

**A CONTRIBUTION TO THE FAUNA OF NEUROPTERA (INSECTA)
OF THE KAHRAMANMARAŞ PROVINCE, TURKEY**

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Abstract - Neuroptera specimens were collected between June and September in the years of 2010-2014 in the Kahramanmaraş province, Turkey. Collected specimens were determined to belong to 34 species, 22 genera, and 7 families, which is 16 percentage of the number of neuropteroids recorded in Turkey. The existence of 7 species previously reported from the area has not been confirmed during the fieldwork. 22 species are the first records for the Neuroptera fauna of Kahramanmaraş.

KEY WORDS: Neuroptera, Fauna, Kahramanmaraş, Turkey.

**Izvešček – PRISPEVEK K FAVNI MREŽEKRILCEV (INSECTA: NEUROPTERA)
PROVINCE KAHRAMANMARAŞ, TURČIJA**

Primerki mrežekrilcev so bili zbirani med junijem in septembrom v letih 2010 – 2014 v provinci Kahramanmaraş, Turčija. Zbrani primerki so bili določeni in pripadajo 34 vrstam, 22 rodovom in 7 družinam, kar je 16 odstotkov števila nevropteroidov, zabeleženih v Turčiji. Prisotnost sedmih vrst, predhodno zabeleženih v območju, med terenskim delom ni bila potrjena. 22 vrst je prvič zabeleženih v favni mrežekrilcev Kahramanmaraşa.

KLJUČNE BESEDE: Neuroptera, favna, Kahramanmaraş, Turčija.

Introduction

Most adults of neuropteran insects are predaceous. They feed on aphids, mites, and several other agricultural pests, and these insects can be used in integrated pest management (Ghahari et al., 2010). The Neuroptera includes 687 species and 17

subspecies in the Palaearctic region and about 6000 species in the world (Aspöck, et al., 2001).

The first Turkish faunal data on Neuroptera was published in the paper by Schneider (1845). After 1960, the exploration of the local fauna in Turkey was increased dramatically. In the ensuing years, the new species and faunistic records from Turkey were given (Aistleitner, 1982; Aspöck, 1987, 1989, 1996; Aspöck & Aspöck 1965a, 1965b, 1966, 1969a, 1969b, 1979, 1980, 1994; Aspöck et al., 1978, 1984; Gepp, 1974; Hölzel, 1965, 1966, 1967a, 1967b, 1968, 1969, 1972a, 1972b, 1978, 1987; Hölzel & Ohm, 1986; Kačirek, 1998; Koçak, 1976; Meinander, 1972; Monserrat & Hölzel, 1987; Rausch & Aspöck, 1978; Rausch et al., 1978; Şengonca, 1978, 1979, 1980a, 1980b, 1981a 1981b).

Turkish and European neuropterologists have started to increase the works on the Neuroptera since 2000. These researchers have provided new records to Turkish neuropteran fauna and new species to the world neuroptean fauna (Abrahám & Mészáros, 2002; Ari, 2014; Ari et al., 2007a, 2007b; Ari & Kiyak, 2000, 2003; Berber & Canbulat, 2009; Canbulat, 2007a, 2007b, 2013; Canbulat & Kiyak, 2002a 2002b, 2003a, 2003b, 2005; Dobosz & Abraham, 2009; Kemal & Koçak, 2006; Kiyak & Özdikmen, 1993; Koçak & Kemal, 2008; Kovanci & Canbulat, 2007; Kovanci et al., 2014; Ohl, 2009; Onar, 2007; Özgen, et al., 2012; Satar, 2005; Satar & Özbay, 2002, 2003; Rausch & Weißmair, 2007).

By 2015, as a result of Neuroptera researches above, The Neuroptera order is represented by 11 families, 210 species, and 4 subspecies in Turkey (Table 1). In the present study, 34 species are listed for the Kahramanmaraş province.

