

# First Records of Mantodea (Insecta, Dictyoptera) from the Serra das Confusões National Park, Piauí State, Brazil

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**Abstract.** We present the first inventory of species of the order Mantodea in the Serra das Confusões National Park, in the semi-arid state of Piauí, Brazil. The specimens were collected on 11 consecutive days using light traps and active collecting. Two hundred specimens were collected, distributed among five families, 15 genera, and 17 species (of which nine were identified). These results are all first records for the Serra das Confusões National Park, 14 new records for Caatinga vegetation areas, and one new record for Brazil.

**Keywords:** Biodiversity; Caatinga; Checklist; Inventory; Semi-arid.

## Primeiros Registros de Mantodea (Insecta, Dictyoptera) para o Parque Nacional da Serra das Confusões, Piauí, Brasil

**Resumo.** Neste trabalho são apresentados os resultados do primeiro inventário para espécies da ordem Mantodea no Parque Nacional da Serra das Confusões, uma unidade de conservação inserida no semiárido brasileiro no estado do Piauí. Os espécimes foram coletados durante 11 dias consecutivos utilizando-se armadilha luminosa e coleta ativa. Foram capturados 200 espécimes distribuídos em cinco famílias, 15 gêneros e 17 espécies, das quais nove foram identificadas. Além dos registros inéditos de Mantodea para o Parque Nacional da Serra das Confusões, estes são também inéditos para o estado do Piauí, assim como 14 novos registros para a Caatinga e um novo registro para o Brasil.

**Palavras-chave:** Biodiversidade; Caatinga; Inventário; Lista de Checagem; Semiárido.

Mantodea is a small insect order with global distribution (except in the Antarctic) (RIVERA 2010). Praying mantises (Mantodea) are predators that can often be recognized by their raptorial anterior legs that are kept bent against the prothorax when at rest (ESSIG 1942). Another remarkable feature of this taxon is their natural camouflage, with species imitating the colors and shapes of leaves, twigs, grass, and flowers (GRIMALDI & ENGEL 2005).

Approximately 2,400 species are recognized in this order, with 496 from the Neotropical region, and 273 from Brazil (EHRMANN 2002; EHRMANN & KOÇAK 2009; TERRA & AGUDELO 2012). The species richness of the Neotropical region is considered low, mainly due to the scarce sampling efforts, low population densities, and few studies that have focused on Mantodea fauna (especially in the semi-arid region of Brazil) (AGUDELO *et al.* 2007; DANTAS *et al.* 2008). The semi-arid region of northeastern Brazil (including northern Minas Gerais State) is defined and delimited by average annual precipitation rates lower than 800 mm, and aridity indices below 0.5 (calculated as the relationship between precipitation and evaporation) and includes several plant formations such as caatinga and open rocky field vegetations, moist forests, seasonal forests, and Cerrado (Neotropical savannas) (QUEIROZ *et al.* 2006).

The Serra das Confusões National Park (SCNP) is located in southeastern Piauí State, in the municipalities of Alvorada da Gurgéia, Bom Jesus, Brejo do Piauí, Canto do Buriti, Caracol, Cristino Castro, Curimatá, Guaribas, Jurema, Redenção de Gurgéia Santa Luz, and Tamboril do Piauí, covering 823,435 ha

[BRASIL (1998) - DOU n° 190/02 October 1998; BRASIL (2010) - DOU n° 250-A/30 December 2010].

The SCNP comprises a hard sandstone plateau (Chapadões do Alto Médio Parnaíba) and adjacent Parnaíba River basin depressions, with a small area of the Médio São Francisco peripheral depression (ZAHER 2002; MOURA 2004). The plateaus there above 400 m a.s.l. are covered by Caatinga/Cerrado transition vegetation (known as "Carrasco"), while the lowlands hold several Caatinga physiognomies (ZAHER 2002; BOUR & ZAHER 2005). The SCNP has been indicated as one of the 27 areas with the greatest biodiversity importance in Brazil in terms of conservation in the Caatinga biome, as it occupies a transition zone between Caatinga, Cerrado, and dry forest formations, and has great biological importance for several Metazoa taxa (SILVA *et al.* 2003).

The present work presents the first records of Mantodea for the SCNP and for Piauí State.

