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A HANDBOOK ON THE RARE, THREATENED & ENDEMIC SPECIES OF THE GREATER ST LUCIA WETLAND PARK

A product of the Greater St Lucia Wetland Park Rare, Threatened & Endemic Species Project

Combrink & Kyle

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KOSI BAY LAKE SIBAYA SODWANA BAY UMKHUZE FALSE BAY LAKE ST LUCIA MAPELANE CAPE VIDAL

World Heritage Convention Act 1999 (Act No. 49 of 1999) Proclamation Number 4477 of 2000 dated 24 November 2000 Regulations 1193 dated 24 November 2000

“Suddenly, as rare things will, it vanished”

Robert Browning

A photograph taken in 2003 of probably the last known *Bonatea lamprophylla*, a recently (1976) described terrestrial orchid that was known from three small populations, all within the Greater St Lucia Wetland Park. Nothing was known on the biology or life history of this species, except that it produced spectacular flowers between September and October. This orchid might have to be reclassified in the future as extinct.

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1 FOREWORD

This is the final product of phase one of the Greater St Lucia Wetland Park – Rare Threatened & Endemic Species Project. Since its inception, this project has been monitoring the wide range of diverse species that inhabit the Greater St Lucia Wetland Park. The first published report in 2005 focussed on updating information about the little-known species of the Park, whilst this report will see the recording of several new species to the Park and significant additions to the original World Heritage Species Listings have been made.

The project has continued this year to foster relationships with key scientific institutions, and is now also contributing data to the South Africa Reptile Conservation Assessment and the South African National Spider Survey.

Part of the mission of the Park Authority and managers is managing and protecting the ecosystems and biodiversity according to the stringent standards we have set for ourselves, in line with those of national government and Unesco's World Heritage Convention. This project is playing an important part in helping us work towards that goal. The project is also allowing park neighbours and friends to be involved in research and learn about the wonders of nature. It is these type of activities that broaden ownership and with it the caring and nuturing of a true "peoples park".

The core project team, Xander Combrink, Dr. Scotty Kyle, Thabani Mthembu (Ezemvelo KZN Wildlife) and Samantha Terblanche (Wildlands Conservation Trust), must be thanked for their dedication and hard work in making the Greater St Lucia Wetland Park – Rare Threatened & Endemic Species Project a reality. Thanks also to the international volunteers and the organisations which supported them to participate in the project. Finally, thanks to Unilever for their financial and other support of the project through the Wildlands Conservation Trust.

Andrew Zaloumis
CEO - Greater St Lucia Wetland Park Authority

2 INTRODUCTION

The Greater St Lucia Wetland Park (GSLWP), Rare Threatened and Endemic Species (RTES) project is a joint initiative of Ezemvelo KZN Wildlife (EKZNW), Wildlands Conservation Trust (WCT), and the Greater St Lucia Wetland Park Authority (GSLWPA) within the context of the Lake St Lucia Living Lakes program.

The many and diverse ecosystems contained in the GSLWP provide important habitats for a large number of rare, threatened and/or endemic species. In fact, the value of the GSLWP for the protection of species internationally listed as threatened, is one of the three natural criteria on which the Park's proclamation as a World Heritage Site rests.

The GSLWP is situated on the southernmost extremity of the Moçambique coastal plain and, as a result, hosts numerous species not found elsewhere in South Africa. This adds to the value and importance of this unique area from a South African species conservation perspective. The presence of some of these species north of our borders, cannot detract from the importance of conserving the South African populations, as very little information is generally available on their conservation status and distribution of these species in other parts of southern and central Africa.

Populations of species of conservation importance within the GSLWP include 11 species endemic to the Park, 56 species endemic to KwaZulu-Natal, 108 species endemic to the Republic of South Africa, while 467 are listed as threatened in South Africa. While studies on a number of these species are ongoing, little was known about the status and viability of populations of the majority of rare, threatened and endemic species in the GSLWP, particularly the lower vertebrate and invertebrate species.

This project aimed to update information about rare, threatened or endemic species, initiate detailed studies on some of these, while extending monitoring efforts beyond the large and charismatic fauna to include some of the lesser-known, yet equally important, species. Overall, the project is assisting EKZNW and the GSLWPA to ensure that the World Heritage Site is fulfilling its obligation to record, monitor and protect the rare, threatened and endemic species that occur within its boundaries.

The project has been in operation for three years and came to the end of its first phase on the 31st of March 2006. During this time a lot of information was collected and collated from historical records and significant work and monitoring was undertaken by project staff and volunteers. A primary aim of this product was to consolidate and present the data so far processed and to inform all interested and affected parties of the work of the project, the state of our knowledge of the species, and allow debate and input from all parties before the next phase of products is produced.

Three new taxa, Spiders, Dragonflies & Damselflies and Orchids have been added in this report and, for each taxon covered, every rare, threatened or endemic species has been ranked in terms of its level of rareness, level of threat (Red Data listing), level of endemicity and the relative importance of the GSLWP for the conservation of the species. Species data sheets and distribution maps are presented for the top priority species of each of the taxa covered.

Initially it took time to work out the best approach to the project and many aspects were modified, added or reduced over time. Methods have now been standardised and streamlined and the flow of data has increased markedly. Species checklists have been drawn up and will only change in the light of new information. Data collection has been refined and expanded and the data capture process has been improved. All data is captured into an Access database, and through the use of a global positioning and geographical information system, it is possible to project species positions on topographical maps or aerial photographs. The product maps show actual record points as well as a few likely areas of distribution. We await a set of aerial digital photographs, which will allow us to overlay vegetation and habitat layers in order to model distribution of focal species throughout the Park. The project product will become a clearinghouse of information on rare, threatened and endemic species occuring in the GSLWP and information on distribution as well as the conservation status of species will be readily available. Actual point data (GPS) of rare, threatened or endemic species will not be made available to the general public.

During the past year, the project played an important role in a new research project on a flagship snake species, the cryptic Gaboon Adder. The aim of the research is to understand more about the conservation biology of the species in the Park. Jon Warner, a WITS MSc student, is conducting the research under the supervision of Prof. Graham Alexander and Dr. Bill Branch.

The project has continued this year to foster relationships, including field trips with scientific mentors from Universities and Museums and is now contributing data to the South Africa Reptile Conservation Assessment and the South African National Spider Survey of the ARC-PPRI Arachnology Unit of the Biosystematics Division.

In addition to the existing field surveys throughout the Park, a two-week survey was conducted within the SiyaQhubeka forestry area, adjacent to the Park. The results show that areas like this are not devoid of rare, threatened or endemic species. However, it emphasised the importance of having large areas set aside for conservation, with minimal disturbance to the habitat.

Later on this year, the project will facilitate a six-week field survey for rare, threatened and endemic species in uMkhuze. This will be done in collaboration with Operation Wallacea, an international scientific conservation organisation based in the United Kingdom.

Photo: Bryan Maritz *Xenocalamus transvaalensis*

Transvaal Quill-snouted Snake

This rare snake with a yellow and black chequered appearance has been recorded in uMkhuze on the Eastern Shores and Maphelane by the GSLWP RTES project team. It is a burrower and therefore very few people have ever seen this harmless snake. It is endemic to South Africa, but might extend into southern Moçambique.

3 EXECUTIVE SUMMARY

The first phase of the GSLWP RTES Project has ended and this product is a summary of the work carried out over the past three years. The results reflect the efforts of a multi-disciplinary team from EKZNW, the WCT, 11 scientific mentors and 267 volunteers in collaboration with the GSLWPA and the management of the GSLWP. The main aim of the project was to update information on the less charismatic, yet equally important, rare, threatened and endemic species found within the Park through a synthesis of existing information as well as standardised fieldwork to record new distribution points for as many as possible target species. Rare, threatened and endemic species lists, species data sheets and distribution maps are presented for the most important species of 12 taxanomic groups. For Spiders, Damselflies and Dragonflies and Orchids, this is available for the first time. Species checklists for the GSLWP that are now availabe for the first time, include Spiders, Damselflies and Dragonflies and Scorpions. None of the scorpion species found within the GSLWP are of conservation importance, due to secure populations.

New records include one species for KwaZulu-Natal, 28 for the GSLWP, 130 additions to the World Heritage Schedules, recordings of 22 species which significantly extend the known distributions in the GSLWP as well as numerious recordings of more than 80 rare, threatenend and/or endemic species throughout the Park. This information has expanded the EKZNW Biodiversity database, and is also contributing to the South Africa Reptile Conservation Assessment and will in future play an important role in the South African National Spider Survey.

An increasing number of conservation projects are recognising the help of volunteers in fieldwork activities, e.g. South African Frog Atlas and Red Data Book and the South African Reptile Conservation Assessment. The GSLWP RTES Project has received assistance from a number of local, national and international organisations, e.g. Wildlands Conservation Trust Learnership Programme, Unilever (SA), Travellersworldwide (UK), British Trust for Conservation Volunteers (UK), and has hosted Summer Camps for DaimlerChrysler and Lufthansa (Germany) for three consecutive years. From July to September 2006, Operation Wallacea (UK) will be assisting in a six week field survey for rare, threatened and endemic species in uMkhuze.

Apart from numerous field surveys within the GSLWP during the past three years, a two-week survey within the SiyaQhubeka forestry area, adjacent to the Park's boundaries was conducted. The results indicated that such areas are not devoid of rare, threatened or endemic species. It highlighted, however, the significance of full protection to species of conservation importance, occurring in the GSLWP.

Part of the mission of the GSLWP is managing and protecting the ecosystems and biodiversity according to stringent standards in line with those of the South African government and the Unesco's World Heritage Commission. During the past three years this project has played an important part in working towards that goal.

4 ACKNOWLEDGEMENTS

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- The Kyle family at Kosi Bay, for hospitality and assistance during numerous field surveys.

5 PROJECT TEAM

The GSLWP RTES Project is carried out by a multi-disciplinary team of members from EKZNW and the WCT. The project leaders are Dr. Jean Harris (EKZNW General Manager, Conservation Planning) and Dr. Andrew Venter (CEO of the WCT). In July 2004, Dr. Scotty Kyle (EKZNW) took over the role from Dr. Harris. Xander Combrink is the project manager (EKZNW) assisted by Thabani Mthembu (EKZNW) and Samantha Terblanche is the volunteer programme manager (WCT) assisted by Debbie Farley (WCT).

The project is supported by a team of EKZNW taxa co-ordinators and external scientific mentors (Table 1), assisted by EKZNW field management staff (Table 2), Eco-advice scientists, technicians and rare and threatened plant researchers. St Lucia EKZNW research staff (Table 3) also assist as well as a small group of project participants (Table 4).

Table 1: EKZNW Taxa Co-ordinators & Scientific Mentors

Taxonomic group	EKZNW Taxa co-ordinator	Scientific Mentor	Institution
Larger mammals	Craig Mulqueeny	Prof. Rob Slottow	UKZN
Smaller mammals	Craig Mulqueeny	Dr. Peter Taylor	DNSM
Birds	Caroline Fox	Dave Allan	DNSM
Reptiles	Dr. Scotty Kyle	Dr. Bill Branch	UPE
Amphibians	Dr. Scotty Kyle	Prof. Les Minter	UN
Fish	Dr. Scotty Kyle	Prof. Paul Skelton	SAIAB
Butterflies	Dr. Scotty Kyle	Dr. Ernest Pringle	Private
Fruit chafers	Dr. Scotty Kyle	Prof. Renzo Perissinotto	UKZN
Dragonflies/Damselflies	Dr. Scotty Kyle	Warwick Tarboton	Private
Spiders	Dr. Scotty Kyle	Dr. Ansie Dippenaar Schoeman	ARC-PPRI
Trees	Brigitte Church	Rob Scott-Shaw	EKZNW
Flowering plants	Brigitte Church	Rob Scott-Shaw	EKZNW
Orchids	Brigitte Church	Rob Scott-Shaw	EKZNW

Table 2: EKZNW Conservation Management

Manager	Responsible area
Tony Conway	Greater St Lucia Wetland Park
Joz Ackerman	False Bay Park
Zack Dlamini	Lake Sibaya
Terry Fergusson	Coastal Forest Reserve
Robert Mfeka	Ozabeni
Sizo Sibiya	uMkhuze
Patrick Sibeko	Western Shores
Christo Grobler	St Lucia
Zanele Khena	Kosi Bay
Dirk Rossouw	Mfabeni Eastern Shores
Johan Gerber	Anti-Poaching

Table 3: EKZNW St Lucia Research

Name	Position
Ricky Taylor	Estuarine Ecologist
Caroline Fox	Chief Research Technician

Table 4: Project participants

Taxa	Name
Bats	Wendy White
Reptiles	Prof. Grahame Alexander, Jon Warner, Johan Marias, Gorden Setaro, Bryan Maritz
Butterflies	Robert Kyle (Jnr.)
Spiders	Dr. Matjaz Kuntner & Charles Haddad
Orchids	Ingrid Louw, Errol Harrison & John Roff

The project also used a combination of local and international volunteers to assist with the fieldwork and monitoring (Table 5). Volunteers cover the cost of their accommodation and food, as well as making a contribution towards the logistical and operational cost of the project. The following types of volunteers were involved:

Table 5: Project Volunteers

Type of volunteer	Duration	No.
Travellersworldwide	1 – 5 months, throughout year	34
British Trust for Conservation Volunteers	14 days, 3 x per annum	28
DaimlerChrysler/Lufthansa	1 month, 1 x per annum	48
Unilever executives (Durban)	weekends, 4 x per annum	71
WCT Learnership programme	Ad hoc	12
Interested members from the community	Ad hoc	18
Other (125 Challenge, Peter Drake expedition)	Ad hoc	56
TOTAL		**267**

Tewati Bay in the Mfabeni Wilderness Area

6 PROCESS

The GSLWP RTES Project began in May 2003. It was originally envisaged as a two year project, but continued in the same format until the 31st of March 2006. This document is the final written product of this phase of the project. The project has been extended into "phase 2" which will continue at least until December 2006. This written product highlights only a small portion of the results of the project. The real product is, however, the numerous (1 500+) GPS recordings of rare, threatened and/or endemic species that were fed into the EKZNW biodiversity database.

We welcome any comments or suggestions pertaining to this document. These can be sent to Xander Combrink at combrinx@kznwildlife.com or phone 082 940 7386.

Lebombo Flat Lizard *Platysaurus lebomboensis*

Lebombo Flat Lizard

This rare and beautiful lizard species with its jet-black body and bright orange tail (males), has only recently (1996) been described. It is found within the uMkhuze Gorge of the Greater St Lucia Wetland Park. It favours basking in the early morning and late afternoon sun, but always close to narrow cracks (hence the common name) where it can return to safety, if disturbed. The species is endemic to northern Maputaland.

7 AIMS & OBJECTIVES

7.1 Overall objective

To promote the protection of the rare, threatened and endemic species that occur in the Greater St Lucia Wetland Park, and to enhance the contribution that the Park makes to the conservation of these species.

7.2 Specific research objectives

- Produce a list of rare, threatened and/or endemic plants, birds, reptiles, freshwater & estuarine fish, butterflies, fruit chafers, amphibians and mammals in the GSLWP.
- Conduct field surveys to confirm presence and distribution of rare, threatened and/or endemic species.
- Produce distribution maps for rare, threatened and/or endemic species, based on existing information and field surveys.
- Develop a Rare, Threatened and Endemic Species Handbook for the GSLWP. This would:
    - Provide baseline information to managers
    - Highlight historical and recent distributions
    - Identify and quantify current threats
- Select a suite of rare, threatened and/or endemic species across the various taxonomic groups to study in detail. This suite of species will be promoted as "Flagship Species" for the GSLWP. These "Flagship Species" will be chosen to represent species which have not previously or recently enjoyed detailed attention in the GSLWP, because there is either a lack of information as to their status, or current concern about their status or the threats facing them. Their distribution, relative abundance, special life-history aspects and habitat factors will be investigated. These species will act as proxy species to highlight the issues and threats surrounding rare, threatened and/or endemic species in general.
- Promote and facilitate involvement of specialists and experts for the different taxonomic groups.

7.3 Specific awareness objectives

- Increase the profile of rare, threatened and/or endemic species amongst conservation managers within the GSLWP, as well as understanding threats pertaining to these species.
- Create awareness amongst youth in communities surrounding the GSLWP about rare, threatened and/or endemic species and the issues and pressures pertaining to them.
- Raise awareness amongst the general public with regards to the status of and threats to rare, threatened and endemic species inhabiting the GSLWP.

8 HIGHLIGHTS OF THE PROJECT

Since the beginning of the project there have been some very satisfactory outcomes in terms of new and interesting records. The finding of a Rufous Mouse-eared Bat, *Myotis bocagei*, was the first record for the province of KwaZulu-Natal and 28 species were recorded for the first time in the GSLWP (Table 6). Although other institutions and museums were also checked, the main authoritative referece that was used was the EKZNW Biodiversity database, with a total of 8 676 species distribution points for the GSLWP.

From new records and by careful examination of museum and other records, a total of 16 mammals, four birds, 18 reptiles, one amphibian species, 86 butterflies and five plant species, a total of 130 species in total, have been added to the GSLWP World Heritage listings (Table 7).

Recordings made by the project significantly extended the known distributions of 22 species in the GSLWP (Table 8) and new information on 80 rare, threatened or endemic species was obtained by direct project surveys (Table 9).

Table 10 gives an indication of how rare some of the RTES Project target species are in the GSLWP or the pausity of information that exists for these species. For example, as a result of field surveys we have made the second recording ever in the GSLWP for seven species, the third recording for nine species, the fouth recording for 11 species, the fifth recording for six species etc.

As a result of project work, 14 species were removed from the original World Heritage Schedules, the names of 31 changed and 130 species were added. The new total for these taxa is now 3 328 species (Table 11).

Four new taxa, Fruit Chafers, Dragonflies and Damselflies, Spiders and Scorpions (Table 12) have now been added to the project adding a further 323 species, or 9.7 %, to the World Heritage Schedules. Full species checklists will be published by the project in the next few months as a separare product due to their considerable length.

Various media activities and releases were made by project staff, including newspaper and magazine articles, radio and local and international television programmes (Table 13).

The project has recorded and submitted more than 1 500 records of species, made with a Global Positioning System in the GSLWP, to the EKZNW Biodiversity database. This is a 17.2 % increase in the number of distribution points for the GSLWP in three years.

Photo: Bryan Maritz *Cordylus warreni*

Warren's Girdled Lizard

This rare lizard is found within the uMkhuze section of the Greater St Lucia Wetland Park. It favours rocky areas and has been previously recorded in the Tshopi River in uMkhuze. During 2003 the GSLWP RTES Project team recorded a specimen near the uMkhuze camp site and in 2006 another specimen was recorded in the Mkhuze Gorge for the first time.

Table 6: First records for the Greater St Lucia Wetland Park

No.	Common Name	Scientific name	Status
1	Rufous Mouse-eared Bat	*Myotis bocagei*	V
2	Least Dwarf Shrew	*Suncus infinitesimus*	R, DD
3	Spotted Hyaena	*Crocuta crocuta*	R, NT
4	Side-striped Jackal	*Canis adustus*	R, NT
5	Namakwa Rock Mouse	*Aethomys namaquensis*	R
6	Tsessebbe *	*Damaliscus lunatus lunatus*	R, E
7	Spotted Groud Thrush	*Zoothera guttata*	End
8	Bald Ibis	*Geronticus calvus*	V
9	Black Stork	*Ciconia nigra*	R, NT
10	Southern Banded S. Eagle	*Circaetus fasciolatus*	R, V
11	Wattle-eyed Flycatcher	*Platysteira peltata*	R, NT
12	African Broadbill	*Smithornis capensis*	R, NT
13	Bat Hawk	*Macheiramphus alcinus*	R, NT
14	Osprey	*Pandion haliaetus*	R
15	Crowned Eagle	*Stephanoaetus coronatus*	R, NT
16	Narina Trogon	*Apaloderma narina*	R
17	Floodplain Water Snake	*Lycodonomorphus obscuriventris*	DD
18	Natal Hinged Tortoise	*Kinixys natalensis*	End
19	Fruit Chafer	*Amazula suavis*	R
20	Fruit Chafer	*Anysorrhina flavomaculata*	R
21	Fruit Chafer	*Cheirolasia burkei*	R
22	Fruit Chafer	*Phoxomela umbrosa*	R
23	Fruit Chafer	*Porhyronota maculatissima*	R
24	Fruit Chafer	*Tephraea leucomelona*	R
25	Orchid	*Microcoelia obovata*	R, DD
26	Orchid	*Solenangis aphylla*	R, DD
27	Orchid	*Aerangis kirkii*	R, DD
28	Orchid	*Oeceoclades lonchophylla*	R, DD

* Introduced into the Greater St Lucia Wetland Park in 2003.

Table 7: Species additions to the 1999 GSLWP World Heritage Schedules

No.	Taxon	Scientific name	Common Name
1	Mammal	*Aethomys ineptus*	Tete veld rat
2	Mammal	*Calcochloris obtusirostris*	Yellow Golden Mole
3	Mammal	*Crocidura maquassiensis*	Maquassie Musk Shrew
4	Mammal	*Damaliscus lunatus lunatus*	Tsessebbe
5	Mammal	*Dasymys incomtus*	Water Rat
6	Mammal	*Dendromus mesomelas*	Brant's Climbing Mouse
7	Mammal	*Dendromus mystacalis*	Chestnut Climbing Mouse
8	Mammal	*Kerivoula argentata*	Damara Woolly Bat
9	Mammal	*Loxodonta africana*	African Elephant
10	Mammal	*Lycaon pictus*	African Wild Dog
11	Mammal	*Myotis bocagei*	Rufous Mouse-eared Bat
12	Mammal	*Neoromicia zuluensis*	Aloe Serotine Bat
13	Mammal	*Paracynictis selousi sengaani*	Selous' Mongoose
14	Mammal	*Poecilogale albinucha albinucha*	African Striped Weasel
15	Mammal	*Scotoecus albofuscus*	Thomas' House Bat
16	Mammal	*Suncus infinitesimus*	Least Dwarf Shrew
17	Bird	*Anous stolidus*	Common Noddy

No.	Taxon	Scientific name	Common Name
18	Bird	*Sarothrura ayresi*	Whitewinged Flufftail
19	Bird	*Sula sula*	Redfooted Booby
20	Bird	*Zoothera guttata*	Spotted Groud Thrush
21	Reptile	*Afroedura marleyi*	Marley's Flat Gecko
22	Reptile	*Afroedura pondolia*	Pondo Flat Gecko
23	Reptile	*Cordylus warreni*	Warren's Girdled Lizard
24	Reptile	*Gerrhosaurus validus validus*	Giant Plated Lizard
25	Reptile	*Lycodonomorphus obscuriventris*	Floodplain Water Snake
26	Reptile	*Lamprophis guttatus*	Spotted House Snake
27	Reptile	*Leptotyphlops distanti*	Distant's Thread Snake
28	Reptile	*Leptotyphlops sylvicolus*	Forest Thread Snake
29	Reptile	*Lycophidion pygmaeum*	Pygmy Wolf Snake
30	Reptile	*Macrelaps macrolepidotus*	Natal Black Snake
31	Reptile	*Meizodon semiornatus semiornatus*	Semiomate Snake
32	Reptile	*Natriciteres olivacea*	Olive Marsh Snake
33	Reptile	*Pachydactylus turneri*	Turner's Thick Toed Gecko
34	Reptile	*Philothamnus angolensis*	Western Green Snake
35	Reptile	*Platysaurus lebomboensis*	Lebombo Flat Lizard
36	Reptile	*Psammophis subtaeniatus subtaeniatus*	Stripe Bellied Sand Snake
37	Reptile	*Psammophis mossambicus*	Olive Grass Snake
38	Reptile	*Zygaspis vandami*	Van Dam's Worm Lizard
39	Amphibian	*Breviceps sopranus*	Whistling Rain Frog
40	Butterfly	*Abantis paradisea*	
41	Butterfly	*Abantis venosa*	
42	Butterfly	*Acleros mackenii*	
43	Butterfly	*Acraea acrita acrita*	
44	Butterfly	*Acraea anemosa*	
45	Butterfly	*Acraea violarum*	
46	Butterfly	*Actizeria lucida*	
47	Butterfly	*Aloeides aranda f. zilka*	
48	Butterfly	*Anthene kersteni*	
49	Butterfly	*Anthene talboti*	
50	Butterfly	*Borbo borbonica borbonica*	
51	Butterfly	*Borbo fallax*	
52	Butterfly	*Borbo holtzii*	
53	Butterfly	*Borbo micans*	
54	Butterfly	*Cacyreus lingeus*	
55	Butterfly	*Cacyreus marshalli*	
56	Butterfly	*Calaenorrhinus mokeezi separata*	
57	Butterfly	*Caprona pillaana*	
58	Butterfly	*Charaxes protoclea azota*	
59	Butterfly	*Chilades trochylus*	
60	Butterfly	*Coeliades libeon*	
61	Butterfly	*Coeliades lorenzo*	
62	Butterfly	*Colotis subfasciatus subfasciatus*	
63	Butterfly	*Cupidopsis cissus*	
64	Butterfly	*Cygaritis apelles*	
65	Butterfly	*Cygaritis ella*	
66	Butterfly	*Cygaritis natalensis*	
67	Butterfly	*Deloneura millari*	
68	Butterfly	*Deudorix antalus*	

No.	Taxon	Scientific name	Common Name
69	Butterfly	*Deudorix dariaves*	
70	Butterfly	*Deudorix dinochares*	
71	Butterfly	*Deudorix dinomenes*	
72	Butterfly	*Deudorix diocles*	
73	Butterfly	*Deudorix vansoni*	
74	Butterfly	*Eicochrysops messapus mahallakoaena*	
75	Butterfly	*Eretis umbra umbra*	
76	Butterfly	*Euchrysops subpallida*	
77	Butterfly	*Euriphene achlys*	
78	Butterfly	*Fresna nyassae*	
79	Butterfly	*Gegenes hottentota*	
80	Butterfly	*Graphium angolanus angolanus*	
81	Butterfly	*Graphium policenes laurentia*	
82	Butterfly	*Hyalites cabira*	
83	Butterfly	*Hyalites encedon encedon*	
84	Butterfly	*Hyalites eponina*	
85	Butterfly	*Hyalites esebria esebria*	
86	Butterfly	*Hyalites igola*	
87	Butterfly	*Hyalites rahira rahira*	
88	Butterfly	*Hypolycaena caeculus caeculus*	
89	Butterfly	*Iolaus bowkeri teari*	
90	Butterfly	*Iolaus lulua*	
91	Butterfly	*Kedestes macomo*	
92	Butterfly	*Kedestes mohozutza*	
93	Butterfly	*Kedestes wallengrenii wallengrenii*	
94	Butterfly	*Lachnoptera ayresii*	
95	Butterfly	*Lampides boeticus*	
96	Butterfly	*Leptomyrina gorgias gorgias*	
97	Butterfly	*Leptotes babaulti*	
98	Butterfly	*Leptotes brevidentatus*	
99	Butterfly	*Leptotes pulchra*	
100	Butterfly	*Metisella metis paris*	
101	Butterfly	*Moltena fiara*	
102	Butterfly	*Nepheronia argia variegata*	
103	Butterfly	*Nepheronia thalassina sinalata*	
104	Butterfly	*Neptis jordani*	
105	Butterfly	*Neptis laeta*	
106	Butterfly	*Netrobalane canopus*	
107	Butterfly	*Parosmodes morantii morantii*	
108	Butterfly	*Pelopidas thrax inconspicua*	
109	Butterfly	*Precis archesia*	
110	Butterfly	*Precis ceryne ceryne*	
111	Butterfly	*Precis hierta cebrene*	
112	Butterfly	*Precis octavia sesamus*	
113	Butterfly	*Precis oenone oenone*	
114	Butterfly	*Precis orithya madagascariensis*	
115	Butterfly	*Pseudacraea lucretia expansa*	
116	Butterfly	*Sarangesa seineri durbana*	
117	Butterfly	*Sevenia boisduvali boisduvali*	
118	Butterfly	*Spialia delagoae*	
119	Butterfly	*Spialia diomus ferax*	
120	Butterfly	*Spialia spio*	
121	Butterfly	*Tsitana tsita*	

No.	Taxon	Scientific name	Common Name
122	Butterfly	*Vanessa cardui*	
123	Butterfly	*Zintha hintza hintza*	
124	Butterfly	*Zizina antanossa*	
125	Butterfly	*Zophopetes dysmephila*	
126	Plant	*Aloe sp. nov*	
127	Plant	*Encephalartos senticosis*	
128	Plant	*Hawortia limifolia*	
129	Plant	*Vanilla roscheri*	
130	Plant	*Raphionacme lucens*	

Table 8: Recordings which significantly extend the known distributions in the GSLWP

No.	Common Name	Scientific name	Status	New distr.
1	Butterfly Bat	*Glauconycteris variegata*	NT	WS
2	Angola Free-tailed Bat	*Mops condylurus*	LC	M
3	Swamp Musk Shrew	*Crocidura mariquensis*	DD	CFR
4	Maquassie Musk Shrew	*Crocidura maquassiensis*	V	O
5	Sclater's Forest Shrew	*Mosorex sclateri*	Rare	O
6	Grey's Climbing Mouse	*Dendromus melanotis*	Rare	Mf., CFR
7	Chestnut Climbing Mouse	*Dendromus mystacalis*	LC	Kosi Bay
8	Four-toed Elephant-shrew	*Petrodromus tetradactylus*	E	CFR
9	Suni	*Neotragus moschatus zuluensis*	V	CFR
10	Spotted Groud Thrush	*Zoothera guttata*	E	GG, SL
11	Forest Tree Frog	*Leptopelis natalensis*	En	LZ KB
12	Yellow-bellied Hinged Terrapin	*Pelusios castanoides*	R	ES
13	Forest Thread Snake	*Leptotyphlops sylvicolus*	DD	LZ KB
14	East African Egg-eater	*Dasypeltis medici medici*	R	SL
15	Marbled Tree Snake	*Dipsadoboa aulica*	R	ES
16	Western Green Snake	*Philothamnus angolensis*	R	St Lucia
17	Setaro's Dwarf Chameleon	*Bradypodion setaroi*	R,T, En	Duk. Forest
18	Spotted Shovel-shout Frog	*Hemisus guttatus*	V	ES, O
19	Whistling Rain Frog	*Breviceps sopranos*	DD	KB
20	Striped Robber	*Brycinus lateralis*	LC	Lower M
21	St Lucia Purple Fruit Chafer	*Lamellothyrea descarpentriesi*	GSLWP End	KB, O
22	Map. Yellow Fruit Chafer	*Anisorrhina serripes*	En	WS

Table 9: Other recordings of Rare, Threatened & Endemic Species in the GSLWP

No.	Common Name	Scientific name	Status	Location
1	Lesser Red Musk Shrew	*Crocidura hirta*	R, DD	O, M, ES
2	Maquassie Musk Shrew	*Crocidura maquassiensis*	R, DD	LM
3	Lesser Grey-brown Musk Shrew	*Crocidura silacea*	R, DD	LM, ES, Man, M, SL
4	Bushveld Gerbil	*Tatera leucogaster*	R, DD	KB, M
5	Thomas' House Bat	*Scotoecus albofuscus*	R, V	SL
6	Schreibers' Long-fingered bat	*Miniopterus schreibersii*	R, NT	MR
7	Four-toed Elephant-shrew	*Petrodromus tetradactylus*	R, E	WS, M, CFR
8	Tonga Red Squirrel	*Paraxerus palliatus tongensis*	R, E	SL, TW, ES, SB
9	Samango Monkey	*Cercopithecus mitis erythrarchus*	R, V	ES, WS, CFR, O, KB, GG
10	Thomas' House Bat	*Scotoecus albofuscus*	R, V	St Lucia
11	Oribi	*Ourebia ourebi*	R, E	ES, O
12	Tsessebbe	*Damaliscus lunatus lunatus*	R, E	NP, ES
13	Lesser Grey-brown Musk Shrew	*Crocidura silacea*	R, DD	Oi, ES, CFR, M

No.	Common Name	Scientific name	Status	Location
14	African Wild Dog	*Lycaon pictus*	R, E	M, WS
15	Spotted Hyaena	*Crocuta crocuta*	R, NT	ES, WS
16	Honey Badger	*Mellivora capensis capensis*	R, NT	SB
17	Leopard	*Panthera pardus*	R	M, ES
18	Black Rhino	*Dicernos bicornis minor*	R, V	ES, WS, M
19	Bushveld Gerbil	*Tatera leucogaster*	R, DD	KB, M
20	Side-striped Jackal	*Canis adustus*	R, NT	ES, O
21	Suni	*Neotragus moschatus zuluensis*	R, V	WS, M
22	Saddlebilled Stork	*Ephippiorhynchus senegalensis*	R, E	ES, CRF, O
23	African Broadbill	*Smithornis capensis*	R, NT	ES, WS, M
24	African Finfoot	*Podica senegalensis*	R, V	KB, MaR
25	African Marsh Harrier	*Circus ranivorus*	R, V	O
26	African Whitebacked Vulture	*Gyps africanus*	R, V	M
27	Bateleur	*Terathopius ecaudatus*	R, V	M
28	Bat Hawk	*Macheiramphus alcinus*	R, NT	ES
29	Black Stork	*Ciconia nigra*	R, NT	M River
30	Caspian Tern	*Hydroprogne caspia*	R, NT	ES
31	Greater Flamingo	*Phoenicopterus ruber*	R, NT	ES
32	Lappetfaced Vulture	*Torgos tracheliotos*	R, V	M
33	Lesser Flamingo	*Phoenicopterus minor*	R, NT	ES
34	Lesser Jacana	*Microparra capensis*	R, NT	O
35	Mangrove Kingfisher	*Halcyon senegaloides*	R, V	SL Narrows
36	Martial Eagle	*Polemaetus bellicosus*	R, V	M, ES, MaR
37	Natal Nightjar	*Caprimulgus natalensis*	V	Man, ES
38	Pel's Fishing Owl	*Scotopelia peli*	R, V	Lower M
39	Pygmy Goose	*Nettapus auritus*	R, NT	LS, MP
40	Pinkbacked Pelican	*Pelecanus rufescens*	R, V	M
41	Pinkthroated Longclaw	*Macronyx ameliae*	R, NT	CFR, LS
42	Redwinged Pratincole	*Glareola pratincola*	R, NT	ES
43	Secretarybird	*Sagittarius serpentarius*	R, NT	O, M, ES
44	Southern Bald Ibis	*Geronticus calvus*	R, V	M River
45	Southern Ground Hornbill	*Bucorvus leadbeateri*	R, V	Ma R
46	Southern Banded S. Eagle	*Circaetus fasciolatus*	R, V	ES, SL
47	Stanley's Bustard	*Neotis denhami*	R, V	O
48	Wattle-eyed Flycatcher	*Platysteira peltata*	R, NT	ES (CC)
49	White Pelican	*Pelecanus onocrotalus*	R, NT	ES, WS, M
50	Woollynecked Stork	*Ciconia episcopus*	R, NT	WS, M, ES, O
51	Yellowbilled Stork	*Mycteria ibis*	R, NT	ES, O, M
52	African Rock python	*Python natalensis*	R, V	ES, WS, SL, MRiver
53	Forest Marsh Snake	*Natriciteres variegata sylvatica*	R, T	KB
54	Van Dam's Worm Lizard	*Zygaspis vandami arenicola*	R, End	ES, Ma, M, CFR
55	Bouton's Snake-eyed Skink	*Cryptoblepharus boutonii*	R	Black Rock
56	Forest Thread Snake	*Leptotyphlops sylvicolus*	R, End	KB, ES
57	African Long-tailed Seps	*Tetradactylus africanus*	R, End	ES, Makhakhathana
58	Nile Crocodile	*Crocodylus niloticus*	R, V	Lake SL, LS, NP, Ns P, LBN, LBS, MP
59	Marbled Tree Snake	*Dipsadoboa aulica*	R	ES
60	Gaboon Adder	*Bitis gabonica*	R, V	Khula village
61	Eastern Purple Glossed Snake	*Amblyodipsas m.microphthalma*	R	M
62	Cross-barred Tree Snake	*Dipsadoboa aulica*	R	MR, ES
63	Coastal Dwarf Burrowing Skink	*Scelotes vestigifer*	R, End	LZ
64	FitzSimons' Dwarf Burr. Skink	*Scelotes fitzsimonsi*	R, End	LZ
65	Moçambique Dwarf Burr. Skink	*Scelotes mossambicus*	R, End	Ma, Ipiva, KB
66	Wahlberg's Velvet Gecko	*Homopholis wahlbergii*	R	LZ KB

No.	Common Name	Scientific name	Status	Location
67	Setaro's Dwarf Chameleon	*Bradypodion setaroi*	R, T&E	Ma, SL, MR, CV, Duk. Forest
68	Transvaal Quill-snouted Snake	*Xenocalamus transvaalensis*	R	Ma, M, SL
69	Mocambique Shovel-nosed Snake	*Prosymna jani*	R	SL, CV
70	Pygmy Wolf Snake	*Lycophidion pygmaeum*	R	LZ KB, SL, MR, ES
71	Giant Legless Skink	*Acontias plumbeus*	R, End	M, CFR, Ma, Ipiva, SL
72	Forest Cobra	*Naja melanoleuca*	R, T	KB, ES, SL
73	Natal Hinged Tortoise	*Kinixys natalensis*	R, End	KB, ES
74	Variegated Slug Eater	*Duberria variegata*	NT	WS, SL
75	Mashona Hinged Terrapin	*Pelusios rhodesianus*	R, NT	Duk. Forest
76	Turner's Thick Toed Gecko	*Pachydactylus turneri*	R	Mkhuze Gorge
77	Lebombo Flat Lizard	*Platysaurus lebomboensis*	R	Mkhuze Gorge
78	Forest Tree Frog	*Leptopelis natalensis*	R, End	SL, LZ, ES
79		*Bonatea lamprophylla*	R, V	Lala Nek
80	Kosi Palm	*Raphia australis*	R, V	KB

Table 10: A list of species with less than 10 records from the GSLWP, prior to the project.

No.	Common Name	Scientific name	No of previous records *
1	Lappetfaced Vulture	*Torgos tracheliotos*	1
2	Western Green Snake	*Philothamnus angolensis*	1
3	Turner's Thick Toed Gecko	*Pachydactylus turneri*	1
4	Mangrove Kingfisher	*Halcyon senegaloides*	1
5	Fruit chafer	*Dischista rufa*	1
6	Fruit chafer	*Pachnoda sinuata flaviventris*	1
7	Fruit chafer	*Polybaphes balteata*	1
8	Orchid	*Bonatea lamprophylla*	1
9	Natal Large Black Sac Spider	*Corinna natalis*	1
10	Maquassie Musk Shrew	*Crocidura maquassiensis*	2
11	Forest Thread Snake	*Leptotyphlops sylvicolus*	2
12	Chestnut Climbing Mouse	*Dendromus mystacalis*	2
13	Thomas' House Bat	*Scotoecus albofuscus*	2
14	Eastern Purple Glossed Snake	*Amblyodipsas m.microphthalma*	2
15	Lesser Jacana	*Microparra capensis*	2
16	Natal Nightjar	*Caprimulgus natalensis*	2
17	Aardvark	*Orycteropus afer afer*	2
18	Variable skink	*Trachylepis varia*	2
19	Turner's Thick Toed Gecko	*Pachydactylus turneri*	3
20	African Long-tailed Seps	*Tetradactylus africanus*	3
21	Four-toed Elephant-shrew	*Petrodromus tetradactylus*	3
22	Redwinged Pratincole	*Glareola pratincola*	3
23	Martial Eagle	*Polemaetus bellicosus*	3
24	Lesser Grey-brown Musk Shrew	*Crocidura silacea*	3
25	Fruit chafer	*Anisorrhina serripes*	3
26	Mocambique Rain Frog	*Breviceps mossambicus*	3
27	Fruit chafer	*Elaphinis delagoensis*	3
28	Butterfly Bat	*Glauconycteris variegatus*	3
29	Schreiber's Long-fingered Bat	*Miniopterus schreibersii natalensis*	3
30	Honey Badger	*Mellivora capensis capensis*	4
31	Sclater's Forest Shrew	*Mosorex sclateri*	4
32	Spotted Shovel-shout Frog	*Hemisus guttatus*	4
33	Moçambique Dwarf Burr. Skink	*Scelotes mossambicus*	4

No.	Common Name	Scientific name	No of previous records *
34	Mashona Hinged Terrapin	*Pelusios rhodesianus*	4
35	Fruit chafer	*Chlorocala africana sodwana*	4
36	Secretarybird	*Sagittarius serpentarius*	5
37	Kuhl's pipistrelle	*Pipistrellus kuhlii broomi*	5
38	Pygmy Wolf Snake	*Lycophidion pygmaeum*	5
39	Bibron's burrowing asp	*Atractaspis bibronii*	5
40	Fruit chafer	*Dicronorrhina derbyana*	5
41	Butterfly Bat	*Glauconycteris variegata*	6
42	Lebombo Flat Lizard	*Platysaurus lebomboensis*	6
43	East African Egg-eater	*Dasypeltis medici medici*	6
44	Warren's Girdled Lizard	*Cordylus warreni warreni*	7
45	Pygmy Goose	*Nettapus auritus*	7
46	Bush squeaker	*Arthroleptis wahlbergii*	7
47	Transvaal Quill-snouted Snake	*Xenocalamus transvaalensis*	8
48	Stanley's Bustard	*Neotis denhami*	8
49	Samango Monkey	*Cercopithecus mitis erythrarchus*	9
50	Forest Tree Frog	*Leptopelis natalensis*	9
51	Lesser Red Musk Shrew	*Crocidura hirta*	9
52	Bushveld Gerbil	*Tatera leucogaster*	9
53	Map. Yellow Fruit Chafer	*Anisorrhina serripes*	10
54	Forest Marsh Snake	*Natriciteres variegata sylvatica*	10
55	Coastal Dwarf Burrowing Skink	*Scelotes vestigifer*	10

* Records are from EKZNW biodiversity database

Table 11: Updates of the 1999 World Heritage Schedules (WHS)

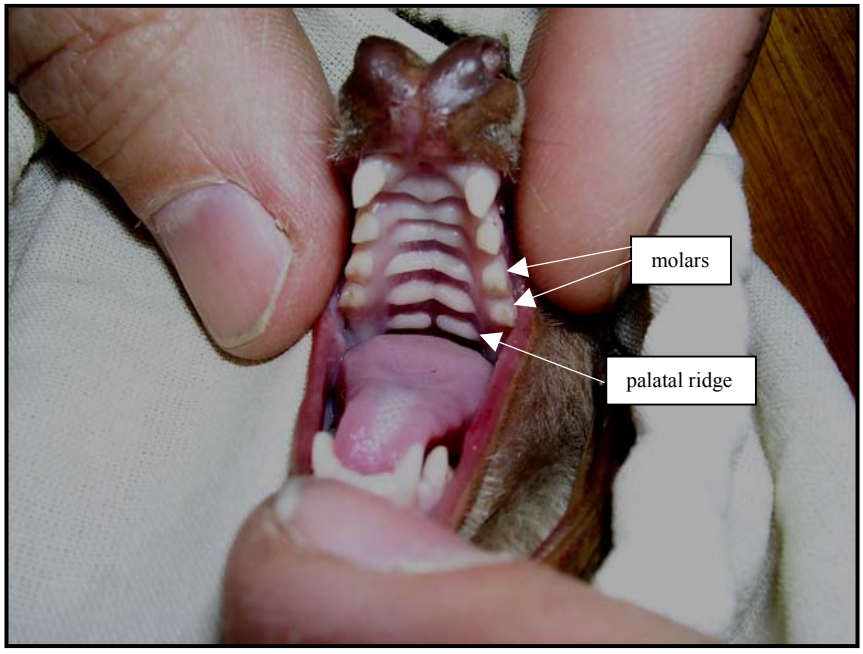
Taxa	WHS 1999	Removed	Name/taxonomic changes	Additions (2006 Totals)	RT&E Species (2006 Totals)
Mammals	99	0	0	16	110
Birds	521	1	1	4	525
Reptiles	109	9	27	18	128
Amphibians	50	1	2	1	50
Freshwater fish	51	3	0	0	48
Butterflies	196	0	1	86	282
Plants	2180	0	0	5	2185
Total	**3206**	**14**	**31**	**130**	**3328**

Table 12: New species lists

No.	Taxa	RT&E Species 2006 Totals
1	Fruit Chafers	52
2	Dragonflies & Damselflies	38
3	Spiders	228
4	Scorpions	5
	Total	**323**

Table 13: Project awareness & media products

No.	Name	Type	Year	Month
1	Wetland Wire	Printed article	2003	December
2	Wetland Wire	Printed article	2005	January
3	Sunday Tribune	Printed article	2005	March
4	Michaela's Wildlife Challenge	UK Channel 5 (TV)	2005	December
5	RSG	Radio	2005	April
6	Nkosi FM	Radio	2005	April
7	SABC Africa	DSTV	2005	May
8	Wild Limited	SABC 2 (TV)	2005	August
9	Radio 702	Radio	2005	June
10	50/50	SABC 2 (TV)	2006	February



Wahlberg's Epauletted Fruit Bat *Epomophorus wahlbergi*

Wahlberg's Epauletted Fruit Bat

The only way to distinguish Wahlberg's Epauletted Fruit Bat from Peters' Epauletted Fruit Bat, which both occur in the Greater St Lucia Wetland Park, is that in Wahlberg's Epauletted Fruit Bat there is only one ridge on the palate behind the last molars, see photo above.

9 MATERIAL AND METHODS

9.1 Survey methods

As well as desktop studies, project staff and volunteers spent much time collecting data in the field. The GSLWP is very large and the taxa are diverse, making the collection of adequate quality data challenging. Apart from collating historical records, it was decided that the project should attempt to survey the whole GSLWP for the presence of important species. Various methods were used but all resulted in the identification of specimens and their exact localities being pinpointed by Geographic Positioning System (GPS). Identifications were confirmed by the specialists, often by digital photographs through e-mail, but also through study skins, dentition analysis and DNA in mammals and bottled specimens where necessary.

Due to the size of the GSLWP (298,376 ha), fourteen areas (sample transects), representative of the diverse habitats of the GSLWP, were identified for rapid field surveys (Fig 1). As a result of the cryptic nature of many priority survey species, the best way to record presence and distribution is often through live trapping. At least one trap station is set up in each of the represented habitats on every sample transect, as well as in some of the transitional zones (ecotones) between habitat types. Due to manpower limitations, only five trapstations were employed per survey. Typically, a sample transect may cover between 1-5 km from the first trap station to the last. Trapping requires a minimum of three trap-nights in order to obtain the minimum required data. Each trap station consisted of the following type of traps:

9.1.1 Pitfall trap with drift fences

Pitfall traps are widely used throughout the world in herpetological surveys, as well in surveys for small mammals. A pitfall trap consists of 10 pits (20 litre plastic buckets) with three drift fences of 7.5 meters (20% shade cloth with steel dropper poles). The buckets are sunk into the ground flush with the surface. A drift fence flanks each bucket and the fences and buckets can be arranged in a number of configurations. The drift fences act as a barrier to small animal movement and channel the animals into the bucket where they are collected the next morning. Both food and water are placed inside the buckets and the position of each trap is recorded (GPS). Traps are checked early each morning.

9.1.2 “Willan” PVC rodent traps

PVC rodent traps, usually 100, are positioned along a trap-line in the most suitable locations (next to small mammal “runs” or other signs of small mammals) in the relevant habitat, marked and their position recorded (GPS). They are baited with rolled oatmeal and peanut butter and checked and re-baited daily.

9.1.3 Fruit chafer beetle traps

Baited funnel traps are placed at approximately 2 meters and 15 meters above the ground in trees around the trap station. The traps are baited with fermented banana and pineapple and are checked daily. To prevent the bait from desiccation, sugar water is added daily, if required. Small holes are made in the side of the plastic bottle to prevent beetles from drowning during excessive rains.

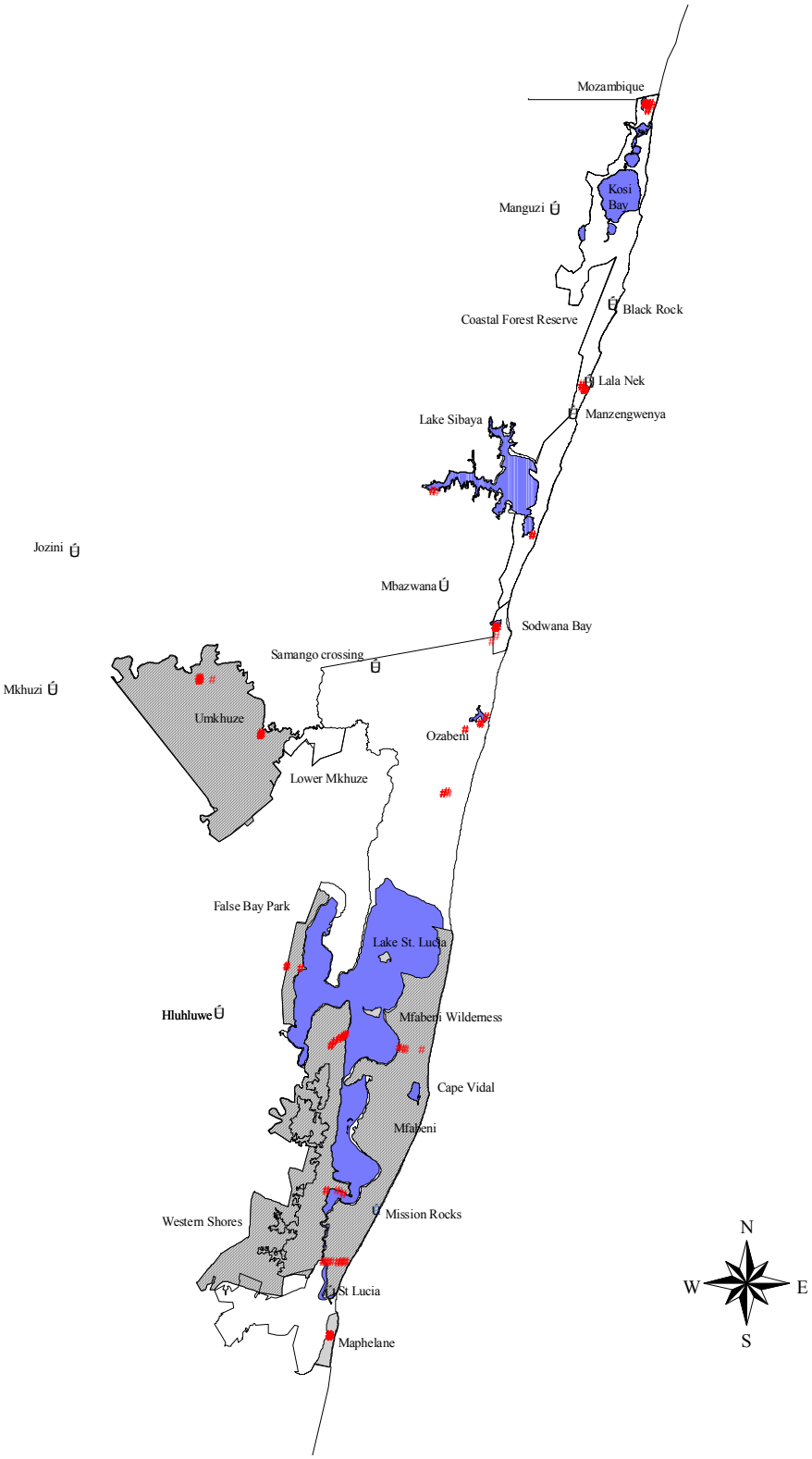
9.1.4 Sound recordings

During spring and summer, the mating calls of male frogs were recorded, where possible. These recordings were analysed to identify the species calling. Due to the density and diversity of frog calls at certain locations, sound analysis can be complicated and therefore if safety permits, frogs were caught, photographed, identified and released.

9.1.5 Active searching (time constraint searches)

Active searching and collecting is conducted once all the trapstations are in place. During active searching, the survey team looks under logs and other suitable hiding places, and scratches in the top surface layer of the soil in search of fossorial fauna. This is a very effective way to find reptiles, but is generally difficult to

Fig. 1 Rapid Field Surveys (GPS point localities)



conduct with volunteers. During these active searches, effort is quantified to ensure consistency throughout the different habitats.

9.2 This document

Each taxonomic group presented in this document consists of the following components:

- Flagship species
- Focal species
- Rare, threatened and endemic species, ranked in terms of conservation importance (Table 14)
- Species data sheet
- Distribution map

In order to draw up these in a structured, objective and inclusive manner, an outside specialist who could act as a scientific mentor, was identified as well as a taxa co-ordinator for most taxa. The specialists (Table 1) were usually independent people of high standing in their respective fields while the co-ordinator was normally an EKZNW staff member with an interest in and knowledge of the taxon.

The "Flagship Species" represent members of each taxon occurring in the GSLWP which were "charismatic" and could be used to attract and maintain public and media attention.

The "Focal Species" were rare, threatened or endemic species on which the project would focus specific attention, due to their conservation importance and usually a lack of present information.

The "Rare, Threatened and Endemic" list is all members of the taxon occurring in the GSLWP falling into any of these categories. Information was gleaned and collated from Red Data books and a myriad of other literature including reference books, scientific publications, information databases, museum records as well as information collected by project staff, volunteers and helpers (Table 15). In order to prioritise their conservation importance to the GSLWP, each species was rated on four categories and the individual ranks were summed to indicate the overall rank (Table 14).

- Level of rareness
- Level of threat (Red Data listing)
- Level of endemicity
- Relative importance of the GSLWP for the conservation of the species (population size).

Species data sheets and distribution maps are usually presented for the five highest ranked species of conservation importance for each taxon, i.e. species which have received the hightest total rating on the four categories, level of rareness, level of threat, level of endemicity and population size.

Painted Reed Frog *Hyperolius marmoratus*

Table 14: Values allocated for the Rare, Threatened & Endemic species lists

Score	Rare	Threatened *	Endemic (level of endemicity)	Population Size
5	Few individuals worldwide	Critically Endangered	GSLWP	GSLWP hosts the entire population, or almost the entire population of this species global distribution.
4	Few indivi-duals in a few localities	Endangered	KwaZulu-Natal	GSLWP hosts a large population of this species global distribution.
3	Abundant, but in only a few localities	Vulnerable	Eastern Cape Wild Coast and KZN Coast	This species occurs in the GSLWP, but is listed as Data Deficient currently.
2	Few indivi-duals in many localities	Data Deficient	South Africa, including Lesotho & Swaziland	GSLWP hosts a small, but significant population of this species global distribution.
1	Not abundant	Near Threatened	Southern Africa	GSLWP hosts only a very small population of this species global distribution.

* Rated according to the IUCN Red List criteria (version 3.1)

Setaro's Dwarf Chameleon *Bradypodion setaroi*

Setaro's Dwarf Chameleon

This species is listed as rare, threatened and endemic to Maputaland, extending into southern Moçambique. Within this narrow distribution, it is found in Coastal Dune Forest, Swamp Forest and Coastal Lowland Forest. Populations fluctuate naturally as a result of environmental and other pressures, and for the past few years it seems that the relative abundance of this species throughout the Greater St Lucia Wetland Park has been low.

Table 15: Sources of information for checklist, RTE lists & threat assessments

Taxon	Reference
Mammals	Taylor, P., 1998. *The smaller mammals of KwaZulu-Natal*. University of Natal Press, Pietermaritzburg.
Mammals	Skinner, J. D. and Smithers, R. H., 1990. *The Mammals of the Southern African Sub-region*. University of Pretoria, Pretoria.
Mammals	Taylor, P.J., Cotterill, F.P.D., Van der Merwe, M., White, W & D.S. Jacobs. 2004. *New biogeographical records of five rare bat species (Chiroptera: Rhinolophidae and Vespertilionidae) from South Africa*. Durban Museum Novitates. Vol. 29. 104-109.
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Spiders	Haddad, C.R. 2006. A re-description of *Corinna natalis* Pocock, 1898 (Araneae, Corinnidae), Africa's largest black sac spider, with natural history notes. *Journal of Afrotropical Zoology* 2: 27-32.
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Trees	Scott-Shaw, R., Hilton-Taylor, C., Kasseepursad,B. & Church, B. 1998. *The Conservation Status of the Pepper Bark Tree*. SABONET News, Vol. 3 No.2 August 1998.
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Taxon	Reference
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Flowering Plants	Moffet, R.O. 1993. Anacardiaceae: Rhus. Flora of Southern Africa19 (3, 1).
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Flowering Plants	Scott Shaw, Rob. Rare and Threatened Plants of Kwa-Zulu Natal and Neighbouring regions.
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Orchids	Pooley, E. 1998. A Field Guide to Wild Flowers KwaZulu Natal Zululand Eastern Region. Natal Flora Publications trust.

9.3 Capturing local knowledge

Efforts were made to capture the knowledge of local residents and workers who may have made interesting sightings but not formally recorded them. People were interviewed and recordings noted, checked and exact localities and dates were obtained. This work was carried out on an ad hoc basis initially but it is thought that there is still a large amount of information to be obtained in this manner from older staff members and residents of the area. Lists of priority species with photographs were drawn up to aid in the identification process. Regular visitors to the area and tourism operators have also been brought on board to increase the capacity of the project to fill in many of the more obvious gaps in present known distributions.

Wahlberg's Epauletted Fruit Bat *Epomophorus wahlbergi*

10 VERTEBRATES

10.1 MAMMALS

10.1.1 Flagship species

- Thomas' House Bat (*Scotoecus albofuscus*)
- Four-toed Elephant-shrew (*Petrodromus tetradactylus beirae*)
- Tonga Red Squirrel (*Paraxerus palliates tongensis*)

10.1.2 Focal species

- Suni (*Neotragus moschatus zuluensis*)
- Four-toed Elephant-shrew (*Petrodromus tetradactylus beirae*)
- Tonga Red Squirrel (*Paraxerus palliates tongensis*)

10.1.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No	Scientific name	Common Name	R	T	E	PS	TOTAL
1	*Paraxerus palliates tongensis*	Tonga Red Squirrel	4	4	4	4	16
2	*Cloeotis percivali*	Short-eared Trident Bat	5	5		4	14
3	*Damaliscus lunatus lunatus*	Tsessebbe	4	4		1	9
4	*Lycaon pictus*	African Wild Dog	4	4		1	9
5	*Myotis bocagei*	Rufous Mouse-eared Bat	4	3		2	9
6	*Kerivoula argentata*	Damara Woolly Bat	4	4		1	9
7	*Ourebia ourebi*	Oribi	4	4		1	9
8	*Amblysomus hottentotus*	Hottentot Golden Mole	3	2	2	1	8
9	*Cercopithecus mitis erythrarchus*	Samango Monkey	1	3		4	8
10	*Scotoecus albofuscus*	Thomas' House Bat	4	3		1	8
11	*Diceros bicornis*	Black Rhinoceros	4	3		1	8
12	*Manis temminckii*	Ground Pangolin	4	3		1	8
13	*Petrodromus tetradactylus*	Four-toed Elephant-shrew	2	4		2	8
14	*Kerivoula lanosa lucia*	Lesser Woolly Bat	3	3		1	7
15	*Neotragus moschatus zuluensis*	Suni	3	3		1	7
16	*Paracynictis selousi sengaani*	Selous' Mongoose	3	3		1	7
17	*Myosorex sclateri*	Sclater's Forest Shrew	3		2	1	6
18	*Poecilogale albinucha albinucha*	African Striped Weasel	2	3		1	6
19	*Acinonyx jubatus*	Cheetah	2	3		1	6
20	*Crocidura maquassiensis*	Maquassie Musk Shrew	2	2		1	5
21	*Orycteropus afer*	Aardvark	4			1	5
22	*Suncus lixus gratulus*	Greater Dwarf Shrew	1	2		1	4
23	*Crocidura hirta*	Lesser Red Musk Shrew	1	2		1	4
24	*Crocidura silacea*	Lesser Grey-brown Musk Shrew	1	2		1	4
25	*Crocuta crocuta*	Spotted Hyaena	2	1		1	4
26	*Canis adustus*	Side-striped Jackal	2	1		1	4
27	*Hyaena brunnea*	Brown Hyaena	2	1		1	4
28	*Glauconycteris variegata*	Butterfly Bat	2	1		1	4
29	*Mellivora capensis capensis*	Honey Badger	2	1		1	4
30	*Proteles cristatus*	Aardwolf	2			1	3
31	*Grammomys cometes*	Moçambique Thicket Rat		2		1	3
32	*Tatera leucogaster*	Bushveld Gerbil		2		1	3
33	*Calcochloris obtusirostris*	Yellow Golden Mole		2		1	3
34	*Leptailurus serval*	Serval	1	1		1	3
35	*Pronolagus crassicaudatus*	Natal Red Rock Rabbit			2	1	3

No	Scientific name	Common Name	R	T	E	PS	TOTAL
36	*Miniopterus shreibersii*	Schreiber's Long-fingered Bat	2			1	3
37	*Crocidura mariquensis*	Swamp Musk Shrew		2		1	3
38	*Panthera pardus*	Leopard	2			1	3
39	*Grammomys dolichurus*	Woodland thicket rat		2		1	3
40	*Caracal caracal*	Caracal	1			1	2
41	*Aethomys namaquensis*	Namaqua Rock Mouse	1			1	2
42	*Canis mesomelas*	Black-backed Jackal	1			1	2
43	*Ceratotherium simum*	White Rhinoceros	1			1	2
44	*Suncus infinitesimus*	Least Dwarf Shrew	1			1	2
45	*Rhinolophus darlingi*	Darling's Horseshoe Bat		1		1	2
46	*Rhinolophus clivosus*	Geoffroy's Horseshoe Bat		1		1	2
7	*Redunca fulvorufula*	Mountain Reedbuck	1			1	2
48	*Ictonyx striatus*	Striped Polecat	1			1	2
49	*Nycteris hispida*	Hairy Slit-faced Bat		1		1	2
50	*Dasymys incomtus*	Water Rat		1		1	2

Searching through a White Rhino dung midden during a field survey

Pitfall trap at Tewati Bay in the Mfabeni Wilderness Area

Pitfall trap-station

Pitfall traps are widely used throughout the world in herpetological and small mammal surveys. A pitfall trap consists of buckets with drift fences. The buckets are sunk into the ground flush with the surface. The drift fences act as a barrier to small animal movement and channel the animal into the bucket where it is collected the next morning.

Scientific name: *Paraxerus palliatus tongensis* **Common name:** Tongaland Red Squirrel

Photo: Kirsty Kyle

Description: The Tongaland Red Squirrel is relatively small in size, about 400 mm overall and the tail is approximately half the bodylength. They are predominantly an arboreal subspecies with a mass of about 300 g. In spite of the differences in colour and size found within the varous subspecies of *Paraxerus palliatus*, the reddish colour of the tail, the limbs, flanks and under parts of the body are distinguishing characters to separate this species from other squirrel species in the subregion.

Rare, Threatened or Endemic Status: This rare subspecies is listed in the Red Data Book of the Mammals of South Africa as Endangered B1, B2a, b (ii,iii,iv,v).

Distribution: *Paraxerus palliatus tongensis* seems to be restricted to north-eastern Zululand and Maputaland (including southern Moçambique), although there are some records from Zimbabwe.

