to the Save River, Mozambique.

Present distribution: from northern Lake St Lucia northwards to the Mozambique

border below 300 m asl.

Former distribution: not known to have differed from the above.

Habitat: mainly sandforest and mixed woodland but may forage in any area with many trees and bushes, deciduous or evergreen.

Status: predominantly a nonbreeding winter visitor from southern Mozambique (Lamm 1955, Cyrus and Robson 1980) but some are present in summer and breed. The position is complicated by much local movement, probably induced by the blooming of preferred flowers.

Estimated numbers and population trends: no estimates available. Visual estimates are unreliable since the species moves around so much. It is occasionally numerous at sources of flowers.

Breeding rate in wild: normal clutch two eggs; nothing else known. **Reasons for decrease:** no evidence for a decrease.

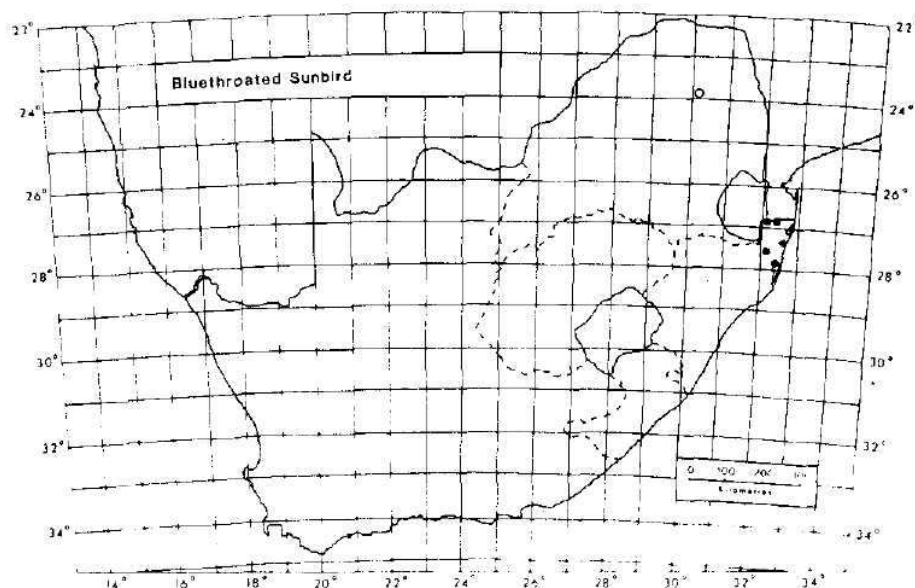
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It probably breeds in the Mkuzi Game Reserve (Cyrus and Robson 1980).

Protective measures proposed: conservation of sandforest, with particular reference to strip mining for titanium (Connor 1980).

Number held in captivity: probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: Neergaard's Sunbird has a restricted range in coastal northern Zululand and southern Mozambique north to the Save estuary and is nowhere common. While this southern African endemic species appears to be ecologically tolerant within its restricted range it is probably rare throughout (Clancey 1971b). The maintenance of the Mkuzi Game Reserve and others in northern coastal Zululand is necessary to its long-term survival as a South African breeding species.

Selected bibliography: Berruti A (1980b), Clancey P A (1964), Clancey P A (1971b), Connor M A (1980), Cyrus D and N Robson (1980), Lamm D'W (1955), Pinto A A da Rosa and D W Lamm (1960), Skead CJ (1967c).



BLUETHROATED SUNBIRD

Bloukeelsuikerbekkie

Anthreptes reichenowi Gunning 1919; Mzimbiti near Beira, Mozambique.

Order PASSERIFORMES

INDETERMINATE

Familv NECTARINIIDAE

Summary: a Rare species which has bred once in the Transvaal and which has once been observed in northern Natal. It occurs along the east coast north to Kenya.

Present distribution: has bred once near Tzaneen, Transvaal (Kemp 1980a); has been recorded once in the Ndumu Game Reserve, extreme northern Natal (Cyrus and Robson 1980).

Former distribution: not formerly known in South Africa but for a sparse unobtrusive species this may not mean a real range increase.

Habitat: woodland, thickets, riparian and evergreen forest. **Status:** unknown.

Estimated numbers and population trends: no estimates available but indubitably rare (Kemp 1980a). No evidence for a decrease.

Breeding rate in wild: normal clutch two eggs; nothing else known.

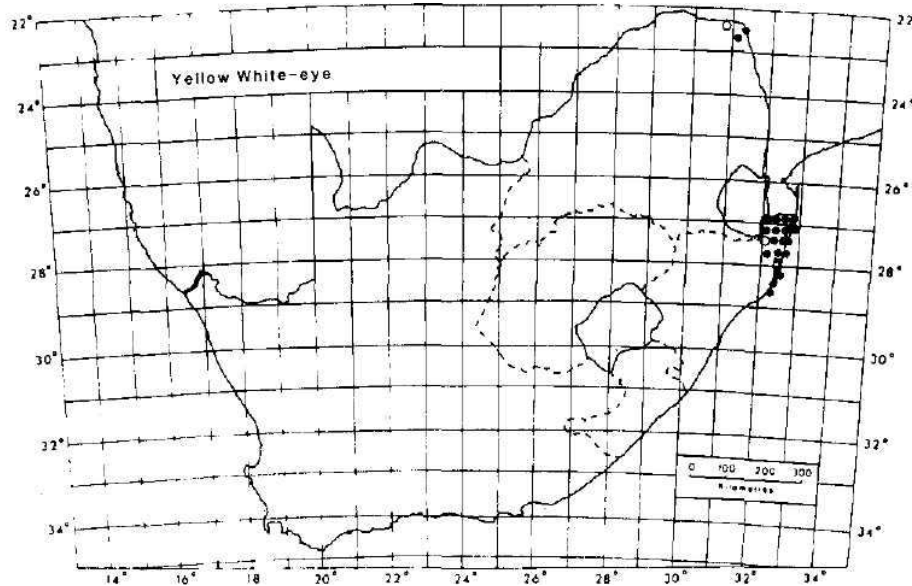
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

Number held in captivity: probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: the Bluethroated Sunbird occurs in the eastern coastal regions of Africa north to Kenya. If the one breeding record from South Africa is set aside as a probable or certain misidentification, the Bluethroated Sunbird would lose its right to inclusion in this book.