Family	Number of species	Number of subspecies	Family	Number of species	Number of subspecies
Ascalaphidae	12	2	Mantispidae	5	
Berothidae	2		Myrmeleontidae	55	1
Chrysopidae	56		Nemopteridae	13	
Coniopterygidae	27		Osmylidae	4	
Dilaridae	2		Sisyridae	3	
Hemerobiidae	31	1			

Table 1: The number of species and subspecies of each family in Turkey.

The neuropterid fauna of Kahramanmaraş was insufficiently investigated up to now, and only sporadic papers on species occurrence in the province existed. To date, 20 Neuroptera species have been recorded from Kahramanmaraş (for review, see

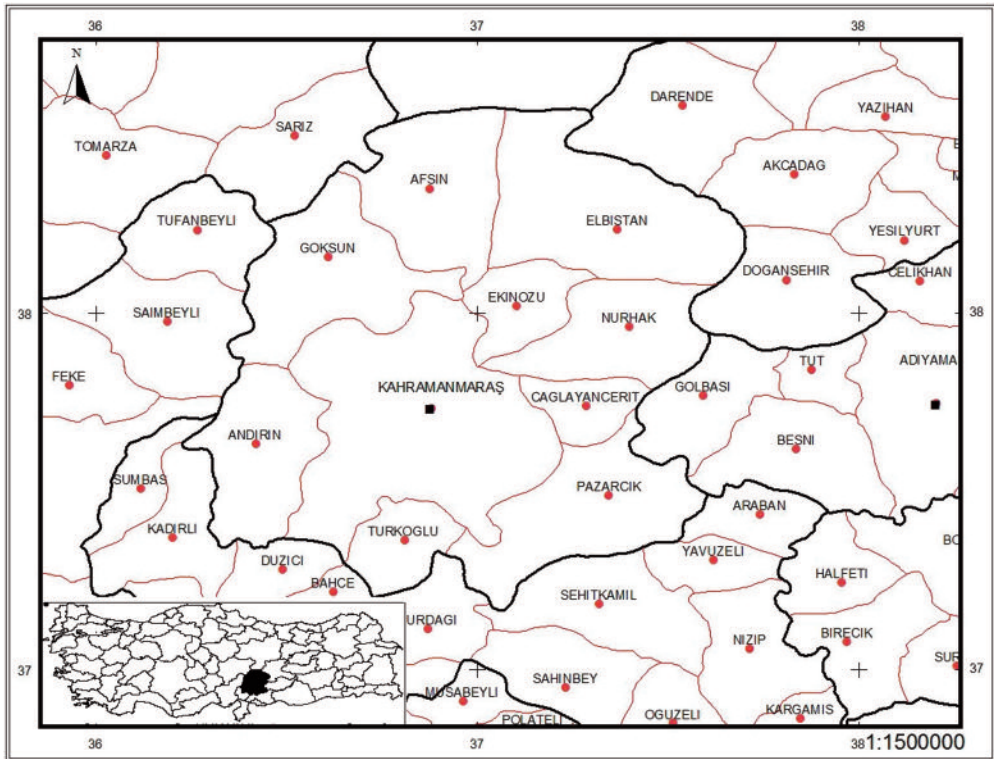


Fig. 1: Map of Kahramanmaraş, Turkey

Hölzel, 1967a, 1968; Şengonca, 1978, 1979, 1980a, and 1981a, 1981b; Kaçirek, 1998; Ari & Kiyak, 2000; Bahadroğlu & Daymaz, 2001).

Kahramanmaraş is located in the south part of Turkey. The province is characterized by mountains, plains, plateaus, and various forest types. The north part of Amanos Mountains, Başkonuş Kubalı Mountain, Ahır Mountain, and Kartal Kaya Mountains exist in the west part of Kahramanmaraş. A big part of surface area of the province is constituted by plains namely Narlı, Sağlık, and Maraş and plateaus, including Erkenez, Aksu, Imalı, Büyükmine, and Karacasu. Majority of Kahramanmaraş is covered with various forest types, including deciduous, coniferous, and mixed forests.

The objective of this study is to provide detailed information about the Neuropteran fauna and their distribution in the Kahramanmaraş province.