Historical records and distribution in the GSLWP: Recordings exist for Cape Vidal, Eastern Shores, False Bay Park, uMkhuze, Sodwana Bay, St Lucia Game Park, Lake Bangazi South, Coastal Forest Reserve, Kosi Bay and Lake Sibaya. Although this subspecies is relatively common in areas such as Sodwana Bay and St Lucia village, it is considered rare throughout the rest of the Greater St Lucia Wetland Park.

Habitat: Coastal Dune Forest, Lowland and Dry Forests as well as riverine thickets.

Biology/Life history: *Paraxerus palliatus tongensis* is diurnal and solitary. Communication occurs by tail-fluffing and flicking, foot stomping, and scent marking by urine dribbling or anal-dragging. The main diet is nuts, berries, and wild fruits, together with a small percentage of roots, leaf and flower buds, bark and lichens. Insect remains, including termites, can be recognized in most stomach contents. This subspecies is known to give birth to litters of one or two young (after a gestation of 60 to 65 days) between the months of August and March. However, there is some evidence to show that they may have more than one litter a year.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park contains almost the entire South African population of *Paraxerus palliatus tongensis.* Ndumu Game Reserve is the only other protected area in South Africa that provides protection for this subspecies.

Threats: Habitat loss and transformation through development and other human disturbance.

Relevant survey methods: Mark re-capture studies, visual and auditory observations.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Friedmann, Y. and Daly B, (editors) 2004. *Red Data Book of the Mammals of South Africa: A Conservation Assessment*: CBSG Southern Africa, Conservation Breeding Specialist group (SSC/IUCN), Endangered Wildlife Trust. South Africa.

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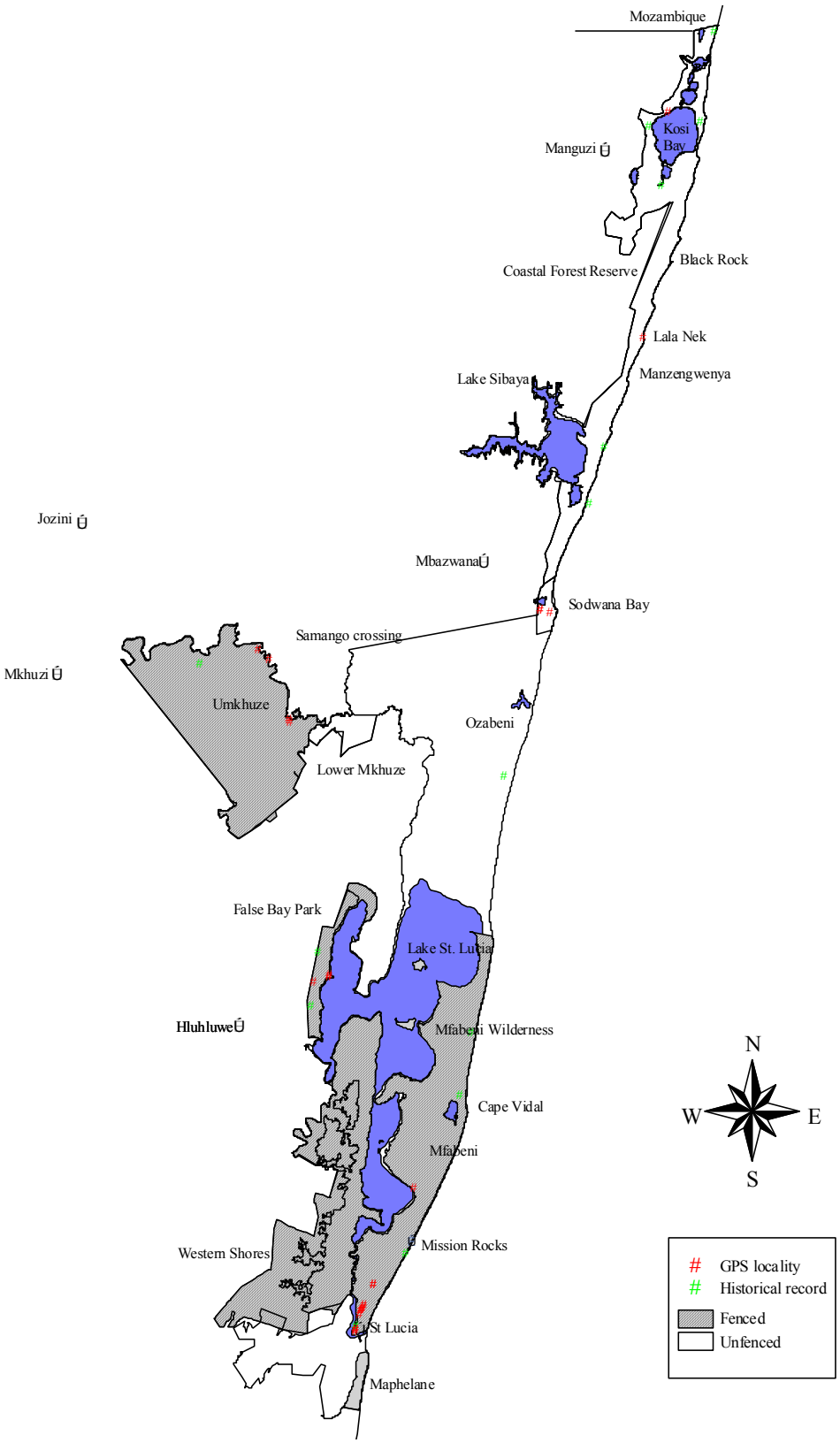
Mabuyakhulu, N. 1995. Personal communication.

10.1.3.1 Tongaland Red Squirrel



Scientific name: *Cloeotis percivali australis* **Common name:** Short-eared Trident Bat

Photo: Dr Merlin Tuttle

Description: The short-eared trident bat is the smallest of the trident and leaf-nosed bat family. The species has a total length of about 70 mm, a short tail of about 30 mm in length and a mean mass of about 4 g. They possess a three-pronged trident-like process on top of the nose leaves, a characteristic only shared with the Persian leaf-nosed bat. The face is yellowish-white. The tiny ears are rounded, showing no sign of tips and lie close to the head, almost obscured by the long fur.

Rare, Threatened or Endemic Status: This very rare bat species is listed in the Red Data Book of the Mammals of South Africa as Critically Endangered - A2,a.

Distribution: The species has been recorded in Zimbabwe, Botswana, Swaziland and South Africa. In South Africa, records are from the province previously known as the Transvaal as well as KwaZulu-Natal. It is known to occur as far north as Kenya with the GSLWP being its southernmost distribution. Records show that although they occur over a wide range from South Africa to Kenya, their distribution is restricted to smaller areas within the range.

Historical records and distribution in the GSLWP: The only record of this species in the GSLWP was a specimen found by a staff member at the Ecologist house in uMkhuze, near Mantuma camp.

Habitat: Not much is known about their habitat requirements, but it is presumed they occur in savannah areas where sufficient cover is present in the form of caves and mine-tunnels for day roosting.

Biology/Life history: *C. p. australis* are gregarious occurring in colonies ranging from a few individuals to hundreds. They are insectivorous, and in Zimbabwe pregnant females were collected in October. Females with young were recorded in early December at Jozini Dam in KwaZulu-Natal.

Importance of the GSLWP for its conservation: The species has been recorded at only 15 localities in southern Africa, two in KwaZulu-Natal. uMkhuze, the only protected area in KZN where the species has been recorded, is thus critically important for the conservation of the species.

Threats: Loss of habitat as a result of agricultural practices. General persecution of bats due to negative public perception and superstition.

Relevant survey methods: Sound recordings of echo location. This species is notoriously difficult to catch in mist nets, but a harp trap could be used.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Friedmann, Y. and Daly B, (editors) 2004. *Red Data Book of the Mammals of South Africa: A Conservation Assessment*: CBSG Southern Africa, Conservation Breeding Specialist group (SSC/IUCN), Endangered Wildlife Trust. South Africa.

Skinner, J. D. and Smithers, R. H., 1990. *The Mammals of the Southern African Sub-region*. University of Pretoria, Pretoria.

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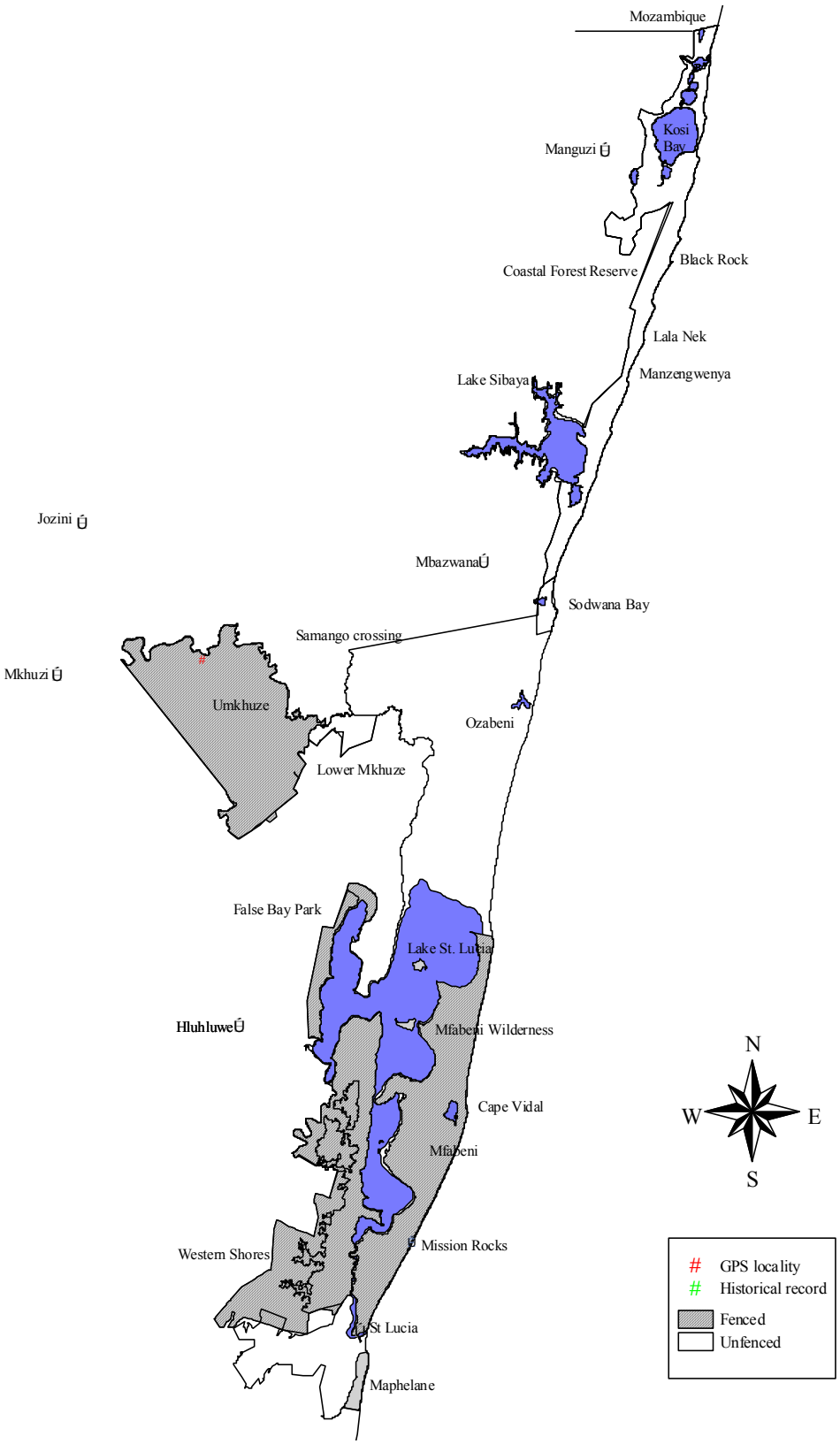
Taylor, J. P. 2000. *Bats of Southern Africa. Guide to Biology, Identification and Conservation*. University of Natal Press.

10.1.3.2 Short-eared Trident Bat



Scientific name: *Lycaon pictus* **Common name:** African Wild Dog

Photo: Steve Slater

Description: Unmistakable with characteristic features like rounded ears, long legs, prominent white-tipped tail and a blotched yellow, black and white shaggy coat. Each individual dog can be recognised by its unique pattern.

Rare, Threatened or Endemic Status: This very rare species is listed in the Red Data Book of the Mammals of South Africa as Endangered D.

Distribution: There has been a dramatic reduction in the species distribution throughout its range, especially in the subregion, where early records indicated a wide distribution. Wild dogs today are restricted to the larger protected areas in southern Africa.

Historical records and distribution in the GSLWP: In May 2005, a pack of thirteen wild dogs was reintroduced in the uMkhuze section of the Greater St Lucia Wetland Park. This pack consisted of one female and her seven (6-month old) pups from Marakele National Park and five males (brothers, from same parents but possibly different litters) from Madikwe Game Reserve. Sightings and one mortality have been reported of a small pack of vagrant wild dogs on the Western Shores.

Habitat: *L. pictus* rely on sight rather than smell when hunting and therefore they are partial to relatively open areas. They are associated with open savanna woodland and open plains.

Biology/Life history: Wild dogs are diurnal and gregarious. The pack is an efficient, well coordinated hunting unit with interdependent members. Within the structure of the pack, the young occupy a particularly privileged position with pack members bringing food back or regurgitating food for them.

Importance of the GSLWP for its conservation: Wild dogs need large protected areas to function as viable populations. Although the uMkhuze section of the GSLWP is still fenced, in future years this section might be joined to the rest of the Park, which will create one of the largest protected areas in South Africa for the conservation of wild dog. Currently, the wild dog population in uMkhuze could play an important role in the viability of the South African population through metapopulation management (gene exchange between protected areas).

Threats: Dogs getting caught and killed in snares within protected areas. Stray dogs being killed by farmers on private land. Small populations might be at risk of inbreeding depression, which necessitates metapopulation management.

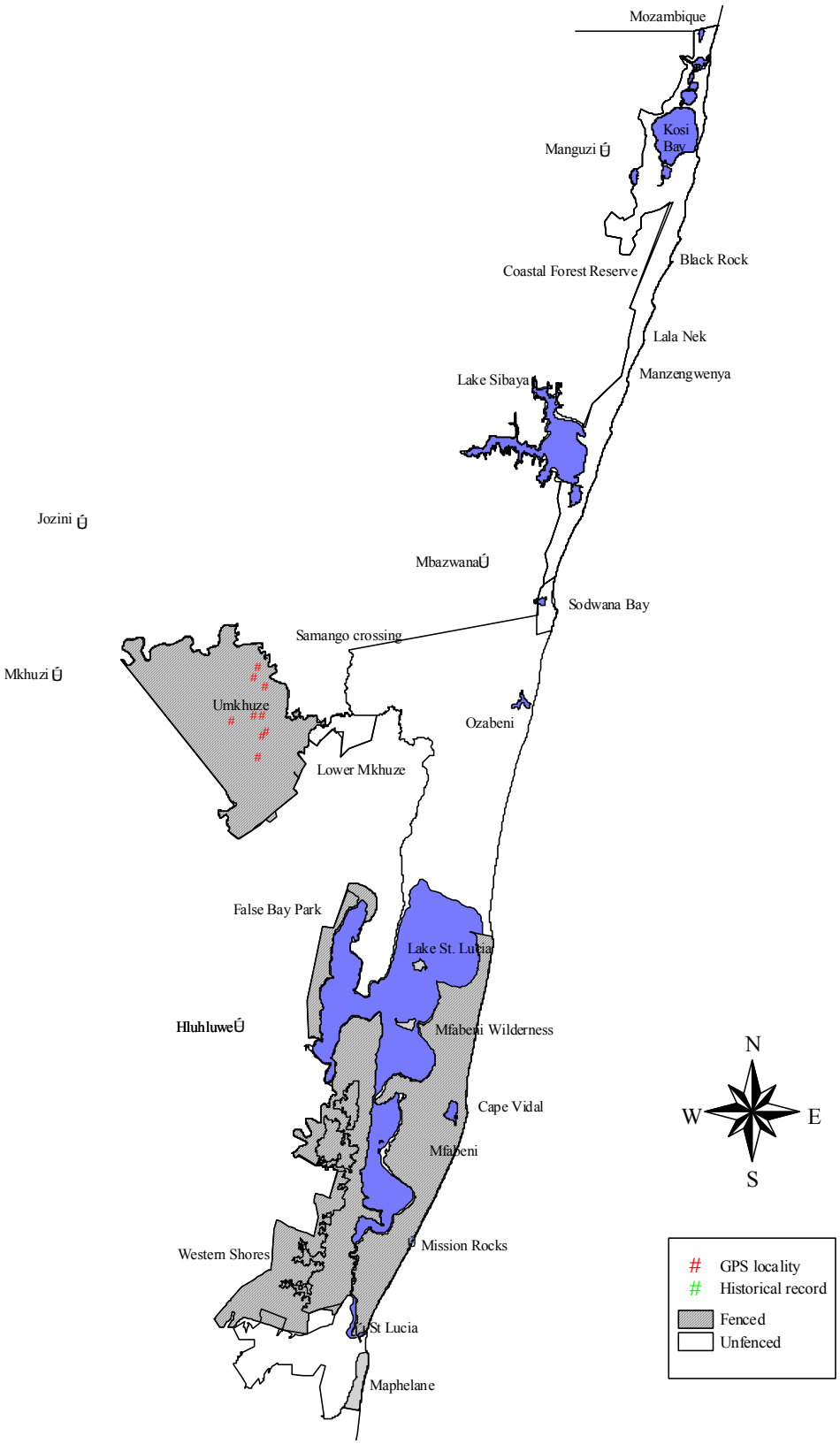
Relevant survey methods: Radio-telemetry. Due to unique skin pattern, individuals can be identified and a photographic database compiled. This method has been used in a number of large protected areas where telemetry is not viable.

Estimate population size/abundance in the GSLWP: Eight adults and four (eight-month old) puppies.

References:

Skinner, J. D. and Smithers, R. H., 1990. *The Mammals of the Southern African Sub-region*. University of Pretoria, Pretoria.
Wikem, Christopher. uMkhuze Wild Dog Monitoring Programme. Unpublished data.

10.1.3.3 African Wild Dog



Scientific name: *Myotis bocagei* **Common name:** Rufous Mouse-eared Bat

Photo: Xander Combrink

Description: This is one of the most beautiful of all bat species, with a striking coppery-red colouration above, while the underparts are paler off-white, washed with coppery-red. The ears are almost black, short and sickle-shaped, the wings and tail membrane are dark.

Rare, Threatened or Endemic Status: This rare species is listed in the Red Data Book of the Mammals of South Africa as Data Deficient.

Distribution: Although *M. bocagei* has been recorded in southwestern Arabia and in parts of western and central Africa, distribution records are poorly represented in the eastern and southern parts of their range. In the southern African subregion, localised records exist for the eastern districts of Zimbabwe and in the Pafuri and Skukuza region of Kruger National Park. In 2003, recordings were made at St Lucia village, Futululu Forest Station and in the Mkhuze River of the GSLWP.

Historical records and distribution in the GSLWP: In April and May 2003, this species was recorded in St Lucia village and at the Futululu Forest station in Dukuduku Forest. In September of the same year, the RTES project caught seven individuals in the Mkhuze River. The new records extended the known distribution some 300 km southwards.

Habitat: The west African subspecies (*M. b. cupreolus*) is a forest species. The subspecies occurring in the southern African subregion is associated predominately with open savanna woodland, but has also been found in riverine and lowland forest habitat.

Biology/Life history: *M. bocagei* roost during the day in hollow trees, in the leaves of *Hyphaene* palms or in banana trees. They are insectivorous bats. Although the GSLWP RTES Project team has mist-netted seven individuals flying in formation in the Mkhuze River, they are normally believed to be solitary and to roost individually or in pairs. In the Democratic Republic of the Congo they are known by the local people as the "big red brother" of the banana bat, *Neoromicia nanus*, as both occur together in bunches of bananas. No information on specific diet or reproduction is available for the subregion and very little is known of the biology of this species. They appear to be very sensitive to disturbance and are generally absent from villages and towns.

Importance of the GSLWP for its conservation: Although the Greater St Lucia Wetland Park is at the southern most tip of this species global distribution, it is an important protected area for the South African population of this very charismatic bat species.

Threats: Habitat loss through development and other human disturbances.

Relevant survey methods: Mist-netting and the recording of high frequency, ultrasonic clicks and squeaks emitted through the mouth or nostrils (echolocation) of insect-eating bats as well as the Egyptian Fruit Bat.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Friedmann, Y. and Daly B, (editors) 2004. *Red Data Book of the Mammals of South Africa: A Conservation Assessment*: CBSG Southern Africa, Conservation Breeding Specialist group (SSC/IUCN), Endangered Wildlife Trust. South Africa.
Skinner, J. D. and Smithers, R. H., 1990. *The Mammals of the Southern African Sub-region*. University of Pretoria, Pretoria.
Taylor, J. P. 2000. *Bats of Southern Africa. Guide to Biology, Identification and Conservation*. University of Natal Press.
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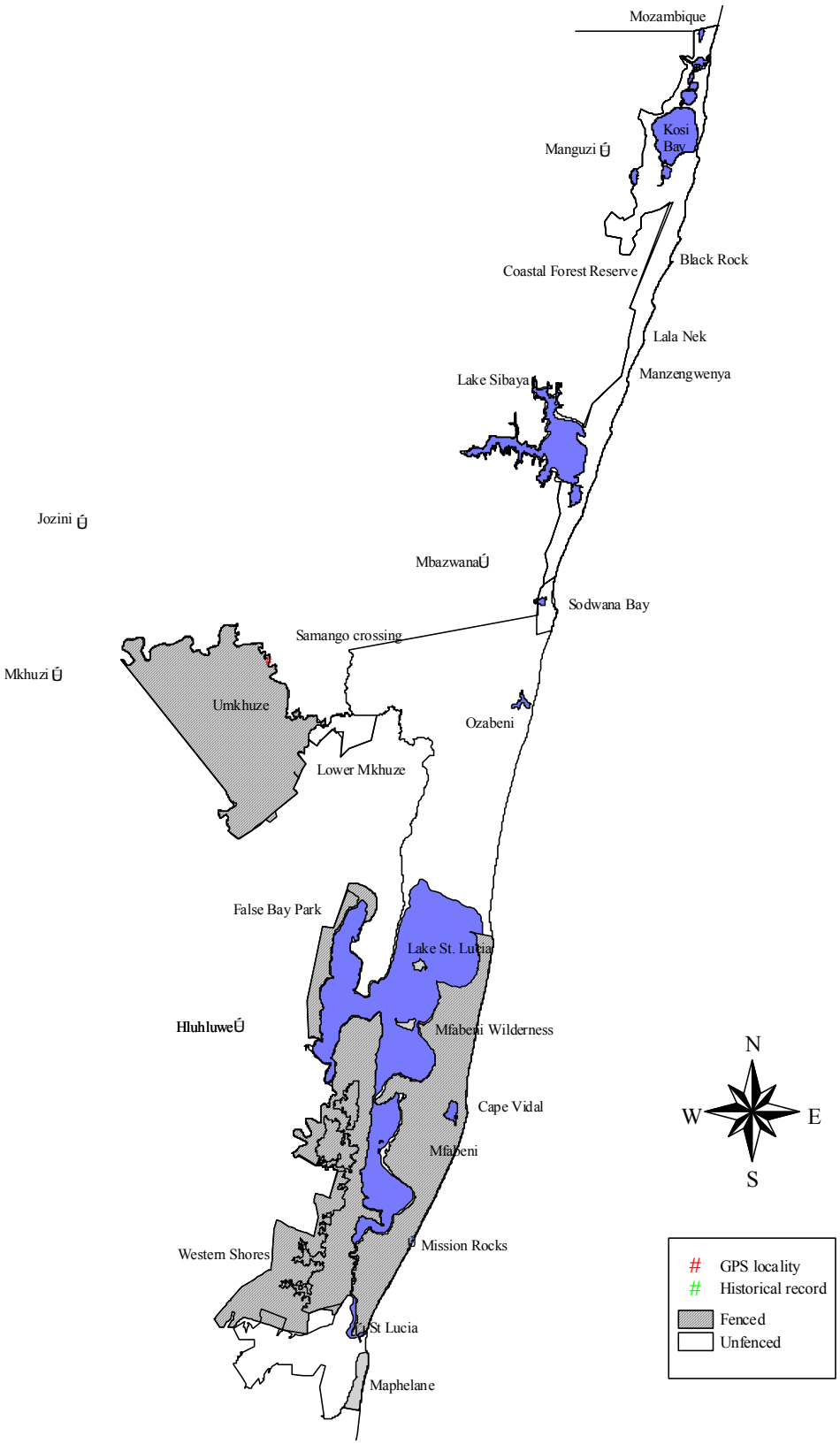
10.1.3.4 Rufous Mouse-eared Bat



Scientific name: *Damaliscus lunatus lunatus* **Common name:** Tsessebe

Photo: Lesley Davies

Description: The Tsessebe is a large antelope, about 1.2 m high at the shoulder. The colouration is bright reddish with a pronounced sheen and conspicuous purple blotches or wash on forehead, snout and upper limbs. The colouring is lighter on back and rump than on underparts, increasing conspicuousness. The horns have a weak outward curve and are relatively short.

Rare, Threatened or Endemic Status: A very rare species that is listed in the Red Data Book of the Mammals of South Africa as Endangered A2ac, C2a(i).

Distribution: Wide but scattered and discontinuous distribution from Senegal to eastern Ethiopia and southwards to the eastern Transvaal. The disappearance of *D. lunatus* from much of their former south-central African range over the past 150 years appears to exceed that of any other antelope in the region.

Historical records and distribution in the GSLWP: There are reports from 1925 of a last surviving herd north of Lake St Lucia and earlier occurrences (1920) at Mhlosinga and south of the Nyalazi River. In 2003 a breeding herd of 15 animals were released on the Ndlozi Peninsula of the Greater St Lucia Wetland Park. Two individuals crossed the dry lake in January 2006 and have settled near the Nkazana Stream on the Eastern Shores.

Habitat: Tsessebe are grazers, and the habitat needs to include the availability of shelter and water. It seems that they are highly dependent on open surface water within an open woodland habitat and that bush encroachment accounts for much of the reduction in range and numbers.

Biology/Life history: *D. l. lunatus* are gregarious, occurring in small herds. Their social organisation includes the presence of territorial males, breeding herds and bachelor groups. They are seasonal breeders with rutting activity commencing in late January (KNP) and the bulk of the calf crop is born in October. One young is born after a gestation period of 8 months with a weight of 10-12 kg. They are exclusive grazers, selective for palatable grass species at younger stages, removing peripheral leaves of tussocks down to 50-100 mm.

Importance of the GSLWP for its conservation: Although the population in the GSLWP is small, the total South African population is estimated at 1 100 individuals, so all subpopulations are important for the conservation of the species in South Africa.

Threats: Inbreeding. If artificial waterpoints are provided in a protected area with large predators, great care must be taken not to facilitate high predation on Tsessebe. Uncontrolled fires, and bush encroachment.

Relevant survey methods: Aerial surveys. A small population can be intensely monitored on foot/vehicle throughout the year.

Estimate population size/abundance in the GSLWP: Fifteen Tsessebe were released on the Western Shores in July 2003 and the current population is estimated at 18.

References:

Cotterill, F.P.D. 2003. A biogeographical review of Tsessebe antelopes Damaliscus lunatus (Bovidae: Alcelaphini) in south-central Africa. Durban Museum Novitates. Vol. 28. 45-55.
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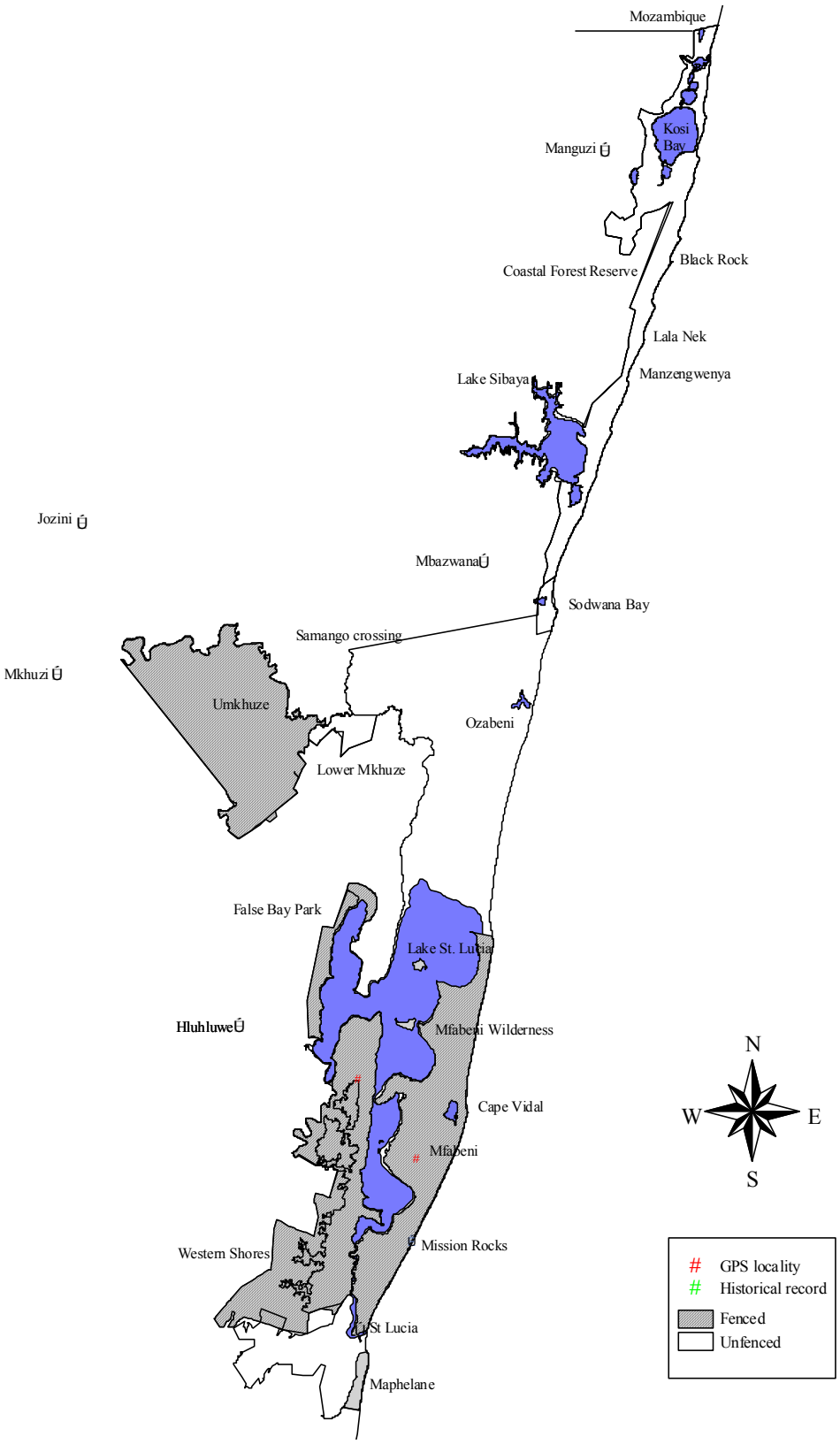
10.1.3.5 Tsessebe



10.2 BIRDS

10.2.1 Flagship species

- Greater Flamingo (*Phoenicopterus ruber*)
- White Pelican (*Pelecanus onocrotalus*)
- Pinkbacked Pelican (*Pelecanus rufescens*)

10.2.2 Focal species

- Southern Banded Snake Eagle (*Circaetus fasciolatus*)
- Pel's Fishing Owl (*Scotopelia peli*)
- Natal Nightjar (*Caprimulgus natalensis*)

10.2.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
1	*Sarothrura ayresi*	Flufftail, Whitewinged	4	5		4	13
2	*Caprimulgus natalensis*	Nightjar, Natal	4	3	1	4	12
3	*Zoothera guttata*	Thrush, Spotted Groud	4	4		2	10
4	*Turnix hottentotta*	Buttonquail, Blackrumped	5	4		1	10
5	*Circaetus fasciolatus*	Eagle, Southern Banded Snake	5	3		2	10
6	*Halcyon senegaloides*	Kingfisher, Mangrove	4	3		2	9
7	*Ephippiorhynchus senegalensis*	Stork, Saddlebilled	4	4		1	9
8	*Pelecanus rufescens*	Pelican, Pinkbacked	3	3		2	8
9	*Geronticus calvus*	Ibis, Bald	1	3	2	1	7
10	*Scotopelia peli*	Owl, Pel's Fishing	3	3		1	7
11	*Gyps africanus*	Vulture, African Whitebacked	2	3		1	6
12	*Trigonoceps occipitalis*	Vulture, Whiteheaded	2	3		1	6
13	*Lioptilus nigricapillus*	Blackcap, Bush	2	1	2	1	6
14	*Podica senegalensis*	Finfoot, African	2	3		1	6
15	*Gyps coprotheres*	Vulture, Cape	1	3		1	5
16	*Macronyx ameliae*	Longclaw, Pinkthroated	3	1		1	5
17	*Torgos tracheliotus*	Vulture, Lappetfaced	1	3		1	5
18	*Gorsachius leuconotus*	Heron, Whitebacked Night	1	3		1	5
19	*Nettapus auritus*	Goose, Pygmy	3	1		1	5
20	*Bucorvus leadbeateri*	Hornbill, Southern Ground	2	3			5
21	*Polemaetus bellicosus*	Eagle, Martial	1	3		1	5
22	*Microparra capensis*	Jacana, Lesser	3	1		1	5
23	*Neotis denhami*	Bustard, Stanley's	1	3		1	5
24	*Terathopius ecaudatus*	Bateleur	1	3		1	5
25	*Pelecanus onocrotalus*	Pelican, White	2	1		2	5
26	*Aquila rapax*	Eagle, Tawny	1	3		1	5
27	*Phoenicopterus minor*	Flamingo, Lesser	2	1		2	5
28	*Necrosyrtes monarchus*	Vulture, Hooded	1	3		1	5
29	*Circus ranivorus*	Harrier, African Marsh	1	3		1	5
30	*Glareola pratincola*	Pratincole, Redwinged	2	1		1	4
31	*Morus capensis*	Gannet, Cape		3		1	4
32	*Smithornis capensis*	Broadbill, African	2	1		1	4
33	*Tyto capensis*	Owl, Grass		3		1	4
34	*Anthus brachyurus*	Pipit, Shorttailed		3		1	4
35	*Phoenicopterus ruber*	Flamingo, Greater	1	1		2	4
36	*Spheniscus demersus*	Penguin, Jackass		3		1	4
37	*Falco naumanni*	Kestrel, Lesser		3		1	4

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
38	*Balearica regulorum*	Crane, Crowned	2	1		1	4
39	*Crex crex*	Corncrake		3		1	4
40	*Gypohierax angolensis*	Vulture, Palmnut	2			1	3
41	*Ciconia nigra*	Stork, Black	1	1		1	3
42	*Hydroprogne caspia*	Tern, Caspian	1	1		1	3
43	*Aquila nipalensis*	Eagle, Steppe	2			1	3
44	*Hieraaetus pennatus*	Eagle, Booted	2			1	3
45	*Anastomus lamelligerus*	Stork, Openbilled	1	1		1	3
46	*Hypargos margaritatus*	Twinspot, Pinkthroated	2			1	3
47	*Leptoptilos crumeniferus*	Stork, Marabou	1	1		1	3
48	*Aquila wahlbergi*	Eagle, Wahlberg's	2			1	3
49	*Strix woodfordii*	Owl, Wood	2			1	3
50	*Platysteira peltata*	Flycatcher, Wattle-eyed	1	1		1	3
51	*Rostratula benghalensis*	Snipe, Painted	1	1		1	3
52	*Pandion haliaetus*	Osprey	2			1	3
53	*Serinus citrinipectus*	Canary, Lemonbreasted	1	1		1	3
54	*Sagittarius serpentarius*	Secretarybird	1	1		1	3
55	*Tchagra tchagra*	Tchagra, Southern			2	1	3
56	*Macrodipteryx vexillaria*	Nightjar, Pennantwinged	2			1	3
57	*Macheiramphus alcinus*	Hawk, Bat	1	1		1	3
58	*Poicephalus cryptoxanthus*	Parrot, Brownheaded	1			1	2
59	*Clamator levaillantii*	Cuckoo, Striped	1			1	2
60	*Charadrius pallidus*	Plover, Chestnutbanded		1		1	2
61	*Polyboroides typus*	Gymnogene	1			1	2
62	*Circaetus cinereus*	Eagle, Brown Snake	1			1	2
63	*Columba delegorguei*	Pigeon, Delegorgue's	1			1	2
64	*Coracias naevia*	Roller, Purple	1			1	2
65	*Ciconia episcopus*	Stork, Woollynecked		1		1	2
66	*Circaetus gallicus*	Eagle, Blackbreasted Snake	1			1	2
67	*Ceuthmochares aereus*	Coucal, Green	1			1	2
68	*Hieraaetus fasciatus*	Eagle, African Hawk	1			1	2
69	*Buteo buteo*	Buzzard, Steppe	1			1	2
70	*Schoenicola brevirostris*	Warbler, Broadtailed		1		1	2
71	*Bubo lacteus*	Owl, Giant Eagle	1			1	2
72	*Bubo africanus*	Owl, Spotted Eagle	1			1	2
73	*Batis fratrum*	Batis, Woodwards'		1		1	2
74	*Asio capensis*	Owl, Marsh	1			1	2
75	*Tockus alboterminatus*	Hornbill, Crowned	1			1	2
76	*Apaloderma narina*	Trogon, Narina	1			1	2
77	*Apalis ruddi*	Apalis, Rudd's		1		1	2
78	*Tyto alba*	Owl, Barn	1			1	2
79	*Vanellus melanopterus*	Plover, Blackwinged		1		1	2
80	*Centropus bengalensis*	Coucal, Black		1		1	2
81	*Nectarinia neergaardi*	Sunbird, Neergaard's		1		1	2
82	*Kaupifalco monogrammicus*	Buzzard, Lizard	1			1	2
83	*Ixobrychus minutus*	Bittern, Little	1			1	2
84	*Alcedo cristata*	Kingfisher, Malachite	1			1	2
85	*Hieraaetus ayresii*	Eagle, Ayres'		1		1	2
86	*Halcyon senegalensis*	Kingfisher, Woodland	1			1	2
87	*Halcyon chelicuti*	Kingfisher, Striped	1			1	2
88	*Haematopus moquini*	Oystercatcher, African Black	1			1	2
89	*Corvinella melanoleuca*	Shrike, Longtailed	1			1	2
90	*Mycteria ibis*	Stork, Yellowbilled		1		1	2

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
91	*Plegadis falcinellus*	Ibis, Glossy	1			1	2
92	*Nycticorax nycticorax*	Heron, Blackcrowned Night	1			1	2
93	*Eupodotis melanogaster*	Korhaan, Blackbellied		1		1	2
94	*Otus senegalensis*	Owl, Scops	1			1	2
95	*Falco subbuteo*	Falcon, Hobby	1			1	2
96	*Falco peregrinus*	Falcon, Peregrine		1		1	2
97	*Falco concolor*	Falcon, Sooty	1			1	2
98	*Falco biarmicus*	Falcon, Lanner		1		1	2
99	*Otus leucotis*	Owl, Whitefaced	1			1	2
100	*Phalacrocorax capensis*	Cormorant, Cape		1		1	2
101	*Pernis apivorus*	Buzzard, Honey	1			1	2
102	*Egretta ardesiaca*	Egret, Black	1			1	2
103	*Ispidina picta*	Kingfisher, Pygmy	1				1
104	*Merops hirundineus*	Bee-eater, Swallowtailed	1				1
105	*Aviceda cuculoides*	Hawk, Cuckoo	1				1
106	*Mandingoa nitidula*	Twinspot, Green	1				1

Eastern Shores Wilderness of Lake St Lucia

Pygmy Kingfisher *Ispidina picta*

Scientific name: *Caprimulgus natalensis* **Common name:** Natal Nightjar

Photos: James Wakelin

Description: A small to medium sized bird with a very small bill, which has tubular nostrils and a very wide gape. The legs and feet are very small and weak and characteristic of the middle claw is the presence of combelike teeth. The eyes are very large, the wings long and pointed and the plumage is highly cryptic. As a result of small differences in appearance between the different species of nightjars, it is best to use an "in-hand" key to identify the species. For the Natal nightjar, apical patches are present on tail feathers 4 and 5, and the centre of the bar on the inner web of primary feather no. 9 is below or opposite the flexure point of emargination. The tarsus and middle toe is longer than 45 mm.

Rare, Threatened or Endemic Status: This species is listed in the Red Data Book of Birds of South Africa, Lesotho and Swaziland as Vulnerable B1+2c; C1; C2a.

Distribution: *C. natalensis* is found in Africa, south of the Sahara. In southern Africa, it occurs in southern Moçambique, Caprivi and north Botswana, marginally to Zimbabwe and on the southern bank of the Zambezi River, above Katombora rapids. In South Africa, their distribution is highly localised, restricted to the littoral coastal plain of northern KZN, from Mtunzini to Kosi Bay.

Historical records and distribution in the GSLWP: St Lucia village, Eastern shores of Lake St Lucia, Mkhuze Swamps, Kosi Bay, Manzengwenya and Lake Sibaya.

Habitat: Moist edges of lowland and coastal lagoons, swamps and vleis, often in the vicinity of *Hyphaene coriacea* and *Phoenix reclinata* palms.

Biology/Life history: *C. natalensis* is a rare resident that occur singly and in pairs in moist coastal grassland where it shelters during the day in grasses or ferns. Due to its crepuscular habits, it hunts flying insects during dawn and dusk by flying low over the ground. It breeds in early summer, does not build a nest but will lay two eggs on the bare ground, usually in the shelter of a small bush or tuft of grass. The eggs are pale pinkish white or off-white, slightly marked with slate grey. Incubation is unrecorded.

Importance of the GSLWP for its conservation: With the exception of a few birds at Lake Eteza Nature Reserve, almost the entire South African population is contained within the GSLWP and therefore the Park plays a critical role in the future viability of the species in South Africa.

Threats: The main threats are loss if habitat to agriculture and forestry, habitat degradation caused by frequent burning and excessive grazing and habitat loss due to recreation areas and coastal development.

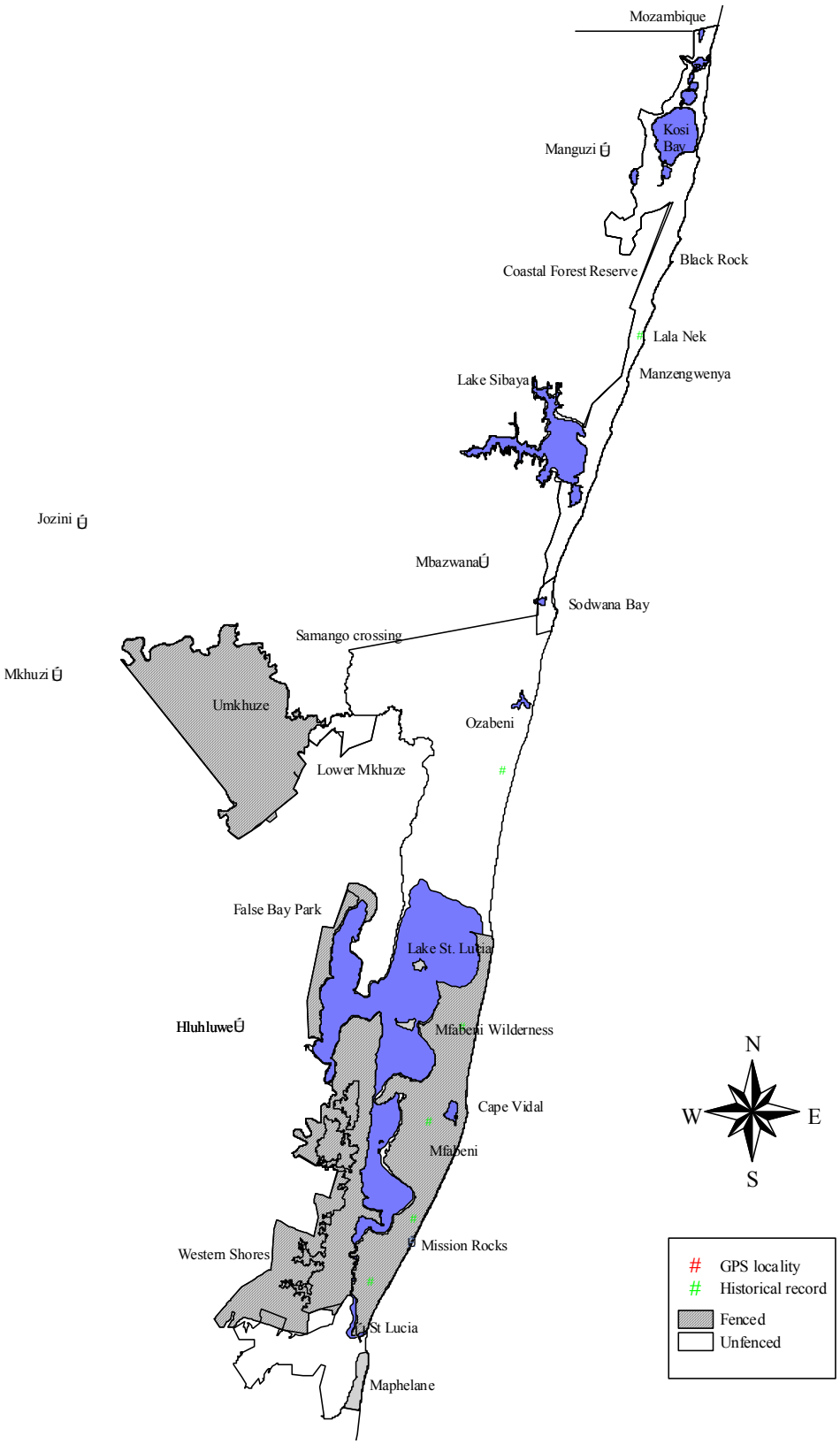
Relevant survey methods: Mist netting, sound recording of calls, catching birds with a hand net and spotlight along road transects to obtain an index of relative abundance.

Estimate population size/abundance in the GSLWP: The South African population is estimated at less than 1000 individuals.

References:

Barnes, K. N. 2000. (Ed.) *The Eskom Red Data Book of Birds of South Africa, Lesotho and S*waziland. Birdlife South Africa. ADU. Ince Cape. Cape Town.
Maclean, G. L. 1993. *Roberts' Birds of Southern Africa*. 6th Edition. CTP Book Printers. Cape Town.
O'Dell, L. 2006. Personal communication.
Wakelin, J. 2006. Personal communication.

10.2.3.1 Natal Nightjar



Scientific name: *Zoothera guttata* **Common name:** Spotted Ground Thrush

Photo: Guy Gibbon

Description: A smallish bird, brown above with two black and white wingbars, which is diagnostic. The face is white with a black border around the ear coverts. The breast and belly are white with heavy black spots.

Rare, Threatened or Endemic Status: This species is listed in the Red Data Book of Birds of South Africa, Lesotho and Swaziland as Endangered B1+2c,e; C2a.

Distribution: *Z. guttata* has an extremely fragmented range in Africa, extending discontinuously from South to east Africa. Of the five known subspecies, *Z.g. guttata* has the largest population and is an altitudinal migrant endemic to South Africa. This subspecies occurs at scattered coastal localities from Cove Rock in the Eastern Cape to the Greater St Lucia Wetland Park.

Historical records and distribution in the GSLWP: Recorded only in the GwalaGwala Forest in St Lucia village.

Habitat: Mature coastal and lowland evergreen forests, coastal scarp forest, dune forest, secondary growth and occasionally in suburban gardens. Breeding takes place in large patches of mature forest with a closed canopy and relative open lower strata.

Biology/Life history: *Z.g. guttata* is usually solitary, but is sometimes found in loose groups. It is an elusive bird, which is seldom seen as it forages on the forest floor amongst leaf litter. A large proportion of the southern breeding population (from Eastern Cape) undertake a littoral migration northwards and spend the non-breeding season in central coastal KZN. There is also evidence of an altitudinal migration in the northern KwaZulu-Natal breeding population, with some birds spending the winter in coastal forests along the KwaZulu-Natal north coast. Breeding success is low and nest predation of the eggs accounts for almost half of the mortalities. A possible reason is that the conspicuous nest and greenish-blue eggs afford minimal camouflage.

Importance of the GSLWP for its conservation: Although the GSLWP lies at the northern tip of this species distribution, as a result of its large size and suitable protected habitat it could play an important role in the viability of the species in South Africa.

Threats: Historically, this species suffered an extensive range reduction in KwaZulu-Natal and further clearing and alteration of forests is a threat. During migration, many birds are killed at night by colliding with buildings.

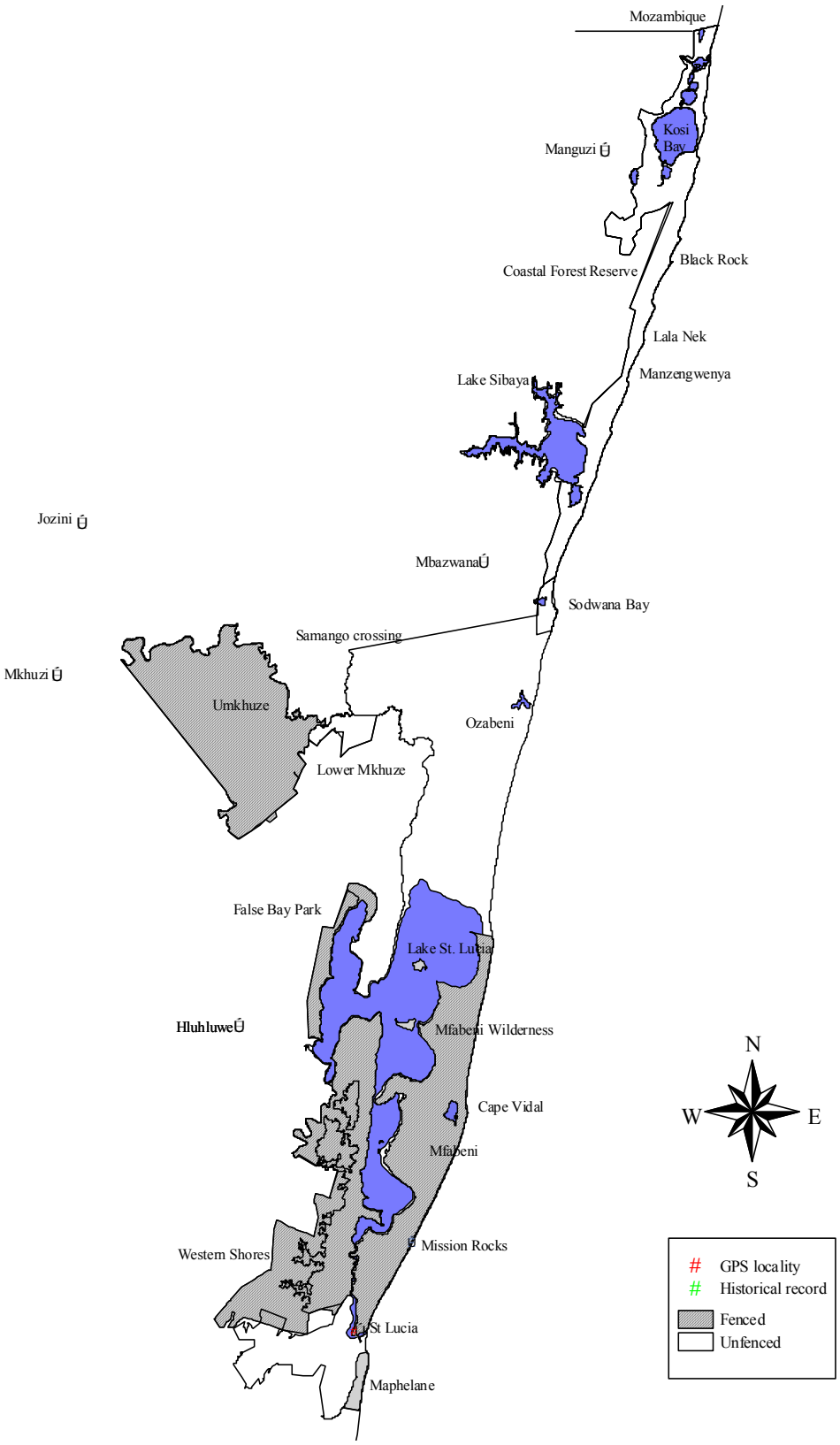
Relevant survey methods: Active searches in suitable habitats. Mist netting and fixed point counts of birds in specific areas to obtain an index of relative abundance.

Estimate population size/abundance in the GSLWP: The South African population is estimated between 400-800 breeding pairs but the population within the GSLWP is unknown.

References:

Barnes, K. N. 2000. (Ed.) *The Eskom Red Data Book of Birds of South Africa, Lesotho and S*waziland. Birdlife South Africa. ADU. Ince Cape. Cape Town.
Maclean, G. L. 1993. *Roberts' Birds of Southern Africa*. 6th Edition. CTP Book Printers. Cape Town.
Fox, C. 2006. Personal communication.
O'Dell, L. 2006. Personal communication.

10.2.3.2 Spotted Ground Thrush



Scientific name: *Turnix hottentotta* **Common name:** Blackrumped Buttonquail

Photo: Peter Ginn

Description: A small bird with a quail-like appearance. The bill is short, slender and arched with a short neck, stout body and short legs. The hind toe is absent. This species is not easy to identify in the field, being superficially similar to the much commoner Kurrichane Buttonquil. The black rump in flight is diagnostic compared to the Kurrichane Buttonquil. The sides of the face are rufous, the flanks have small spots and the eye is dark. Immature birds are spotted across the chest.

Rare, Threatened or Endemic Status: This very rare species is listed in the Red Data Book of Birds of South Africa, Lesotho and Swaziland as Endangered C2a.

Distribution: This poorly known and secretive species occurs from Senegal east to Kenya and south to Angola, Zambia, Zimbabwe and eastern South Africa. Two races are recognised in South Africa, of which the race *nana* occurs in the northernmost Eastern Cape, eastern Mpumalanga and KwaZulu-Natal.

Historical records and distribution in the GSLWP: This species is found in the Ozabeni section of the Greater St Lucia Wetland Park, where it breeds. For three years subsequent to Cyclone Demoina it was frequently seen in this area.

Habitat: *T. hottentotta* occurs in grassland and savanna. In South Africa, breeding occurs in quite sparse, dry *Sporobolus* grass < 1 m tall with open patches, knee-high *Themeda* veld and moist *Themeda/Tristachya/Trachypogon/Aristida* grassland around coastal marches. .

Biology/Life history: The *nana* race seems to be a summer migrant to breeding areas in Zimbabwe, but on the KwaZulu-Natal coastal plain, it occurs in winter and early summer.

Importance of the GSLWP for its conservation: Very important, as it contains large areas of suitable habitat.

Threats: Destruction of grassland habitat through overgrazing, excessive burning, trampling by livestock, commercial afforestation, crop farming and human settlements.

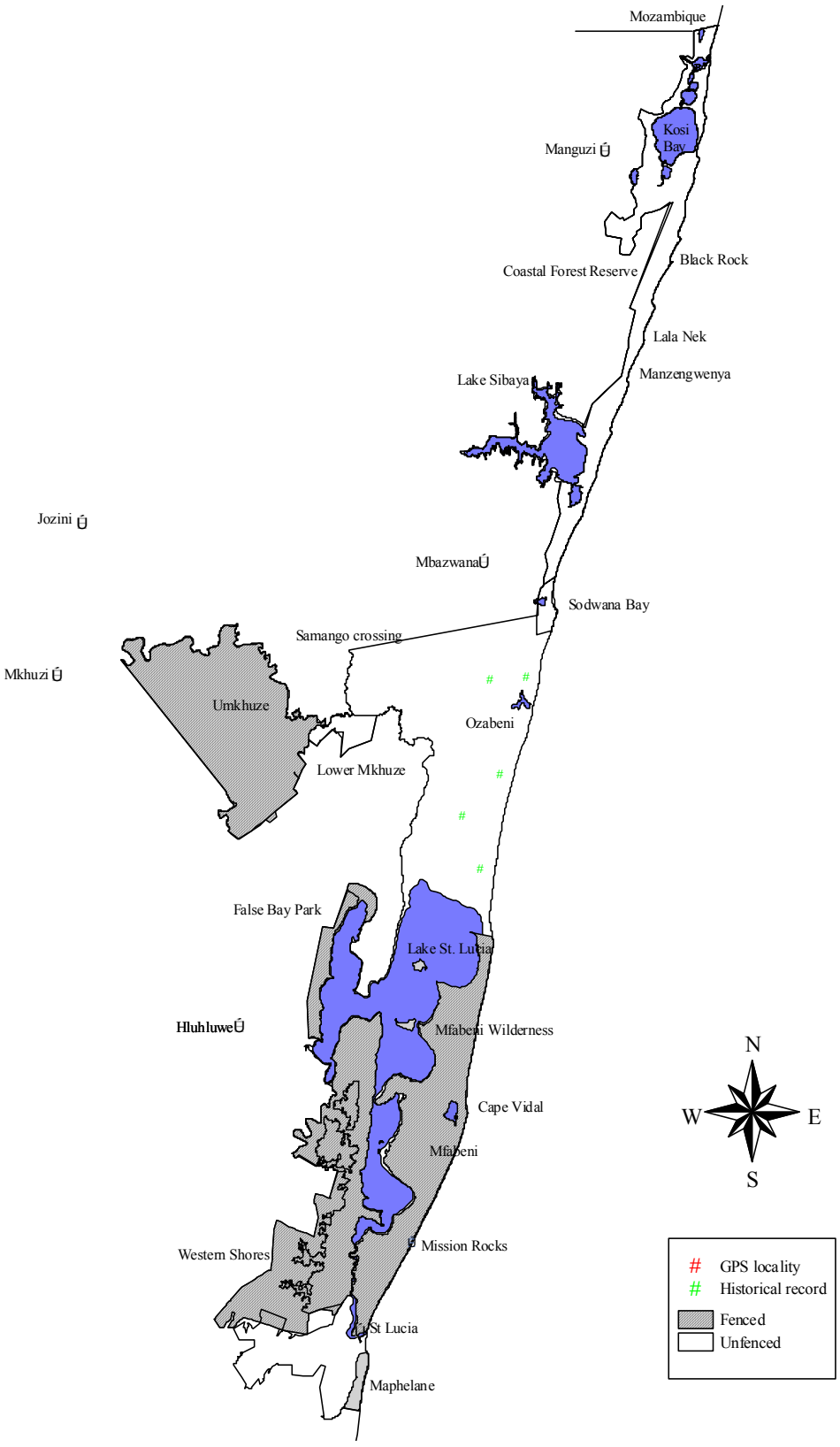
Relevant survey methods: Active searches and possible call-ups in suitable habitats.

Estimate population size/abundance in the GSLWP: Unknown. The South African population of the race *nana* is estimated at less than 1, 000 birds.

References:

Barnes, K. N. 2000. (Ed.) *The Eskom Red Data Book of Birds of South Africa, Lesotho and S*waziland. Birdlife South Africa. Cape Town.
Maclean, G. L. 1993. *Roberts' Birds of Southern Africa*. 6th Edition. CTP Book Printers. Cape Town.
Ginn, Peter. 2006. Photographic record.

10.2.3.3 Blackrumped Buttonquail



Scientific name: *Circaetus fasciolatus* **Common name:** Southern Banded Snake Eagle

Photo: Hugh Chittenden

Description: A medium size snake eagle, greyish brown with white barring from lower breast to belly and thighs. The tail is longish and extends well beyond the wingtips when at rest. The eyes are pale yellow. In flight the tail shows three dark bars and two white bars, hence the Afrikaans name, Dubbelbandslangarend. The underwing is whitish, barred with blackish and with a dark trailing edge.

Rare, Threatened or Endemic Status: This rare species is listed in the Red Data Book of Birds of South Africa, Lesotho and Swaziland as Vulnerable F1.

Distribution: From southern Somalia, Kenya to the southeast lowlands and Chipinga uplands of Zimbabwe and eastern coastal woodlands of northern KwaZulu-Natal. This poorly known eagle occurs only in five countries in the world. It was collected in Durban in the first decade of the 19th century, but is no longer recorded south of Mtunzini.

Historical records and distribution in the GSLWP: Recorded near the Anti-Poaching staff complex on the Eastern Shores, next to the Cape Vidal road, at the Bafazana Pans (Eastern Shores), Samango crossing (Ozabeni), on the edge of the GwalaGwala Forest (St Lucia village) and in St Lucia village. Also recorded in the uMkhuze section and Mkuzi Swamps of the Greater St Lucia Wetland Park.

Habitat: Lowland evergreen forest, coastal dune forest, riverine forest and scrub, but will use alien trees in its range.

Biology/Life history: Although generally a resident species, migrations are thought to occur between July-October from northern KZN to Zimbabwe and Kenya. Immatures disperse in search of breeding territories.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park is host to between 60 and 80 percent of the total South African population, making it an extremely important protected area for the survival and viability of this species in South Africa. This species requires large areas of coastal forest and dense woodlands for its survival as a breeding species.

Threats: Habitat loss through the destruction and fragmentation of large coastal and riverine forests in northern KwaZulu-Natal.

