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## Dermaptera from Cyprus and Turkey

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### Summary

*Forficula smyrnensis* SERVILLE, 1839 is recorded for the first time from Cyprus, and *Forficula lurida* FISCHER, 1853 and *Labidura riparia* (PALLAS, 1773) are again recorded from Turkey. A list of Cypriot and Turkish Dermaptera previously recorded is given. The gut contents of *Forficula lurida* and *Labidura riparia* suggests carnivorous feeding habits, whereas in *Forficula smyrnensis* only plant fragments found.

### Zusammenfassung

*Forficula smyrnensis* SERVILLE, 1839 wird erstmals von Zypern, *Forficula lurida* FISCHER, 1853 und *Labidura riparia* (PALLAS, 1773) werden aus der Türkei nachgewiesen. Eine Liste der bisher von Zypern und der Türkei bekannten Dermapteren wird vorgelegt. Darminhaltsuntersuchungen von *Forficula lurida* und *Labidura riparia* deuten auf eine carnivore Ernährungsweise hin; dagegen wurden bei *Forficula smyrnensis* ausschließlich pflanzliche Nahrungsreste gefunden.

### Keywords

Forficula, Labidura, Turkey, Cyprus, Asia Minor, gut contents, feeding

### Introduction

The areas were visited during travelling explorations in the south east of Turkey and the west of Cyprus (Akamas peninsula). The humid and moderate microclimate near and in cave entrances often provides shelter during extreme weather conditions. Besides this biotope also humid gorges (Afgas gorge), grassland and dry pine forests (Akamas forest) were visited and examined. On Cyprus, Dermaptera and invertebrates in general are abundant in the spring (March) but difficult to find in the dry season (July). Amongst different collecting techniques, turning over stones appears most successful to collect Dermaptera. In sandy caves near the coast, loose scales were removed from the walls to collect the specimens.

## Species found and faunal relations

The two species, *Forficula lurida* and *Forficula smyrnensis*, are distributed through Asia Minor and have previously been reported from Turkey and from the Mediterranean islands Crete and Rhodes (Table 1). They are well capable of travelling over the sea either by natural means or as tramp species (no data available). However, to our knowledge no collecting effort was done on Cyprus besides those reported by BURR (1912) and WERNER (1936), so its Dermaptera fauna is largely unknown. The current record of *F. lurida* is the first for Cyprus for almost 65 years, and *F. smyrnensis* is the first record ever. *Apterygida media* is the only other Dermaptera species which was found on Cyprus before (WERNER 1936).

*Labidura riparia* is known from all over the world from sandy beaches and river banks (*riparia* refers to river bank or sea shore) on the mainland and islands. So it is not surprising to find this species in Turkey and it was already recorded in 1952 (BURR 1952a, b).

## Feeding habits

The feeding habits of most Dermaptera are virtually unknown, only economically important and European species have been examined in more detail (for exception see HAAS 1995b). The finds of the two Forficulidae and one Labiduridae species gave us the opportunity to examine the feeding habits of two yet unexamined species.

*Labidura riparia* is known to be carnivorous (ALBOUY & CAUSSANEL 1990), the wing fragments and the halteres suggest that it fed on a Diptera before it was collected. No information was available to us concerning the feeding habits of the two species of *Forficula*, so the current information is the first for those species. However, the congeneric *Forficula auricularia* is omnivorous, sometimes with carnivorous or herbivorous preferences (ALBOUY & CAUSSANEL 1990). The scarce material prevents definite conclusions but *F. lurida* seems to be carnivorous, as there are no plant fragments, whereas *F. smyrnensis* seems to be herbivorous.

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**Table 1.** The collected species, terra typica and distribution, also including data the Natural History Museum (NHM), London, UK. Systematic position after HAAS (1995a).

Species	Location & Date	Terra Typica	Known Distribution	Notes, sex & instar
<b>Forficulidae</b>				
<i>Forficula lurida</i> Fischer, 1853	Northwest Cyprus, Baths of Adonis, 235 m; 13.iii.1999	Istanbul, Turkey	Italy, Sicily, Sardinia, Spain, Bosnia-Herzegovina, Montenegro, Turkey, Greece	2 males, 1 female, 9 larvae (3rd and 4th instar)
	Cyprus, Akamas forest; 8.iii.1999		(Crete, Rhodes)	2 larvae
	Cyprus, Afgas george; 8.iii.1999		Lebanon, Israel	1 male, 1 female
	Cyprus, 34° 56' 37" N; 32° 19' 09" E, under stones in grassland; 9.iii.1999		Iraq, Iran, Saudi Arabia	2 females, 1 larva (4th instar)
	Cyprus, Nicosia, 15.i.1921			NHM: BM 1923-233
	Turkey, Kusadasi, hills east of road Selcuk; Kusadasi, 100 m, beating; 17.iv.1998		(HERRERA MESA 1999)	1 male
	Turkey, Kusadasi, road to Yenikoy, 300 m, pine forest, seeping; 17.iv.1998			1 male
	Turkey, Passukale, Hierapolis, under stone; 13.iv.1998			1 larva (5th instar)
	Constantinople, Turkey			NHM: Burr Collection 1915-120
<i>Forficula smyrnensis</i> SERVILLE, 1839	Cyprus, Pomos, sea cave; 31.vii.1998	Turkey	Albania, Bulgaria, Greece (Crete, Rhodes), Iran, Israel, Lebanon, Syria, Turkey, Yugoslavia (ALBOUY & CAUSSANEL 1990)	7 males, 2 females
<i>Guanchia hincksi</i> (BURR, 1947)	Korikos between Mersin and Silifke, Turkey, ii 1946, legit Kosswig			NHM, Holotype
<b>Labiduridae</b>				
<i>Labidura riparia</i> (PALLAS, 1773)	Turkey, Kusadasi, near salt lake (hotel "Tusan"), pitfall trap; 17.iv.1998	Siberia, Russia	world wide	1 male, 4 females, 1 larva (2nd to 3rd instar)
	Turkey, Kusadasi, near salt lake (hotel "Tusan"), pitfall; 13.iv.1998			1 male, 1 female, 1 larva (2nd to 3rd instar)