Materials and Methods

The specimens examined in this study were collected from 23 randomly located sampling sites in the Kahramanmaraş province. A total of 165 specimens of 34 species

belonging to 22 genera and 7 families were collected by sweep net and light trap between June and September in the years of 2010-2014.

Specimens were killed in jars with ethyl acetate. After that they were prepared, labeled according to the standard procedures for museum materials. Then they were stored in the Biology Department of Faculty of Arts and Sciences at Kilis 7 Aralık University.

To determine the species of the samples, the diagnostic keys and descriptions in the literature were used (Aspöck, et al., 1980; Bozsik, 2010; Gruppe, 2006; Hölzel, 1972a; Şengonca, 1980a, 1980b, 1981b).

Results

List of species

Family: Ascalaphidae Lefébvre, 1842

Deleproctophylla dusmeti Navás, 1914

Materials examined: 1♀, 1♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 24.07.2011.

Libelloides macaronius (Scopoli, 1763)

Material examined: 1♂, Çağlayancerit County (Vicinity of Ağbeyli Village), 37°44'03"N 37°13'48"E, 1600m., 21.07.2011.

Family: Berothidae Handlirsch, 1908

Isoscelipteron fulvum Costa, 1863

Materials examined: 1♀, 1♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 13.09. 2014.

Family: Chrysopidae Schneider, 1851

Brinckochrysa amseli (Hölzel, 1967)

Material examined: 1♂, Nurhak County (Gövdeli Village), 37°58'54"N 37°38'08"E, 1103m., 20.07. 2011.

Chrysopa abbreviata Curtis, 1834

Material examined: 1♂, Vicinity of Tekir County, 37°54'24"N 36°35'58"E, 1125m., 23.07.2011.

Chrysopa dorsalis Burmeister, 1839

Material examined: 1♂, Vicinity of Fatih District, 37°23'24"N 36°40'55"E, 1012m., 21.08.2010.

Chrysopa formosa Brauer, 1851

Material examined: 1♀, Vicinity of Tekir County, 37°54'24"N 36°35'58"E, 1125m., 23.07.2011;

***Chrysopa perla* (Linnaeus, 1758)**

Material examined: 3♀♀, Başkonuş, 37°34'11"N 36°34'52"E, 1348m., 20.07.2010.

***Chrysopa viridana* Schneider, 1845**

Material examined: 2♀♀1♂, Vicinity of Fatih District, 37° 23'24"N 36°40'55"E, 1012m., 21.08. 2010; 1♀, Topçalı Village –Andırın, 37°33'35"N 36°34'46"E, 14499 m, 01.09. 2011; 1♂, Vicinity of Çağlayancerit District, 37° 44'26"N 37°15'43"E, 1274m., 21.07.2011; 1♀2♂♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 13.09. 2014.

***Chrysoperla carnea* (Stephens, 1836) sensu lato**

Material examined: 1♂, Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°27'23"N 37°05'32"E, 722m., 14.06.2010; 2♂♂, Başkonuş, 37°34'11"N 36°34'52"E, 1348m., 20.07.2010; 1♀, Vicinity of the thermal power plant in Afşin, 38°23'28"N 36°58'23 E" 1249m., 19.07.2011; 2♀♀, Vicinity of the thermal power plant in Afşin, 38°12'08"N 37°06'48 E" 1128m., 19.07.2011; 1♀, Elbistan–Nurhak road (Hırsızpınarı Cemetery), 38°02'14"N 37°18'32 E" 1520m., 20.07.2011; 1♀, Nurhak–Gölbaşı road (Gövdeli Village), 37°58'54"N 37°38'08"E, 1103m., 20.07.2011; 1♀, 10 km. to Çağlayancerit from Gölbaşı, 37°44'00"N 37°21'37 E" 964m., 21.07.2011; 2♀♀, Çağlayancerit (Ağbeyli Village), 37°44'03"N 37°13'48 E" 1600m., 21.07.2011; 2♀♀, Vicinity of Tekir County, 37°54'24"N 36°35'58"E, 1117m., 23.07.2011; 1♀, Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 24.07.2011; 2♀♀1♂, Başkonuş, 37°33'57"N 36°35'45"E, 1410m., 01.09.2011; 2♀♀1♂, Suluyayla-Andırın, 37°34'07"N 36°31'38"E, 1128m., 02.09.2011; 3♀♀2♂♂, Başkonuş, 37°34'05"N 36°35'09"E, 1348m., 03.09.2011.

