First Contribution to the Study of the Ants (Hymenoptera, Formicidae) of the Zagori Region (Epirus, Greece): an Annotated List of Species

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ABSTRACT

The paper contains records of 33 ant species collected in the Zagori region of Northwestern Greece in 1979 and 1981. These are the first records of ants from this region. Some notes on their morphology and ecology are included. An analysis of the general distribution of the species shows that the influence of the Mediterranean, South European, Asiatic and Pontic elements is approximately equal. For some species the region is the southernmost limit in the Balkans. Seven species were observed only over 1000m, while three of them were observed over 1400m. Most species are either insectivores or omnivores. Omnivores and species with Mediterranean or South European distribution predominate in or near human settlements.

Introduction

Zagori is a mountainous region of Epirus in the northwestern part of Greece, situated between the towns of Jannina, Metsovo and Konitsa. The region is surrounded by high mountains belonging to the Pindos range, highest of which are Smolikas (2637m) in the north and Gamila (2497m) in the west.

The region offers a variety of climatic and pedological conditions. As a consequence, its fauna and flora are very rich and quite different from that of Southern Greece having more similarities with that of the Central and Western Balkans. The dominating forests include Austrian pine (Pinus nigra) and beech (Fagus silvatica) as well as Bosnian pine (P. hel-dreicht), King Boris’ fir (Abies borisii), Greek fir (A. cephalonica) and others (Sfikas 1981).

The fauna of Zagori is very rich but apart from the large mammals (Ursus arctos, Rupicapra rupicapra, Capreolus capreolus, Lutra lutra, Felis silvestris, Canis lupus, Sus scrofa), the birds (various eagle and vulture species) and the fish (Salmo trutta), very little is known about the presence of lower taxa such as insects (Sfikas 1981). This paper deals with one insect group, the family Formicidae -ants- which has been very little studied in Greece (Legakis 1981). As a matter of fact, there are no records of ants from the whole northwestern part of Greece. Because of this and also because of the importance of the region as far as the fauna and flora are concerned, a systematic search was carried out in order to fill the gaps in the knowledge of this area.

Materials and Methods

Five collecting trips were carried out during 1979 and 1981 in the Zagori region. Almost all important biotopes of the region were visited in low and high altitudes, in river banks, various types of forests, cultivated and abandoned land, maquis, phrygana etc. Specimens were kept in 96% ethanol and identified in the laboratory by the author. The basic identification keys used were those of Bernard (1968), Emery (1908-1912) and Müller (1923). Identifications were made using workers and also sexuals whenever possible. Distribution and feeding habits were obtained from Baroni-Urbani (1971) and

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Bernard (1968). The specimens are kept in the personal collection of the author. The abbreviations used for the localities are as follows:

Aoos-K: Aoos river near Konitsa
Aoos-Vris: Aoos riv. near Vrissohori
Dil: Dilolo
Grev: Greveniti
Gyit: Gytoxobamos
Kap: Kapesovo
Kip: Kipoi
Neg: Negades
Tsep: Tsepelovo
Vik: Vikos gorge
Void: Voidomatis riv. near Konitsa
Vris a: Vrissohori 700m
Vris b: Vrissohori 1000m
Vris c: Vrissohori 1400m

Results

There follows a list of the species identified with some notes on their ecology and morphology.

PONERINAE

*Ponera coarctata* (Latreille 1802): Vris a, 27.VIII.81, 2 ♀; Vris c, 28.VIII.81, 5 ♀. In both localities, a few workers were discovered under stones inside a mixed forest. Insectivorous. Eurasian distr.

MYRMICINAE


*Messor rufitarsis* (F. 1804): Neg, 25.IX.79, 1 ♀, 1 ♀, 1♂; Kip, 15.IV.81, 2 ♀; Aoos-K, 18.IV.81, ♀ ♀; Void, 18.IV.81, 6 ♀; Grev, 20.IV.81, 4 ♀; Vris b, 26.VIII.81, 6 ♀; Aoos-Vris, 26.VIII.81, 10 ♀; Kap, 4.VIII. 81, 7♀. Very common. Granivorous. Pontomediterranean distr.

*Pheidole pallidula* (Nylander 1848): Neg, 25.IX.79, ♀ ♀; Aoos-K, 18.IV.81, 1 ♀, 29.VII.81, 1 ♀, 4 ♀; Grev, 20.IV.81, 1 ♀; Aoos-Vris, 26.VIII.81, 3 ♀, 2 ♀; Vris a, 27.VIII.81, 2 ♀, 1 ♀. Very common with nests with numerous workers. Worker and soldier colouration ranging from yellowish brown to dark brown in the same nest. Omnivorous. Mediterranean distr.


*Solenopsis sp.*: Aoos-Vris, 26.VIII.81, ♀ ♀. This species is similar to *S. orbula* Em. in that it has a smooth head, visible but obtuse lateral clypal teeth, eyes with two ommatidia, rounded epinotum with shallow meso-epinotal groove and length less than 2mm. However, the shape of the head is different. It is rounded and oval, very similar to that of *S. fugax*. The geographical distribution of *S. orbula* is also quite different being known only from Corsica, Sardinia and Malta. Nest under stone on open ground on river bank. Numerous workers.

*Leptothorax unifasciatus* (Latreille 1798): Aoos-K, 18.IV.81, 2 ♀, 29.VIII.81, 1 ♀; Grev, 20.IV.81, 1 ♀; Tsep, 26.VIII.81, 3 ♀; Vris a, 27.VIII.81, 11 ♀. Omnivorous. S. European distr.

*Leptothorax nylanderi* (Foerster 1850): Vris c, 28.VIII.81, 2 ♀; Kap, 4.VIII.81, 1 ♀. Omnivorous. European distr.


*Tetramorium semilaeve* Andre 1889: Vris a, 27.VIII.81, 1 ♀, 23.X.81, 6 ♀. Omnivorous. Pontomediterranean distr.

DOLICHODERINAE

*Dolichoderus quadripunctatus* (L. 1771): Vris b, 26.VIII.81, 2 ♀; Aoos-Vris, 26.VIII.81, 1 ♀. Insectivorous. S. European distr.

*Dolichoderus sp.*: Vris b, 26.VIII.81, 1 ♀. This specimen differs from the typical *D. quadripunctatus* in the following points. Head and thorax with obvious but less pronounced
punctures, colour of thorax lighter, yellowish brown, pronotum less rounded, without pronounced shoulders, narrowing towards the neck, epinotum without spines or teeth, completely rounded, petiole with little developed node, not completely triangular with more or less rounded edges. All other characters identical with *D. quadripunctatus*.


**Tapinoma erraticum** (Latreille 1798): Neg, 25.IX.79, 4 ♀; Kip, 15.IV.81, 5 ♀; Gyft, 26.VI.81, 1 ♂, 21.X.81, ♀ ♀; Vris a, 27.VI.81, 5 ♀; Vris c, 28.VI.81, 1 ♀, 10 ♀; Aeos-K, 29.VI.81, 1 ♀. Nectarivorous. Eurasian distr.

**FORMICINAE**

**Plagiolepis pygmaea** (Latreille 1798): Aeos-K, 18.IV.81, ♀ ♀ ♀, 29.VI.81, 10 ♀; Aeos-Vris, 26.VI.81, 6 ♀. Nectarivorous. South European distr.

**Cataglyphis nodus** (Brulle 1832): Vris b, 26.VI.81, 4 ♀; Aeos-Vris, 26.VI.81, 1 ♂; Vris a, 27.VI.81, 2 ♀. Nests in the ground with a single entrance. Insectivorous. Mediterranean distr.

**Camponotus aethiops** (Latreille 1798): Vik, 26.IX.79, 3 ♀; Kip, 15.IV.81, 1 ♂; Grev, 20.IV.81, 1 ♂; Aeos-K, 29.VI.81, 8 ♀; Aeos-Vris, 26.VI.81, 1 ♀; Vris a, 27.VI.81, 1 ♀. Nests in the ground with many entrances. Omnivorous. Pontomediterranean distr.


**Camponotus piceus** (Leach 1825): Aeos-K, 18.IV.81, 4 ♀♀; Gyft, 26.VI.81, 1 ♀, 2 ♀; Vris a, 27.VI.81, 5 ♀; Kap, 4.VIII.81, 2 ♀. Omnivorous. South European distr.

**Camponotus ligniperda** (Latreille 1802): Vris c, 28.VI.81, 1 ♀, 7 ♀. Nest under fallen beech trunk. Omnivorous. Eurasian distr.

**Camponotus vagus** (Scopoli 1763): Gyft, 26.VI.81, 6 ♀; Vris b, 26.VI.81, 1 ♀, 4 ♀; Aeos-Vris, 26.VI.81, 4 ♀; Aeos-K, 29.VI.81, 2 ♀; Kap, 4.VIII.81, 4 ♀. Nests in the ground. Omnivorous. Eurasian distr.

**Prenolepis nitens** (Mayr 1852): Vik, 26.IX.79, 5 ♀; Aeos-K, 18.IV.81, 7 ♀, 21.X.81, 1 ♀, 6 ♀; Aeos-Vris, 26.VI.81, 8 ♀; Vris a, 23.X.81, 3 ♀. Nectarivorous. Eurasian distr.

**Lasius emarginatus** (Olivier 1791): Neg, 25.IX.79, 4 ♀; Kip, 15.IV.81, ♀ ♀; Grev, 20.IV.81, 7 ♀; Tsep, 26.VI.81, 9 ♀; Gyft, 26.VI.81, 9 ♀; Vris b, 26.VI.81, 3 ♀; Aeos-Vris, 26.VI.81, 9 ♀; Vris a, 27.VI.81, ♀ ♀; Vris c, 28.VI.81, ♀ ♀; Aeos-K, 29.VI.81, 1 ♀; Kap, 4.VIII.81, 1 ♀. Very common everywhere. Nectarivorous. Eurasian distr.

**Lasius flavus** (F. 1781): Aeos-Vris, 26.VI.81, ♀ ♀ ♀; Vris c, 28.VI.81, 6 ♀; Gyft, 21.X.81, 4 ♀; Vris a, 23.X.81, 5 ♀. Nests under stones. Nectarivorous. Holarctic.