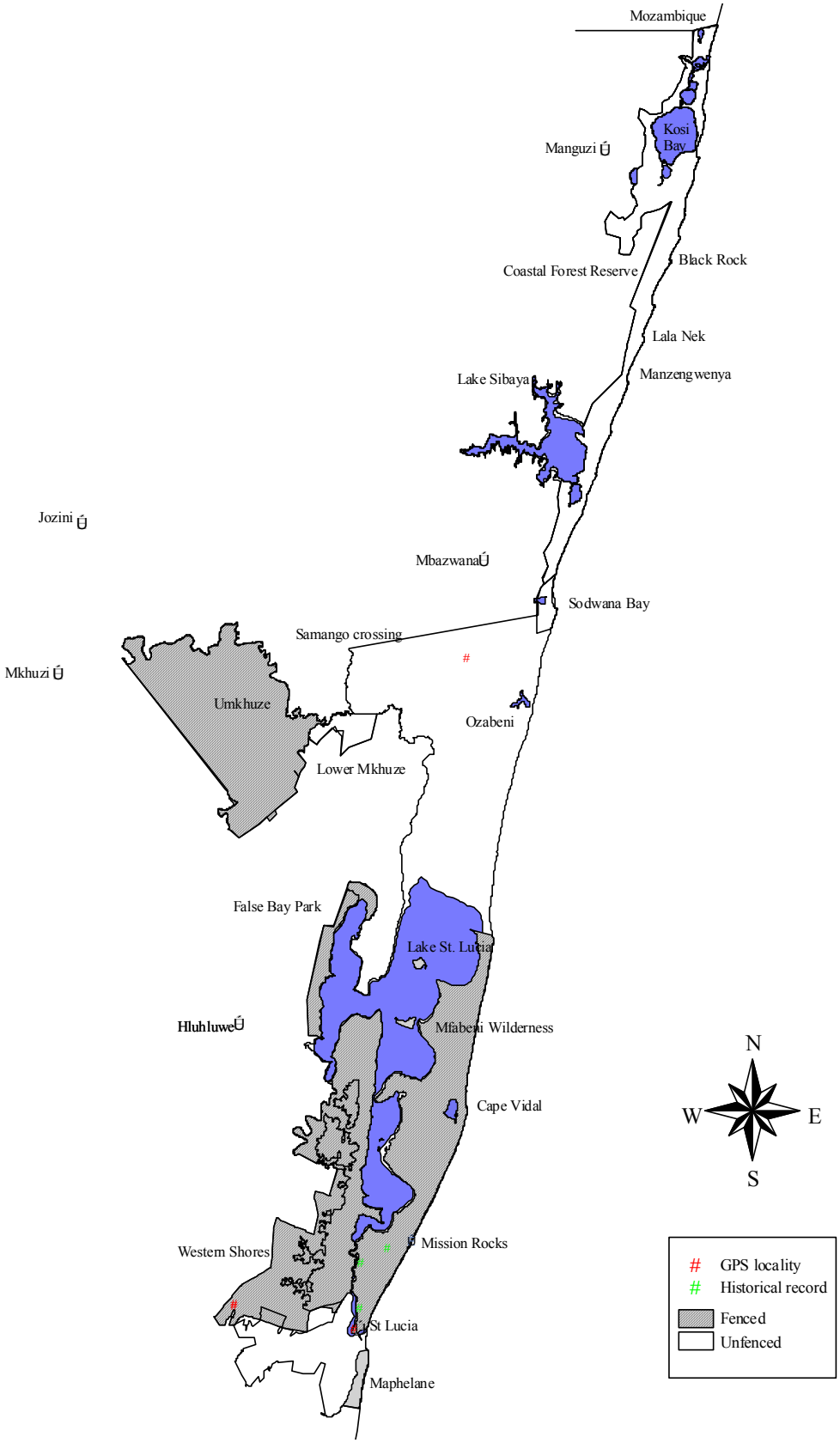
Relevant survey methods: Active searches in suitable habitat. This species has an easily distinguished call that can be heard even when the bird is flying high.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Barnes, K. N. 2000. (Ed.) *The Eskom Red Data Book of Birds of South Africa, Lesotho and S*waziland. Birdlife South Africa. Ince Cape. Cape Town.
Maclean, G. L. 1993. *Roberts' Birds of Southern Africa*. 6th Edition. CTP Book Printers. Cape Town.
Fox, Caroline. 2006. Unpublished data and personal communication.

10.2.3.4 Southern Banded Snake Eagle



Scientific name: *Halcyon senegaloides* **Common name:** Mangrove Kingfisher

Photo: EKZN Wildlife

Description: A medium size Kingfisher with a completely red bill and the body is bright light blue above, except for a grey crown. The underparts are white with a black patch on the bend of the wing. The immature birds are similar to the adult, but vermiculated with blackish on breast and flanks. The bill is brownish.

Rare, Threatened or Endemic Status: This rare species is listed in the Red Data Book of Birds of South Africa, Lesotho and Swaziland as Vulnerable: B1+2c; C1.

Distribution: *H. senegaloides* is found from Somalia in the north, through Kenya, Tanzania (Pemba and Zanzibar Islands), Moçambique and KwaZulu-Natal to the Eastern Cape in the south. Within this distribution it is highly localised and is found in a narrow band of approximately 20 km from the coastline.

Historical records and distribution in the GSLWP: St Lucia Narrows, the back channels of the Narrows and the mangrove area of Kosi Bay.

Habitat: Along the banks of mangroves, estuaries and associated coastal riverine systems.

Biology/Life history: *H. senegaloides* is found in the Eastern Cape (former Transkei) where it breeds between October and January, but is absent from June to August. It appears to migrate seasonally between the Transkei and KwaZulu-Natal.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park provides protection to large areas of suitable habitat for the Mangrove Kingfisher during winter months.

Threats: Loss and fragmentation of suitable habitat, such as estuaries, associated coastal riverine systems and mangroves.

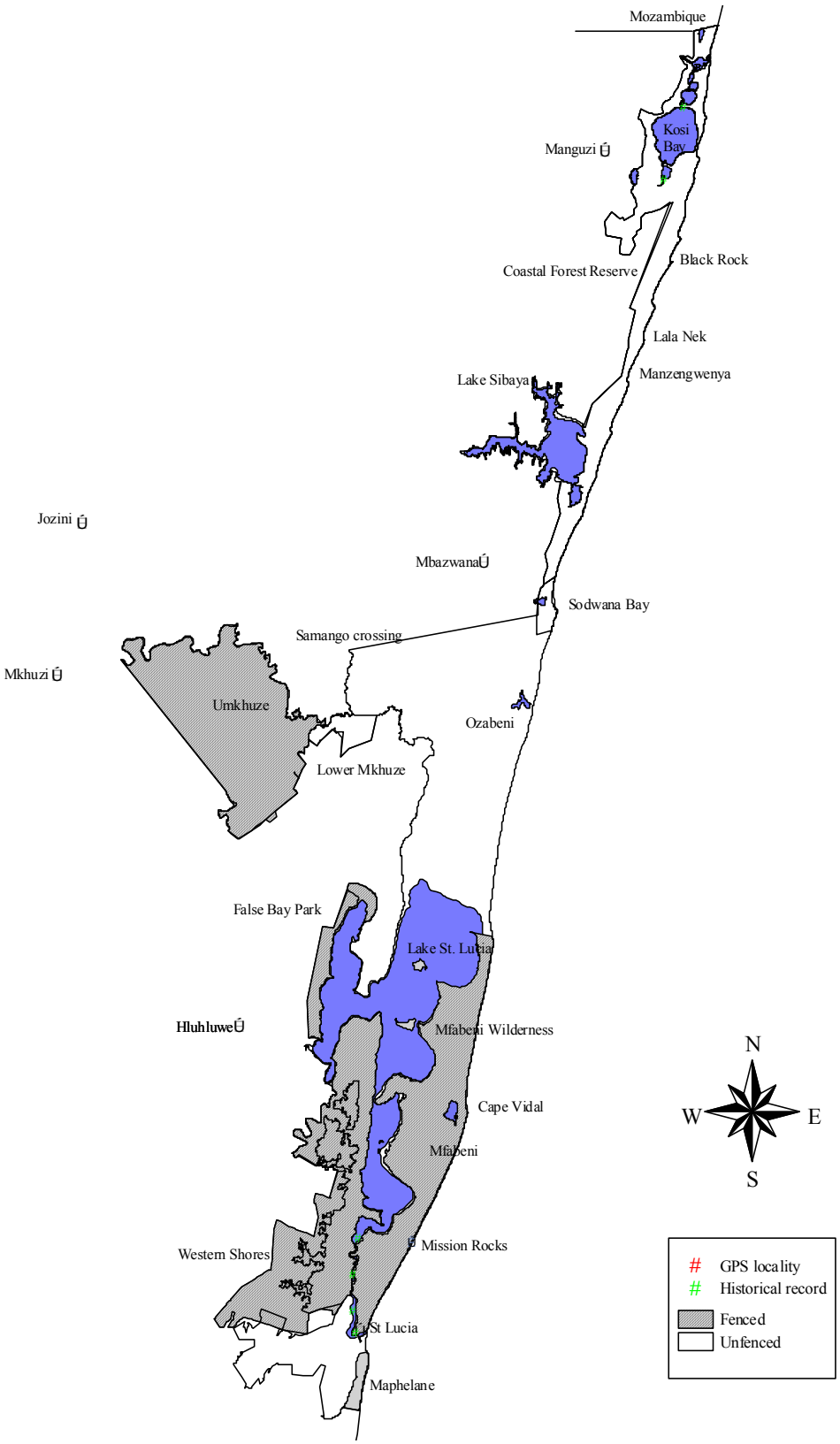
Relevant survey methods: Active searching in suitable habitat to record presence of birds and estimate an index of relative density.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Barnes, K. N. 2000. (Ed.) *The Eskom Red Data Book of Birds of South Africa, Lesotho and S*waziland. Birdlife South Africa. Ince Cape. Cape Town.
Maclean, G. L. 1993. *Roberts' Birds of Southern Africa*. 6th Edition. CTP Book Printers. Cape Town.
Fox, Caroline. 2006. Unpublished data and personal communication.

10.2.3.5 Mangrove Kingfisher



10.3 REPTILES

10.3.1 Flagship species

- Pygmy Wolf Snake (*Lycophidion pygmaeum*)
- Leatherback Turtle (*Dermochelys coriacea*)
- Gaboon Adder (*Bitis gabonica*)

10.3.2 Focal species

- Gaboon Adder (*Bitis gabonica*)
- Pygmy Wolf Snake (*Lycophidion pygmaeum*)
- Setaro's Dwarf Chameleon (*Bradypodion setaroi*)
- Nile Crocodile (*Crocodylus niloticus*)
- Fitzsimon's Dwarf Burrowing Skink (*Scelotes fitzsimonsi*)
- Coastal Dwarf Burrowing Skink (*Scelotes vestigifer*)

10.3.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
1	*Bradypodion setaroi*	Setaro's Dwarf Chameleon	4	3	4	5	16
2	*Lycophidion pygmaeum*	Pygmy Wolf Snake	4	3	4	5	16
3	*Scelotes vestigifer*	Coastal Dwarf Burrowing Skink	4	2	5	5	16
4	*Scelotes fitzsimonsi*	FitzSimon's Dwarf Burr. Skink	4	2	5	5	16
5	*Leptotyphlops sylvicolus*	Southern Forest Worm Snake	2	2	4	4	12
6	*Dermochelys coriacea*	Leatherback Turtle	4	5		2	11
7	*Lycophidion semiannule*	Eastern Wolf Snake	4	2	2	1	9
8	*Bitis gabonica gabonica*	Gaboon Adder	4	3		2	9
9	*Scelotes arenicolus*	Zululand Dwarf Burr. Skink	3	2	2	2	9
10	*Xenocalamus transvaalensis*	Transvaal Quill Snouted Snake	4	2	2	1	9
11	*Zygaspis violacea*	Violet Worm-lizard	4	2	1	2	9
12	*Prosymna janii*	Moçambique Shovel Snout	4	2	1	1	8
13	*Typhlosaurus aurantiacus*	Golden Blind Legless Skink	3	2	2	1	8
14	*Caretta caretta*	Loggerhead Turtle	4	3		1	8
15	*Scelotes mossambicus*	Moçambique D. Burr. Skink	3	2	2	1	8
16	*Kinixys natalensis*	Natal Hinged Tortoise	4		2	1	7
17	*Macrelaps macrolepidotus*	Natal Black Snake	2	2	2	1	7
18	*Chelonia mydas*	Green Turtle	4	2		1	7
19	*Pelusios c. castanoides*	Yellow Bellied Hinged Terrapin	4	2		1	7
20	*Pelusios rhodesianus*	Mashona Hinged Terrapin	4	2		1	7
21	*Crocodylus niloticus*	Nile Crocodile	3	3		1	7
22	*Typhlops fornasinii*	Fornasini's Blind Snake	2	2	2	1	7
23	*Zygaspis vandami*	Van Dam's Worm Lizard	2	2	1	2	7
24	*Cryptoblepharus boutonii*	Bouton's Skink	2	3		1	6
25	*Duberria variegata*	Variegated Slug Eater	2	2	1	1	6
26	*Amblyodipsas m. microphthalma*	Eastern Purple-glossed Snake	2	2	1	1	6
27	*Amblyodipsas concolor*	Natal Purple-glossed Snake	2	2	2		6
28	*Tetradactylus a. africanus*	African Long Tailed Seps		2	2	1	5
29	*Natriciteres variegata sylvatica*	Forest Marsh Snake	3	2			5
30	*Python natalensis*	Southern African Python	1	3			4
31	*Dasypeltis medici medici*	East African Egg-eater	2			1	3
32	*Chamaesaura anguina anguina*	Cape Snake-lizard			2	1	3
33	*Leptotyphlops c. incognitus*	Eastern Thread Snake			2	1	3
34	*Afroedura pondolia*	Pondo Flat Gecko			2	1	3

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
35	*Elapsoidea sundevallii decosteri*	Sundervall's Garter Snake			2	1	3
36	*Afroedura marleyi*	Marley's Flat Gecko			2	1	3
37	*Lamprophis aurora*	Aurora House Snake			2	1	3
38	*Naja melanoleuca*	Forest Cobra	2			1	3
39	*Platysaurus intermedius*	Common Flat Lizad			2	1	3
40	*Cordylus vittifer*	Transvaal Girdled Lizard			2		2
41	*Eretmochelys imbricata*	Hawksbill Turtle	2				2
42	*Chamaesaura m. macrolepis*	Large Scaled Grass Lizard			2		2
43	*Pachydactylus maculatus*	Spotted Gecko			2		2
44	*Prosymna stuhlmanni*	East African Shovel Snout	1			1	2
45	*Lepidochelys olivacea*	Olive Ridley Turtle	2				2
46	*Dendroaspis angusticeps*	Green Mamba	1				1
47	*Duberria lutrix lutrix*	Common Slug Eater			1		1
48	*Homopholis wahlbergii*	Velvet Gecko	1				1

Turner's Thick Toed Gecko *Pachydactylus turneri*

Turner's Thick Toed Gecko

This very rare lizard species was recorded for the first time in uMkhuze in 1965. More than 40 years later, two RTES Project participants, Jon Warner and Bryan Maritz recorded a specimen (see photo) again in the uMkhuze section of the Greater St Lucia Wetland Park.

Scientific name: *Bradypodion setaroi* **Common name:** Setaro's Dwarf Chameleon

Photo: Wendy White

Description: A small dwarf chameleon, up to 130 mm long, and the head has a distinctly elevated narrow casque. Its scalation is very granular and heterogeneous and the gular crest consists of 13-23 weakly developed scaly flaps. The dorsal crest is feebly developed and is composed of 10-18 low tubercles. Two to four throat grooves are present. The tail is longer than the body in males and shorter in females.

Rare, Threatened or Endemic Status: This species is endemic to KwaZulu-Natal, but may enter southern Moçambique. It is listed in the South African Red Data Book as Restricted.

Distribution: This species is not common and has a fairly restricted known distribution. It is found in suitable areas from Richard's Bay northwards, at least as far as Kosi Mouth, and inland at least as far as Mtubatuba.

Historical records and distribution in the GSLWP: Probably throughout the coastal forested areas of the GSLWP though densities appear to vary markedly. Limited to a few records, localities and specimens. Recordings from Mapelane, St Lucia village, Mission Rocks, Cape Vidal, Sodwana Bay, Coastal Forest Reserve and Kosi Bay.

Habitat: Coastal dune forest, Swamp forest, Thicket, Open riparian vegetation. Usually found in forest margins but also in gardens, particularly in St Lucia village.

Biology/Life history: This small diurnal chameleon hunts on the periphery of forests and trees, and is viviparous. Up to eight babies are born in late April. It is rarely seen in winter and in summer is most often seen at night following rain. Predators include Vervet Monkey (*Cercopithecus pygerythrus*), Boomslang (*Dispholidus typus typus*) and Twig Snake (*Thelotornis capensis capensis*). An interesting recording was made last year on the Eastern Shores when a Marbled Tree Snake (*Dipsadoboa aulica*), was found dead after being killed by a vehicle on the tar road to Cape Vidal, with three Setaro's dwarf chameleons inside the stomach.

Importance of the GSLWP for its conservation: Most of this species range is within the Greater St Lucia Wetland Park and therefore the Park is of great importance to the species.

Threats: Chameleons are generally very susceptible to atmospheric pollution, pesticides and poisons. Within the Greater St Lucia Wetland Park too frequent veld fires burning the forest margins could have a serious impact on chameleon numbers. Feral cats and artificially raised densities of Vervet Monkeys have been cited as possible threats in St Lucia village and elsewhere.

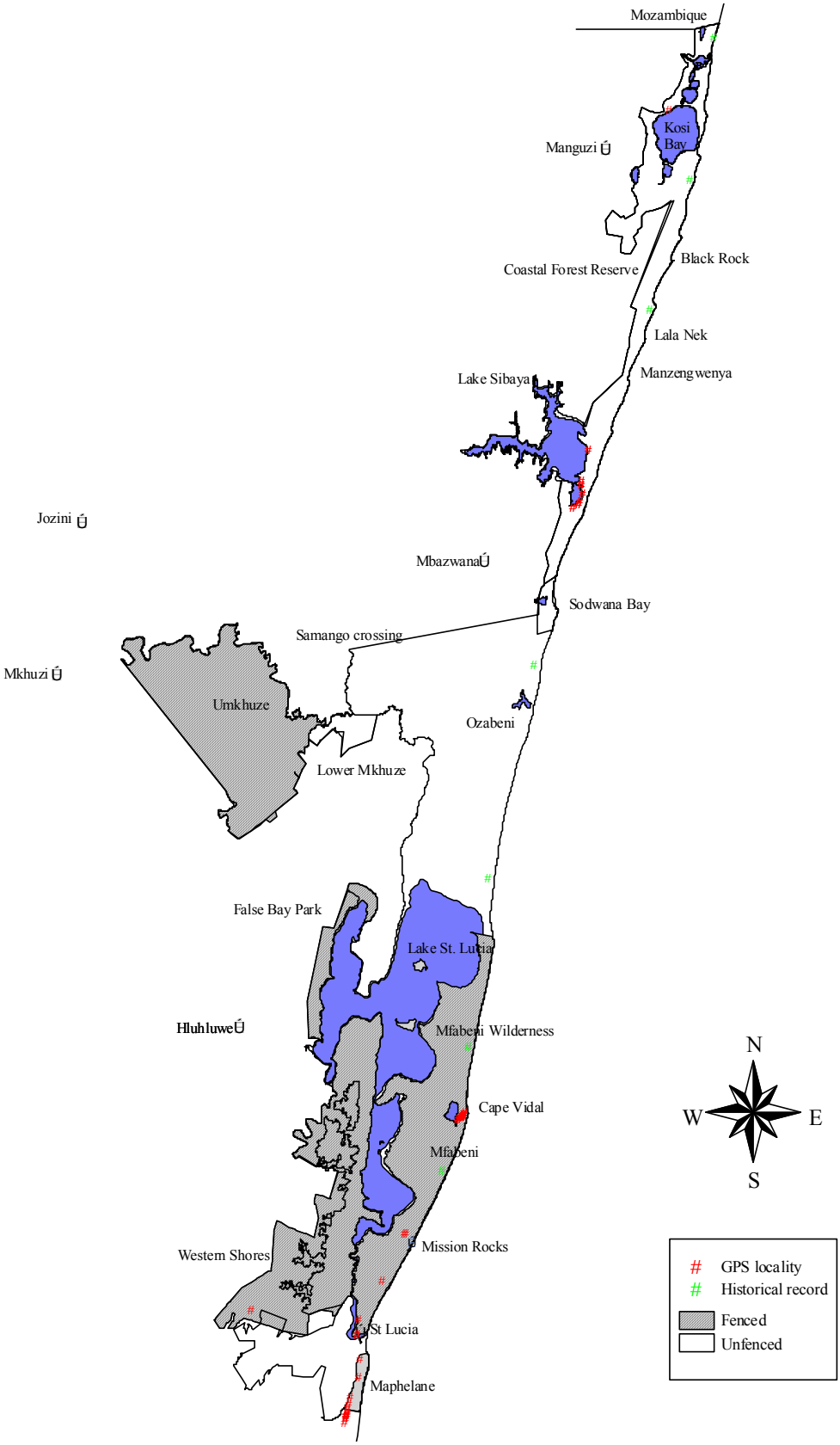
Relevant survey methods: Spotlight surveys, as chameleons rest at night on the forest ecotone and they reflect as white in the beam of a spotlight.

Estimate population size/abundance in the GSLWP: None available, but spotlight surveys are conducted throughout the GSLWP and all sightings are recorded with a GPS.

References:

Armstrong, A. J. 2001. *Conservation Status of Herpetofauna Endemic to KwaZulu-Natal*. African Journal of Herpetology, 2001 50(2): 79-96.
Branch, W.R. (Ed.) 1988. *South African Red Data Book - Reptiles & Amphibians*. Scientific programmes report. (Report 151), CSIR, Pretoria.
Branch, W.R. 1998. *Field Guide to Snakes and Other Reptiles of Southern Africa*. Struik Publishers (Pty) Ltd. Cape Town.
Bruton M.N. & Haacke W.D. 1980. The Reptiles of Maputaland. In *Studies on the Ecology of Maputaland*, Ed. M.N. Bruton and K.H. Cooper, Rhodes University and Natal Branch of the Wildlife Society of Southern Africa. Pp 251-287.
Fergusson, H. 2005. Personal communication.

10.3.3.1 Setaro's Dwarf chameleon



Scientific name: *Lycophidion pygmaeum* **Common name:** Pygmy Wolf Snake

Photo: Jon Warner

Description: A very small snake with a black head and body and a broad white band around the snout. The scales on the back are stippled in white, except towards the rear. The colour of the belly is uniform jet black, but a white stippling is found on the throat and the edges of the belly.

Rare, Threatened or Endemic Status: A very rare species that is known only from a few specimens. Donald Broadley described this snake in 1996.

Distribution: This snake is endemic to Maputaland.

Historical records and distribution in the GSLWP: Not many records exist of this rare snake. Although the species was only formally described in 1996, three recordings were made between 1982-1985 at St Lucia village. Dr Scotty Kyle and family have recorded four snakes at Kosi Bay through the years. The GSLWP RTES project made a recording just west of Lake Zilonde, close to the Moçambique border and Jon Warner (RTES MSc student on Gaboon Adder) recorded two individual snakes (one gravid which subsequently laid four eggs) on the Cape Vidal road of the Eastern Shores during nocturnal road cruises.

Habitat: *L. pygmaeum* is usually found in coastal grassland, wooded grasslands on sands and thickets. It may occur in disturbed or regenerating habitat (i.e. pine plantations) due to the occurrence of prey items like *Scelotes* and *Panaspis* skinks.

Biology/Life history: A very secretive, terrestrial snake that spends the day hiding under logs and in grass tussocks. It predates dwarf burrowing skinks of the *Scelotes* genus. The species is oviparous and hatchlings measure 100-110 mm. Very little is known about the biology of this species.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park includes almost the entire known distribution and population of this species and therefore plays a critical role in the future viability of *L. pygmaeum.*

Threats: Road mortalities, habitat destruction and transformation through agriculture, forestry and illegal coastal developments.

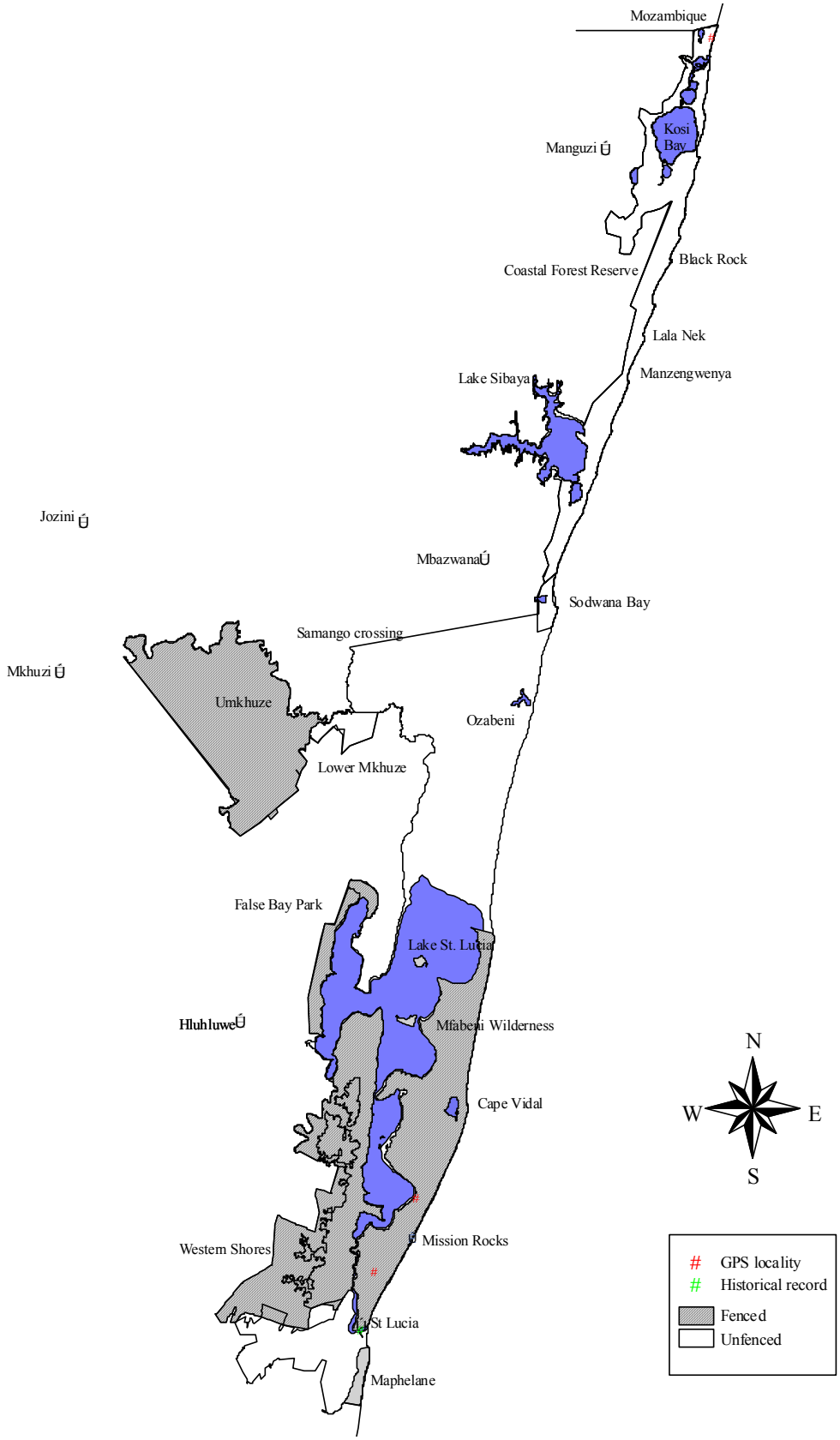
Relevant survey methods: Nocturnal spotlight cruises on roads, funnel traps, pitfall traps combined with drift fences and active searching.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Bourquin, O. 2004. Reptiles (Reptilia) in KwaZulu-Natal: I – diversity and distribution. Durban Museum Novitates. Vol. 29. 57- 103.
Branch, W.R. 1998. *Field Guide to Snakes and Other Reptiles of Southern Africa*. Struik Publishers (Pty) Ltd. Cape Town.
Kyle, R. 2006. Unpublished data.
Marais, J. 2004. *A Complete Guide to the Snakes of Southern Africa*. Struik.
Warner, J. K. 2006. Unpublished data.
Warner, J. K. 2006. Personal communication.

10.3.3.2 Pygmy Wolf Snake



Scientific name: *Scelotes vestigifer* **Common name**: Coastal Dwarf Burrowing Skink
Scientific name: *Scelotes fitzsimonsi* **Common name:** FitzSimon's Dwarf Burrowing Skink

Scelotes vestigifer Photo: Xander Combrink

Description: *S. vestigifer* is a small skink that lacks forelimbs, but with hindlimbs indicated by minute pimples. Ear opening is absent and the number of ventral scales vary between 95-99. The third and fourth lateral scale row has confluent spots forming stripes. The belly is dusky pale brown.

S. fitzsimonsi is a small skink that completely lacks forelimbs and hindlimbs. A minute ear opening is present and the ventral scales vary between 89-97. The body is pale bronze above, with each scale dark-centred, fading to slate-grey on the flanks and gunmetal blue on the tail. The belly is grey-white.

Rare, Threatened or Endemic Status: Both *S. vestigifer* and *S. fitzsimonsi* are very rare species with only a few known records. Both are Maputaland endemics, as isolated specimens of *S. fitzsimonsi* at Durban and Vernon Crooks Nature Reserve are most likely a separate species.

Distribution: *S. vestigifer* has been recorded from Ponta de Ouro in southern Moçambique along the coast to St Lucia village in the south. The most western record is Mseleni, just west of Lake Sibaya. It occurs sympatrically with *S. fitzsimonsi* and *S. arenicola* around Lake Sibaya. *S. fitzsimonsi* has an even smaller distribution range from Kosi Bay to Mission Rocks.

Historical records and distribution in the GSLWP: Not many records exist for *S. vestigifer*, but it has been recorded at Kosi Bay, Lake Sibaya and St Lucia village. *S. fitzsimonsi* has been recorded at Kosi Bay, Mabibi, Lake Sibaya, Sodwana Bay, Tewati (Eastern Shores), Eastern Shores and Mission Rocks. The RTES project recorded a specimen of both *S. vestigifer* and *S. fitzsimonsi* during an opportunistic search in the Coastal Dune Forest east of Lake Zilonde, just south of the Moçambique border. A specimane of *S. vestigifer* was reorded by the RTES Project team just east of Lake Bangazi South These specimens were identified by Dr Bill Branch.

Habitat: Sandy coastal areas and Coastal Dune Forest of the Greater St Lucia Wetland Park.

Biology/Life history: Due to their secretive fossorial habits, very little is known of the biology of these species. They belong to a diverse group of small burrowing skinks that shows an apparent evolutionary development towards limb loss. They either burrow in sandy soil or forage in leaf litter. Their diet mainly consists of small insect larvae and termites. Predators include the Pygmy Wolf Snake (*Lycophidion pygmaeum)*.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park includes almost the entire known distribution of *S. vestigifer* and the entire distribution of *S. fitzsimonsi* and therefore plays a critical role in the conservation of vital habitat for these species.

Threats: Habitat destruction and transformation through agriculture, forestry and illegal coastal developments.

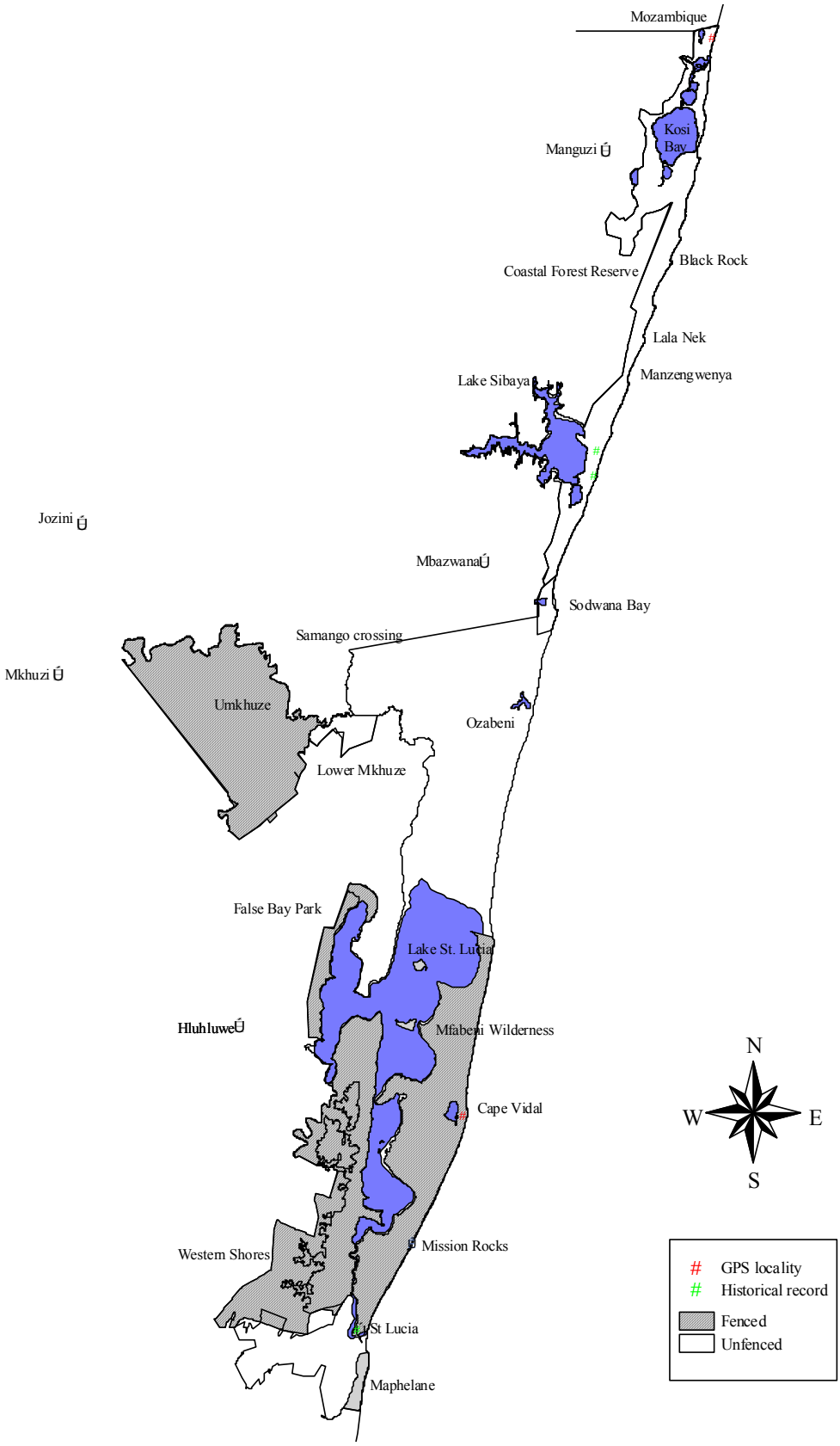
Relevant survey methods: Pitfall traps in combination with drift fences and opportunistic surveys.

Estimate population size/abundance in the GSLWP: Unknown.

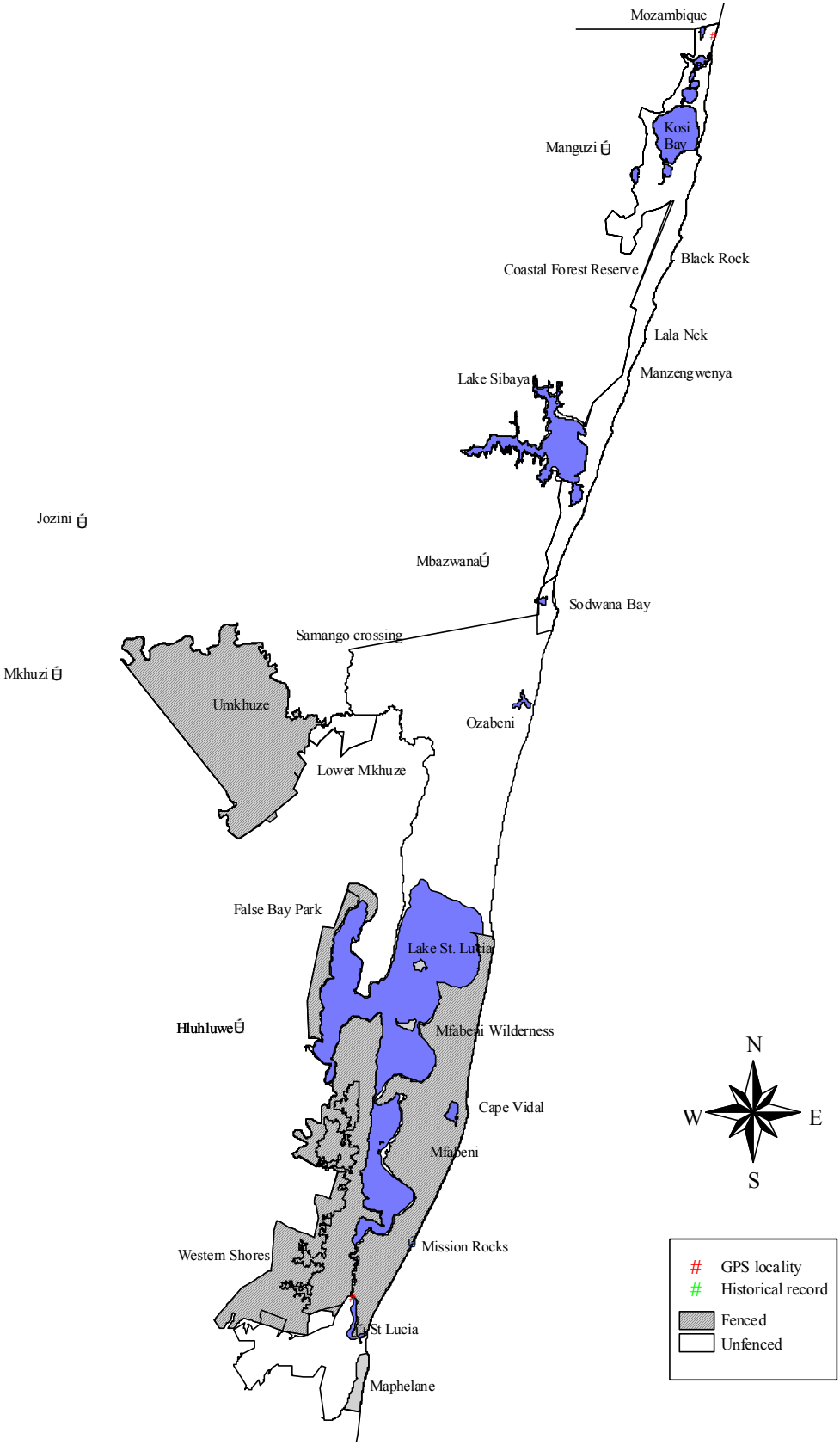
References:

Branch, W. R. 1998. *Field Guide to Snakes and Other Reptiles of Southern Africa*. Struik Publishers (Pty) Ltd. Cape Town.
Broadley, D. G. 1994. The genus Scelotes Fitzinger (Reptilia: Scincidae) in Mozambique, Swaziland and Natal, South Africa. Annals of the Natal Museum. Vol. 35. pp. 237-259. Pietermaritzburg.

10.3.3.3 Coastal Dwarf Burrowing Skink



10.3.3.4 FitzSimon's Dwarf Burrowing Skink



Jan's Shovel-snout *Prosymna janii*

Lamprophis fuliginosus - Brown House Snake Photo: Jon Warner

Scientific name: *Leptotyphlops sylvicolus* **Common name:** Southern Forest Worm Snake

Photo: Wulf Haacke

Description: A small, very short species with a cylindrical body and a maximum length of 126 mm. The body consists of 171 – 194 dorsal scales and 18-22 subcaudals. There are 14 scales around the midbody, and ten around the tail. The occipital is undivided and the rostral elongate. The colour above is black, fading to a paler colour below, with white patches near the vent in some specimens. The scales are highly polished.

Rare, Threatened or Endemic Status: This rare species is endemic to the Wildcoast of the Eastern Cape and KwaZulu-Natal and is listed as Data Deficient.

Distribution: A few records exist between the north coast of KwaZulu-Natal in the north and Port St Johns in the south.

Historical records and distribution in the GSLWP: Although the first specimen in the Greater St Lucia Wetland Park was recorded in 1973 at Lake Sibaya, the species was formally described more than 20 years later in 1997. The GSLWP RTES project recorded a specimen (the third recording for the Park) during an opportunistic search in the Coastal Dune Forest east of Lake Zilonde, just south of the Moçambique border. The specimen was identified by Dr Bill Branch.

Habitat: Coastal forest.

Biology/Life history: No information is available. All species in the family Leptotyphlopidae burrow underground and are active during the night and day. They migrate up and down through the soil layers to thermoregulate and they have been found to follow the scent trail of ants and termites to their nests where they feed on them. They defend themselves against attacks from their prey by releasing pheromones and coiling up. They are predated by scorpions, spiders, mongooses, other snakes and large invertebrates.

Importance of the GSLWP for its conservation: Due to large areas of suitable protected habitat, the Greater St Lucia Wetland Park plays an important role in this species conservation.

Threats: Habitat transformation and destruction.

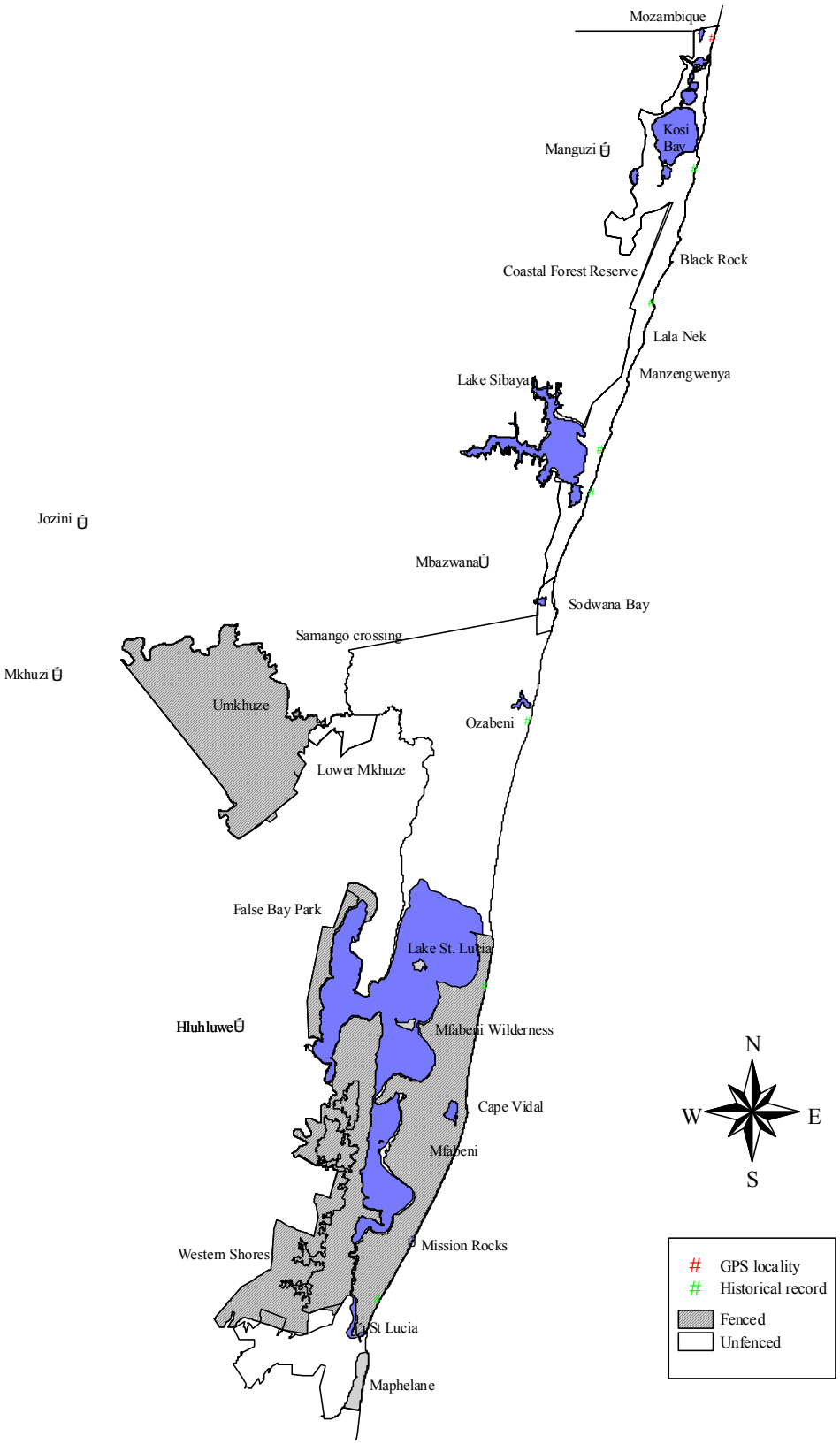
Relevant survey methods: Active searches and pitfall traps combined with drift fences.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Branch, W.R. 1998. *Field Guide to Snakes and Other Reptiles of Southern Africa*. Struik Publishers (Pty) Ltd. Cape Town.
Marais, J. 2004. *A Complete Guide to the Snakes of Southern Africa*. Struik.

10.3.3.5 Southern Forest Worm Snake



Scientific name: *Dermochelys coriacea* **Common name:** Leatherback Turtle

Photo: EKZN Wildlife

Description: A very large turtle that can weigh over 800 kg. The Leatherback Turtle has a deep, narrow, barrel-shaped shell that lacks horny scutes, but is instead covered with thick, smooth skin not dissimilar to vulcanised rubber. The skin has five long ridges on the carapace and the plastron, and one on each of its sides. The flippers are long and are clawless, and in the adults the carapace and flippers are black, usually scattered with white spots. Being bicuspid, the beak is sharply edged and hooked and the turtle's neck is short and thick.

Rare, Threatened or Endemic Status: A very rare species that is listed as Critically Endangered.

Distribution: Throughout the tropical and subtropical oceans of the world.

Historical records and distribution in the GSLWP: Found nesting from Maphelane in the south, extending along the coast into Moçambique. Most breeding occurs between Manzengwenya and Banga Nek.

Habitat: *D. coriacea* is usually found in the surface waters of the temperate and tropical oceans.

Biology/Life history: *D. coriacea* undertake long journeys and frequently enters colder currents, temporarily, to find food. They are adapted to conserve heat in cold water and can even metabolise fat to generate heat. They are the only living reptiles that are known to be regularly endothermic. The adult turtles feed only on jellyfish whereas the juveniles may also eat other floating organisms. They dive to feed and are able to reach depths of over 350 m and can stay under the water for up to 37 minutes. The inside of the throat is covered in long spines that project backwards to stop slippery food from escaping. This species nests exclusively on tropical beaches in the summer period (November to January). The females prefer to lay their eggs on moonless nights at high tide. Around a thousand eggs are laid altogether during a breeding season at nine to eleven day intervals and a high percentage (70-75%) hatch successfully. Sexual maturity is reached in 3-5 years when the carapace is approximately 1400-mm long.

Importance of the GSLWP for its conservation: The GSLWP plays a critical role in the future viability of this species, as most of the other breeding areas are under serious threat or are small.

Threats: Long line fishing practices. Some turtles have died from ingesting large sheets of plastic (resemble their main pray, jellyfish) that have been floating in the ocean. Illegal harvesting of eggs and the killing of nesting adults in unprotected areas.

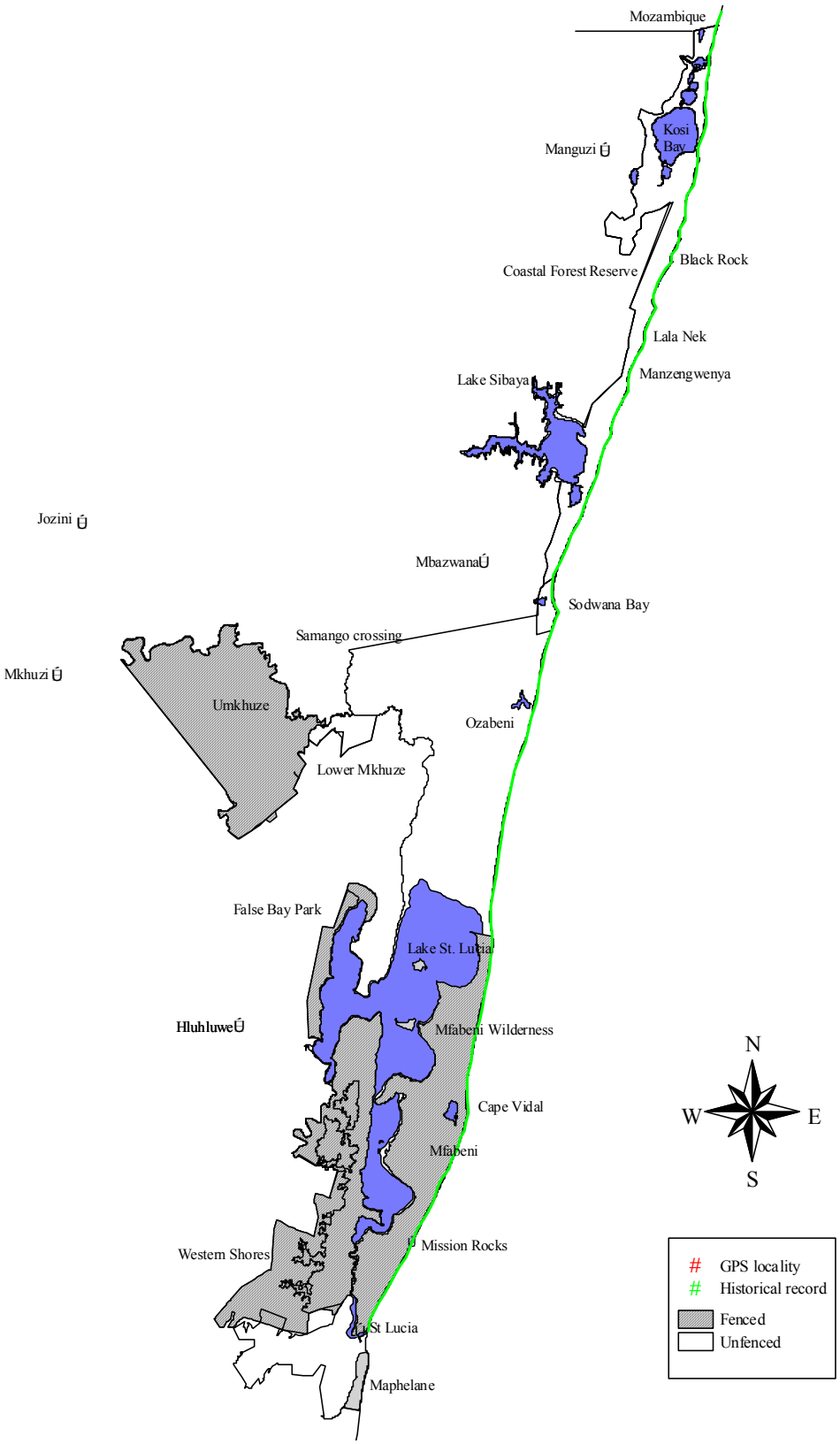
Relevant survey methods: Annual monitoring of breeding sites. EKZN Wildlife's monitoring programme within the Greater St Lucia Wetland Park, has accumulated more than 40 years data, making it among the best known and most successful in the world.

Estimate population size/abundance in the GSLWP: Although breeding along the Greater St Lucia Wetland Park seems to be stable, the global population is declining at an alarming rate. It has been reported that the total world population may have declined from 100 000 – 10 000 in the last ten years. The Greater St Lucia Wetland Park population is probably between 500 – 1000.

References:

Branch, W.R. 1998. *Field Guide to Snakes and Other Reptiles of Southern Africa*. Struik Publishers (Pty) Ltd. Cape Town.
Nel, R. 2005. Personal communication.

10.3.3.6 Leatherback Turtle



Scientific name: *Bitis gabonica* **Common name:** Gaboon Adder

Photo: Xander Combrink

Description: A bulky, thick-bodied adder with a large triangular head, short tail and a beautiful and characteristic geometric pattern of rich purple and brown, combined with pastel colours, which makes ideal camouflage amongst leaf litter. It is thought to have the longest fangs on any snake in the world, up to 40 mm.

Rare, Threatened or Endemic Status: This rare species is listed by the South African Red Data Book as Vulnerable.

Distribution: Rain forests of east and central Africa to west Africa as well as isolated montane forests of the eastern escarpment of Zimbabwe. There are no confirmed reports of the snake recently from southern Moçambique. They appear limited to suitable areas on the fringes, and around clearings in coastal forest patches throughout the Greater St Lucia Wetland Park.

Historical records and distribution in the GSLWP: Found along the coastal forest from the Moçambique border to Maphelane and westwards into Dukuduku forest. Occurs west of the Kosi Bay lakes, Mapelane, St Lucia village, Dukuduku Forest, Ipiva Camp, Mpate Forest Station, Tewati, Perrier's Rock, Island Rock, Lake Bangazi south, Cape Vidal, Lake Mgobezeleni, Sodwana Bay, Lake Sibaya, Mabibi, Manzengwenya and Kosi Bay.

Habitat: Lowland forest-grassland margins throughout the south and eastern areas of the Greater St Lucia Wetland Park.

Biology/Life history: This species, like all African adders, is viviparous (live bearing), with clutches of up to 43 being recorded and gestation is around 10 to 12 months. They feed on large rodents, birds and toads. They grow rapidly and males are territorial and fights between males have been reported.

Importance of the GSLWP for its conservation: Full protection offered within the Greater St Lucia Wetland Park is of critical importance to the southern population of the species.

Threats: Many and varied throughout their range though their exceptionally good camouflage and low density make premeditated capture very difficult. Specimens are collected for the medicinal and pet trade though the extent is not known. Habitat destruction due to developments, agriculture and exotic tree plantations lowering the water table must all depress the local abundance of this species. They appear to become more abundant or obvious near human habitation, particularly tourist venues, and are occasionally caught or killed, in or near them. The effect of *Chromolaena odorata* on the Gaboon Adder's habitat should be investigated.

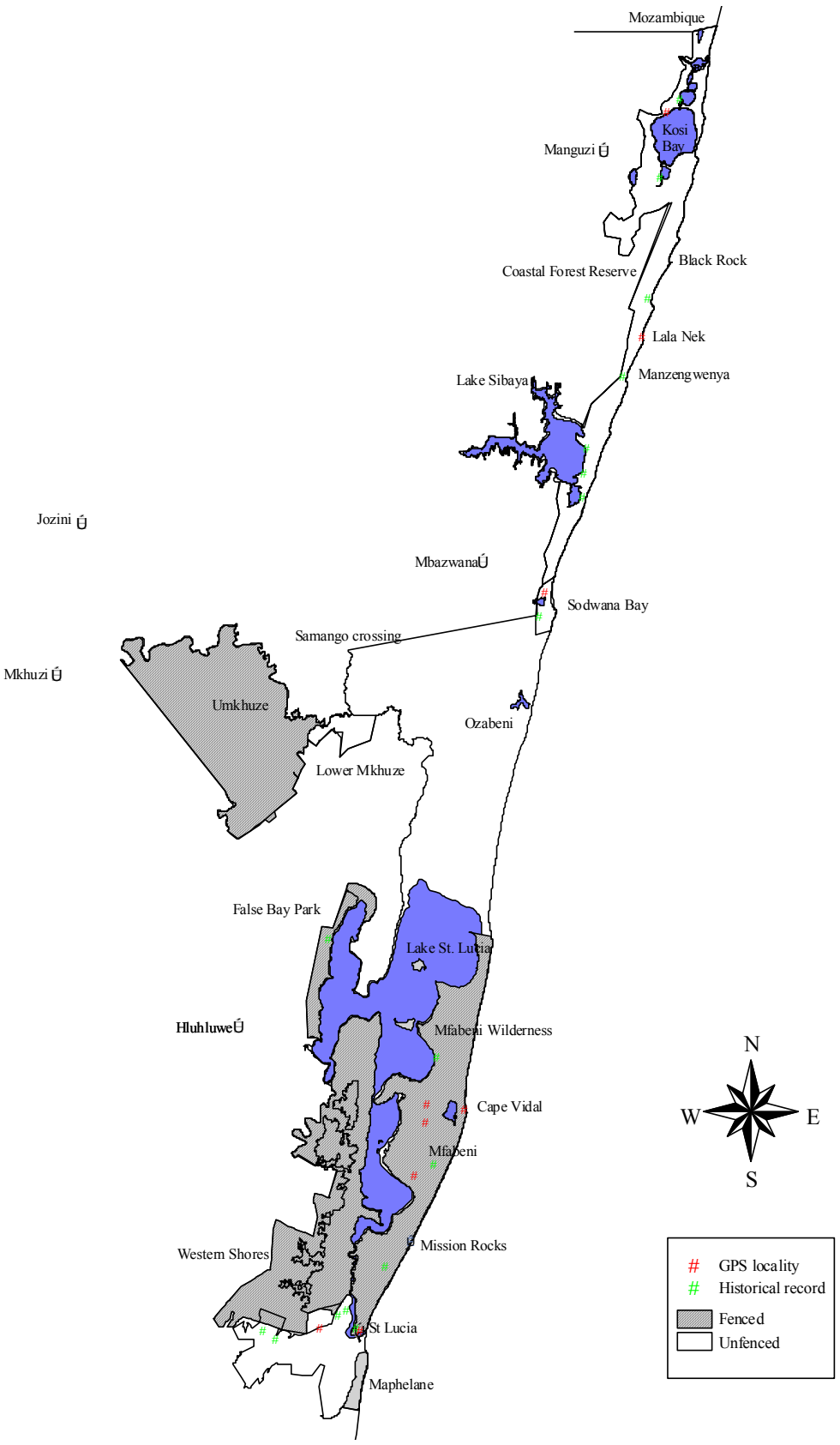
Relevant survey methods: Due to its camouflage, this species is notoriously difficult to find in the wild and therefore sightings are being recorded as and when they are made.

Estimate population size/abundance in the GSLWP: Published total estimates of 400 animals are now seen as low and over 200 were caught in the GSLWP and translocated to Umlalazi in the 1990's. It appears to occur throughout the coastal forest strip in varying densities. There are reports of apparently higher densities around human habitation centres such as St Lucia village and Sodwana Bay.

References:

Botbijl T. 1994a. The autecology of the Gaboon adder, *Bitis gabonica* in Zululand. MSc. Thesis. University of Natal Pietermaritzburg.
Branch, W.R. (Ed.) 1988. *South African Red Data Book - Reptiles & Amphibians*. Scientific programmes report. (Report 151), CSIR, Pretoria.
Bruton M.N. 1982. Uncommon and rare reptiles of Maputaland. *African Wildlife*, 36 (4/5) 184-185.
Kyle R. 2003. The status of and some notes on the Gaboon viper, *Bitis gabonica*, in northern KwaZulu Natal, South Africa and southern Moçambique. Kudu
Fergusson, H. 2005. Personal communication.
Rossouw, D. 2005. Personal communication.
Temblett, A. 2005. Personal communication.

10.3.3.7 Gaboon Adder



10.4 AMPHIBIANS

10.4.1 Flagship species

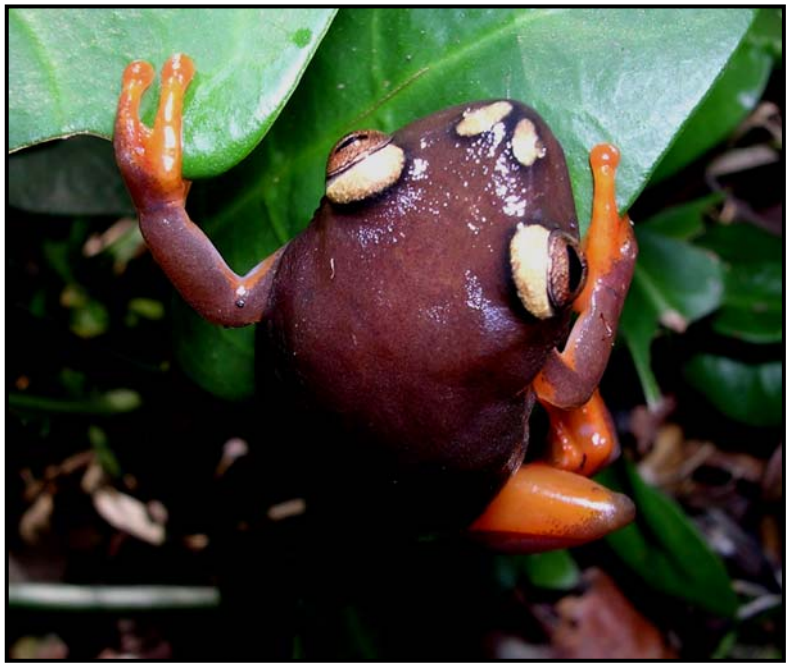
- Spotted Shovel-nosed Frog (*Hemisus guttatus*)
- Pickersgill's Reed Frog (*Hyperolius pickersgilli*)

10.4.2 Focal species

- Spotted Shovel-nosed Frog (*Hemisus guttatus*)
- Pickersgill's Reed Frog (*Hyperolius pickersgilli*)
- Natal Spiny Reed Frog (*Afrixalus spinifrons spinifrons*)
- Natal Tree Frog (*Leptopelis natalensis*)
- Whistling Rain Frog (*Breviceps sopranus*)

10.4.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
1	*Hyperolius pickersgilli*	Pickersgill's Reed Frog	5	4	4	4	17
2	*Hemisus guttatus*	Spotted Shovel-nosed Frog	4	3	2	3	12
3	*Afrixalus spinifrons spinifrons*	Natal Leaf-folding Frog	4	3	3	1	11
4	*Breviceps sopranus*	Whistling Rain Frog	4	2	2	3	11
5	*Leptopelis natalensis*	Forest Tree Frog	3		3	2	8
6	*Ptychadena taenioscelis*	Dwarf Grass Frog	4			1	5
7	*Arthroleptis wahlbergi*	Bush Squeaker			3	2	5
8	*Afrixalus aureus*	Golden Leaf-folding Frog	3		1	1	5
9	*Afrixalus fornasinii*	Greater Leaf-folding Frog	3			1	4
10	*Hyperolius argus*	Argus Reed Frog	3			1	4
11	*Hyperolius marmoratus taeniatus*	Striped Reed Frog	1		2	1	4
12	*Hyperolius semidiscus*	Yellow-striped Reed Frog	1		2	1	4
13	*Hildebrandtia ornata*	Ornate Frog	3			1	4
14	*Bufo rangeri*	Ranger's Toad			2	1	3
15	*Phrynobatrachus acridoides*	East African Puddle Frog	2			1	3
16	*Ptychadena mascareniensis*	Mascarene Grass Frog	2			1	3
17	*Afrixalus delicatus*	Delicate Leaf-folding Frog	3				3
18	*Strongylopus fasciatus*	Striped Stream Frog			1		1



Argus Reed Frog (male) *Hyperolius argus*

Scientific name: *Hyperolius pickersgilli* **Common name:** Pickersgill's Reed Frog

Photo: Vincent Carruthers

Description: A small to medium sized *Hyperolius* species with the females marginally larger than males. The sexes are morphologically distinct. Males and juveniles are light to dark brown, often with small dark spots on the dorsum and a dark-edged, white to silver dorsolateral stripe extending from the tip of the snout over the eye to the groin.

Rare, Threatened or Endemic Status: A rare species, which is endemic to KwaZulu-Natal, and listed as Endangered B1ab(ii,iii,iv) + 2ab(ii,iii,iv) in the Frog Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland. It was allocated this status as a result of its small area of occupancy, severe fragmentation of habitat and evidence of continued decline in the area of occupancy, extent and quality of habitat and number of locations.

Distribution: This species is known to occur from Kingsburgh in the south to southern coastal lowlands of the GSLWP.

Historical records and distribution in the GSLWP: Suitable habitat in the southern part of the GSLWP, near St Lucia village.

Habitat: Coastal Bushveld-Grassland, where it breeds in marshy areas containing dense stands of Saw Grass, *Cyper immensus*. The water at breeding sites is stagnant and rarely exceeds 50 cm in depth.

Biology/Life history: Calling takes place from August-March. Males call from elevated positions well concealed in dense stands of *Cyper immensus*. A gelatinous mass of about 50 eggs is attached to vegetation, several centimeters above the water, and after approximately one-week tadpoles hatch and drop into the water.

Importance of the GSLWP for its conservation: This species is only known to occur in two protected areas other than the GSLWP. This enhances the value that the GSLWP plays for the continued survival of this Endangered species.

Threats: The major threats to this species are ongoing habitat loss and fragmentation as a result of drainage for agricultural and urban development. The pollution of breeding sites in the vicinity of human settlements poses a serious threat.

