

# Documenting Mantodea species in South African museum collections and an updated species list

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## Abstract

### Background

The previous species list of South African Mantodea, published in 1998, was largely compiled from the literature and did not incorporate data from the many insect museum collections available in the country. It is estimated that approximately 120 species of Mantodea occur in South Africa; however, since no historical museum records were previously incorporated, the current information is considered to be outdated and not a true reflection of the Mantodea fauna within this region. A checklist of species is an important benchmark for any insect group, especially in light of the worldwide declines of insect diversity reported over the last decade. Checklists that provide accurate information on insect diversity, especially for groups, such as the Mantodea which could be under threat and thus could provide important information that can be used in determining the threat status of species, as well as to aid in their conservation in general.

### New information

This paper provides an updated checklist of the praying mantids (Insecta, Mantodea) species of South Africa. While 120 species were previously reported to occur in South Africa, this paper reports 157 species in 64 genera that represent eight different superfamilies, 14 families and 22 subfamilies. Additionally, five species are reported for the first time to occur in South Africa. This species list was generated from the approximately 4000 specimen records of which 3558 records reside within South Africa. The remaining 732 records represent 14 other African countries. Occurrence records from two citizen-science platforms (iNaturalist and Gbif.org), were also incorporated in this study, adding 1880 species records in South Africa. The low number of specimens in the national collections indicate that this group of insects is poorly collected and highlights the lack of knowledge about South Africa's mantid fauna, as well as a lack of taxonomic expertise as 1532 museum specimens remain unidentified to species level.

## Keywords

diversity, mantids, museum, species and South Africa

## Introduction

Until recently, the Mantodea Order consisted of approximately 24 families with 2400 species (Wieland and Schutte 2012, McMonigle 2013, Wieland 2013, Green 2014). The classification system has recently been revised and the Mantode Order now composed of 16 superfamilies, 29 families and 436 different genera (Schwarz and Roy 2019).

Approximately 120 species of Mantodea were reported to occur in South Africa (Schoeman 1985a, Schoeman 1985b), when the previous species list was compiled between 1996 and 1998 (Kaltenbach 1996, Kaltenbach 1998). Kaltenbach (1996) estimated that there were approximately 131 Mantodea species in South Africa and that 19% of these species were endemic. Ehrmann (2002) estimated a total of 125 species within the region. Beyond the abovementioned checklist information, very little is known of South African Mantodea biology and ecology. A 2023 Scopus ([www.scopus.com](http://www.scopus.com)) internet search of published scientific papers indicated that between 1927 and 2023, 792 papers were published on Mantodea worldwide. However, only 15 of these publications were from institutions in South Africa, seven of which belong to the authors of this paper and two papers were the previous checklist from Kaltenbach (1996), Kaltenbach (1998). The remaining papers conducted on Mantodea in South Africa all addressed molecular and genetic aspects and, in some of these cases, it was actually Blattodea that were investigated. Studies on the biology and distribution of mantids throughout the world are limited and, in South Africa, largely absent.

It is possible that many mantid species in the southern African region have not been documented yet. The only surveys of Mantodea in South Africa were done by Kaltenbach (1996) and the Mantodea Project which was done in collaboration with the Cleveland Museum of Natural history in Ohio, USA (Svenson et al. 2012). However, no species list from the latter survey was published. The latter survey was done during 2005 and only included three regions within South Africa (Cape floristic region, Richards Bay in KwaZulu-Natal Province, and the Kruger National Park in Mpumalanga Province).

This paper, compiled from museum records and previous checklists by Kaltenbach (1996), Kaltenbach (1998), contributes to the information on Mantodea in South Africa and identifies the knowledge gaps with regards to mantids in South Africa.

## Materials and methods

All of the National insect collections and museums throughout South Africa were visited during this study. The following seven institutions constitutes the national insect

collections in the country: Ditsong Museum of Natural History (Pretoria) (DNMNH), Agricultural Research Council (Biosystematics Division, Pretoria) (ARC), National Museum (Bloemfontein) (NMB), Albany Museum (Makhanda) (AMG), Rhodes University (Makhanda) (RU), Durban Natural Science Museum (DNSM), Iziko South African Museum (Cape Town) (Iziko) and KwaZulu-Natal Museum (Pietermaritzburg) (NMSA). Specimens in these collections were mostly identified by visiting taxonomists during previous visits to these institutions. Many of the museum specimens were also previously identified by taxonomists at the departments of Dr. Max Beier at the Vienna museum in Germany, Dr. James Rehn at the Academy of Natural Sciences in Philadelphia, USA, Dr. Alfred Peter Kaltenbach at the Natural History Museums in Wien, Austria and Dr. Roger Roy at the Muséum national d'Histoire naturelle (MNHN) in France (Fig. 1).

Furthermore, a small subset of South African Mantodea were identified by Nicolas Moulin, Honorary Associate at Muséum national d'Histoire naturelle in France, during 2019. Unidentified specimens that were encountered in the abovementioned museums were identified by means of the literature and through assistance from a taxonomist who specializes in African Mantodea (Nicolas Moulin). Many Mantodea specimens in South African collections have only been identified to genus level. These "ignota specimens" (approximately 1600) were, therefore, not included in this checklist. However, they are included in the database itself (available in Suppl. material 1).

In order to compile this database, all of the Mantodea specimens and distribution labels were photographed and the label information documented. This database contains the following information for each specimen record: genus and species name, collector's details, collection date, if available, and locality. The website [mantodeaspeciesfile.org](http://mantodeaspeciesfile.org) (Otte et al. (2022) as well as other literature on specific species, such as those by Ehrmann (2002), Roy (2004), Roy (2006), Roy (2009), Roy (2010), Roy (2013), Roy (2018), Roy (2022) were used to determine the current nomenclature. The reclassification of the Order Mantodea by Schwarz and Roy (2019) was also applied during the updating of this checklist. The updated species list was compared to that provided in publications by Kaltenbach (1996), Kaltenbach (1998) after which similarities and differences were highlighted.

To our knowledge, this paper provides the most comprehensive list of Mantodea in South African collections. Since only a limited number of Mantodea specimens of 14 other African countries were present in South African museum collections, these records were not included in this paper. The scope of this study, did however not allow for visits to museums residing outside of South Africa, which is required when the latter information is used to compile comprehensive Mantodea species lists for these African countries. However, to increase the comprehensiveness of this checklist, various European and American museum collections were contacted and provided information on South African Mantodea in their collections. These museums were: The Natural History Museum, (Italy); Smithsonian National Museum of Natural History (USA), Museum für Naturkunde (Germany), Natural History Museum (UK), Staatliches Museum für Naturkunde (Germany), Royal Belgian Institute of Natural Sciences (Belgium) and the Muséum national d'Histoire naturelle (France). Data from Mantodea specimens in a private

collection in Germany (Christian Schwarz), as well as records relevant Gbif.org records within South Africa were also included in this study.

This species list includes information on the taxonomists who identified the species in the South African museum collections and is indicated for each species by the "ID" tag, as well as the year in which the specimen was identified (if available). Furthermore, the hosting museum collection of each specimen is also included in brackets ( ). A list of abbreviations for the various institutions and collections are provided in Table 1. Specimens that are not held locally, or for which only literature records exist, are indicated under the ID tag column in the checklist as with the abbreviation "Lit" with the reference to the relevant publications. The number of records in the various collections in South Africa, as well as the number of Research Grade observation records of the species listed on the two citizen-science platforms, are provided in Suppl. material 1. It should be noted that no details of the persons who provided identifications of species listed on the citizen-science platforms are listed in the checklist. This will be addressed in the Discussion section of the paper.

The geographical distribution of species beyond South Africa, is based on information provided by Roy (1967), Kaltenschach (1996), Kaltenschach (1998), Ehrmann (2002), Roy (2004), Roy (2006), Roy (2009), Roy (2010), Roy (2013), Roy (2018), Roy (2022) as well as museum records indicated below, after the tag "Distribution". The abbreviations used for the different countries are listed in Table 2. It should be noted that all the species listed below are present in South Africa and, thus, this country is not listed under the distribution. Where there is no "Distribution" tag associated with a species, the species has only been reported from South Africa. The specimen type, i.e., Holotype, Paratype or DNA barcode, sex, and museums in which they are kept, is provided in the Suppl. material 1.

## Results

This updated checklist includes information on species of the Mantodea that were not previously listed in South African checklists. The known species richness has increased from approximately 120 species in 1998 to 157 species (this report). The South African Mantodean fauna have eight superfamilies, 14 families, 22 subfamilies, 19 tribes, 14 subtribes and 15 genera (Suppl. material 2). A summation of the number of records and species within these 14 families is presented in Fig. 2.

This checklist encompasses 157 Mantodea species that occur, or are reported to occur in South Africa, including the first report of five species within the region (indicated with two asterisks \*\* in the notes section of each species). However, some anomalies were recorded (indicated by # in the notes section of each species). These anomalies are addressed in the Discussion section of this paper.

## Updated checklist of Mantodea of South Africa

Superfamily Chroicopteroidea Giglio-Tos, 1915

Family Chroicopteridae Giglio-Tos, 1915

Subfamily Chroicopterinae Giglio-Tos, 1915

Tribe Bolbellini Schwarz & Roy 2019

*Dystactula grisea* Giglio-Tos, 1915

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: MOZ

Notes: ID: N. Moulin 2018. (DNMNH)

*Dystactula natalensis* Kaltenbach, 1996

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Notes: ID: Lit (Kaltenbach 1996, Ehrmann 2002)

Tribe Chroicopterini Giglio-Tos, 1915

Subtribe Bisanthina Giglio-Tos, 1917

*Bisanthe lagrecai* Kaltenbach, 1996

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: ZIM

Notes: ID: Dep. A. Kaltenbach 1989. (DNMNH)

*Bisanthe pulchripennis* (Stål ,1876)

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: NAM, BOT

Notes: ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1992;1989. (DNMNH, IZIKO)

## **Subtribe Bolbellini Schwarz & Roy 2019**

### ***Bolbella affinis* Kaltenbach, 1996**

Notes: ID: Lit (Kaltenbach 1996, Ehrmann 2002)

### ***Bolbella brevis* Beier, 1953**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Notes: ID: Unspecified. (DNMNH)

### ***Bolbella punctigera* (Stl, 1871)**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: CA, LS

Notes: ID: Dep. J.A.G. Rehn 1925 & A. Kaltenbach 1982. (BOLD, DNMNH, IZIKO)

### ***Bolbella rhodesiaca* Beier, 1930**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: ZIM

Notes: ID: Dep. H.D. Brown 1963, M. Beier 1963. (ARC, DNMNH)

## **Subtribe Chroicopterina Giglio-Tos, 1915**

### ***Carvilia gracilis* Kaltenbach, 1996**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Notes: ID: Lit (Kaltenbach 1996, Ehrmann 2002)

### ***Chroicoptera saussurei* (Giglio-Tos, 1915)**

Distribution: LS

Notes: ID: Dep. A. Kaltenbach 1989 & A.J. Hesse. (DNMNH, IZIKO)

### ***Chroicoptera vidua* (Stål, 1856)**

**Distribution:** NAM

**Notes:** ID: Dep. J.A.G. Rehn 1925. (DNMNH)

***Chroicoptera longa* Giglio-Tos, 1915**

**Notes:** ID: Lit (Kaltenbach 1996)

***Entella (Entella) delalandi* (Saussure, 1870)**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** NAM, TZ, ZIM

**Notes:** ID: Dept. A. Kaltenbach 1989, M. Beier 1925, R. Erhmann & F. Werner. (DNMNH, NRM, SMNK)

***Entella (Entella) exilis* Giglio-Tos, 1915**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Ehrmann 2002)

***Entella (Entella) natalica* Beier, 1955**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Dep. M. Beier 1953. (MZLU)

***Entella (Entella) nebulosa* (Audinet-Serville, 1839)**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Dep. A.J. Hesse. (IZIKO, NRM).

***Entella (Entella) orientalis* Giglio-Tos, 1915**

**Distribution:** MOZ, TZ

**Notes:** ID: Lit (Kaltenbach 1996, Ehrmann 2002)

***Entella (Entella) pusilla* subsp. *cruciata* Beier, 1953**

**Notes:** ID: Dep. M. Beier 1952. (DNMNH)

***Entella (Entella) pusilla* subsp. *pusilla* Beier, 1953**

Notes: ID: Dep. M. Beier 1952. (DNMNH).

***Entella (Entella) rudebecki* Beier, 1955**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: LS

Notes: ID: Lit (Ehrmann 2002)

***Entella (Entella) taborana* (Giglio-Tos, 1915)**

Distribution: TZ

Notes: ID: Dep. M. Beier 1952. (DNMNH) \*\*

***Entella (Entella) transvaalica* Beier, 1955**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: ZIM

Notes: ID: Dep. A. Kaltenbach 1985 & R. Ehrmann. (DNMNH, SMNK)

***Entelloptera rogenhoferi* subsp. *rogenhoferi* Saussure, 1872**

Distribution: NAM, TZ, ZIM

Notes: ID: Dep. A. Kaltenbach 1984;1991 & M. Beier 1952. (ARC, DNMNH, IZIKO)

***Entelloptera rogenhoferi* subsp. *maesta* Rehn, 1927**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Notes: ID: Dep. J.A.G. Rehn 1925. (DNMNH)

***Geothespis australis* Giglio-Tos, 1916**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: AZ, NAM

Notes: ID: Lit (Kaltenbach 1996)

***Ligaria affinis* Kaltenbach, 1996**

Distribution: BOT, MOZ, ZAM, ZIM



Notes: ID: Lit (Ehrmann 2002)

***Ligaria brevicollis* Stål, 1877**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** MOZ, ZIM

**Notes:** ID: Dep. M. Beier 1952, A. Kaltenbach 1985 & N. Moulin 2018. (DNMNH, NRM)

***Ligaria quadrinotata* Chopard, 1914**

**Distribution:** NAM

**Notes:** ID: Dep. A. Kaltenbach. (NRM)

***Ligariella gracilis* Karny, 1908**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Ehrmann 2002)

***Ligariella trigonalis* Saussure, 1899**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** BOT, NAM

**Notes:** ID: Dep. M. Beier 1952 & A. Kaltenbach 1985. (DNMNH, IZIKO)

***Namamantis cruciata* Beier, 1953**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Kaltenbach 1996, Ehrmann 2002) & (PC\_CS)

***Namamantis nigropunctata* Kaltenbach, 1996**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Kaltenbach 1996, Ehrmann 2002) & (PC\_CS)

**Subtribe *Dystactina* Giglio-Tos, 1915**

***Dystacta alticeps* (Schaum, 1852)**

**Distribution:** AG, BOT, DRC, MAL, MOZ, NAM, TZ, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925, M. Beier 1952, R. Roy 1977, A. Kaltenbach 1984, R. Erhmann & N. Moulin 2018. (ARC, DNMNH, IZIKO, NMSA, SMNK, PC\_CS)

### **Subfamily Tarachininae Giglio-Tos, 1915**

#### ***Gonypetella atrocephala* Beier, 1930**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Ehrmann 2002)

### **Tribe Gonypetellini Schwarz & Roy, 2019**

#### ***Gonypetella deletrix* Rehn, 1927**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** AG, NAM, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1989, A.J. Hesse, C. Schwarz & R. Erhmann. (DNMNH, IZIKO, SMNK, PC\_CS)

#### ***Gonypetella punctata* Giglio-Tos, 1915**

**Distribution:** CAM, KN, DRC, UG

**Notes:** ID: Undefined. (NRM)

### **Tribe Tarachinini Giglio-Tos, 1915**

#### ***Tarachina schultzei* Karny, 1908**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** NAM, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925. (DNMNH, IZIKO)

#### ***Tarachina transvaalensis* Beier, 1953**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** ZIM

Notes: ID: Dep. M. Beier 1952, A. Kaltenbach 1989, R. Ehrmann 1991 & A. Kaltenbach 1992 (ARC, DNMMNH)

## **Superfamily Eremiaphiloidea Saussure, 1869**

### **Family Eremiaphilidae Saussure, 1869**

#### **Subfamily Iridinae Westwood, 1889**

##### **Tribe Iridini Westwood, 1889**

### ***Episcopomantis chalybea* Burmeister, 1838**

Distribution: AG, BOT, NAM

Notes: ID: Dep. R. Roy 1977, A. Kaltenbach 1984, A.J. Hesse, M.B.D. Stiewe 2003 & R. Ehrmann. (ARC, DNMMNH, IZIKO, SMNK)

#### **Subfamily Tarachodinae Giglio-Tos, 1915**

##### **Tribe Oxyelaeini Schwarz & Roy 2019**

### ***Oxyelaea elegans* Giglio-Tos, 1917**

Distribution: DRC, TZ

Notes: ID: Dep. M.B.D. Stiewe & N. Moulin 2018. (ARC, NMSA, NMB) \*\*

##### **Tribe Tarachodini Giglio-Tos, 1915**

#### **Subtribe Antistiina Schwarz & Roy 2019**

### ***Antistia maculipennis* Stål, 1876**

Distribution: BOT, NAM, TZ

Notes: ID: Dep. M. Beier 1952, R. Roy 1962, A. Kaltenbach 1984 & F. Werner. (ARC, DNMMNH, IZIKO, NRM)

### ***Antistia parva* Beier, 1953**

Distribution: NAM

Notes: ID: Dep. M. Beier 1952 & A. Kaltenbach 1989. (DNMNH)

***Antistia robusta* Kaltenbach, 1996**

Distribution: TZ

Notes: ID: Dep. A. Kaltenbach 1989. (DNMNH)

***Antistia vicina* Kaltenbach, 1996**

Distribution: NAM

Notes: ID: Dep. A. Kaltenbach 1989 (DNMNH, PC\_CS)

***Ariusia conspersa* Stål, 1877**

Distribution: NAM, ZIM

Notes: ID: N. Moulin 2018. (NMB)

**Subtribe Tarachodina Giglio-Tos, 1915**

***Pyrgomantis fasciata* Giglio-Tos, 1917**

Notes: ID: Undefined. (DNMNH).

***Pyrgomantis nasuta* Thunberg, 1784**

Distribution: AG, CAM, KN, NAM, SM, TZ

Notes: ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1984, R. Ehrmann 1991 & A. Kaltenbach 1992. (ARC, DNMNH, IZIKO, NRM).

***Pyrgomantis rhodesica* Giglio-Tos, 1917**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: BOT, NAM, ZAM, ZIM

Notes: ID: Dep. M. Beier 1952 & A. Kaltenbach 1984; 1992. (ARC, DNMNH)

***Pyrgomantis simillima* subsp. *simillima* Beier, 1954**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: ZIM

Notes: ID: Dep. A. Kaltenbach 1992. (DNMNH)

***Galepsus (Lygdamia) lenticularis (Saussure, 1872)***

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** ET, BOT

**Notes:** ID: Dep. M. Beier 1952, A. Kaltenbach 1989, A.J. Hesse, N. Moulin 2018 & R. Ehrmann. (DNMNH, IZIKO, NRM, SMNK)

***Galepsus (Onychogalepsus) angolensis Werner, 1907***

**Distribution:** AG, MOZ

**Notes:** ID: Lit (Ehrmann 2002)

***Galepsus (Onychogalepsus) capensis Beier, 1930***

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Ehrmann 2002)

***Galepsus (Onychogalepsus) capitatus (Saussure, 1869)***

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** ET, KN, TZ, ZIM

**Notes:** ID: Dep. A. Kaltenbach 1984;1991. (ARC, DNMNH)

***Galepsus (Onychogalepsus) centralis Beier, 1957***

**Distribution:** DRC, TZ

**Notes:** ID: N. Moulin 2018. ##

***Galepsus (Onychogalepsus) damaranus subsp. damaranus Giglio-Tos, 1911***

**Distribution:** AG, DRC, NAM

**Notes:** ID: Lit (Kaltenbach 1996, Ehrmann 2002)

***Galepsus (Onychogalepsus) damaranus subsp. orientalis Kaltenbach, 1996***

**Distribution:** NAM, ZIM

Notes: ID: Lit (Kaltenbach 1996, Ehrmann 2002)

***Galepsus (Onychogalepsus) femoratus* Giglio-Tos, 1911**

Native status: Suspected to be endemic to southern Africa (Kaltenbach, 1996)

Distribution: NAM, ZIM

Notes: ID: Dep. A.J. Hesse. (IZIKO)

***Galepsus (Onychogalepsus) intermedius* Werner, 1907**

Distribution: KN, MOZ, ZIM

Notes: ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1991, R. Erhmann 1991, H.D. Brown. (ARC, DNMNH, SMNK)

***Galepsus (Onychogalepsus) letabaensis* Kaltenbach, 1996**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Notes: ID: Dep. A. Kaltenbach 1992. (DNMNH)

***Galepsus (Onychogalepsus) meridionalis* (Saussure, 1872)**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: DRC, TZ, ZIM

Notes: ID: Dep. A. Kaltenbach 1991, A.J. Hesse, B.P. Uvarov, R. Ehrmann & F. Werner. (DNMNH, IZIKO, NMSA, SMNK, NRM)

***Galepsus (Onychogalepsus) pentheri* Giglio-Tos, 1911**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: CAM, DRC, NAM (possibly)

Notes: ID: Dep. A. Kaltenbach 1984; 1991 & C. Schwarz. (ARC, DNMNH, PC\_CS)

***Galepsus (Onychogalepsus) transvaalensis* Beier, 1954**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: DRC

Notes: ID: Dep. A. Kaltenbach 1984; 1989; 1992. (DNMNH)

***Galepsus (Syngalepsus) beieri* Kaltenbach, 1996**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Kaltenbach 1996, Ehrmann 2002)

***Galepsus (Syngalepsus) bipunctatus* Beier, 1931**

**Distribution:** MOZ

**Notes:** ID: Dep. A. Kaltenbach 1991 & R. Erhmann. (DNMNH, SMNK)

***Nothogalepsus planivertex* Beier, 1969**

**Distribution:** MAL, MOZ, NAM, ZIM

**Notes:** ID: Dep. A. Kaltenbach 1992. (DNMNH)

***Tarachodes (Chiropus) dives* Saussure, 1869**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** AG, NAM, SD

**Notes:** ID: Dep. A. Kaltenbach 1992. (DNMNH) \*\*

***Tarachodes (Tarachodes) beieri* Kaltenbach, 1996**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** ZIM

**Notes:** ID: Dep. A. Kaltenbach 1992. (DNMNH)

***Tarachodes (Tarachodes) insidiator* Wood-Mason, 1882**

**Distribution:** AG, DRC, KN, MAL, TZ, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1989 & B.P. Uvarov. (DNMNH, IZIKO, NMSA)

***Tarachodes (Tarachodes) lucubrans* Burchell, 1822**

**Notes:** ID: Dep. M. Beier 1952, R. Roy 1977 & A. Kaltenbach 1989. (ARC, DNMNH, IZIKO, NMSA)

***Tarachodes (Tarachodes) maurus* Stål, 1856**

**Distribution:** CAM, MAL, MOZ, NAM, TZ

**Notes:** ID: Dep. M. Beier 1952 & F. Werner. (DNMNH, IZIKO, NRM)

***Tarachodes (Tarachodes) sanctus* subsp. *sanctus* Saussure 1871**

**Distribution:** DRC, MOZ, SM, TZ, ZIM

**Notes:** ID: Dep. M. Beier 1952 & A. Kaltenbach 1992. (DNMNH, IZIKO, NRM)

***Tarachodes (Tarachodina) natalensis* Kaltenbach, 1996**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Ehrmann 2002)

**Family Rivetiniidae Ehrmann & Roy, 2002**

**Subfamily Rivetiniinae Ehrmann & Roy, 2002**

**Tribe Ischnomantini Giglio-Tos, 1916**

***Ischnomantis fatiloqua* Stål, 1856**

**Distribution:** AG, DRC, NAM, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925, R. Roy 1976, R. Ehrmann 1991 & N. Moulin 2018. (ARC, DNMNH, IZIKO, NRM)

**Family Toxoderidae Saussure, 1869**

**Subfamily Compothespinae Giglio-Tos, 1913**

***Compothespis anomala* Saussure, 1872**

**Notes:** ID: Dep. M. Beier 1952, H.D. Brown 1963, A.J Hesse & R. Erhmann. (ARC, DNMNH, IZIKO, SMNK)

***Compothespis cinnabarina* Beier, 1955**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)



Notes: ID: Dep. M. Beier 1953. (MZLU)

### ***Compothespis kilwana* Giglio-Tos, 1913**

Notes: ID: Lit (Ehrmann 2002)

### ***Compothespis natalica* Westwood, 1889**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Notes: ID: Dep. J.A.G. Rehn 1925 & H.D. Brown 1953. (ARC, DNMNH)

### **Subfamily Heterochaetinae Brunner de Wattenwyl, 1893**

#### ***Heterochaeta occidentalis* Beier, 1963**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: BOT, KN, NAM

Notes: ID: Dept. R. Roy 1976 & A.J.Hesse. (DNMNH, IZIKO, NMB)

### **Subfamily Toxoderinae Saussure, 1869**

#### **Tribe Calamothespini Giglio-Tos, 1914**

#### **Subtribe Calamothespina Giglio-Tos, 1914**

#### ***Calamothespis oxyops* Rehn, 1927**

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Notes: ID: Dep. J.A.G. Rehn 1925. (DNMNH)

### **Superfamily Galinthiadoidea Giglio-Tos, 1915**

#### **Family Galinthiadae Giglio-Tos 1919**

#### ***Galinthias amoena* (Saussure, 1871)**

Distribution: AG, DRC, MAL, TZ, ZAM, ZIM

Notes: ID: Dep. R. Roy 1976, A.J.Hesse, C. Schwarz & R. Erhmann. (DNMNH, IZIKO, SMNK, PC\_CS)

***Harpagomantis tricolor* (Linné, 1758)**

**Distribution:** BOT, LS, NAM, ZAM, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925, R. Roy 1977, A. Kaltenbach 1984, R. Erhmann 1991, C. Schwarz & B.P. Uvarov. (AMG, ARC, CMNH, DNMNH, IZIKO, PC\_CS)

**Superfamily Hoplocoryphoidea Giglio-Tos, 1916**

**Family Hoplocoryphidae Giglio-Tos, 1916**

***Hoplocorypha bicornis* Deeleman-Reinhold, 1957**

**Notes:** ID: Dep. J.A.G. Gain. (NMB)

***Hoplocorypha brevicollis* Beier, 1931**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Ehrmann 2002)

***Hoplocorypha fumosa* Giglio-Tos, 1916**

**Distribution:** MAL, MOZ, ZIM

**Notes:** ID: Dep. A.J. Hesse. (IZIKO)

***Hoplocorypha galeata* Saussure, 1870**

**Distribution:** ET, KN, TZ, ZB

**Notes:** ID: Undefined. (NRM)

***Hoplocorypha macra* Stål, 1856**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** AG, KN, NAM, TZ, UG, ZAM

**Notes:** ID: Dep. J.A.G. Rehn 1925, M. Beier 1952, A. Kaltenbach 1985 & A.J. Hesse. (NRM, IZIKO, DNMNH, ARC)

***Hoplocorypha nana* Sjostedt, 1909**

**Distribution:** KN, NAM, NG, TZ, UG

**Notes:** ID: Dept. M. Beier 1952 & A Kaltenbach 1985; 1991. (ARC, DNMNH)

***Hoplocorypha saussurii* Giglio-Tos, 1916**

**Distribution:** KN, NAM, TZ, ZAM

**Notes:** ID: Dept. M. Beier 1952 & R. Roy 1977. (DNMNH)

***Hoplocorypha striata* Beier, 1930**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** NAM

**Notes:** ID: Dept. A Kaltenbach 1991. (DNMNH)

***Hoplocoryphella grandis* Brancsik, 1895**

**Distribution:** MDG, MAL, TZ, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925 & A. Kaltenbach 1989. (DNMNH, IZIKO)

**Superfamily Hymenopoidea Giglio-Tos, 1915**

**Family Empusidae Burmeister, 1838**

**Subfamily Empusinae Burmeister, 1838**

**Tribe Empusini Ehrmann & Roy, 2002**

**Subtribe Empusina Burmeister, 1838**

***Empusa binotata* Audinet-Serville, 1839**

**Distribution:** AL, AG, BF, CAM, ET, KN, LI, MDG, NAM, SM, TZ, CD, TU, IN

**Notes:** ID: Dep. R. Roy 1977, A. Kaltenbach 1998, M.B.D. Stiewe, R. Erhmann, C. Schwarz, A.J Hesse, H.D. Brown. (ARC, DNMNH, IZIKO, NMB, SMNK, PC\_CS)

**Subtribe Idolomorphina Ehrmann & Roy, 2002**

***Hemiempusa capensis* (Burmeister, 1838)**

**Distribution:** AG, GH, KN, DRC, RW, TZ, UG, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1916, R. Roy 1977, B.P. Uvarov & A.J. Hesse. (AMG, DNMMNH, DNSM, IZIKO, NMSA, NRM)

***Idolomorpha dentifrons* Zehntner & Saussure, 1895**

**Distribution:** ET, KN, MOZ, SM, SD, TZ, UG, ZB

**Notes:** ID: Dep. A.J. Hesse. (IZIKO)

**Subfamily Oxypilinae Saussure, 1871**

**Tribe Oxypilini Saussure, 1871**

***Junodia amoena* Schulthess-Rechberg, 1899**

**Distribution:** ET, KN, MOZ, TZ

**Notes:** ID: Undefined. (MNHN).

***Junodia strigipennis* Westwood, 1889**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** ET, MOZ, TZ, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925 & R. Roy 1976. (DNMMNH, IZIKO)

***Junodia vansoni* Roy, 2009**

**Distribution:** TZ, MAL, ZAM

**Notes:** ID: Lit (Roy 2009)

***Oxypilus (Anoxypilus) capensis* (Saussure, 1871)**

**Distribution:** AG, NAM, ZIM

**Notes:** ID: Dep. M. Beier 1952, R. Roy 1966; 1976, A. Kaltenbach 1984 & B.P. Uvarov. (ARC, DNMMNH, IZIKO, NMSA)

***Oxypilus (Anoxypilus) transvalensis* (Giglio-Tos, 1915)**

**Distribution:** AG, BOT, ES, NAM, ZIM

Notes: ID: Dep. J.A.G. Rehn 1925, M. Beier 1952, R. Roy 1966 & A. Kaltenbach 1984.  
(DNMNH, IZIKO)

## Family Hymenopodidae Giglio-Tos, 1915

### Subfamily Acromantinae Brunner de Wattenwyl, 1893

#### Tribe Otomantini Giglio-Tos, 1915

##### *Otomantis rendalli* Kirby, 1899

Native status: Suspected to be endemic to southern Africa (Kaltenbach 1996)

Distribution: ZAM

Notes: ID: Lit (Kaltenbach 1996, Ehrmann 2002)

##### *Otomantis scutigera* Bolivar, 1890

Distribution: MAL, MOZ, TZ

Notes: ID: Dep. A.J. Hesse. (IZIKO)

##### *Oxypiloidea (Oxypiloidea) tridens* Saussure, 1872

Distribution: AG, CD, DRC, MOZ, NAM, TZ

Notes: ID: Dep. R.Roy 1988. (DNMNH, IZIKO)

##### *Oxypiloidea (Oxypiloidea) namibiana* Roy, 2013

Distribution: BOT, ZIM, NAM

Notes: ID: Lit (Ehrmann 2002)

## Subfamily Hymenopodinae Giglio-Tos, 1915

### Tribe Hymenopodini Giglio-Tos, 1915

#### Subtribe Pseudocreobotrina Brunner de Wattenwyl, 1893

##### *Pseudocreobotra wahlbergi* Stål, 1871

Distribution: AG, DRC, ET, KN, MAL, MOZ, TN, ZB, ZAM, ZIM

Notes: ID: Dep. J.A.G. Rehn 1925 & A. Kaltenbach 1998. (ARC, AMG, DNMNH, IZIKO, NRM)

### **Subfamily Phyllocraniinae Brunner de Wattenwyl, 1893**

#### ***Phyllocrania paradoxa* Burmeister, 1838**

Distribution: AG, CAM, DRC, ET, GH, GU, KN, MDG, MOZ, NAM, SM, SU, TZ, TG, UG, ZIM

Notes: ID: Dep. J.A.G. Rehn 1925, M. Beier 1952, R. Roy 1977, A. Kaltenbach 1985; 1988 & B.P. Uvarov. (AMG, ARC, DNMNH, IZIKO, NMSA, NRM)

### **Subfamily Sibyllinae Giglio-Tos, 1915**

#### ***Sibylla pretiosa* Stål, 1856**

Distribution: DRC, ET, ES, KN, MAL, NAM, SM, TZ, UG, ZIM

Notes: ID: Dep. J.A.G. Rehn 1925, M. Beier 1952, R. Roy 1977, M.B.D. Stiewe & B.P. Uvarov. (ARC, DNMNH, NMSA, IZIKO, NMSA, NRM)

### **Superfamily Mantoidea Latreille, 1802**

#### **Family Dactylopterygidae Giglio-Tos, 1915**

##### ***Zouza radiosa* Giglio-Tos, 1907**

Distribution: BOT, NAM, ZAM, ZIM

Notes: ID: Dept. Kaltenbach 1988. (DNMNH)

#### **Family Deroplatyidae Latreille, 1802**

### **Subfamily Popinae Brunner de Wattenwyl, 1893**

#### ***Popa spurca* Stål, 1856**

Distribution: AG, CAM, DRC, GH, GN, MOZ, NAM, TG, ZIM

Notes: ID: Dep. J.A.G. Rehn 1925, R. Roy 1977, B.P. Uvarov, & F. Werner. (AMG, DNMNH, IZIKO, EMÜ, NMSA, NMB, NRM)

***Agrionopsis distanti* (Kirby, 1899)**

**Distribution:** DRC, KN, UG, ZAM, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1923, H.D. Brown 1963, A. Kaltenbach 1991 & M. Beier. (ARC, DNMNH, IZIKO)

***Danuria (Danuria) thunbergi* Stål, 1856**

**Distribution:** DRC, ET, MOZ, NAM, TZ, ZIM

**Notes:** ID: Dep. Rehn 1926, A. Kaltenbach 1992, G.A.K. Marshall, A.J. Hesse, B.P. Uvarov, R. Erhmann & R. Roy. (DNMNH, IZIKO, NMSA, NRM, SMNK)

**Family Mantidae Latreille, 1802**

**Subfamily Mantinae Latreille, 1802**

***Mantis religiosa* subsp. *eichleri* Bazyluk, 1960**

**Distribution:** Afro-Eurasia

**Notes:** ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1985 & N. Moulin 2018. (ARC, BOLD, DNMNH, IZIKO, NMB, NHMUK)

**Subfamily Omomantinae Giglio-Tos, 1916**

***Omomantis zebrata* Charpentier, 1843**

**Distribution:** KN, ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1985, M.B.D. Stiewe & B.P. Uvarov. (ARC, DNMNH, IZIKO, DNSM, NMSA, NRM)

**Subfamily Tenoderinae Brunner de Wattenwyl, 1893**

**Tribe Paramantini Roy, 1973**

**Subtribe Paramantina Roy, 1973**

***Paramantis natalensis* (Stål, 1856)**

**Distribution:** AG, CAM, DRC, ET, KN, TZ, ZIM

**Notes:** ID: Dep. R. Roy 1966 & A. Kaltenbach 1984. (DNMNH, NRM)

***Paramantis sacra* Thunberg, 1815**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** CAM, UG

**Notes:** ID: Dep. R. Roy & A. Kaltenbach 1991. (DNMNH, IZIKO, NRM)

***Paramantis prasina* (Audinet-Serville, 1839)**

**Distribution:** AG, GH, GN, KN, CAM, BG, TZ, TG

**Notes:** ID: Lit (Roy 1967, Ehrmann 2002)

***Sphodromantis gastrica* Stål, 1858**

**Distribution:** ET, MOZ, NAM, SM, TZ, UG, ZB, ZIM

**Notes:** ID: Dep. A. Kaltenbach 1984; 1988, N. Moulin 2018 & B.P. Uvarov. (ARC, AMG, DNMNH, NMSA, IZIKO, NMSA, NRM)

***Sphodromantis gracilis* Lombardo, 1992**

**Notes:** ID: Lit (Ehrmann 2002)

***Sphodromantis rudolfae* Rehn, 1901**

**Distribution:** ET, KN, SM, TZ, ZB

**Notes:** ID: Undefined. (NRM)

**Tribe Tenoderini Brunner de Wattenwyl, 1893**

**Subtribe Polyspilotina Giglio-Tos, 1917**

***Polyspilota aeruginosa* subsp. *aeruginosa* (Goeze, 1778)**

**Distribution:** AG, CAM, CV, DRC, ET, GB, GN, KN, LB, MDG, NAM, SY, TZ, UG, ZB, ZIM

**Notes:** ID: J.A.G. Rehn 1925, M. Beier 1952, R. Roy 1977, Dep. A. Kaltenbach 1985; 1988, M.B.D. Stiewe & B.P. Uvarov. (ARC, BOLD, DNMNH, IZIKO, NMSA, NRM)



***Polyspilota caffra* Westwood, 1889**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925, R.Roy 1977 & C. Schwarz. (AMG, DNMNH, PC\_CS)

***Polyspilota magna* Giglio-Tos, 1911**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Lit (Kaltenbach 1996, Ehrmann 2002)

**Subtribe Tenoderina Brunner de Wattenwyl, 1893**

***Epitenodera capitata* (Saussure, 1869)**

**Distribution:** AG, DRC, ET, KN, MAL, MOZ, UG, TZ, ZIM

**Notes:** ID: Dep. M. Beier 1952 & A. Kaltenbach 1992. (ARC, DNMNH, IZIKO)

***Tenodera superstitiosa* subsp. *superstitiosa* (Fabricius, 1781)**

**Distribution:** AG, AZ, CAM, DRC, ET, GB, GH, GN, IN, JV, KN, LB, MAL, MOZ, NAM, NG, SG, SM, SD, TZ, TG, UG, ZAM, ZB

**Notes:** ID: Dep. M. Beier 1952 & A. Kaltenbach 1985. (DNMNH, IZIKO)

**Superfamily Miomantoidae Westwood, 1889**

**Family Miomantidae Westwood, 1889**

**Subfamily Miomantinae Westwood, 1889**

***Cilnia chopardi* Werner, 1927**

**Distribution:** BOT, MOZ, NAM

**Notes:** ID: Dep. M. Beier 1952. (DNMNH)

***Cilnia humeralis* (Saussure, 1871)**

**Distribution:** AG, DRC, MAL, MOZ, TZ, ZAM, ZIM

**Notes:** ID: Dep. Rehn 1925, A. Kaltenbach 1985, A.J. Hesse, J.A.G. J.A.G. Gain, R. Ehrmann, B.P. Uvarov & R. Roy. (DNMNH, IZIKO, NMSA, NMB, SMNK, PC\_CS)

***Miomantis aequalis* Rehn, 1904**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: Dep. J.A.G Rehn 1925. (DNMNH)

***Miomantis binotata* Giglio-Tos, 1911**

**Distribution:** KN, MAL, RW, TZ, TG

**Notes:** ID: Lit (Ehrmann 2002)

***Miomantis brachyptera* Saussure, 1899**

**Notes:** ID: Lit (Ehrmann 2002)

***Miomantis brevipennis* Saussure, 1872**

**Distribution:** CAR, ET, KN, DRC, TZ, ZB

**Notes:** ID: Lit (Ehrmann 2002)

***Miomantis caffra* Saussure, 1871**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** EW, NZ

**Notes:** ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1992, R. Roy & C. Schwarz. (DNMNH, PC\_CS)\*\*

***Miomantis coxalis* Saussure, 1898**

**Distribution:** AG, LS, MOZ, NAM

**Notes:** ID: Dep. J.A.G. Rehn 1925, M. Beier 1952 & A. Kaltenbach 1988. (DNMNH, IZIKO)

***Miomantis exilis* Giglio-Tos, 1911**

**Distribution:** AG, BOT, ET, SM, NAM

Notes: ID: Dep. J.A.G. Rehn 1925, M. Beier 1952 & A. Kaltenbach 1988. (DNMNH, IZIKO)

***Miomantis fenestrata* Fabricius, 1781**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** DRC, LS, MOZ, NAM, SM, UG

Notes: ID: Dep. J.A.G. Rehn 1925, A. Kaltenbach 1988 & B.P. Uvarov. (ARC, DNMNH, IZIKO, NMSA, NMB, NRM)

***Miomantis helenae* Giglio-Tos, 1914**

**Distribution:** MAL, ZIM

Notes: ID: Dep. J.A.G. Rehn 1925 & A. Kaltenbach 1988. (DNMNH)

***Miomantis kibweziانا* Giglio-Tos, 1911**

**Distribution:** KN, TZ, UG

Notes: ID: Dep. R. Roy. (NRM)

***Miomantis lacualis* Giglio-Tos, 1911**

**Distribution:** ET, KN, MAL, MOZ, SM, TZ, UG

Notes: ID: Lit (Kaltenbach 1996, Ehrmann 2002)

***Miomantis minuta* Giglio-Tos, 1911**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

Notes: ID: Unspecified. (NRM)

***Miomantis misana* (Giglio-Tos, 1911)**

**Distribution:** AG, CAM, DRC, GN, TG

Notes: ID: Undefined. (NRM)

***Miomantis monacha* Fabricius, 1787**

**Distribution:** MOZ

Notes: ID: Lit (Ehrmann 2002)

***Miomantis natalica* Beier, 1930**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** NAM, ZIM

**Notes:** ID: Dep. A. Kaltenbach 1988; 1992. (AMG, DNMNH)

***Miomantis paykullii* Stål, 1871**

**Distribution:** EG, BF, GH, CAM, KN, MOZ, NG, SG, TG, TC, UG, ZIM

**Notes:** ID: Undefined. (NRM)

***Miomantis prasina* Burmeister, 1838**

**Distribution:** AG, DRC, MOZ

**Notes:** ID: Dep. A. Kaltenbach 1981. (DNMNH)

***Miomantis preussi* Karsch, 1892**

**Distribution:** CAM

**Notes:** ID: F. Werner. (NRM)

***Miomantis quadripunctata* Saussure, 1898**

**Distribution:** DRC, MOZ, NAM, TZ, UG, ZIM

**Notes:** ID: Dep. A. Kaltenbach 1988; 1992, R. Ehrmann 1991, B.P. Uvarov & F. Werner. (ARC, DNMNH, IZIKO, NMSA, NRM)

***Miomantis saussurei* Schulthess-Rechberg, 1899**

**Distribution:** MOZ, SM

**Notes:** ID: Dep. J.A.G. Rehn 1925. (DNMNH, IZIKO, NRM)

***Miomantis semialata* Saussure, 1872**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** EW, NAM, TZ, ZIM

**Notes:** ID: Dep. M. Beier 1952 & A. Kaltenbach 1988; 1992. (DNMNH, IZIKO, NRM)

***Neocilnia gracilis* Beier, 1930**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Notes:** ID: N. Moulin 2018. (DNMNH)

***Parasphendale costalis* Kirby, 1904**

**Distribution:** ET, KN, SM, TZ, UG, ZIM

**Notes:** ID: Lit (Ehrmann 2002)

***Taumantis globiceps* Beier 1969**

**Distribution:** MAL, ZAM, ZIM

**Notes:** ID: Dep. R. Ehrmann 1991. (ARC)

**Subfamily Solygiinae Giglio-Tos, 1919**

***Solygia sulcatifrons* Audinet-Serville, 1839**

**Distribution:** BF, CAM, GN, SN, TG

**Notes:** ID: Dep. B.P. Uvarov. (NMSA, ARC)

**Superfamily Nanomantoidea Brunner de Wattenwyl, 1893**

**Family Amorphoscelidae Stål, 1877**

**Subfamily Amorphoscelinae Stål, 1877**

***Amorphoscelis austrogermanica* Roy, 1963**

**Distribution:** East Africa, NAM

**Notes:** ID: Dep. R. Roy 1967 & R. Erhmann. (DNMNH, SMNK)

***Amorphoscelis tuberculata* Werner, 1923**

**Distribution:** MOZ, NAM, ZIM

**Notes:** ID: Dep. R. Roy 1962 & R. Erhmann. (DNMNH, SMNK)

**Subfamily Hapalomantinae Beier, 1962**

**Tribe Hapalomantini Beier, 1962**

***Hapalogymnes gymnes* Rehn, 1927**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** ZIM

**Notes:** ID: Dep. J.A.G. Rehn 1925. (DNMNH)

***Bolbena (Bolboda) minutissima* (Karny, 1908)**

**Native status:** Suspected to be endemic to southern Africa (Kaltenbach 1996)

**Distribution:** ZIM

**Notes:** ID: Dep. M. Beier 1952. (DNMNH, IZIKO)

***Hapalomantis (Bolbira) minima* (Werner, 1906)**

**Distribution:** AG, ZIM

**Notes:** ID: Lit (Kaltenbach 1996, Ehrmann 2002)

***Hapalomantis (Hapalomantis) orba* (Stål, 1856)**

**Distribution:** KN, MOZ, TZ

**Notes:** ID: Dep. M. Beier 1953 & A.J. Hesse. (BOLD, DNMNH, IZIKO, NRM)

**Tribe Nilomantini Ehrmann & Roy, 2002**

***Chloromantis rhombica* Giglio-Tos, 1915**

**Distribution:** ZIM

**Notes:** ID: Lit (Kaltenbach 1996, Ehrmann 2002)

***Negromantis gracillima* Kaltenbach, 1996**

**Distribution:** ZAM, ZIM

**Notes:** ID: Dep. A. Kaltenbach. (IZIKO)\*\*

## Analysis

This checklist was compiled from a database that has been generated after recording all the available details of specimens (approximately 4000 records over 170 years) in eight South African museum collections. An additional 1945 Mantodea records from private collections, several museums outside of South Africa, and two citizen-science platforms were included. Although all specimens were identified to family level, a large number (1600) were only identified to genus level. All records within the database could, therefore, be used to generate distribution maps for the 14 Mantodea families (Fig. 3). Despite only a few distribution records being available for specimens of some of the families, distribution patterns indicate that all families occur in the hotspots indicated in this study. These hotspots are the north-eastern parts of the Savannah biome (towards the Kruger National Park), along the eastern coast in the Indian Ocean coastal belt (KwaZulu-Natal province), southern coastal region in the thicket biome (Eastern Cape – Gqeberha), and fynbos biome in the south-western Cape region. The families with the lowest species richness and the lowest number of records were Amorphoscelidae, Dactylopterygidae, Nanomantidae, Rivetinidae and Toxoderidae (Fig. 3). The three most species-rich families were Mantidae, Miomantidae and Eremiaphilidae (Fig. 3), which were also the families with the highest numbers of specimen records. The latter three families made up 50.2% of the total number of specimens in the surveyed collections, with those in the Eremiaphilidae having the highest representation (853 specimens). The distribution maps do, however, elude that some areas of the country have either been under-represented or the abundance of mantids in these regions, for example the Northern Cape Region, is very low. Interestingly, the distribution of Empusidae, which is only represented by seven species, indicates a region-wide distribution and more than 200 records of this family were recorded during this study.

## Discussion

This paper illustrates the value of museum data, although it was only after the documentation thereof, that these data allowed us to update the Mantodea species list of South Africa. Historic data encompasses many years of collected specimens and, as suggested by Hill et al. (2012), it remains as data that are invaluable and irreplaceable. Although the more modern methods of observational data collection through citizen-science platforms are easily accessible (Moulin 2020), it remains problematic as the identification of these specimens are difficult, especially for groups such as arthropods. This is due to the vast numbers of insect species and because, in many cases, identification requires microscopic investigation of the genitalia and wing venation. Due to these difficulties, as well as data only at genus level, records sourced from the citizen-science platforms were only used to compile the distribution maps and they were not included in the supplementary information. Although citizen-science platforms may provide valuable information (Moulin 2020), care should be taken when data are used. For example, 11 *Miomantis* species were recorded from the museum collections during

this study, while nine other species are also suggested to occur in South Africa (Kaltenbach 1996, Kaltenbach 1998). However, all 467 *Miomantis* observations from iNaturalist and GBIF.org were listed as *Miomantis caffra* Saussure, 1871. Since no other *Miomantis* species has been recorded on the latter platforms, it is highly likely that some of the *Miomantis* species level identifications were incorrect. Despite this type of error, the data recorded on citizen-science platforms can be helpful to determine distribution patterns. These platforms are becoming increasingly important, but there is no substitution for taxonomic expertise and investigation of specimens, especially for the many species of Mantodea that have not yet been added to publicly accessible DNA databases. For example, of the 157 species listed in this checklist, only 50 are represented on DNA databases such as GenBank, NCBI and BOLD.

Another example which illustrates the value of data from citizen-science platforms (Gbf.org in this case), as well as the caution needed in interpreting such data, is that of *Pseudocreobotra ocellata*. This species, according to literature, is native to North Africa and does not occur in South Africa (Ehrmann 2002). However, a DNA barcode of the latter species was found on the BOLD database (Ratnasingham and Hebert 2007) during this study which, according to the locality of the specimen used for the DNA analysis, it was collected in KwaZulu-Natal in South Africa (Suppl. material 1). The sequence provided on BOLD is 99.23% similar to that of an unpublished DNA sequence of *Pseudocreobotra wahlbergi* that is available on GenBank. The latter sequence has never been published and should, thus, be treated with caution. The specimens identified as *P. ocellata* on the BOLD system could either be new distribution records or be due to a lack of reliable *P. wahlbergi* sequences.

One of the species, *Galepsus centralis*, which has not previously been reported from South Africa, was collected in the Grassland biome in the north-western region of South Africa and identified by a mantid taxonomist (Nicolas Moulin) during this study. This species was previously reported to occur only in Tanzania and the Democratic Republic of the Congo. It could also be possible that this species has always occurred in southern Africa, but was not detected or it has expanded its range to southern Africa, similar to what has been reported for other mantid species in recent years (Schwarz and Ehrmann 2018). Interestingly, Kaltenbach (1996) listed some species that may be endemic to southern Africa, including *Miomantis caffra*. The latter species has expanded its range to New Zealand and Australia (Ramsay 1984, Connors et al. 2022).

This species list indicates that the diversity of Mantodea in South Africa is high and that approximately 6% of the known Mantodea species worldwide occurs in this region. A few areas within South Africa seem to be “hotspots” or regions with high diversity and should be investigated further. These areas may be related to the biomes within the country since insect communities tend to be closely correlated to plant communities (Schaffers et al. 2008). It is, therefore, suggested that the “hotspot” areas identified in this study be priority areas for future research. The conglomeration of distribution records on the maps in areas such as Pretoria may be due to the ease of access (Grytnes and Romdal 2008) of this museum as it resides within a large city with a large surrounding human population.



The current state of knowledge suggests that South Africa could have a high level of Mantodea endemism, i.e. 38% of the species from this study are suggested by Kaltenbach (1996) to be endemic to southern Africa. Furthermore, "priority species" (for example, the 24 species of which only one record exists) were identified and should be investigated first to address the severe lack of knowledge regarding these species. For example, *Calamothespis oxyops* has a single distribution record (Baberton 1910), i.e. the Holotype specimen in the Ditsong National Museum of Natural History. One other record of this species was recorded on iNaturalist (which could indicate that it only occurs in South Africa). This citizen-science record has, however, not been verified (not Research Grade) and was, thus, not included in the Suppl. material 1. Lastly, the aim of this paper was not only to update the Mantodea checklist of South Africa, but also to develop a dataset that can guide future research on Mantodea diversity within the region. The absence of taxonomic expertise to identify Mantodea in South Africa provided a challenge during the compilation of this checklist. This was addressed through collaboration with the international Mantodea scientist community who assisted with identifications, provided taxonomic keys and shared old literature regarding the Mantodea of the region.

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Figure 1.

An example of Mantodea museum specimens in a collection which were identified (including genitalia plates if applicable per species) by various taxonomists. These specimens were amongst those used to compile the species list in this paper.

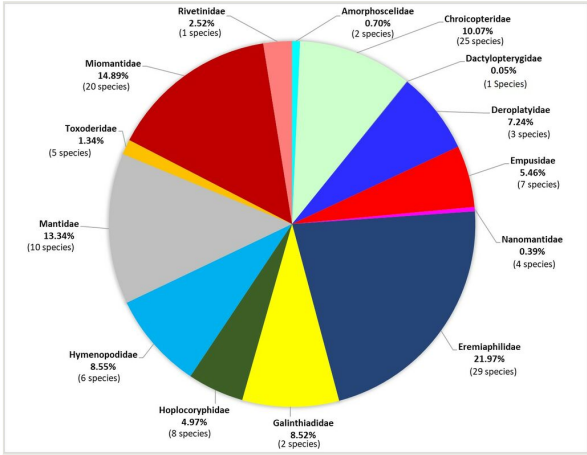


Figure 2. Summary of the number of species and number of records per Mantodea family recorded in South Africa.

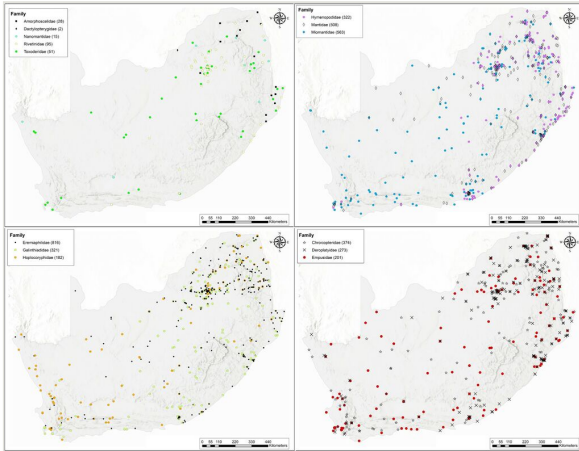


Figure 3.

Distribution maps of the Mantodea families that occur within South Africa. The number of specimen records per family is provided in brackets.

Table 1.

List of abbreviations for the museums and collections in which the Mantodea specimen are hosted.

Institution/ Museum collection	Abbreviation
Agricultural Research Council Roodeplaat, Pretoria, SA	ARC
Albany Museum, Makhanda (Grahamstown), SA	AMG
Barcode of life data system, available online	BOLD
Cleveland Museum of Natural History, Ohio, USA	CMNH
Ditsong National Museum of Natural History, Pretoria, SA	DNMNH
Durban Natural Science Museum, Durban, SA	DNSM
Estonian University of Life Sciences, Institute of Agricultural and Environmental Sciences, Tartu, Estonia	EMÜ
Iziko South African Museum, Cape Town, SA	IZIKO
KwaZulu-Natal Museum, Pietermaritzburg, SA	NMSA
Lund University Biological Museum, Lund, Sweden	MZLU
Muséum national d'Histoire naturelle, Paris, France	MNHN
National Museum, Bloemfontein, SA	NMB
Natural History Museum, London, UK	NHMK
Personal collection of Christian Schwarz, Germany	PC_CS
Personal collection of Johnnie van den Berg, SA	PC_JB
Staatliches Museum für Naturkunde, Karlsruhe, Germany.	SMNK
Student Collection, Rhodes University, Makhanda (Grahamstown), SA	RU
Swedish Museum of Natural History, Stockholm, Sweden	NRM

Table 2.

Abbreviations of country names listed in the section describing the distribution of different Mantodea species recorded in South Africa.

Abbreviation	Country	Abbreviation	Country	Abbreviation	Country
[AL]	Algeria	[GN]	Guinea	[NG]	Nigeria
[AG]	Angola	[IN]	India	[RNI]	Rennell Island
[AZ]	Australia	[IS]	Israel	[RI]	Reunion Island
[BA]	Bismarck Archipelago	[IC]	Ivory Coast	[RW]	Rwanda
[BOT]	Botswana	[JP]	Japan	[SG]	Senegal
[BF]	Burkina Faso	[JV]	Java	[SY]	Seychelles
[BR]	Burundi	[KN]	Kenya	[SL]	Sierra Leone
[CAM]	Cameroon	[LS]	Lesotho	[SM]	Somalia
[CA]	Canada	[LB]	Liberia	[SD]	Sudan
[CV]	Cape Verde	[LI]	Libya	[TZ]	Tanzania
[CAR]	Central African Republic	[MDG]	Madagascar	[TH]	Thailand
[CD]	Chad	[MAL]	Malawi	[TG]	Togo
[CH]	China	[MP]	Malayan Peninsula	[TC]	Tschad
[DRC]	Dem. Rep. Congo	[MA]	Mali	[TU]	Tunisia
[EG]	Egypt	[MN]	Mauritania	[UG]	Uganda
[EW]	Eswatini	[MT]	Mauritius	[UK]	United Kingdom
[ET]	Ethiopia	[MOZ]	Mozambique	[ZAM]	Zambia
[GB]	Gabon	[NAM]	Namibia	[ZB]	Zanzibar
[GH]	Ghana	[NU]	New Guinea	[ZIM]	Zimbabwe
[GU]	Guam	[NZ]	New Zealand		



# Supplementary materials

## Suppl. material 1: Database of all Mantodea records within South Africa

**Authors:** B Greyvenstein, H Du Plessis, J van den Berg

**Data type:** occurrences, taxonomic

**Brief description:** This file contains the 5945 records of Mantodea that have been recorded to occur in South Africa – Each record has locality, taxonomic, collectors etc. data. This database is a compilation of records collected during visits to museums, as well as online records such as Gbif.org and iNaturalist. Prominent European and American museums were also contacted to provide information on the South African Mantodea fauna in their collections.

[Download file](#) (861.08 kb)

## Suppl. material 2: Number of species and records per taxonomical hierarchy of Mantodea in South Africa

**Authors:** B Greyvenstein, H Du Plessis, J van den Berg

**Data type:** Species data

**Brief description:** This spreadsheet contains a summation of the number of records per superfamily, family, subfamily etc. of Mantodea that were recorded during this study from various institutions and collections. It also includes the number of species per taxonomic level and the numbers of different specimen types, for example Holotype or Paratype, that were recorded during this study.

[Download file](#) (15.44 kb)