**Formica lugubris** Zetterstedt 1840: Grev, 20.IV.81, 1 ♀. Insectivorous. European distr.

**Formica cunicularia** Latreille 1798: Vris c, 28.VI.81, 5 ♀. Nest under fallen beech trunk. Insectivorous. Eurasian distr.

**Formica fusca** L. 1758: Grev, 20.IV.81, 4 ♀; Vris b, 26.VI.81, 3 ♀; Vris a, 23.X.81, 5 ♀. Insectivorous. Palearctic.

**Formica gages** Latreille 1798: Kip, 15.IV.81, 3 ♀; Grev, 20.IV.81, 3 ♀; Vris b, 26.VI.81, 4 ♀; Aeos-Vris, 26.VI.81, 2 ♀; Vris a, 27.VI.81, 3 ♀; Aeos-K, 29.VI.81, 5 ♀; Gyft, 21.X.81, 9 ♀. Insectivorous. Pontomediterranean distr.

**Formica rufibarbis** F. 1793: Kip, 15.IV.81, 2 ♀, Void, 18.IV.81, 1 ♀; Gyft, 26.VI.81, 1 ♀, 2 ♀; Aeos-Vris, 26.VI.81, 7 ♀; Vris a, 27.VI.81, 1 ♀; Vris c, 28.VI.81, 6 ♀. Insectivorous. Palearctic.

**Discussion**

An analysis of the general distribution of the species observed in Zagori reveals that the ants there do not belong to one particular type of distribution. A 22.6% of the species have a Eurasian distribution, 19.3% have Pontomediterranean distribution, 16.1% have Mediterranean distribution, 16.1% have South European distribution, 9.7% have European distribution, 6.5% have Holarctic distribution, 6.5% have Palearctic distribution and 3.2% have Eurosiberian distribution. It seems that the influence of the Mediterranean, South European, Asiatic and Pontic elements is more or less equal, contrary to the situation in the ant fauna of Southern and Insular Greece where Mediterranean and South European elements predominate (Legakis unpublished results). The distribution types are more comparable with those in the Central Balkans (Paraschivescu 1974). However, if we separate the
anthrophilous species which were observed in or near human settlements, we find that they consist of species with more pronounced South European and Mediterranean distribution (21.1% and 26.3%, respectively).

One interesting aspect for the zoogeography of the region, is that it represents the up to now known southernmost limit of distribution for some species in the Balkans, e.g., F. lugubris and F. ggrates (Ronchetti 1978, Santschi 1926).

The majority of the ant species of Zagori live in a wide range of altitudes. Seven species have been found only above 1000m (M. sabuleti, L. microcephalum, F. lugubris, A. ovaticeps, C. ligniperda, F. cuniculans, M. ruginodis). The last three species have been found only over 1400m. Of these, C. ligniperda has a Eurosiberian distribution and the others are always found most abundant in more northern climates.

Most ant species of Zagori are insectivorous (45.2%) and omnivorous species (35.5%). Seventy five percent of the omnivorous species were observed in or near human settlements, while only 50% of the insectivorous species were observed there. On the contrary, six out of the seven species living over 1000m were insectivores. This is expected because omnivorous species take better advantage of the varied food that man can provide them.

References


KEY WORDS: Ants, Hymenoptera, Formicidae, Ponerinae, Myrmicinae, Dolichoderinae, Formicinae, Zagori Epirus Greece

Πρώτη Συνεισφορά στη Μελέτη των Μυρμηγκιών της Περιοχής Ζαγορίου (Ηπειρος, Ελλάδα): Κατάλογος Ειδών με Σχόλια

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ΠΕΡΙΛΗΨΗ

Το άρθρο περιλαμβάνει αναφορές σε 33 είδη μυρμηγκιών που συλλέγητηκαν στην περιοχή Ζαγορίου της Ήπειρου κατά την διάρκεια 5 ταξιδιών το 1979 και το 1981. Αυτές είναι οι πρώτες αναφορές στην ύπαρξη μυρμηγκιών από αυτή την περιοχή. Στο κείμενο περιλαμβάνονται μερικά στοιχεία για την μορφολογία και οικολογία των ειδών αυτών. Η ανάλυση της γενικής εξάπλωσης των ειδών της περιοχής δείχνει ότι η επιδράσεις των Μεσογειακών, Νοτιοευρωπαϊκών, Ασιατικών και Ποντιακών στοιχείων είναι περίπου ίση. Για μερικά είδη η περιοχή είναι το νοτιότερο όριο εξάπλωσης τους στα Βαλκάνια. Εφατι είδη παρατηρήθηκαν μόνο πάνω από 1000μ ενώ τρία από αυτά παρατηρήθηκαν μόνο πάνω από 1400μ. Τα περισσότερα είδη είναι εντομοφάγα ή παμφάγα. Αντίθετα, οι είδη που ζουν μέσα ή κοντά σε ανθρώπινους οικισμούς είναι κυρίως παμφάγα και έχουν περισσότερο Μεσογειακή και Νοτιοευρωπαϊκή εξάπλωση.