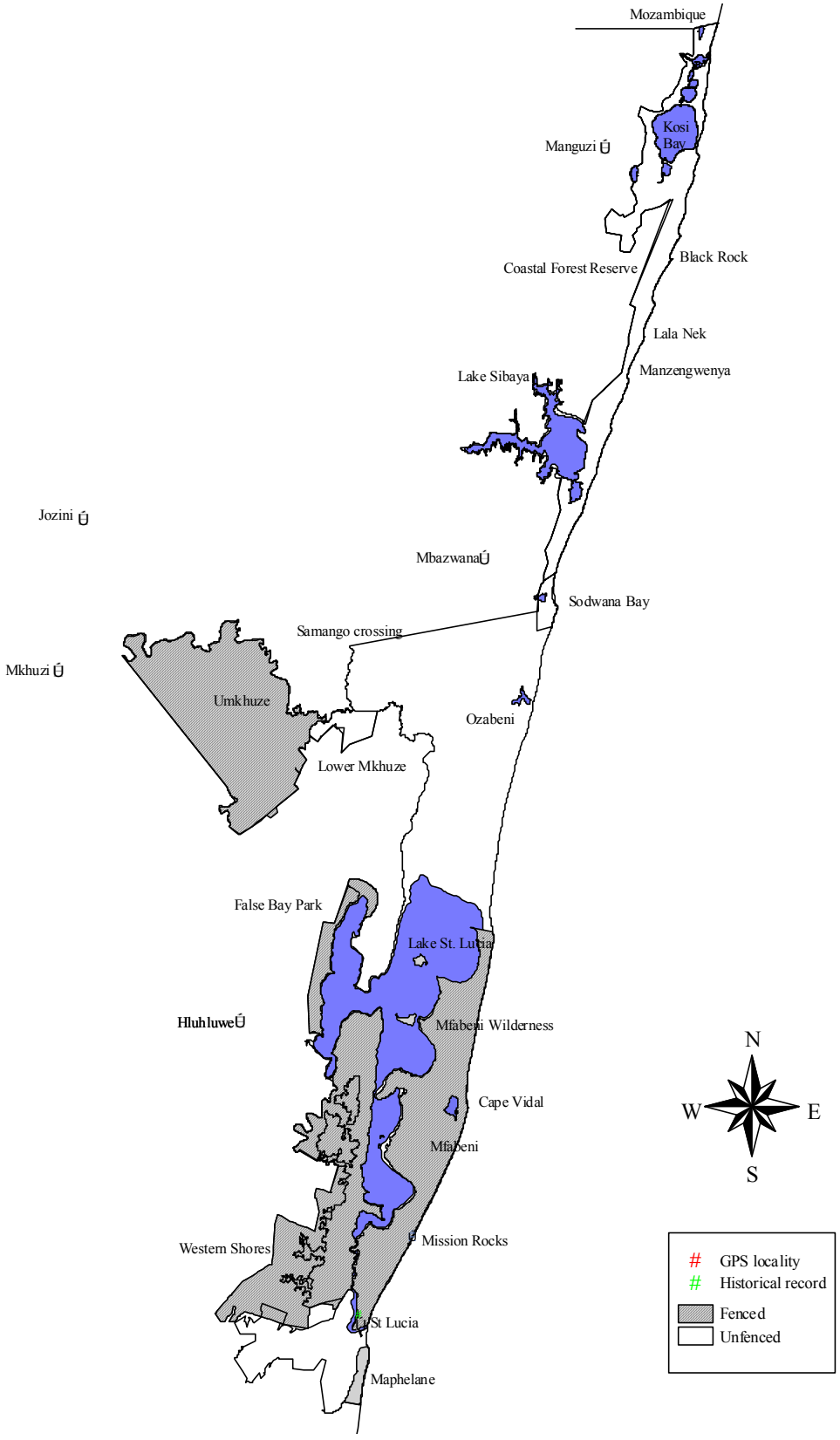
Relevant survey methods: Record calling males in suitable habitats as well as active searching.

Estimate population size/abundance in the GSLWP: Unknown

References:

Bishop, P.J. 2004. *Hyperolius pickersgilli* Raw, 1982. Pp.143 - 145 in Minter, L.R., M. Burger, J.A. Harrison, H.H. Braack, P.J. Bishop, and D. Koepfer, eds. *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series#9. Smithsonian Institution, Washington, DC.

10.4.3.1 Pickersgill's Reed Frog



Scientific name: *Hemisus guttatus* **Common name:** Spotted Shovel-nosed Frog

Photo: Xander Combrink

Description: A striking, unmistakable species reaching 80 mm in length. The dorsum is uniform olive to dark brown with scattered, small yellow spots and the ventrum is white. It resembles other species of the *Hemisus* genus by having a small head, small eyes and a pointed snout with a hard tip. There is a lack of webbing between the toes, it has muscular arms and legs and thick, strong fingers to assist in its burrowing lifestyle. The advertisement call is a cricket-like trill, approximately two seconds in duration.

Rare, Threatened or Endemic Status: A rare species, which is endemic to central and coastal KZN, extending into Mpumalanga and listed as Vulnerable B1+2ab(ii,iii,vi,v) in the Frog Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland.

Distribution: Population limited to KwaZulu-Natal, Mpumalanga and possibly the south west corner of Swaziland.

Historical records and distribution in the GSLWP: Limited to areas of loamy soil where it burrows and probably encapsulates itself to survive the dry season. Probably absent from sandy areas and thus the only likely localities are loamy areas of the Park. Has been found in Dukuduku Forest. During 2004, this species was found in the St Lucia Game Park (three specimens) and Ozabeni (one specimen) and sound recordings were made from a pan close to Iphiva camping grounds.

Habitat: Along the coast it inhabits Coastal Bushveld/Grassland. It seems to favor the edges of swampy areas and along rivers where the gradient is slight and alluvial deposits are present.

Biology/Life history: Males call October – December during rain or light drizzle. Due to its fossorial habits, calling males are extremely difficult to find, but after the initial calling from below the surface males emerge onto the surface as the chorus intensifies. Amplexus appears to be initiated on the surface and the female then burrows down to form a brood chamber. The female remains with her eggs (up to approximately 2000) during their development.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park is one of only five protected areas in KZN where this species has been found and, due to the relative large size of the Greater St Lucia Wetland Park, it will continue to play a very important role in the future and viability of this species.

Threats: Rapid and extensive urban development, forestry and other agricultural practices. These activities result in the continuing loss, fragmentation and alteration of its habitat through the draining, impoundment and eutrophication of wetlands. Exotic trees reduce the availability of surface water and lead to the disappearance of natural pans.

Relevant survey methods: Record calling males in suitable habitat. Pitfall traps with adjacent drift fences have been successful in trapping this fossorial species.

Estimate population size/abundance in the GSLWP: Not known

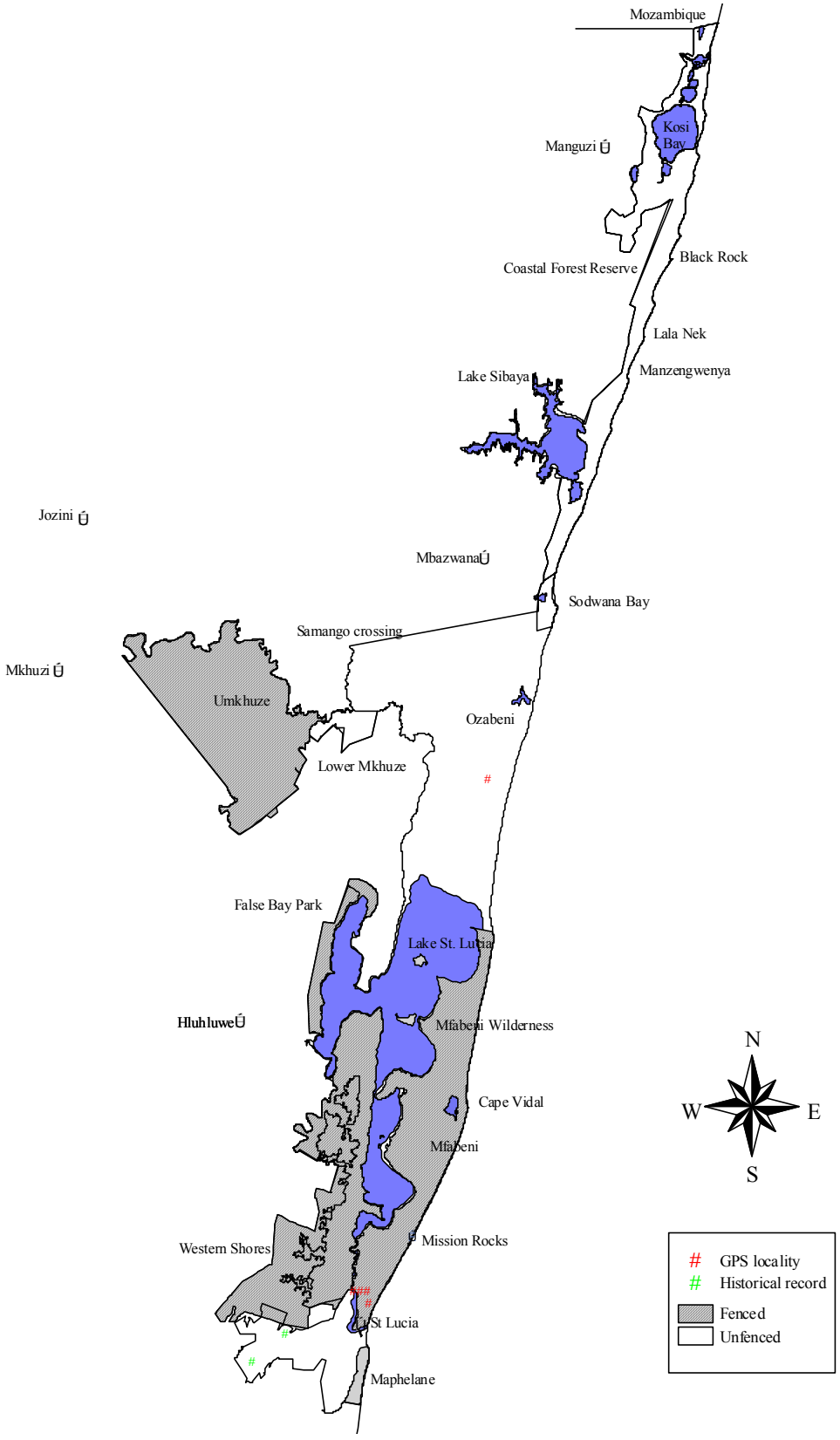
References:

Alexander, G. J. 2004. *Hemisus guttatus* Rapp, 1842. Pp.116 - 118 in Minter, L.R., M. Burger, J.A. Harrison, H.H. Braack, P.J. Bishop, and D. Koepfer, eds. *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series#9. Smithsonian Institution, Washington, DC.

Passmore, N. I. & Carruthers, V. C. 1995. South African Frogs a complete guide. Southern Book Publishers, Witwatersrand University Press.

Minter, L.R. 2004. Personal communication.

10.4.3.2 Spotted Shovel-nosed Frog



Scientific name: *Afrixalus spinifrons spinifrons* **Common name:** Natal Leaf-Folding Frog

Photo: Vincent Carruthers

Description: A small frog with a vertical pupil and tiny asperities (small keratinized outgrowths on the skin) on the snout, that is moderately to markedly swollen, almost bulbous. The upper surface is ivory to golden yellow with a broad, brown, median wedge that starts at the tip of the snout and broadens towards the back. The advertisement call consists of two components, a short "zip" and a prolonged "trill"

Rare, Threatened or Endemic Status: A rare species, which is endemic to South Africa. It is listed as Vulnerable B1+2ab(ii,iii,vi,v) in the Frog Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland.

Distribution: Species endemic to South Africa. The subspecies *A. spinifrons spinifrons* occurs at low to intermediate altitudes from Cintsa Bay and Kei Road in the Eastern Cape Province to St Lucia village. It has only been found so far in two protected areas in KZN, Umlalazi Nature Reserve and the GSLWP.

Historical records and distribution in the GSLWP: No confirmed recordings other than St Lucia village, it may well occur further north in the coastal southern section of the GSLWP.

Habitat: *A. spinifrons spinifrons* inhabits Coastal Bushveld-Grasslands and breeds in standing water, in dense sedge beds and inundated, grassy wetlands with abundant surface vegetation. It calls from the vegetation on the edges of waterbodies.

Biology/Life history: This species retreats into the leaf axils of grasses, arum lilies and rushes during the day. Breeding takes place from August to February. Males call from emergent vegetation in ponds, dams and streams, from sunset to early in the morning. The eggs, which are white in colour, are deposited in longitudinally folded leaves of grasses, young *Phragmites* and herbaceous plants, just below or above the water and hatch 4-6 days later. Within six weeks metamorphosis is complete and prey items include spiders, mosquitoes, moths and flies.

Importance of the GSLWP for its conservation: Probably peripheral, but very little is known about the distribution of this little known species in the GSLWP.

Threats: Its preferred habitat outside protected areas is under serious threat from agriculture, forestry, water abstraction, pollution and other development threats.

Relevant survey methods: Searching of suitable habitats as well as sonagraphic (pictorial representation of a sound) analysis after sound recordings have been made. Survey suitable looking pans and water bodies for tadpoles.

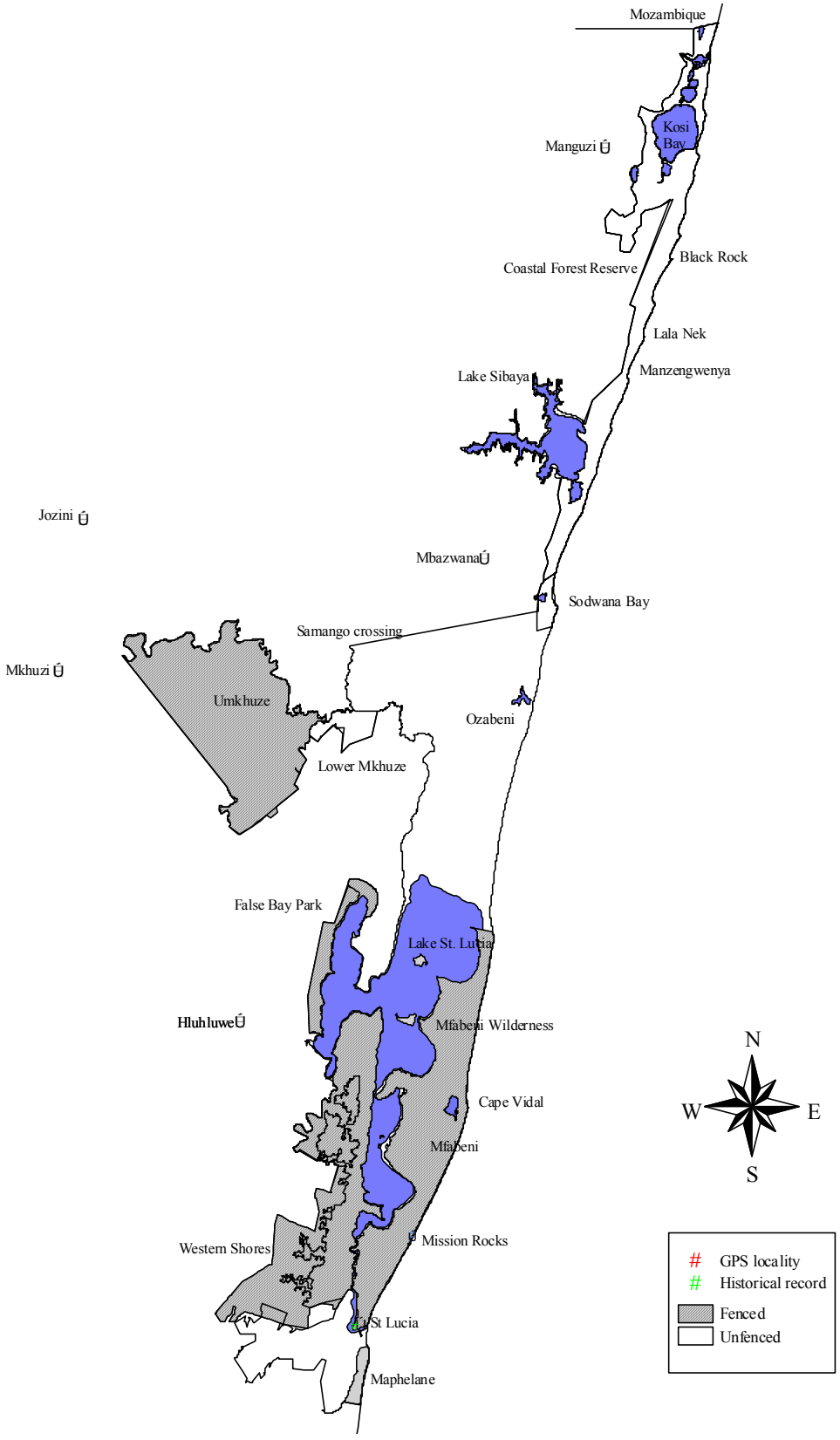
Estimate population size in the GSLWP: Unknown, and very little is known of its distribution north of St Lucia village.

References:

Passmore N. I. & Carruthers V. C. 1995. South African Frogs a complete guide. Southern Book Publishers, Witwatersrand University Press.

Pickersgill, M., M. Burger and P.J. Bishop. 2004. *Afrixalus spinifrons*. Pp.131-133 in Minter, L.R., M. Burger, J.A. Harrison, H.H. Braack, P.J. Bishop, and D. Koepfer, eds. *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series#9. Smithsonian Institution, Washington, DC.

10.4.3.3 Natal Leaf-Folding Frog



Scientific name: *Breviceps sopranus* **Common name:** Whistling Rain Frog

Photo: Xander Combrink

Description: Morphologically this species is difficult to distinguished from *B. mossambicus* and *B. bagginsi*, but can be easily distinguished from all *Breviceps* species by its advertisement call, a series of long, unpulsed, high-pitched whistles.

Rare, Threatened or Endemic Status: This species was only described in 2003. Since the distribution and biology of this species is poorly known, an accurate assessment of its conservation status is not possible at present. It is therefore assigned the category of "Data Deficient" in the Frog Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland.

Distribution: This species is only known to occur in KwaZulu-Natal from Mtunzini to Kosi Bay in the GSLWP, and it follows the Lebombo Mountains northwards along the eastern border of Swaziland to Komatipoort in Mpumalanga.

Historical records and distribution in the GSLWP: Records from the Sand Forests of the Western Shores and uMkhuze as well as Dukuduku Forest. During 2004 recordings were made from the edge of the Coastal Dune Forest, east of Lake Zilonde and the Western Shores (Ndlozi Peninsula).

Habitat: This species inhabits a wide variety of vegetation types within the Forest & Savanna biomes. In the Greater St Lucia Wetland Park, it seems that *B. sopranus* occurs in forests while *B. mossambicus* occupies the open grassy areas between forest patches. In Bushveld it appears that *B. sopranus* occurs in sympatry with *B. adspersus*.

Biology/Life history: Breeding takes place between October and early January. Calling males take up elevated positions on fallen branches or small plants or call from the soil surface. Amplexus and oviposition have not been observed.

Importance of the GSLWP for its conservation: This species is only known to occur in two protected areas in South Africa, Hluhluwe-Imfolozi Game Reserve and the GSLWP. The Greater St Lucia Wetland Park is therefore crucially important for the future viability of this poorly known species.

Threats: Outside protected areas much of the natural habitat of this species has been destroyed for the farming of crops such as sugarcane. Invasive alien species, forestry and deforestation in areas such as Dukuduku forest are also threats.

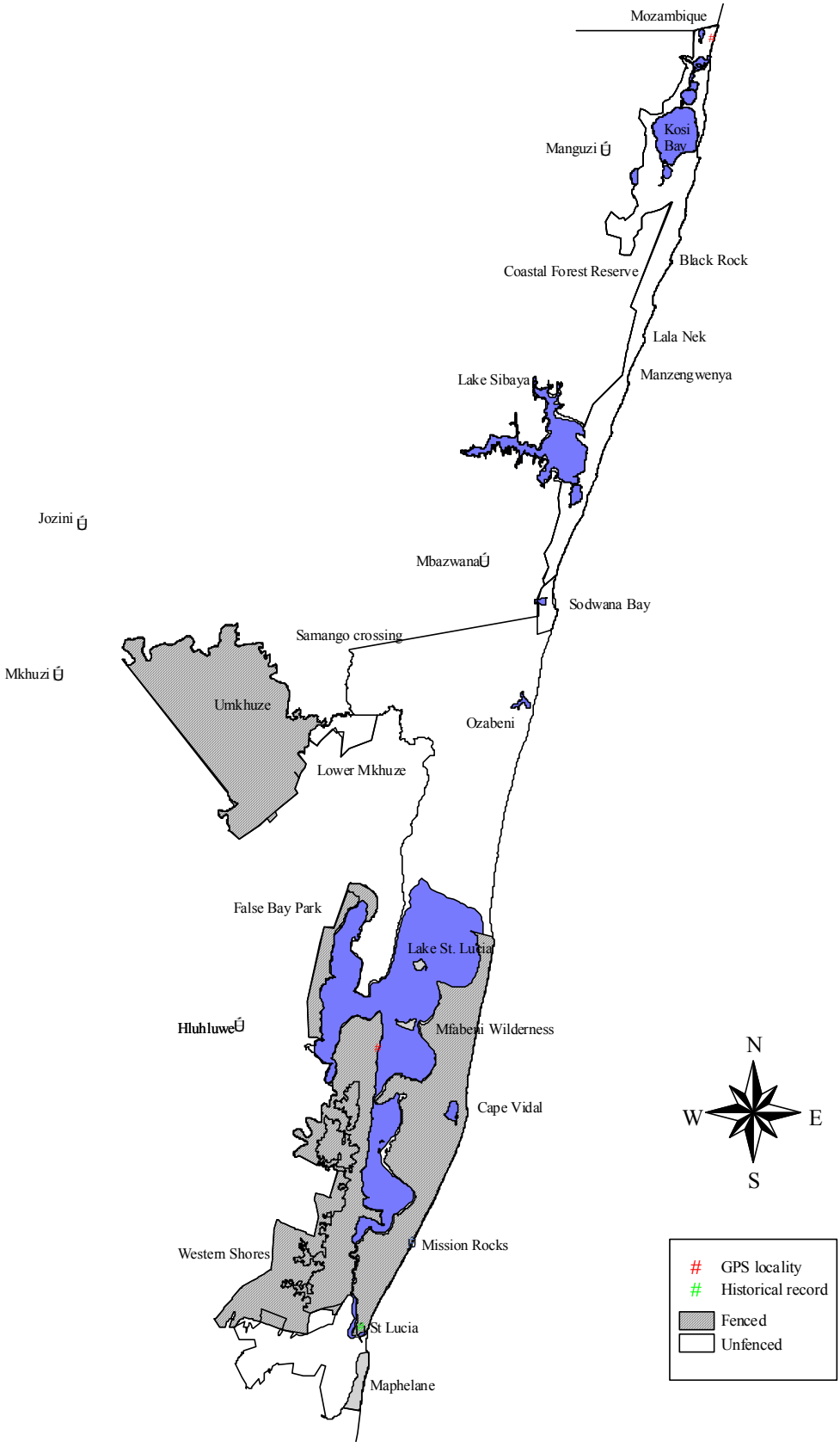
Relevant survey methods: Record calling males in suitable habitat. Pitfall traps with adjacent drift fences have been successful in trapping this fossorial species. Opportunistic searches in old fallen down trees.

Estimate population size/abundance in the GSLWP: Unknown but unlikely to be large.

References:

Minter, L. R. 2004. *Breviceps sopranus* in Minter, L.R., M. Burger, J.A. Harrison, H.H. Braack, P.J. Bishop, and D. Koepfer, eds. *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series#9. Smithsonian Institution, Washington, DC. pp.189 – 191.
Minter, L.R. 2005. Personal communication.

10.4.3.4 Whistling Rain Frog



Scientific name: *Leptopelis natalensis* **Common name:** Forest Tree Frog

Photo: Xander Combrink

Description: A medium sized tree frog with expanded ends to each digit and webbing between digits. The colour varies from plain green or cream to mottled with brown patches. The underside is granular and cream coloured with the underside of the limbs yellowish. This species has a loud and unmistakable advertisement call, which consists of a loud quack, usually emitted twice in quick succession.

Rare, Threatened or Endemic Status: A rare species, which is also endemic to KwaZulu-Natal and the northeastern part of the Eastern Cape Province.

Distribution: It occurs from the Moçambique border in the north along the KwaZulu-Natal coast to Manubi (Eastern Cape Province) in the south.

Historical records and distribution in the GSLWP: The species is associated with Coastal Forest from Moçambique in the north to Maphelane in the south. During 2004 a specimen was found at the St Lucia research office and in 2005 two specimens were found, one at Lake Zilonde on the Moçambique border and the other in St Lucia village.

Habitat: Coastal Forest, Sand forest and Coastal Bushveld mixed with Grassland. It is usually found near wetland areas in relatively dense, indigenous forest, but could be encountered in stagnant water as well.

Biology/Life history: Breeding takes place in summer during the rainy season. Males call from exposed positions, as high as three metres above the ground in the foliage of trees/bushes above or close to water. Females are much larger than males. After mating the female excavates a shallow burrow in the ground, where up to 200 eggs are deposited. About two-weeks later the tadpoles leave the egg capsule and find their way to the water.

Importance of the GSLWP for its conservation: The GSLWP is the largest and most important protected area within the distribution of *L. natalensis.*

Threats: Habitat loss resulting from development, water drainage, invasions of alien plants and afforestation. In areas of KZN, *Eucalyptus* plantations have lowered the water table to such an extent that many pans close to Coastal Dune Forest have completely disappeared.

Relevant survey methods: Searching of suitable habitats as well as sonagraphic (pictorial representation of a sound) analysis after sound recordings have been made.

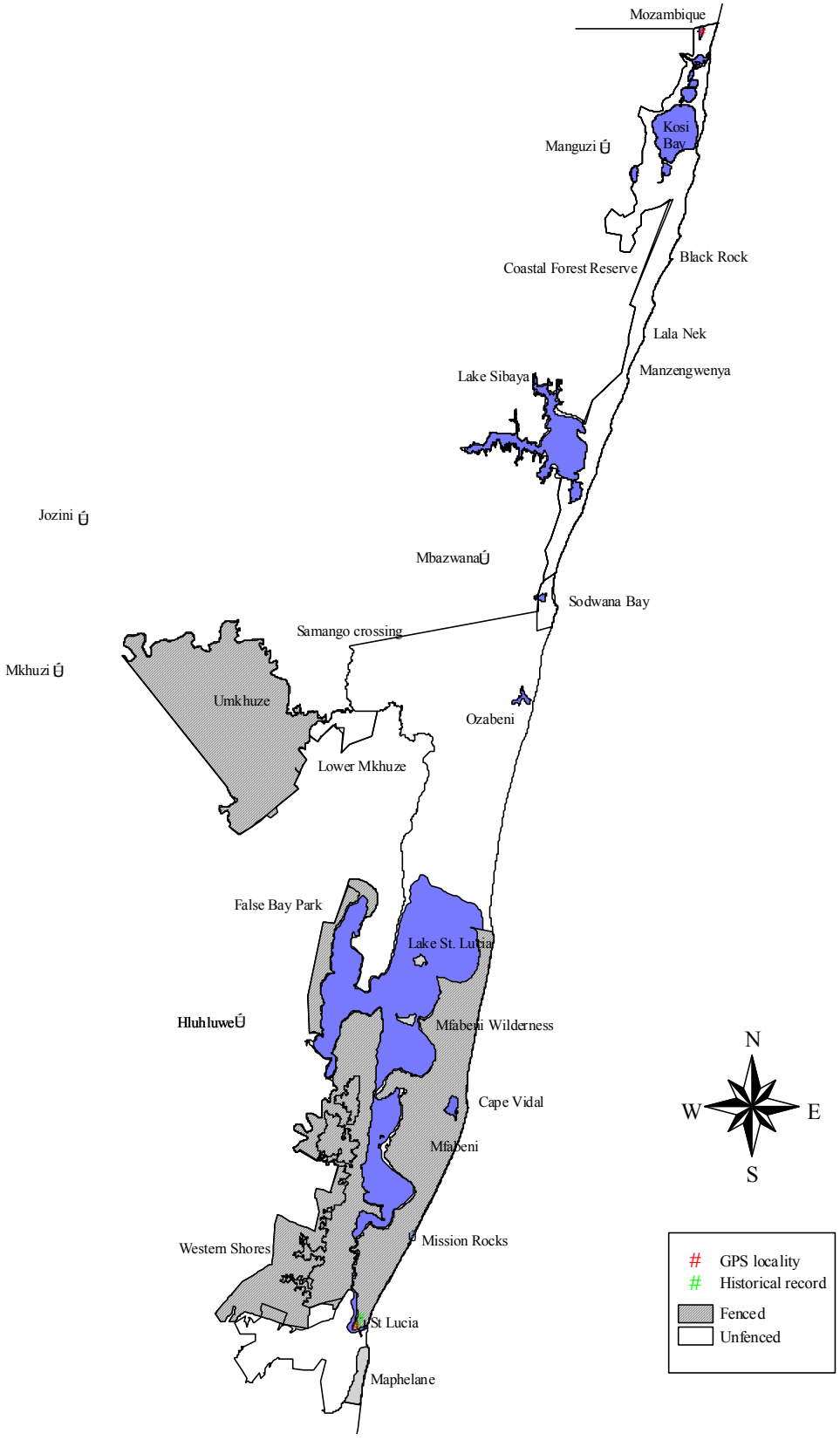
Estimate population size/abundance in the GSLWP: Unknown, but local populations of this rare species are thought to be small.

References:

Passmore, N. I. & Carruthers, V. C. 1995. South African Frogs - A Complete Guide. Southern Book Publishers, Witwatersrand University Press.

Bishop, P. J. 2004. *Leptopelis natalensis* (Smith 1894). Pp.160 - 162 in Minter, L.R., M. Burger, J.A. Harrison, H.H. Braack, P.J. Bishop, and D. Koepfer, eds. *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series#9. Smithsonian Institution, Washington, DC.

10.4.3.5 Forest Tree Frog



10.5 FRESHWATER & ESTUARINE FISH

A fish species is included in this category if it breeds in freshwater or estuaries or is dependent on estuaries.

10.5.1 Flagship species

- Sibayi Goby (*Silhouettea sibayi*)
- Golden Sleeper (*Hypseleotris cyprinoides*)
- Burrowing Goby (*Croilia mossambica*)

10.5.2 Focal species

Currently, the project does not focus on fish surveys.

10.5.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
1	*Silhouettea sibayi*	Sibayi Goby	4		5	5	14
2	*Taenioides jacksoni*	Bearded Eelgoby	4	3	3	2	12
3	*Hypseleotris cyprinoides*	Golden Sleeper	4		4	2	10
4	*Croilia mossambica*	Burrowing Goby	3		3	4	10
5	*Aplocheilichthys myaposae*	Natal Topminnow	2		4	2	8
6	*Serranochromis meridianus*	Lowveld Largemouth	3	1	1	2	7
7	*Redigobius dewaali*	Checked Goby	3		3	1	7
8	*Nothobranchius orthonotus*	Spotted Killifish	3		1	1	5
9	*Labeobarbus natalensis*	Scaly	1		3	1	5
10	*Ctenopoma intermedium*	Blackspot Climbing Perch	3		1	1	5
11	*Clarias theodorae*	Snake Catfish	2		1	1	4
12	*Oreochromis placidus*	Black Tilapia	1		1	1	3
13	*Eleotris melanosoma*	Broadhead Sleeper	2			1	3
14	*Brycinus lateralis*	Striped Robber	1		1	1	3

Western Shores of Lake St Lucia, December 2003

Aerial view of freshwater seepage on the eastern shores of Lake St Lucia. The seepage creates freshwater refugia used by a multitude of species, including crocodile, bird and freshwater fish.

Scientific name: *Silhouettea sibayi* **Common name:** Sibaya Goby

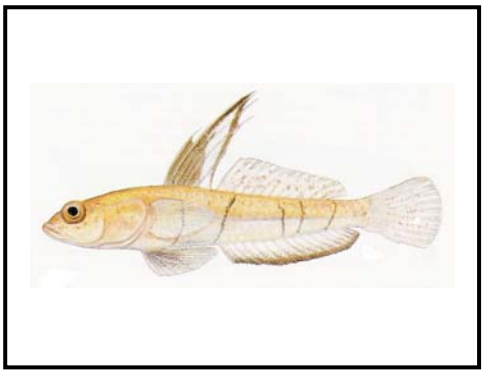


Illustration: Prof Paul Skelton & SAIAB

Description: A small, cryptic goby, maximum size 40 mm with a naked chest (prepelvic area) and large eyes. Three to five subvertical lines of small spots on the side of the body. Dorsal fins of males have two to four tall and filamentous spines, dorsal fin rays fewer than anal fin rays.

Rare, Threatened or Endemic Status: This species is listed in the South Africa Red Data Book on Fishes (1987) as Rare and is endemic to Maputaland.

Distribution: This very rare species was only known from two localities, Lake Sibaya and Kosi Bay, until it was recently recorded on the Western and Eastern Shores of the St Lucia estuary.

Historical records and distribution in the GSLWP: Mainly limited to Kosi system and Lake Sibaya where it is not common. Known only from a single specimen in Kosi Bay. Was recently (1994) recorded in False Bay Park by M Coke near Moto Stream mouth and on the Eastern Shores by S Charter in the Nkazana Stream (2003).

Habitat: Found in benthic habitats, and occurs on sandy slopes from shallows to about 20 metres. Has been observed in open habitat and areas with macrophyte cover.

Biology/Life history: *S. sibayi* buries itself in sand leaving only the eyes uncovered. The long dorsal fin is erected above the sand layer either for intraspecific communication or as a lure to attract prey. The breeding biology has not been studied.

Importance of the GSLWP for its conservation: The conservation value and importance of the Greater St Lucia Wetland Park for the total known population of this species is extremely high, as this species is rare and endemic to the Greater St Lucia Wetland Park.

Threats: Loss of habitat through inappropriate development and pollution around Lake Sibaya.

Relevant survey methods: Routine or specific fish sampling using standard techniques.

Estimate population size/abundance in the GSLWP: Unknown

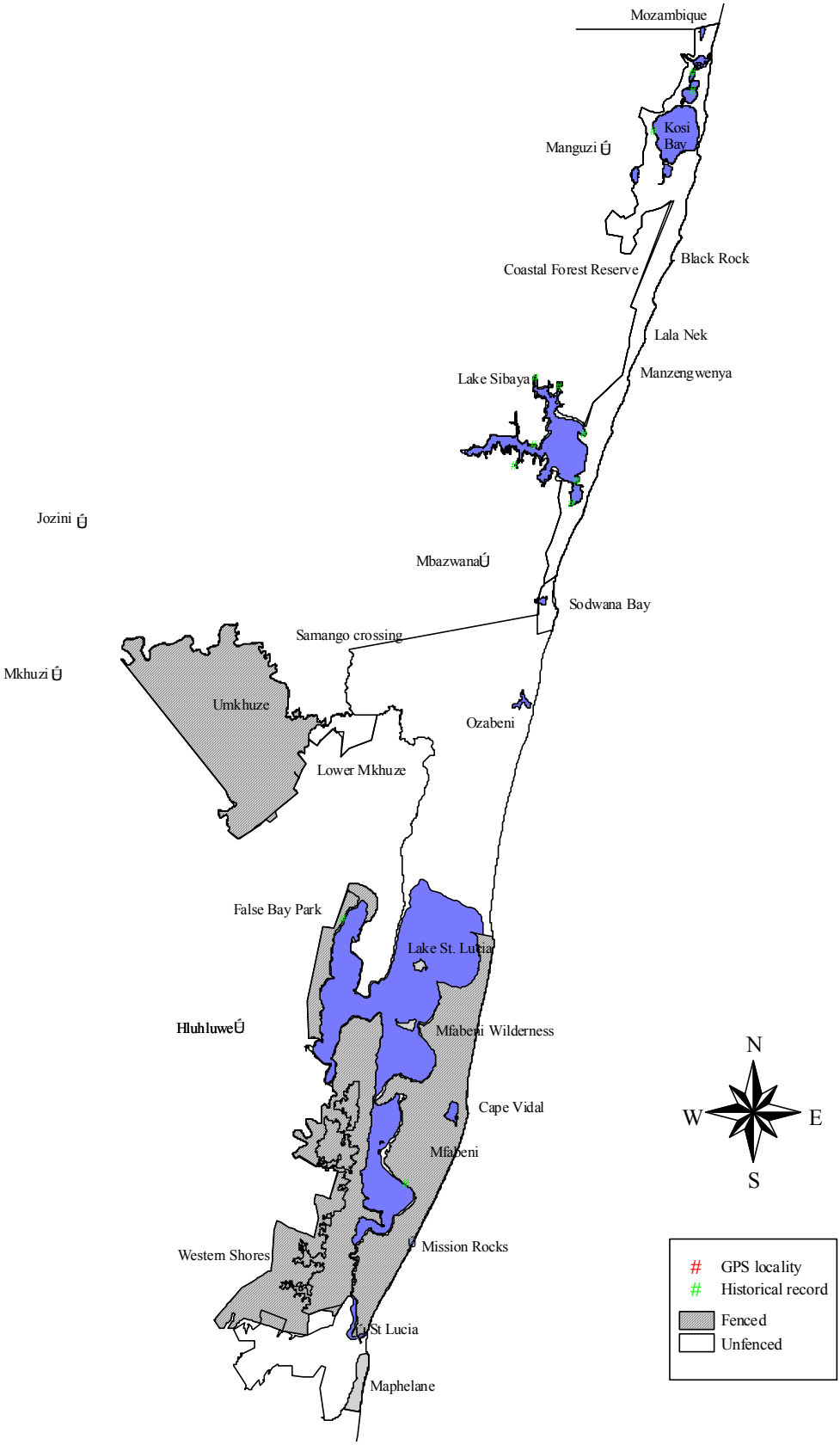
References:

Skelton, P. 1987. South African Red Data Book – Fishes. South African National Scientific programmes report No. 137. CSIR, Pretoria.

Skelton, P. 1993. A Complete Guide to the Freshwater Fishes of Southern Africa. Southern Book Publishers, Cape Town.

Vrdoljak, S.M. 2004. Spatial and Temporal Dynamics of Freshwater Wetlands on the Eastern Shores of St Lucia, as Reflected by their Macrofaunal Composition and Distribution. University of KwaZulu Natal. Unpublished MSc Thesis.

10.5.3.1 Sibaya Goby



Scientific name: *Taenioides jacksoni* **Common name:** Bearded Goby

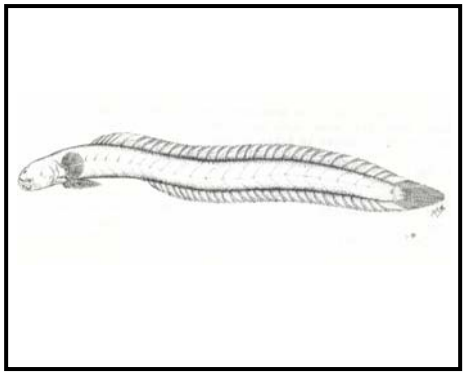


Illustration: Prof Paul Skelton & SAIAB

Description: A goboid species, attaining 132 mm in length with a naked elongated body with the pelvic fins united. The dorsal and anal fins are long and confluent with the caudal fin and are enveloped in thick skin. The eyes are very small and vestigial, the head has scattered tiny flaps.

Rare, Threatened or Endemic Status: This rare species is listed in the South African Red Data Book on Fishes (1987) as Vulnerable and is endemic to a few selected estuaries of KZN.

Distribution: Restricted to a few estuaries in KwaZulu-Natal. Recorded from Lake St Lucia and from the Mgeni and Mkomazi estuaries.

Historical records and distribution in the GSLWP: Recorded from Lake St Lucia. Duncan Hay possibly recorded the first specimens from the Narrows in 1983.

Habitat: It burrows in soft anaerobic sediments (mud) under saline conditions.

Biology/Life history: Unknown.

Importance of the GSLWP for its conservation: The species is not widely distributed and appears to be thinly distributed and much of its preferred habitat in its distribution is under some kind of threat.

Threats: It appears restricted to estuaries, many of which are under threat from degradation, localized industrial pollution, sedimentation, particularly severe for the Mkomazi estuary. Other threats are development, increased recreational use and the smothering of soft anaerobic mud through course sand deposits.

Relevant survey methods: Routine or specific fish sampling using standard techniques. Electrofishing does not work well in water with high conductivity. It seems that the Gobidae react badly to the electric current and need quite a long recovery time, so it should be used with care.

Estimate population size/abundance in the GSLWP: Unknown but probably not large.

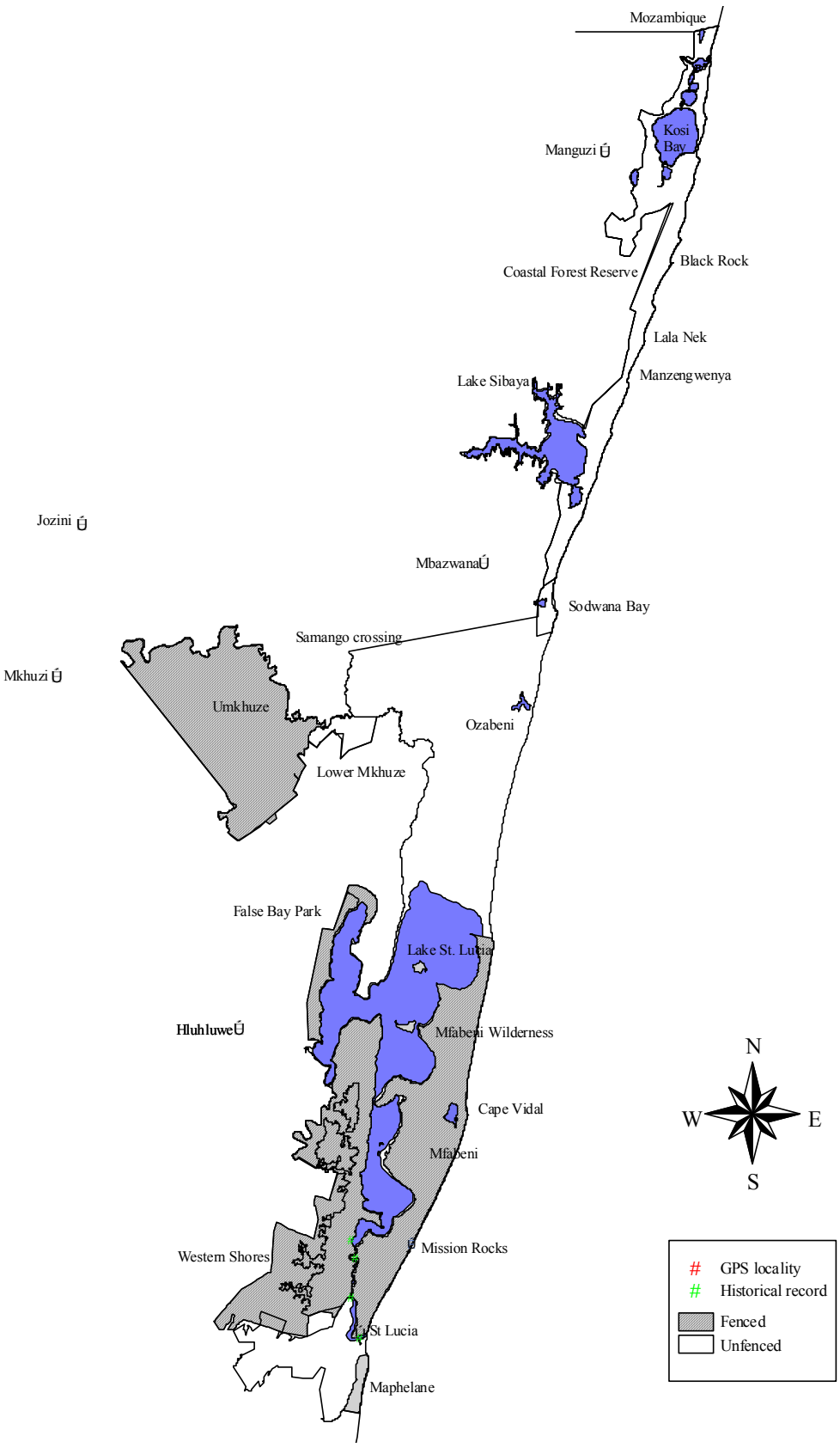
References:

Anon., 2000. Fish collection database of the J.L.B. Smith Institute of Ichthyology, Grahamstown, South Africa.. J.L.B. Smith Institute of Ichthyology, Grahamstown, South Africa

Skelton, P. 1987. South African Red Data Book – Fishes. South African National Scientific programmes report No. 137. CSIR, Pretoria.

Vrdoljak, S.M. 2004. Spatial and Temporal Dynamics of Freshwater Wetlands on the Eastern Shores of St Lucia, as Reflected by their Macrofaunal Composition and Distribution. University of KwaZulu Natal. Unpublished MSc Thesis.

10.5.3.2 Bearded Goby



Scientific name: *Hypseleotris dayi* **Common name:** Golden Sleeper

Illustration: Prof Paul Skelton & SAIAB

Description: A small fish, attaining 50 mm, with scaled head and two dorsal fins. Mouth terminal with small villiform teeth. The caudal fin is truncate with 15 segmented rays. In life, specimens are transparent ventrally and both the head and body have a golden sheen with a dark stripe through eye and body.

Rare, Threatened or Endemic Status: This species is listed in the South African Red Data Book on Fishes (1987) as Rare and is endemic to KwaZulu-Natal.

Distribution: *H. dayi* is known only from a few estuarine systems in KZN, from Mpambanyoni in the south to Kosi Bay in the north, of which several are being threatened by human activity. It appears to be restricted to estuarine systems.

Historical records and distribution in the GSLWP: Known only from a few ad hoc reports. It has been recorded from a freshwater stream near Charters Creek, the Msunduzi River that is a tributary of the uMkhuze, the Kosi system close to the mouth and lakes Makhawulani, Mpungwini and the Mtando channel. It was recorded during a 2002/2003 survey, in an area of groundwater seepage at the lake's edge on the eastern shore of Brodie's crossing.

Habitat: It occurs in freshwater, usually near the entrance of small streams into estuaries and the reed margins of estuarine lakes and channels. It seems to favour shallow vegetated marginal habitats, especially during times of breeding. Groundwater seepages at the edges of the lake, especially where the water is channeled into small streams by hippo paths, may be particularly important habitats for this species in the GSLWP.

Biology/Life history: Very little is known of this species, but breeding seems to take place in the extreme shallow margins of waters following flooding. It has been reported that this species is much more common in the Kosi system during periods of flooding as opposed to during dry regimes.

Importance of the GSLWP for its conservation: The species has a restricted natural distribution and most of that is inside the GSLWP, thus making the Park extremely important for the conservation and future viability of the species. Outside the GSLWP much of its preferred habitat is under some kind of threat.

Threats: Degradation of estuaries, human development and pollution. The Mpambanyoni estuary is threatened by industrial pollution, sugarcane encroachment and severe siltation.

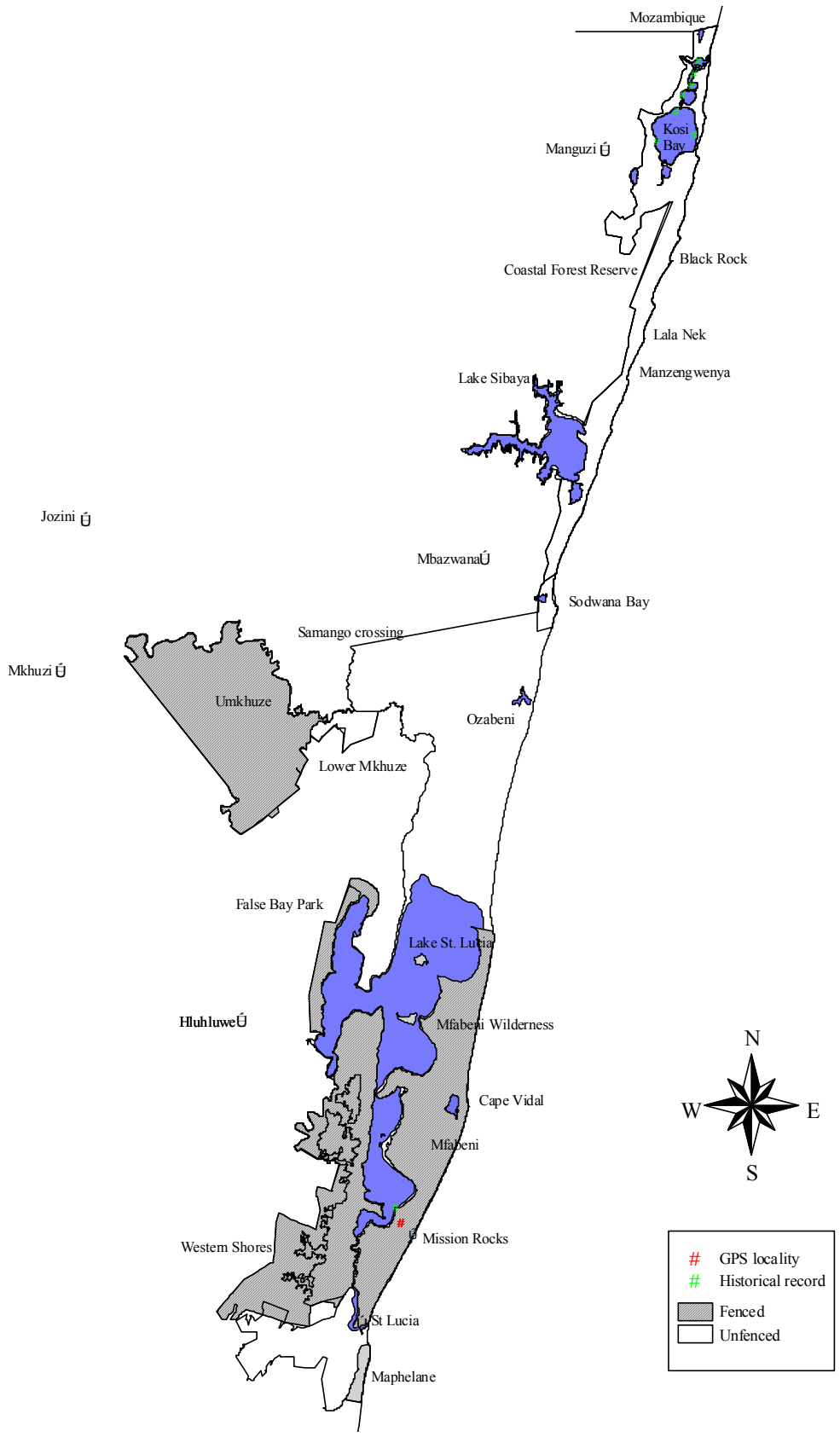
Relevant survey methods: Netting, electrofishing (electrodes attached to a generator) and other fish sampling techniques.

Estimate population size/abundance in the GSLWP: Unknown but probably not large. Likely to occur at other locations along the Eastern Shore where freshwater flows into the lake.

References:

Kyle, R. 1981. The Golden Sleeper Fish – Extension of Range. *Lammergeyer*. 31:43.
Skelton, P. 1987. South African Red Data Book – Fishes. South African National Scientific programmes report No. 137. CSIR, Pretoria.
Vrdoljak, S.M. 2004. Spatial and Temporal Dynamics of Freshwater Wetlands on the Eastern Shores of St Lucia, as Reflected by their Macrofaunal Composition and Distribution. University of KwaZulu Natal. Unpublished MSc Thesis

10.5.3.3 Golden Sleeper



Scientific name: *Croilia mossambica* **Common name:** Burrowing Goby

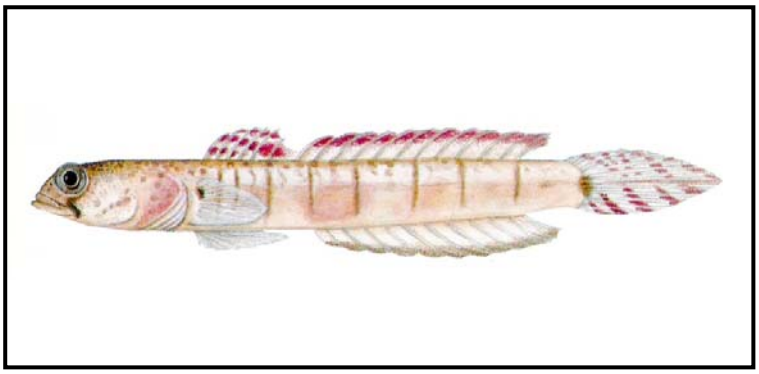


Illustration: Prof Paul Skelton & SAIAB

Description: The head and body is elongated and compressed with a steeply sloping snout and eyes that are large and projecting. The dorsal fin is separated but partly connected by a membrane and the caudal fin is pointed. The appearance is translucent, with brown spots on the dorsal fin and head. The caudal fin of males has vertical bars, but the females have a single horizontal bar on the lower edge. Scales are absent. This species can attain 64 mm in total length.

Rare, Threatened or Endemic Status: This rare species is a near endemic to KwaZulu-Natal.

Distribution: *C. mossambica* is found in coastal lakes and estuaries in KwaZulu-Natal extending into southern Moçambique.

Historical records and distribution in the GSLWP: Present throughout most of the Kosi Bay lakes and is present in Lake Sibaya.

Habitat: Found in coastal lakes and estuaries.

Biology/Life history: Lives in a burrow that is excavated in clean sand, often in association with the sand prawn *Callianassa kraussii*. Diet consist mainly of small bottom-living invertebrates. The males are territorial and in this species breeding takes place throughout summer and autumn.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park extends across a large part of this species distribution, and contains most of the suitable habitat and can therefore be considered as very important for the conservation of *C. mossambica*.

Threats: Human disturbance due to increasing numbers of people in the area. This causes sedimentation, erosion and degradation of estuaries and lakes. Pollution to Lake Sibaya is a serious concern in such a land locked system and would have serious implications to its flora and fauna. Water extraction from Lake Sibaya is increasing and the lake level has already declined to levels which are arousing concern in some quarters.

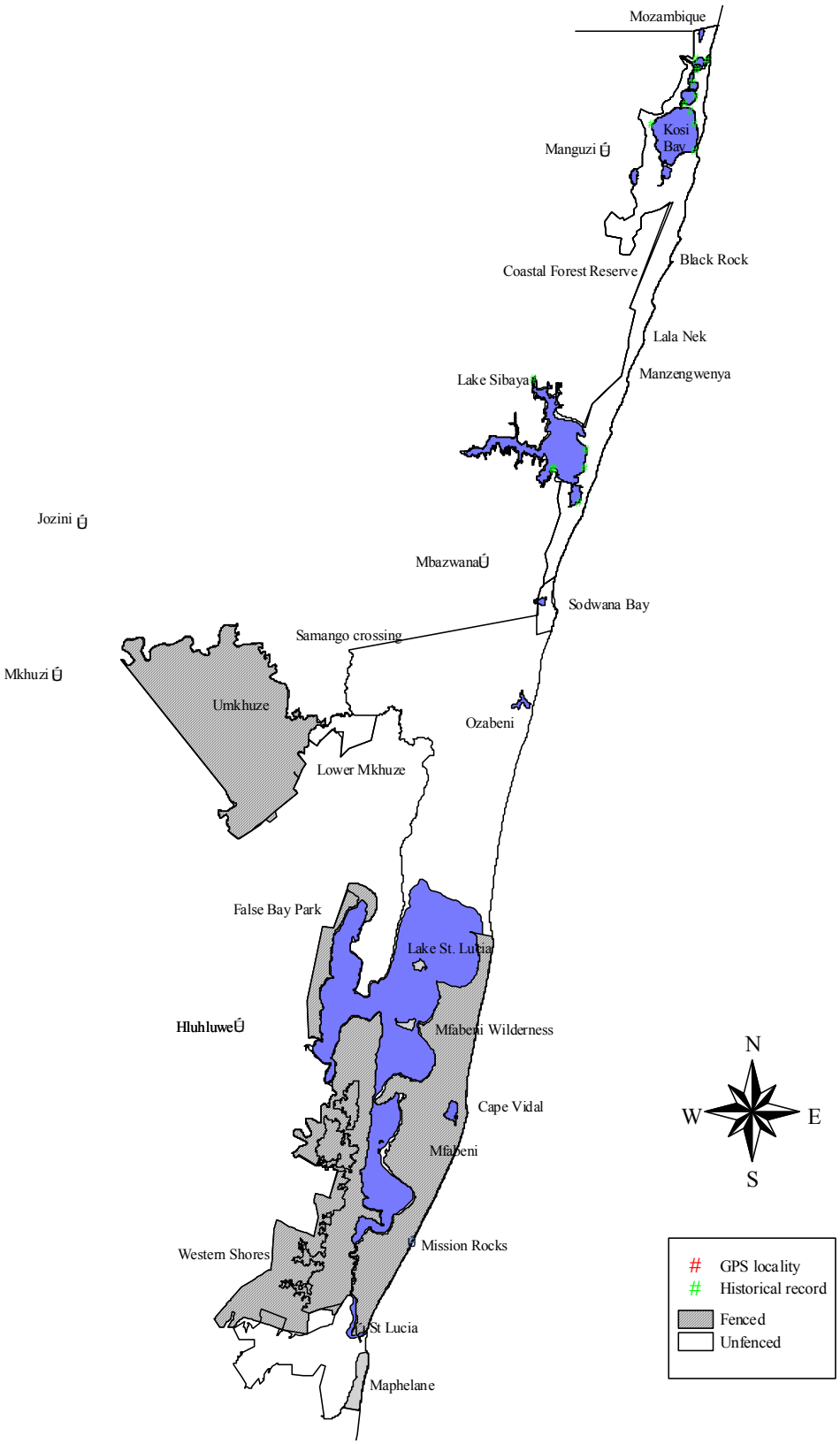
Relevant survey methods: Routine or specific fish sampling, using standard techniques. This species can easily be seen during normal goggling and its burrows may readily be counted for monitoring purposes.

Estimate population size/abundance in the GSLWP: Unknown but it is abundant over extensive areas of the Kosi Bay lakes and areas of Lake Sibaya.

References:

Kyle, R. 1998. A suggested revision of the status "rare" given to the Burrowing Goby, *Croilia mossambica*. *Lammergeyer*. 45.
Skelton, P. 2001. A Complete Guide to the Freshwater Fishes of Southern Africa. Southern Book Publishers, Cape Town.
Bruton, M. N. & H. M. Kok, *in* Studies on the Ecology of Maputaland. (ed. Bruton, M.N & K.H. Cooper). 1980. Rhodes University and WESSA. Cape & Tvl. Printers.
Skelton P. H. 1987. *South African Red Data Book – Fishes*. South African National Scientific Programmes Report No 137.

10.5.3.4 Burrowing Goby



Scientific name: *Aplocheilichthys myaposae* **Common name:** Natal Topminnow

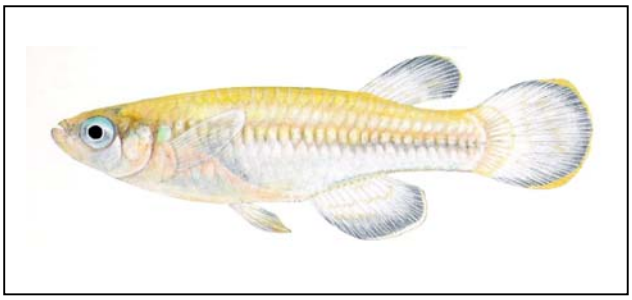


Illustration: Prof Paul Skelton & SAIAB

Description: The body is slender and elongated with males being more colourful than females. The colour is translucent yellowish green with a light silvery blue iridescence on the body scales, sometimes an iridescent blue patch on the upper half of the gill cover. The iris of the eye is silvery blue, the female fins are clear, but the dorsal, caudal and anal fins of males have a distinct sooty black colour with a few yellow spots and a lemon yellow outer edge. It can attain 55 mm total length.

Rare, Threatened or Endemic Status: This rare fish species is endemic to the lakes and rivers of Maputaland, in KwaZulu-Natal.

Distribution: *A. myaposae* is confined to a narrow distribution down Maputaland, from the Kosi Bay lakes in the north to Umlalazi in the south.

Historical records and distribution in the GSLWP: Kosi Bay and surrounding streams as well as Lake Sibaya and its streams.

Habitat: It is found in coastal lakes and rivers where it inhabits inshore vegetated areas of lakes and well vegetated streams.

Biology/Life history: The species feeds on aquatic insects, such as mosquito larva, and algae. It is a serial spawner, laying its eggs on vegetation.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park extends across a large part of this species distribution and can therefore be considered as very important for the conservation of *A. myaposae*.

Threats: The St Lucia catchments, which include the total South African population, are increasingly subjected to environmental pressures due to increasing numbers of people in the area. This causes eutrophication, sedimentation, erosion and degradation that threaten much of the South African distribution. Pollution is also a problem and water abstraction is affecting the main rivers. *Eucalyptus* plantations are dramatically reducing the amount of ground and surface water in some areas.

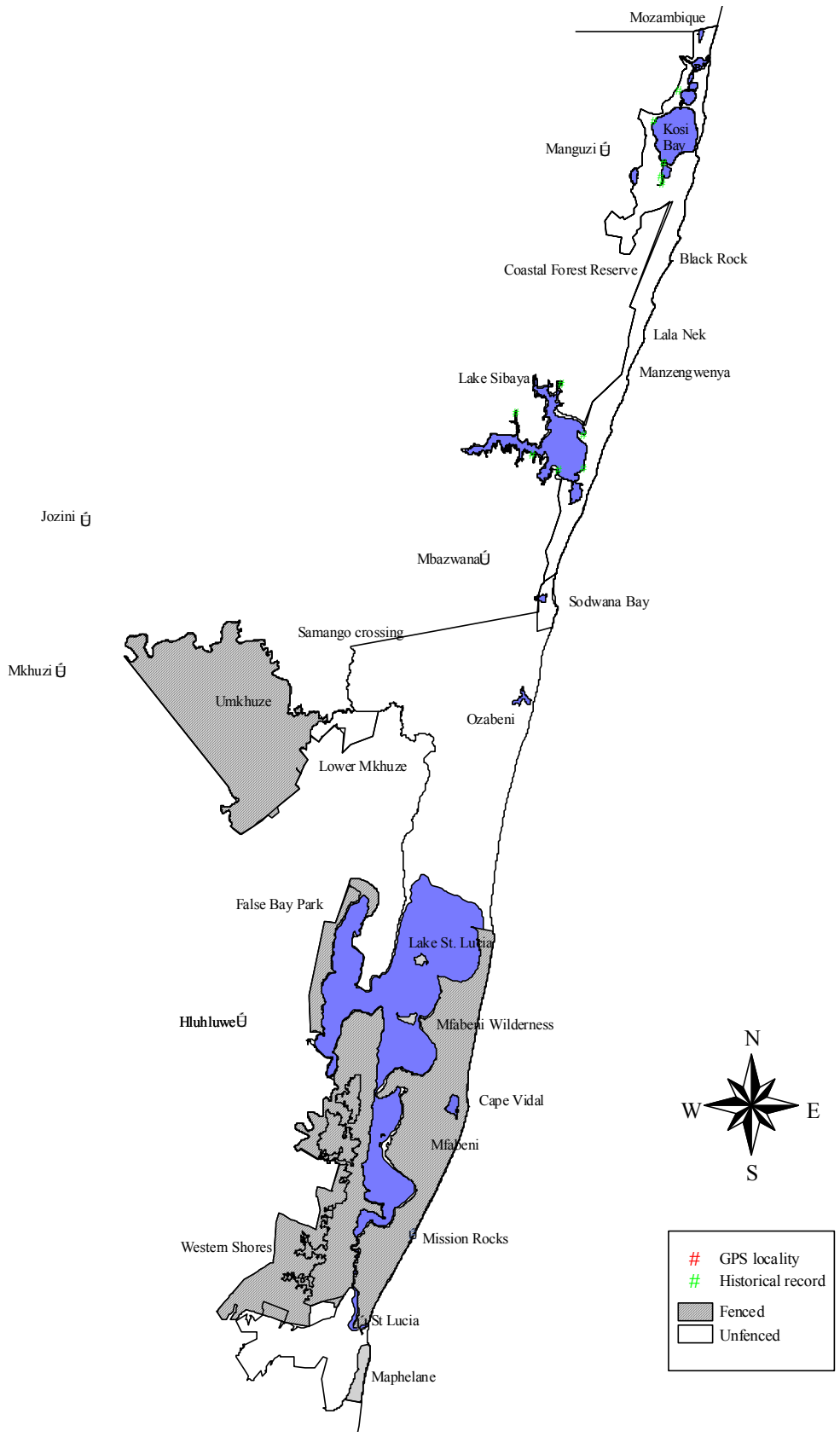
Relevant survey methods: Routine or specific fish sampling, using standard techniques.

