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A COMPARATIVE STUDY OF THE ANT FAUNA OF FIVE GREEK ISLANDS

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Introduction

The Greek islands of Karpathos, Santorini, Chios, Kephallonia and Zante were visited at various dates from 1982-1988. Although visits in each case were of short duration from 5 to 12 days, a sufficient variety of species was collected to make useful comparisons and to establish a basis for future comparative studies in these areas.

Notes on the species

Aphaenogaster ionia, a black daytime foraging ant was generally distributed but not abundant. The other *Aphaenogaster* species collected were more cryptic and found as individuals on shady banks. There is a much richer fauna of the seed gathering genus, *Messor* with seven species found on Karpathos. The largest Balkan species is the conspicuous red *M. oertzeni* which occurs on Karpathos and Chios. This does not form trails but forages individually or in small groups.

The commonest *Messor* which was present on all the islands is *M. wasmanni*. This has large flat earth nests with crater-like openings usually surrounded by thick deposits of seed husks. These ants form trails up to 100 m long to a source of seed supply. Studies by HARKNESS and ISHAM (1988) show that there is no hostility between workers of neighbouring colonies. This bicoloured species occurs in South Italy, Corsica, Sardinia, the Balkans and more peripherally in West Turkey and Tunisia. It has been variously recorded in the literature as *M. meridionalis* André, *M. semirufus* André, *M. wasmanni* Krausse and was listed as *M. concolor* Tohmé by AGOSTI and COLLINGWOOD (1987) after seeing a "cotype" in the Hope Entomology Museum Oxford.

However, *concolor* is a preoccupied name according to Mr. Barry Bolton of the British Museum and it seems best to call this well characterised species *M. wasmanni*. It differs from all other similar bicoloured barbatulate *Messor* by the somewhat flattened pronotum which is expanded laterally into a protuberant boss at each side. A similar Middle East species with normal rounded pronotum and larger eyes ($0.21 \times$ head width compared with $0.18 \times$ head width) has generally been recorded as *M. meridionalis* e.g. COLLINGWOOD (1985) but nomenclature needs clarification by reference to André's types.

Pheidole teneriffana forms strong colonies in urban areas. This ant appears to be spreading throughout the Middle East and the Mediterranean coast. *P. megacephala* is a true cosmopolitan and was found only once on the threshold of a small hotel in Pigadhia on Karpathos. The native *P. pallidula* was common everywhere. *Oxyopomyrmex* species are recognised by their long pointed eyes and 11 segmented antennae in the female castes. *O. krueperi* was described from Salonika by FOREL, 1911. This small black ant was found foraging on dry rocky scrubland on Karpathos.

Crematogaster ionia and *C. schmidtii* are both arboreal. They may be conspecific since they are only recognisable by their contrasted colour, the dark *C. ionia* occurring on Karpathos and Chios and the reddish *C. schmidtii* on the other islands. *C. sordidula* is a small earth nesting species more easily overlooked.

Leptothorax species were various but not easily found mainly in rock crevices, under tree bark and on shaded banks. One un-named species found on rocks on Karpathos is similar to *L. nigrata* Emery but is paler with shorter propodeal spines. Another similar more yellow species found on Zante and Kephallonia has been tentatively named *L. aeolius* Forel described from Smyrna. A larger species with reddish alitrunk, *L. semiruber* was found on Karpathos.

Tetramorium species occurred in some variety by only *T. punicum* was locally abundant especially in coastal areas on Karpathos nesting under stones among scattered pine trees. *Strongylognathus dalmaticus*, an uncommon parasite ant was found with this species at Amopi. The strongly sculptured *T. chefteki* is quite common in the Balkans and was found locally on the coast at Zante. A rather similar but less sculptured species, *T. perspicax* Santschi (*T.* sp 1, AGOSTI and COLLINGWOOD, 1987) occurred near Karta on the east coast of Chios.

Ants of the genus *Monomorium* were rather local. The only abundant species found was *M. nitidiventre* which occurred in pastures along the coast north of Pigadhia and recorded also from Santorini.

Solenopsis geminata, a subtropical tramp species widely distributed through the Indian subcontinent and Africa as well as South America was a surprise. Workers were taken foraging at midday near Agalos, a village on Zante. They

were not recognised at the time and were tubed together with some small *Messor* workers of similar size and colour and no nest was searched for. The much smaller native *Solenopsis latro* and *S. wolffi* were found under stones in scrubby woodland in the same general area.

