

Fauna Assessment of Monteseel Conservation Area, eThekwin, KwaZulu-Natal

**Performed for Environmental Planning and Climate Protection
Department, Development Planning, Environment and Management
Unit, eThekwin Municipality**



Final Report

Prepared by Harvey Ecological

June 2021



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KZN / EIA /

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

Submitted in terms of section 24(2) of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

KINDLY NOTE:

1. This form is current as of **October 2019**. It is the responsibility of the Applicant / Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the form have been released by the Department.

PROJECT TITLE

Faunal Assessment of the Monteseel Conservation Area, eThekweni, KwaZulu-Natal

DISTRICT MUNICIPALITY

eThekweni

1. SPECIALIST INFORMATION

Specialist name:

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Harvey Ecological

*Monteseel Fauna Assessment
2021: Final Report*

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2. DECLARATION BY THE SPECIALIST

I, James Harvey of Harvey Ecological, declare that --

General declaration:

- I act as the independent specialist in this application;
- do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998).



Signature of the specialist:

Name of company: Harvey Ecological

Date: 14 June 2021

1. INTRODUCTION

The Environmental Planning and Climate Protection Department (EPCPD) commissioned a survey of selected fauna of the Monteseel Conservation Area (hereafter referred to as 'Monteseel'), located in the Outer West region of eThekweni Municipality.

The scope of the survey was to:

- Undertake ecological surveys and produce associated species lists of selected faunal groups for the study area. The groups surveyed were
 - birds
 - mammals, with a focus on small, terrestrial mammals
 - amphibians
 - reptiles
 - snails
 - Lepidoptera (butterflies and moths)
 - Odonata (dragonflies and damselflies)
 - millipedes
- Provide information on their relative abundance and conservation, based on site visits and existing information,
- Provide GPS coordinates for all species of conservation concern
- Identify any special management requirements associated with identified species,
- Determine any threats to identified species and recommend associated mitigation measures

2. METHODS AND BACKGROUND

2.1 Personnel Involved

Given the diversity of groups assessed, input from several different experts was required. The following contributed to this study:

- Mr James Harvey (vertebrate fauna, fieldwork on some invertebrate groups)
- Mr Mark Liptrot (Lepidoptera and Odonata)
- Prof Michelle Hamer (millipedes)
- Dr Leigh Richards (small mammals)
- Dr Igor Muratov (snails)

2.2 Site Description

The site consisted of three land parcels in the Monteseel area, totalling approximately 72 ha (Figure 1). The terrain of the area is highly heterogeneous, with gently sloping upper crest areas, vertical cliff areas and steep hillsides and valleys. Altitude ranges between 790m and 640masl.

A variety of habitat types are present. These include

- Flat – steep sloping, rocky grassland on the crest, and on lower slopes
- Cliff face and associated rocky cliff-edge habitat
- Moist scarp forest, primarily confined to the valley south of Magdalene Drive
- Dense thornveld woodland on the slopes below the cliffs, primarily in the northern portion of the site.

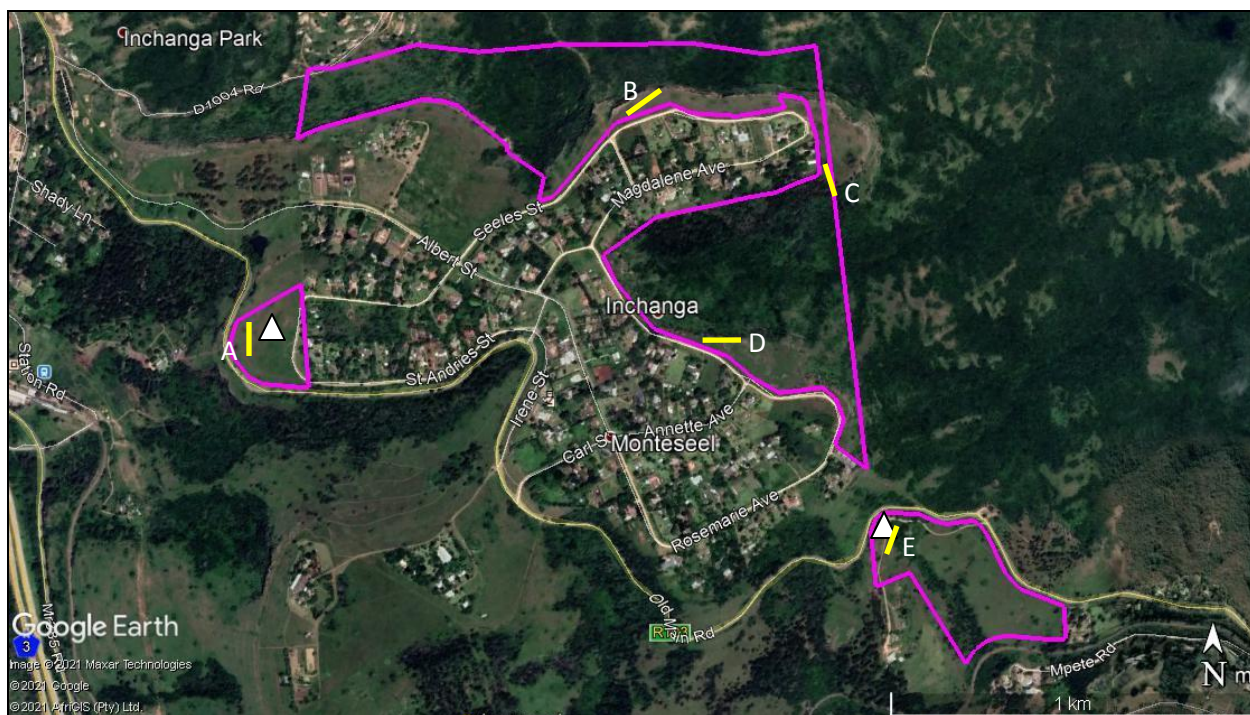


Figure 1. Image showing the Monteseel study site, outlined in purple. Localities of trap arrays (white triangles) and small mammal trap transects (yellow lines and labelled) are indicated.

EXAMPLES OF HABITATS ON SITE



Open, short, rocky, crest grassland in the west, and denser, lower slope grassland and wooded drainageline in the east.



Moist Scarp forest, and cliff habitat with dense woodland below.

2.3 Study Period

The study area was surveyed over the following periods

- 27 June 2020, which was an orientation visit, and allowed for an initial bird survey in the winter period to be undertaken,
- 8, 14, 19, 30 December 2020, 8, 13, 19, 22 January, 5, 13 February 2021, butterfly surveys
- 29 January – 9 February 2021, several fauna groups were surveyed concurrently

2.4 Survey Techniques

Given the variety of fauna surveyed, several different techniques were used. These are summarised below.

Trap arrays

Two trap arrays (hereafter ‘arrays’) were installed on 30 January 2021 and were in place until they were dismantled on 9 February 2021 (9 trap nights). Arrays consisted of three bucket pitfall-traps sunk flush in the ground, with interjoining drift fences comprised of seven-metre masonite walls interconnecting between them. Midway along each of the three walls were placed two mesh funnel-traps, one on either side (Figures 1-2). Both trap types work passively, with organisms entering them and largely being unable to escape, although the trap types collect slightly different fauna (e.g. funnel traps are more effective at catching snakes). The drift-fences serve to increase the trapping area, by blocking organisms’ movement and directing them to the traps. This technique is effective at sampling herpetofauna, small mammals and some terrestrial invertebrates. Traps were covered to protect trapped animals from the elements and were checked every morning.