***Italochrysa italica* (Rossi, 1790)**

Material examined: 3♀♀3♂♂, 10 km to Çağlayancerit from Pazarcık, 37°39'15"N 37°28'02"E, 964m., 21.07.2011; 3♀♀, 1♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 20.08. 2014.

***Nineta guadarrensensis* (Pictet, 1865)**

Material examined: 2♂♂, Nurhak-Gölbaşı road (Vicinity of Tatlar Village), 37°57'50"N 37°35'22"E, 1129m., 20.7.2011.

***Peyerimhoffina gracilis* (Schneider, 1851)**

Material examined: 5♀♀3♂♂, Başkonuş, 37°34'03"N 36°35'14"E, 1323m., 20.07.2010.

***Pseudomallada flavifrons* (Brauer, 1850)**

Material examined: 2♀♀, Nurhak (Gövdeli Village), 37° 58'54"N 37°38'08"E, 1103m., 20.07. 2011; 1♀2♂♂, Vicinity of Çağlayancerit (The Murat Mountain), 997m., 21.7.2011; 2♀, Vicinity of Tekir County, 37°54'24"N 36° 35'58"E, 1125m.,

23.07.2011; 3♀♀4♂♂, Başkonuş, 37°34'11"N 36°34'52"E, 1348m., 19.07.2011; 3♀♀2♂♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 13.09. 2014.

***Pseudomallada prasinus* (Burmeister, 1839)**

Material examined: 3♀♀1♂, Nurhak (Gövdeli Village), 37° 04'07"N 36°31'38"E, 1103m., 20.07. 2011.

***Pseudomallada subflavifrons* (Tjeder, 1949)**

Material examined: 2♀♀1♂, Suluyayla Village-Andırın, 37° 58'54"N 37°38'08"E, 1128m., 02.09. 2011.

***Pseudomallada zelleri* (Schneider, 1851)**

Material examined: 1♂, Afşin (Tanır District), 38° 26'02"N 36°55'34"E, 1239m., 19.07.2011.

Family: Hemerobiidae Latreille, 1802

***Wesmaelius (Kimminsia) subnebulosus* (Stephens, 1836)**

Material examined: 1♂, Başkonuş, 37°34'11"N 36° 34' 52"E, 1348m., 20.07.2010.

Family: Mantispidae Leach in Brewster, 1815

***Mantispa aphavexelte* H. Aspöck & U. Aspöck, 1944**

Materials examined: 1♀2♂♂, Topçalı village – Andırın, 37°33'35"N 36°34'46"E, 1449m, 01.09. 2011; 1♀1♂, Nurhak (Gövdeli Village), 37° 58'54"N 37°38'08"E, 1103m., 20.07. 2011.

***Mantispa scabricollis* McLachlan, 1875**

Material examined: 1♂, Nurhak (Gövdeli Village), 37° 58'54"N 37°38'08"E, 1103m., 20.07. 2011.

***Mantispa styriaca* (Poda, 1761)**

Material examined: 1♀, Nurhak (Gövdeli Village), 37° 38'54"N 37°38'08"E, 1120m., 20.07. 2011.

Family: Myrmeleontidae Latreille, 1802

***Creoleon plumbeus* (Olivier, 1811)**

Materials examined : 1♀2♂♂, Vicinity of thermal power plant in Afşin, 38° 23'28"N 36°58'23"E, 1249m., 19.07. 2011; 1♂, 20 km to Çağlayancerit From Pazarcık, 37°37'52"N 37°29'08"E, 963m., 21.7.2011; 1♀, Vicinity of Elbistan County (Cemetery), 38°02'14"N 37°18'32"E, 1519m., 20.07.2011; 1♀, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 24.07.2011.

***Dendroleon pantherinus* (Fabricus, 1787)**

Materials examined: 1 ♀ 1 ♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 29.8.2014; 1 ♀, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 24.07.2011.