Estimate population size/abundance in the GSLWP: Unknown, but locally abundant in suitable habitats.

References:

Skelton, P. 2001. A Complete Guide to the Freshwater Fishes of Southern Africa. Southern Book Publishers, Cape Town.
Bruton, M. N. & H. M. Kok, *in* Studies on the Ecology of Maputaland. (ed. Bruton, M.N & K.H. Cooper). 1980. Rhodes University and WESSA. Cape & Tvl. Printers.

10.5.3.5 Natal Topminnow



11 INVERTEBRATES

11.1 BUTTERFLIES

11.1.1 Flagship species

- White-spotted Saphire (*Iolanus lulua*)
- Flame Border Charaxes (*Charaxes protoclea azota*)

11.1.2 Focal species

Currently, the project is not conducting any butterfly surveys

11.1.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	R	T	E	PS	TOTAL
1	*Teriomima zuluana*	4	3	5	5	17
2	*Orniphilodotos peucetia penningtoni*	4	3	5	5	17
3	*Hypolycaena lochmophila*	4	3	5	5	17
4	*Iolaus lulua*	4	3	5	5	17
5	*Aloeides damarensis mashona*	3		5	5	13
6	*Iolaus diametra natalica*	3		4	4	11
7	*Borbo micans*	4				4
8	*Desmolycaena mazoensis*	4				4
9	*Abantis paradisea*	4				4
10	*Cygaritis apelles*	4				4
11	*Colotis amata calais*	4				4
12	*Coeliades libeon*	4				4
13	*Deudorix vansoni*	4				4
14	*Caprona pillaana*	4				4
15	*Deudorix dinomenes*	4				4
16	*Borbo holtzii*	4				4
17	*Borbo ferruginea dondo*	4				4
18	*Aloeides aranda f. zilka*	4				4
19	*Acraea rabbaiae perlucida*	4				4
20	*Abantis venosa*	4				4
21	*Chloroselas pseudozeritis*	4				4
22	*Neptis jordani*	4				4
23	*Fresna nyassae*	4				4
24	*Gegenes hottentota*	4				4
25	*Hypolimnas deceptor*	4				4
26	*Deloneura millari*	4				4
27	*Euriphene achlys*	4				4
28	*Spialia confusa confusa*	3				3
29	*Acraea acrita acrita*	3				3
30	*Precis ceryne ceryne*	3				3
31	*Anthene lemnos lemnos*	3				3
32	*Aphnaeus hutchinsonii*	3				3
33	*Leptotes pulchra*	3				3
34	*Ypthima granulosa*	3				3
35	*Euphaedra neophron neophron*	3				3
36	*Charaxes protoclea azota*	3				3
37	*Lachnocnema durbani*	3				3
38	*Dixeia doxo parva*	3				3

No.	Scientific name	R	T	E	PS	TOTAL
39	*Charaxes etesipe tavetensis*	3				3
40	*Salamis anacardii nebulosa*	2				2
41	*Euxanthe wakefieldi*	2				2
42	*Anthene talboti*	2				2
43	*Graphium porthaon porthaon*	2				2
44	*Azanus mirza*	2				2
45	*Borbo borbonica borbonica*	2				2
46	*Kedestes mohozutza*	2				2
47	*Anthene princeps princeps*	2				2
48	*Moltena fiara*	1				1
49	*Precis orithya madagascariensis*	1				1
50	*Acraea violarum*	1				1
51	*Acraea anemosa*	1				1
52	*Leptotes babaulti*	1				1

Scientific name: *Teriomima zuluana*

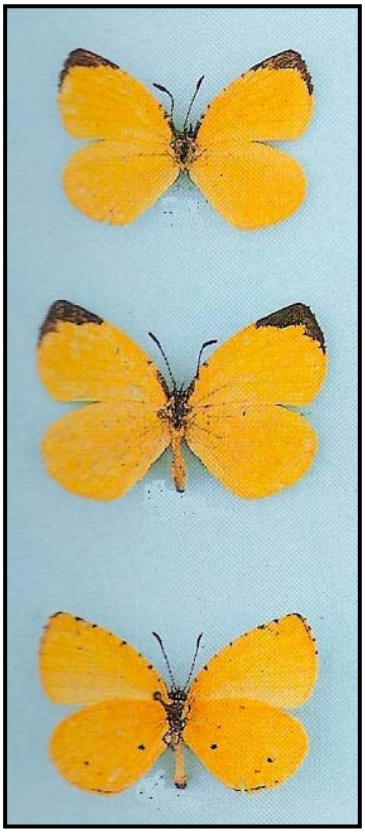


Photo: Pringle, Henning & Ball

Description: The upperside forewing of both the male and female is golden yellow with a dark brown apex. The upperside hindwings are uniformly yellow as well as the underside of both the forewing and the hindwing. Small dark spots are present on the underside.

Rare, Threatened or Endemic Status: This extremely rare species is listed as Vulnerable in the most recent (*in press*) Red Data Book of South African Butterflies and the Greater St Lucia Wetland Park hosts the entire population of this species global distribution.

Distribution: *T. zuluana* has only been recorded in the Greater St Lucia Wetland Park, at False Bay Park and Kosi Bay.

Historical records and distribution in the GSLWP: This species was recorded for the first time in January 1930 on the west side of False Bay (probably False Bay Park today). It was recorded the second time only 10 years later, near Kosi Bay.

Habitat: Found in and around forest patches and it seems that they are partial to deep shade.

Biology/Life history: Very little is known on the life history of this very rare species. Records indicate that they might congregate in large numbers. The flight is slow and weak and when they rest, they often open and close their wings. A female has been observed oviposting by fluttering low around lichen-covered trunks. The foodplant is tree lichen.

Importance of the GSLWP for its conservation: The only known recordings of this rare species have been within the GSLWP, therefore the park plays a critical role for the survival of this species.

Threats: Insecticides, habitat destruction and transformation and pollution.

Relevant survey methods: Capture with an appropriate net by hand, surveys for larva on tree lichen.

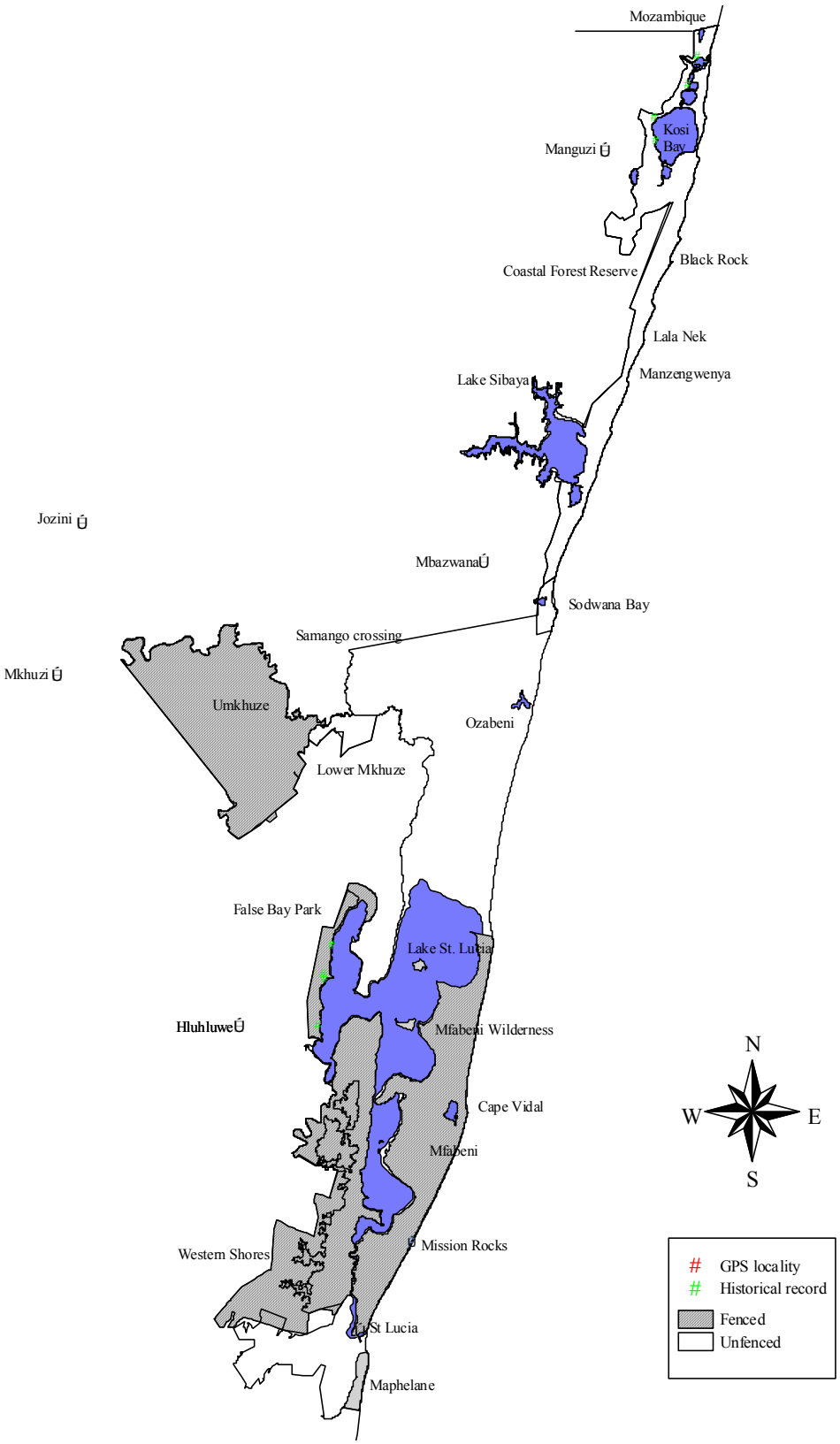
Estimate population size/abundance in the GSLWP: Not known.

References:

Pennington, K. 1978. *Pennington's Butterflies of Southern Africa*. Dickson, C. G. C. & Kroon, D. M. (eds). AD Donker.

Pennington, K.M. 1994. *Pennington's Butterflies of Southern Africa.* Pringle E.L., Henning G.A. and Ball J.B. (Eds.) Struik.

11.1.3.1 Teriomima zuluana



Scientific name: *Ornipholidotos peucetia penningtoni*

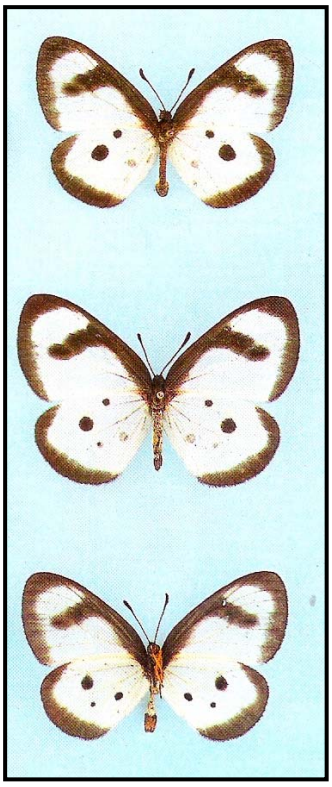


Photo: Pringle, Henning & Ball

Description: A white lycaenid butterfly with black margins and a black transverse band across the apex, from mid-costa to just short of the mid-margin.

Rare, Threatened or Endemic Status: This rare species is listed as Vulnerable in the most recent (*in press*) Red Data Book of South African Butterflies.

Distribution: *O. p. penningtoni* has been recorded on the western side of False Bay (probably False Bay Park today), Hluhluwe Game Reserve, Charters Creek, Manguzi and Mtunzini. It also occurs in southern Moçambique, Zimbabwe, Malaŵi, Zambia and western Tanzania.

Historical records and distribution in the GSLWP: This species was recorded for the first time in December 1939 on the western side of False Bay (probably False Bay Park today). Subsequent recordings have been made at Charters Creek and near Kosi Bay.

Habitat: Coastal and low altitude riverine forest. It has been recorded fluttering one or two feet above the ground in the shade of tall forest trees, coming to rest on small plants in the undergrowth.

Biology/Life history: Nothing is known of the life history of this rare species. Records from Hluhluwe indicate that they could congregate in a colony, but most often when they are encountered only a small number of individuals are together.

Importance of the GSLWP for its conservation: Although this species is found in a number of African countries, the Greater St Lucia Wetland Park plays an important role as protected habitat for the survival of the South African population of this species.

Threats: Habitat destruction through farming development adjacent to the Greater St Lucia Wetland Park, insecticides and pollution.

Relevant survey methods: Capture with an appropriate net by hand.

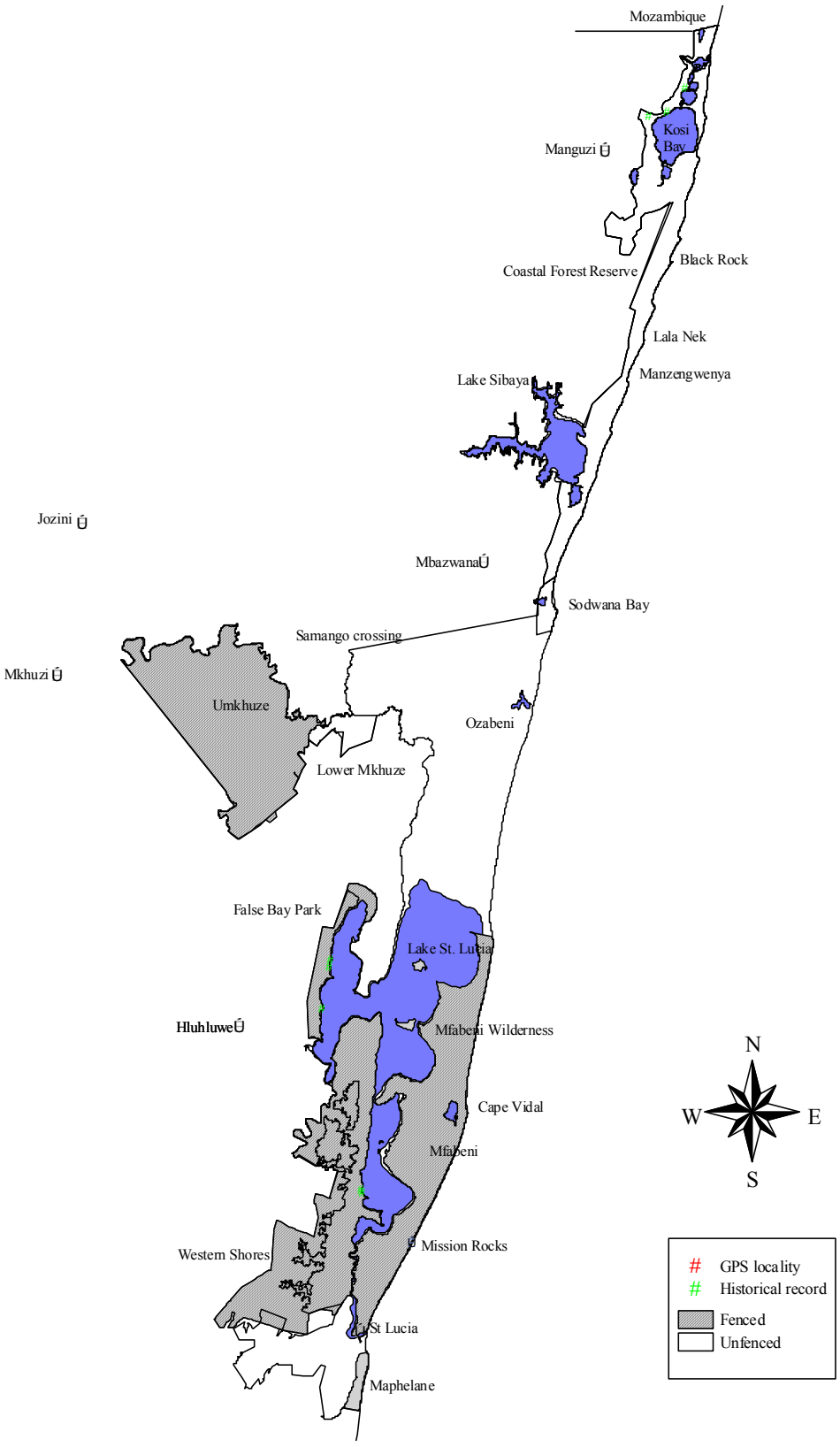
Estimate population size/abundance in the GSLWP: Not known.

References:

Henning, S. F. & Henning, G.A. 1989. *South African Red Data Book – Butterflies*. South African National Scientific Programmes Report No. 158. Proms Ads & Print.

Pennington, K. 1978. *Pennington's Butterflies of Southern Africa*. Dickson, C. G. C. & Kroon, D. M. (eds). AD Donker.

11.1.3.2 Ornipholidotos peucetia penningtoni



Scientific name: *Hypolycaena lochmophila*

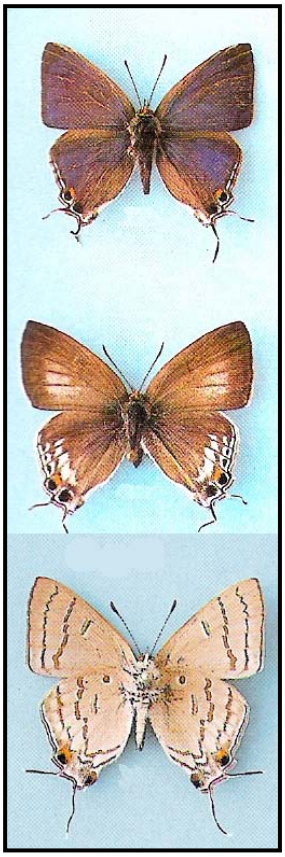


Photo: Pringle, Henning & Ball

Description: The male has a dark purplish-blue upperside and a grey underside with reddish-brown lines. The female is dark brown on the upperside with a whitish-grey patch on the forewing. The larva is green.

Rare, Threatened or Endemic Status: This rare species is listed as Vulnerable in the most recent (*in press*) Red Data Book of South African Butterflies.

Distribution: This species is known only from a few recordings; one in Malaŵi, one in Zimbabwe and the only three recordings from South Africa were made, two (almost at the exact same location) in False Bay Park, a few years apart and another in Manguzi Forest near Kosi Bay.

Historical records and distribution in the GSLWP: The first recording in the GSLWP was made in January 1926 on the western side of False Bay (False Bay Park today). A few years later, a second recording was made by a different collector on the northern end of the same bush where the first specimen was collected. Only in 1965 did it become evident that these recordings were indeed the same as a species that has been collected in 1913 in Malaŵi, but were incorrectly identified by a Rhodesian butterfly specialist. A third recording has been made at Manguzi Forest, near Kosi Bay.

Habitat: *H. lochmophila* is found close to the shoreline, usually in the shade of very large trees. It prefers the shelter of the forest, and has been observed fluttering in the broken sunshine, often settling on epiphytic orchid species which are found on large trees at False Bay Park.

Biology/Life history: Nothing is known of the life history of this rare species, except that the green larva has been recorded feeding on the flowers of *Deinbollia oblongifolia* and that it occurs throughout the year, but is scarcer in winter.

Importance of the GSLWP for its conservation: Although this species is found in a number of African countries, the Greater St Lucia Wetland Park plays an important role as protected habitat for the survival of the South African population of this species.

Threats: Destruction of coastal and riverine forest in northern KwaZulu-Natal.

Relevant survey methods: Capture with an appropriate net by hand. Surveys for larva on *Deinbollia oblongifolia* (food plant).

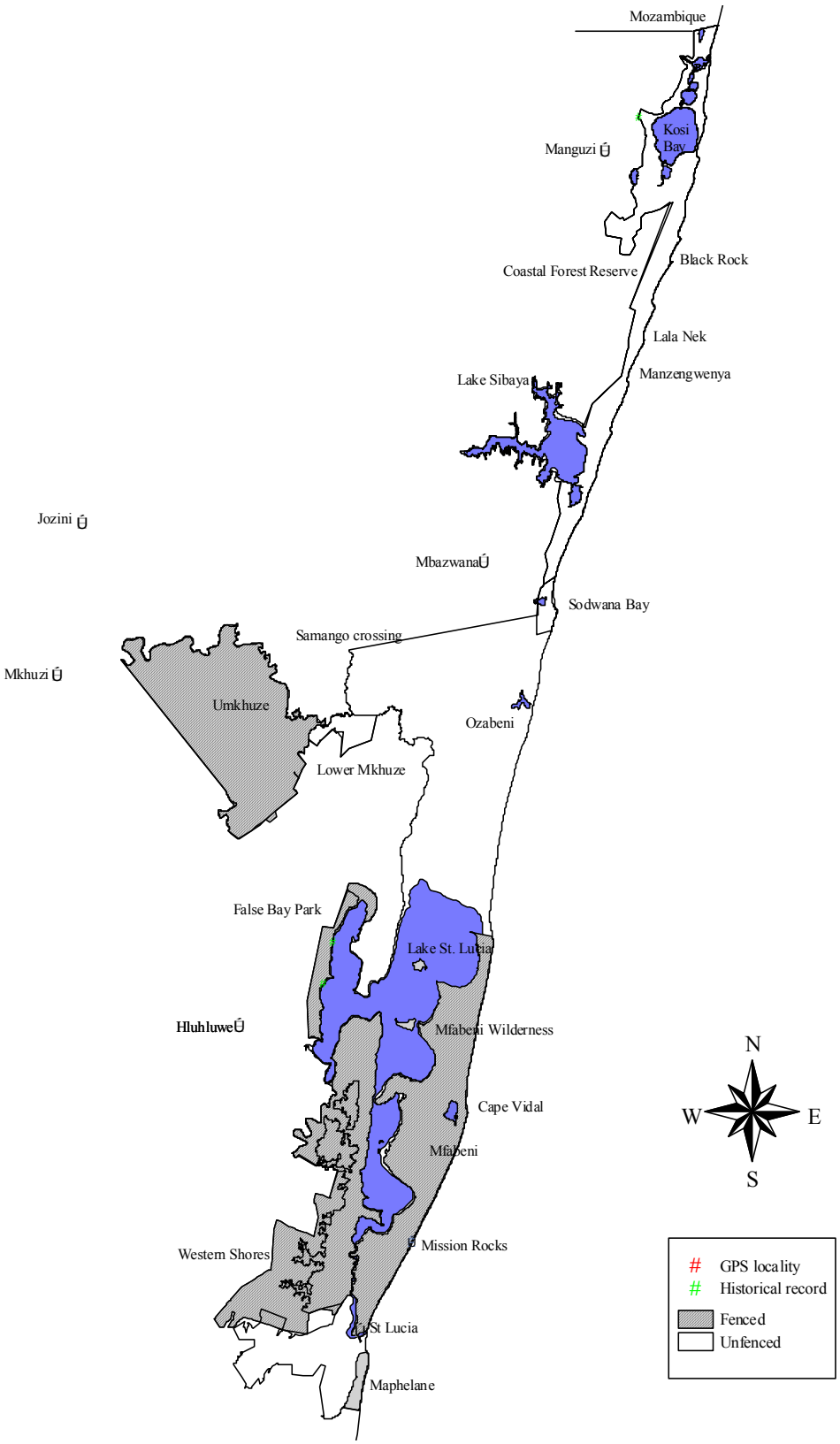
Estimate population size/abundance in the GSLWP: Not known.

References:

Henning, S. F. & Henning, G.A. 1989. *South African Red Data Book – Butterflies*. South African National Scientific Programmes Report No. 158. Proms Ads & Print.

Pennington, K. 1978. *Pennington's Butterflies of Southern Africa*. Dickson, C. G. C. & Kroon, D. M. (eds). AD Donker.

11.1.3.3 Hypolycaena lochmophila



Scientific name: *Iolaus lulua* **Common name:** White Spotted Sapphire

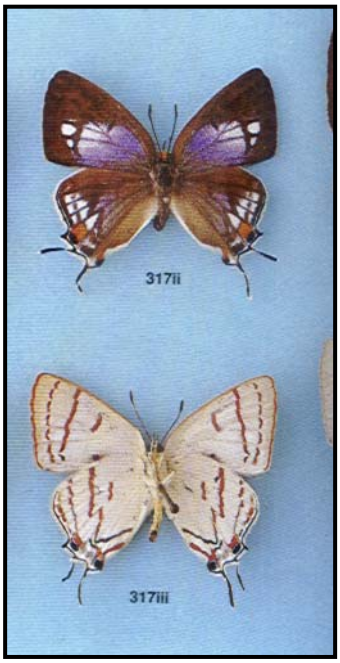


Photo: Pringle, Henning & Ball

Description: A very distinct and beautiful, fast flying and small species. The upperside is dark blue with black margins and distinctive white patches and an orange submarginal mark on the hindwing. The underside is white with a pattern of thin red lines. Due to its speed and size it is very difficult for laypeople to identify.

Rare, Threatened or Endemic Status: This species is listed in the South African Red Data Book on Butterflies as Rare and it endemic to northern Maputaland (KZN) extending west to the foothills of the Lebombo mountains.

Distribution: Recordings from Hluhluwe (1933), False Bay Park (1947), the foot of the Lebombo Mountains and uMkhuze River (1947) and a few other recordings from northern KZN. More recent recordings confirm False Bay Park and add localities in uMkhuze as well as Ndumo Game Reserve.

Historical records and distribution in the GSLWP: Historical records from False Bay Park (1947) have recently been confirmed and extended and a single specimen was collected recently in Sandforest in uMkhuze as part of this project.

Habitat: Inhabits thick riverine bush as well as the dry Sandforest of False Bay Park near Lake St Lucia. It is fond of settling on leaves and branches under the canopy of trees or large bushes, and is frequently found feeding on canopy flowers.

Biology/Life history: The foodplant is a mistletoe species, probably *Tieghemia bolusii*. Eggs are laid on the foodplant and hatch into small larvae that grow into larger ones that resemble closely a drop of bird faeces. They are flattish, irregular and roundish and are easily missed if the hunter is looking for a conventional butterfly larva.

Importance of the GSLWP for its conservation: The role that the GSLWP plays in the conservation of the total population of the species is very important. Most recordings came from False Bay Park in the GSLWP and the possibility of habitat destruction outside the border of the Park increases the value of the GSLWP.

Threats: Insecticides, habitat destruction and pollution. The collection of *Loranthus* spp (mistletoe) by medicinal plant collectors could be a serious threat in some areas as many epiphytic plant species have all but disappeared in many areas due to these people.

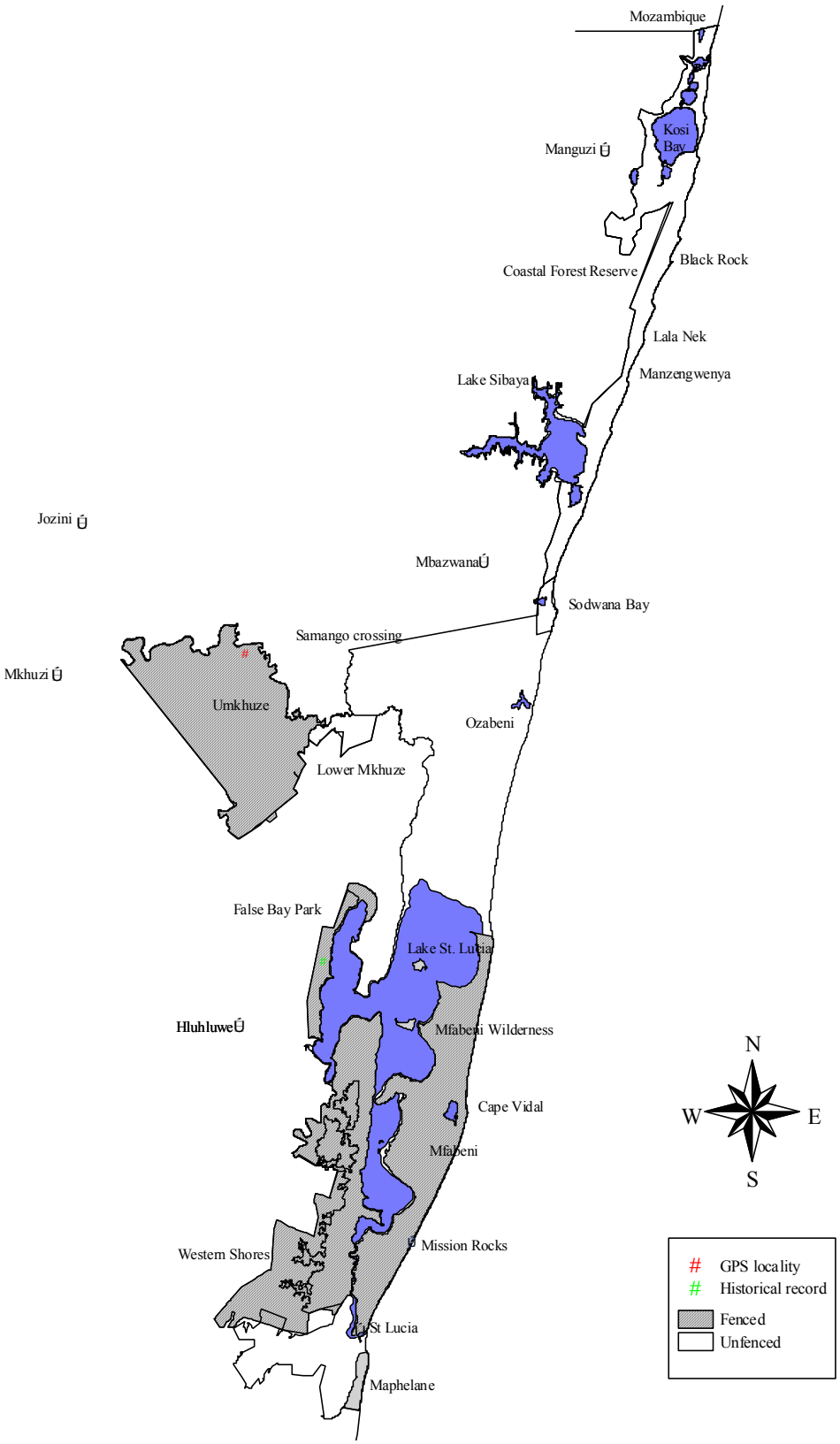
Relevant survey methods: Capture with an appropriate net by hand, surveys for larva on the specific food plant. A specimen was collected in 1947 with a light-trap at 23:00 next to the uMkhuze River during a night flying moth survey.

Estimate population size/abundance in the GSLWP: No estimate but it is considered to be very restricted and uncommon.

References:

Pennington, K. 1978. *Pennington's Butterflies of Southern Africa*. Dickson, C. G. C. & Kroon, D. M. (eds). AD Donker.
Henning, S. F. & Henning, G.A. 1989. *South African Red Data Book – Butterflies*. South African National Scientific Programmes Report No. 158. Proms Ads & Print.
Pennington, K.M. 1994. *Pennington's Butterflies of Southern Africa.* Pringle E.L., Henning G.A. and Ball J.B. (Eds.) Struik.

11.1.3.4 Iolaus lulua



Scientific name: *Iolaus diametra natalica*

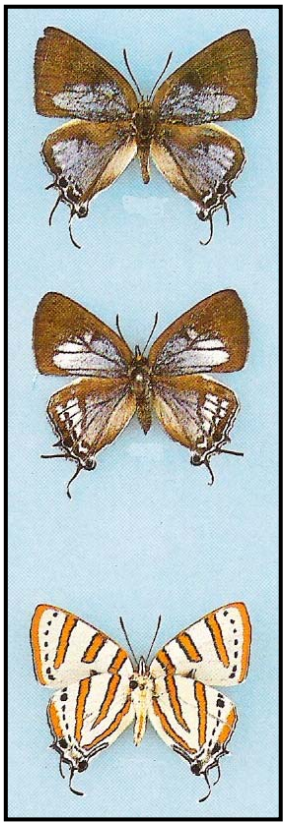


Photo: Pringle, Henning & Ball

Description: The upperside has a black apex with margins and blue at the centre with an underdeveloped black transverse band on the hindwing. The underside has broad reddish-orange bands margined with black on a white ground colour. The female is similar but has white patches on the more extensive basal blue.

Rare, Threatened or Endemic Status: This rare species is endemic to KwaZulu-Natal.

Distribution: The holotype male and allotype female were captured at Hluhluwe by K Pennington in 1940 and 1944, respectively. Other recordings are Estcourt, Muden, Kranskop and the Greater St Lucia Wetland Park.

Historical records and distribution in the GSLWP: False Bay Park and Kosi Bay.

Habitat: Shoreline of False Bay Park.

Biology/Life history: Nothing is known.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park plays an important role as protected habitat for the survival of this species.

Threats: Destruction of coastal and riverine forest in northern KwaZulu-Natal.

Relevant survey methods: Capture with an appropriate net by hand. Surveys for larva on *Loranthus wyliei* (food plant).

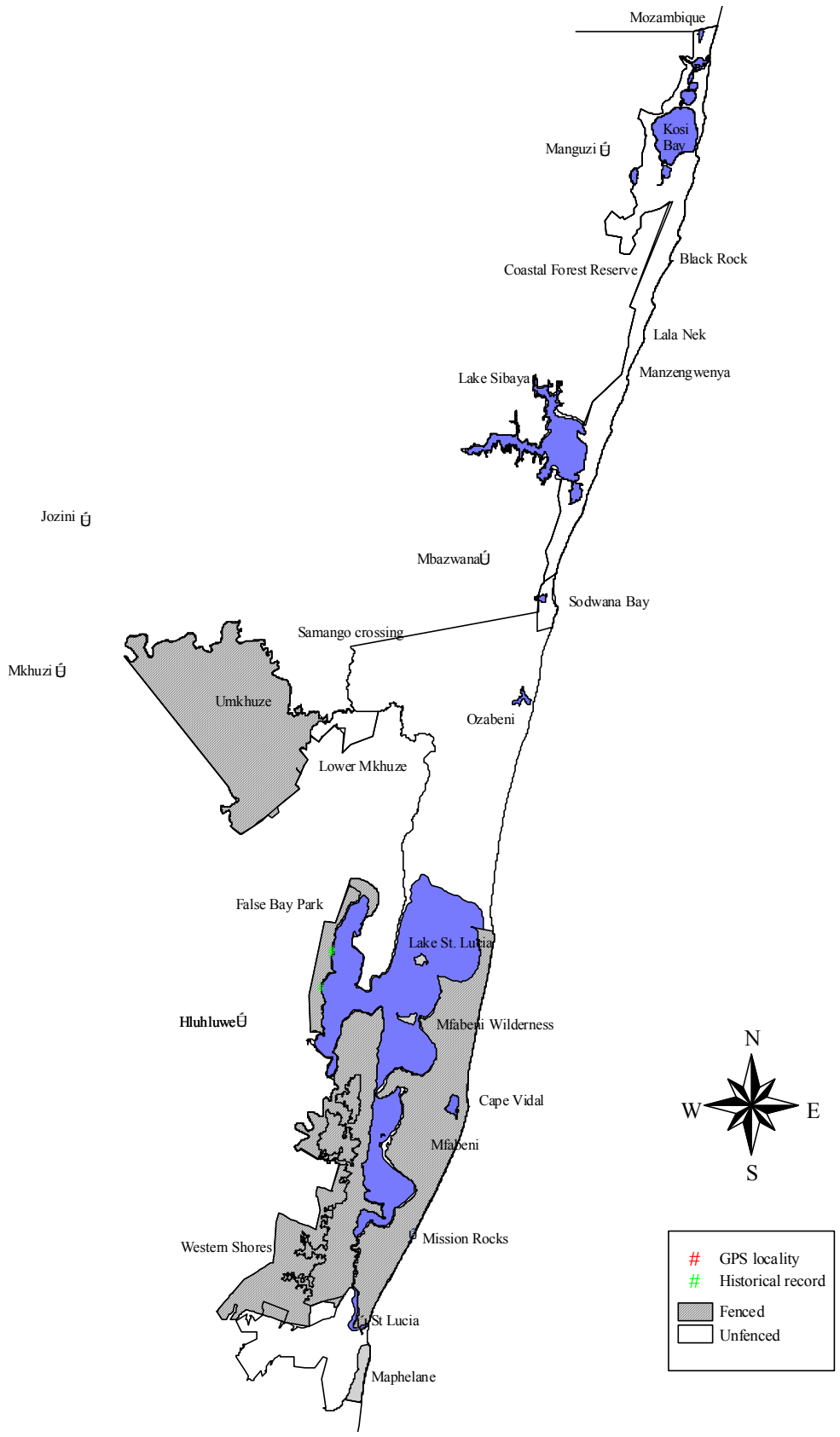
Estimate population size/abundance in the GSLWP: Not known.

References:

Henning, S. F. & Henning, G.A. 1989. *South African Red Data Book – Butterflies*. South African National Scientific Programmes Report No. 158. Proms Ads & Print.

Pennington, K. 1978. *Pennington's Butterflies of Southern Africa*. Dickson, C. G. C. & Kroon, D. M. (eds). AD Donker.

11.1.3.5 Iolaus diametra natalica



11.2 FRUIT CHAFERS

11.2.1 Flagship species

- Maputaland Yellow Fruit Chafer (*Anisorrhina serripes*)
- St Lucia Purple Fruit Chafer (*Lamellothyrea descarpentriesi*)

11.2.2 Focal species

- Maputaland Yellow Fruit Chafer (*Anisorrhina serripes*)
- St Lucia Purple Fruit Chafer (*Lamellothyrea descarpentriesi*)

11.2.3 Rare, Threatened & Endemic list

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
1	*Lamellothyrea descarpentriesi*	St Lucia Purple FC	5	3	5	5	18
2	*Lonchothyrea mozambica*	Mozambican Spotted FC	5	5	1	3	14
3	*Anisorrhina serripes*	Maputaland Yellow FC	3	3	1	4	11
4	*Pachnodella euparypha*	Yellow-edged Emerald FC	5	4		1	10
5	*Caelorrhina relucens*	Glossy-green FC	3	3		2	8

Fruit chafers caught in a baited funnel trap at Ndlozi peninsula.

Dicronorrhina derbyana (male)

Scientific name: *Lamellothyrea descarpentriesi* **Common name:** St Lucia Purple Fruit Chafer

Photo: Lynette Perissinotto

Description: A species of about 2 cm in total length. Dorsal part of body velvety, with an impressive purple sheen when exposed to bright sunlight. Head horn present in both sexes and exhibiting a layered armature, which is unique among fruit chafers.

Rare, Threatened or Endemic Status: Both genus and species are endemic to the Greater St Lucia Wetland Park. The size of its population is probably small.

Distribution: The species is restricted to the Greater St Lucia Wetland Park 's coastal forest belt and has so far been recorded from Maphelane in the south to Kosi Bay in the north.

Historical records and distribution in the GSLWP: *L. descarpentriesi* is distributed along the length of the Greater St Lucia Wetland Park, but it appears to be scarce and localised. Most records are from the surroundings of St Lucia and Sodwana Bay. A well-established colony exists in the area of the Iphiva campsite, near the village of St Lucia. It has recently been collected for the first time just east of Lake Zilonde, north of Kosi Mouth, which is currently the northernmost limit of its known range.

Habitat: Appears to be restricted to low lying forested areas, where it flies regularly along the edges. It has been collected in the middle of dense forests, but seems to prefer small forest clumps and the outskirts of forests.

Biology/Life history: The species is active during the rainy months, from September to March, with a major abundance peak in November-December and a secondary one in February-March. Adults have been observed feeding on flowers and fruits of waterberry, *Syzygium cordatum*, and on flowers of the exotic camphor tree, *Cinnamomum camphora*. They are also attracted to fruit-baited (banana, pineapple, grape) traps. The larva is undescribed, and attempts to obtain viable grubs from adults kept in captivity have so far failed, despite the ability of both sexes to survive under such conditions for a period of nearly three months. The few larvae that hatched from eggs produced during this period failed to reach 2nd instar stage.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park plays a crucial role in the conservation of this species, as it has not been recorded outside the Park.

Threats: No serious threats are currently posed to the species, as the coastal forest belt of the Greater St Lucia Wetland Park is entirely protected.

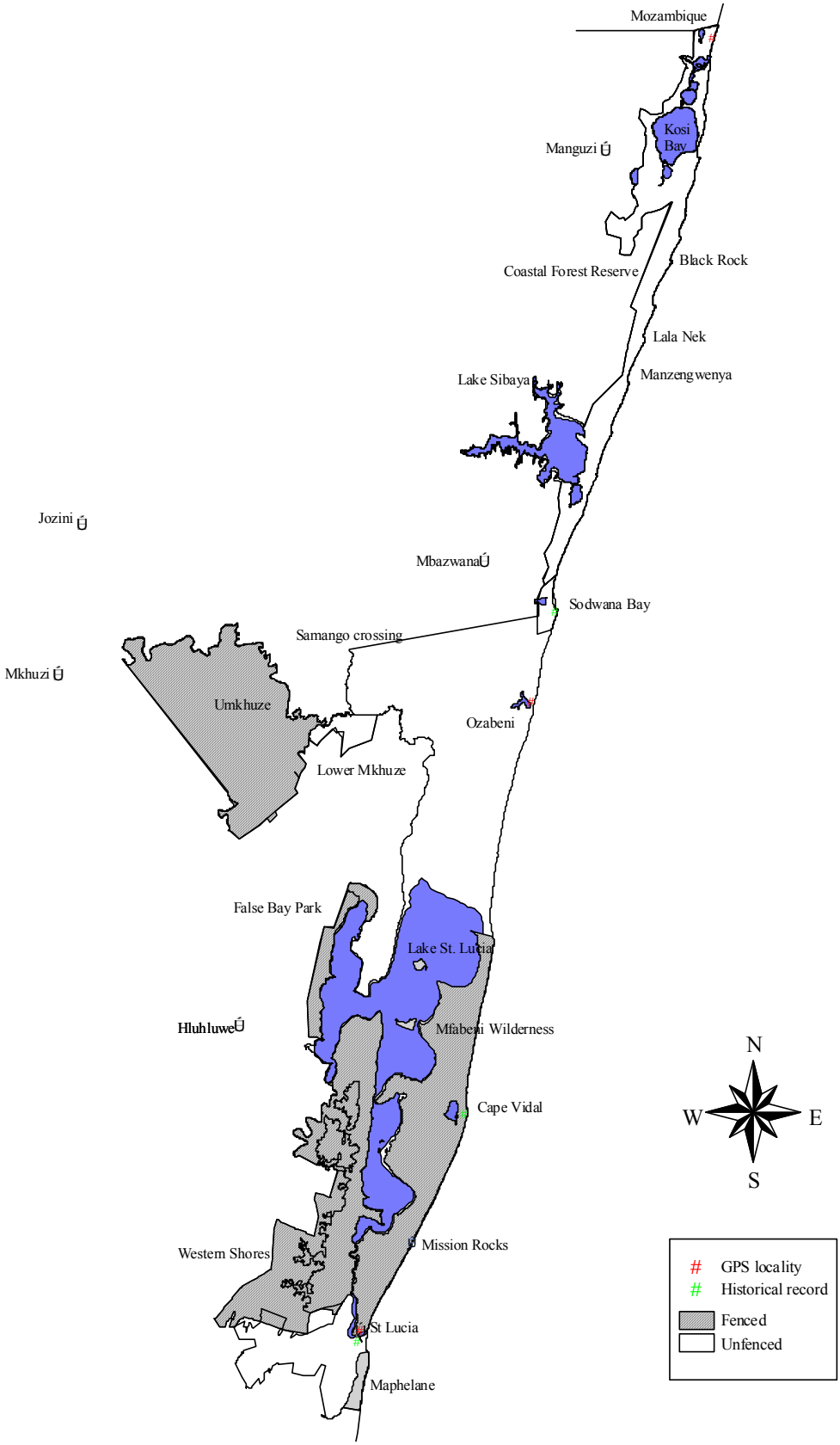
Relevant survey methods: Passive capture by plastic funnel traps, using fermented fruit as bait. Active catching using hand-nets.

Estimate population size/abundance in the GSLWP: The species is normally scarce and fruit-baited trap or net catches have never exceeded 20 individuals per day of collecting effort, even at the peak of its abundance.

References:

Holm E & Marais E 1992. *Fruit chafers of Southern Africa*. Ekogilde, Hartebeespoort, pp. 326.
Bodasing T 2004. The biology and ecology of the fruit chafers *Anisorrhina serripes* (Coryphocerina) and *Lamellothyrea descarpentriesi* (Diplognathina) in the Greater St. Lucia Wetland Park. BSc Project Report, *University of KwaZulu-Natal, School of Life and Environmental Sciences, Durban,* pp. 31.

11.2.3.1 St Lucia Purple Fruit Chafer



Scientific name: *Lonchothyrea mozambica* **Common name:** Moçambican Spotted Fruit Chafer

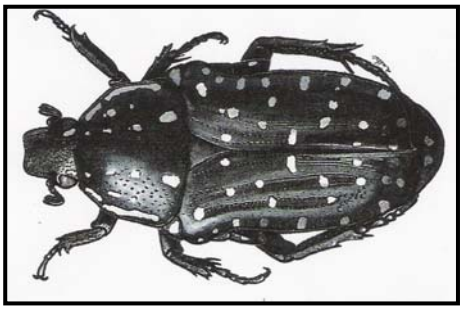


Photo: Holm & Marais

Description: This is a small species of about 1.5 cm in total length. The body is entirely black, with white spots scattered over the dorsal surface. It is unusually flat for a fruit chafer.

Rare, Threatened or Endemic Status: This is the only species of the genus *Lonchothyrea* and is considered extremely rare. The few specimens currently known were virtually all collected in the 19th century.

Distribution: Collection records are mainly from Moçambique, with only one from South Africa, in the St Lucia area.

Historical records and distribution in the GSLWP: St Lucia appears to be the only place where the species has been found in the GSLWP. The existence of a viable, established population of this species within the Greater St Lucia Wetland Park is, however, not yet confirmed.

Habitat: The species seems to be restricted to coastal and lowland forests.

Biology/Life history: Adults have been collected from October to January. Nothing is known about its biology/ecology, but according to Holm & Marais (1992) its peculiar flat body suggests that it may live in "crevices, under bark or amongst rocks".

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park is the only area where the species has been recorded in South Africa.

Possible threats: Insecticides, forest destruction, pollution. However, while these may represent real threats in the region of its main distribution, i.e. Moçambique, the current protected status of the coastal forest area within the GSTWP may be reassuring to the safety of the species, should a viable, established population be shown to exist in this area.

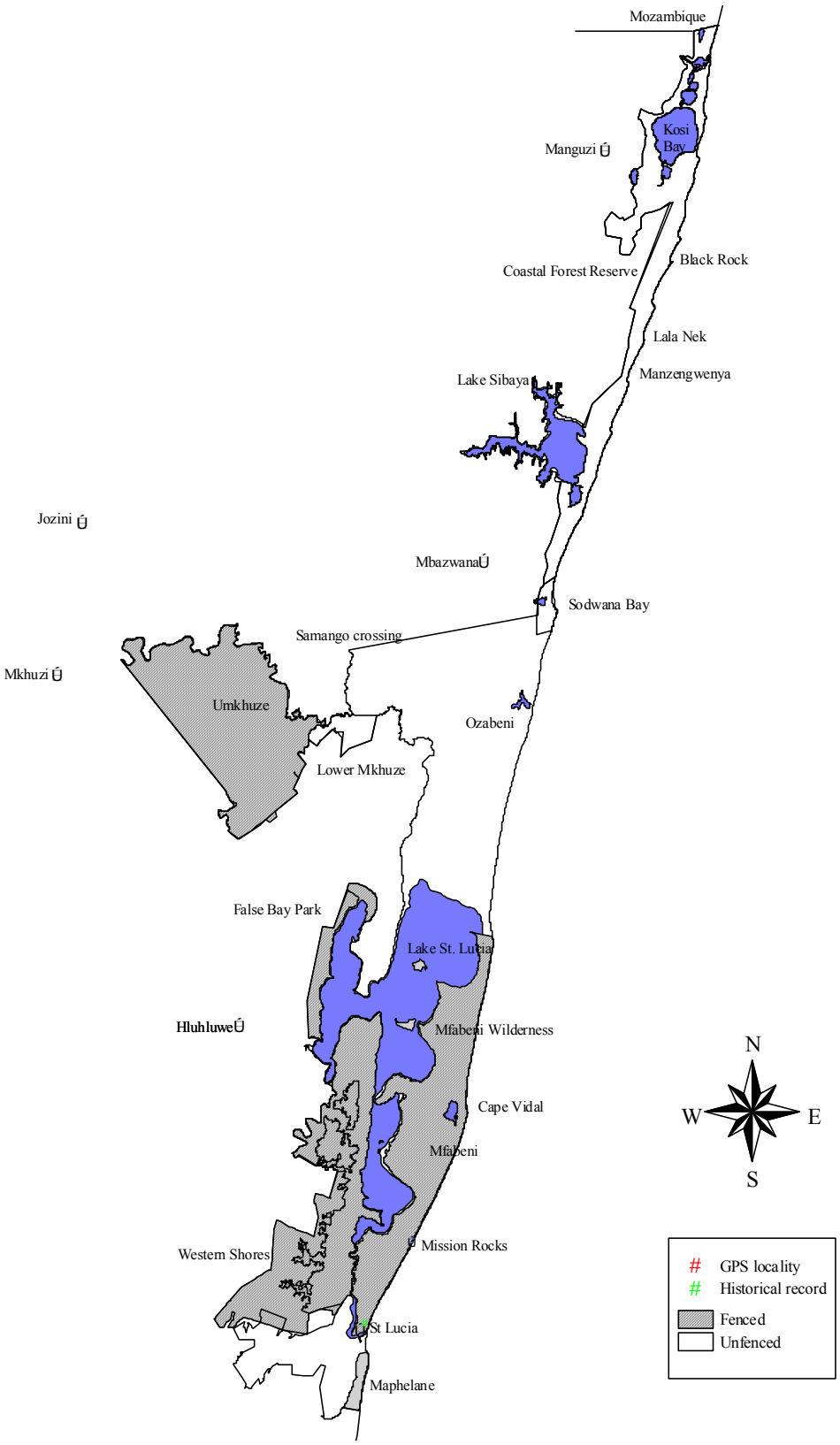
Relevant survey methods: Passive capture by plastic funnel traps, using fermented fruit as bait. Active catching using a hand-net.

Estimated population size in the GSLWP: Regular collecting efforts in the area around St Lucia village during the past seven years have not produced a single specimen.

References:

Holm E & Marais E 1992. *Fruit Chafers of Southern Africa*. Ekogilde, Hartebeespoort, pp. 326.
Péringuey L 1908. Descriptive catalogue of the Coleoptera of South Africa (Lucanidae and Scarabidae). *Transactions of the South African Philosophical Society* 13: 1-546.

11.2.3.2 Moçambican Spotted Fruit Chafer



Scientific name: *Anisorrhina serripes* **Common name:** Maputaland Yellow Fruit Chafer

Photo: Lynette Perissinotto

Description: The beetle is about 2.5-3 cm long, has thorax and head of a light brown color, while the elytra are virtually entirely yellow. Unlike most other species of this genus, *A. serripes* males do not have head horns. It is unique within the genus because of the serrations the male has on the inner side of its hind legs. For these reasons, it was originally described as a new genus, *Inhambane*, separate from *Anisorrhina* and reminiscent of the type locality where it was first collected, in Moçambique.

Rare, Threatened or Endemic Status: *A. serripes* is endemic to northern KZN and southern Moçambique.

Distribution: *A. serripes* has been collected in the coastal forests of northern KwaZulu-Natal, from Maphelane to Kosi Bay. Its distribution extends into Moçambique (Punta de Ouro to Inhambane) and as far west as Tembe Elephant Park, where it was recorded for the first time in 2002. Two old records from Mt Selinda (Zimbabwe) and Durban, respectively, are almost certainly erroneous.

Historical records and distribution in the GSLWP: *A. serripes* have been recorded at Iphiva Camp at St Lucia, Sodwana Bay, on the eastern shores of the Kosi Bay lakes and in the Sand Forest of uMkhuze. Iphiva Camp has thus far showed the highest activity in terms of numbers, followed by Sodwana Bay.

Habitat: Mainly coastal forests, both inside closed woodland as well as in broken forest or round the margins. However, recent data indicate that it occurs also some 30-40 km inland, in closed woodland and sand forests.

Biology/Life history: Adults of this species are active during the rainy months, from October through to May, with a peak in abundance during March-April. Large numbers have been observed feeding on ripe fruits of waterberry, *Syzygium cordatum*, at the Iphiva Campsite and elsewhere. Adults are attracted to fruit-baited traps, but not consistently. Larvae have recently been reared from mating adults kept in captivity. The 2nd instar stage has been described by Bodasing.

Importance of the GSLWP for its conservation: The Park accounts for much of its known distribution and habitat.

Possible threats: Insecticides, forest destruction, pollution. However, most of its natural habitat is currently under protection, at least in South Africa.

Relevant survey methods: Passive capture by plastic funnel traps, using fermented fruit as bait. Active catching using a hand-net.

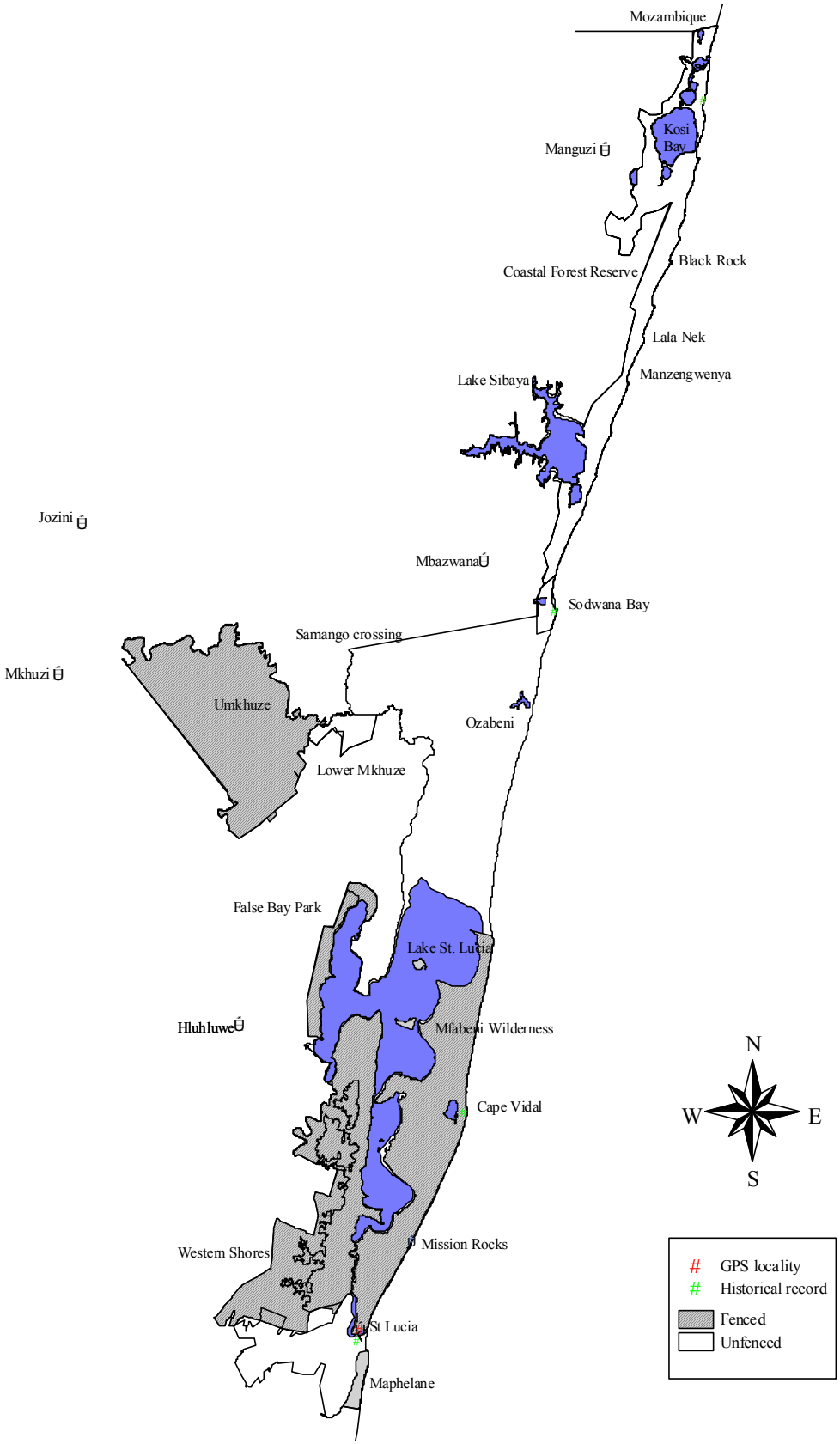
Estimate population size in the GSLWP: A preliminary estimation of the population size of *A. serripes* in the Iphiva Camp area (about 3 km diameter) was made in 2004, using mark re-capture techniques. Results indicate that in this part of the GSLWP the total peak abundance for the species may range between 1000 and 2000 individuals. An extrapolation to the entire surface of the park is, however, not possible due to a lack of suitable data.

References:

Holm E & Marais E 1992. *Fruit Chafers of Southern Africa*. Ekogilde, Hartebeespoort, pp. 326

Bodasing T 2004. *The biology and ecology of the fruit chafers Anisorrhina serripes (Coryphocerina) and Lamellothyrea descarpentriesi (Diplognathina) in the Greater St. Lucia Wetland Park.* University of KwaZulu-Natal, School of Life and Environmental Sciences, Durban, pp. 31.

11.2.3.3 Maputaland Yellow Fruit Chafer



Scientific name: *Pachnodella euparypha* **Common name:** Yellow-edged Emerald Fruit Chafer

Photo: Lynette Perisinnotto

Description: Adult specimens are about 2 cm long and can easily be distinguished from other South African fruit chafers due to their velvety green dorsum and yellow margin.

Rare, Threatened or Endemic Status: The species is regarded as rare throughout its distribution. Until recently, only one confirmed record existed for South Africa, from a mountain forest in Mpumalanga.

Distribution: It occurs mainly in the coastal forests of southern/east Africa (South Africa to Tanzania), but has also been recorded from a few mountain forests in Malawi, Burundi and Kenya.

Historical records and distribution in the GSLWP: During the 2003-2004 summer season, Earthwatch collecting teams captured 3 specimens in the Phinda Resource Reserve, just outside the GSLWP, using fruit-baited butterfly traps. It has subsequently been established that at least one other specimen had previously also been collected in the Sodwana Bay area.

Habitat: Coastal forest, mainly on the Moçambique coastal plain. Occasional specimens are, however, also found in mountain forests.

Biology/Life history: In southern Africa, adults of this species are apparently active only between October and January. They are attracted to fruit-baited traps, but nothing is known about their normal feeding habits. Larval stages are unknown.

Importance of the GSLWP for its conservation: Given its general scarcity and the recent records obtained from and in the vicinity of the Park, it is reasonable to assume that the GSLWP may become one of its key refuge areas.

Possible threats: Insecticides, forest destruction, pollution. These problems may be more serious in the main area of its distribution range (Moçambique, Tanzania), than in the KZN areas where it has been recorded so far.

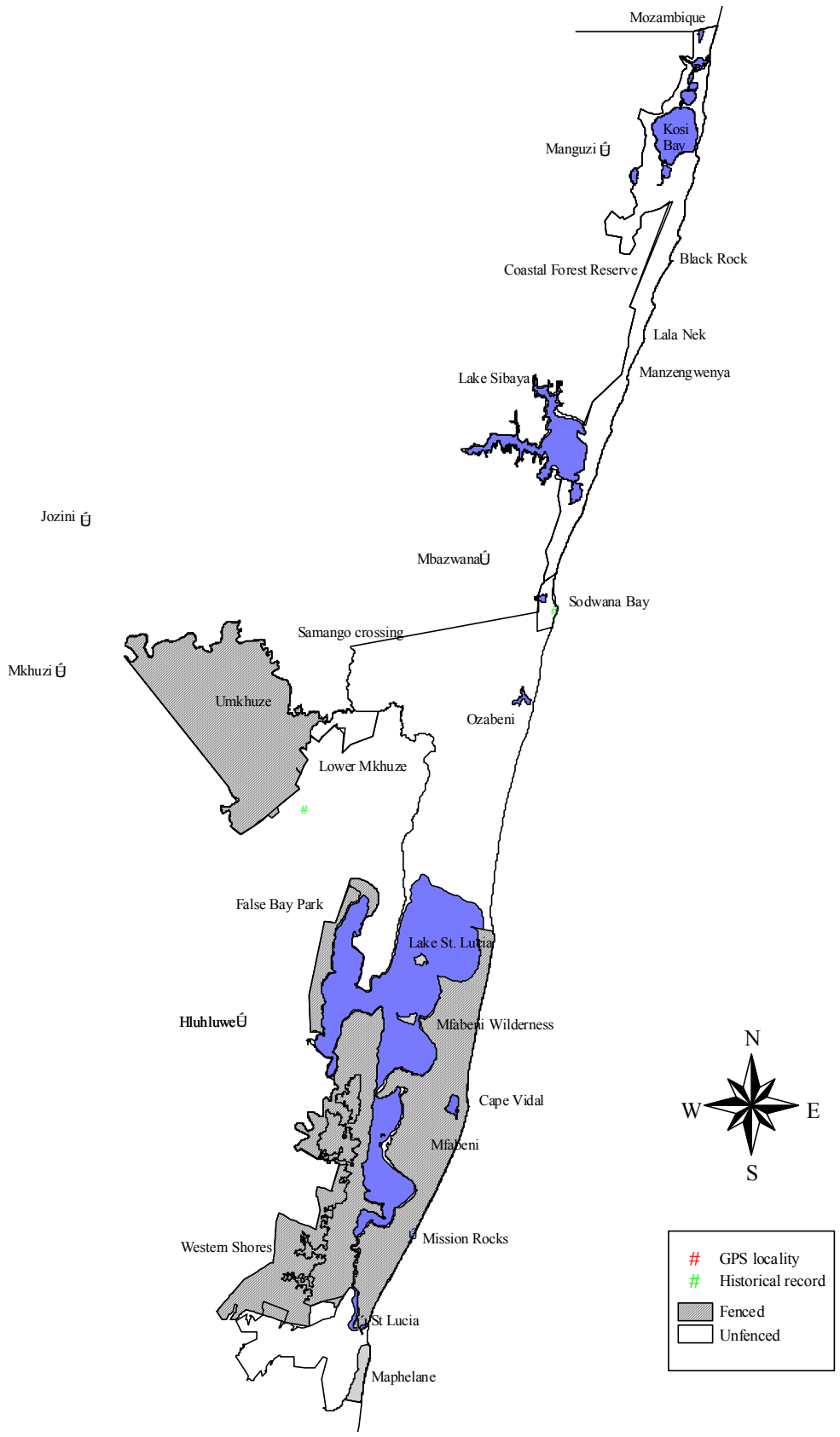
Relevant survey methods: Passive capture by plastic funnel traps, using fermented fruit as bait. Active catching using a hand-net.