**Table 2.** Alphabetic list of previous records of Dermaptera from Cyprus and Turkey according to the literature. Synonymy after STEINMANN (1989, 1990, 1993); systematic position after HAAS (1995a).

Country & Species	Synonyms	Reference
<b>Cyprus</b>		
<b>Forficulidae</b>		
<i>Apterygida media</i> (HAGENBACH, 1822)	<i>Apterygida albipennis</i> MEGERLE, 1825 <i>Forficula pedestris</i> BORELLI, 1832 <i>Chelidura albipennis</i> STEPHENS, 1835	WERNER 1936; HERRERA MESA 1999
<i>Forficula aetolica</i> BRUNNER, 1882	-	BURR 1912
<i>Forficula lurida</i> FISCHER, 1853	<i>Forficula orientalis</i> Burr, 1900	BURR 1912
<b>Turkey</b>		
<b>Anisolabididae (= Carcinophoridae)</b>		
<i>Anisolabis maritima</i> (BONELLI, 1832)	<i>Forficula maritima</i> BONELLI, 1832 <i>Labidurodes singularis</i> SHIRAKI, 1905 <i>Anisolabis addita</i> BURR, 1913 <i>Anisolabis quadrata</i> LIU, 1946	BURR 1912, 1952b
<i>Euborellia annulipes</i> (LUCAS, 1847)	<i>Anisolabis annulipes</i> LUCAS, 1847	WERNER 1901; Burr 1952a, b
<i>Euborellia moesta</i> (GÉNÉ, 1839)	<i>Anisolabis moesta</i> GénÉ, 1839 <i>Borellia moesta</i> Zacher, 1911	WERNER 1901
<b>Forficulidae</b>		
<i>Anechura bipunctata</i> (FABRICIUS, 1781)	<i>Forficula bipunctata</i> FABRICIUS, 1781 <i>Anechura asiatica</i> SEMENOV, 1903 <i>Forficula fabricii</i> FIEBER, 1854	WERNER 1901; BURR 1952b
<i>Forficula auricularia</i> LINNAEUS, 1758	<i>Forficula dentata</i> FABRICIUS, 1775	WERNER 1901; BURR, 1952b
<i>Forficula decipiens</i> GÉNÉ, 1832	<i>Forficula pallidicollis</i> BRULLÉ, 1832 <i>Forficula laminigera</i> COSTA, 1881 <i>Forficula brevis</i> RAMBUR, 1838	BURR 1912, 1952b
<i>Forficula lucasi</i> DOHRN, 1865	<i>Forficula barroisi</i> BOLIVAR, 1893	HERRERA MESA 1999
<i>Forficula lurida</i> FISCHER, 1853	<i>Forficula orientalis</i> BURR, 1900	WERNER 1901; BURR 1912, 1952b
<i>Forficula smyrnensis</i> SERVILLE, 1839	-	WERNER 1901; BURR 1912, 1952b
<i>Forficula tomis</i> (KOLENATI, 1846)	<i>Chelidura tomis</i> KOLENATI, 1846 <i>Forficula pomerantzevi</i> SEMENOV, 1903	BURR 1952b
<i>Guanchia hincksi</i> (BURR, 1947)	<i>Forficula hincksi</i> BURR, 1947	BURR 1947, 1952b
<i>Guanchia pubescens</i> (GÉNÉ, 1837)	<i>Forficula pubescens</i> GÉNÉ, 1837 <i>Forficula setulosa</i> FIEBER, 1853	HERRERA MESA 1999
<b>Labiduridae</b>		
<i>Labidura riparia</i> (PALLAS, 1773)	<i>Forficula riparia</i> PALLAS, 1773 <i>Labidura mongolica</i> REHN, 1905	BURR 1952a, b
<b>Spongiphoridae (= Labiidae)</b>		
<i>Isolaboides kosswigi</i> (BURR, 1947)	<i>Pseudisolabis kosswigi</i> BURR, 1947	BURR 1947, 1952b
<i>Labia minor</i> (LINNAEUS, 1758)	<i>Forficula minor</i> LINNAEUS, 1758	WERNER 1901; BURR 1952b

**Table 3.** The gut contents of the collected species. Systematic position after HAAS (1995a).

Species	Gut contents
<b>Forficulidae</b>	
<i>Forficula lurida</i> FISCHER, 1853	cuticle fragments of arthropods: cornea, bristles, legs with two claws, tracheae (2 specimens examined)
<i>Forficula smyrnensis</i> SERVILLE, 1839	plant parts and plant fibres (1 specimen examined)
<b>Labiduridae</b>	
<i>Labidura riparia</i> (PALLAS, 1773)	cuticle fragments of arthropods: wing parts, halteres, tracheae, cornea; complete mite, plant parts (1 specimen examined)

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