Tapinoma simrothi was abundant locally on the south tip of Karpathos and was common on Santorini and Naxos according to collections made by Mr Adrian Norris. This ant occurs throughout the Middle East and North Africa and appears to be spreading along the Mediterranean coast of Europe in competition with the invasive *Iridomyrmex humilis* Mayr which has not yet been recorded on the Greek islands. Another *Tapinoma* species considered to be *T. festai*, has the clypeal outline of *T. ambiguum* Emery but is larger with a more square head. This was found locally on the west coasts of Zante and Kephallonia and also occurs on Rhodos. *Bothriomyrmex gibbus* which has a wide range in South Europe was found in isolated colonies in the same general area on both islands. The queen of this small Dolichoderine whose workers have a raised propodeum and a short head, starts a colony as all *Bothriomyrmex* do by securing adoption in a nest of *Tapinoma* whose queen she kills. The host species soon dies out while the *Bothriomyrmex* flourishes so that mixed nests of the two species are not often seen.

Two rather dark coloured workers of the common Middle East house and garden pest, *Paratrechina jaegerskjoeldi* were found in the roadway outside a bakery in Karpathos, a new record for the islands. *Lasius alienus* was found very locally on Karpathos and Chios and the general absence of this genus contrasts with the Balearic islands, Malta, Corsica and Sardinia where *L. alienus* and similar species abound.

Plagiolepis species are inconspicuous small ants living in small colonies under stones and among rocks in shady places. *Acantholepis* species by contrast are daylight active, long legged ants. They were found in some abundance along and near the coasts. They range in colour from the bright red *A. caucasica* to the dull dark *A. karawaiewi*. Another halophile genus, *Cataglyphis*, is represented by the large active *C. nodus*. This is common in Greece and the South Balkans but it was a surprise to find this ant on the southeast tip of Zante. *C. viaticoides* seen on Chios is a smaller species with a bright reddish head and alitrunk occurring in Turkey and the Middle East but not hitherto recorded from Greece.

Campotonus species were abundant, found in wooded areas and under stones in banks. The most generally common of the thirteen species encountered was *C. ionia*, a large black ant rather like *C. aethiops* but easily distinguished by the absence of genal hairs and the presence of abundant raised short hairs or raised pubescence on the legs and antennal scapes. Most of the species are nocturnal but the smaller black *C. kiesenwetteri* and *C. gestroi* are to be found

LIST OF SPECIES

A - Santorini; B - Karpathos; C - Zante; D - Kephallonia; E - Chios

	A	B	C	D	E
<i>Aphaenogaster balcanica</i> Agosti	.	x	.	.	.
<i>ionia</i> Baroni Urbani	.	x	x	x	x
<i>ovaticeps</i> Emery	.	.	.	x	.
<i>subterraneoides</i> Emery	x	x	.	.	.
<i>Messor alexandrei</i> Santschi	.	x	.	.	.
<i>denticulatus</i> Kuznetsov-Ugamskij	.	x	.	.	.
<i>muticus</i> (Nylander)	.	x	.	.	.
<i>oertzeni</i> Forel	.	x	.	.	x
<i>orientalis</i> Emery	.	x	x	x	x
<i>sultanus</i> Santschi	.	x	.	.	.
<i>wasmanni</i> Krausse	x	x	x	x	x
<i>Pheidole megacephala</i> (Fab.)	.	x	.	.	.
<i>pallidula</i> (Nylander)	x	x	x	x	x
<i>teneriffana</i> Emery	x	x	x	.	x
<i>Oxyopomyrmex krueperi</i> Forel	.	x	.	.	.
<i>Cardiocondyla elegans</i> Emery	.	.	.	x	.
<i>Leptothorax bulgaricus</i> Forel	.	.	x	.	.
<i>aeolius</i> Forel	.	.	.	.	x
<i>exilis</i> Emery	.	x	.	.	x
<i>graecus</i> Forel	x	.	.	.	.
<i>recedens</i> (Nylander)	.	x	x	.	x
<i>rogeri</i> Emery	.	x	.	x	.
<i>semiruber</i>	.	x	.	.	.
<i>unifasciatus</i> (Latreille)	.	.	.	x	x
<i>Crematogaster ionia</i> Forel	.	x	.	.	x
<i>schmidtii</i> Forel	x	.	x	x	.
<i>sordidula</i> Nylander	.	.	x	x	.
<i>Solenopsis geminata</i> (Fabricius)	.	.	x	.	.
<i>latro</i> Forel	.	.	x	.	.
<i>wolffi</i> Emery	.	.	x	.	.
<i>Monomorium dentigerum</i> (Roger)	.	x	.	.	.
<i>monomorium</i> Bolton	.	.	.	.	x
<i>nitidiventre</i> Emery	x	x	.	.	.
<i>phoenicium</i> Agosti	.	x	.	.	x
<i>subopacum</i> (Smith)	x	.	.	.	x