## MATERIAL AND METHODS

Collections were undertaken by two collectors between 12/07/2010 and 12/17/2010 in the southeastern region of the SCNP, approximately 20 km northeast of the municipality of Caracol, Piauí State, Brazil (09°13'13"S, 43°29'23"W), using a Luiz de Queiroz light trap, an entomological umbrella, entomological

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sweep nets, and manual capturing. Collected nymphs were fed in the laboratory until completing their development, for more precise identifications.

The species were identified based on the specialized literature (GIGLIO-TOS 1927; HEITZMANN-FONTENELLE 1969; PIZA 1982; LA GRECA & LOMBARDO 1989; JANTSCH 1995; TERRA 1995; EHRMANN 2002; ROY & ERHMANN 2009; MENEZES & BRAVO 2013). All of the collected specimens were deposited in the Professor Johann Becker Entomological Collection at the Universidade Estadual de Feira de Santana (MZFS), Bahia State, Brazil. The collections were authorized by license number 25528-1 (SISBIO/IBAMA).

## RESULTS AND DISCUSSION

Two hundred specimens of Mantodea representing five families were collected. TERRA & AGUDELO (2012) recognized six families in the Neotropical region, all of which have been recorded in Brazil. Only Liturgusidae was not found in the SCNP, probably because it is associated with moist forests, such as the Atlantic Forest and the Amazon rainforest (AGUDELO *et al.* 2007).

The family Mantidae had the highest abundance (94 specimens), followed by Mantoididae (78), Thespididae (23), Acanthopidae (4), and Chaeteessidae (1 specimen). Of the total number of specimens, 188 were captured in the light trap (all adults), and 12 were collected actively. Of the specimens collected actively, seven were adults: three males *Margaromantis margaritaria* (Rehn); one male *Mantoida argentinae* La Greca & Lombardo; one male *Mantoida tenuis* (Perty); one male *Cardioptera parva* Beier; and one male *Musoniella* sp. The other five specimens (collected actively) were in nymphal stages: one male and one female *Eumiopteryx* sp.; three females *Musoniella* sp.

We identified 15 genera and 17 species, eight of the latter were identified as morphospecies. Mantidae had the highest species richness with seven species; following by Thespididae with four species; Mantoididae with three species; Acanthopidae with two species; and Chaeteessidae with one species. All of these species represented first records for the SCNP and Piauí State.

### Chaeteessidae

*Chaeteessa nana* Jantsch – 1 male

Distribution: BRAZIL, Mato Grosso do Sul state, Dourados municipality (JANTSCH 1995).

Comments: This new record in the SCNP also corresponds to the first collection for the Chaco subregion and Caatinga province. This species had only been recorded in one locality of the Paranaense subregion in the Paranaense Forest province (Figure 1). The biogeographical regions mentioned in this study are from MORRONE (2001).

### Mantoididae

*Mantoida argentinae* La Greca & Lombardo – 8 males

Distribution: ARGENTINA: Santiago del Estero province. San Luiz province, La Capital department. Chaco province, Doce de Octubre department, Gancedo municipality. Catamarca province (LA GRECA & LOMBARDO 1989).

Comments: Recorded here for the first time for Brazil and the Caatinga province. This species was previously recorded in the Chaco and Monte provinces (Figure 1).

*Mantoida brunneriana* (Saussure) – 63 males

Distribution: BOLIVIA; BRAZIL: Amazonas state: Manaus municipality. Espírito Santo state: Linhares municipality. Pará state: Faro municipality; Monte Branco locality. Rio de Janeiro state: Niterói municipality. Rio Grande do Sul state: Porto

Alegre municipality; Portão municipality. Santa Catarina state: Itapiranga municipality; Seara municipality; Nova Teutônia district. São Paulo state: Campos do Jordão municipality; COLOMBIA: Arauca department; Vichada department; ECUADOR, Tungurahua province, Baños canton; FRENCH GUYANA overseas department: Saut-Maripa locality; Oyapock locality; PANAMA, Panamá province, Isla Barro Colorado; PARAGUAY; VENEZUELA (LA GRECA & LOMBARDO 1989; TERRA 1995; JANTSCH 1999; EHRMANN 2002; AGUDELO 2004; RIVERA 2004; DANTAS *et al.* 2008).