***Distoleon tetragrammicus* (Fabricus, 1798)**

Material examined: 1 ♀, Topçalı Village – Andırın, 37°33'35"N 36°34'46"E, 1449m., 01.09. 2011; 2 ♀♀, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 12.09.2014.

***Myrmecaelurus major* McLachlan, 1875**

Material examined: 1 ♀, Nurhak (Boyalıceylanlar Village), 38° 04'28"N 37°09'37"E, 1120m., 20.07. 2011.

***Myrmecaelurus trigrammus* (Pallas, 1771)**

Materials examined: 2 ♀♀, Vicinity of thermal power plant in Afşin, 38° 23'28"N 36°58'23"E, 1249m., 19.07. 2011; 1 ♀, Nurhak (Tatlar Village), 37° 57'50"N 37°35'22"E, 1203m., 20.07. 2011; 1 ♂, 20 km to Çağlayancerit from Pazarcık, 37°37'52"N 37°29'08"E, 963m., 21.7.2011; 2 ♂♂, Vicinity of Çağlayancerit, 37°39'15"N 37°28'02"E, 997m., 21.7.2011.

***Neuroleon (Ganussa) tenellus* (Klug, 1834)**

Material examined: 1 ♂, Nurhak (Gövdeli Village), 37° 58'54"N 37°38'08"E, 1113m., 20.07. 2011.

***Neuroleon (Neuroleon) assimilis* (Navás, 1914)**

Materials examined: 21 ♀♀ 3 ♂♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 38°04'40"N 37°13'01"E, 687m., between 25.08.2014 and 13.09.2014.

***Neuroleon (Neuroleon) egenus* (Navás, 1914)**

Materials examined: 2 ♂♂, Ekinözü (Akpınar Vicinity), 38°04'40"N 37°13'01"E, 1339m., 20.07.2011.

***Nicarinus poecilopterus* (Stein, 1863)**

Materials examined: 2 ♂♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 37°26'57"N 37°05'43"E, 687m., 11.9.214.

***Palpares libelluloides* (Linnaeus, 1764)**

Materials examined: 1 ♀ 1 ♂, 37°23'24"N 36°40'55"E, Fatih District, 1012m., 20.7.2010; 2 ♀♀ 1 ♂, 37°23'24"N 36°40'55"E, Bank of Elbistan-Nurhak road, 1519m., 20.7.2011; 2 ♀♀, 37° 54'24"N 36° 35'58"E, Vicinity of Tekir, 1117m., 23.07.2011.

***Solter ledereri* Navás, 1912**

Material examined: 1♂, Bank of Kahramanmaraş-Narlı road (Hukukçular Ormanı), 38°04'40"N 37°13'01"E, 680m., 20.07. 2011.

Family: Nemopteridae Burmeister, 1839***Lertha extensa* (Olivier, 1811)**

Material examined: 1♀, Bank of Ekinozu-Elbistan road, 37°26'57"N 37°05'43"E, 687m., 14.09.2011.

***Nemoptera sinuata* Olivier, 1811**

Materials examined: 1♂, Vicinity of Fatih District, 37°23'24"N 36°40'5"E, 1012m., 20.06.2010; 2♀♀, 5♂♂, Firniz, 37°42'29"N 36°41'23"E, 1012m., 29.06.2010.

Discussion

In previous studies, 20 species belonging to 5 families, namely Berothidae, Chrysopidae, Hemerobiidae, Myrmeleontidae, and Nemopteridae, were recorded from Kahramanmaraş (Hölzel, 1967a, 1968; Şengonca, 1978, 1979, 1980a, and 1981a, 1981b; Kačirek, 1998; Ari & Kiyak, 2000; Bahadıroğlu & Daymaz, 2001). In this work, existence of *Chrysopa pallens*, *Chrysotropia ciliata*, *Chrysopa dubitans*, *Chrysopa hungarica*, *Chrysopa nigricostata*, *Italochrysa vartianorum* of Chrysopidae, and *Symphorobius* (*Symphorobius*) *pygmaeus* has not been confirmed. There was no species belonging to Ascalaphidae and Mantispidae in previous studies; however 5 species of both families have been recorded in this study. Total of 34 species belonging to 22 genera and 7 families have been determined. Of 34 species, 12 (*Isoscelipteron fulvum*, *Brinckochrysa amseli*, *Chrysopa formosa*, *Chrysopa viridana*, *Chrysoperla carnea*, *Italochrysa italica*, *Pseudomallada flavifrons*, *Pseudomallada prasinus*, *Pseudomallada subflavifrons*, *Palpares libelluloides*, *Lertha extensa*, and *Nemoptera sinuata*) were recorded in previous documents. The rest of 34 species have been added to Kahramanmaraş neuropterid fauna by this study.

Chrysopa dorsalis and *Peyerimhoffina gracilis* are confined to coniferous trees, and *Mantispa aphavexelte*, *Mantispa scabricollis*, *Mantispa styriaca*, *Nineta guadarramensis*, *Italochrysa italica*, *Chrysopa viridana*, *Chrysopa abbreviata*, *Brinckochrysa amseli*, and *Neuroleon* (*Ganussa*) *tenellus* were captured from deciduous trees. *Lertha extensa*, *Deleproctophylla dusmeti*, *Myrmecaelurus major* and *Libelloides macaronius* are common in steppe habitats. Specimens belonging to *Palpares libelluloides*, *Myrmecaelurus trigrammus*, *Creoleon plumbeus*, *Distoleon tetragrammicus*, *Pseudomallada subflavifrons*, *Pseudomallada prasinus*, *Pseudomallada flavifrons*, *Chrysoperla carnea* are commonly found on broad-leaved trees such as oak, poplar, plum, pear, and coniferous trees such as *Pinus brutia*, *Pinus nigra*, *Cedrus libani*, *Abies cilicica*, herbaceous plants, shrubs, and steppe. In table 2, collecting methods of specimens are presented.

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Name of the Species	Capturing Methods		Name of the Species	Capturing Methods	
	Insect Net	Light Trap		Insect Net	Light Trap
<i>Deleproctophylla dusmeti</i>	+	-	<i>Pseudomallada zelleri</i>	+	-
<i>Libelloides macaronius</i>	+	-	<i>Mantispa aphavexelte</i>	+	-
<i>Isoscelipteron fulvum</i>	-	+	<i>Mantispa scabricollis</i>	+	-
<i>Wesmaelius (K.) subnebulosus</i>	+	-	<i>Mantispa styriaca</i>	+	-
<i>Brinckochrysa amseli</i>	+	-	<i>Creoleon plumbeus</i>	+	+
<i>Chrysopa abbreviata</i>	+	-	<i>Dendroleon pantherinus</i>	-	+
<i>Chrysopa dorsalis</i>	+	-	<i>Distoleon tetragrammicus</i>	+	+
<i>Chrysopa formosa</i>	+	-	<i>Myrmecaelurus major</i>	+	-
<i>Chrysopa perla</i>	+	+	<i>Myrmecaelurus trigrammus</i>	+	+
<i>Chrysopa viridana</i>	+	-	<i>Neuroleon (Ganussa) tenellus</i>	+	-
<i>Chrisoperla carnea</i>	+	+	<i>Neuroleon (N.) assimilis</i>	-	+
<i>Italochrysa italica</i>	+	+	<i>Neuroleon (N.) egenus</i>	-	+
<i>Nineta guadarrensis</i>	+	-	<i>Nicarinus poecilopterus</i>	-	+
<i>Peyerimhoffina gracilis</i>	+	-	<i>Palpares libelluloides</i>	+	+
<i>Pseudomallada flavifrons</i>	+	+	<i>Solter ledereri</i>	-	+
<i>Pseudomallada prasinus</i>	+	-	<i>Lertha extensa</i>	+	-
<i>Pseudomallada subflavifrons</i>	+	-	<i>Nemoptera sinuata</i>	+	-

Table 2: Collecting methods of species. Plus (+) indicates the method used to capture species.

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