<i>Tetramorium caespitum</i> (L.)	.	X	.	X	X
<i>chefteki</i> Forel	.	.	X	.	.
<i>perspicax</i> Emery	.	.	.	.	X
<i>punicum</i> (Smith)	X	X	X	.	.
<i>sahlbergi</i> Agosti	.	X	.	.	.
<i>splendens</i> Ruzsky	.	.	.	X	.
<i>Strongylognathus dalmaticus</i> Baroni Urbani	.	X	.	.	.
<i>Tapinoma festai</i> Emery	.	.	X	X	X
<i>simrothi</i> Krausse	X	X	.	.	.
<i>Bothriomyrmex gibbus</i> Soudek	.	.	X	X	.
<i>Liometopum microcephalum</i> (Panzer)	.	.	.	.	X
<i>Lasius alienus</i> (Foerster)	X	X	.	.	.
<i>Paratrechina jaegerskjoeldi</i> Mayr	.	X	.	.	.
<i>Plagiolepis pallescens</i> Forel	X	X	.	.	.
<i>pygmaea</i> (Latr.)	.	.	.	X	X
<i>vindobonensis</i> Lomnicki	.	.	X	.	.
<i>Acantholepis caucasica</i> Santschi	.	.	X	.	.
<i>frauenfeldi</i> Mayr	X	X	X	X	X
<i>karawajewi</i> Agosti	X	.	.	X	.
<i>melas</i> Emery	.	.	X	X	X
<i>splendens</i> Karawajew	X	X	.	.	X
<i>Cataglyphis nodus</i> (Brulle)	.	.	X	.	X
<i>viaticoides</i> (Andre)	.	.	.	.	X
<i>Camponotus aethiops</i> (Latr.)	.	X	.	X	.
<i>atricolor</i> (Nylander)	.	X	.	.	X
<i>candiotes</i> Agosti	.	X	.	X	.
<i>cecconi</i> Emery	.	X	.	.	X
<i>dalmaticus</i> (Nylander)	.	.	.	X	.
<i>gestroi</i> Emery	.	X	.	.	.
<i>ionius</i> Emery	X	X	.	X	X
<i>jaliensis</i> Forel	.	X	.	X	X
<i>kiesenwetteri</i> (Roger)	.	X	X	X	X
<i>oertzeni</i> Forel	.	.	.	X	X
<i>samius</i> Forel	X	.	.	.	.
<i>sanctus</i> Forel	.	.	X	.	X
<i>truncatus</i> (Spinola)	.	.	X	X	X

on nectar bearing plants in daylight. *C. candiotes* and *C. truncatus* were also seen in daytime as individual foragers on *Crematogaster* inhabited trees. Their general colour and size blended with the more distasteful *Crematogaster* presumably as a protection from bird predation.

Discussion

Visits to the islands were of short duration but it is evident that ant species occur in rich variety. Chios at the time of visit, September 1988, was completely dried up in the central uplands and Kephallonia at the same time had a large area of central woodland destroyed by recent fires. No doubt more species would have been found in early summer. Karpathos in April 1982, was more fully explored and here the total of 41 species compares with the Balearics (46) (COMIN & FURIO, 1986) and Malta (47) which countries have been extensively collected over a number of years. Earlier records for the Greek islands are scattered in the literature (LEGAKIS, 1983); from lists supplied by Dr A. Legakis, the Dodecanese which includes Karpathos has a total of 56 species and the Ionian islands which include Kephallonia and Zante, 63. In this paper, nomenclature follows AGOSTI and COLLINGWOOD, 1987, but some confusion still remains as to the correct species names in a few genera including *Aphaenogaster*, *Messor*, *Tetramorium* and *Acantholepis*.

Abstract

The Ant fauna (Hymenoptera, Formicidae) of 5 Greek Islands - Santorini, Karpathos, Chios, Kephallonia and Zante is compared. A total of 70 species are listed from brief collecting visits to these islands in 1982, 1986 and 1988. First records for the islands include *Solenopsis geminata* (Fabr.), a subtropical tramp species, *Strongylognathus dalmaticus* Baroni Urbani parasitic on *Tetramorium punicum* and *Bothriomyrmex gibbus* Soudek usually associated with *Tapinoma* species.

Περίληψη

Στη μελέτη αυτή συγκρίνεται η πανίδα των μυρμηγκιών (Υμενόπτερα, Formicidae) 5 ελληνικών νησιών: Σαντορίνη, Κάρπαθος, Χίος, Κεφαλονιά και Ζάκυνθος. Αναφέρονται 70 είδη από σύντομες συλλεκτικές επισκέψεις σε αυτά τα νησιά κατά τα έτη 1982, 1986 και 1988. Πρώτες αναφορές

για τα νησιά αυτά γίνονται για τα είδη *Solenopsis geminata* (Fabr.), ένα υποτροπικό περιπλανώμενο είδος, *Strongylognathus dalmaticus* Baroni Urbani, ένα παρασιτικό του *Tetramorium punicum*, και *Bothriomyrmex gibbus* Soubek που σχετίζεται συνήθως με είδη του γένους *Tapinoma*.

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