Selected bibliography: Cyrus D and N Robson (1980), Kemp A C (1980a), Lorber P (1982b), Pinto A A da Rosa and D W Lamm (1960), Skead C J (1967c).



YELLOW WHITE-EYE

**Geelglasogie
(Geelwitogie)**

Zosterops senegalensis Bonaparte 1851:
Senegal, Order PASSERIFORMES

**INDETERMIN
ATE**

Family
ZOSTEROPIDAE

Summary: a probably Rare species (restricted range) of northern coastal Zululand and the

lower Limpopo valley. It is widespread in tropical Africa.

Present distribution: coastal Zululand from Lake St Lucia northwards; the Limpopo valley well east of Messina.

Former distribution: not known to have differed from the above. **Habitat:** well wooded areas, often with thickets. **Status:** resident.

Estimated numbers and population trends: no estimates available. It is commoner in northern Zululand than in the northeastern Transvaal. There is no evidence for a decrease.

Breeding rate in wild: normal clutch three eggs; probably single brooded. **Reasons for decrease:** no evidence for a decrease.

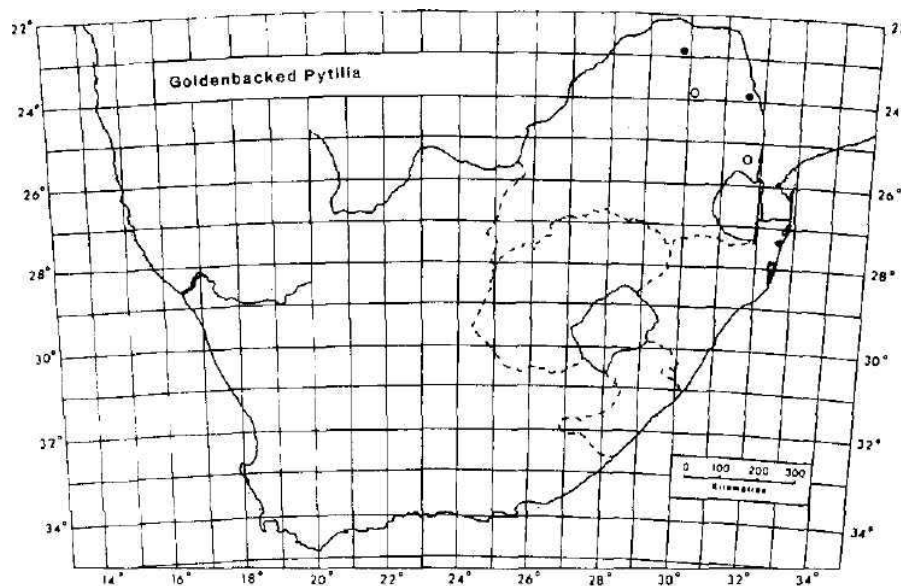
Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances. It breeds in the Lake St Lucia Complex (Berruti 1980b) and probably in the Mkuzi and Ndumu Game Reserves (Cyrus and Robson 1980).

Protective measures proposed: none

Number held in captivity: probably none. **Breeding potential in captivity:** probably low. **Current research effort:** none.

Remarks: the Yellow White-eye is widespread and abundant over much of tropical Africa and the South African race *Z. s. tongensis* also occurs over most of Mozambique.

Selected bibliography: Berruti A (1980b), Clancey P A (1967e), Cyrus D and N Robson (1980), Kemp A C (1980a), Miistein P le S and D A Milstein (1981), Newman K (1980a), Pinto A A da Rosa and D W Lamm (1960), Skead C J (1967c).



**GOLDENBACKED
PYTILIA** *Geelrugmelba*
Pytilia afra (Gmelin) 1789:
Angola. Order
PASSERIFORMES

RARE

Family ESTRILDIDAE
(Ploceidae)

Summary: a rare (very seldom recorded) species of the northern and perhaps eastern Transvaal which is widespread north to Ethiopia.

Present distribution: Soutpansberg and perhaps Tzaneen, northern Transvaal.

Former distribution: as above but also in the Tzaneen and Hectorspruit areas of the Transvaal.

Habitat: poorly known but probably little thickets in open woodland and savanna, cf Irwin (1981).

Status: poorly known, again cf Irwin (1981), but probably largely resident. While breeding has not been proved in South Africa its brood parasite, the Broadtailed Paradise Whydah, has been seen in the areas in which it occurs and were presumably locally bred.

Estimated numbers and population trends: no estimates available. The species is both rare and unobtrusive so that the paucity of modern records may not mean a real range reduction, even in the eastern Transvaal where the Hectorspruit record was made in November 1902 (S A Museum coll).

Breeding rate in wild: normal clutch four eggs; probably single brooded.