Comments: Recorded for the first time in the Caatinga province. This species is known to occur in various ecosystems, with records principally from the Amazon, Paraná (Brazilian Atlantic Forest and Paraná provinces), and Chacho (Pampa province) subregions. There are also records from the Andean region (Ecuador) and from the Caribbean neotropical subregion (Figure 1).

*Mantoida tenuis* (Perty) – 7 males

Distribuição: ARGENTINA; BRAZIL: Amazonas state: Manaus municipality. Rio Grande do Sul state: Barra do Ribeiro municipality; Uruguaiana municipality. São Paulo state: Ribeirão Preto municipality (TERRA 1995; JANTSCH 1999; EHRMANN 2002).

Comments: Recorded here for the first time in the Caatinga province. Was previously recorded in the Chaco subregion only in the Cerrado province; in the Amazon subregion in the Roraima province; and in the Paraná subregion in the Pampa province (Figure 1).

### Acanthopidae

#### Acanthopinae

*Metilia* sp. – 1 male

#### Acontistinae

*Acontista* sp. – 3 males

### Mantidae

#### Photinainae

*Cardioptera parva* Beier – 10 males

Distribution: BRAZIL: Ceará state, Viçosa do Ceará municipality. Paraíba state: Areia municipality, Mamanguape municipality. Bahia state, Vila Nova locality not specified, Minas Gerais state, Medina municipality. Rio Grande do Sul state: Bagé municipality; Porto Alegre municipality; São Gabriel municipality; Uruguaiana municipality; Xangri-Lá municipality (HEITZMANN-FONTENELLE 1969; JANTSCH 1999; EHRMANN 2002).

Comments: This species has principally been recorded in the Pampa province, but with records from the Brazilian Atlantic Forest province and the northern region of the Caatinga province (Ceará State). This species is recorded here for the first time in the western region of the Caatinga province and for Piauí State (Figure 1).

*Margaromantis margaritaria* Piza – 59 males

Distribution: BRAZIL, Pernambuco state, Petrolina municipality (PIZA 1982).

Comments: This species was previously recorded only in the northern Caatinga province (Figure 1). It is reported here for the first time for Piauí State, increasing its distribution to the western portion of the Caatinga province.

*Orthoderella caatingaensis* Menezes & Bravo – 2 males

Distribution: BRAZIL, Bahia state, Pilão Arcado municipality. Piauí state, Caracol municipality, Parque Nacional da Serra das Confusões locality (MENEZES & BRAVO 2013).

Comments: This species was previously recorded only in the Chaco subregion of the Caatinga province (Figure 1), and is probably endemic to the semiarid region.

*Photina amplipennis* Stål – 4 males

Distribution: BOLIVIA; BRAZIL, Bahia state, Ilhéus municipality. Espírito Santo state, João Neiva municipality. FRENCH GUIANA; VENEZUELA. (TERRA 1995, 1996; EHRMANN 2002).

Comments: This species is reported here for the first time in the Chaco subregion and Caatinga province. It was previously recorded only from the Amazon and Paranaense subregions (Brazilian Atlantic Forest province) (Figure 1).

### Stagmatopterinaes

*Parastagmatoptera* sp. – 16 males

*Pseudoxyops* sp. – 1 male

### Vatinae

*Zoolea descampsi* Roy & Ehrmann – 2 males

Distribution: BRAZIL, Bahia state (ROY & EHRMANN 2009).

Comments: This species was reported for the state of Bahia, although without a known locality (ROY & EHRMANN 2009). This is the first report of its presence in the Caatinga province (Figure 1).

### Thespidae

#### Miopteryginae

*Miobantia* sp. – 1 male

#### Pseudomiopteriginae

*Anamiopteryx* sp. – 8 males

*Eumiopteryx* sp. – 1 male and 1 female

#### Thespinac

*Musoniella* sp. – 9 males and 3 females

The genera *Anamiopteryx*, *Metillia*, *Miobantia*, *Musoniella*, *Parastagmatoptera*, *Pseudoxyopsis* are first recorded in the Caatinga province (JANTSCH 1991, 1999; TERRA 1995; EHRMANN 2002; BATTISTON & PICCIAU 2008; DANTAS *et al.* 2008; LOMBARDO & UMBRIACO 2011).

These results demonstrate the importance of faunal surveys to increasing our knowledge of species distributions and for generating information that can be used in future actions designed to define and/or maintain biodiversity conservation areas.

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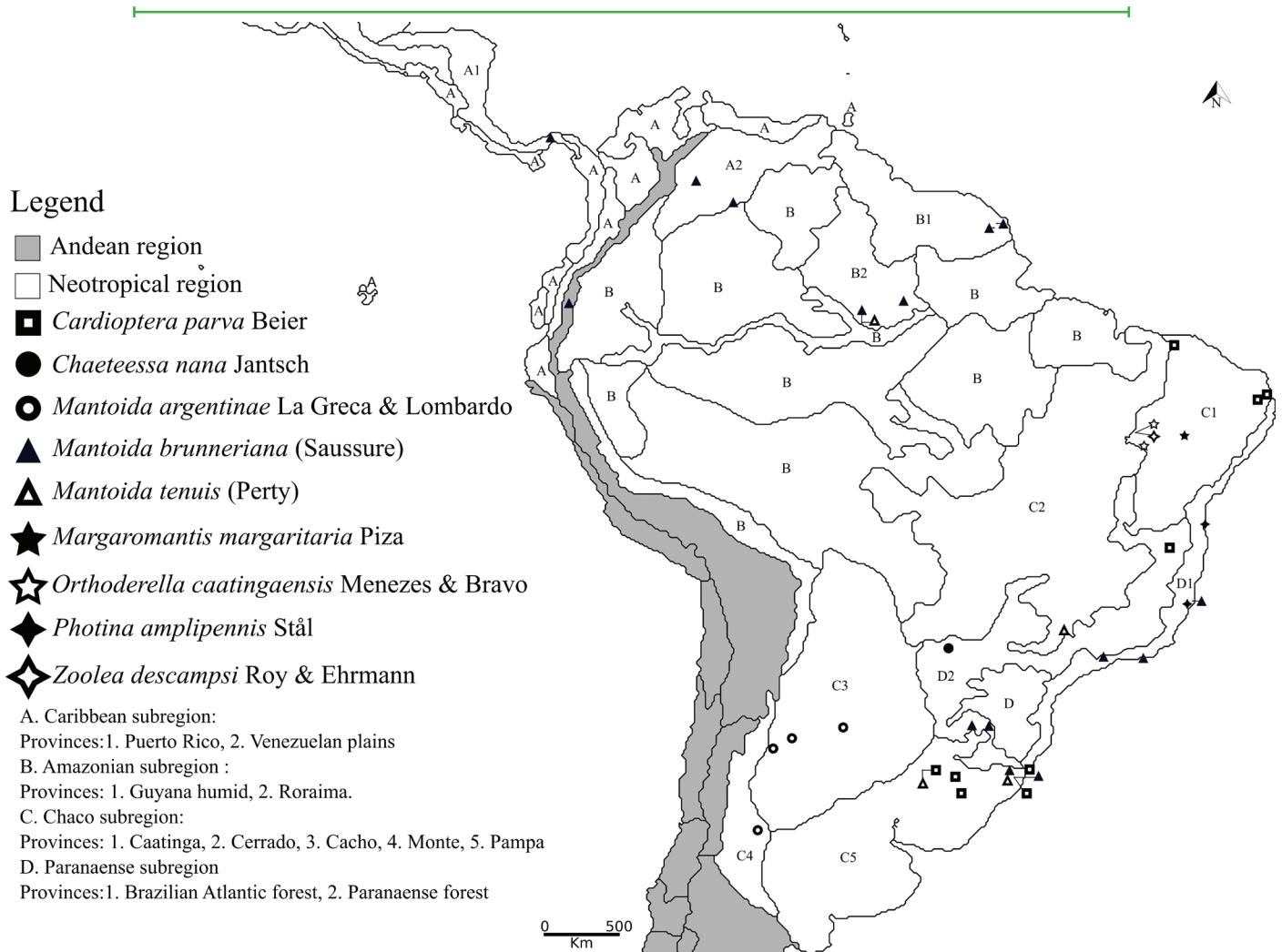


Figure 1. Distribution of species of Mantodea recorded in Serra das Confusões National Park, according to biogeographical regions of MORRONE (2001).

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