Estimate population size in the GSLWP: It is likely that an extremely small population exists in the park. It is not yet clear whether this is viable and already established.

References:

Holm E & Marais E 1992. *Fruit Chafers of Southern Africa*. Ekogilde, Hartebeespoort, pp. 326.
Rigout J 1989. The Beetles of the World, Vol 9, Cetoniini 1. Sciences Nat, Venette, pp. 135 +16 pl.

11.2.3.4 Yellow-edged Emerald Fruit Chafer



Scientific name: *Caelorrhina relucens* **Common name:** Glossy-Green Fruit Chafer

Photo: Lynette Perissinotto

Description: This species can often attain a size in excess of 3 cm in total length. The head and thorax are dark brown to black, while the elytra are always shiny green.

Rare, Threatened or Endemic Status: The population in the GSLWP is geographically separated from all the other populations that occur in southern/east Africa, with the closest relatives found in the eastern highlands of Zimbabwe. It may eventually turn out to be a separate sub-species.

Distribution: *C. relucens* is widely distributed in southern/east Africa (South Africa to Tanzania), but within South Africa it occurs only in the Greater St Lucia Wetland Park.

Historical records and distribution in the GSLWP: Coastal records range from St Lucia in the south to Kosi Bay in the north. Inland, it has recently been collected at Hells'Gate, False Bay and in the Futululu section of the Dukuduku Forest.

Habitat: *C. relucens* is restricted to dense forests, but comes out regularly to their margins to feed on flowers and fruits.

Biology/Life history: In South Africa, adult activity is during the wet, warmest part of the year, from November to March. They have been observed feeding on flowers (November), but mainly on ripe fruits of waterberry, *Syzygium cordatum*. Large numbers were found feeding on ripe litchi fruits, *Litchi chinensis*, in Futululu in November 2004. They are also attracted to fruit-baited traps, but not readily and consistently. Larvae are unknown.

Importance of the GSLWP for its conservation: The entire South African population of *C. relucens* is confined to the Greater St Lucia Wetland Park.

Possible threats: Insecticides, forest destruction, pollution. However, the entire area of the known distribution range is currently under protection.

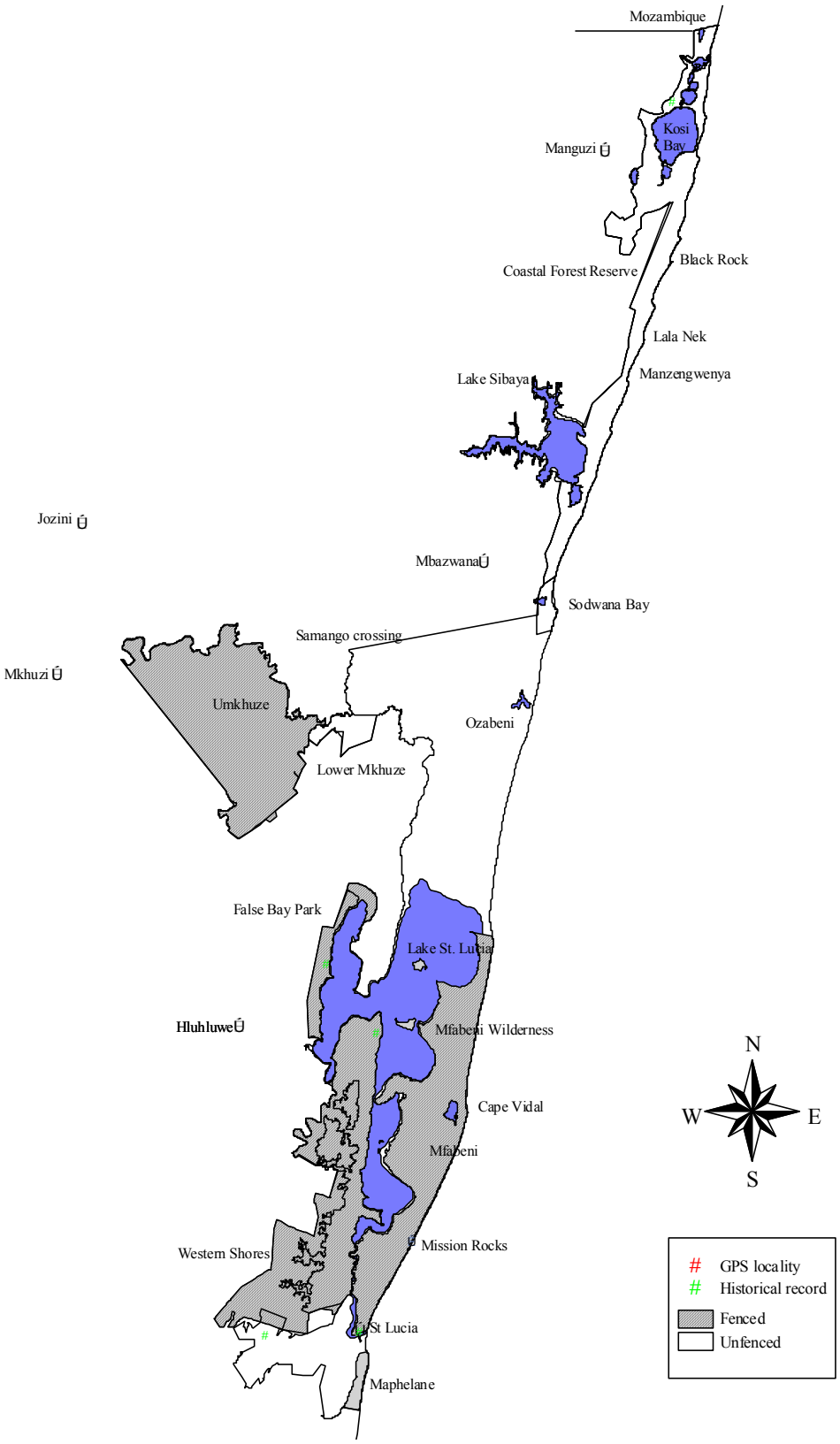
Relevant survey methods: Passive capture by plastic funnel traps, using fermented fruit as bait. Active catching using a hand-net.

Estimate population size in the GSLWP: There is no data available on population size. Collection efforts using the above methods, have never yielded more than 20 individuals per day, at the peak of adult activity.

References:

Holm E & Marais E 1992. *Fruit Chafers of Southern Africa*. Ekogilde, Hartebeespoort, pp. 326.
Allard V 1991. The Beetles of the World, Vol 11, Goliathini 4. Sciences Nat, Venette, pp. 142 +15 pl.

11.2.3.5 Glossy-Green Fruit Chafer



11.3 DRAGONFLIES & DAMSELFLIES

11.3.1 Flagship species

- Umsingazi Sprite (*Pseudagrion umsingaziense*)
- Asian Cruiser (*Hemicordulia asiatica*)
- Hairy Dusk Hawker (*Gynacantha villosa*)

11.3.2 Focal species

- Umsingazi Sprite (*Pseudagrion umsingaziense*)
- Asian Cruiser (*Hemicordulia asiatica*)
- Hairy Dusk Hawker (*Gynacantha villosa*)

11.3.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
1	*Pseudagrion umsingaziense*	Umsingazi Sprite	3	2	4	3	12
2	*Hemicordulia asiatica*	Asian Cruiser	3	2			5
3	*Gynacantha villosa*	Hairy Dusk Hawker	1	2		1	4

Lake Sibaya, where many Dragonfly and Damselfly species are found.

Scientific name: *Pseudagrion umsingaziensis* **Common name:** Umsingazi Sprite

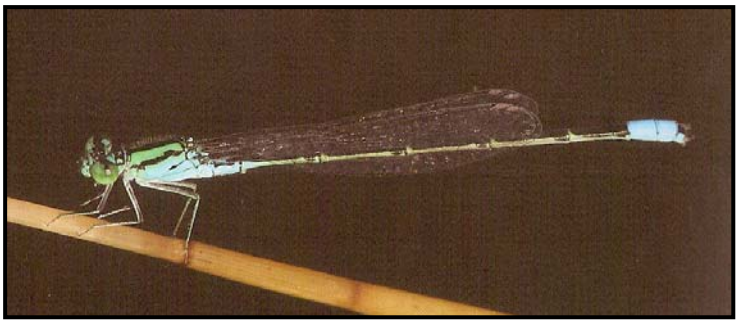


Photo: Warwick & Michele Tarboton

Description: A small damselfly, the males being from 34 to 38 mm long and the females 36 to 38. The females also have longer wings. The sexes are distinguishable with the males being bluish, while the females are greenish with a black line along the top of the abdomen and black thorax stripes.

Rare, Threatened or Endemic Status: The Umsingazi Sprite is restricted to the coastal plain of Zululand from Eshowe northwards to Kosi Bay, its range possibly extending into Mozambique but it has not yet been recorded there. It is thus rare and at present appears to have a high level of endemicity and much of the world population is probably inside the Greater St Lucia Wetland Park.

Distribution: *P. umsingaziensis* is found in suitable still waters including backwaters of streams, coastal lakes and estuaries in northern KwaZulu-Natal, probably extending into southern Moçambique.

Historical records and distribution in the GSLWP: Nhlange Lake, Kosi Bay and the original type specimen was caught in Richard's Bay, in 1963, suggesting that it probably occurs in much of the Greater St. Lucia Wetland Park.

Habitat: Found along the margins of suitable well-vegetated clear, still or slow moving waters.

Biology/Life history: Adult damselflies and dragonflies fly in the vicinity of slow moving or still water and deposit eggs onto or into the water. The eggs hatch and an aquatic crawling larva grows and predates on small insects and possibly fish. When ready to metamorphose they climb emergent vegetation or crawl out of the water where they undergo the final moult into a fully winged adult. These fly off to seek food and members of the opposite sex. Food consists mainly of insects that are usually caught, and may be consumed, on the wing. Mating takes place mostly in flight with the two sexes locked in tandem for considerable periods during which they can still land and navigate well.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park protects much of the range and probably most of the wetland habitats of this species and can therefore be considered very important for the conservation of *P.umsingaziensis.*

Threats: Human disturbance leading to pollution, degradation and draining of wetlands. Most dragonflies and damselflies are fairly delicate insects that rely on clear, unpolluted waters. They are often good indicators of pollution, and are used as such in some areas. They must consume vast quantities of insects, including mosquitoes, and may be reduced in abundance through insect control. Insect control measures that involve spraying or poisoning waters will seriously impact these insects.

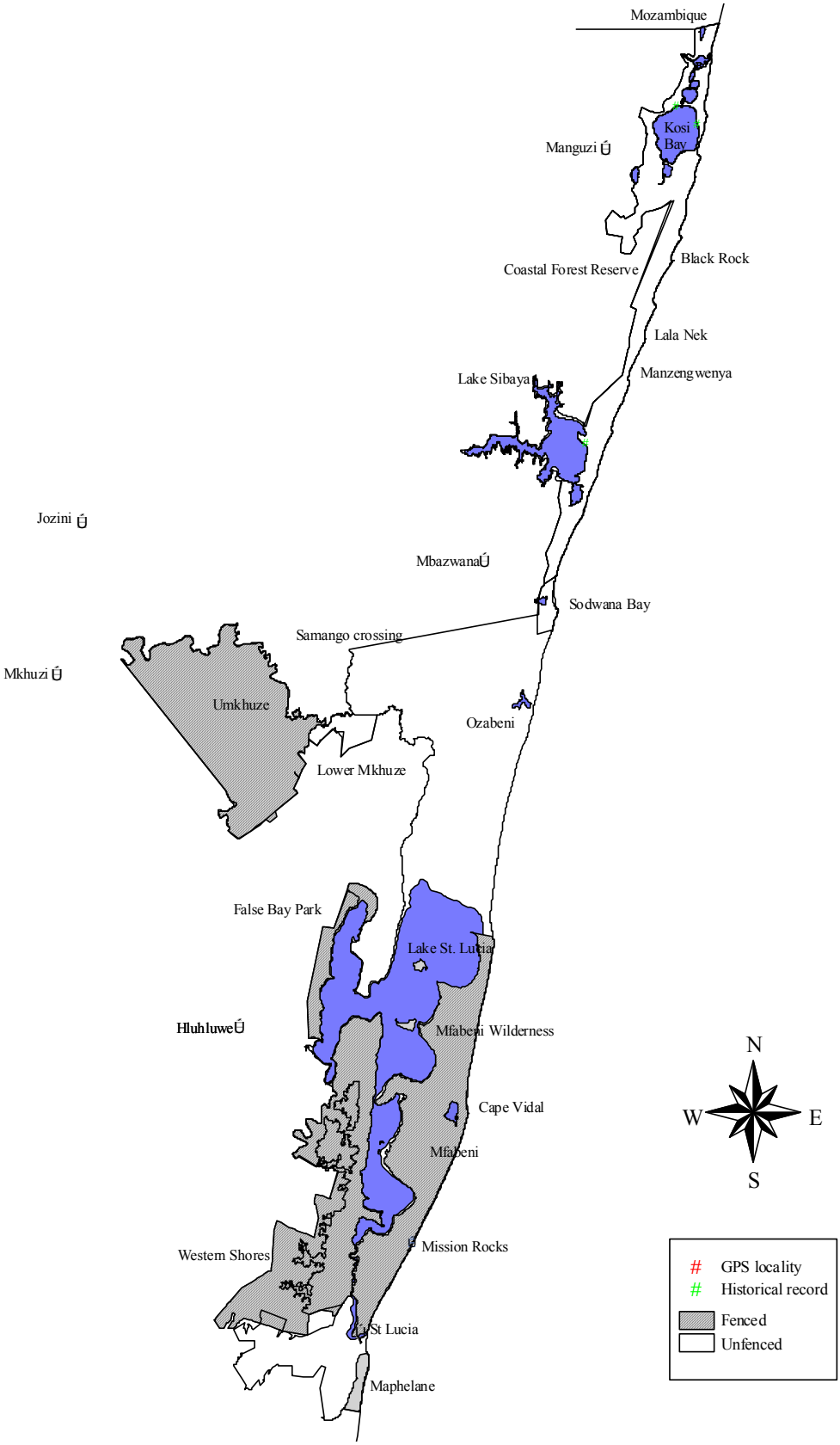
Relevant survey methods: Specific surveys by suitably qualified people and incidental collections verified by them through collected specimens and photographs.

Estimate population size/abundance in the GSLWP: Unknown but not uncommon in some areas and probably widespread.

References:

Tarboton, W. & Tarboton, M. 2005. A Fieldguide to the Damselflies of South Africa.

11.3.3.1 Umsingazi Sprite



Scientific name: *Hemicordulia asiatica* **Common name:** Asian Cruiser

Photo: Warwick & Michele Tarboton

Description: A medium sized dragonfly with a body length of about 44 mm and a wingspan of about 61 mm. Its abdomen is slender, becoming broader towards the end, and this and its thorax are metallic green in life. It is a strong flier, usually seen "cruising" along searching for food and mates above water.

Rare, Threatened or Endemic Status: Although presently mainly an Asian species, described from Bengal, India, its occurrence in Africa is patchy and mostly confined to east and southern Africa. The species does not appear to be common in South Africa and its status may soon be revised, possibly splitting the African representatives from the Asian ones.

Distribution: Fairly widespread in Asia but in Africa it occurs in isolated areas from Kenya south to the northern coastal tip of South Africa, as far south as Richard's Bay.

Historical records and distribution in the GSLWP: Kosi Bay.

Habitat: It is found near coastal lakes and rivers where it can be seen flying among trees and in open glades.

Biology/Life history: Adult damselflies and dragonflies fly in the vicinity of slow moving or still water and deposit eggs onto or into the water. The eggs hatch and an aquatic crawling larva grows and predates on small insects and possibly fish. When ready to metamorphose they climb emergent vegetation or crawl out of the water where they undergo the final moult into a fully winged adult. These fly off to seek food and members of the opposite sex. Food consists mainly of insects that are usually caught, and may be consumed, on the wing. Mating takes place mostly in flight with the two sexes locked in tandem for considerable periods during which they can still land and navigate well.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park protects much of the range and probably most of the wetland habitats of this species in South Africa, but as it occurs fairly widely north of this area, the Greater St Lucia Wetland Park cannot be considered particularly important for the conservation of *H. asiatica.*

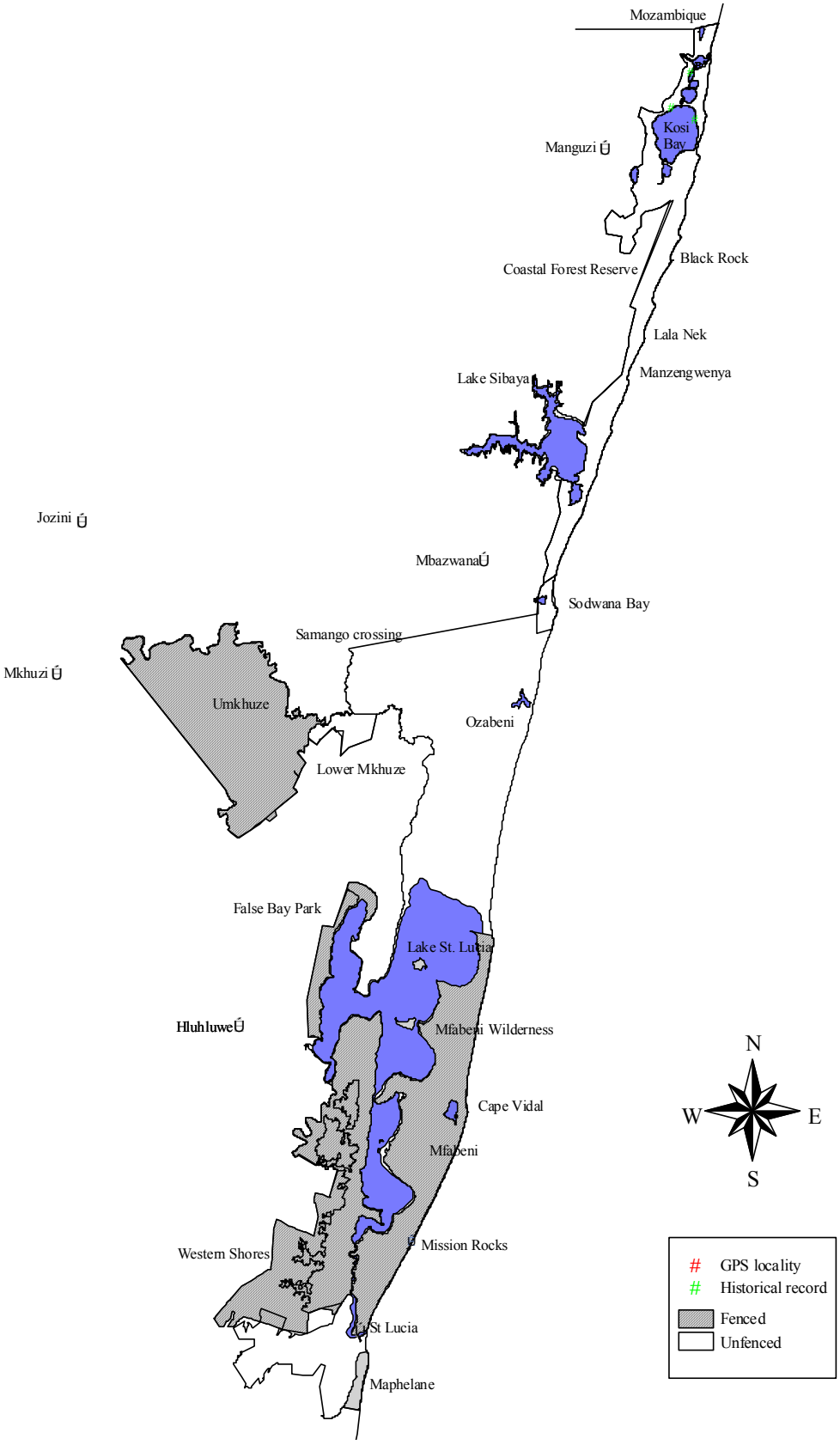
Threats: Human disturbance leading to pollution, degradation and draining of wetlands. Most dragonflies and damselflies are fairly delicate insects that rely on clear, unpolluted waters. They are often good indicators of pollution, and are used as such in some areas. They must consume vast quantities of insects, including mosquitoes, and may be reduced in abundance through insect control. Insect control measures that involve spraying or poisoning waters will seriously impact these insects.

Relevant survey methods: Specific surveys by suitably qualified people and incidental collections verified by them through collected specimens and photographs.

Estimate population size/abundance in the GSLWP: Unknown but not uncommon in some areas and probably widespread.

References:
Tarboton, W. & Tarboton, M. 2002. A Fieldguide to the Dragonflies of South Africa.

11.3.3.2 Asian Cruiser



Scientific name: *Gynacantha villosa* **Common name:** Hairy Dusk Hawker

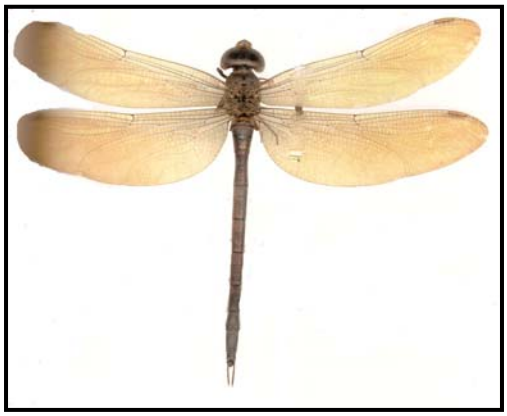


Photo: Warwick & Michele Tarboton

Description: With a length of up to 77 mm and a wingspan of up to 114 this is a large, robust dragonfly. It has amber coloured wings and a less constricted waist, compared to the clear wings thinner waist of most similar species. It also lacks the blue markings between the hind wings of the Zulu dusk hawker. An anal triangle present in other dusk hawkers is absent from this species. It is a forest species resting during the day in vegetation to emerge and hunt on forest fringes and above streams and swamps in the evenings.

Rare, Threatened or Endemic Status: Although *G. villosa* is not common and has a very limited distribution in South Africa, it is found fairly extensively in parts of east Africa and so its rankings are fairly low.

Distribution: A fairly widespread east African species whose range narrowly extends along the coastal plain into South Africa. The present known southern limit is Charter's Creek.

Historical records and distribution in the GSLWP: Kosi Bay and Charter's Creek.

Habitat: It is found flying around the edges of swamps, streams and pans near coastal forests where it rests during daylight.

Biology/Life history: Adult damselflies and dragonflies fly in the vicinity of slow moving or still water and deposit eggs onto or into the water. The eggs hatch and an aquatic crawling larva grows and predates on small insects and possibly fish. When ready to metamorphose they climb emergent vegetation or crawl out of the water where they undergo the final moult into a fully winged adult. These fly off to seek food and members of the opposite sex. Food consists mainly of insects that are usually caught, and may be consumed, on the wing. Mating takes place mostly in flight with the two sexes locked in tandem for considerable periods during which they can still land and navigate well.

Importance of the GSLWP for its conservation: The Greater St Lucia Wetland Park protects much of the range and probably most of the wetland habitats of this species in South Africa but it occurs widely north of this area so the Park cannot be considered particularly important for the conservation of *G. villosa.*

Threats: Human disturbance leading to pollution, degradation and draining of wetlands. Most dragonflies and damselflies are fairly delicate insects that rely on clear, unpolluted waters. They are often good indicators of pollution, and are used as such in some areas. They must consume vast quantities of insects, including mosquitoes, and may be reduced in abundance through insect control. Insect control measures that involve spraying or poisoning waters will seriously impact these insects.

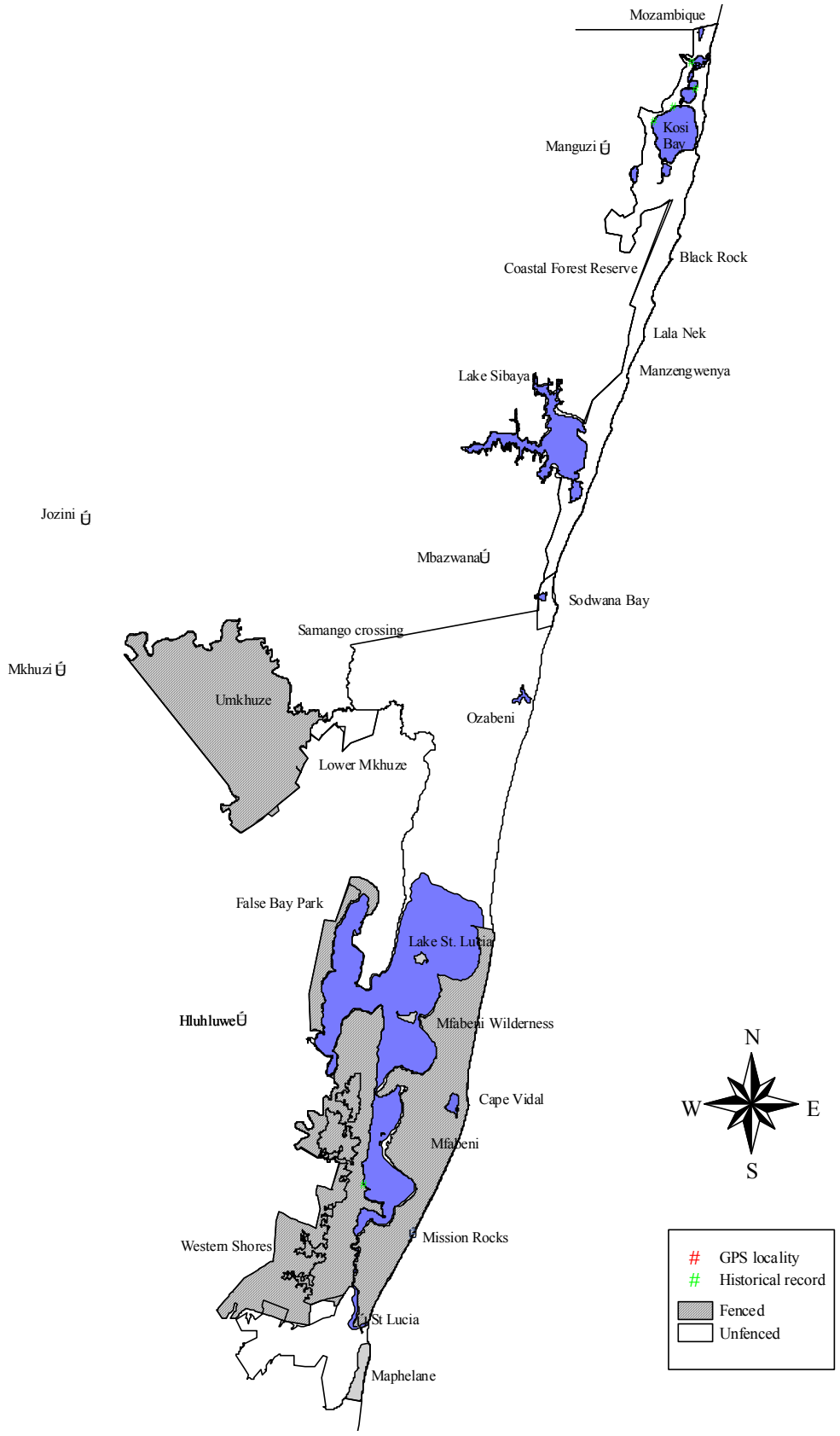
Relevant survey methods: Specific surveys by suitably qualified people and incidental collections verified by them through collected specimens and photographs.

Estimate population size/abundance in the GSLWP: Unknown but not uncommon in some areas and probably widespread.

References:

Tarboton, W. & Tarboton, M. 2002. A Fieldguide to the Dragonflies of South Africa.

11.3.3.3 Hairy Dusk Hawker



11.4 SPIDERS

11.4.1 Flagship species

- Natal Large Black Sac Spider (*Corinna natalis*)
- Spotted crab spider (*Platythomisus sibayius*)
- St Lucia Flattie (*Anyphops lucia*)
- Zululand Large Spiky Orb-web Spider (*Megaraneus gabonensis*)

11.4.2 Focal species

- Natal Large Black Sac Spider (*Corinna natalis*)
- Spotted crab spider (*Platythomisus sibayius*)
- St Lucia Flattie (*Anyphops lucia*)
- Zululand Large Spiky Orb-web Spider (*Megaraneus gabonensis*)

11.4.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
1	*Platythomisus sibayius*	Spotted Crab Spider	5	2	5	5	17
2	*Megaraneus gabonensis*	Zululand Spiky Orb-web Spider	5	2	5	5	17
3	*Brachionopus sp.*	Lesser Baboon Spider	4	2	4	4	14
4	*Corinna natalis*	Natal Large Black Sac Spider	4	2	4	3	13
5	*Anyphops lucia*	St Lucia Flattie	4	2	4	3	13
6	*Clubionia rumpiana*	Sac Spiders	4	2	4	3	13
7	*Panaretella zuluana*	Huntsman Spider	4	2	4	3	13
8	*Anyphops mino*	Wall Spider	4	2	4	3	13
9	*Leptopholcus undeterm*	Daddy-Long-Legs	4	2	4	3	13
10	*Anyphops septemspinatus*	Wall Spider	4	2	4	3	13
11	*Cetonana martini*	Dark Sac Spiders	4	2	4	3	13
12	*Isicabi zuluensis*	Tree Sheet-Web Spiders	4	2	4	3	13
13	*Simorcus zuluanus*	Crab Spider	4	2	4	3	13
14	*Hortipes merwei*	Garden-Legged Spider	4	2	4	3	13
15	*Holcolaetis zuluensis*	Jumping Spider	4	2	4	3	13
16	*Clubiona durbana*	Sac Spiders	3	2	4	3	12
17	*Ctenus gulosus*	Tropical Wolf Spider	3	2	4	3	12
18	*Argiope aurocincta*	Red Banded Garden Orb-Web Spider	4	2	3	3	12
19	*Microstigmata zuluense*	Forest Mygalomorphs	4	2	3	3	12
20	*Cispius kimbius*	Nursery-Web Spider	3	2	4	3	12
21	*Palpimanus armatus*	Palp-Footed Spiders	4	2	3	3	12
22	*Theuma zuluensis*	Long-Spinnered Ground Spider	3	2	4	3	12
23	*Theuma tragardi*	Long-Spinnered Ground Spider	3	2	4	3	12
24	*Xeviosa amica*	Hackled Mesh-Web Spider	3	2	4	3	12
25	*Quamtana vidal*	Daddy-Long-Legs	4	2	3	3	12
26	*Peucetia madalenae*	Lynx Spider	4	2	2	3	11
27	*Psammorygma aculeatum*	Armoured Spider	4	2	2	3	11
28	*Cispius natalensis*	Nursery-Web Spider	4	2	2	3	11
29	*Phoroncidia truncatula*	Ball Cob-Web Spider	4	2	2	3	11
30	*Hersilia sericea*	Long Spinnered Bark Spiders	4	2	2	3	11
31	*Platyoides pirie Platni*	Scorpion Spider	4	2	2	3	11
32	*Monaeses gibbus*	Grass Crab Spider	4	2	2	3	11
33	*Prodidomus flavipes*	Long-Spinnered Ground Spider	4	2	2	3	11
34	*Olios machadoi*	Huntsman Spider	4	2	2	3	11
35	*Pycnacantha tribulus*	Hedgehog Spider	4	2	2	3	11

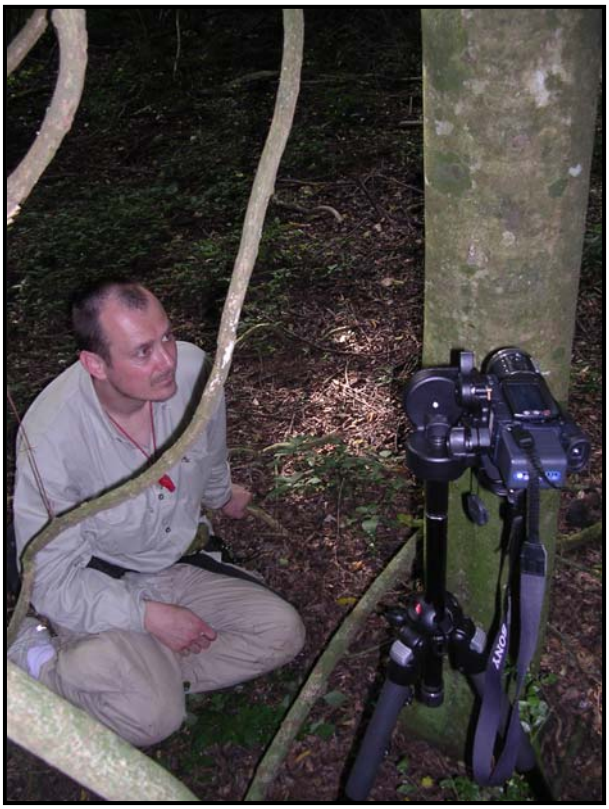
No.	Scientific name	Common Name	R	T	E	PS	TOTAL
36	*Chorizopella tragardhi*	Cob-Web Spider	4	2	2	3	11
37	*Cheiramiona paradisus*	Long-Legged Sac Spiders	4	2	2	3	11
38	*Cheiramiona mlawula*	Long-Legged Sac Spiders	4	2	2	3	11
39	*Poecilochroa involuta*	Flat-Bellied Ground Spider	4	2	2	3	11
40	*Zelotes natalensis*	Flat-Bellied Ground Spider	4	2	2	3	11
41	*Hermippus septemguttatu*	Armoured Spider	4	2	2	3	11
42	*Heliophanus berlandi*	Jumping Spider	4	2	2	3	11
43	*Hamataliwa rostrifrons*	Lynx Spider	4	2	2	3	11
44	*Graptartia granulosa*	Ant-Mimic Sac Spider	4	2	2	3	11
45	*Menneus camelus*	Camel Back Spider	4	2	2	3	11
46	*Merenius alberti Lesser*	Dark Sac Spiders	4	2	2	3	11
47	*Mimetus cornutus*	Horned Pirate Spider	4	2	2	3	11
48	*Mimetus natalensis*	Pirate Spider	4	2	2	3	11
49	*Oxyopes pallidecoloratu*	Lynx Spider	3	2	3	3	11
50	*Felsina levanderii*	Seed Crab Spider	4	2	2	3	11
51	*Panaretella immaculata*	Huntsman Spider	4	2	2	3	11
52	*Nemoscolus elongatus*	Stone Nest Spider	4	2	2	3	11
53	*Dictyna sp.*	Meshed-Band Weavers	4	2	2	3	11
54	*Ctenus pulchiventris*	Tropical Wolf Spider	3	2	3	3	11
55	*Olios chelifer*	Huntsman Spider	4	2	2	3	11
56	*Oxyopes hoggi*	Lynx Spider	3	2	3	3	11
57	*Cheiramiona krugerensis*	Long-Legged Sac Spiders	4	2	2	3	11
58	*Pactactes compactus*	Crab Spider	4	2	2	3	11
59	*Clubiona pupillaris*	Sac Spiders	4	2	2	3	11
60	*Gamasomorpha humicola*	Dwarf Armoured Spider	4	2	2	3	11
61	*Chariobas subtropicalis*	Armoured Spider	4	2	2	3	11
62	*Thysanina trarversa*	Dark Sac Spiders	4	2	2	3	11
63	*Arachnura scorpionoides*	Scorpion Tail Spider	4	2	2	3	11
64	*Caesetius biprocessiger*	Armoured Spider	4	2	2	3	11
65	*Thaumatochilus martini*	Grass Zodariid	4	2	2	3	11
66	*Austrophaea zebra*	Dark Sac Spiders	4	2	2	3	11
67	*Ariadna corticola*	Tube Spider	4	2	2	3	11
68	*Argyrodes stridulator*	Dew Drop Spider	4	2	2	3	11
69	*Anyphops lignicola*	Wall Spider	4	2	2	3	11
70	*Ancylotrypa zebra*	Wafer-Lid Trapdoor Spider	4	2	2	3	11
71	*Trachelas roeweri*	Dark Sac Spiders	4	2	2	3	11
72	*Araneus haploscapellus*	Hairy Field Spider	4	2	2	3	11
73	*Cetonana simoni*	Dark Sac Spiders	4	2	2	3	11
74	*Scytodes caffra*	Spitting Spider	4	2	2	3	11
75	*Selenops stauntoni*	Wall Spider	4	2	2	3	11
76	*Singa albodorsata*	Pajama Spider	4	2	2	3	11
77	*Cheiramiona filipes*	Sac Spider	4	2	2	3	11
78	*Xerophaeus lunulifar*	Flat-Bellied Ground Spider	4	2	2	3	11
79	*Stiphropus bisigillatus*	Crab Spider	4	2	2	3	11
80	*Argyrodes convivans*	Dew Drop Spider	4	2	2	3	11
81	*Xerophaeus longispinus*	Flat-Bellied Ground Spider	4	2	2	3	11
82	*Xerophaeus bicavus*	Flat-Bellied Ground Spider	4	2	2	3	11
83	*Monaeses austrinus*	Grass Crab Spider	4	2	1	3	10
84	*Episinus marignaci*	Cob-Web Spider	4	2	1	3	10
85	*Festucula lawrencei*	Jumping Spider	4	2	1	3	10
86	*Euprosthenops proxima*	Nursery-Web Spiders	4	2	1	3	10
87	*Araneus legonensis*	Two-Spotted Hairy Field Spider	4	2	1	3	10
88	*Gea infuscata*	Orb-Web Spider	4	2	1	3	10

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
89	*Thyene damarensis*	Jumping Spider	4	2	1	3	10
90	*Neoscona rapta*	Grass Hairy Field Spider	4	2	1	3	10
91	*Firmicus bragantinus*	Flat Crab Spider	4	2	1	3	10
92	*Miagrammopes longicaudu*	Single-Line Spider	3	2	2	3	10
93	*Gasteracantha falcicorn*	Long-Spined Kite Spider	4	2	1	3	10
94	*Deinopis cylindrica*	Orge-Faced Spider	4	2	1	3	10
95	*Gasteracantha sanguinol*	Kite Spider	4	2	1	3	10
96	*Argiope levii*	Garden Orb Web	4	2	1	3	10
97	*Gephyrota sp.*	White Huntsman Spider	4	2	1	3	10
98	*Trichopagis manicator*	Crab Spider	4	2	1	3	10
99	*Isoxya tabulata*	Yellow Box Kite Spider	2	2	3	3	10
100	*Heriaeus crassispinus*	Hairy Crab Spider	3	2	2	3	10
101	*Anagraphis pallens*	Long-Spinnered Ground Spider	4	2	1	3	10
102	*Hyllus brevitarsis*	Jumping Spider	4	2	1	3	10
103	*Homostola zebrina*	Wafer-Lid Trapdoor Spider	3	2	2	3	10
104	*Hippasa australis*	Funnel-Web Wolf Spider	4	2	1	3	10
105	*Lipocrea longissima*	Spotted Grass Orb Web Spider	4	2	1	3	10
106	*Synema Lesser*	African Mask Crab Spider	4	2	1	3	10
107	*Tetragnatha isidis*	Long-Jawed Water Spider	4	2	1	3	10
108	*Peucetia pulchra*	Green Lynx Spider	4	2	1	3	10
109	*Tetragnatha strandi*	Long-Jawed Water Spider	4	2	1	3	10
110	*Philodromus guineensis*	Small Huntsman Spider	3	2	2	3	10
111	*Camaricus nigrotesselat*	Decorated Crab Spider	4	2	1	3	10
112	*Cambalida coriacea*	Dark Sac Spiders	4	2	1	3	10
113	*Charminus ambiguus*	Nursery-Web Spider	3	2	2	3	10
114	*Deinopis cornigera*	Orge-Faced Spider	4	2	1	3	10
115	*Caerostris vicina*	Bark Spider	4	2	1	3	10
116	*Pactates trimaculatus*	Crab Spider	4	2	1	3	10
117	*Thomisops melanopes*	Crab Spider	4	2	1	3	10
118	*Pherecydes zebra*	Crab Spider	4	2	1	3	10
119	*Oxytate ribes*	Foliage Crab Spider	4	2	1	3	10
120	*Suemus punctata*	Spotted Huntsman Spider	3	2	2	3	10
121	*Oxyopes longispinosus*	Lynx Spider	3	2	2	3	10
122	*Olios fasciiventris*	Huntsman Spider	4	2	1	3	10
123	*Olios correvoni*	Huntsman Spider	4	2	1	3	10
124	*Copa lacustris*	Dark Sac Spiders	4	2	1	3	10
125	*Pseudomicrommata longip*	Grass Huntsman Spider	4	2	1	3	10
126	*Nephilengys cruentata*	Hermit Spider	4	2	1	3	10
127	*Thalassius rossiiPocock*	Fish-Eating Spider	4	2	1	3	10
128	*Platyoides walteri*	Scorpion Spider	4	2	1	3	10
129	*Argiope flavipalpis*	Garden Orb Web	4	2	1	3	10
130	*Argiope lobata*	Dark Spot Garden Orb Web	4	2	1	3	10
131	*Stegodyphus dumicola*	Community Nest Spider	4	2	1	3	10
132	*Runcinia johnstoni*	Grass Crab Spider	4	2	1	3	10
133	*Cheiracanthium inclusum*	Sac Spider	3	2	1	3	9
134	*Cheiracanthium furculat*	House Sac Spider	3	2	1	3	9
135	*Cheiracanthium vansoni*	Sac Spider	3	2	1	3	9
136	*Gasteracantha versicolo*	Kite Spider	3	2	1	3	9
137	*Clubiona lawrencei*	Sac Spiders	2	2	2	3	9
138	*Cyphalonotus larvatus*	Twig Spider	2	2	2	3	9
139	*Apochinnomma formicaefo*	Ant-Like Sac Spider	3	2	1	3	9
140	*Araneus apricus*	Green Hairy Field Spider	3	2	1	3	9
141	*Baryphas ahenus*	Jumping Spider	3	2	1	3	9

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
142	*Araneus nigroquadratus*	Black Spot Hairy Field Spider	3	2	1	3	9
143	*Arctosa brevispina*	Wolf Spider	3	2	1	3	9
144	*Euprosthenops australis*	Nursery-Web Spider	3	2	1	3	9
145	*Argiope australis (Walc*	Common Garden Orb-Web Spider	3	2	1	3	9
146	*Diaea puncta*	Spotted Grass Crab Spider	3	2	1	3	9
147	*Gasteracantha milvoides*	Kite Spider	3	2	1	3	9
148	*Synema imitator*	African Mask Crab Spider	3	2	1	3	9
149	*Thomisus blandus*	Flower Crab Spider	3	2	1	3	9
150	*Thomisus stenningi*	Flower Crab Spider	3	2	1	3	9
151	*Thomisus scrupeus*	Flower Crab Spider	3	2	1	3	9
152	*Thomisus natalensis*	Flower Crab Spider	3	2	1	3	9
153	*Peucetia viridis*	Green Lynx Spider	3	2	1	3	9
154	*Runcinia aethiops*	Grass Crab Spider	3	2	1	3	9
155	*Runcinia affinis*	Grass Crab Spider	3	2	1	3	9
156	*Runcinia erythrina*	Grass Crab Spider	3	2	1	3	9
157	*Thomisus kalaharinus*	Flower Crab Spider	3	2	1	3	9
158	*Thomisus granulatus*	Flower Crab Spider	3	2	1	3	9
159	*Monaeses paradoxus*	Grass Crab Spider	3	2	1	3	9
160	*Thyene coccineovittata*	Jumping Spider	3	2	1	3	9
161	*Synema diana*	African Mask Crab Spider	3	2	1	3	9
162	*Thyene inflata*	Jumping Spider	3	2	1	3	9
163	*Synema nigrotibiale*	African Mask Crab Spider	3	2	1	3	9
164	*Tetragnarha unicornis*	Long-Jawed Water Spider	3	2	1	3	9
165	*Tetragnatha andonea*	Long-Jawed Water Spider	3	2	1	3	9
166	*Thomisus daradioides*	Flower Crab Spider	3	2	1	3	9
167	*Tetragnatha ceylonica*	Long-Jawed Water Spider	3	2	1	3	9
168	*Thomisus dalmasi*	Flower Crab Spider	3	2	1	3	9
169	*Theuma parva*	Long-Spinnered Ground Spider	3	2	1	3	9
170	*Thomisops bullatus*	Crab Spider	3	2	1	3	9
171	*Thomisus citrinellus*	Flower Crab Spider	3	2	1	3	9
172	*Thomisops pupa*	Crab Spider	3	2	1	3	9
173	*Thomisops senegalensis*	Crab Spider	3	2	1	3	9
174	*Thomisops sulcatus*	Crab Spider	3	2	1	3	9
175	*Sylligma hirsuta*	Crab Spider	3	2	1	3	9
176	*Monaeses quadritubercul*	Grass Crab Spider	3	2	1	3	9
177	*Isoxya stuhlmanni*	Common Yellowbox Kite Spider	3	2	1	3	9
178	*Kilima decens*	Banded Grass Orb Web Spider	3	2	1	3	9
179	*Latrodectus cinctus*	Black Button Spider	3	2	1	3	9
180	*Latrodectus geometricus*	Brown Button Spider	3	2	1	3	9
181	*Leucauge festiva*	Silver Vlei Spider	3	2	1	3	9
182	*Leucauge kibonotensis*	Silver Vlei Spider	3	2	1	3	9
183	*Tmarus planetarius*	Bark Crab Spider	3	2	1	3	9
184	*Mahembea hewitti*	Grass Orb Web Spider	3	2	1	3	9
185	*Misumena tuckeri*	Crab Spider	3	2	1	3	9
186	*Misumenops rubrodecorat*	Green Crab Spider	3	2	1	3	9
187	*Oxytate argenteooculata*	Foliage Crab Spider	3	2	1	3	9
188	*Monaeses pustulosus*	Grass Crab Spider	3	2	1	3	9
189	*Tibellus flavipes*	Grass Huntsman Spider	3	2	1	3	9
190	*Nephila senegalensis*	Banded-Leggd Nephila	3	2	1	3	9
191	*Nephila pilipes*	Black-Legged Nephila	3	2	1	3	9
192	*Nephila inaurata*	Red Legged Nephila	3	2	1	3	9
193	*Tmarus foliatus*	Bark Crab Spider	3	2	1	3	9
194	*Neoscona triangula*	Red Spotted Hairy Field Spider	3	2	1	3	9

No.	Scientific name	Common Name	R	T	E	PS	TOTAL
195	*Tibellus minor*	Grass Huntsman Spider	3	2	1	3	9
196	*Tmarus hirsuta*	Bark Crab Spider	3	2	1	3	9
197	*Neoscona Neoscona*	Large Hairy Field Spider	3	2	1	3	9
198	*Tmarus cameliformis*	Bark Crab Spider	3	2	1	3	9
199	*Tmarus comellinii*	Bark Crab Spider	3	2	1	3	9
200	*Neoscona blondeli*	Hairy Field Spider	3	2	1	3	9
201	*Thyene natalii*	Jumping Spider	3	2	1	3	9
202	*Runcinia flavida*	Grass Crab Spider	2	2	1	3	8
203	*Uloborus plumipes*	Orb-Web Spider	2	2	1	3	8
204	*Argiope trifasciata*	Narrow Banded Garden Orb	2	2	1	3	8
205	*Araneus strupifer*	Hairy Field Spider	2	2	1	3	8
206	*Copa flavoplumosa*	Dark Sac Spiders	2	2	1	3	8
207	*Leucauge decorata*	Silver Vlei Spider	2	2	1	3	8
208	*Leucauge levanderii*	Silver Vlei Spider	2	2	1	3	8
209	*Aethriscus olivacius*	Bird Dropping Spider	4	2	1	1	8
210	*Neoscona moreli*	Grass Hairy Field Spider	2	2	1	3	8
211	*Neoscona nautica*	Hairy Field Spider	2	2	1	3	8
212	*Neoscona subfusca*	Common Hairy Field Spider	2	2	1	3	8
213	*Neoscona theisi*	Large Hairy Field Spider	2	2	1	3	8
214	*Cyrthophora citricola*	Tropical Tent-Web Spider	2	2	1	3	8
215	*Olios auricomis*	Huntsman Spider	2	2	1	3	8
216	*Palystes superciliosus*	Rain Spider	2	2	1	3	8
217	*Pardosa crassipalpis*	Common Grass Wolf Spider	2	2	1	3	8
218	*Pardosa nostrorum*	Wolf Spider	2	2	1	3	8
219	*Clubiona africana*	Sac Spiders	2	2	1	3	8
220	*Runcinia grammica*	Grass Crab Spider	2	2	1	3	8
221	*Tetragnatha boydi*	Long-Jawed Water Spider	2	2	1	3	8
222	*Tetragnatha subsquamata*	Long-Jawed Water Spider	2	2	1	3	8
223	*Cyclosa insulana*	Garbage Line Spider	2	2	1	3	8
224	*Benoitia ocellata*	Funnel-Web Spider	3	2	1	1	7
225	*Hypsacantha crucimacula*	Black Kite Spiders	1	2	1	3	7
226	*Caerostris sexcuspidata*	Common Bark Spider	2	2	1	1	6
227	*Smeringopus natalensis*	Daddy-Long-Legs		2		3	5

*** This list was compiled by Dr. Ansie Dippenaar-Schoeman, the scientific mentor for the Spider taxon.**



Dr Matjaz Kuntner, recording the feeding behaviour (for the first time on camera) of a spider species from the Clitaetrinae subfamily. Dr Kuntner recently described this species, and the GwalaGwala Forest of St Lucia is the most southern recording of this species distribution.

Scientific name: *Platythomisus sibayius* **Common name:** Spotted Crab Spider

Photo: R F Lawrence

Description: Total length 11 mm. This is a brightly coloured spider. The carapace is yellowish brown, with a black band over the eye region. The abdomen is creamish white with distinct black patterns dorsally. The legs are orange brown and the last four leg segments are black. Legs I and II are longer than legs III and IV.

Rare, Threatened or Endemic Status: This very rare spider is endemic to the Greater St Lucia Wetland Park where it is known from less than five records in a very small area. The Red Data assessment for South Africa is Data Deficient.

Distribution: This species is known only from the eastern shore of Lake Sibaya.

Historical records and distribution in the GSLWP: The first female was recorded in June 1967, no male has ever been recorded.

Habitat: The spotted crab spider is one of the larger crab spiders. They are free-living spiders found mainly on foliage. They live on the leaves of trees and shrubs and with their cryptic colouration they blend in with their surroundings.

Biology/Life history: Very little is known about *P. sibayius*. Spiders of the family Thomisidae have lost some agility, and have become semi-sedentary to excel as ambushers. With their cryptic colouration most species await their prey, usually on plants. They are mainly active during the day and their gait is sideways or crab-like, hence their common name. They have strong bodies and robust front legs which enable them to attack prey much larger than themselves. They are able to see motion 20 cm away. Prey are seized, frequently from the air, when 0.5 – 1.0 cm away. Although they have weak chelicerae, they secrete extremely potent venom which enables them to attack insects 2-3 times their size. They have no cheliceral teeth and their prey is consequently not mashed but sucked dry. The life-like carcass is held in a natural position while it is being fed upon and thus offers some protection to the spider, while sitting on the plant. Thomisids generally live an average of 12-18 months.

Importance of the GSLWP for its conservation: This is one of the largest and most colourful Thomisid spiders of South Africa. Only three species are known from South Africa. *P. sibayius* has never been recorded outside the Greater St Lucia Wetland Park, therefore the park plays a crucial role in the conservation of this rare species.

Threats: Habitat destruction.

Relevant survey methods: Sweep net and active searches (hand collecting).

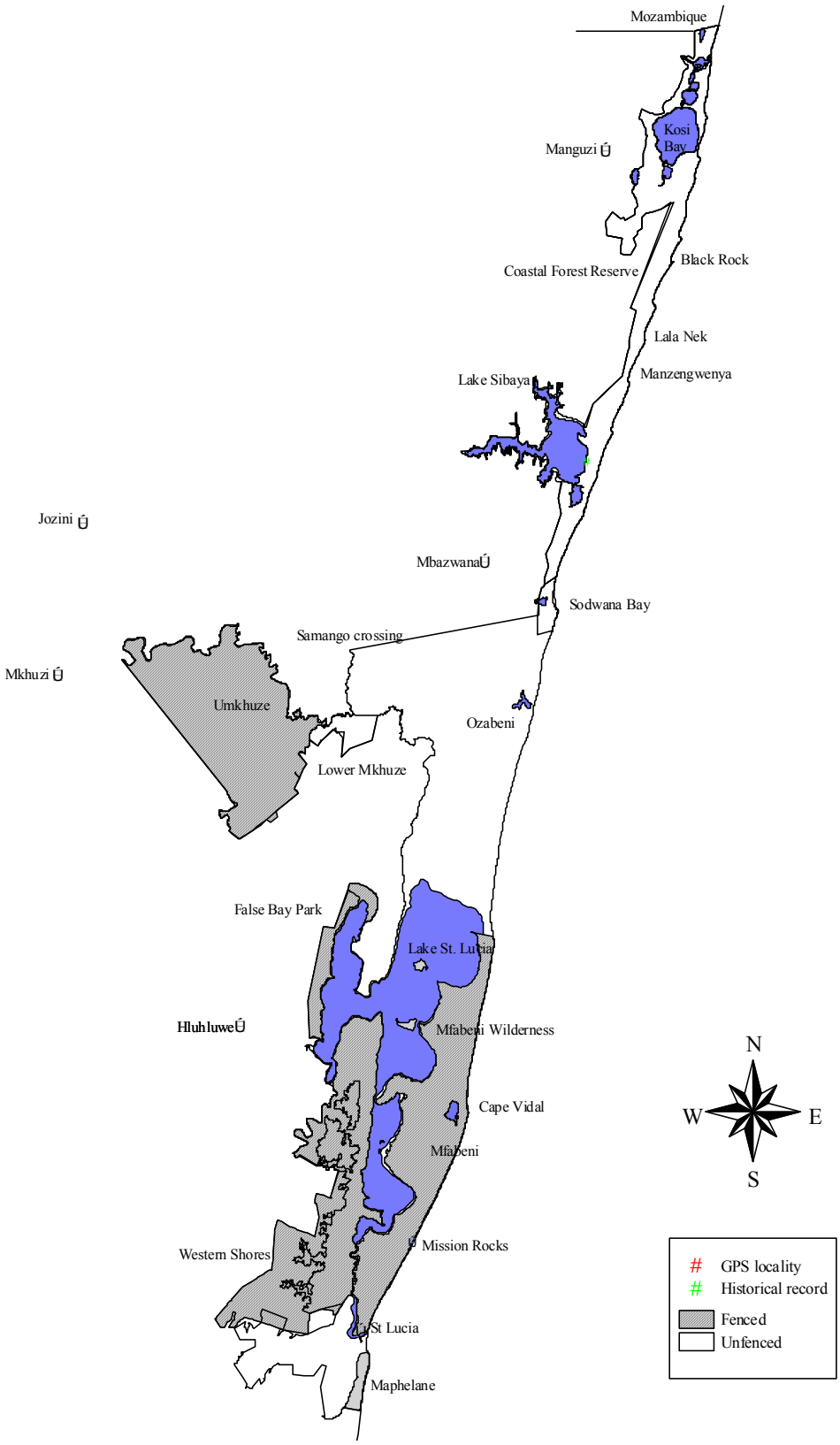
Estimate population size/abundance in the GSLWP: No data available, but probably very rare.

References:

Lawrence, R.F. 1968. Four new species from Southern Africa (Araneae). Annals of the Natal Museum 20: 109-121.

Lawrence, R.F., Croeser, P.M.C. & Dippenaar-Schoeman, A.S. 1980. Spiders of Maputoland with notes on some associated arthropods. In: Bruton, M.N. & Cooper, K.H. (eds). Studies on the ecology of Maputoland. Rhodes University and the Natal Branch of the Wildlife Society of Southern Africa, 560 pp.

11.4.3.1 Spotted Crab Spider



Scientific name: *Megaraneus gabonensis* Common name: Zululand Large Spiky Orb-web Spider

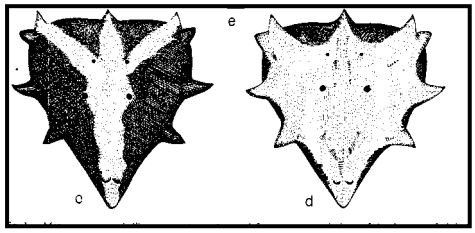


Illustration: R F Lawrence

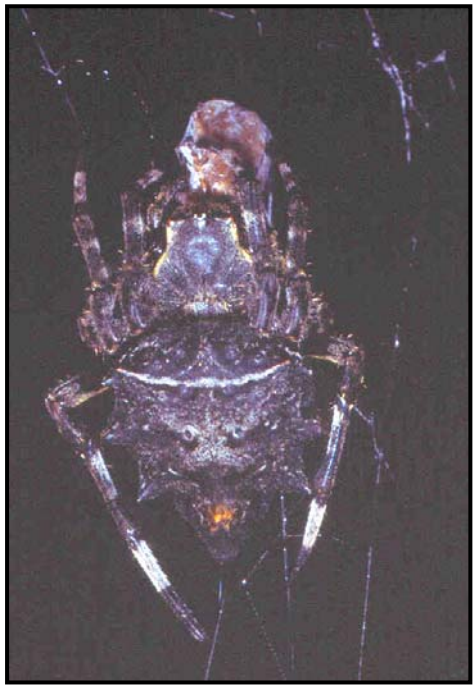


Photo: John Leroy

Description: A large araneid with a superficial resemblance to bark spiders. In the carapace the cephalic region is blackish-brown, sometimes reddish and covered by minute round wart-like tubercles. The sternum is blackish and the ventral surface covered with golden hairs. The abdomen has three pairs of blunt lateral subangular tubercles, two pairs of large round sigillae and about 50 smaller pit-like impressions with a variable pattern of yellow markings on a black background. The legs are black, with the front legs banded. There is sexual dimorphism in size, although the male (6.5 mm) resembles the female (31 mm) in basic abdominal shape.

Rare, Threatened or Endemic Status: This very rare spider is endemic to the Greater St Lucia Wetland Park. The Red Data assessment for South Africa is Data Deficient.

Distribution: This species does not occur elsewhere in South Africa other than the narrow belt of thick dune forest which skirts the eastern shore of Lake Sibaya in the Greater St Lucia Wetland Park.

Historical records and distribution in the GSLWP: The genus is monotypic and was described as type species based on specimens collected at Lake Sibaya.

Habitat: Constructs orb-webs at a height of 1-1.5 m associated with the herbaceous plant *Isoglossa woodii* which often forms a thick, closely grown layer on the forest floor.

Biology/Life history: The orb-web consists of 25-30 radii with 25 viscid spirals and the free zone narrow and the hub composed of a fairly small rounded area. A connecting line emanates from near the upper margin of the almost vertical web with the female spider resting concealed beneath a leaf or closely connected leaves of *I. woodii* with head pointed diagonally downward towards the web, with its first leg resting on the connecting line.

Importance of the GSLWP for its conservation: *M .gabonensis* has never been recorded outside the Greater St Lucia Wetland Park, therefore the park plays a vital role in the conservation of this rare species.

Threats: Habitat destruction

Relevant survey methods: Sweepnet and active searches (hand collecting).

Estimate population size/abundance in the GSLWP: Data deficient, but probably only a small population exists.

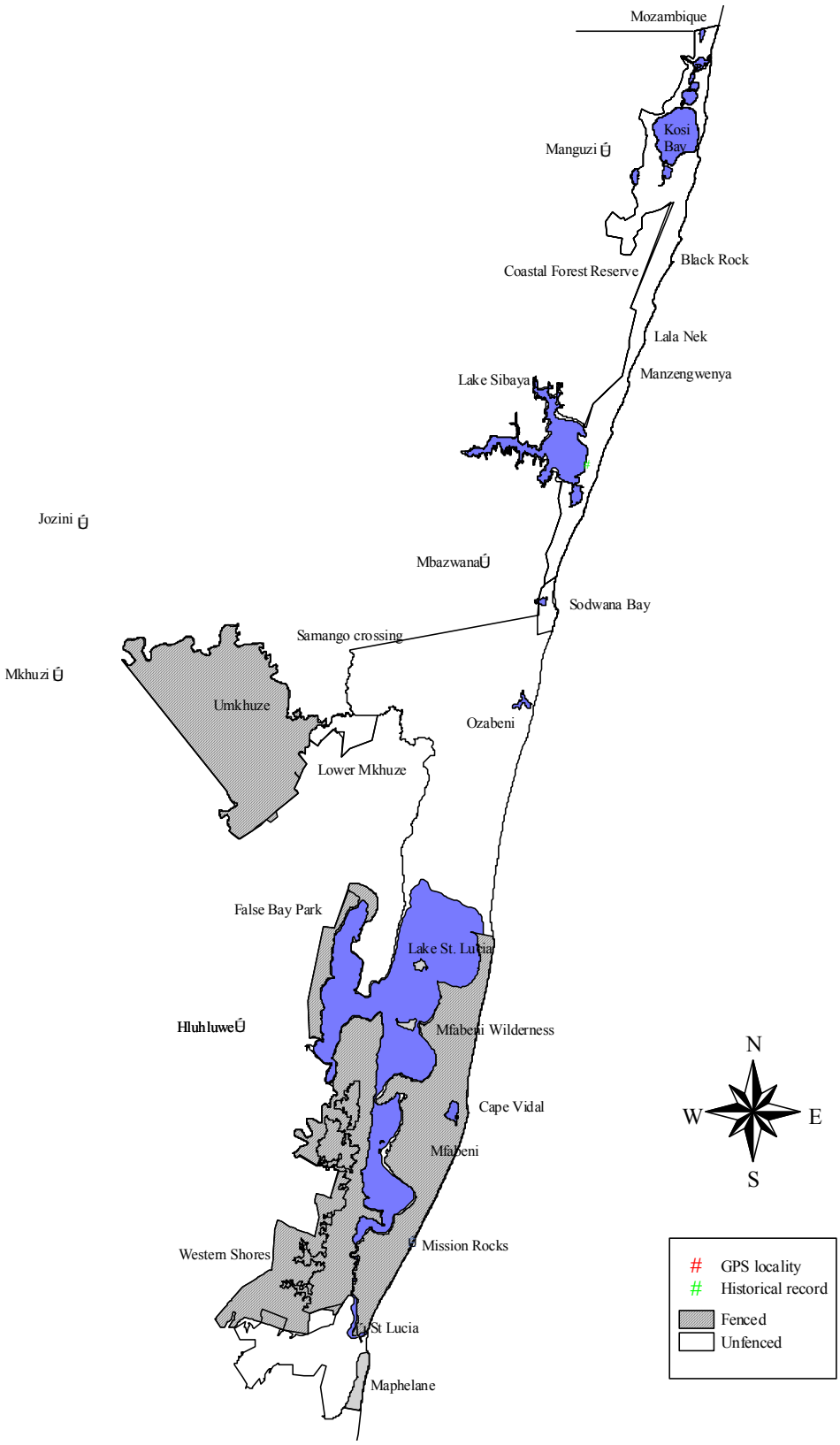
References:

Grasshoff, M. 1968. Die Radnetzspinnen-Gattung Caerostris (Arachnida: Araneae). Revue de Zoologie africaine 98: 725-765.

