

**Research article**Submitted: October 16<sup>th</sup>, 2018 - Accepted: November 19<sup>th</sup>, 2018 - Published: December 31<sup>st</sup>, 2018**The antlions of Cyprus: review and new reports  
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**Abstract**

The antlions (Myrmeleontidae) of Cyprus have been poorly studied and only 13 species were known from this biogeographically interesting island. In light of new field research, we provide an updated checklist to the Cypriot antlions, including seven species reported for the first time from the island. Of these, the findings of the Middle Eastern species *Distoleon laticollis* and *Cueta kasyi* are particularly noteworthy. The Cypriot antlion fauna appears dominated by widespread Mediterranean elements, with relatively few Middle Eastern and endemic species.

**Key words:** Neuropterida, Myrmeleontiformia, lacewings, Mediterranean, faunistics.

**Introduction**

Cyprus is the third largest island in the Mediterranean Sea, with a strategic location at the crossroads of the continents of Europe, Asia and Africa, not only from a historical but also from a biogeographical point of view. Indeed, within the Palaearctic zoogeographic region, Cyprus is positioned in the East Mediterranean (Balcano-Syrian) domain of the Mediterranean subregion. According to herpetological literature (e.g. Baier et al. 2013) Cyprus is clearly part of southwestern Asia rather than south-eastern Europe when judged from its herpetofauna. Similarly, but perhaps to a lesser extent, certain Lepidoptera such as *Apharitis acamas* (Klug, 1834) and *Luthrodes (Chilades) galba* (Lederer, 1855) are marginal species, with a European presence only in Cyprus (Makris 2003; John 2005; Kudrna et al. 2015). Up to the present, the lacewing (Neuroptera) fauna of Cyprus has been insufficiently investigated, and based mainly on sporadic records. This lack of data was particularly evident for antlions (Myrmeleontidae), which is surprising given that they are medium-sized or large neuropterans, albeit of arid biotopes. The oldest known Cypriot record of myrmeleontids dates back to 1914, when *Solter gaudryi* was described for the island as a new species

(Navás 1914). Later, another two species were described, *Delfimeus limassolicus* and *Neuroleon mavromustakisi* (Navás 1931); the latter species is assigned as *nomen dubium* by Aspöck et al. (2001). At the end of the 20<sup>th</sup> century, in the period from 1980 to 1991, Herbert Hölzel collected antlions in Cyprus during his field trips, and the results of his study are faunal lists that include data for antlions of the island (Aspöck & Hölzel 1996; Aspöck et al. 2001).

Until recently, and discounting *Neuroleon mavromustakisi*, 11 antlion species were known for Cyprus. However, in preparation for a chapter on Neuroptera that was to appear in a book on the general wildlife of Cyprus (Sparrow & John 2016) efforts were made to determine whether other species of antlion might be present in Cyprus. Contact with resident or visiting naturalists and nature photographers, together with fieldwork by several authors of this paper, resulted in the assemblage of a number of specimens and photographs. Among these, two species new to Cyprus, *Gymnocnemia variegata* (Schneider, 1845) and *Neuroleon nemausiensis* (Borkhausen, 1791), were identified (Kral & Devetak 2016). In the resulting, recently published preliminary checklist of antlion species of Cyprus, Kral & Devetak (2016) listed thirteen antlion species recorded from the island, with new findings to be

expected. The aim of the present paper is to provide an updated list of antlions known for Cyprus (Table 1).

## Material and methods

Adult antlions were captured with an insect net. With the aid of a spoon, larval antlions were collected from sands in natural habitats, and the larvae reared in the laboratory. Specimens were preserved in ethanol or dry preserved and deposited in the D. Badano (Taggia, Italy) and D. Devetak (Maribor, Slovenia) collections, respectively. Classification largely follows Stange (2004).

## Results

Palparini Navás, 1912

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

**Examined specimens.** Cyprus. Foinikaria: 34°45'36.40"N, 33° 6'4.48"E; dry grassland, 2.VII.2011, C. Makris leg., 1♂. Agia Varvara (Pafos): 34°45'12.48"N, 32°31'20.48"E; dry grassland, 25.V.2012; C. Makris leg., 1♂. Agios Sergios: 35°12.521'N, 33°53.937'E; dry grassland,

25.VII.2015, D. Devetak leg., 3♀. Agia Varvara (Pafos): 34°45'8.14"N, 32°31'24.43"E; dry grassland, 18.V.2017, C. Makris leg., 1♂, 1♀. Anarita: 34°45'33.82"N, 32°32'31.43"E; dry grassland, 17.VI.2018, C. Makris leg., 1♂.

**Distribution.** Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, France, Greece, Hungary, Italy, FYR Macedonia, Montenegro, Portugal, Romania, Spain; Africa: Algeria, Morocco, Tunisia; Asia: Cyprus, Iraq, Iran, Israel, Jordan, Syria, Turkey (Aspöck et al. 2001; Kral & Devetak 2016; Oswald 2018).

**Biology.** A widespread species in the Mediterranean, *P. libelluloides* is found in meadows, open woods and scrublands. The larvae are ambush hunters living under rocks and plant debris (Aspöck et al. 1980; Krivokhatsky 2011; Gepp 2010; Badano & Pantaleoni 2014).

Nemoleontini Banks, 1911

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

**Examined specimens.** Cyprus. Chlorakas coast: 4.IX.2013, D. & R. Sparrow leg., 1♀. Marathounta: 2014, P.J. Evans leg., 1♂, 1♀. Agios Sergios: dry grassland, 35°12.521'N, 33°53.937'E; 25.VII.2015, D. Devetak leg., 4♂,

**Table 1** – Myrmeleontidae of Cyprus.

Palparini	<i>Palpares libelluloides</i> (Linnaeus, 1764)
Nemoleontini	<i>Creoleon plumbeus</i> (Olivier, 1811) <i>Delfimeus limassolicus</i> (Navás, 1931) <i>Nemoleon poecilopterus</i> (Stein, 1863) First report from Cyprus <i>Neuroleon assimilis</i> (Navás, 1914) First report from Cyprus <i>Neuroleon egenus</i> (Navás, 1915) <i>Neuroleon microstenus</i> (McLachlan, 1898) <i>Neuroleon nemausiensis</i> (Borkhausen, 1791) <i>Neuroleon tenellus</i> (Klug in Ehrenberg, 1834) First report from Cyprus <i>Distoleon annulatus</i> (Klug in Ehrenberg, 1834) <i>Distoleon laticollis</i> (Navás, 1915) First report from Cyprus <i>Distoleon tetragrammicus</i> (Fabricius, 1798) First report from Cyprus <i>Megistopus flavicornis</i> (Rossi, 1790) <i>Gymnocnemia variegata</i> (Schneider, 1845)
Acanthaclisini	<i>Synclisis baetica</i> (Rambur, 1842) First report from Cyprus
Myrmecaelurini	<i>Myrmecaelurus trigrammus</i> (Pallas, 1771)
Nesoleontini	<i>Cueta kasyi</i> Hölzel, 1969 First report from Cyprus <i>Cueta lineosa</i> (Rambur, 1842)
Gepini	<i>Solter gaudryi</i> Navás, 1914
Myrmeleontini	<i>Myrmeleon hyalinus</i> Olivier, 1811

3♀. Chlorakas: 34°47.476'N, 32°23.684'E; 9.VI.2017, D. & R. Sparrow leg., 1♀. Karpasia: field margin on northern coast, NE of Rizokarpaso, 35°38.531'N, 34°25.296'E; 5.V.2016, E. John leg., 1♂. Geri: 10.IX.2016, C. Makris leg., 1♀.

**Distribution.** Europe: Albania, Bulgaria, Croatia, Greece, Hungary, Italy, FYR Macedonia, Moldova, Poland, Romania, Russia, Serbia, Slovakia, Ukraine; Asia: Armenia, Azerbaijan, China, Georgia, Kazakhstan, Kyrgyzstan, Cyprus, Israel, Iran, Syria, Tajikistan, Turkey, Turkmenistan (Aspöck et al. 2001; Kral & Devetak 2016; Oswald 2018).

**Biology.** This antlion is associated with meadows, steppes

and other open environments dominated by grass. The larvae live in sandy soils (Gepp 2010; Krivokhatsky 2011).

***Delfimeus limassolicus* (Navás, 1931) (Fig. 1)**

**Examined specimens.** Cyprus. Pitargou: 34°49'46.30"N, 32°32'11.99"E; pine forest, 18.VIII.2012, C. Makris leg., 1♀. Platres: 34°53'19.85"N, 32°51'40.28"E: pine forest, 18.VII.2014, C. Makris leg., 1♀. Kapilio: 34°49'45.74"N, 32°57'59.26"E; cultivations, 9.VIII.2013, M. Hadjiconstantis leg., 1♂, 1♀. Kapilio: 34°49'45.74"N, 32°57'59.26"E; cultivations, 16.VIII.2014, M. Hadjiconstantis leg., 1♂, 1♀. Chlorakas: 34°47.476'N, 32°23.684'E; 9.VI.2017, D. & R. Sparrow leg., 1♂. Agrokippia: 35°1'57.56"N, 33°



**Figs 1-6** – Myrmeleontidae from Cyprus. 1, *Delfimeus limassolicus* (Navás), Platres. 2, *Distoleon laticollis* (Navás), Lemesos. 3, *Nemoleon poecilopterus* (Stein), Agios Ilarion. 4, *Neuroleon assimilis* (Navás), Kokkinokremmoi. 5, *Neuroleon tenellus* (Klug in Ehrenberg), Larnaka Tekes. 6, *Cueta kasyi* Hölzel, Agios Sozomenos. Photos by C. Makris.

9°27.95"E; cultivations, 15.VIII.2017, M. Hadjiconstantis leg., 1♀. Panagia: 34°54'25.79"N, 32°36'59.83"E; pine forest; 20.VII.2017, M. Hadjiconstantis leg., 1♂.

**Distribution.** Asia: Cyprus (endemic species) (Aspöck et al. 2001; Oswald 2018).

**Biology.** Unknown.

**Note.** *D. limassolicus*, a Cypriot endemic species, belongs to the *D. scriptus* Navás, 1912 group of species. The knowledge of this group is far from exhaustive and a thorough revision appears necessary, although *D. limassolicus* differs from *D. scriptus* in wing characters (Hölzel 1972).

***Distoleon annulatus* (Klug in Ehrenberg, 1834)**

**Examined specimens.** Cyprus. Akrotiri: 34°37'15.68"N, 32°55'22.83"E; halophytic vegetation, 10.X.2013, C. Makris leg., 2 ♀. Nikokleia: 1.X.2014, I. Barton leg., 1 ♀. Akrotiri: 34°37'15.68"N, 32°55'22.83"E; halophytic vegetation, 25.IX.2016, C. Makris leg., 1♂. Akrotiri: 34°37'15.68"N, 32°55'22.83"E; halophytic vegetation, 8.IX.2016, C. Makris leg., 1♂. Kourion: 34°40'10.29"N, 32°52'28.84"E; *Juniperus* and *Cupressus* forest, 1.X.2017, C. Makris leg., 1♂.

**Distribution.** Europe: Greece, Italy (islands of Sicilian strait), Malta, Portugal, Spain; Macaronesia: Canary Islands; North Africa: Algeria, Egypt, Morocco; Asia: Cyprus, Israel, Iraq, Iran (Aspöck et al. 2001; Oswald 2018).

**Biology.** This antlion appears associated with arid, preferably rocky, environments. The larvae were found in rock cavities or in loose soil at the base of grass (Acevedo et al. 2013).

***Distoleon laticollis* (Navás, 1915) (Fig. 2)**

**Examined specimens.** Cyprus. Lemesos: 5.IX.2013, C. Makris leg., 1♀. Lemesos: 34°40'53.20"N, 33° 2'17.80"E; habitation, 5.IX.2013; C. Makris leg., 1♀, attracted to light. Lemesos: 34°40'53.20"N, 33° 2'17.80"E, habitation, 31.VII.2014, C. Makris leg., 1 ♀, attracted to light. Lemesos: 34°40'53.20"N, 33° 2'17.80"E; habitation, 28.VII.2017, C. Makris leg., 1♂, attracted to light. Kouklia (shallow lake – often dry in summer): 8.IX.2013, larva, adult obtained on 14.VIII.2014, B. Devetak leg., 1 ♀. Fasouri: 34°38'0.36"N, 32°55'44.11"E; cultivations, 6.X.2016, M. Philippou leg. 1 ♀.

**Distribution.** Africa: Sudan, Ethiopia; Asia: Israel, Lebanon, Oman, Turkey, Saudi Arabia, Syria (Aspöck et al. 2001; Oswald 2018).

**Biology.** Largely unknown, associated with arid environments.

**Note.** First report from Cyprus.

***Distoleon tetragrammicus* (Fabricius, 1798)**

**Examined specimens.** Cyprus. Alampra: 34°59'27.68"N, 33°24'44.44"E; cultivations, 13.V.2017, M. Hadjiconstantis leg., 1♂. Agrokipia: 35° 1'57.56"N, 33° 9'27.95"E; cultivations, 20.V.2017, M. Hadjiconstantis leg., 1♂.

**Distribution.** Europe: Albania, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Kosovo, FYR Macedonia, Moldova, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Switzerland, Ukraine; Africa: Morocco, Tunisia; Asia: Armenia, Azerbaijan, Georgia, Iran, Iraq, Israel, Kazakhstan, Syria, Turkey (Aspöck et al. 2001; Oswald 2018).

**Biology.** *D. tetragrammicus* is a widespread species and one of the more common antlions in Mediterranean environments. This myrmeleontid can be observed in a wide range of biotopes, from coastal sand dunes to woods and mountains. The larvae are ambush hunters and may be found wherever a suitable sand-like substrate occurs but they usually avoid exposed conditions (Steffan 1975; Gepp 2010; Krivokhatsky 2011; Acevedo et al. 2013; Badano & Pantaleoni 2014).

**Note.** First report from Cyprus.

***Nemoleon poecilopterus* (Stein, 1863) (Fig. 3)**

**Examined specimens.** Cyprus. Agios Ilarion: 35°18'35.67"N, 33°16'9.44"E; maquis, 5.VI.2016, C. Makris leg., 1♂.

**Distribution.** Europe: Bulgaria, Croatia, Greece, Italy, Kosovo; Africa: Niger; Asia: Afghanistan, Armenia, Azerbaijan, Iran, Kyrgyzstan, Syria, Tajikistan, Turkey (Aspöck et al. 2001; Oswald, 2018).

**Biology.** A rare and poorly known species, *N. poecilopterus* is mainly reported from arid and environments (Aspöck et al. 1980). Larvae unknown.

**Note.** First report from Cyprus.

***Neuroleon assimilis* (Navás, 1914) (Fig. 4)**

**Examined specimens.** Cyprus. Pafos Forest: Kokkinokremmoi, 34°58'12.70"N, 32°38'17.69"E; 7.VIII.2014, C. Makris leg., 1♂. Kourion: 34°40'10.29"N, 32°52'28.84"E; *Juniperus* and *Cupressus* forest, 17.IX.2014,

C. Makris leg., 1♂. Platres: 25.VII.2015, C. Makris leg., 1♂. Platres: 34°53'19.85"N, 32°51'40.28"E; habitation in pine forest, 3.IX.2016, Y. Christofides leg., 1♀. Chrysorrogiatissa: 34°54'27.50"N, 32°36'57.22"E; pine forest, 23.VIII.2017, C. Makris leg., 1♀.

**Distribution.** Europe: Greece; Asia: Armenia, Iran, Syria, Turkey (Aspöck et al. 2001; Oswald 2018).

**Biology.** A poorly known Mediterranean species, larvae of which were collected under rock overhangs and at the base of escarpments (Badano & Pantaleoni 2014).

**Note.** First report from Cyprus.

#### *Neuroleon egenus* (Navás, 1915)

**Examined specimens.** Cyprus. Chlorakas: 13.VIII.2013, D. & R. Sparrow leg., 1♂. Chlorakas coast: IX.2013, D. & R. Sparrow leg., 1♀. Chlorakas: 34°47.484'N, 32°23.682'E; VI.2016, D. & R. Sparrow leg., 1♀. Chlorakas: 34°47.476'N, 32°23.684'E; 9.VI.2017, D. & R. Sparrow leg., 1♂. Lemesos: 34°40'53.20"N, 33°2'17.80"E; habitation, 6.VIII.2013, C. Makris leg., 1♂. Nikokleia: 34°43'37.11"N, 32°34'37.09"E; cultivations, 3.X.2014, I. Barton leg., 1♀. Saittas: 34°52'27.19"N, 32°55'0.50"E; pine forest, 3.IX.2014, C. Makris leg., 1♀.

**Distribution.** Europe: Albania, Croatia, France, Greece, Italy, Malta, Spain; North Africa: Algeria, Morocco, Tunisia; Asia: Cyprus, Israel, Syria, Turkey (Aspöck et al. 2001, Oswald 2018).

**Biology.** This antlion is associated with Mediterranean environments with the presence of arboreal vegetation. The larvae are usually found in shaded conditions at the base of trees or under escarpments (Steffan 1971, 1975; Badano & Pantaleoni 2014).

**Note.** A junior synonym of this species, *N. cyprius* (Navás, 1940) was described from this island (Aspöck et al. 1980, 2001; Stange 2004).

#### *Neuroleon mavromustakisi* (Navás, 1931)

Literature record: Navás (1931). *Nomen dubium* by Aspöck et al. (2001).

#### *Neuroleon microstenus* (McLachlan, 1898)

Literature record: Aspöck & Hölzel (1996).

#### *Neuroleon nemausiensis* (Borkhausen, 1791)

**Examined specimens.** Cyprus. Karpasia: Pachyammos/Golden Beach, 35°38.510'N, 34°32.180'E; sand dunes

with rocky outcrops and overhangs, 3.V.2016, E. John leg., 1♂.

**Distribution.** Europe: France, Greece, Hungary, Italy, Malta, Portugal, Romania, Spain, Ukraine; North Africa: Algeria, Morocco; Asia: Cyprus, Turkey (Aspöck et al. 2001; Kral & Devetak 2016; Oswald 2018).

**Biology.** *N. nemausiensis* is found in Mediterranean environments such as dry open woods and scrublands. The larvae of this species occur in different microhabitats such as under rock overhangs and at the base of trees. However, they seem to prefer small rock cavities filled with detritus (Badano & Pantaleoni 2014).

#### *Neuroleon tenellus* (Klug in Ehrenberg, 1834) (Fig. 5)

**Examined specimens.** Cyprus. Akrotiri: 34°35'56.82"N, 33°0'17.28"E; sand dunes, 23.V.2014, C. Makris leg., 2♀. Chlorakas coast: 1.VII.2015, D. & R. Sparrow leg., 1 ex.. Fasouri: 34°37'56.14"N, 32°55'16.34"E; dry grassland, 20.VI.2015, C. Makris leg., 1♀, Fasouri: 26.VI.2015, C. Makris leg., 1♂. Trachoni: 34°39'17.17"N, 32°57'55.06"E; habitation, 23.V.2016, C. Makris leg., 1♀. Larnaka Salt Lake: 34°53'25.34"N, 33°36'11.33"E; halophytic vegetation, 28.V.2016, C. Makris leg., 1♂. Lemesos: 34°40'53.20"N, 33°2'17.80"E; habitation, 16.VII.2017, C. Makris leg., 1♂, attracted to light.

**Distribution.** Europe: Greece, FYR Macedonia; North Africa: Egypt, Libya, Tunisia, Sudan; Asia: Afghanistan, Israel, Iraq, Iran, Lebanon, Oman, Saudi Arabia, Turkey, Turkmenistan (Aspöck et al. 2001; Devetak & Zeqiri 2018; Oswald 2018).

**Biology.** This species is poorly known and is usually reported from arid environments. The larvae are unknown (Aspöck et al. 1980).

**Note.** First report from Cyprus.

#### *Megistopus flavicornis* (Rossi, 1790)

Literature record: Aspöck & Hölzel (1996).

#### *Gymnocnemis variegata* (Schneider, 1845)

**Examined specimen.** Cyprus. Marathounta: 2014, P.J. Evans leg., 1♂. Rizokarpaso (Afentrika): 35°38'49.57"N, 34°26'26.32"E; 10.VII.2016, M. Hadjiconstantis leg., 1♀. Also photographed in Platres: ca. 34°53.340'N, 32°51.709'E; 6.VII.2012, Y. Christofides.

**Distribution.** Europe: Bulgaria, Croatia, France, Greece, Italy, Malta, Slovenia, Spain, Switzerland, Ukraine; North Africa: Algeria, Tunisia; Asia: Cyprus, Israel, Syria, Ta-

jikistan, Turkmenistan (Aspöck et al. 2001; Kral & Devetak 2016; Oswald 2018).

**Biology.** *G. variegata* is a widespread species in the Mediterranean, although its populations are often highly localized. The larvae are typical inhabitants of protected, dry microhabitats, such as rock overhangs, escarpments, animal burrows and at cave entrances (Cesaroni et al. 2010; Badano & Pantaleoni 2014).

Acanthaclisini Navás, 1912

### *Synclisis baetica* (Rambur, 1842)

**Examined specimen.** Cyprus. Nikokleia: 34°43'37.11"N, 32°34'37.09"E; cultivations, 2.X.2013, I. Barton leg., 1♂. Episkopi: 34°40'55.23"N, 32°52'8.88"E; maquis 3.IX.2014, C. Makris leg., 1♂.

**Distribution.** Europe: Albania, Bulgaria, Croatia, France, Greece, Hungary, Italy, Malta, Romania, Spain, Ukraine; Macaronesia: Canary Islands, Madeira; North Africa: Algeria; Asia: Israel, Iran, Turkey (Aspöck et al. 2001; Klokočovník et al. 2016; Oswald 2018).

**Biology.** *S. baetica* is associated with deep sand, conditions usually found in coastal dunes and beaches, although this antlion is frequent in fossil dunes or other sandy habitats in the interior. The larva is an active, aggressive predator, hunting both by ambush and by pursuing prey (Principi 1947; Steffan 1971; Gepp 2010; Krivokhatsky 2011; Badano & Pantaleoni 2014; Klokočovník et al. 2016).

**Note.** First report from Cyprus.

Gepini Markl, 1954

### *Solter gaudryi* Navás, 1914

Literature record: Navás (1914), Hölzel (1969).

Myrmecaelurini Esben-Petersen, 1918

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

Literature record: Aspöck & Hölzel (1996).

Nesoleontini Markl, 1954

### *Cueta kasyi* Hölzel, 1969 (Fig. 6)

**Examined specimens.** Cyprus. Kidasi: 12.VIII.2014, C. Makris leg., 1♀. Lemesos: 20.VIII.2015, C. Makris leg., 1♂. Maroni: 34°45.312'N, 33°22.370'E; ca. 59 m, 30.VIII.2016, B. Thomas leg., 1♀. Maroni: 34°45.330'N, 33°22.332'E; ca. 67 m, 18.VIII.2016, B. Thomas leg., 1♀.

Maroni: 34°45.312'N, 33°22.370'E; ca. 59 m, 05.IX.2016, B. Thomas leg. 1♀. Geri: 10.IX.2016, C. Makris leg., 1♀. Agios Sozomenos: 17.XI.2016, C. Makris leg., 3♂, 2♀.

**Distribution.** North Africa: Egypt; Asia: Israel, Syria, Turkmenistan (Krivokhatsky 1994; Aspöck et al. 2001; Oswald 2018).

**Biology.** Unknown. Presumably a pit builder of arid biotopes, like congeners.

**Note.** First report from Cyprus.

### *Cueta lineosa* (Rambur, 1842)

**Examined specimens.** Cyprus. Meneou: 4.VIII.2013, M. Hadjiconstantis leg., 2♂. Platani: 24.VIII.2013, C. Makris leg., 1♀. Agios Sergios: dry grassland, 35°12.521'N, 33°53.937'E; 25.VII.2015, D. Devetak leg., 1♀. Agios Sozomenos: 2.X.2014, C. Makris leg., 1♂, 1♀. Karpasia: Pachyammos / Golden Beach, sand dunes, 35°38.498'N, 34°32.496'E; 27.VII.2015, D. Devetak leg., 1 larva (L3). Maroni: 34°45.330'N, 33°22.332'E; ca. 67 m, 09.VI-II.2016, B. Thomas leg., 1 ex. Maroni: 34°45.330'N, 33°22.332'E; ca. 67 m., 19.VIII.2016, B. Thomas leg., 1 ex. Agios Sozomenos: 04.VIII.2015, C. Makris leg., 1♂. 17.XI.2016, C. Makris leg., 2♂.

**Distribution.** Europe: Albania, Bulgaria, Greece, Italy, FYR Macedonia; Africa: Egypt, Djibouti, Morocco, Sudan, Tunisia; Asia: Afghanistan, Cyprus, Israel, Iraq, Iran, Lebanon, Oman, Pakistan, Saudi Arabia, Turkey, Turkmenistan, Uzbekistan, Yemen (Aspöck et al. 2001; Kačirek 2013; Devetak & Zeqiri 2018; Oswald 2018).

**Biology.** *C. lineosa* is a common and widespread antlion in deserts and steppe-like habitats of the southern edge of the Western Palaearctic. The larvae are pit-builders, usually digging their traps in exposed conditions (Lackinger 1972; Krivokhatsky 2011; Badano & Pantaleoni 2014).

Myrmeleontini Latreille, 1802

### *Myrmeleon hyalinus* Olivier, 1811

**Examined specimens.** Cyprus. Agios Sergios: dry grassland, 35°12.521'N, 33°53.937'E; 25.VII.2015, D. Devetak leg., 1♂. Agios Theodoros: olive plantation, 35°21.265'N, 34°0.945'E; 27.VII.2015, D. Devetak leg., 1♂. Akrotiri: 15.VI.2013, C. Makris leg., 1♂. Ammochostos (city): larva 10.IX.2013, adult 14.VIII.2014, D. Devetak leg., 1♀. Karpasia: Golden Beach, sand dunes, 35°38.420'N, 34°32.130'E; larva 4.VIII.2014, adult 10.VIII.2015, D. Devetak leg., 1♀. Kouklia (shallow lake, often dry in summer): ex larva 8.IX.2013, adults VII.2014, B. Devetak leg., 3♀. Salamis: grassland/bushes, 35°11.017'N, 33°54.062'E; 3

larvae, VIII.2014, adult 13.IX.2014, D. Devetak leg., 1 ♂. Salamis: sandy area/grassland; 35°11.017'N, 33°54.062'E; larva 25.VII.2015, adult VIII.2015, D. Devetak leg., 1 ♂, 2 ♀. Northern Coast: Davlos, larva 9.IX.2013, adult VII.2014, D. Devetak leg., 1 ♀. Trikomo: larva VIII.2012, adult 3.X.2012, M. Zavec leg., 1 ♀. Salamis Bay, between Salamis and Ampelia larvae 9-12.IX.2013, adults VII.2014, D. Devetak leg. Salamis Bay, between Salamis and Ampelia: 0.6 km north, dry grassland with *Paliurus* bushes, 35°12.780'N, 33°53.969'E; 31.VII.2014, 5 larvae, 13.IX.2014, 1 ♀, D. Devetak leg.

**Distribution.** Europe: Albania, Greece, Italy, Malta, Portugal, Spain; Africa: Algeria, Cabo Verde, Egypt, Ethiopia, Gambia, Libya, Mauritania, Morocco, Senegal, Sudan, Tunisia; Asia: Afghanistan, Cyprus, India, Iran, Iraq, Israel, Lebanon, Oman, Saudi Arabia, Syria, Turkey, Yemen (Aspöck et al. 2001; Kral & Devetak 2016; Oswald 2018).

**Biology.** A widespread thermophilic species typical of open sandy biotopes from coastal dunes to deserts. Along the Mediterranean coast, it is a common inhabitant of coastal dunes. The larvae are pit builders, usually digging their traps at the base of psammophilous herbs or low bushes (Badano & Pantaleoni 2014).

## Discussion

The present study increases the number of myrmeleontids known from Cyprus to 20 species, excluding the doubtful taxon *Neuroleon mavromustakisi*, the status of which remains uncertain since the type specimen was lost and the original description (Navás 1931) lacks any diagnostic detail. In the present study, we report seven species new for Cyprus, of which two, *Distoleon laticollis* and *Cueta kasyi*, are of notable interest being close to the western boundary of their distribution.

In common with other animal groups, the antlion fauna of Cyprus appears dominated by Mediterranean faunal elements, with the addition of a few Middle Eastern species. Of the antlion species known from Cyprus, 14 (70%) are widespread in the Mediterranean region and most of them are widely distributed in southern Europe (i.e. *Palpares libelluloides*, *Distoleon tetragrammicus*, *Nemoleon poecilopterus*, *Neuroleon assimilis*, *N. egenus*, *N. microstenus*, *N. nemausiensis*, *Creoleon plumbeus*, *Megistopus flavicornis*, *Gymnocnemia variegata*, *Synclisis baetica*, *Myrmecaelurus trigrammus*, *Cueta lineosa* and *Myrmeleon hyalinus*), while two (i.e. *Neuroleon tenellus* and *Distoleon annulatus*) also attain a wider distribution in the most arid areas of the western Palaearctic. The remaining three species (i.e. *Distoleon laticollis*, *Solter gaudryi* and *Cueta kasyi*) are Middle Eastern faunal elements, sometimes reaching North Africa. Finally, only one species, *Delfi-*

*meus limassolicus*, is a Cypriot endemic, although it belongs to a group of species in great need of revision. Further research on the Cypriot antlions should focus on the ecology and biology of this diverse assemblage.

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