Reasons for decrease: it is not certain that there has been a decrease. If there has, the reasons are unknown since its habitat requirements are so poorly known. It is a much sought after cage bird and it is possible that past trapping for the trade may have dangerously reduced its numbers. In any case the northern Transvaal population is on the periphery of the species range and it may suffer from the genetic effects of being a small population isolated by the Limpopo valley (in which it does not occur) from the main tropical populations.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

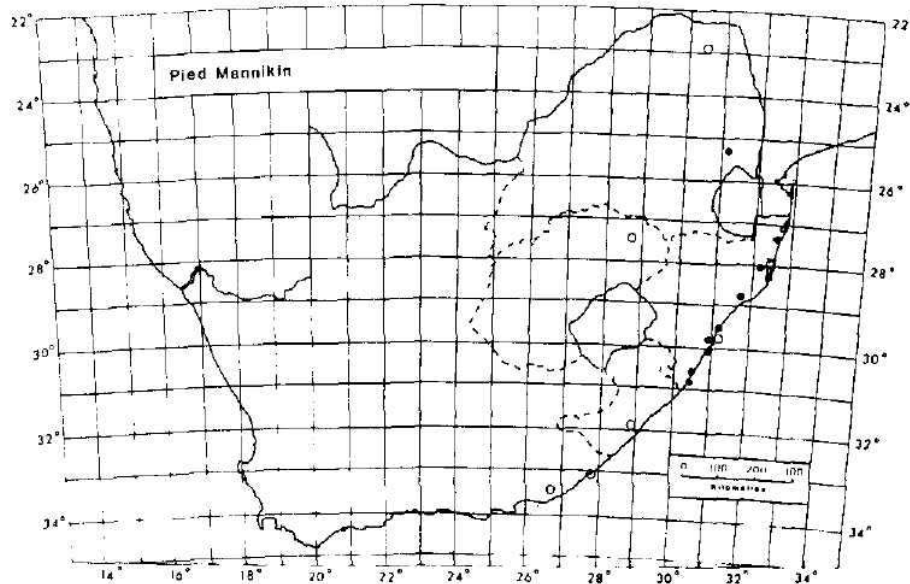
Number held in captivity: probably

few. **Breeding potential in captivity:**

probably good. **Current research effort:**
none.

Remarks: the Goldenbacked Pytilia is widespread in tropical Africa north to Ethiopia. A survey of its numbers, distribution and habitat requirements in conjunction with its much more obvious brood parasite, the Broadtailed Paradise Whydah, is needed to ascertain what conservation action is needed and practicable.

Selected bibliography: Brickell N (1982b), Goodwin D (1982). Irwin MPS (1981), Kemp A C (1980a), Newman K (1980a), Payne R B (1967), Payne R B (1973).



INDETERMINATE

**PIED
MANNIKIN
Dikbekfret**

Spermestes fringilloides (Lafresnaye) 1835: Liberia. (*Lonchura fringilloides*).
Order PASSERIFORMES Family ESTRILDIDAE
(Ploceidae)

Summary: a Rare irruptive species from the tropics which may occur in any Province. Breeding has been observed in Durban in 1898 and Mandini, Zululand, in 1973, Anerley, southern Natal, from 1980 onwards, Nelspruit, Transvaal, 1982.

Present distribution: sporadically along the Natal coast and around White River in the southeastern Transvaal lowveld. Claimed for the Kruger National Park by Kemp (1980a) but not by Newman (1980a).

Former distribution: as above but wandering south into the eastern Cape as far as Grahamstown (Skead 1967a). Records from Frankfort, Orange Free State, in August 1906 and Sibasa, northern Transvaal, in July 1935 (Transvaal Museum coll) and perhaps some others may be of escaped or liberated aviary birds.

Habitat: edges of forests and rank growth by streams.

Status: irruptive, probably from central Mozambique where it is common. Breeds occasionally.

Estimated numbers and population trends: no estimate feasible. Irruptive species are particularly difficult to estimate as they are in nearly constant flux and repeat observations are virtually impossible to make. There is no evidence for a resident population which has decreased.

Breeding rate in wild: normal clutch four to six eggs; probably multiple brooded; incubation period two weeks; nestling period three and a half weeks in captivity (Brickell et al 1980); females probably first breed before age one.

Reasons for decrease: no evidence for a decrease in a permanent population.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

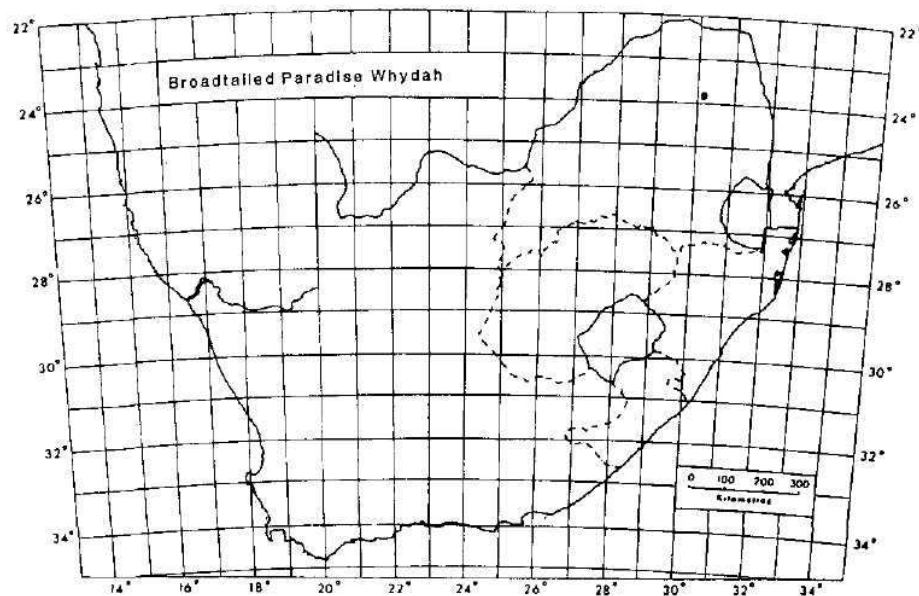
Number held in captivity: many.

Breeding potential in captivity: good (Brickell et al 1980, Brickell 1982a).

Current research effort: none.

Remarks: the Pied Mannikin occurs very widely in tropical Africa but is markedly subject to local movements. Thus it is one of the very few small passerine birds with a wide range in Africa to have no geographical subspecies. In Zimbabwe its occurrence and distribution are markedly associated with the flowering and seeding of indigenous bamboo *Oxytenanthera abyssinica* (Jackson 1972) as is the case to a lesser extent in Zambia and Malawi. The association with bamboo does not seem to have been noted in South Africa though it applies at Redhill, Natal (Dr P A Clancey in litt 1982) and Nelspruit, Transvaal (R J Cassidy, personal communication, 1983).

Selected bibliography: Berruti A (1980b), Brickell N (1982a), Brickell N (1982b), Brickell N, B Huntley and R Vorster (1980), Cyrus D and N Robson (1980), Goodwin D (1982), Jackson H D (1972), Kemp A C (1980a), Newman K (1980a), Skead C J (1967a).



BROADTAILED PARADISE WHYDAH

RAR

E

Breestertparadysvink

Vidua obtusa (Chapin) 1922: Cholo District, Malawi. (*Steganura orientalis* Heuglin 1871:

Keren,

Ethiopia).

Order PASSERIFORMES

Family VIDUIDAE

(Ploceidae)

Summary: a Rare species (one suite of records from one locality) of the northeastern Transvaal. It is widespread in tropical Africa north to Kenya.

Present distribution: not recorded in the 1970s.

Former distribution: Tzaneen district, northeastern Transvaal.

Habitat: open deciduous woodland with thickets where its host, the Goldenbacked Pytilia, occurs. **Status:** probably resident.

Estimated numbers and population trends: no estimates available. Its host occurs sparsely but widely in the northeastern and eastern Transvaal but the distinctive longtailed males in nuptial plumage have not been noted outside the Tzaneen district.

Breeding rate in wild: clutch size unknown; a brood parasite of the Goldenbacked Pytilia. **Reasons for decrease:** probably sensitive to destruction of thickets in which its hosts breed.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

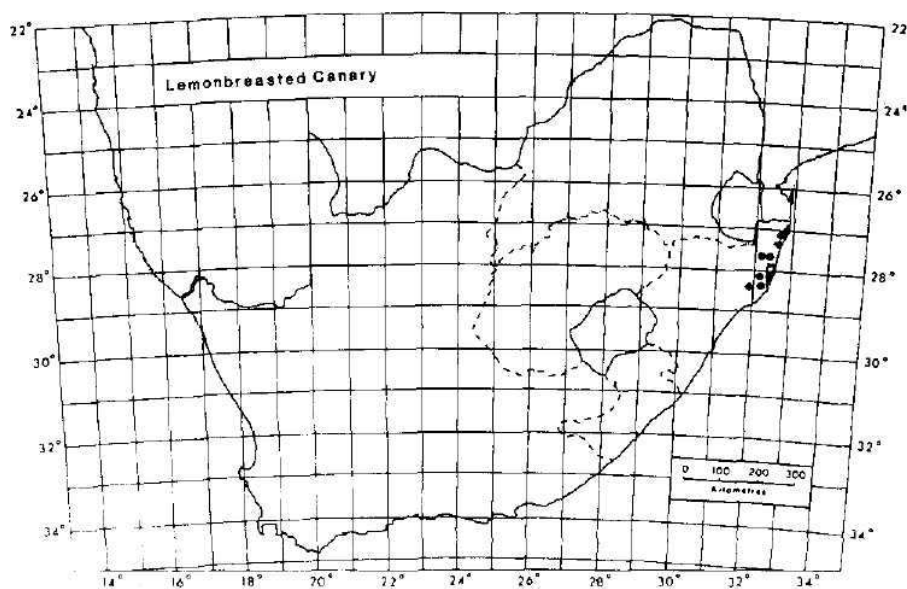
Protective measures proposed: none. Conservation of its host, the Goldenbacked Pytilia, will probably ensure its survival.

Number held in captivity: probably few.

Breeding potential in captivity: probably good. **Current research effort:** none.

Remarks: the Broadtailed Paradise Whydah is widespread in tropical Africa north to Kenya and quite numerous in some parts. Its patchy distribution is in part an effect of the patchy distribution of its host. The two species have to be studied together.

Selected bibliography: Brickell (1982b), Kemp A C (1980a), Payne R B (1967), Payne R B (1973).



RARE

**LEMONBREASTED
CANARY Geelborskanarie**

Serinus citrinipectus Clancey & Lawson 1960: Panda, southern Mozambique.

Order PASSERIFORMES

Family FRINGILLIDAE

Summary: a Rare species (restricted range and seldom reported) of northern lowlying Zululand. It occurs in Mozambique, southeastern Zimbabwe and southern

Malawi.

Present distribution: lowlands of Zululand from Mtubatuba northwards to the Mozambique frontier (Cyrus and Robson 1980). Probably occurs in but not yet reported from the Limpopo valley of the Transvaal north of the Soutpansberg (Brooke and Markus 1967, Kemp 1980a).

Former distribution: not known to have differed from the above. **Habitat:** clearings in deciduous woodland below ca 750 m asl. **Status:** probably resident with local foraging movements.

Estimated numbers and population trends: no estimates available. Largest flock seen in South Africa numbered over 160 birds (Cyrus and Robson 1980). Moderate levels of social and agricultural development increase its foraging habitat which is markedly associated with clearings, native gardens, road verges etc.

Breeding rate in wild: nothing known though Lawson (1970) gives data on a captive breeding attempt.

Reasons for decrease: numbers have probably increased due to social and agricultural development.

Protective measures taken: full legal protection is afforded by provincial and homeland conservation ordinances.

Protective measures proposed: none.

Number held in captivity: it is believed that several Natal aviculturalists hold stocks originally obtained in Mozambique.

Breeding potential in captivity: probably good (Lawson 1970). **Current research effort:** none.

Remarks: the Yellowbreasted Canary was only made known to science in 1960 (Clancey and Lawson 1960). Much could be learnt of its plumage development and breeding behaviour by studying a population in a large aviary to which it is known to take well (Lawson 1970).

Selected bibliography: Brickell N (1982b), Brooke R K and M B Markus (1967), Clancey P A and W J Lawson (1960), Cyrus D and N Robson (1980), Kemp AC (1980a), Lawson WJ (1970).

Appendix 1.

Publications arising from the 1976 Red Data Book - Aves

The list includes published papers and theses submitted in which mention is made of an entry in the 1976 Red Data Book - Aves.

- Jackass Penguin
Anon (1978), Anon (1979), Broni S C (1982).
Burger A E and J Cooper (in press).
Cooper J (1977a),
Cooper J (1977b), Cooper J (1977c),
Cooper J (1978),
Cooper J (1980a), Cooper J (1982),
Cooper *i* (in press),
Crawford R (1982a), Crawford R (1982b),
Crawford R J M and P A Shelton (1978),
Crawford R J M and P A Shelton (1981), Eggleton P and W R Siegfried (1979), Erasmus T (1978), Erasmus T, R M Randall and B M Randall (1981), Erasmus T, W Strydom, O Tipshraeny and R J Watling (1978), Frost P G H, W R Siegfried and A E Burger (1976), Frost P G H, W R Siegfried and J Cooper (1976), Hockey P A R and J Hallinan (1981). Jackson F, W R Siegfried and J Cooper (1976), Leung H K W and J Cooper (1979), Morant P D, J Cooper and R M Randall (1981), Randall R M (1983), Randall R M and R A Bray (1983). Randall R M and I S Davidson (1981). Randall R M and T Erasmus (1979), Randall R M and B M Randall (1980a), Randall R M and B M Randall (1980b), Randall R M and B M RandaJ (1981a), Randall R M, B M Randall and D Baird (1981), Randall R M, B M Randall and J Bevan (1980), Randall R M, B M Randall and E W Klingelhoefter (1981), Shaughnessy P D (1977), Shaughnessy P D (1978), Shaughnessy P D (1980), Shaughnessy P D, I Cooper and P D Morant (1979), Shaughnessy P D and M A Meyer (1979), Shaughnessy P D and G L Shaughnessy (1978), Siegfried W R (1977), Siegfried W R (1982), Siegfried W R and R J M Crawford (1978), Williams A J and J Cooper (in press), Wilson R and C Bain (1982), Yom-Tov Y, R Wilson and A Ar (in press).
- White Pelican
Anon (1979), Cooper J (1980b), Cooper R (1980c), Crawford R J M, Cooper and P A Shelton (1981), Guillet A and T M Crowe (1981), Guillet A and T M Crowe (1983).
- Pinkbacked Pelican
Cooper (1980b).
- Bank Cormorant
Cooper J (1981b).
- Crowned Cormorant
Crawford R J M, P A Shelton, R K Brooke and J Cooper (1981),
- Goliath Heron
Allan D (1983), Mock D W and C K Mock (1980). Skead DM (1981).
- Rufousbellied Heron
Nil
- Whitebacked Night Heron
Patten G H (1979), Shaughnessy G L and P D Shaughnessy (1980).

Little Bittern

LangleyCH(1983).

Dwarf Bittern

LangJey C H (1978), Tarboton W R
(1980b).

Bittern

Nil

White Stork

Nil

Black Stork

CraibCL (1979), Tarboton W
(1977b), Tarboton W (1982).

Woollynecked Stork

Dunning J (1977).

Openbilled Stork

Nil

Saddiebilled Stork

Berruti A, F Joubert, M Skinner and R
H Taylor (1977).

Marabou Stork

Nil

Yellowbilled Stork

Nil

Bald Ibis

DayD (1978), Manry D E (1982),
Manry D E (1983), van Jaarsveld J
(1979), van Jaarsveld J (1980),

Greater Flamingo

Bosnoff A F (1979), Daneel A B C and
H G Robertson (1982). Taylor R H
(1981).

Lesser Flamingo

Gillard L (1979), Grobler N (1981),
Patten G H (1979).

Pygmy Goose

Nil

Bearded Vulture

Boshoff A F, R K Brooke and T M
Crowe (1978), Brown CJ and S E
Rennie (1981). Macdonald I A W
and S A Macdonald (in press), Mundy
P J and E Marais (1981),

Egyptian Vulture

Brooke R K (1978). Brooke R K
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R K (1982), Dunning C F (1980a),
Mundy P J (1978), Mundy P J and E
Marais (1981).

Hooded Vulture

Day D (1982), Mundy P J and E
Marais (1981), Richardson P R K (in
press).

- Cape Vulture
Abbot A A (1982), Anon (1977),
Benson P C and J C Dobbs (in press),
Berliner D B and J A Ledger (1982),
Boshoff A F (1980), Boshoff A (1981),
Boshoff
A F and M H Currie (1981), Boshoff A F
and C J Vernon (1979), Boshoff A F
and C J Vernon (1980a), Boshoff A
and C Vernon (1981), Boshoff A F and
C J Vernon (1983), Currie M H
(1978), Dobbs J C and P C Benson (in
press), Fabian D (1978), Friedman R
and P J Mundy (in press), Hancock P
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(1982), King R E, J A Kieser and P J
Mundy (1979), Komen J (in press),
Langmore J E and J A Ledger (1982),
Ledger J A and H J Annegarn (1981),
Ledger J and P Mundy (1977a), Ledger
J and P Mundy (1977b), Ledger J and
P Mundy (1978), Mundy P J (1976b),
Mundy P J (1978b), Mundy P J (in
press), Mundy P J and C M Foggin
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Tannock and C L Wessels (1982),
Mundy P J and J A Ledger (1976),
Mundy P J and J A Ledger (1977),
Mundy P, J Ledger and R Friedman
(1980), Mundy P J and E Marais
(1981), O'Connor T (1980), Piper S E
(1982), Piper S E, P J Mundy and J A
Ledger (1981), Pringle V L (1981),
Richardson P R K (in press),
Robertson A S (1982), Robertson A
(1983), Robertson A (in press), Stott D
(1982), van Ee C A (1981), van
Heerden J (1980), Vernon C J (1978),
Vernon C J (1981a), Vernon C J
(1981b), Vernon C J (1982a), Vernon
C J (1982b), Vernon C J and A F
Boshoff (1980), Vernon C J, S E Piper
and D M Schultz (1980), Vernon C J, S
E Piper and D M Schultz (1982a),
Vernon C J, S E Piper and D M
Schultz (1982b), Vernon C J and A S
Robertson (1982). Lappetfaced Vulture
Anthony A J, J Komen and P J
Mundy (1980), Clinning C F
(1978a), Clinning C F (1980b),
Hitchins P M (1980), Macdonald I
A W and S A Macdonald (in press),
Mundy P J and E Marais (1981),
Owen C J and A J Anthony (1981),
Richardson P R K (in press).
- Whiteheaded Vulture
Hitchins P M (1980), Macdonald I A
W and
S A Macdonald (in press), Mundy P J
and E Marais
(1981), Richardson P R K (in press).
- Cuckoo
Hawk Nil
- Bat Hawk
Brooke R K and P A Clancey (1981).
- Booted Eagle
Biggs H, P Steyn and C Clinning
(1981), Brooke R K,
R Martin, J Martin and E Martin
(1980), Davidson I
(1982), Martin J, E Martin and R
Martin (1978).
- (1978), Martin R,
J Martin and E Martin (1983), Massyn
W (1978), Steyn P
and J H Grobler (1981).
- Ayres's Eagle
Brooke R K and C J Vernon (1981),
Lockwood G
(1979).
- Longcrested Eagle
Hall D G (1979a), Hall D G (1979b),
Hall D G (1982),
Steyn P (1978).
- Martial Eagle
Boshoff A F and N G Palmer (1980),
Boshoff A F and C J Vernon (1980b),
Conradie H D (1978), Fraser W
(1982a), Prozesky O P M (1977a),
Steyn P (1980).
- Southern Banded Snake Eagle
Nil
- Bateletir
Kemp A (1978a), Macdonald I A W
and S A Macdonald (in press), Watson
R T (1982).

Palmnut Vulture
 Brooke R K and K H Cooper (1978),
 Brown C J (1982).
 African Fish Eagle
 Jarvis M J F, H Bourn and M H
 Currie (1980), Prout-Jones D V and P
 le S Milstein (1980), Skead D M and
 W R J Dean (1982).
 Black Sparrowhawk
 Craib C (1980), Tarboton W, M Lewis
 and A Kemp (1978).
 Forest Buzzard
 Martin R, J Martin and E Martin
 (1980), Martin R, J Martin, E Martin,
 P Neatherway and M Neatherway
 (1981).
 Dark Chanting Goshawk
 Cullen R (1980).
 Black Harrier
 Kieser J A and G A Kieser (1977),
 Uys C J, G Bennett and J M
 Winterbottom (1978), van der Merwe F
 (1981), van der Merwe F J and C J U
 (1979).
 Peregrine Falcon
 Martin R and P Neatherway (1980).
 African Hobby Falcon
 Nil
 Rednecked Falcon
 Nil
 Dickinson's Kestrel
 Nil
 Pygmy Falcon
 Nil
 Blue Quail
 Nil
 Crested Guineafowl
 Clancey PA (1978).
 Blackrumped Buttonquail
 Nil
 Wattled Crane
 Archibald G (1981), Day D (1978),
 Day D H (1979), Day D H (1980), Day
 D (1981), Field D (1978), Tarboton W
 (in press), Tarboton W and D Day
 (1980), West O (1977), West O (1982),
 West O, D H Day and W Conradie
 (1979).
 Baillon's Crake
 Baur S (1980), Uys CJ (1981).
 Striped Flufftail
 Nil
 Whitewinged Flufftail
 Mendelsohn J M, J C Sinclair and W R
 Tarboton (1983).
 Lesser Gallinule
 Langley C H (1979), Langley C H
 (1981).
 African Finfoot
 Ginn P (1977a), Ginn P (1977b), Jubb

R A (1982),
 Whately A (1982).
 Kori Bustard
 Fraser W (1982a), Jubb R A (1981),
 Prozesky O P M (1977b).
 Stanley's Bustard
 Nil
 Ludwig's Bustard
 Nil

Blackbeliied Korhaan	Cuckoo Nil
Nil	Green Coucal
Lesser Jacana	Nil
Nil	Black Coucal
Chestnutbanded Plover Nil	Nil
Lesser Blackwinged Plover Nil	Grass Owl
Whitecrowned Plover	EarleRA(1978).
Tarboton W R and F Nel (1980).	Coastal Barred Owl
Longtoed Plover	Arnott G (1980), Brooke R K, T B
Nil	Oatley. M E Hurly andD W Kurtz (1983). Ciancey P A (1980b).
Redvvinged Pratincole	Cape Eagle Owl
Clancey PA (1979a).	CtinningCF (1980c). Craib C(1982).
Caspian Tern	Daugherty R (3981), Gamble K (1979).
dinning C F (1978b). Hockey P A R and C T Hockey (1980), LongriggTD (1982).	Grobler J H (1980). Martin R (1980), Martin R and D Pepler (1977).
Roseate Tern	Mathews N J C and L B Scott 1980).
Randall R M and B M Randall (1978).	
Randal! R M and B M Randall (1980c), Randall R M and B M Randall (1981b).	
Damara Tern	
Clinning C F (1978c), Frost P G H and P Johnson (1977).	
Frost P G H and P Johnson (1978), Frost P G H and GShaughnessy (1976), Johnson P (1979), Randall R M and A McLachlan (1982), Siegfried W R and P Johnson (1977).	
African Skimmer	
Nil	
Yellowthroated Sandgrouse Nil	
Delegorgue's Pigeon	
Allan D and G Allan (1979).	
Mourning Dove	
Nil	
Bluespotted Dove	
Nil	
Cape Parrot	
AckermannR(1978).	
Brownheaded Parrot	
Clancey PA (1977).	
Rosyfaced Lovebird	
Mebes H D (1979), Mebes H D (1981b).	
African Cuckoo	
Nil	
Thickbilled	

Pel's Fishing Owl	Hockey PA R and J C Sinclair (1981).
Nil	Blue Swallow
Natal Nightjar	Snell M LR979).
Nil	Mosque Swallow
Pennaniwinged Nightjar	Newman K (1980c).
Nil	House Martin
Bradfield's Swift	Nil
Nil	Greyrumped Swallow
Palm Swift	Nil
Coetsee T (1981), Searle R F C	Whitebreasted Cuckooshrike
(1982), Whitehouse P I and S	Nil
Whitehouse (1978).	
Mottled Spinelaif	
Nil	
Boehm's Spinetail	
Nil	
Mangrove Kingfisher	
Nil	
Greyhooded Kingfisher	
Nil	
Carmine Bee-eater	
FraserW (1982b).	
Rackettailed Roller	
Nil	
Broadbilled Roller	
Nil	
Ground Hornbill	
Kemp A C (1978b), Kemp	
A C and M I Kemp (1980),	
Kemp M I and A C Kemp (1979),	
Prozesky O P M	
(1977c).	
White-eared Barbet	
Nil	
Woodward's Barbet	
Clancey P A (1979b), Clancey P A	
(1979c).	
Knysna Woodpecker	
Martin R, J Martin and E Martin	
(1982).	
African Broadbill	
Nil	
Rudd's Lark	
Nil	
Shortclawed Lark	
Nil	
Red Lark	
Nil	
Botha's Lark	
Allan D G, G R Batchelor and W R	
Tarboton (1983).	
Sclater's Lark	

African Golden Oriole

Nil

Bush Blackcap

Nil

Yellowspotted Nicator

Clancey P A (1980c).

Spotted Thrush

Nil

Orange Thrush

Earle R A and T B Oatley (1983).

Arnot's Chat

Nil

Knysna Warbler

Martin R, J Martin, E Martin. P

Neatherway,

M Neatherway and D Tyler (1982),

Pringle J S (1977).

Victorin's Warbler

Nil

Broadtailed Warbler

Nil

Rudd's Apalis

Nil

Karoo Eremomela

Frost P G H and C J Vernon (1978).

Greencapped Eremomela

Nil

Sterling's Barred Warbler

Nil

Cinnamonbreasted

Warbler Nil

Palecrowned

Cisticola Nil

Namaqua Prinia

Nil

Woodwards' Batis

Nil

Wattle-eyed Flycatcher

Brooke R K and A J Manson (1979).

Rock Pipit

Nil

Shorttailed Pipit

LawsonP(1980).

Yellowbreasted Pipit

Vernon C(1983).

Pinkthroated

Longclaw Nil!

Tropical Boubou

Nil

Blackfronted Bush Shrike

Nil

Chestnutfronted Helmetshrike

Nil

Longtailed Starling

Nil

Yellowbilled Oxpecker

Cfancey P A (1980d), Stutterheim C J
and R K Brooke (1981).'

Gurney's Sugarbird
Craib C L (1977). Craib C I.(1981).

Purplebanded Sunbird
Nil

Neergaard's Sunbird
Nil

Bluethroated Sunbird
Nil

Yellow White-eye
Nil

Brownthroated Weaver
Nil

Goldenbacked Pytilia
Nil

Green Twinspot
Brickell N (1980). Pike J (1981).

Pinkthroated Twinspot
Nil

Grey Waxbill
Nil

Cutthroat Finch
Brickell N and A Wright (1980).

Pied Mannikin
Brickell N, B Huntley and R Vorster
(1980).

Broadtailed Paradise Whydah
Nil

Lemon breasted Canary
Nil

Protea Canary
Milewski A V (1976). Milewski
A V (1978a). Milewski A
V(1978b).

In addition to the foregoing papers on species or genera, publication of the 1976 Red Data Book - Aves (Siegfried et al 1976a). led to most newsletters of constituent clubs in the Southern African Ornithological Society carrying records of rare or vulnerable birds observed which were of great value in learning the present distribution of some of the species. Further, a number of papers were published dealing with birds of parts of South Africa related towards their conservation status as laid down in 1976. They are - Berruti A (1980b). Boshoff A F. C J Vernon and R K Brooke (1983). Brooke R K (1978). Brooke R K (in press). Connor M A (1980). Cooper J A J Williams and P L Britton (in press). Kemp A C (1980a). Macdonald I A W and P J Birkenstock (1980). Mihtein P le S and D A Milstein (1981). Siegfried W R. P G H Frost, J Cooper and A C Kemp (1976b). Tarboton W R

(1977). Tarboton W(1978), Tarboton W R (1980a). Tarboton W R and D G Allan (in press).

Appendix 2.

Current status of the 1976 Red Data Species

The 1976 Red Data Book - Aves listed 101 species in the various red data categories, from "extinct" (none) to "indeterminate" (a large proportion). This appendix details how these species have been recategorised in the process of compiling this Revision. In this way 37 of the 101 species have been discarded from the current red data list for reasons provided below.

The 1976 publication also listed a further 35 species deserving future consideration as candidate species. Of these, 15 species have been included in the current list and the remaining 20 have been discarded. Including the six species which breed on the Prince Edward Islands, a total of 30 species have been included in the current list which previously were not suspected of deserving red data book consideration. These include one endangered species (Blackrumped Buttonquail) and six out of the region's seventeen vulnerable species (Lappetfaced Vulture, Bateleur, Stanley's Bustard, Ludwig's Bustard, Ground Hornbill, African Broadbill).

Jackass Penguin vulnerable p 24.
Pinkbacked Pelican rare p 33.
White Pelican rare p 31.
Bank Cormorant neither rare nor vulnerable (Cooper 1981b).
Crowned Cormorant neither rare nor vulnerable (Crawford et al 1981).
Goliath Heron neither rare nor vulnerable (Kemp 1980a).
Rufousbellied Heron rare p 35.
Whitebacked Night Heron indeterminate p 36.
Marabou Stork rare p 52.
Openbilled Stork rare p 49.
Saddlebilled Stork rare p 51.
Wood Stork (= Yellowbilled Stork) rare p 54.
Woollynecked Stork rare p 48.
Black Stork indeterminate p 46.
White Stork rare p 44.
Bald Ibis out of danger p 55.
Greater Flamingo indeterminate p 57.
Lesser Flamingo indeterminate p 59.
Cape Vulture vulnerable p 67.
Egyptian Vulture endangered p 63.
Palmnut Vulture rare p 81.
Peregrine Falcon rare p 82.
African Hobby (= African Hobby Falcon) does not breed in South Africa (Steyn 1982).
Rednecked Falcon indeterminate p 84.
Dickinson's Kestrel rare p 85.
Pygmy Falcon neither rare nor vulnerable (Boshoff et al 1983).
Cuckoo Falcon (= Cuckoo Hawk) indeterminate p 73.
Bat Hawk rare p 75.
Longcrested Eagle neither rare nor vulnerable.
Booted Eagle neither rare nor vulnerable (Brooke et al 1980, Boshoff et al 1983).
Ayre's Hawk Eagle does not breed in

South Africa
(Kemp 1980b).
Martial Eagle vulnerable p 76.
Southern Banded Snake Eagle rare p 78.
African Fish Eagle neither rare nor vulnerable (Boshoff et al 1983. Tarboton and Allan in press].

Bearded Vulture rare p 62.
Mountain Buzzard (= Forest Buzzard)
neither rare nor
vulnerable (Cyrus and Robson 1980.
Boshoff et al 1983).
Black Sparrowhawk neither rare nor
vulnerable
(Tarboton and Allan in press).
Redbilled Francolin does not breed in
South Africa.
Blue Quail indeterminate p 86.
Crested Guineafowl neither rare nor
vulnerable (Kemp
1980a).
Striped Crake does not breed in South
Africa.
Whitewinged Flufftail rare p 93.
Wattled Crane endangered p 89.
Kori Bustard vulnerable p 96.
Blue Korhaan neither rare nor
vulnerable.
Lesser Jacana rare p 101.
Whitecrowned Plover rare p 105.
Whitewinged Plover (= Longtoed
Plover) does not breed
in South Africa.
Redwinged Pratincole rare p 106.
Caspian Tern rare p 107.
Roseate Tern endangered p 111.
Damara Tern rare p 113.
African Skimmer extinct p 115.
Spotted Sandgrouse neither rare nor
vulnerable.
Yellowthroated Sandgrouse
indeterminate p 116.
Bronzenaped Pigeon (= Delegorgue's
Pigeon)
indeterminate p 117.
Bluespotted Dove indeterminate p 118.
Brownnecked Parrot (= Cape Parrot)
vulnerable p 119.
Rosy-faced Lovebird indeterminate p
121.
Green Coucal neither rare nor
vulnerable.
Black Coucal indeterminate p 123.
Senegal Coucal does not breed in
South Africa.
Cape Eagle Owl neither rare nor
vulnerable.
Fishing Owl (= Pel's Fishing Owl) rare
p 127.
Natal Nightjar vulnerable p 129.
Bohm's Spinetail rare p 133.
Mangrove Kingfisher indeterminate p
135.
Green Barbet (= Woodward's Barbet)
rare p 140.
Shortclawed Lark indeterminate p 144.

- Botha's Lark indeterminate p 146.
Rudd's Lark vulnerable p 143.
Red Lark indeterminate p 145.
Sclater's Lark indeterminate p 148.
Blue Swallow endangered p 149.
Spotted Creeper does not breed in South Africa (Kemp 1980a).
Orange Thrush neither rare nor vulnerable (Earlé and Oatley in press).
Natal Thrush (= Spotted Thrush) vulnerable p 153.
Arnot's Chat rare p 155.
Knysna Scrub Warbler neither rare nor vulnerable.
Victorin's Scrub Warbler neither rare nor vulnerable.
Rudd's Apalis neither rare nor vulnerable (Cyrus and Robson 1980).
Karoo Green Warbler (= Karoo Eremomela) neither rare nor vulnerable.
Woodwards' Batis indeterminate p 157.
Wattle-eyed Flycatcher indeterminate p 158.
Shorttailed Pipit rare p 161.
Yellowbreasted Pipit vulnerable p 162.
Pinkthroated Longfaw vulnerable p 163.
Blackfronted Bush Shrike indeterminate p 166.
Chestnutfronted Helmetshrike does not breed in South Africa (Cyrus and Robson 1980).
Longtailed Starling indeterminate p 168.
Yellowbilled Oxpecker extinct p 169.
Gurney's Sugarbird neither rare nor vulnerable.
Purplebanded Sunbird neither rare nor vulnerable (Cyrus and Robson 1980).
Neergaard's Sunbird rare p 170.
Yellowbellied Sunbird does not breed in South Africa (Kemp 1980a).
Brown throated Weaver neither rare nor vulnerable (Cyrus and Robson 1980).
Green Twinspot neither rare nor vulnerable (Kemp 1980a).
Goldenbacked Pytilia rare p 173.
Pinkthroated Twinspot neither rare nor vulnerable.
Blackeared Canary does not breed in South Africa.
Protea Canary neither rare nor vulnerable (Milewski 1976).

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Index of Scientific, English and Afrikaans names

This Index includes the names of all nondomestic animals and plants referred to in the text, other than in references. In addition, synonyms in Clancey (1980a) and McLachlan and Liversidge (1978) of names used in the text are included and crossreferenced.

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