Lawrence, R.F. 1968. Four new species from Southern Africa (Araneae). Annals of the Natal Museum 20: 109-121.

Lawrence, R.F., Croeser, P.M.C. & Dippenaar-Schoeman, A.S. 1980. Spiders of Maputoland with notes on some associated arthropods. In: Bruton, M.N. & Cooper, K.H. (eds). Studies on the ecology of Maputoland. Rhodes University and the Natal Branch of the Wildlife Society of Southern Africa, 560 pp.

11.4.3.2 Zululand Large Spiky Orb-web Spider



Scientific name: Unnamed new *Brachionopus* species **Common name:** Lesser Baboon Spider

Photo: Richard Gallon

Description: A small baboon spider with a leg-span of approximately 3.5 cm. The overall colouration varies between dark brown and black (depending on moult history), with thin orange-brown leg annulations between the segments. The abdomen has an obscure pattern of bars, spots and reticulations on its upper surface. Both sexes are similarly coloured.

Rare, Threatened or Endemic Status: This rare spider is endemic to KwaZulu-Natal and Swaziland. Its South African Red Data listing is Data Deficient.

Distribution: Endemic to KwaZulu-Natal and Swaziland, and it appears to be restricted to the coastal plains and adjacent savannah areas. The type locality is Pongola. Specimens have been collected at Empangeni, Pongola, Richards Bay, Ndumo Game Reserve, Itala Game Reserve, Lugaganeni (Swaziland) and the Greater St Lucia Wetland Park.

Historical records and distribution in the GSLWP: Fanies Island and Sodwana Bay.

Habitat: Occurs in both open savannah and tree-shaded areas.

Biology/Life history: This species lives beneath rocks and logs where it constructs a inconspicuous, lightly silk-lined chamber. Unlike many other theraphosids, this species does not construct a well-defined retreat entrance. Mature males are active between November and February (with a single record for July). Females are capable of producing two separate eggsacs following a successful mating. Spiderlings leave the maternal retreat en masse and are fully independent. This *Brachionopus* species is a bold predator, readily tackling prey items of a similar size to itself. This is unlike other baboon spiders which are reluctant to take on relatively large prey items. It is neither aggressive nor defensive when disturbed.

Importance of the GSLWP for its conservation: As a regional endemic, populations of this species are protected within the Greater St Lucia Wetland Park and therefore the park plays an important role in this species conservation.

Threats: Habitat destruction and agricultural intensification. It is unlikely to be of interest to the pet-trade, given its dull coloration, small size and cryptic behaviour.

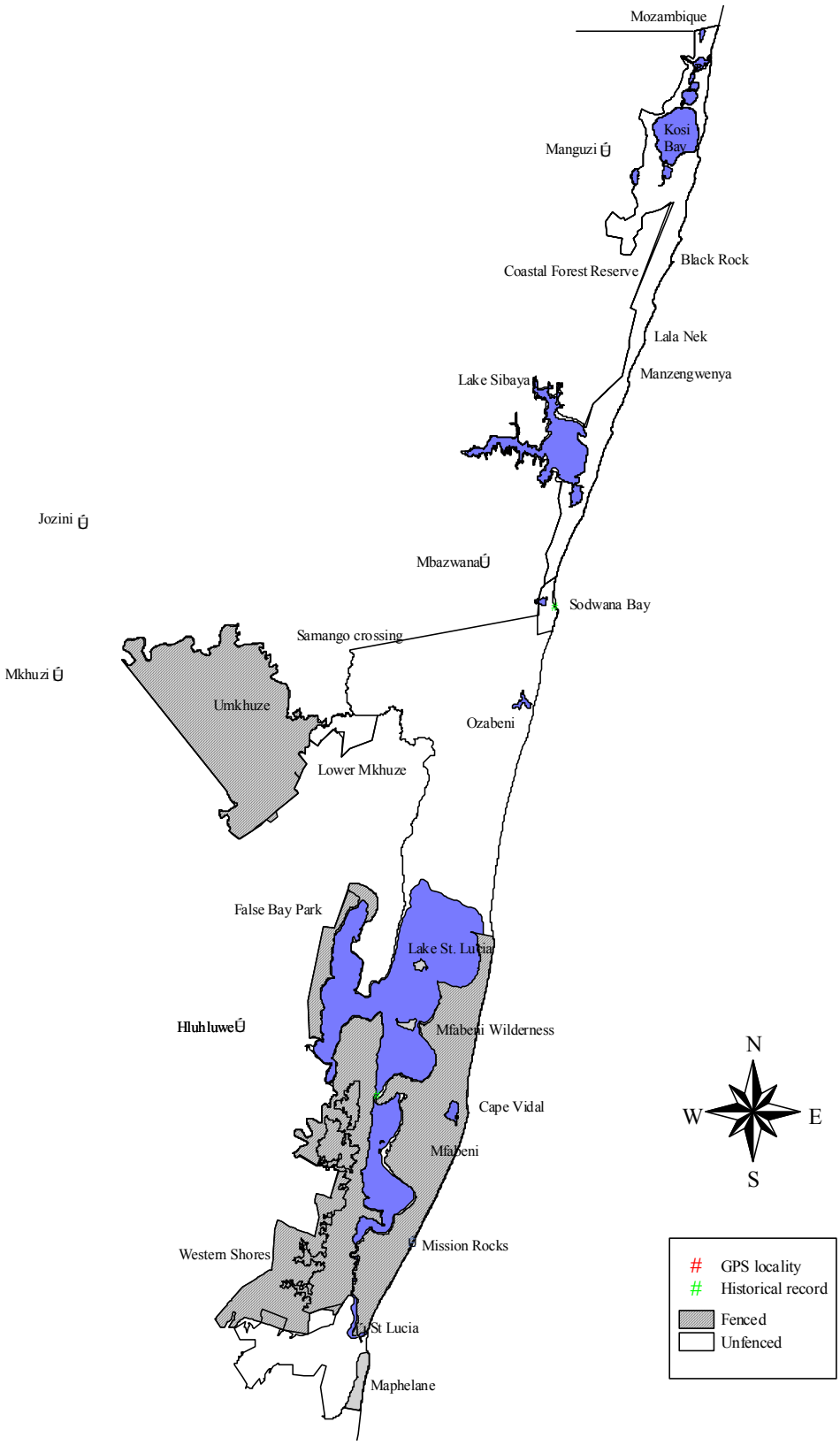
Relevant survey methods: Hand collecting, focused on turning rocks and logs within suitable habitat. Pitfall trapping is not a suitable recording method, since theraphosids easily scale trap walls.

Estimate population size/abundance in the GSLWP: Data deficient, but probably only a small population exists within the Park.

References:

Gallon, R. C. (in prep.). Revision of the African spider genera Harpactirella and Brachionopus (Araneae, Theraphosidae).

11.4.3.3 Lesser Baboon Spider



Scientific name: *Corinna natalis* **Common name:** Natal Large Black Sac Spider

Photo: Dr A Dippenaar-Schoeman

Description: The largest of the Afrotropical Corinnidae, measuring up to 16.3 mm. This spider is cryptic in colouration. The carapace is deep red-brown anteriorly and orange-brown posteriorly; the surface is smooth, clothed in short, white plumose setae. The abdomen is oval, pale to grey with dark grey mottling in a distinct pattern. The legs are pale cream-yellow to yellow-brown with grey prolateral and dorsal stripes.

Rare, Threatened or Endemic Status: *C. natalis* is a rare spider, which is also endemic to KZN. The Red Data assessment for South Africa is Data Deficient.

Distribution: This species is endemic to KwaZulu-Natal and appears to be restricted to the coastal plains and adjacent savanna areas. The type locality is Durban. Recordings have been made in the Greater St Lucia Wetland Park, Ndumo Game Reserve and Richards Bay.

Historical records and distribution in the GSLWP: Specimens collected at Hell's Gate and Dukuduku Forest.

Habitat: Not clear whether this species is primarily an arboreal or epigeic species. Some specimens collected from retreats constructed in fissures or similar structures on tree bark while other were collected from leaf litter.

Biology/Life history: Little is known about *C. natalis*. The family Corinnidae are free living ground spiders, which do not construct webs and build their silk retreats in rolled leaves and plant debris. They are commonly found in shady, deciduous forest areas in woody debris, litter or humus on the forest floor. Most species of Corinnidae spin a round cocoon of dense white threads in which to deposit their eggs. Their egg cocoons are shiny and disk-shaped and they attach it to the substrate. They prey on a variety of crawling insects.

Importance of the GSLWP for its conservation: A large part of this spider's distribution falls within the Greater St Lucia Wetland Park, therefore highlighting the key importance of the Greater St Lucia Wetland Park for the conservation of this species.

Threats: Habitat destruction.

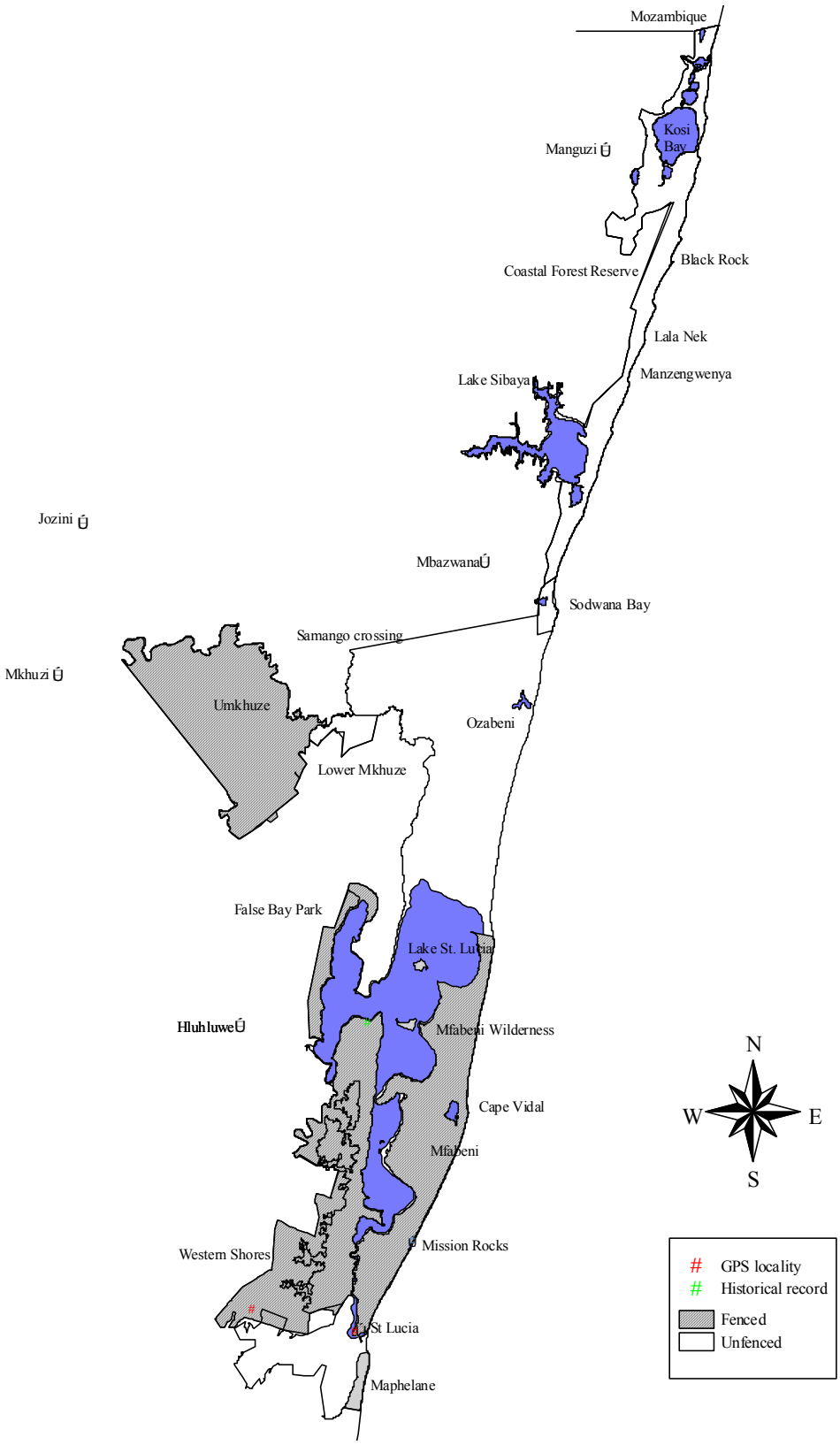
Relevant survey methods: Pitfall traps, combined with drift fences as well as active searches (hand collecting).

Estimate population size/abundance in the GSLWP: Data deficient, but probably only a small population.

References:

Haddad, C.R. 2006. A re-description of Corinna natalis Pocock, 1898 (Araneae, Corinnidae), Africa's largest black sac spider, with natural history notes. Journal of Afrotropical Zoology 2: 27-32.
Pocock, R.I. 1898. The Arachnida from the province of Natal, South Africa, contained in the collection of the British Museum. Annals and Magazine of Natural History 2: 197-226.

11.4.3.4 Natal Large Black Sac Spider



Scientific name: *Anyphops lucia* **Common name:** St Lucia Flattie

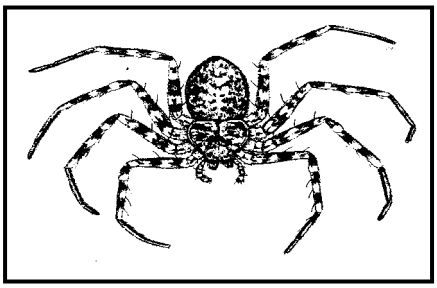


Illustration: Dr. A Dippenaar-Schoeman

Photo: Les Oates

Description: Total body length 7.7 mm. The carapace is red-brown with lateral dark grey irregular markings reaching the lateral edges; flattened and sub-circular. The eyes are 8 in 2 rows (6:2) with the anterior row containing 6 eyes near the edge of the carapace, the posterior row has 2 fairly large eyes, one on each side. The chelicerae are reddish brown and the abdomen whitish with grey irregular spots, flattened, round to oval in shape and densely clothed with setae. The legs are orange-brown mottled dark grey, two claws with claw tufts and scopula and legs directed sideways with anterior legs provided with strong, paired setae on tibiae and metatarsi I and II.

Rare, Threatened or Endemic Status: This rare species is endemic to KwaZulu-Natal. The Red Data assessment for South Africa is Data Deficient.

Distribution: This species is endemic to KwaZulu-Natal. The type locality is from Durban. Specimens collected from the Greater St Lucia Wetland Park, Ndumo Game Reserve and Richard's Bay.

Historical records and distribution in the GSLWP: Hell's Gate, Fanies Island camp and Dukuduku Forest.

Habitat: No habitat data available. The family is known to occur on plants and the soil.

Biology/Life history: Free-ranging wandering spiders found on plants and on the ground. Selenopids, with their flattened bodies, are able to move into narrow crevices. They dart with astonishing speed sideways for cover when disturbed. With their mottled bodies, they blend in with their surroundings whether on the soil surface, rocks or tree trunks. Their disc-shaped, satin smooth egg cocoons are attached to the under surface of stones or bark. They prey on a variety of invertebrates.

Importance of the GSLWP for its conservation: A large part of this spider's distribution falls within the Greater St Lucia Wetland Park, therefore highlighting the key importance of the Greater St Lucia Wetland Park for the conservation of this species.

Threats: Habitat destruction.

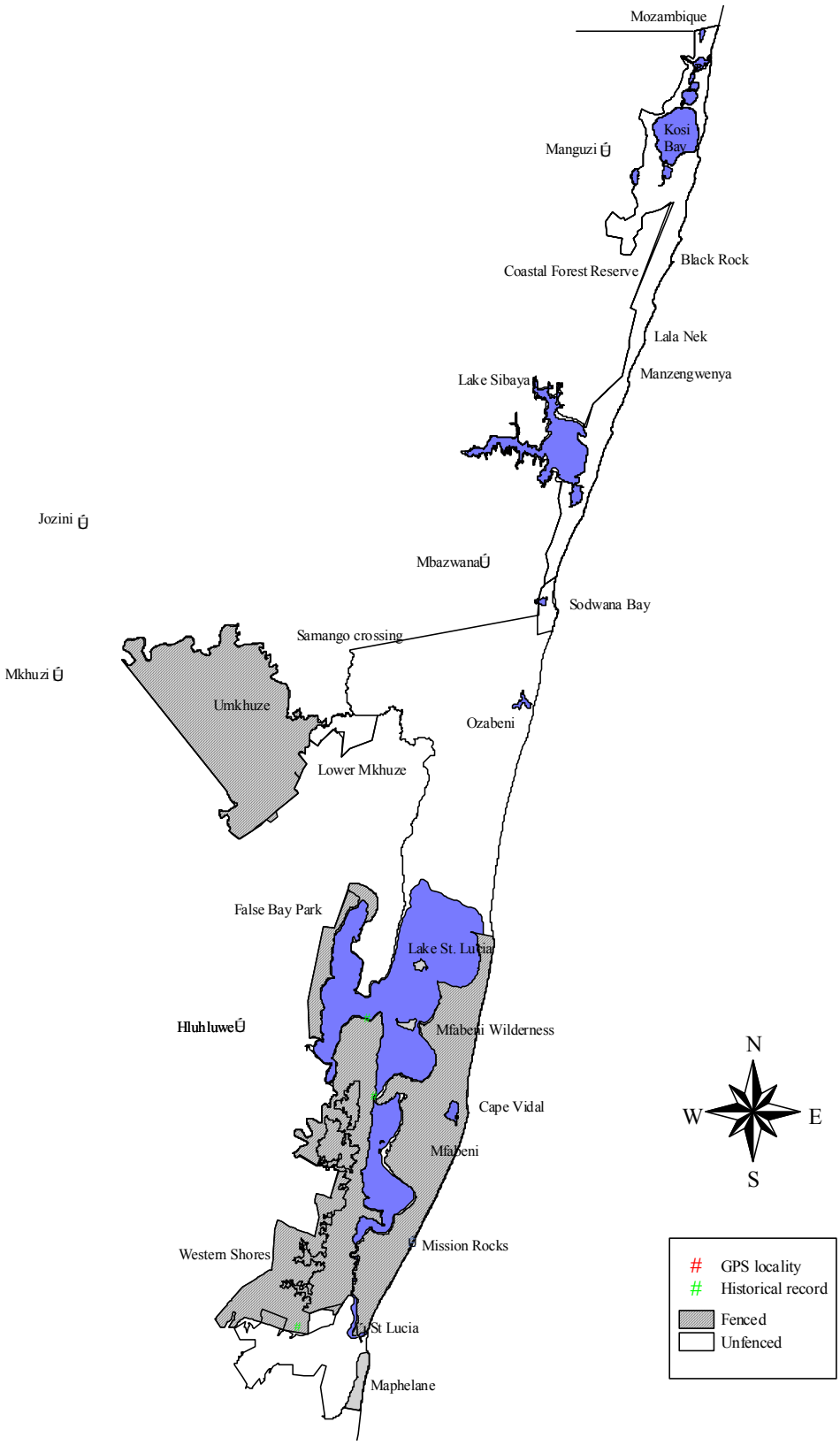
Relevant survey methods: Pitfall traps, combined with drift fences as well as active searches (hand collecting).

Estimate population size/abundance in the GSLWP: Data deficient, but there is probably only a very small population.

References:

Corronco, J.A. 2005. Re-description of the lycosiformis species group of Anyphops Benoit and description of two new species (Araneae, Selenopidae). Journal of Natural History 39: 1381-1393.

11.4.3.5 St Lucia Flattie



12 PLANTS

12.1 TREES

12.1.1 Flagship species

- Kosi Palm *(Raphia australis)*
- Black Mangrove *(Bruguiera gymnorrhiza)*

12.1.2 Focal species

- Pepper-bark Tree *(Warburgia salutaris)*
- Tongaland Cycad *(Encephalartos ferox)*
- Kosi Palm *(Raphia australis)*

12.1.3 Rare, Threatened & Endemic list

No.	Scientific name	R	T	E	PS	TOTAL
1	*Raphia australis*	4	3	4	4	15
2	*Encephalartos ferox*	4	1	4	4	13
3	*Cassipourea mossambicensis*	4	1	4	4	13
4	*Warburgia salutaris*	4	4		4	12
5	*Encephalartos senticosis*	4	3		1	8
6	*Cavacoa aurea*	3	3		1	7
7	*Aloe barberiae*	1		2	1	4
8	*Stangeria eriopus*	1	1		1	3
9	*Scolopia stolzii*	1	1		1	3
10	*Bruguiera gymnorrhiza*	1	1		1	3
11	*Rhizophora mucronata*	1	1		1	3

A Black Rhino (*Diceros bicornis*) amonst tall Aloe trees in uMkhuze

Scientific name: *Raphia australis* **Common name:** Kosi Palm

Photo: Dr Scotty Kyle

Description: A very large palm, up to 24 m in height, with a single stem or trunk and very large leaves (6-10 m) that grow from the tip of the trunk to form a V-shaped canopy. The compound blue-green leaves are the longest of any plant in the world and can be over 9 metres long. They have hook shaped spines along the margins of the leaflets and a red midrib. The palm has masses of breathing roots to cope with the swampy soil. The flowers are brown and up to 3 m tall. The fruit is shiny brown (90 mm long), with overlapping scales.

Rare, Threatened or Endemic Status: This rare palm is listed in the South African Red Data Book as Vulnerable and is a Maputaland endemic.

Distribution: *R. australis* occurs naturally in southern Moçambique and in Maputaland in the swamp forests around the Kosi and Amanzimnyama Lakes.

Historical records and distribution in the GSLWP: Found near Kosi Bay.

Habitat: Swamp forest.

Biology/Life history: *R. australis* has an average life span of 25 to 30 years. It flowers once and then dies, a condition known as Hapxanthic. A single tree produces both male and female flowers, male flowers occur on the upper section of the inflorescence and female flowers on the lower section. The inflorescence takes the form of a cone rising at the apex of the tree. It may take 2-3 years to develop and for the fruit to ripen. Soon after the fruit ripens, the palm begins to die. Eventually the palm is weakened to the extent that it is blown over by the wind, and ripe seeds are then scattered.

Importance of the GSLWP for its conservation: The Kosi palm is an important element in the Kosi Bay lake system as it stabilizes the soil and is a food source and nesting site for the Palmnut vulture (*Gypohierax angolensis*).

Relevant survey methods: Aerial surveys have been conducted and GPS points recorded for the Kosi Bay population. Visits to known sites during flowering season.

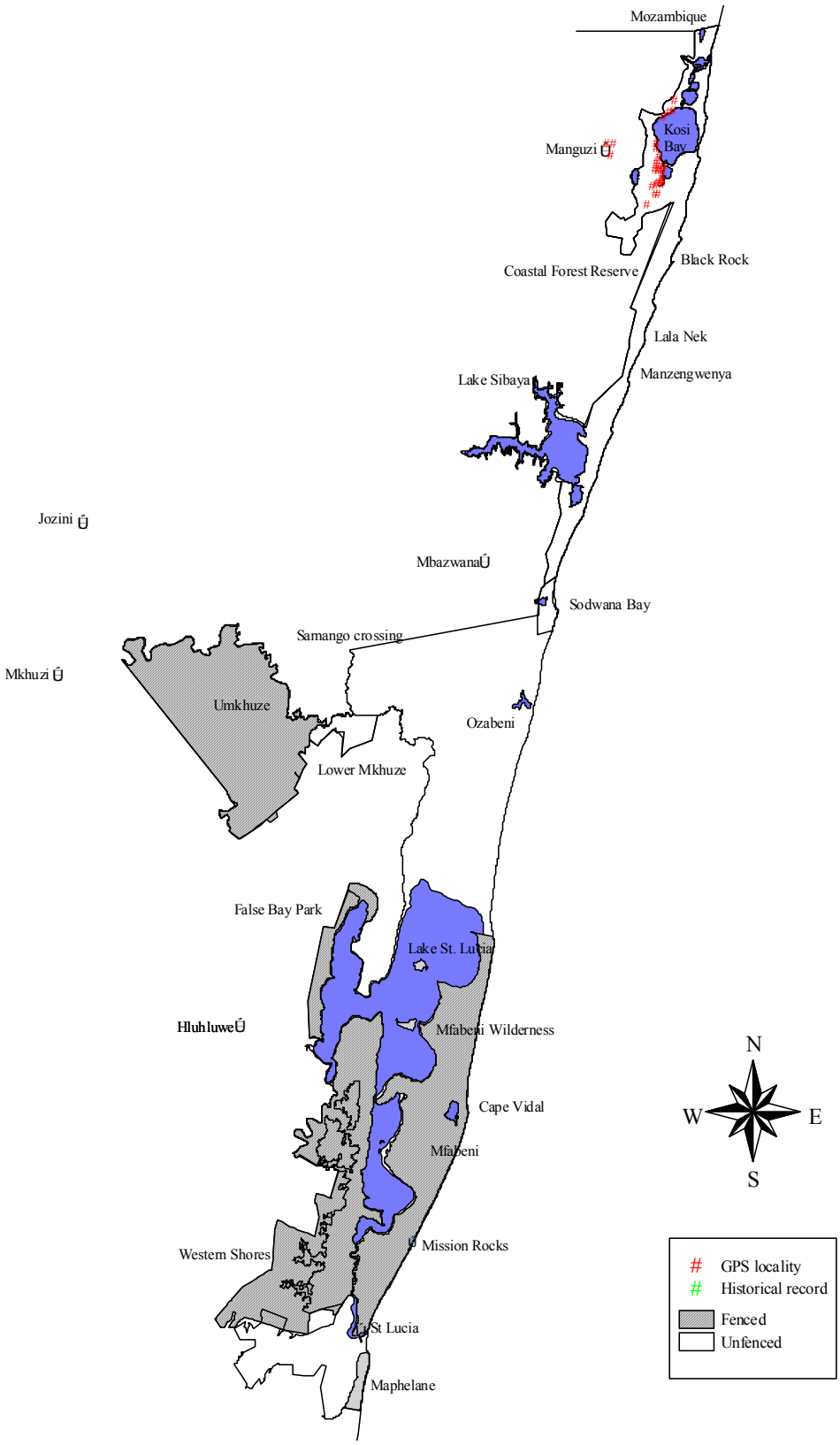
Threats: Destruction of swamp forest, both physical and through changes in the quality and quantity of water that feeds the swamp.

Estimated population size/abundance in the GSLWP: During the December 2004 aerial survey, 27 individual trees were counted, but the Greater St Lucia Wetland Park population is probably several hundred. Several populations in the Kosi Bay area are expanding and some new groups of trees have recently become established.

References:

Herbert, D.G. 1989 The Raffia palms of Tongaland. Sagittarius 4,2:14-17.
Scott-Shaw, C.R. 1999. Rare and Threatened Plants of KwaZulu-Natal and neighboring regions
Palgrave, K. C. 1997. 2nd Edition. *Trees of Southern Africa.* Struik Publishers. Cape Town.
Peckham, G.D. & Van Jaarsveld, F.A. 1989. New botanical perspectives on the origin of the Raphia palms at Mtunzini, Bothalia 19,2:213.
Grant, R. & Thomas, V. 1998. *Sappi Tree Spotting, Coast and Midlands*. Jacana Education. Johannesburg.
Pooley, E. 1993. The complete field guide to trees of Natal Zululand & Transkei. Natal Flora Publications trust

12.1.3.1 Kosi Palm



Scientific name: *Encephalartos ferox* **Common name:** Tongaland Cycad

Photo: Xander Combrink

Description. The leaves are 1-2 metres long and are usually straight, although a slight kink in the rachis is sometimes seen. *E. ferox* does not have much of an exposed trunk although it is possible to find specimens in the wild with stems of up to 2 metres above ground level. The reproductive organs are produced in cones, which are usually bright scarlet in colour, occasionally tending to pink and golden yellow shades.

Rare, Threatened or Endemic Status: *E. ferox* is listed as Near Threatened (Lower Risk), according to the IUCN criteria for Red Data species. It is protected in the GSLWP, Sileza Nature Reserve and Tembe Elephant Park, but the security of these colonies is not guaranteed.

Distribution: Occurs in the costal bush from northern KwaZulu-Natal extending from Sodwana Bay to Kosi Bay and then further north along the Moçambique coastline to Vilanculos. It is also found on Inhaca Island, 35km east of Maputo.

Historical records and distribution in the GSLWP: *E. ferox* occurs from Lake Bangazi north (isolated plants) along the coastal plain into southern Moçambique, and the largest population is found between Dog Point and Banga Nek.

Habitat: *E. ferox* is found more commonly in wooded grassland and dune forest margins where it can occur in large numbers. This species is locally abundant in dune scrub and grows within 50 m of the beach. The habitat in which this species grows experiences hot and humid tropical weather and an annual rainfall of 1000 mm to 1250 mm. In some grassland areas there are cyclical fires, about every four years, to which mature specimens are well adapted.

Biology/Life history: *E. ferox* is found both in the shade and the full sun, and the location of the plants appears to play a role in their appearance and reproductive potential. Plants growing in deep shade are darker green and have significantly less seeds growing in their cones than plants growing in the sunlight. The survival rate of seedlings is affected by annual grassland fires and very few immature plants are found in open grasslands. Seed vectors also have a role to play, and the grouping of cycads in bush clumps appears to be a result of birds perching and dropping seeds below their perches. These bush clumps protect juveniles from fire. Although wind plays a role in cycad pollination, insects (primarily weevils) are considered to be the primary pollinators. Cycad seeds are large, with a fleshy outer coat and hard inner stony layer. They are relatively short lived and are subject to damage by desiccation.

Importance of the GSLWP for its conservation: Although *E. ferox* is protected in Sileza Nature Reserve and Tembe Elephant Park, the GSLWP plays a very important role in the overall conservation of this near endemic and threatened species.

Threats: Cycads are popular as collector's items and a number of species are highly threatened in their natural habitat due to over collection. Other threats are illegal harvesting of adult plants, habitat destruction and collection for the "muthi" trade. Uncontrolled fires could have a negative effect on the recruitment of the population.

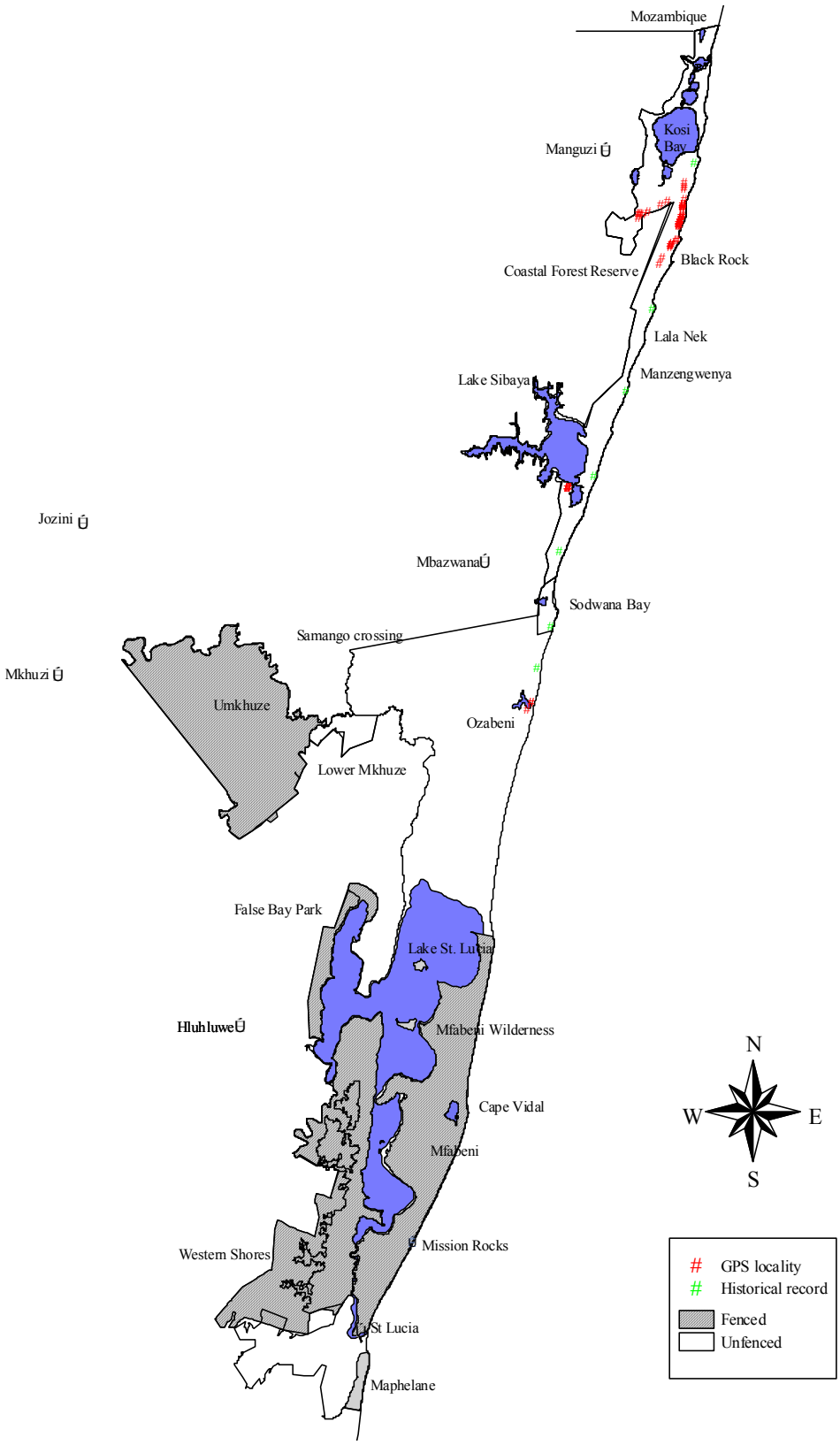
Relevant survey methods: Foot surveys to count and GPS distributions. Fixed point photography for areas with higher density.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Church, B. 2003. Management Plan for *Encephalaetos ferox*. EKZN Wildlife Biodiversity Conservation Advice.

12.1.3.2 Tongaland Cycad



Scientific name: *Warburgia salutaris* **Common name:** Pepper Bark

Photo: Brigitte Church

Description: *W. salutaris* is a shrub or small to medium sized tree (4-8 m). The main stem is short with rough, mottled and lenticellate bark. The leaves have a peppery, spicy smell when crushed and give a peppery sensation when tasted. Flowers are small, greenish-yellow and are found singly in leaf axils. The fruit is shiny green to purple with a white bloom. It is slightly pear shaped (40 x 30 mm) and covered with gland dots. It contains a number of seeds (2 to 16) bedded in a soft pulp. The fruits start setting in March/April and become ripe in October/November.

Rare, Threatened or Endemic Status: This rare species is listed in the South African Red Data Book as Endangered (A1 a,c,d).

Distribution: This species occurs in widely scattered locations including Mpumalanga, Northern Province, Swaziland, Moçambique and tropical Africa. In north-eastern KwaZulu-Natal it occurs in Hluhluwe Imfolozi Park, Tembe Elephant Park, Ithala Game Reserve, Phinda Game Reserve, the Makassa community area and areas within the Greater St Lucia Wetland Park.

Historical records and distribution in the GSLWP: False Bay Park, Lake Sibaya and uMkhuze.

Habitat: *W.salutaris* occurs in lowland bushveld in a wide range of habitats. This includes the dry quartzite ridges in Ithala Game Reserve at 700 m altitude and 800 mm rainfall to the dune forests at Sibaya at sea level with an average annual rainfall of 1200 mm. Growth is vigorous in full sunlight but it also appears to thrive in the dune forest under partial shade.

Biology/Life history: *W. salutaris* flowers from April to May. Most fruit produced aborts, consequently mature fruits are rare. The few seeds produced are usually parasitised. The reproduction, pollination and seed dispersal mechanisms are poorly known. Reproduction appears to be mostly vegetative: Clonality may be prevalent in *W. salutaris*. Suckering from a single individual usually produces clusters of trees.

Importance of the GSLWP for its conservation: The largest population of *W. salutaris* in KwaZulu-Natal is found in the GSLWP at False Bay Park. This highlights the conservation value of the GSLWP.

Threats: *W.salutaris* is a highly sought after medicinal plant which has been exploited to the point of extinction at many localities in KwaZulu-Natal. All parts of the tree are utilized, but the inner bark is in greatest demand. Complete stripping of the bark leads to the death of the tree.

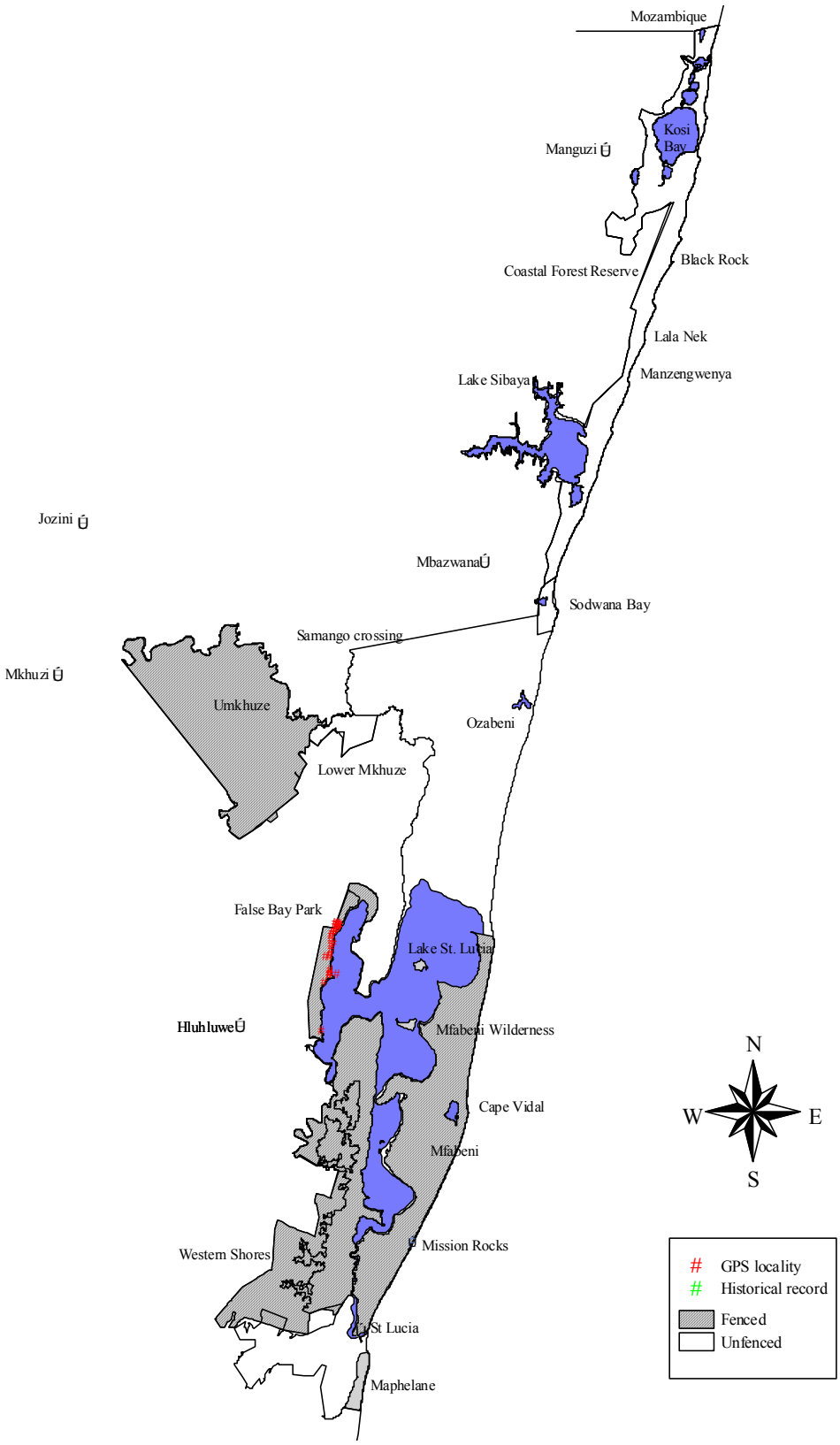
Relevant survey methods: Visit known sites. Develop a modelled distribution of the habitat of *W. salutaris* and ground truth these sites.

Estimate population size/abundance in the GSLWP: The largest population is the False Bay population which consists of 998 stems but, because *W. salutaris* suckers profusely, the number of individual plants is not known. No seedlings have been observed in the wild.

References:

Church, B. 2002. The Recovery Plan for *Warburgia salutaris*
Johnson, D.N., Scott-Shaw, C.R. & Nichols, G.1995. The Pepperbark Tree of Zululand. *Veld & Flora* 81,1.
Pooley, E. 1993. The complete field guide to trees of Natal Zululand & Transkei. Natal Flora Publications trust.
Scott-Shaw, R., Hilton-Taylor, C., Kasseepursad,B. & Church, B. 1998. The conservation status of the Pepper Bark Tree. SABONET News, Vol. 3 No.2 August 1998.

12.1.3.3 Pepper Bark



Scientific name: *Bruguiria gymnorrhiza* **Common name:** Black Mangrove

Photo: Xander Combrink

Description: This small, sturdy tree of up to 10 m or more has a straight trunk, a buttressed stem-base and knee-like aerial breathing roots. The red-brown bark is rough but the branches are smooth and yellowish-grey and marked with leaf scars. The branchlets are spirally arranged around the straight branches and stems. The leaves are crowded towards the ends of the branches. They are opposite, thick, firm, smooth, shiny dark green to yellowish green above and paler beneath. The leaf stalks are thick and up to 25mm long. Single flowers (up to 40mm in diameter) grow on long stalks in the angles formed by the leaves. They are creamy white with many rubbery hard petals. Flowers occur almost through out the year. The fruit is green and leathery. The seed develops inside the fruit, which grows inside the flower. The hypocotyl and fruit drop from the tree into the mud or water

Rare, Threatened or Endemic Status: Lower Risk (conservation dependent), and rare in KwaZulu-Natal.

Distribution: South Africa, Moçambique and tropical Africa. Mangrove swamps are a prominent feature of sheltered tropical shores and extend into temperate zones where shelter is provided by estuaries and lagoons. In South Africa, they are confined to about twelve estuaries and lagoons in KZN and a further eighteen along the Pondoland Wild Coast.

Historical records and distribution in the GSLWP: Populations occur at the St Lucia estuary, Lake Mgobezeleni and Kosi Bay.

Habitat: They are found on the seaward end of mangrove swamps in estuaries and coastal lagoons. They are habitat specific and are often intermingled with *Rhizophora mucronata*, the Red Mangrove.

Biology/life History: Pollen from the large, creamy white flowers is released explosively by the touch of visiting birds or insects, which are attracted by nectar. Flowers occur almost throughout the year and are visited by ants, moths, wasps, sunbirds and vervet monkeys. Seedlings develop in the fruit on the tree. The hypocotyl and fruit drop from the tree into the mud or water. *B. gymnorrhiza* colonizes swamps pioneered by *Avicenna marina* (White Mangrove), as the seedlings need shade. Mangrove crabs eat the leaves.

Importance of GSLWP for its conservation: *B. gymnorrhiza* is highly habitat specific and restricted to Mangrove swamp forests, which are protected in the Greater St Lucia Wetland Park.

Threats: Destruction of swamp forest, both physical and through changes in the quality and quantity of water that feeds the swamp.

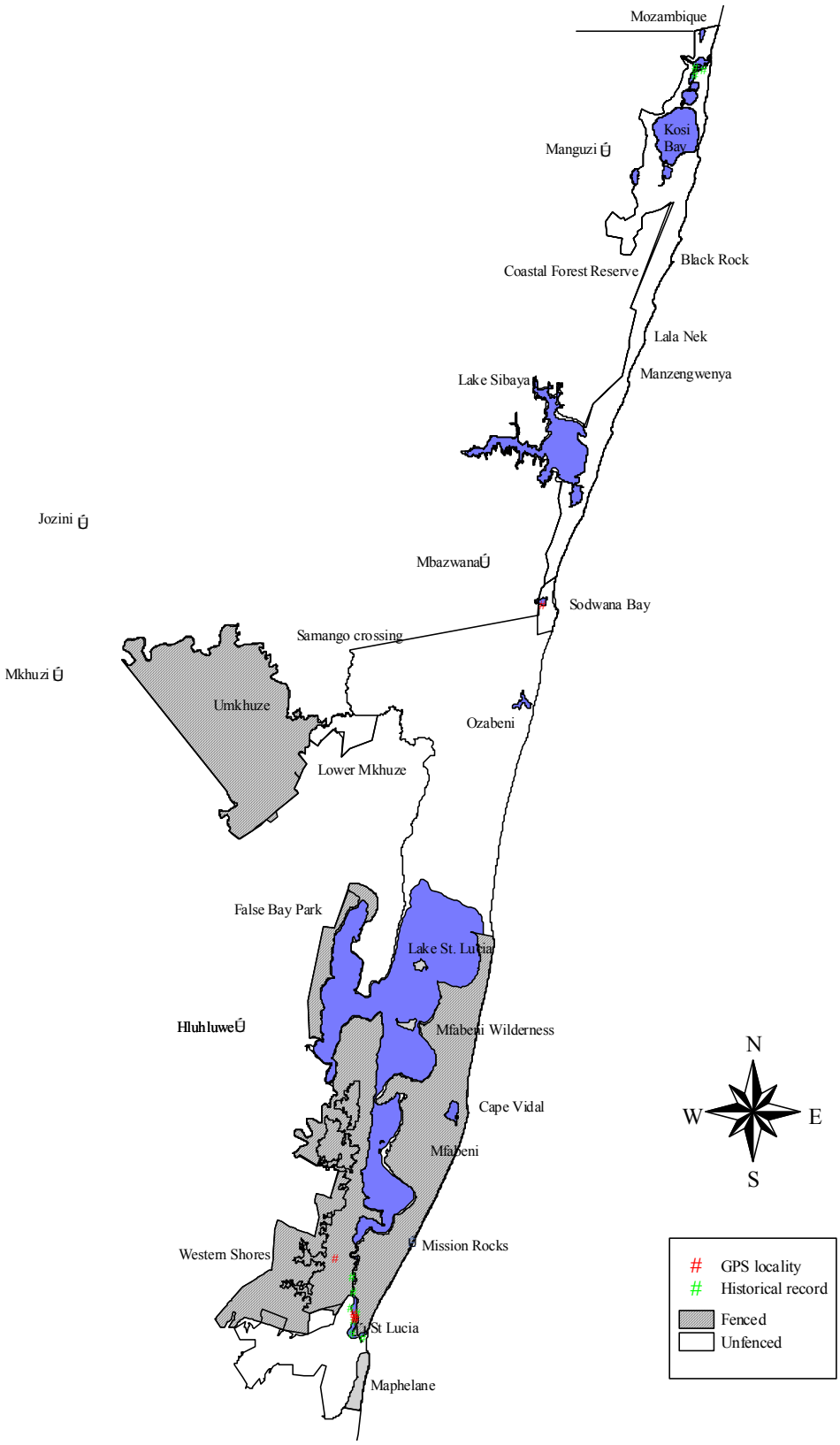
Relevant survey methods: Establish line transects through the population and conduct regular monitoring to measure growth and recruitment.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Scott-Shaw, C.R. Rare and Threatened Plants of KwaZulu-Natal and neighboring regions
Berjak, P., Campbell, G.K., Huckett, B.I. & Pammenter, N.W. 1977. In the Mangroves of Southern Africa. Natal Branch of the Wild life society of Southern Africa.
Pooley, E. 1993. The complete field guide to trees of Natal Zululand & Transkei. Natal Flora Publications trust

12.1.3.4 Black Mangrove



Scientific name: *Rhizophora mucronata* **Common name:** Red Mangrove

Photo: Reid Moran

Description: A small to medium sized tree (2 - 5 m, up to 10 m) with a straight, branched stem and a dense crown. The bark is fissured and is dark reddish-brown. The branches are soft, brittle and pale grey with conspicuous leaf scars. The prop roots are up to 2 m long. The leaves are opposite, thick, leathery, dark green with dots beneath and an entire margin that is rolled under, narrowing to a short, sharp tip. The leaf stalk is up to 25 mm long. The flowers are creamy white with thick petals, in small terminal clusters, on long thick stalks hanging out of the terminal clusters (Nov-May). The fruit develops within a persistent calyx, the sepals folding back, hypocotyl warty, green falling into the mud or floating when mature, leaving calyx and cotyledons in base of fruit.

Rare, Threatened or Endemic Status: *R. mucronata* is rare and is listed as Lower Risk, Conservation dependent.

Distribution: Found in South Africa only at Kosi Bay. Also recorded in Moçambique, tropical east Africa, Madagascar, southern Asia, northern Australia and the Pacific Islands.

Distribution in GSLWP: *R. mucronata* is only found at Kosi Bay.

Habitat: *R. mucronata* is highly habitat specific and is found in mature mangrove swamp forest fringing estuaries, on poorly drained, fine, thick and consistently wet mud. It can tolerate prolonged flooding.

Biology/life History: The creamy white flowers are visited by small bees, flies, ants and beetles.

Importance of GSLWP for its conservation: *R. mucronata* is highly habitat specific and restricted to Mangrove swamp forests, which are protected in GSLWP.

Threats: Destruction of swamp forest, both physical and through changes in the quality and quantity of water that feeds the swamp. Used by fishtrappers for fence building.

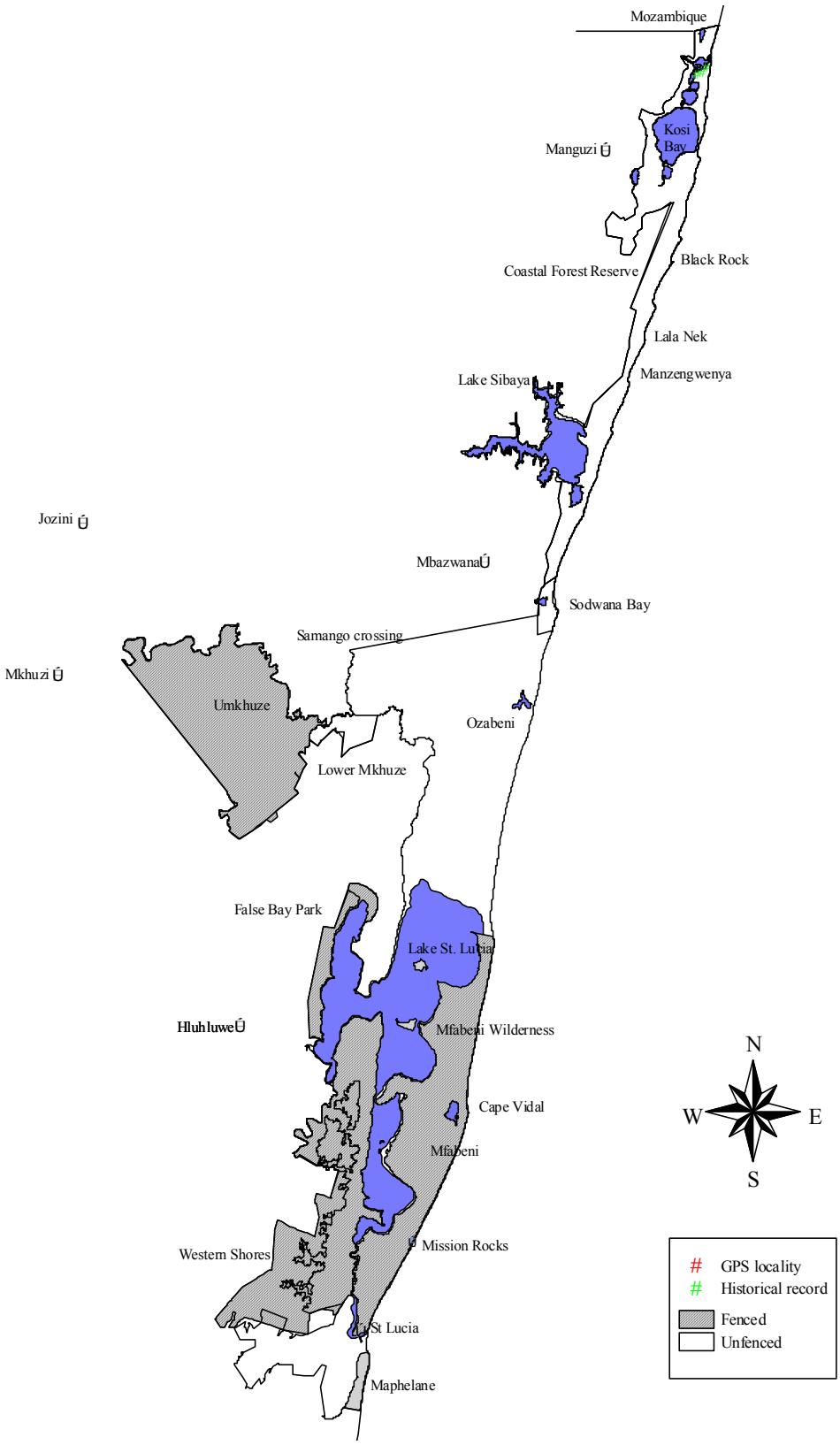
Relevant survey methods: Historical, known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species.

Estimated population size in GSLWP: Unknown.

References:

Scott-Shaw, C.R. 1999. Rare and Threatened Plants of KwaZulu-Natal and neighboring regions.
Berjak, P., Campbell, G.K., Huckett, B.I. & Pammenter, N.W. 1977. In the Mangroves of Southern Africa. Natal Branch of the Wild life society of Southern Africa.
Pooley, E. 1993. The complete field guide to trees of Natal Zululand & Transkei. Natal Flora Publications trust

12.1.3.5 Red Mangrove



12.2 FLOWERING PLANTS

12.2.1 Flagship species

- Maputaland Grass Crinum (*Crinum acaule*)
- Gordon-Gray's Wire-stem (*Asclepias gordon-grayae*)

12.2.2 Focal species

- Maputaland Grass Crinum (*Crinum acaule*)
- Gordon-Gray's Wire-stem (*Asclepias gordon-grayae*)

12.2.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	R	T	E	PS	TOTAL
1	*Aspidoglossum difficile*	4	3	4	4	15
2	*Aloe sp. nov*	4	3	4	4	15
3	*Asclepias gordon-grayae*	4	3	4	4	15
4	*Ozoroa sp. nov*	4	3	4	4	15
5	*Ceropegia arenaria*	4	3	4	4	15
6	*Wolffiella denticulata*	4	3	4	4	15
7	*Helichrysum tongense*	4	3	4	4	15
8	*Cineraria pinnata*	4	2	4	4	14
9	*Sisyranthus franksiae*	4	2	4	4	14
10	*Senecio ngoyanus*	4	2	4	4	14
11	*Blepharis sp nov*	4	2	4	4	14
12	*Bulbostylis parvinux*	4	1	4	4	13
13	*Gymnosporia sp. Nov (markwardii)*	4	1	4	4	13
14	*Dierama sertum*	4	1	4	4	13
15	*Crinum acaule*	4	1	4	4	13
16	*Freesia laxa azurea*	4	1	4	4	13
17	*Pachycarpus lebomboensis*	4	1	4	4	13
18	*Psydrax fragrantissima*	4	1	4	4	13
19	*Restio zuluensis*	4	1	4	4	13
20	*Sansevieria concinna*	4	1	4	4	13
21	*Aspidoglossum delagoense*	4	1	4	4	13
22	*Nidorella tongensis*	4	1	4	4	13
23	*Rhus kwazuluana*	4	3	4	1	12
24	*Brachystelma vahrmeijeri*	3	3		1	7
25	*Hawortia limifolia*	2	3		1	6
26	*Hemizygia ramosa*	2	2		1	5
27	*Helixanthera woodii*	2	2		1	5
28	*Aloe cooperi pulchra*	1	2		1	4
29	*Strictocardia laxiflora var woodii*	1	2		1	4
30	*Thesium vahrmeijeri*	1	2		1	4
31	*Mondia whitei*	1	1		1	3
32	*Raphionacme lucens*	1	1		1	3
33	*Tephrosia brummittii*	1	1		1	3

The striking flowers of the Impala Lily (*Adenium multiflorum*), found in uMkhuze.

Scientific name: *Asclepias gordon-grayae* **Common name:** Gordon-Gray's Wire-stem

Photo: Brigitte Church

A. gordon-grayae habitat. Photo: Brigitte Church

Description: A perennial herb with woody, deep seated underground organs. It has a single erect stem, up to 750 mm high. The leaves spread at right angles to the stem, they are long and slender, lanceolate to linear, 35 - 130 x 2 - 30 mm, with the margins rolled under. One to four semi-hanging inflorescences are found per plant with 4 - 6 pink or pale cream to pink flowers. The flower lobes are 6 - 8 x 3 - 5 mm, corona lobes sac-like, approximate triangular-saccate, not overtopping the style apex (September-April). The fruit is approximately 65 x 10 mm. The flowers occur between October and March.

Rare, Threatened or Endemic Status: This rare species is listed in the South African Red Data Book as Vulnerable (A 1abc, B1, B2abcd) and is a near endemic to Maputaland.

Distribution: Ngoye Forest north to the Greater St Lucia Wetland Park. Also recorded at Langepan vlei near Richards Bay.

Historical records and distribution in the GSLWP: Records from Dukuduku State Forest, St Lucia Game Park and Sodwana Bay.

Habitat: Found in coastal grasslands, vlei margins and marshes, 10 - 100 metres above mean sea level.

Biology/Life history: No information available.

Importance of the GSLWP for its conservation: The GSLWP has large areas of suitable habitat for this rare species and is therefore considered an important area for the conservation of this species.

Threats: Transformation of grassland by agriculture and forestry. *Asclepias gordon-grayae* is protected in KwaZulu-Natal under section 61 of the KwaZulu-Natal Conservation Management Amendment Act 5 of 1999.

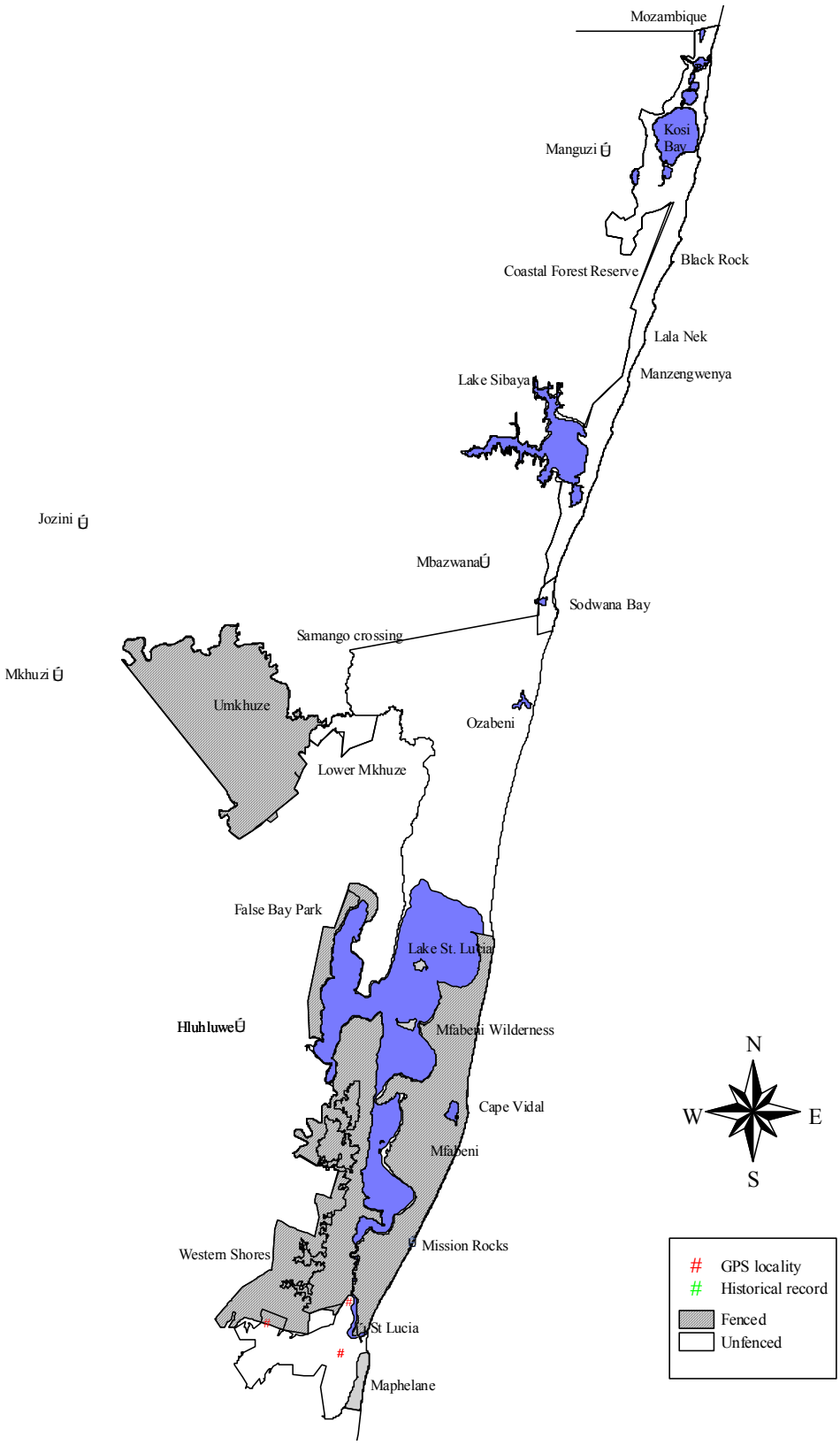
Relevant survey methods: Historical, known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species. Surveys must include counting individuals and their grouping to determine estimates of subpopulation size and age classes. Results of these surveys must be mapped and compared with the conservation target. Visit known sites during flowering season (September – April).

Estimate population size/abundance in the GSLWP: Unknown

References:

Pooley, E. 1998. A Field Guide to Wild Flowers KwaZulu-Natal and the Eastern Region. Natal Flora Publications Trust. Durban.
Scott-Shaw, C.R. Rare and Threatened Plants of KwaZulu-Natal and neighbouring regions.
Recovery Plan for *Kniphofia leucocephala*. Ezemvelo KZN Wildlife unpublished internal report.