One trap was placed in short, gently sloping, upper altitude rocky grassland in the far west of the study area, and the second was set in tall, steep-sloped grassland adjacent to a wooded drainageline, at a lower altitude in the east of the site, thus sampling a diverse set of habitat types.



Example of trap array set western short grassy, rocky site.

Active searching

This technique consists of surveyors moving over a selected area, visually searching for organisms. All cover objects (rocks, logs, vegetation piles, working through leaf litter) are overturned and any animal found identified. This technique was used for reptiles, amphibians, molluscs and millipedes. A diversity of habitat types were sampled in this manner, in order to detect the greatest array of fauna.

Small mammal trapping

One hundred non-collapsible Sherman live traps were set for 4 nights (400 trap nights) to sample for small mammals (rodents and shrews). Traps were set linearly, approximately 5m apart, with each trap set close to suitable shelter. Each trap was baited with a mixture of peanut butter and oats. Traps were checked daily, before midday. In order to maximise species richness, different habitat types were sampled (Refer to Figure 1):

- A: Open, rocky, gently sloping, short grassland on the west (25 traps)
- B: Very rocky grassland on cliff edge (25 traps)
- C: Steep Rocky grassland, immediately adjacent and into forest edge (25 traps)
- D: Rocky grassland on cliff edge (25 traps)
- D: Steep, dense, lightly rocky grassland edge of wooded drainageline, at lower altitude (25 traps)



Example of Sherman small mammal trap set in open grassland.

Bird surveys

This consists of surveyors detecting and identifying all birds, based on visual and vocal identification. Survey effort was distributed across the different habitat types present, as these support different bird communities. Surveys focussed on morning periods, when bird activity was highest, but species were recorded through the survey.

Butterfly surveys

Surveys were undertaken on sunny, warm days (20-30°C), mornings – early afternoon, when butterflies are most active, and took place between 8 December 2020 and 13 February 2021, thus spanning the

peak flying times of the majority of local species.. Sightings of butterflies were noted (and in most cases, photographed) to enable positive identification. All habitats were surveyed as far as possible.

Frog Audio Surveys

Most frogs are physically cryptic, but during the breeding season, males produce conspicuous, species-specific vocalisations during suitable climatic conditions. The detection and identification of these calls is the primary technique for surveying frogs and was performed at all appropriate habitats (primarily aquatic), mostly during dusk and nighttime, but also during the day during rainy and overcast weather.

Incidental community photographic records

Many members of the Monteseel community are environmentally interested, and record fauna they see in the area photographically. This represents a valuable resource, as these records are verifiable, and this technique allows for detection of many additional species that may be missed during a rapid field survey. When the value of this resource was realised, a request was put out to the community and several records were received, which are included here. For the purposes of this study, only species for which verifiable photographic evidence was provided, have been included. All records are from 2019 – present.

Museum and Historical Records

In addition to the field surveys, some information was available in museums and other historical records. Where relevant, this has been included to supplement the field results.

Sources included:

- Natal Museum snail database
- Animal demography unit database of national museum records and citizen science records for reptiles and amphibians
- Published millipede records

The dates of these records vary from 1917 – 1985.

2.5 Rare and Threatened Species

Using available information, all species considered of conservation importance that do or are likely to occur on site were identified and are discussed. These include:

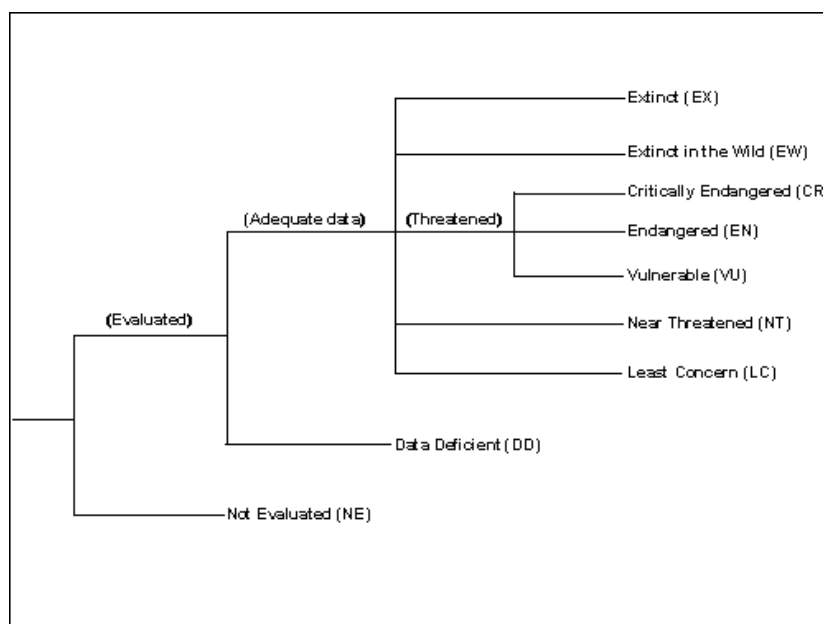
1) Red Data Species: Species that have been classified as under threat or potentially under threat, according to the International Union for the Conservation of Nature (IUCN) Redlisting system (See Box 1 and definitions below). For the most part, these are based on published Red Data Books or databases; in the case of reptiles, an updated Red Data Book is to be published shortly (Bates *et al.* In press), and the conservation evaluations have been finalised; these new categorisations are used for this assessment.

2) Other notable species: These species have not been classified as Threatened or Near Threatened according published Red Data Books, but are considered notable for various reasons:

- Naturally rare
- Localised distributions
- Specialised habitat requirements
- May be close to threatened and their Red Data status could be re-evaluated in a forthcoming conservation assessment of the fauna group

Box 1: The Red List and Red Data Species.

The Red List and Red Data species system is an approach developed by the International Union for the Conservation of Nature (IUCN) for evaluating the conservation status of species and in particular for identifying and documenting those species most in need of conservation attention (IUCN 2008). In this system, species are evaluated against a series of objective criteria (available at iucn.org), and based on those criteria are placed in one of eight categories (see below). Species that fall within the Threatened and Near Threatened categories are known as Redlisted or Red Data Species.



Structure of IUCN Categories (from iucn.org)

IUCN Categories

Extinct – there is no reasonable doubt that the last individual of the species has died

Extinct in the Wild – the species no longer occurs in the wild, and is only found in cultivation or in captivity

Critically Endangered – the species is considered to be facing an extremely high risk of extinction in the wild, based on IUCN criteria

Endangered – the species is considered to be facing a very high risk of extinction in the wild, based on IUCN criteria

Vulnerable – the species is considered to be facing a high risk of extinction in the wild, based on IUCN criteria

Near Threatened – when evaluated against IUCN criteria, does not qualify for a Threatened category but is close to qualifying for or is likely to qualify in one of those categories in the near future

Least Concern – when evaluated against IUCN criteria, does not qualify for any category as Threatened or Near Threatened. Widespread and abundant species fall in this category

Data Deficient – there is inadequate information regarding the species' population size, distribution or threats for an assessment to be made

2.6 Constraints And Limitations Of The Study

Detected richness versus actual richness

It is not possible to detect all species present in a rapid survey such as this. Many species are cryptic, and thus difficult to detect. Different groups vary in their ease of detection, and thus the proportion that can be recorded within a given amount of time. Others are only present on a site some of the time (particularly birds).

Accessibility of the site

While all attempts were made to cover the greatest diversity of habitats and total area of the site, some portions are very difficult to access and sample. The wooded slopes below the cliffs in the northern section in particular, posed a challenge. These areas are extremely steep, have difficult terrain (loose rocks, obscured by dense vegetation, very thick vegetation (including alien plant thickets) that is difficult to move through, and very few paths or other access points. As a result, such areas could not be sampled as thoroughly as others.

Limited Information

In some groups, particularly some invertebrate groups, the amount of information available about them (distribution, habitat requirements etc.) is very limited.

3. RESULTS

3.1 Mammals

Twelve species of mammals (in eight families) were detected during the survey (Appendix 1). Three of these are South African endemics. Eight species of small mammals were recorded, which is fairly high diversity when compared with results elsewhere in the province (Taylor 1998). Small mammals were trapped at Sites C, D and E. Diversity was highest at Erf 2 (Site E, the easternmost site), with 6 species present. In addition to small mammals, a small number of

larger mammals were also recorded. Antelope have also been anecdotally recorded, but were not detected during the survey. It is likely that additional small mammals remain to be recorded, as well as bats and other larger mammals, which weren't sampled during this survey.

No Redlisted mammals were detected, nor are anticipated to occur.



Two small mammals recorded on site - Red Veld Rat and Namaqua Rock Rat in mammal trap.

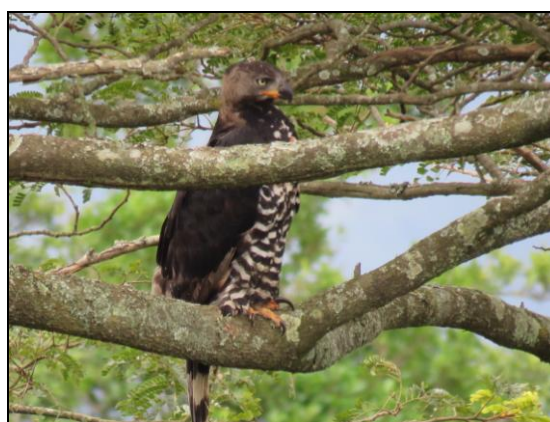
3.2 Birds

The site falls within an area that supports relatively high numbers of bird species, both nationally and provincially. One hundred and three birds (in 44 families) were recorded during the survey. This represents a high species richness of birds present, and reflects the diversity of habitats. This community includes many habitat specialists, including many forest/dense woodland specialists, with good populations of large frugivores e.g. turacos and hornbills present, some grassland specialists, and species restricted to rocky habitats (e.g. Striped Pipit, Cape Rock Thrush and Mocking Cliff-chat). Highest diversity occurs within the woodland and forest areas. Nine national endemics were recorded. The pentad (ca 9 x 9km) incorporating the site has been well surveyed previously, through the South African Bird Atlassing Project (www.sabap2), and 210+ species have been recorded to date. It is likely that the site supports many of these, and may regularly support upwards of 170 species.

Two Redlisted species were detected. See below

Table 1. Rare and threatened birds recorded and potentially occurring within the broader study area. (EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient).

English Name	Scientific name	RD Status	Habitat requirements
Lanner Falcon	<i>Falco biarmicus</i>	VU	Breeds in mountainous areas or tall trees, utilizes surrounding natural habitats. Regularly seen during the survey, and appears to breed on the cliffs. Will occur widely in the area.
Crowned Eagle	<i>Stenaopeatus coronatus</i>	VU	An uncommon forest species. Recorded displaying overhead, and regularly recorded by members of the Monteseel Conservancy, including photos of juveniles (2019), indicates that it breeds in the area. Recorded widely in the area.



Lanner Falcon and Crowned Eagle – both Redlisted and recorded breeding on site.

3.3 Reptiles

The site falls within a region that has high numbers of total species, endemic and rare and threatened species, relative to broader patterns of South African reptiles, and 28 species have been recorded with the QDSs 2930DC and 2930DA (Bates *et al.* 2014, ADU 2021). Twenty species are recorded, with fourteen species recorded during the field survey, and another 6 recorded historically (representing 10 families) (Appendix 1). Six of these are endemic or near-endemic. Many species are widespread in woody habitats; however there are some rock and grassland specialists present. Reptiles, particularly snakes, are often cryptic, and difficult to detect in a rapid survey. It is likely that a number of additional species are present, and the actual species richness may be in the vicinity of 25+ species.

No Redlisted species are recorded or are expected to occur within the study area. However, one species, Large-scaled Grass Lizard *Chamaesaura macrolepis* was previously Redlisted, and is a restricted grassland specialist, that has likely declined nationally. Several specimens were collected historically in the grassland areas, and it may be still present within the study area, where it would be confined to the grassland.



The endemic Spotted Gecko.

3.4 Amphibians

The study area falls within an area of fairly high species richness, endemism and range-restricted species relative to the rest of South Africa (Alexander et al. 2004). Twenty-four frog species have been recorded for this and adjacent QDCs (Minter et al. 2004; ADU 2021). The majority of frogs are strongly tied to the presence of aquatic habitats however. However, although often overlooked, frogs make extensive use of terrestrial habitats too, for movement between breeding sites, feeding and shelter (e.g. Lemckert 2004; Cushman 2006).

Thirteen species (in seven families) were recorded during the survey. Five of these are South African endemics. The site does not have particularly extensive or diverse aquatic habitats available, so recording such a diversity was somewhat surprising. It is likely that local frog populations breed in seasonal and temporary waterbodies along streams and in the grassland, in the dam adjacent to the western edge, and in some cases, waterbodies in local gardens. These species disperse widely on the site when not breeding. The majority of species recorded are fairly widespread in wooded and grassy habitats. A full list of species is provided in Appendix 2.

No rare and threatened species were recorded nor are likely to occur.



Clicking Stream Frog and Bubbling Kassina.

3.5 Snails

The site falls within the region that supports the highest snail diversity in the country – the area around and including Pietermaritzburg to Durban, which also supports high numbers of endemic species (Herbert & Kilburn 2004, Govender 2007). These areas are broadly considered national priority areas in terms of their snail communities. QDS values in the area often contain >50 species, and the site appears to be in line with this. A total of 17 species of land snail were found on site, and another seven species are historically recorded, giving a total of 25 species in eight families. It is likely that several additional species will be present. Of the 25 species recorded, 16 are South African endemics, and 10 are endemic or near-endemic to KZN. Based on this study, snail richness was higher in forest areas, with all but one species recorded from forest, and only two species collected in grassland.

No Redlisted species were recorded, however, the Redlisting status of South African snails is dated, and should be re-assessed. A number of notable species are present and are highlighted below, and several further notable species may potentially be present (Table 2).

Table 2. Rare and threatened snails recorded and potentially occurring within the broader study area. (EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient).

English Name	Scientific name	RD Status	Habitat requirements	Record details
SPECIES CONFIRMED				
Arnold's Hunter Snail	<i>Gulella arnoldi</i>		A localized, uncommon endemic, restricted to coastal southern KZN. Recorded from wooded habitats, likely restricted to forest habitat on site.	Field survey (29°44'17"S; 30°41'6"E)
Obovate Hunter Snail	<i>Gulella obovata</i>		Localized southern KZN endemic. Forest and thicket.	Historical – undated (approx 29°44'30"S; 30°39'60"E)

Lymnaeid Awl Snail	<i>Euonyma lymnaeiformis</i>	A localized central KZN endemic. Occurs in a variety of habitats.	Historical – undated (approx 29°44'30"S; 30°39'60"E)
Occluded Pinwheel	<i>Trachystisis calorama</i>	Localized endemic. Found in forest.	Historical – undated (approx 29°44'30"S; 30°39'60"E)
NOTABLE SPECIES NOT RECORDED BUT WHICH MAY OCCUR			
Select Pinwheel	<i>Trachystisis ectima</i>	Localized endemic. Wooded habitats.	
Perforated Pinwheel	<i>Trachystisis permeata</i>	Localized endemic, rare. Likely in wooded habitats.	
Lygeated Pinwheel	<i>Trachystisis lygea</i>	Localized endemic. Valley woodland.	
Pinched Lip Hunter Snail	<i>Gulella columnella</i>	Localized endemic. Forest and thick woodland.	
Discordant Hunter Snail	<i>Gulella discrepans</i>	Localized endemic. Forest.	
Maritzburg Hunter Snail	<i>Gulella maritzburgensis</i>	Localized endemic. Wooded habitats.	
Delicate Hunter Snail	<i>Gulella delicatula</i>	Localized endemic. Forest.	
Handsome Hunter Snail	<i>Gulella formosa</i>	Localized endemic. Forest.	
Dunker's Hunter Snail	<i>Gulella dunkeri</i>	Localized endemic. Forest and thicket.	
Warty Hunter Snail	<i>Gulella euthymia</i>	Localized endemic. Drier thicket.	
Krauss's Hunter Snail	<i>Gulella kraussii</i>	Localized endemic. Forest and thicket.	
Plant's Hunter Snail	<i>Gulella planti</i>	Localized endemic. Low altitude forest.	
Partitioned Hunter Snail	<i>Gulella seperata</i>	Localized endemic. Thicket.	
Ribbed Awl Snail	<i>Euonyma natalensis</i>	Localized endemic. Forest.	
Burnup's Hunter Slug	<i>Chlamydothorus burnupi</i>	Uncommon KZN near-endemic. Forest and wooded habitats.	

*Hypolysia florentiae**Trachycistis glanvilliana**Euonyma tugelensis*

3.5 Millipedes

As with snails, the site falls within the region that supports the highest millipede diversity in the country – the area around and including Pietermaritzburg to Durban, which also supports high numbers of endemic species (Hamer & Slotow 2002). As with snails, the Pietermaritzburg-Durban corridor is considered considered national priority areas in terms of the millipede communities present in natural habitats. QDS richness values in this area often contain typically sit around 10-40 species per QDS, and the site appears to be in line with this. A total of 5 species of millipede were found on site, and another twelve species are historically recorded, giving a total of 17 species in six families. It is likely that several additional species will be present. Of the 17 species recorded, 16 are South African endemics, and 10 are endemic or near-endemic to KZN. As with snail, millipede richness and numbers were higher in forest areas, with all but one species recorded from forest, and only one species collected in grassland.

No Redlisted species were recorded, however, the redlisting status of South African millipedes is somewhat dated, and should be re-assessed. A number of notable species are present and are highlighted below, and several further notable species may potentially be present (Table 3).

Table 3. Rare and threatened millipedes recorded and potentially occurring within the broader study area. (EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient).

English Name	Scientific name	RD Status	Habitat requirements	Record details
CONFIRMED SPECIES				
Ringed Red Millipede	<i>Centrobolus annulatus</i>		Endemic to Durban and surrounding area, has suffered substantial habitat loss. Recorded from forest habitats, likely restricted to forest habitat on site.	Field survey (29°44'17"S; 30°41'6"E)
Cristulate Black Millipede	<i>Doratogonus cristulatus</i>		A localized central Durban-Pietermaritzburg endemic. Recorded from forest habitats, likely restricted to forest habitat on site.	Field survey (29°44'17"S; 30°41'6"E)
Two-coned Soil Millipede	<i>Ulodesmus biconus</i>		Narrow range endemic.	Historical – 1959, no coordinates
Lumpy Keeled Millipede	<i>Gnomoskelus glaber</i>		Narrow range endemic. Found in woodland and wooded grassland.	Historical – 1959, no coordinates
Resembling two-toothed slender spined millipede	<i>Patinatus bidentatus simulator</i>		Localized endemic, RD candidate. Woodland and grassland.	Historical – 1959, no coordinates
Maritzburg slender spined millipede	<i>Spinotarsus maritzburgensis</i>		Localized endemic, RD candidate. Woodland and grassland.	Historical – 1954, no coordinates
Puckered Slender-spined Millipede	<i>Spinotarsus bullatoides</i>		Known only from one location.	Historical – 1959, no coordinates
Trident Slender-spined Millipede	<i>Spinotarsus tridens</i>		Known only from one location.	Historical – 1959, no coordinates
NOTABLE SPECIES NOT RECORDED BUT WHICH MAY OCCUR				
Visible keeled millipede	<i>Gnomoskelus spectabilis</i>		Localized endemic. Wooded habitats.	
Ruby-footed black millipede	<i>Doratogonus rubipodus</i>		Localized endemic, rare. Likely in wooded habitats.	
Wandering black millipede	<i>Doratogonus peregrinus</i>		Localized endemic. Moist wooded habitats.	

*Doratogonus cristulatus**Cantrobolus annulatus**Sphaerotherium giganteum*

3.5 Lepidoptera

Eighty-eight species of Lepidoptera have been recorded from site (Appendix 1). This represents a very rich community. Two of these are national endemics, and one is a KZN endemic. It is likely that additional species may be present. All portions of the study area supported good Lepidoptera populations.

One important species, the Yellowish Amakosa Rocksitter, which is listed as Endangered, was recorded just outside of the study area. Consideration should be given to including this locality into the conservancy. It may well occur at other locations within the study area, and should be surveyed further.

Table 4. Rare and threatened Lepidoptera recorded and potentially occurring within the broader study area. (EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient).

English Name	Scientific name	RD Status	Habitat requirements	Record Details
Yellowish Amakosa Rocksitter	<i>Durbania amakosa flavida</i>	EN	Restricted to very few sites in rocky grassland in coastal, central KZN. Will be confined to rocky grassland slopes.	This study (29°44'40"S; 30°41'10"E)



Yellowish Amakosa Rocksitter

3.6 Odonata

Odonata were scarce over this survey, due to there being no areas of standing water available. The areas are well-drained, and major drainage lines were found to be impenetrable due to the surrounding thick vegetation. As a result, a moderately-low species richness of these is present, with five species recorded. All are common, widespread species. No Redlisted species were recorded or expected to occur.



Diplacodes luminans



Pantala flavescens



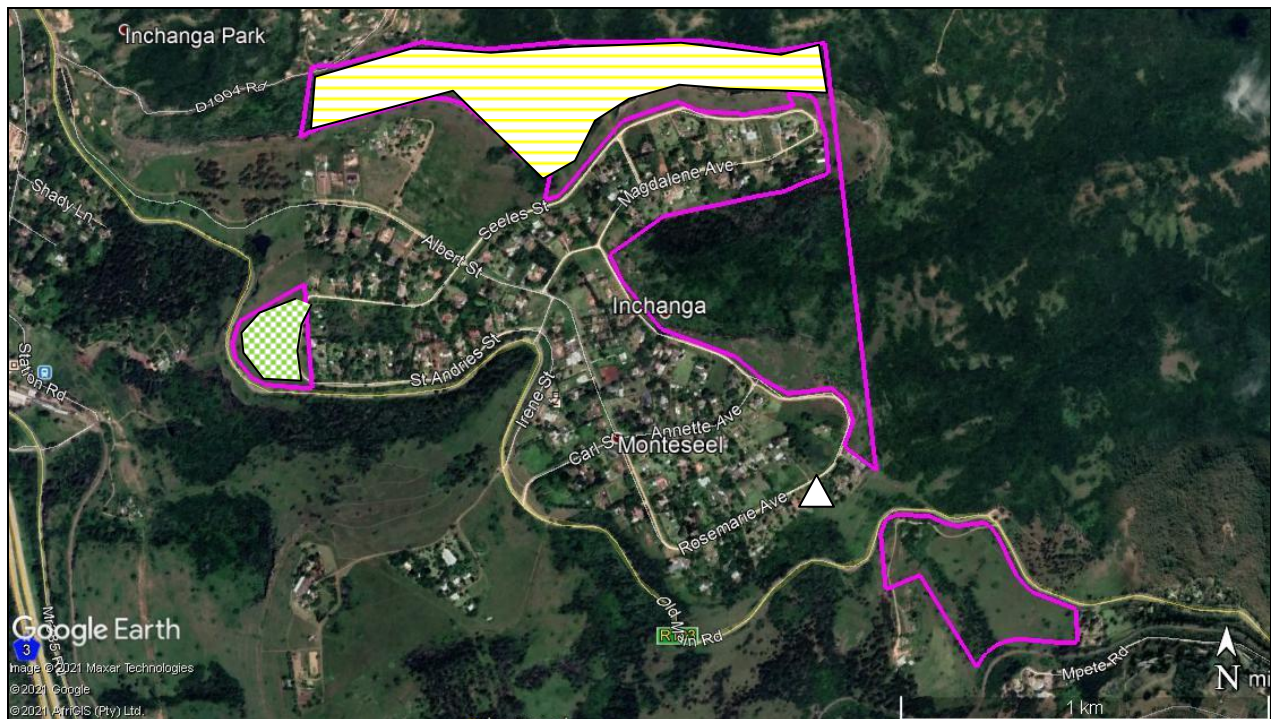
Crocothemis erythraea

4. CONCLUSION AND RECOMMENDATIONS

Overall, the survey determined that the site had rich, natural communities of most faunal groups surveyed, and supported a number of sensitive species. Additional surveys would likely add further to these lists and additional sensitive species are expected to occur. The diversity of habitats present has resulted in the presence of several different assemblages of fauna being present. As a result, the site should be considered to be of high value and prioritised for appropriate management as a biodiversity asset, and it would be desirable to formally protect the area.

The following comments and recommendations are made.

- The site should be recognised for its biodiversity value and formally protected.
- Alien vegetation is currently the biggest threat to the integrity of the area. There is particularly high alien coverage in the northern area below the cliffline, where the woodland understory has essentially been filled in by alien thicket, particularly *Lantana camara*. Aliens are also apparent elsewhere, particularly on forest edges and drainagelines and in some grassland. It is a priority to control and ultimately reduce the alien infestation, through an ongoing treatment and monitoring programme.
- The area supporting the Yellowish Amakosa Rocksitter should be included into the conservation area if possible.
- Other impacts and management issues include
 - Trampling and overutilization by cattle. This appeared to be impacting on the western portion in particular
 - Burning regimes – it is important that an appropriate burning plan be employed in the grassland areas
 - Removal of rocks. Removal of rocks from portions of the grassland was visible and will impact on integrity of these areas.
 - Disturbance by public. There are instances where disturbance such as excavation in grassland have taken place. These have negative impacts and should be prevented as far as possible
 - There is evidence of poaching portions of cycads in the forest, and poaching of antelope may be a threat



Study site showing spatial placement of selected management issues: Yellow polygon - area of high alien (particularly *Lantana camara*) infestation, Green polygon – area of cattle impact and previous earth disturbance, white triangle – location of Yellowish Amakosa Rocksitter population, recommended for inclusion into conservation area.

Future surveys

The following surveys would be worthwhile performing in the future

- Bat surveys, as the area may support a rich bat community
- Additional millipede and snail surveys, given additional species, including sensitive species, are likely to occur.
- Further surveys for the Yellowish Amakosa Rocksitter should take place, to improve understanding of its distribution and management on site.

5. ACKNOWLEDGEMENTS

We would like to acknowledge the following:

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APPENDIX 1. ALL FAUNA RECORDED IN THE MONTESEEL CONSERVATION AREA DURING THE STUDY. RED DATA SPECIES (RD) AND ENDEMIC SPECIES (SA – SOUTH AFRICAN ENDEMIC, KZN – KWAZULU-NATAL ENDEMIC) AND ARE INDICATED.

FAMILY	ENGLISH NAME	SCIENTIFIC NAME	NOTES
MAMMALS			
Bathyergidae	Natal Mole-rat	<i>Cryptomys natalensis</i>	
Cercopithecidae	Chacma Baboon	<i>Papio ursinus</i>	
Cercopithecidae	Vervet Monkey	<i>Chlorocebus pygerythrus</i>	
Chrysochloridae	Hottentot golden mole	<i>Amblysomus hottentotus</i>	SA
Hystricidae	Cape Porcupine	<i>Hystrix austroafricana</i>	
Muridae	Natal Multimammate Mouse	<i>Mastomys natalensis</i>	
Muridae	Namaqua Rock Rat	<i>Micaelamys namaquensis</i>	
Muridae	Red Veld Rat	<i>Aethomys ineptus</i>	SA
Nesomyidae	Grey Climbing Mouse	<i>Dendromus melanotis</i>	
Soricidae	Greater Red Musk Shrew	<i>Crocidura flavescens</i>	SA
Soricidae	Forest Shrew	<i>Myosorex varius</i>	
Viverridae	Cape Genet	<i>Genetta tigrina</i>	SA
BIRDS			
Ardeidae	Black-headed Heron	<i>Ardea melanocephala</i>	
Ciconiidae	Woolly-necked Stork	<i>Ciconia episcopus</i>	
Threskiornithidae	Hadedda Ibis	<i>Bostrychia hagedash</i>	
Anatidae	Egyptian Goose	<i>Alopochen aegyptiaca</i>	
Accipitridae	Yellow-billed Kite	<i>Milvus aegyptius</i>	
Accipitridae	Long-crested Eagle	<i>Lophaetus occipitalis</i>	
Accipitridae	Crowned Eagle	<i>Stephanoaetus coronatus</i>	RD-VU
Accipitridae	Common Buzzard	<i>Buteo buteo</i>	
Accipitridae	Jackal Buzzard	<i>Buteo rufofuscus</i>	SA
Accipitridae	African Harrier-Hawk	<i>Polyboroides typus</i>	
Accipitridae	Lanner Falcon	<i>Falco biarmicus</i>	RD-VU
Phasianidae	Natal Spurfowl	<i>Pternistis natalensis</i>	
Phasianidae	Helmeted Guinea fowl	<i>Numida meleagris</i>	
Columbidae	Speckled Pigeon	<i>Columba guinea</i>	

Columbidae	African Olive Pigeon	<i>Columba arquatrix</i>	
Columbidae	Red-eyed Dove	<i>Streptopelia semitorquata</i>	
Columbidae	Laughing Dove	<i>Spilopelia senegalensis</i>	
Columbidae	Emerald-spotted Wood Dove	<i>Turtur chalcospilos</i>	
Columbidae	Tambourine Dove	<i>Turtur tympanistria</i>	
Musophagidae	Knysna Turaco	<i>Tauraco corythaix</i>	SA
Musophagidae	Purple-crested Turaco	<i>Tauraco porphyreolophus</i>	
Cuculidae	Red-chested Cuckoo	<i>Cuculus solitarius</i>	
Cuculidae	Black Cuckoo	<i>Cuculus clamosus</i>	
Cuculidae	Klaas's Cuckoo	<i>Chrysococcyx klaas</i>	
Cuculidae	Diederik Cuckoo	<i>Chrysococcyx caprius</i>	
Centropodidae	Burchell's Coucal	<i>Centropus burchellii</i>	
Strigidae	Spotted Eagle-Owl	<i>Bubo africanus</i>	
Apodidae	African Black Swift	<i>Apus barbatus</i>	
Coliidae	Speckled Mousebird	<i>Colius striatus</i>	
Alcedinidae	Brown-hooded Kingfisher	<i>Halcyon albiventris</i>	
Upupidae	African Hoopoe	<i>Upupa africana</i>	
Phoeniculidae	Green Wood-hoopoe	<i>Phoeniculus purpureus</i>	
Bucerotidae	Trumpeter Hornbill	<i>Bycanistes bucinator</i>	
Bucerotidae	Crowned Hornbill	<i>Lophoceros alboterminatus</i>	
Lybiidae	Black-collared Barbet	<i>Lybius torquatus</i>	
Lybiidae	White-eared Barbet	<i>Stactolaema leucotis</i>	
Lybiidae	Red-fronted Tinkerbird	<i>Pogoniulus pusillus</i>	
Lybiidae	Crested Barbet	<i>Trachyphonus vaillantii</i>	
Indicatoridae	Brown-backed Honeybird	<i>Prodotiscus regulus</i>	
Picidae	Golden-tailed Woodpecker	<i>Campethera abingoni</i>	
Picidae	Cardinal Woodpecker	<i>Dendropicos fuscescens</i>	
Picidae	Red-throated Wryneck	<i>Jynx ruficollis</i>	
Alaudidae	Rufous-naped Lark	<i>Mirafraga africana</i>	
Hirundinidae	Barn Swallow	<i>Hirundo rustica</i>	
Hirundinidae	White-throated Swallow	<i>Hirundo albigularis</i>	

Hirundinidae	Lesser Striped Swallow	<i>Cecropis abyssinica</i>	
Dicruridae	Fork-tailed Drongo	<i>Dicrurus adsimilis</i>	
Oriolidae	Black-headed Oriole	<i>Oriolus larvatus</i>	
Corvidae	Pied Crow	<i>Corvus albus</i>	
Corvidae	White-necked Raven	<i>Corvus albicollis</i>	
Paridae	Southern Black Tit	<i>Melaniparus niger</i>	
Pycnonotidae	Dark-capped Bulbul	<i>Pycnonotus tricolor</i>	
Pycnonotidae	Terrestrial Brownbul	<i>Phyllastrephus terrestris</i>	
Pycnonotidae	Sombre Greenbul	<i>Andropadus importunus</i>	
Muscicapidae	Cape Rock Thrush	<i>Monticola rupestris</i>	SA
Muscicapidae	Familiar Chat	<i>Oenanthe familiaris</i>	
Muscicapidae	Mocking Cliff Chat	<i>Thamnolaea cinnamomeiventris</i>	
Muscicapidae	African Stonechat	<i>Saxicola torquatus</i>	
Muscicapidae	Red-capped Robin-chat	<i>Cossypha natalensis</i>	
Muscicapidae	Cape Robin-chat	<i>Cossypha caffra</i>	
Acrocephalidae	Marsh Warbler	<i>Acrocephalus palustris</i>	
Cisticoliidae	Bar-throated Apalis	<i>Apalis thoracica</i>	
Cisticoliidae	Long-billed crombec	<i>Sylvietta rufescens</i>	
Cisticoliidae	Green-backed Camaroptera	<i>Camaroptera brachyura</i>	
Cisticoliidae	Cape Grassbird	<i>Sphenoeacus afer</i>	SA
Cisticoliidae	Zitting Cisticola	<i>Cisticola juncidis</i>	
Cisticoliidae	Lazy Cisticola	<i>Cisticola aberrans</i>	
Cisticoliidae	Neddicky	<i>Cisticola fulvicapilla</i>	
Cisticoliidae	Tawny-flanked Prinia	<i>Prinia subflava</i>	
Muscicapidae	African Dusky Flycatcher	<i>Muscicapa adusta</i>	
Platysteiridae	Cape Batis	<i>Batis capensis</i>	SA
Platysteiridae	Chinspot Batis	<i>Batis molitor</i>	
Monarchidae	African Paradise Flycatcher	<i>Terpsiphone viridis</i>	
Motacillidae	Cape Wagtail	<i>Motacilla capensis</i>	
Motacillidae	Striped Pipit	<i>Anthus lineiventris</i>	
Motacillidae	African Pipit	<i>Anthus cinnamomeus</i>	
Motacillidae	Yellow-throated Longclaw	<i>Macronyx croceus</i>	
Laniidae	Southern Fiscal	<i>Lanius collaris</i>	

Malaconotidae	Southern Boubou	<i>Laniarius ferrugineus</i>	SA
Malaconotidae	Black-backed Puffback	<i>Dryoscopus cubla</i>	
Malaconotidae	Southern Tchagra	<i>Tchagra tchagra</i>	SA
Malaconotidae	Black-crowned Tchagra	<i>Tchagra senegalus</i>	
Malaconotidae	Olive Bush-Shrike	<i>Chlorophoneus olivaceus</i>	
Malaconotidae	Grey-headed Bush-Shrike	<i>Malaconotus blanchoti</i>	
Sturnidae	Black-bellied Starling	<i>Notopholia corusca</i>	
Sturnidae	Red-winged Starling	<i>Onychognathus morio</i>	
Nectariniidae	Greater Double-collared Sunbird	<i>Cinnyris afer</i>	SA
Nectariniidae	White-bellied Sunbird	<i>Cinnyris talatala</i>	
Nectariniidae	Grey Sunbird	<i>Cyanomitra veroxii</i>	
Nectariniidae	Olive Sunbird	<i>Cyanomitra olivacea</i>	
Nectariniidae	Amethyst Sunbird	<i>Chalcomitra amethystina</i>	
Nectariniidae	Collared Sunbird	<i>Hedypipna collaris</i>	
Zosteropidae	Cape White-eye	<i>Zosterops virens</i>	SA
Passeridae	House Sparrow	<i>Passer domesticus</i>	
Ploceidae	Thick-billed Weaver	<i>Amblyospiza albifrons</i>	
Ploceidae	Spectacled Weaver	<i>Ploceus ocularis</i>	
Ploceidae	Village Weaver	<i>Ploceus cucullatus</i>	
Ploceidae	Red-collared Widowbird	<i>Euplectes ardens</i>	
Estrildidae	African Firefinch	<i>Lagonosticta rubricata</i>	
Estrildidae	Common Waxbill	<i>Estrilda astrild</i>	
Estrildidae	Bronze Mannikin	<i>Lonchura cucullata</i>	
Viduade	Pin-tailed Whydah	<i>Vidua macroura</i>	
Fringillidae	Yellow-fronted Canary	<i>Crithagra mozambica</i>	
REPTILES			
Scincidae	Mozambique Dwarf Burrowing Skink	<i>Scelotes mossambicus</i>	SA
Scincidae	Wahlberg's Snake-eyed Skink	<i>Panaspis wahlbergi</i>	
Scincidae	Variable Skink	<i>Trachylepis varia</i>	
Scincidae	Striped Skink	<i>Trachylepis striata</i>	
Leptotyphlopidae	Peter's Thread Snake	<i>Leptotyphlops scutifrons</i>	
Colubridae	Vine Snake	<i>Thelotornis capensis</i>	

Colubridae	Boomslang	<i>Disphodilus typus</i>	
Colubridae	Spotted Bush Snake	<i>Philothamnus semivariegatus</i>	
Colubridae	Herald Snake	<i>Crotaphopeltis hotamboeia</i>	
Viperidae	Rhombic night adder	<i>Causus rhombeatus</i>	
Lamprophiidae	Spotted Rock Snake	<i>Lamprophis guttatus</i>	SA
Lamprophiidae	Brown House Snake	<i>Boaedon capensis</i>	
Lamprophiidae	Short-snouted Grass Snake	<i>Psammophis brevirostris</i>	
Agamidae	Southern Tree agama	<i>Acanthocercus atricollis</i>	
Agamidae	Distant's Ground Agama	<i>Agama aculeata distantii</i>	SA
Chameleontidae	Flap-necked Chameleon	<i>Chameleo dilepis</i>	
Gekkonidae	Spotted Gecko	<i>Pachydactylus maculatus</i>	SA
Elapidae	Black Mamba	<i>Dendroaspis polylepis</i>	
Cordylidae	Transvaal Girdled Lizard	<i>Cordylus vittifer</i>	SA
Cordylidae	Large-scaled Grass Lizard	<i>Chamaesaura macrolepis</i>	SA
FROGS			
Arthroleptidae	Bush Squeaker	<i>Arthroleptis wahlbergii</i>	KZN
Arthroleptidae	Forest Tree Frog	<i>Leptopelis natalensis</i>	SA
Bufonidae	Guttural Toad	<i>Sclerophrys gutturalis</i>	
Bufonidae	Red Toad	<i>Schismaderma carens</i>	
Hyperoliidae	Yellow-striped Reed Frog	<i>Hyperolius semidiscus</i>	SA
Hyperoliidae	Painted Reed Frog	<i>Hyperolius marmoratus</i>	
Hyperoliidae	Bubbling Kassina	<i>Kassina senegalensis</i>	
Pipidae	Common Plattanna	<i>Xenopus laevis</i>	
Vrevicepitidae	Bushveld Rain Frog	<i>Breviceps adspersus</i>	
Pyxicephalidae	Bronze Caco	<i>Cacosternum nanum</i>	SA
Pyxicephalidae	Natal Sand Frog	<i>Tomopterna natalensis</i>	
Pyxicephalidae	Clicking Stream Frog	<i>Strongylopus grayii</i>	SA
Phrynobatrachidae	Snoring Puddle Frog	<i>Phrynobatrachus natalensis</i>	
SNAILS			
Cyclophoridae	Hairy Millipede Snail	<i>Afrocyclus isipingoensis</i>	
Achatinidae	Granular Agate	<i>Cochlitoma granulata</i>	

	Snail		
Achatinidae	Short Awl Snail	<i>Euonyma tugelensis</i>	KZN
Achatinidae	Turreted Awl Snail	<i>Euonyma turrimformis</i>	KZN
Achatinidae	Lymnaeid Awl Snail	<i>Eunyma lymnaeiformis</i>	KZN
Achatinidae	Globular Curvella	<i>Curvella cataracta</i>	SA
Achatinidae	Slit-lipped Awl Snail	<i>Hypolysia florentiae</i>	SA
Streptaxidae	Arnold's Hunter Snail	<i>Gulella arnoldi</i>	SA
Streptaxidae	Gould's Hunter Snail	<i>Gulella gouldi</i>	
Streptaxidae	Obovate Hunter Snail	<i>Gulella obovata</i>	KZN
Rhytididae	Dwarf Cannibal Snail	<i>Nata vernicosa</i>	
Rhytididae	Common Cannibal Snail	<i>Natalina cafra</i> ssp. <i>natalensis</i>	
Charopidae	Nhlosane Afrodonta	<i>Afrodonta inhluaniensis</i>	
Charopidae	Gooseberry Pinwheel	<i>Chilocystis conisalea</i>	KZN
Charopidae	Burnup's Pinwheel	<i>Chalcocystis burnupi</i>	KZN
Charopidae	Occluded Pinwheel	<i>Trachycystis calorama</i>	KZN
Charopidae	Miss Glanville's Pinwheel	<i>Trachycystis</i> cf. <i>glanvilliana</i>	SA
Charopidae	Milky Pinwheel	<i>Trachycystis subpinguis</i>	SA
Charopidae	Windmill Pinwheel	<i>Trachycystis rudicostata</i>	
Charopidae	Kamberg Pinwheel	<i>Trachycystis venatorum</i>	KZN
Chronidae	Keeled Kaliella	<i>Kaliella barrakporensis</i>	
Chronidae	Rounded Kaliella	<i>Kaliella euconuloides</i>	SA
MILLIPEDES			
Pachybolidae	Ringed Red Millipede	<i>Centrobolus anulatus</i>	KZN
Spirostreptidae	Cristulate Black Millipede	<i>Doratogonus cristulatus</i> .	E
Spirostreptidae		<i>Orthoporoides</i> . Possibly <i>O. corrugatus</i> but need males to confirm.	E
Sphaerotheriidae	Giant Pill Millipede	<i>Sphaerotherium giganteum</i>	
Sphaerotheriidae		<i>Sphaerotherium</i> sp. May be "copricolum", an undescribed	KZN

		species	
Dalodesmidae	Hairless Keeled Millipede	<i>Gnomeskelus glaber</i>	KZN
Dalodesmidae	Natal Keeled Millipede	<i>Gnomeskelus natalicus</i>	KZN
Dalodesmidae	Lumpy Keeled Millipede	<i>Gnomeskelus tuberosus</i>	SA
Gomphodesmidae	Two-coned Soil Millipede	<i>Ulodesmus biconis</i>	KZN
Odontopygidae	Resembling two-Toothed Slender Spined Millipede	<i>Patinatius bidentatus simulator</i>	KZN
Odontopygidae	Puckered slender spined Millipede	<i>Spinotarsus bullatoides</i>	KZN
Odontopygidae	Maritzburg Slender Spined Millipede	<i>Spinotarsus maritzburgensis</i>	KZN
Odontopygidae	Trident Slender Spined Millipede	<i>Spinotarsus tridens</i>	KZN
LEPIDOPTERA			
Crambidae		<i>Spoladea recurvalis</i>	
Erebidae	Cheetah	<i>Alytarchia amanda</i>	
Erebidae	Peach Moth	<i>Egybolis vaillantina</i>	
Erebidae	Dice Moth	<i>Rhanidophora phedonia</i>	
Geometridae	Wisp Wing	<i>Coenina poecilaria</i>	
Hesperiidae	Large Flat	<i>Apallaga mokeezi separata</i>	
Hesperiidae	Macomo Ranger	<i>Kedestes macomo</i>	
Hesperiidae	Mountain Sandman	<i>Spialia spio</i>	
Lycaenidae	Rayed Blue	<i>Actizera lucida</i>	
Lycaenidae	Yellow Zulu	<i>Alaena amazoula amazoula</i>	
Lycaenidae	Yellow Russet	<i>Aloeides aranda</i>	
Lycaenidae	Black-striped Ciliate Blue	<i>Anthene amarah amarah</i>	
Lycaenidae	Steel-blue-ciliate Blue	<i>Anthene definita definita</i>	
Lycaenidae	Eastern Scarlet	<i>Axiocerses tjoane tjoane</i>	
Lycaenidae	Black-bordered Babul Blue	<i>Azanus moriqua</i>	
Lycaenidae	Natal Babul Blue	<i>Azanus natalensis</i>	
Lycaenidae	Natal Mottled Buff	<i>Baliochila aslanga</i>	
Lycaenidae	Common Geranium Bronze	<i>Cacyreus marshalli</i>	

Lycaenidae	Mocker Bronze	<i>Cacyreus virilis</i>	
Lycaenidae	Mozambique Silverline	<i>Cigaritis mozambica</i>	
Lycaenidae	Silver-spotted Grey	<i>Crudaria leroma</i>	
Lycaenidae	Meadow Blue	<i>Cupidopsis cissus</i>	
Lycaenidae	Tailed Meadow Blue	<i>Cupidopsis jobates</i>	
Lycaenidae	Brown Playboy	<i>Deudorix antalus</i>	
Lycaenidae	Apricot Playboy	<i>Deudorix dinochares</i>	
Lycaenidae	Orange-barred Playboy	<i>Deudorix diocles</i>	
Lycaenidae	Amakoza Rocksitter	<i>Durbania amakosa flavida</i>	EN, KZN
Lycaenidae	Cupreous Ash Blue	<i>Eicochrysops mahallakoaena</i>	<i>messapus</i>
Lycaenidae	Grey Smoky Blue	<i>Euchrysops malathana</i>	
Lycaenidae	Osiris Smoky Blue	<i>Euchrysops osiris</i>	
Lycaenidae	Purple-brown Hairstreak	<i>Hypolycaena philippus</i>	
Lycaenidae	Southern Sapphire	<i>Iolus silas</i>	SA
Lycaenidae	Pea Blue	<i>Lampides boeticus</i>	
Lycaenidae	Twin-spot Giant Cupid	<i>Lepidochrysops plebeia plebeia</i>	
Lycaenidae	Lilac-based Black-Eye	<i>Leptomyrina gorgias gorgias</i>	
Lycaenidae	Unspecified Zebra Blue	<i>Leptotes sp.</i>	
Lycaenidae	Basuto Skolly	<i>Thestor basuta basuta</i>	
Lycaenidae	African Grass Blue	<i>Zizeeria knysna knysna</i>	
Lycaenidae	African Clover Blue	<i>Zizina otis antanossa</i>	
Lycaenidae	Tiny Grass Blue	<i>Zizula hylax</i>	
Noctuidae	Superb False Tiger	<i>Heraclia superba</i>	
Nymphalidae	Acara Acraea	<i>Acraea acara acara</i>	
Nymphalidae	Black-based Acraea	<i>Acraea natalica</i>	
Nymphalidae	Speckled Acraea	<i>Acraea violarum</i>	Red
Nymphalidae	Layman	<i>Amauris albimaculata</i>	
Nymphalidae	Black-haired Brown	<i>Bicyclus safitza safitza</i>	Bush
Nymphalidae	African Joker	<i>Byblia anvatara acheloia</i>	

Nymphalidae	Pirate	<i>Catacroptera cloanthe cloanthe</i>
Nymphalidae	White-barred Charaxes	<i>Charaxes brutus natalensis</i>
Nymphalidae	Pearl Charaxes	<i>Charaxes varanes varanes</i>
Nymphalidae	African Plain Tiger	<i>Danaus chrysippus orientis</i>
Nymphalidae	Golden Piper	<i>Eurytela dryope angulata</i>
Nymphalidae	Pied Piper	<i>Eurytela hiarbas angustata</i>
Nymphalidae	Variable Diadem	<i>Hypolimnasia anthedon wahlbergi</i>
Nymphalidae	Common Diadem	<i>Hypolimnasia misippus</i>
Nymphalidae	Yellow Pansy	<i>Junonia hierta cebrene</i>
Nymphalidae	Dark Blue Pansy	<i>Junonia oenone oenone</i>
Nymphalidae	African Blue Pansy	<i>Junonia orithya madagascariensis</i>
Nymphalidae	Polka Dot	<i>Pardopsis punctatissima</i>
Nymphalidae	Garden Inspector	<i>Precis archesia archesia</i>
Nymphalidae	Southern Gaudy Commodore	<i>Precis octavia sesamus</i>
Nymphalidae	Common Mother-of-pearl	<i>Protophormia parhassus</i>
Nymphalidae	Yellow-banded Telchinia	<i>Telchinia cabira</i>
Nymphalidae	Dusky Telchinia	<i>Telchinia esebria</i>
Nymphalidae	Dancing Telchinia	<i>Telchinia serena</i>
Nymphalidae	Painted Lady	<i>Vanessa cardui</i>
Papilionidae	Veined Swordtail	<i>Graphium leonidas leonidas</i>
Papilionidae	White Lady	<i>Graphium morania</i>
Papilionidae	Citrus Swallowtail	<i>Papilio demodocus demodocus</i>
Papilionidae	Narrow banded Swallowtail	<i>Papilio nireus lyaeus</i>
Pieridae	Pioneer White	<i>Belenois aurota</i>
Pieridae	African White	<i>Belenois creona severina</i>
Pieridae	African White	<i>Belenois gidica abyssinica</i>

Pieridae	African Migrant	<i>Catopsilia florella</i>
Pieridae	Scarlet Tip	<i>Colotis annae annae</i>
Pieridae	Red Tip	<i>Colotis antevippe gavisa</i>
Pieridae	Sulphur Orange Tip	<i>Colotis auxo auxo</i>
Pieridae	Southern round-winged Orange Tip	<i>Colotis euippe omphale</i>
Pieridae	African Orange Tip	<i>Colotis evenina evenina</i>
Pieridae	Bushveld Purple Tip	<i>Colotis ione</i>
Pieridae	African White Ant-heap	<i>Dixeia charina charina</i>
Pieridae	Small White Ant-heap	<i>Dixeia pigea</i>
Pieridae	Vine-leaf Vagrant	<i>Eronia cleodora</i>
Pieridae	Broad-bordered Grass Yellow	<i>Eurema brigitta brigitta</i>
Pieridae	Angled Grass Yellow	<i>Eurema desjardinsii regularis</i>
Pieridae	Eastern Dotted Border	<i>Mylothris agathina agathina</i>
Pieridae	Banded Gold Tip	<i>Teracolus eris eris</i>
Sphingidae	Oriental Bee-Hawk Moth	<i>Cephonodes hylas</i>
ODONATA		
Libellulidae	Broad Scarlet	<i>Crocothemis erythraea</i>
Libellulidae	Barbet Percher	<i>Diplacodes luminans</i>
Libellulidae	Yellow-veined Widow	<i>Palpopleura jucunda</i>
Libellulidae	Wandering Glider	<i>Pantala flavescens</i>
Libellulidae	Red-veined Dropwing	<i>Trithemis arteriosa</i>