SPIDERS (ARANEAE) FROM MOUNTAINS IN MADEIRA

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With 3 tables

ABSTRACT. Spider material was collected by pitfall traps and hand-picking in alpine zone (grazed meadows and heaths) and at treeline at 1) Achada do Teixeira - Pico Ruivo and 2) Pico do Arieiro. The work is based on three short collecting periods in December - April, 1992-95. The marked dominance of the family Linyphiidae (s. lat.) in both species and individual numbers is typical to the spider fauna of alpine mountain zone of Madeira. Altogether 17 spider species, of which 10 linyphiids, were collected.

INTRODUCTION

The spider fauna of Madeira has been under research for a long period, more than a century. WUNDERLICH (1987, 1991) published two books on the spider fauna of the Macaronesian islands, where the hitherto knowledge of the Madeiran fauna is summarized. About 155 spider species have been reported from the Madeiran archipelago. The proportion of endemics is high, almost 40% of the spider species being Madeiran and about 50% Macaronesian endemics (WUNDERLICH, 1991, 1995).

The aim of the present work is to show preliminary data on spider fauna living in the high mountain (alpine) zone of Madeira. Although the species caught from alpine areas can be regarded as indigenous Madeiran spiders, fauna in the mountain zone has been studied only sparsely (see WUNDERLICH, 1991).

STUDY AREA, MATERIAL AND METHODS

The two study areas are situated in the high mountain area of central Madeira. Both sites are human-influenced, with hiking paths and intensive grazing by sheep. The distance between the two study areas is only about 3 km.

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1. Achada do Teixeira - Pico Ruivo, altitude 1700-1750 m a.s.l. Treeline is formed by tree heath (*Erica arborea* L.). Alpine zone is characterized by grazed stony meadows and heaths, and by steep slope meadows.
2. Pico do Arieiro, altitude 1750-1800 m. Treeline is formed by cluster pine (*Pinus pinaster* AIT.). The alpine site studied was a grazed stony meadow near a cliff.

Collecting activity was carried out only during the winter part of year. The study periods were 8-12 March 1992, 13-23 December 1993 and 15-20 April 1995. In addition, traps were placed in mountains in October 1993, but due to cool and rainy weather, no identifiable spiders were caught. Material was collected mainly by pitfall traps; in addition, hand-picking was used. It contains 235 identifiable specimens.

RESULTS AND DISCUSSION

Altogether, ten species of Linyphiidae (s. lat.) were found, seven at alpine and eight at treeline sites, representing 59% of all species collected (Table 1). The proportion of Linyphiidae species within the total Madeiran, like also in Canarian spider fauna is small: only about 15% (WUNDERLICH, 1991, 1993 and KOPONEN, 1996). Three gnaphosid species were collected; of the rest four families found, only one species was observed in each.

The family Linyphiidae also dominated in individual numbers, about 70% of the specimens collected belonged to linyphiids. The dominance of the small-sized erigonine *Typhochrestus* cf. *hesperinus* was great: about 60% of all individuals collected (Tables 2-3). Adults of both sexes of *T.* cf. *hesperinus* were trapped during all study periods (from mid-December to late-April); the species was abundant in alpine zone (68% of all spider individuals), in particular. The gnaphosids *Haplodrassus pictus* and *Drassodes lapidosus* were also collected abundantly; gnaphosids comprised 24% of all individuals.

The identity of many found species, including the most dominant one, is not clear and it will be dealt with separately later. At least some of them are new to the fauna of Madeira.

Only one cosmopolitan species was found in mountains: the linyphiid *Ostearius melanopygius* was trapped at *Pinus* treeline, Pico do Arieiro. Some species have a wide distribution area in Europe, like *Zelotes longipes, Pardosa proxima, Lepthyphantes tenuis* and especially *Drassodes lapidosus*.

The species number found at alpine and treeline sites was the same (13 species) although individual numbers were very different, due to the main trapping activity carried out in alpine zone: 196 and 39 inds. respectively. At treeline, species with preference either to alpine or forest biotopes were collected.

Nine of the 17 caught species (53%) were found at both alpine and treeline sites. Species collected only at alpine sites included *Pellenes maderianus*, ?*Erigonoplus* sp., *Agyneta* sp. and *Lathys* cf. *affinis*.

TABLE 1 - Family composition of the spider material from Madeiran mountains.

Family			Number of species
Linyphiidae			10
	Linyphiinae	6	
	Erigoninae	4	
Gnaphosidae			3
Lycosidae			1
Salticidae			1
Dictynidae			1
Thomisidae			1
	Total		17

TABLE 2 - Spiders found in alpine zone, Madeira. Species marked with an asterisk (*) were found in this study at alpine sites only.

Species (family)	Inds.
Typhochrestus cf. *hesperinus* THALER, 1984 (Linyphiidae)	134
Haplodrassus pictus (THORELL, 1875) (Gnaphosidae)	25
Drassodes lapidosus (WALCKENAER, 1802) (Gnaphosidae)	10
Zelotes longipes (L. KOCH, 1866) (Gnaphosidae)	8
Pardosa proxima (C.L. KOCH, 1847) (Lycosidae)	6
Pellenes maderianus KULCZYNSKI, 1905 * (Salticidae)	5
?*Erigonoplus* sp. * (Linyphiidae)	2
Agyneta sp. (rurestris group) * (Linyphiidae)	1
Lepthyphantes tenebricoloides SCHENKEL, 1938 (Linyphiidae)	1
L. schmitzi KULCZYNSKI, 1899 (Linyphiidae)	1
L. tenuis (BLACKWALL, 1852) (Linyphiidae)	1
?*Walckenaeria* sp. (Linyphiidae)	1
Lathys cf. *affinis* (BLACKWALL, 1862) * (Dictynidae)	1
13 species	196

TABLE 3 - Spiders found at treeline, Madeira. Species marked with an asterisk (*) were found in this study at treeline sites only.

Species (family)	Inds.
Typhochrestus cf. *hesperinus* THALER, 1984 (Linyphiidae)	7
Drassodes lapidosus (WALCKENAER, 1802) (Gnaphosidae)	7
Haplodrassus pictus (THORELL, 1875) (Gnaphosidae)	6
Lepthyphantes tenuis (BLACKWALL, 1852) (Linyphiidae)	6
Linyphiinae sp. * (Linyphiidae)	3
Lepthyphantes cf. *mauli* WUNDERLICH, 1991 * (Linyphiidae)	2
?*Walckenaeria* sp. (Linyphiidae	2
Lepthyphantes schmitzi KULCZYNSKI, 1899 (Linyphiidae)	1
L. tenebricoloides SCHENKEL, 1938 (Linyphiidae)	1
Ostearius melanopygius (O.P.-CAMBRIDGE, 1879) * (Linyphiidae)	1
Xysticus nubilus SIMON, 1875 * (Thomisidae)	1
Pardosa proxima (C.L. KOCH, 1847) (Lycosidae)	1
Zelotes longipes (L. KOCH, 1866) (Gnaphosidae)	1
13 species	39

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