12.2.3.1 Gordon-Gray's Wire-stem



Scientific name: *Crinum acaule* **Common name:** Maputaland Grass Crinum

Photo: Geoff Nichols

Description: This striking geophyte has grass like leaves and flowers which are produced at ground level. The plants attain a height of approximately 400 mm in length. The bulb is approximately 120 x 80 mm and the neck approximately 90 mm long. The leaves are long and narrow, deeply channelled, shiny dark green and the margins are finely hairy. One to three flowers appear from September to January in response to rain. They open in the late afternoon and close early in the morning. The flower has a very attractive scent. The stalk is mostly underground, approximately 50 mm in diameter. The fruit develops underground or on the ground.

Rare, Threatened or Endemic Status: This plant is listed in the South African Red Data Book as LOWER RISK (near threatened) and is a Maputaland endemic.

Distribution: Eastern Maputaland, north of the Umfolozi River, Greater St Lucia Wetland Park to southern Moçambique.

Historical records and distribution in the GSLWP: Kosi Bay, Coastal Forest Reserve and Eastern Shores.

Habitat: Scattered in sandy grassland in low-lying coastal grassland areas. Usually found on drier ground within this habitat.

Biology/Life history: This species would be more threatened if it were not for its highly effective reproductive strategies. The deeply buried bulb is one of many attributes which allows it to cope with a wide range of disturbances including fire, mowing and ploughing. The flowers and leaves provide food for various game species, while bushpigs have been observed feeding on the bulbs.

Importance of the GSLWP for its conservation: Large areas of this plant's natural distribution fall within the GSLWP and therefore the Greater St Lucia Wetland Park plays an important role in the conservation of this species.

Threats: Much of the remaining habitat is rapidly being transformed by expanding timber and cashew nut plantations. Collections for the "muthi" trade.

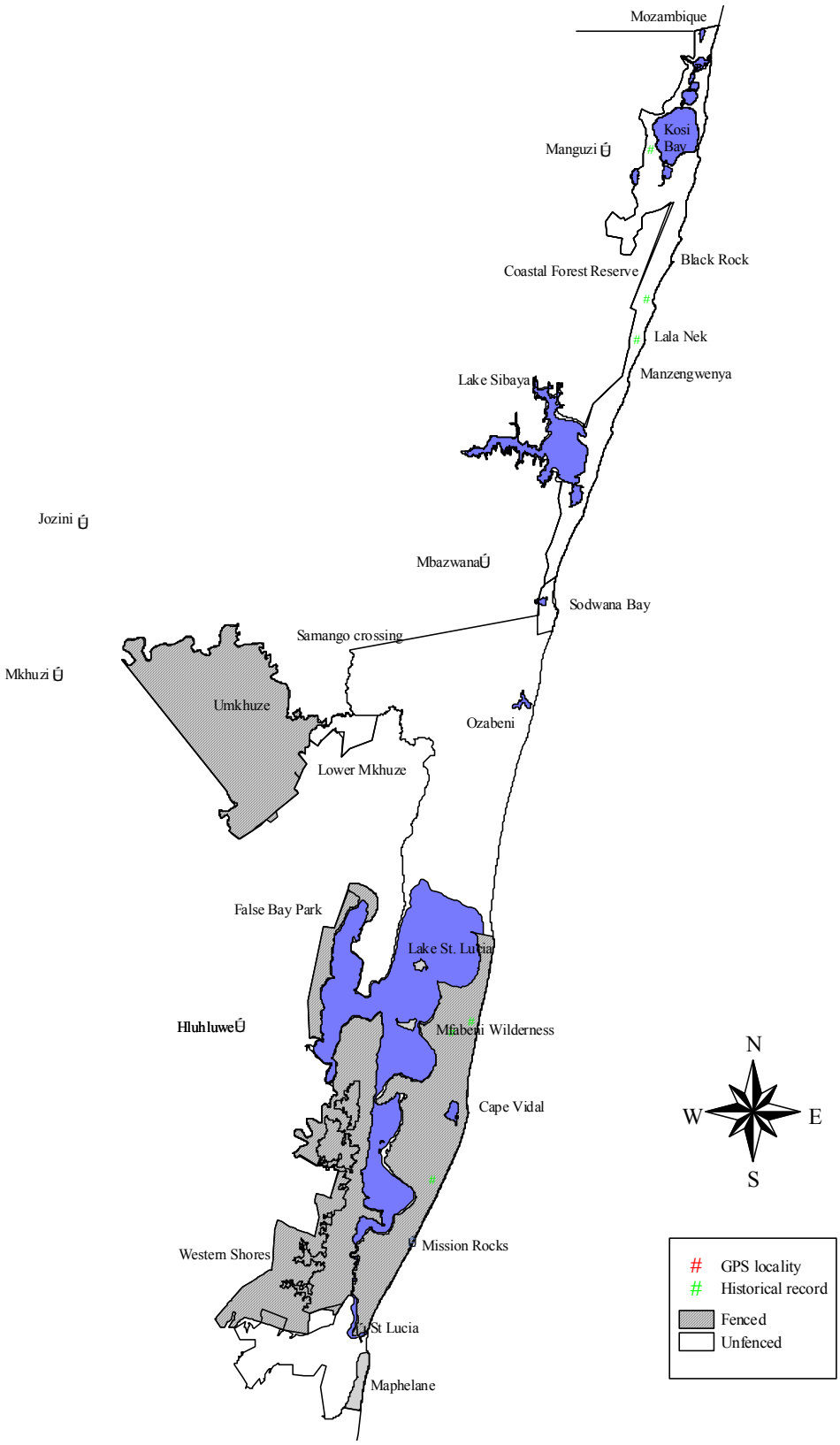
Relevant survey methods: Historical, known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Craib & Blackmore. 1997. *In* Scott-Shaw, C.R. Rare and Threatened Plants of KwaZulu-Natal and neighbouring regions.

12.2.3.2 Maputaland Grass Crinum



Scientific name: *Restio zuluensis* **Common name:** Zulu Restio

Photo: Wally Menne

Description: A perennial herb up to 400 mm tall. The creeping rhizomes are approximately 3 mm in diameter. The leaves are solid with round stems, approximately 9.5 mm in diameter. The sheaths are 7 – 12 mm long, pale brown and with a reddish speckling. The upper margin is translucent. The name of the genus, "restio" refers to a rope or cord, which indicates earlier use.

Rare, Threatened or Endemic Status: This plant is listed in the South African Red Data Book as Lower Risk (near threatened) and is a Maputaland endemic.

Distribution: Occurs between Richards Bay in the south to Kosi Bay and Zingute in Southern Moçambique.

Historical records and distribution in the GSLWP: Kosi Bay, Manzengwenya, Ozabeni and Eastern Shores.

Habitat: Found along wetland margins in short grassland and seasonally waterlogged swamps and marshy areas in coastal grasslands.

Biology/Life history: This species is the only member of its family in Maputaland and flowers in December and January.

Importance of the GSLWP for its conservation: A large proportion of this plant's natural distribution falls within the Greater St Lucia Wetland Park and therefore the Park plays an important role in the conservation of this species.

Threats: Transformation, degradation and loss of wetlands.

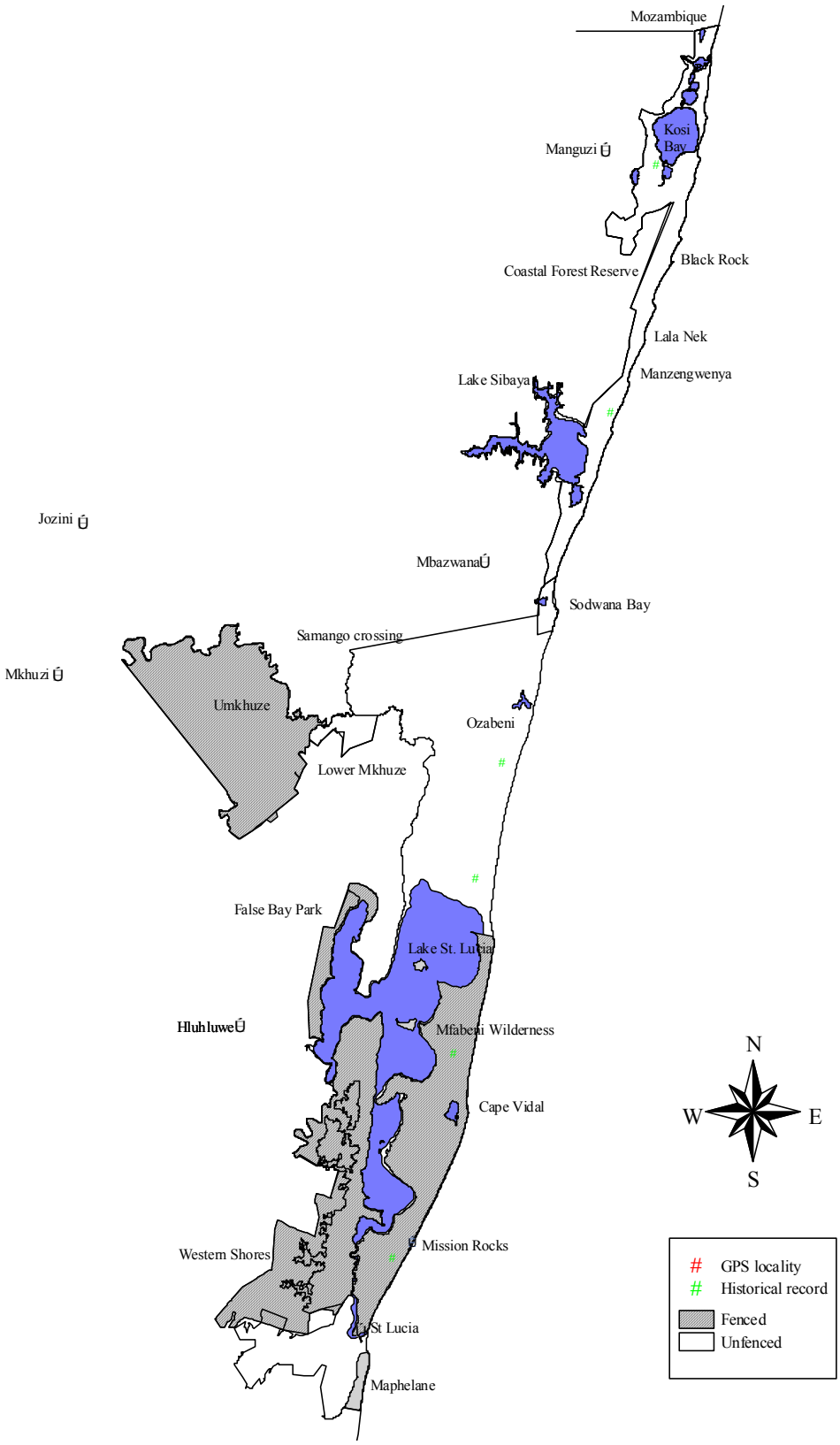
Relevant survey methods: Active searches in likely habitats to improve understanding of the distribution and trends of this species.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Scott Shaw, Rob. Rare and Threatened Plants of Kwa-Zulu Natal and Neighbouring regions.

12.2.3.3 Zulu Restio



Scientific name: *Rhus kwazuluana*

Photo: Rob Scott-Shaw

Description: A dwarf shrub 0.6 – 1 m in height, which is found in dense colonies. The leaves are trifoliate, held erect with terminal leaflets, approximately 80 x 8 mm, narrowing to sharp tips. The stalks are slightly winged, approximately 20 mm long, and the leaflets are olive-green above and linear to lanceolate. The flowers are found in branched inflorescences, approximately 90 mm long between Jan - Feb. The fruit is oval and shiny, light brown, 4 by 2 mm long. The stems are branched with small raised dots. The branchlets are dark brown.

Rare, Threatened or Endemic Status: *R. kwazuluana* is classified as Vulnerable in South Africa. It is a very rare species that is endemic to Maputaland in KwaZulu-Natal.

Distribution: *R. kwazuluana* has a narrow distribution and is found in eastern Maputaland and on the Lebombo mountain foothills.

Historical records and distribution in the GSLWP: Two populations are known inside the GSLWP, one just south of the Mfabeni swamp, on the Eastern Shores, and the other just west of Lake Bhangazi North, (this population consists of several sites over a few kilometers long in a north south axis).

Habitat: Coastal grassland on recent sands and on Rhyolite-derived soils in the Lebombo Mountain Foothills. This species is fire adapted.

Biology/Life history: No information available.

Importance of the GSLWP for its conservation: It occurs in the coastal grasslands of the Maputaland Centre of Endemism. Very little KwaZulu-Natal coastal grasslands occur outside protected areas.

Threats: Habitat transformation.

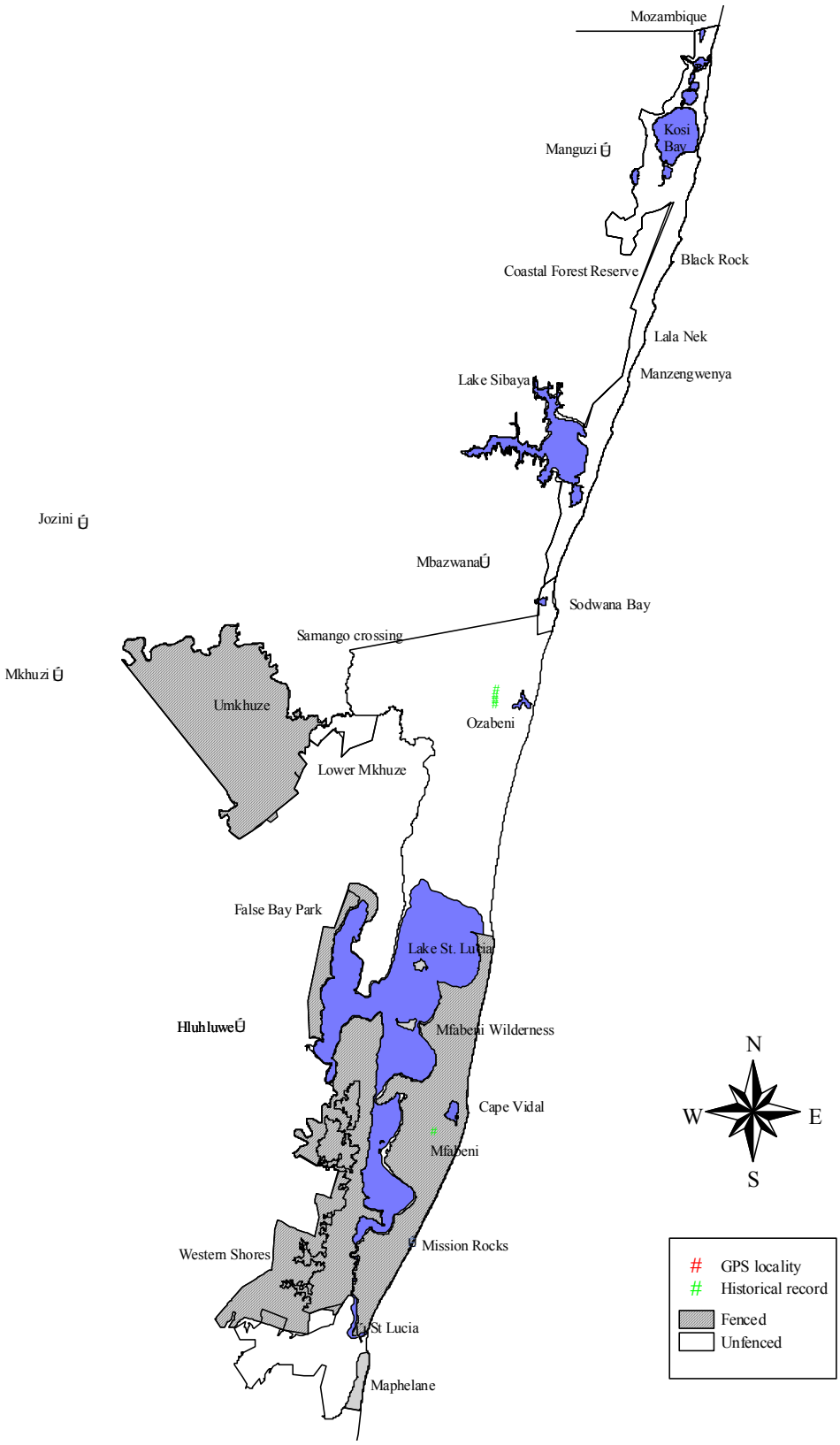
Relevant survey methods: Historical, known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Scott-Shaw, C.R. 1999. Rare and Threatened Plants of KwaZulu-Natal and neighbouring regions
Moffet, R.O. 1993. Anacardiaceae: Rhus. Flora of Southern Africa19 (3, 1).
Pooley, E. 1998. A field guide to Wild Flowers KwaZulu- Natal and the Eastern Region Natal Flora Publications trust.
Scott-Shaw, R. 2005 Personal communication.

12.2.3.4 Rhus kwazuluana



Scientific name: *Haworthia limifolia* **Common name:** Fire-leaf Haworthia

Photo: Brigitte Church

Description: A stemless succulent with leaves forming a basal rosette of up to 120 mm diameter. The leaves are a dull green to coppery colour and are covered with white raised spots. Each leaf is up to 100 mm long, sharply tapering with a pungent tip. The inflorescence is branched with small pink flowers (12 mm), which occur mainly during summer.

Rare, Threatened or Endemic Status: This very rare species is listed as Vulnerable in South Africa.

Historical records and Distribution: *H. limifolia* once occurred from the Tugela valley northwards but is now only known from parts of the Lebombo Mountains and the upper Pongola River catchment area in the Ngotshe district. It also occurs in neighbouring areas of Mpumalanga and Swaziland.

Habitat: Savanna, open woodland, on sparsely covered rocky outcrops and dry hilltops.

Biology/Life history: No information available.

Importance of the GSLWP for its conservation: *H. limifolia* occurs in only two protected areas in KwaZulu-Natal, Ithala Game Reserve and the GSLWP. Protection of this species is essential to prevent extinction in the wild.

Threats: Unsustainable utilization for the medicinal industry. *H. limifolia* is highly sought after in the medicinal trade to the extent that it has been over exploited over most of its distribution.

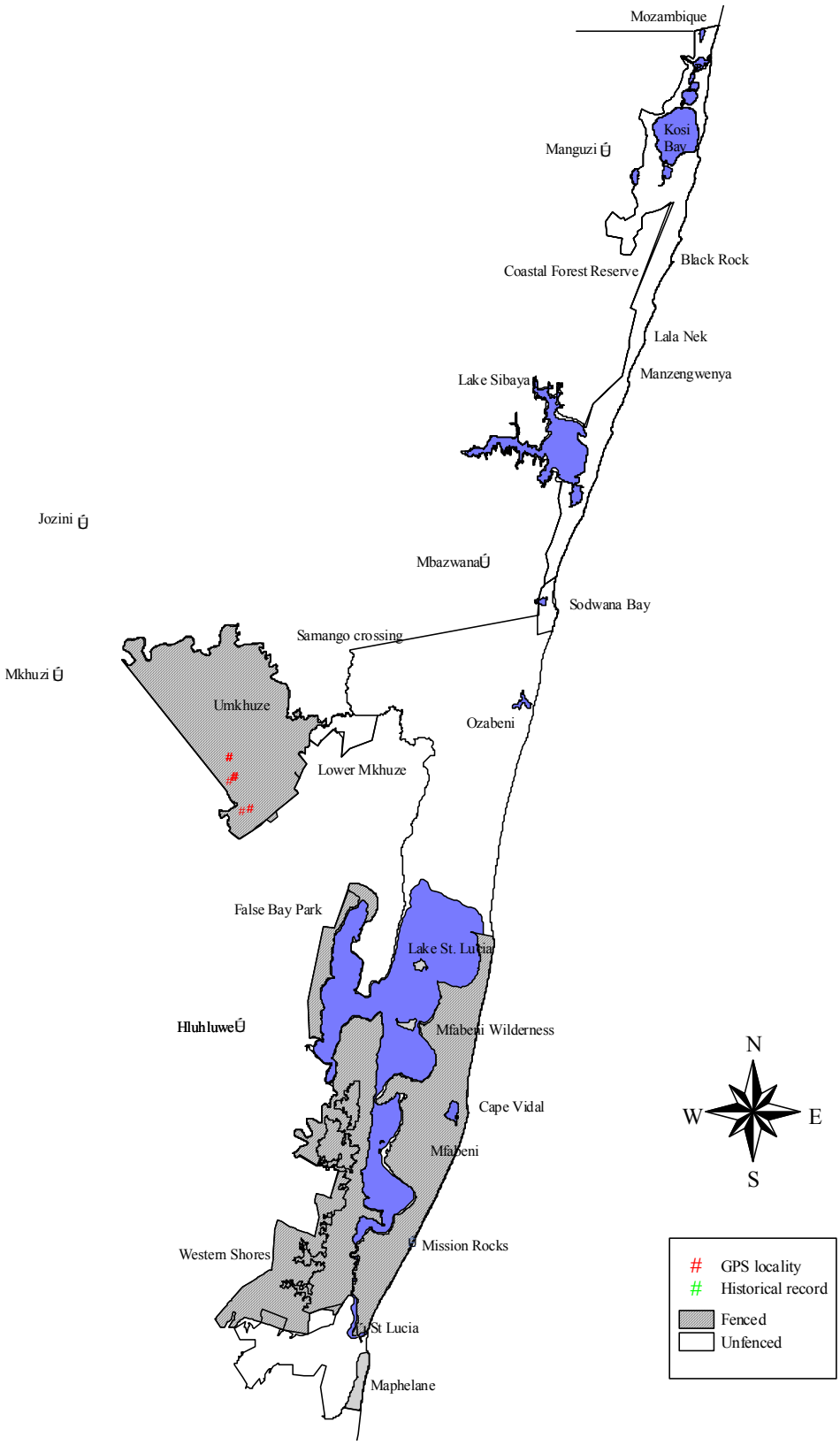
Relevant survey methods: Historical, known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species.

Estimate population size/abundance in the GSLWP: Unknown

References:

Scott-Shaw, C.R. 1999. Rare and Threatened Plants of KwaZulu-Natal and neighbouring regions
Pooley, E. A 1998. Field Guide to Wild Flowers of KwaZulu-Natal and the Eastern Region. Natal Publications Trust.

12.2.3.5 Fire-leaf Haworthia



12.3 ORCHIDS

12.3.1 Flagship species

- *Bonatea lamprophylla*
- *Microcoelia obovata*
- *Solenangis aphylla*
- *Aerangis kirkii*
- *Vanilla roscheri*

12.3.2 Focal species

- *Bonatea lamprophylla*
- *Microcoelia obovata*
- *Solenangis aphylla*
- *Aerangis kirkii*
- *Oeceoclades lonchophylla*
- *Vanilla roscheri*

12.3.3 Rare, Threatened & Endemic list (ranked in order of conservation importance)

No.	Scientific name	R	T	E	PS	TOTAL
1	*Bonatea lamprophylla*	5	3	5	5	18
2	*Vanilla roscheri*	5	3	5	4	17
3	*Microcoelia obovata*	3	3		1	7
4	*Solenangis aphylla*	3	3		1	7
5	*Aerangis kirkii*	3	3		1	7
6	*Oeceoclades lonchophylla*	3	3		1	7
7	*Bulbophyllum longiflorum*	3	3		1	7
8	*Eulophia hereroensis*	3	3		1	7
9	*Eulophia fridericii*	3	3		1	7
10	*Eulophia coeloglossa*	3	3		1	7
11	*Disa similis*	3	3		1	7
12	*Diaphananthe fragrantissima*	3	3		1	7
13	*Eulophia leachii*	3	3		1	7
14	*Cheirostylis gymnochiloides*	3	3		1	7
15	*Eulophia cucullata*	3	3		1	7
16	*Brachycorythis inhambanesis*	3	3		1	7
17	*Bonatea steudneri*	3	3		1	7
18	*Bonatea polypodantha*	3	3		1	7
19	*Acrolophia cochlearis*	3	3		1	7
20	*Corymborkis coymbis*	3	3		1	7
21	*Mystacidium alliciae*	3	3		1	7
22	*Tridactyle gentilii*	3	3		1	7
23	*Platylepis glandulosa*	3	3		1	7
24	*Oeceoclades mackenii*	3	3		1	7
25	*Oeceoclades decaryana*	3	3		1	7
26	*Nervilia bicarinata*	3	3		1	7
27	*Eulophia longisepala*	3	3		1	7
28	*Habenaria woodii*	3	3		1	7
29	*Habenaria trilobulata*	3	3		1	7
30	*Eulophia streptopetala*	3	3		1	7
31	*Eulophia schweinfurthii*	3	3		1	7
32	*Eulophia milnei*	3	3		1	7

No.	Scientific name	R	T	E	PS	TOTAL
33	*Disperis woodii*	2	3		1	6
34	*Brachycorythis pubescence*	3	2		1	6
35	*Acampe pachyglossa*	3	2		1	6
36	*Aerangis kotschyana*	3	2		1	6
37	*Calanthe sylvatica*	2	3		1	6
38	*Polystachya tesselata var. tricruris*	2	2		1	5
39	*Disperis anthoceros*	1	2		1	4
40	*Disperis johnstonii*	1	2		1	4
41	*Ansellia africana*	1	3			4
42	*Eulophia clavicornis var. nutans*	1	2			3

Disa woodii in the orchid rich grasslands of Ozabeni

Scientific name: *Bonatea lamprophylla*

Photo: Xander Combrink

Description: The plant is erect and up to 1.2 m in height. The leaves are glossy dark green leaves with crispate margins. The tubers are elongated. The inflorescence is up to 160 mm long with six to 13 flowers. The flowers are green and white and about 110 mm long. The petals are bilobed from the base, the upper lobe is linear, acute, curved upwards and whitish. The lip is three lobed from a narrow base; the midlobe is linear, obtuse and sharply bent near the middle. The side lobes are filiform, pale green and 130 to 160 mm long. The spur is swollen in the apical half rather then flattened.

Rare, Threatened or Endemic Status: This species is considered to be very rare and is listed as Vulnerable (B1B2cD2) and also appears on Appendix II of CITES. It is endemic to the Greater St Lucia Wetland Park.

Distribution: This rare species total distribution is inside the borders of the GSLWP.

Historical records and distribution in the GSLWP: Only three historical populations are known, at Lake Sibaya, Mabibi beach and Lala Nek. During 2003, a few plants of the Lala Nek population were visible, but have not been seen since.

Habitat: Found in deep shade in coastal dune forests.

Biology/life History: This species was only described in 1976 and no information is available, except that the species flowering time is between September and October.

Importance of the GSLWP for its conservation: No known populations occur outside of the GSLWP, making the Park critical for the survival of this rare and endangered orchid

Threats: Road clearing could have a negative impact where plants occur, as well as illegal orchid collectors.

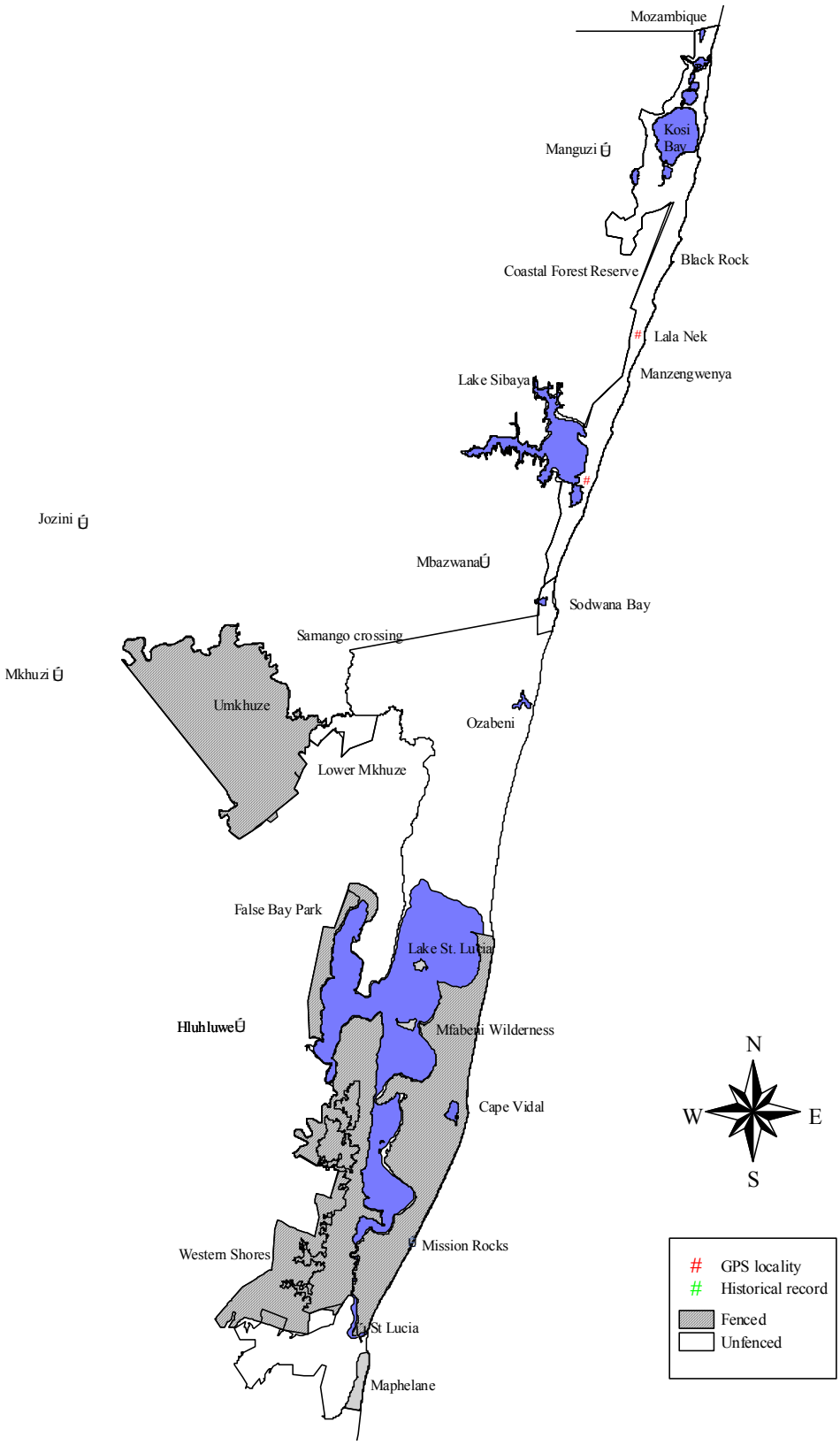
Relevant survey methods: Historical, known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species. Visit known sites during flowering season.

Estimated population size in GSLWP: Unknown.

References:

Linder, H.P. and Kurzweil, H. Orchids of Southern Africa
Scott-Shaw, C.R. Rare and Threatened Plants of KwaZulu-Natal and neighbouring regions
Pooley, E. A 1998. Field Guide to Wild Flowers of KwaZulu-Natal and the Eastern Region. Natal Publications Trust.

12.3.3.1 Bonatea lamprophylla



Scientific name: *Vanilla roscheri*

Photos: Roddy Ward

Description: A leafless climbing and scrambling orchid with a greenish-brown cylindrical and succulent-fleshy stem of indefinite length, up to 20 mm in diameter. The roots are short, arising at the nodes. The inflorescences are terminal or axillary and unbranched, up to 30 cm long. The flowers are white (see photograph) with a white lip and a deep pink throat, strongly and sweetly scented. The ovary and pedicel are short and erect at first, but lengthening later. The sepals and petals are lanceolate-oblong and up to 80 mm long. The petals up to 8 by 3.8 cm, elliptic-oblong or ovate and apiculate. The lip to 8 by 4.5 cm, funnel-shaped, and the edges adnate to the column for 2 cm at the base. The disk has 2 rows of laciniate crests up to 4 mm high, and a small crest up to 15 mm long that is composed of 2 rows of digitate lamellae arising between the main crests at the base. The column is up to 2.5 cm long. The capsule to 17.5 cm long and 7.5 mm wide.

Rare, Threatened or Endemic Status: This rare orchid is currently listed in South Africa as Data Deficient. This species is closely related to, and possibly conspecific with *Vanilla phalaenopsis* from the Seychelles

Distribution: The type specimen was collected on Zanzibar Island, along the coast of Tanzania. Other recordings from Kenya, Tanzania and Moçambique (Inhambane, Pomene, north shore of Maputo Bay, Dondo Forest). In South Africa known from a single locality at Lake Sibaya.

Historical records and distribution in the GSLWP: The late Mark Ward discovered a plant on the shores of Lake Sibaya.

Habitat: Coastal bush, mangrove swamps, open evergreen scrubs and forest, and in grassy fields with scattered trees, between 1 – 100 m above mean sea level. The recording at Lake Sibaya was on the edge of a forest patch close to the shoreline of the lake.

Biology/Life history: In South Africa, it flowers in January.

Importance of the GSLWP for its conservation: In South Africa, only a single population is known and it is situated within the Greater St Lucia Wetland Park. Therefore, the protected habitat in the Park is critical for the viability of this species in South Africa.

Threats: Deforestation, fire, muthi trade and collection by orchid collectors.

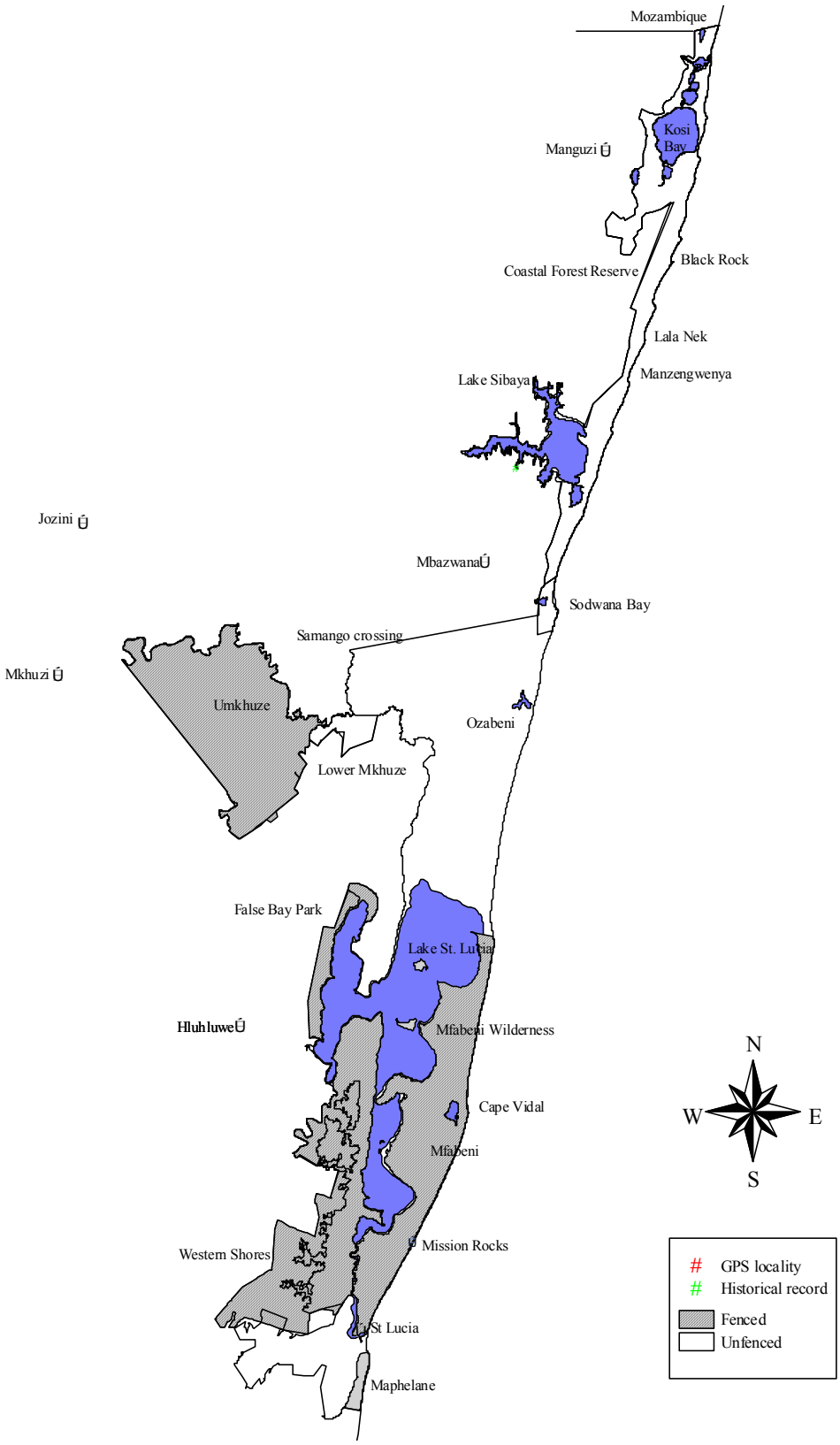
Relevant survey methods: Active searches in suitable habitat.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Croix la, I & P. J. Cribb. 1998. Orchidaceae. F.Z. Volume:11. Part:2.
Pooley, E. 1998. *A Field Guide to Wild Flowers KwaZulu Natal Zululand Eastern Region*. Natal Flora Publications trust.
Church, B. 2006. Personal communication.
Roff, J. 2006. Personal communication
Ward, R. Personal communication.

12.3.3.2 Vanilla roscheri



Scientific name: *Microcoelia obovata*

Photo of plant: Brigitte Church

Photo of flowers: Joyce Stewart

Description: An epiphytic orchid of which the stems can grow to 30 mm long, with scale-leaves, growing up to 5 mm. When not in flower, this species might be easily overlooked. The inflorescences can grow up to 90 mm long with up to 20 flowers, which can grow up to 14 mm long are white and rust brown at the base of the perianth lobes. The sepals are obovate to oblong.

Rare, Threatened or Endemic Status: This rare orchid is currently listed in South Africa as Data Deficient.

Distribution: Has been recorded in Kenya, Tanzania and Moçambique although no information is available in terms of the abundance or status of those populations. Only recently recorded by Errol Harrison near Kosi Bay in Maputaland, South Africa.

Historical records and distribution in the GSLWP: A recording was made near Kosi Bay by Errol Harrison in 1996. Another site was discovered in the Coastal Dune Forest, east of Lake Sibaya.

Habitat: Woodland and riverine forest from sea level up to 1,100 m above mean sea level. Suitable microclimates within Coastal Dune Forest.

Biology/Life history: Very little is known except that this species occurs only in suitable microhabitats, apparently near waterbodies. It seems that the presence of moisture from nearby waterbodies plays an important role in the species distribution.

Importance of the GSLWP for its conservation: In South Africa only two populations are known, both inside the Greater St Lucia Wetland Park. Therefore the protected habitat in the Park is critical for the viability of this species in South Africa.

Threats: Habitat transformation, deforestation, fire and removal by orchid and "muthi" collectors.

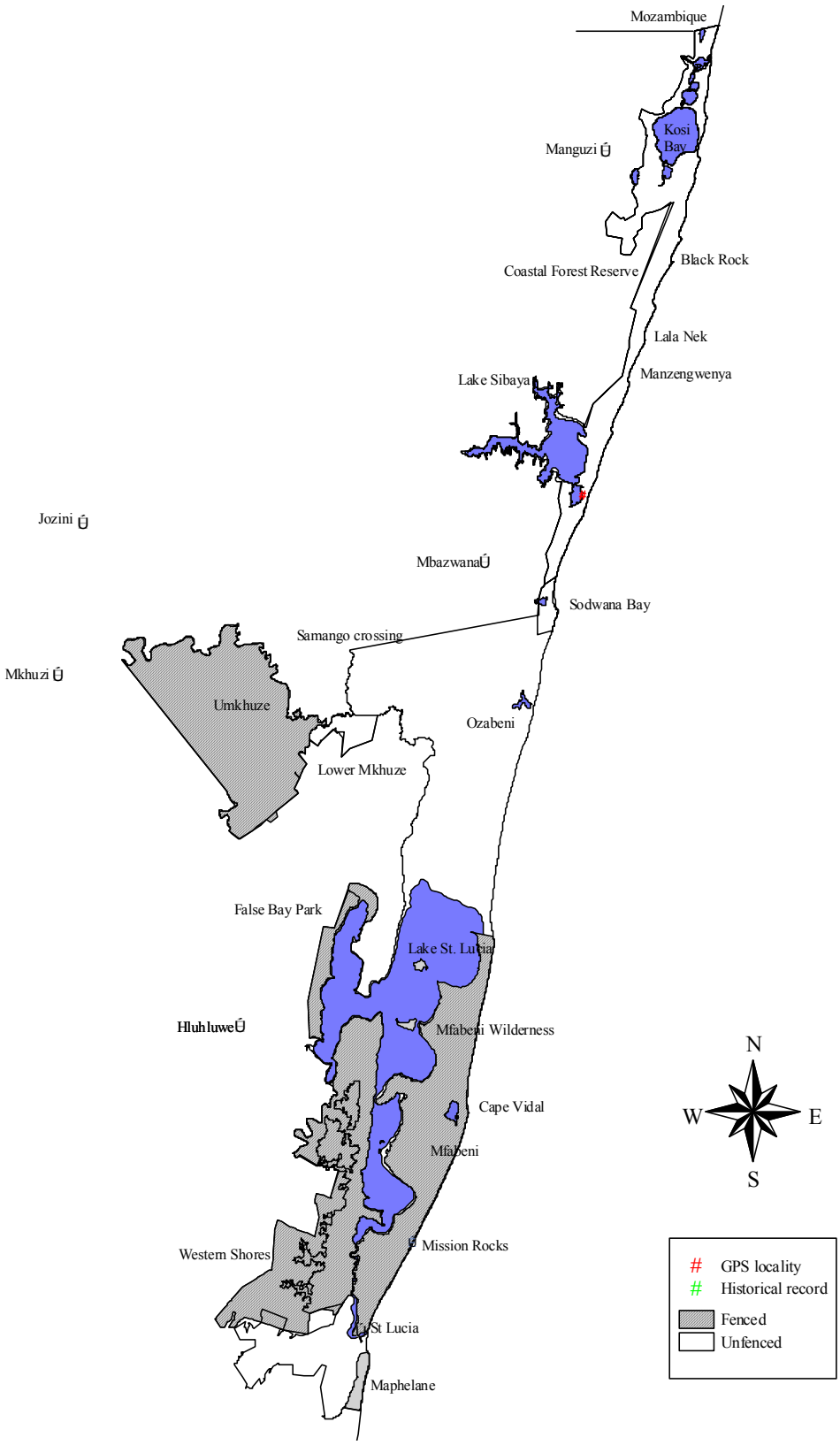
Relevant survey methods: Known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Linder, H. P. & Kurzweil, H. 1999. *Orchids of Southern Africa*. A. A. Balkema/Rotterdam/ Brookfield
Stewart's, J. 1996. Orchids of Kenya. Winchester Publishing.
Church, B. 2006. Personal communication.
Harrison, E. 2006. Personal communication.
Roff, J. 2006. Personal communication.

12.3.3.3 Microcoelia obovata



Scientific name: *Solenangis aphylla*

Photo: Brigitte Church

Description: A leafless epiphytic orchid that climbs with hook-like roots. The stems are slender, up to 900 mm long and 2 mm in diameter. The roots are numerous, arising along the stem, to 450 mm long, 1.5 – 2 mm in diameter, branched and pale grey in colour. The inflorescences are many, all along the stem with 8-16 flowers. The flowers are white and the sepals tipped with rust-red, faintly scented. The pedicel and ovary are slender, 4 – 5 mm long; bracts very small. The sepals are between 2.5 – 3.2 by 1.5–1.8 mm, elliptic, obtuse and the lateral sepals are somewhat oblique. Petals 2.5 – 3 by 0.6 – 1 mm, linear-oblong, acute or obtuse. The spur is strongly curved and 4 - 5 mm long, sharply incurved, somewhat swollen at apex. The column is 2 mm long; rostellum 2-lobed, short; viscidium small, linear; stipes linear.

Rare, Threatened or Endemic Status: This rare orchid is currently listed in South Africa as Data Deficient.

Distribution: Although apparently widespread in the eastern half of Africa, from Moçambique (Inhaca Island, Cheringoma and Nhemissembe), Zimbabwe (Chimanimani district and Lusito Valley), Tanzania, Kenya, Madagascar and the Mascarene Islands, *S. aphylla* is a very rare orchid species in South Africa and is only known from two sites.

Historical records and distribution in the GSLWP: Errol Harrison recorded *S. aphylla* near Kosi Bay in 1996 and later on in the Coastal Dune Forest, east of Lake Sibaya.

Habitat: In tropical Africa, this species grows in *Acacia/Commiphora* thickets and in low altitude evergreen riverine forest, in coastal forest, on shrubs and low trees in riverine thicket between 0 – 300 m above mean sea level. In the Greater St Lucia Wetland Park is has been recorded in suitable microclimates in Coastal Dune Forest.

Biology/Life history: Very little is known except that this species occurs only in suitable microhabitats, apparently near waterbodies. It seems that the presence of moisture from nearby waterbodies plays an important role in the species distribution.

Importance of the GSLWP for its conservation: In South Africa only two populations are known, both inside the Greater St Lucia Wetland Park. Therefore, the protected habitat in the Park is critical for the viability of this species in South Africa.

Threats: Habitat transformation, deforestation and fire.

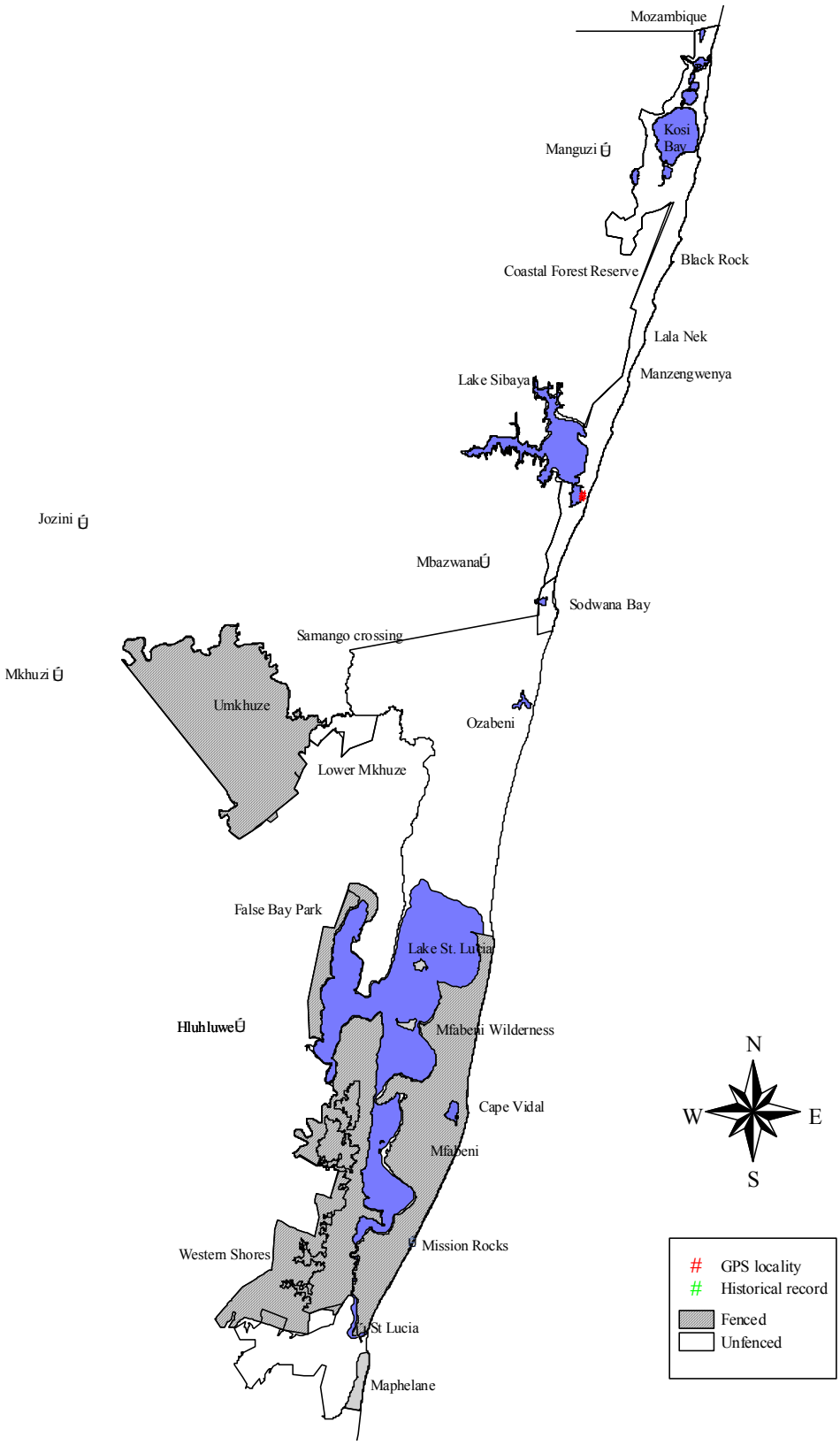
Relevant survey methods: Known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Croix la, I & P. J. Cribb. 1998. Orchidaceae. F.Z. Volume:11. Part:2.
Linder, H. P. & Kurzweil, H. 1999. *Orchids of Southern Africa*. A. A. Balkema/Rotterdam/ Brookfield
Church, B. 2006. Personal communication.
Harrison, E. 2006. Personal communication
Roff, J. 2006. Personal communication

12.3.3.4 Solenangis aphylla



Scientific name: *Aerangis kirkii*

Photo of plant: Brigitte Church

Photo if flower: Brigitte Church

Description: An epiphytic orchid with a woody stem, 10-50 mm in diameter, the roots are 1-2 mm in diameter with 2-7 dark green fleshy leaves, up to 150 mm long and 30 mm wide. The flowers (see photograph) have spreading perianth lobes, white with pink tinges in the spur. The median sepal acute is lanceolate, 18-25 mm long and 5-7 mm wide.

Rare, Threatened or Endemic Status: This rare orchid is currently listed in South Africa as Data Deficient.

Distribution: Recordings for this species have been made in Zanzibar Island, Tanzania and at Kosi Bay in South Africa.

Historical records and distribution in the GSLWP: The only recording for South Africa is near Kosi Bay.

Habitat: Coastal Forest

Biology/Life history: Very little is known except that this species occurs only in suitable microhabitats, apparently near waterbodies. It seems that the presence of moisture from nearby waterbodies plays an important role in the species distribution. It flowers in January and February.

Importance of the GSLWP for its conservation: In South Africa only two populations are known, both inside the Greater St Lucia Wetland Park. Therefore, the protected habitat in the Park is critical for the viability of this species in South Africa.

Threats: Habitat transformation, deforestation and fire. Removal by orchid specialists and "muthi" collectors.

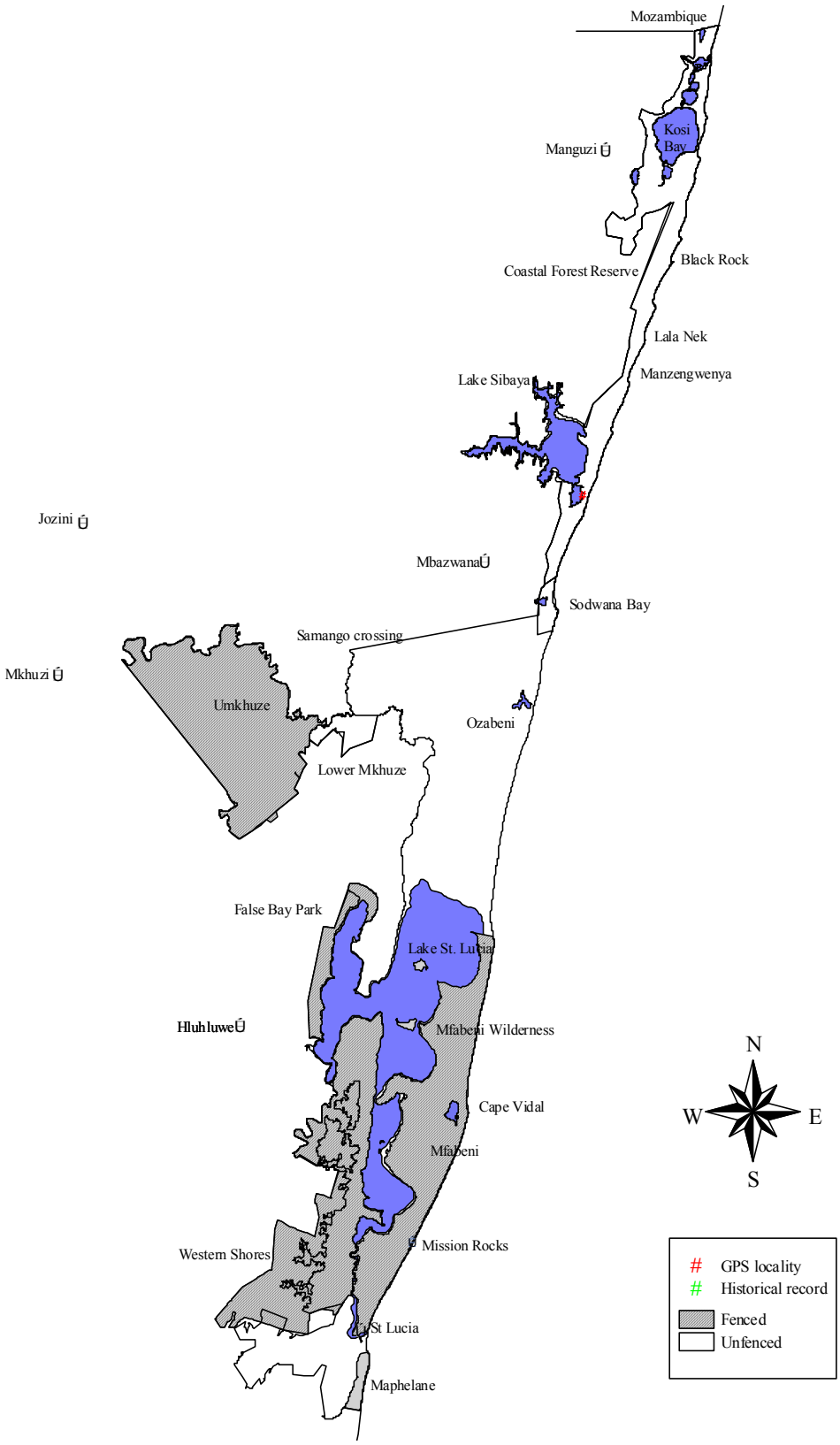
Relevant survey methods: Known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Linder, H. P. & Kurzweil, H. 1999. *Orchids of Southern Africa*. A. A. Balkema/Rotterdam/ Brookfield/1999
Church, B. 2006. Personal communication.
Harrison, E. 2006. Personal communication.
Roff, J. 2006. Personal communication.

12.3.3.5 Aerangis kirkii



Scientific name: *Oeceoclades lonchophylla*

Photo of plant: Xander Combrink

Photo of flower: Linder & Kurzweil

Description: A terrestrial orchid with conical pseudobulbs, 4 – 5 cm long, narrowly conical to ovoid, covered with lanceolate sheaths which disintegrate into soft, fibrous remains. A solitary leaf is found on each pseudobulbs. The leaf blades are lanceolate between 60-130 mm long. The petiole is 6 – 19 cm long, grooved above the middle, articulated below the middle to a base 3 – 6 cm long; the lamina is 6.5 – 12 by 1.5 – 3.5 cm, ovate or oblong-lanceolate, acute, undulate or finely crenate on the margins and green. The inflorescences are paniculate, 30 – 47 cm long, simple or with 1 – 2 short branches while the sepals of the flowers are subequal, lorate-lanceolate, and rounded. The flowers are rather small, green or yellowish-cream spotted with green, tinged with purple. The pedicel and ovary are slender, 1 – 2 cm long; bracts 1 – 2 mm long. The sepals are spreading, 6 – 9 by 1.7 – 2.2 mm long, oblong and acute. The petals are 6 – 7 by 2 – 3 mm, oblong, obtuse, usually slightly shorter and wider than the sepals.

Rare, Threatened or Endemic Status: This rare orchid is currently listed in South Africa as Data Deficient.

Distribution: Recordings known from Moçambique (Marracuene, Inhaca Island, Ponta Torres, Maputo, Fonte de Goba, Carvalho, Sofala Province, Dondo, Tanzania, Madagascar and the Comoro Islands. It is rare in northern KwaZulu-Natal.

Historical records and distribution in the GSLWP: Only known from one location, south of Lake Sibaya.

Habitat: Coastal forest, between 0 – 200 m above mean sea level, usually in sandy soils.

Biology/Life history: Flowering from April – February.

Importance of the GSLWP for its conservation: In South Africa, only one population is known and it is situated within the Greater St Lucia Wetland Park. Therefore, the protected habitat in the Park is critical for the viability of this species in South Africa.

Threats: Habitat transformation, deforestation and fire.

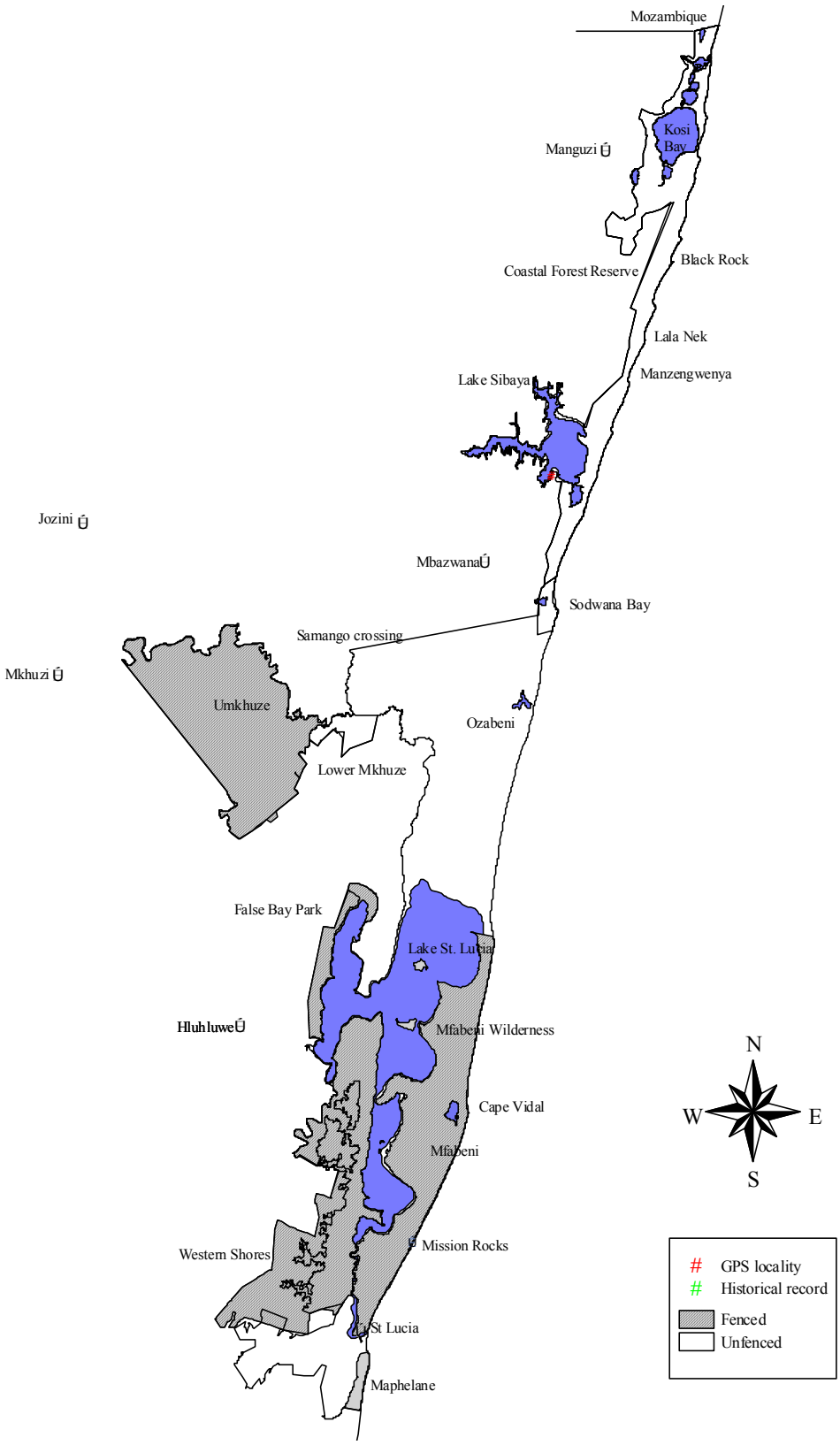
Relevant survey methods: Known and predicted sites should be surveyed to improve understanding of the distribution and trends of this species.

Estimate population size/abundance in the GSLWP: Unknown.

References:

Croix la, I & P. J. Cribb. 1998. Orchidaceae. F.Z. Volume:11. Part:2.
Linder, H. P. & Kurzweil, H. 1999. *Orchids of Southern Africa*. A. A. Balkema/Rotterdam/ Brookfield
Church, B. 2006. Personal communication.
Roff, J. 2006. Personal communication.

12.3.3.6 Oeceoclades lonchophylla



13 CONCLUDING REMARKS

There can be few who will argue that the area of the Greater St Lucia Wetland Park – World Heritage Site, is not one of exceptional beauty and interest. It is also, however, one of the few worldwide "hotspots" of endemism and when this is combined with a high diversity of animal and plant species a really special area is created. This document adds to the cataloguing of this diversity and the describing of the rarity of some of the species present in the Park. The work is, however, not complete and probably never will be. The amount of new information presented in this report serves to indicate the size of the iceberg below the tip that is described in this document.

14 ACRONYMS

ARC PPRI	Agricultural Research Council Plant Protection Research Institute
CC	St Lucia Crocodile Centre
CFR	Coastal Forest Reserve
CV	Cape Vidal
DD	Data Deficient
DNSM	Durban Natural Science Museum
Duk.	Dukuduku
ES	Eastern Shores
E	Endangered
En	Endemic
FC	Fruit Chafer
GG	GwalaGwala
GSLWP	Greater St Lucia Wetland Park
GSLWP RTES	Greater St Lucia Wetland Park – Rare, Threatened & Endemic Species
KB	Kosi Bay
LBN	Lake Bhangazi North
LBS	Lake Bhangazi South
LC	Least Concern
LM	Lake Mgobezeleni
LS	Lake Sibaya
LZ	Lake Zilonde
M	uMkhuze
Moç.	Moçambique
MR	Mission Rocks
MaR	Mphathe River
MP	Muzi Pan
Ma.	Maphelane
Man.	Manzengwenya
Map.	Maputaland
Mf.	Mfabeni Wilderness (Eastern Shores)
Ns P.	Nsumu Pan
NP	Neshe Pan
NP	Ndlozi Peninsula
NT	Near Threatened
O	Ozabeni
PS	Population size
Park	Greater St Lucia Wetland Park
R	Rare
RTE	Rare, threatened & endemic
SA	South Africa
SB	Sodwana
SAIAB	South Africa Institute for Aquatic Biodiversity
SL	St Lucia
T	Threatened
TW	Tewati Wilderness
UPE	University of Port Elizabeth
UK	United Kingdom
UN	University of the North
V	Vulnerable
WS	Western Shores

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16 ORGANISATIONAL INVOLVEMENT

The following organisations have contributed to the project through their involvement: