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Ecology of the spiders Walckenaeria (Wideria) alticeps (Denis), new to Finland, and W. (W.) antica (Wider) (Araneae, Linyphiidae)

Pontus Palmgren

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A revision of material previously determined as *Wideria antica* (370 ad.) revealed the occurrence of 26 adult specimens of *W. alticeps* (Denis). The distribution probably covers the entire southern part of Finland, but the species is restricted to a very narrow habitat range: very wet, deep, fluffy *Sphagnum* moss or sodden debris in places with some canopy.

Pontus Palmgren, Dept. of Zoology, University of Helsinki/Helsingfors, N. Järnvägsg. 13, SF-00100 Helsingfors 10.

1. Introduction

Recently Kronestedt (1980) published finds of *Walckenaeria (Wideria) alticeps* (Denis) from Sweden and pointed out realiable species characters in the male, hitherto considered impossible to distinguish from the male of *W. antica* (Wider). The sample localities confirmed Wunderlich's (1972) opinion of the ecological difference between the two species: *W. alticeps* prefers moist and shady habitats whereas *W. antica* occurs in dry, light habitats. I have (Palmgren 1972, 1976) characterized *W. antica* as a somewhat eurytopic species with a strong preference for dry habitats, but occasionally occuring also in wet places. Kronestedt (1980: 143) found it possible that a re-examination of the material from Finnish bogs might reveal *W. alticeps* as a member of our fauna.

2. Material

I have now undertaken a revision of the complete material labelled "*W. antica*" in my own collection (71♂♂, 150♀♀) and in the collections of the Zoological Museum of the University of Helsingfors/Helsinki (97♂♂, 96♀♀). The stronger representation of males in the Museum collections is due to the fact that these include a very large share of Barber trap material. The re-examination revealed 3♂♂ and 19 ♀♀ of *W. alticeps* in my own collection and 4 ♀♀ in the collections of the Museum. The small number found in the Museum material is explained by the fact that the latter includes far less material from bogs than my own collection. If *W. alticeps* has in the main the same annual cycle as *W. antica*, the males decrease abruptly after the middle of May and again reach a density comparable to that of the females in October (cf. Palmgren 1976: 112, fig 39). The *Sphagnum* moss of the shaded parts of the bogs is frozen for a very long time in the spring and is absolutely sodden for a time after the thaw and again in the late autumn. Sieve sampling is thus almost impossible during the time of maximum occurrence of males. This probably explains their poor representation in my material.

The known, rather scarce phenological dates can be summarized as follows: females 8 in May (second half), 6 in June, 1 in July, 1 in August, 4 in September, 1 in October, 2 in November; males 1 in May, 2 in August.

W. alticeps has been collected in the following places: Yläne (60°50'N, 22°45'E), Tvärminne (59°45'N, 23°25'E, 10 ind.), Pernå (60°20'N, 26°10'E), Valkeala (Utti, 60°50'N, 26°55'E), Mäntyharju (61°25'N, 26°35'E, 10 ind.), Pieksämäki (62°15'N, 27°10'E) and (in USSR) Gumbariza by the river Svir (61°N, 33°E). The numerous finds in Mäntyharju and the find in Pieksämäki indicate that the species occurs at least as far north as central Finland.

3. Results

The habitat preferences of the two species are summarized in Table 1. The comparison may be supplemented by the following remarks: *W. alticeps* has been collected in mires only in very wet *Sphagnum* in depressions or at the generally wet border ("lagg"), whereas *W. antica* occurs, although sparsely, on the surface, which may in fact be very dry most of the year. The "small moist depressions on rocks" can be filled with very wet *Sphagnum* moss, but they are surrounded by typical *W. antica* habitat and are apparently too small to be readily colonized by *W. alticeps*.

W. antica is a little smaller than *W. alticeps* (cephalothorax - length in mm):

		n	mean	range
W. antica	♂	22	0.92	0.85-1.10
	♀	36	0.98	0.95-1.10
W. alticeps	♂	3	1.06	1.05-1.10
	♀	23	1.08	1.00-1.20

Table 1. Comparison of habitat preferences (number of specimens) of *Walckenaeria antica* and *W. alticeps*.

	W. antica	*W. alticeps*
Very dry pine forest (*Calluna-* type) or rocks, in *Calodinia, Pleurozium schreberi* or gras tufts	108	—
Dry pine or spruce-pine forest (*Vaccinium* type), in *Pleurozium schreberi*	107	—
Spruce-dominated forest, medium humidity (*Myrtillus* or *Oxalis-Myrtillus* type), in mosses	35	—
Swampy forest ("korpi"), in dry *Sphagnum*	7	—
Small swamps in forest, in very wet *Sphagnum*	—	7
Very moist litter by brooks or springs	—	2
Mires (cf. p. 199)	7	9
Shores	2	1
Small moist depressions on rocks, in litter or *Sphagnum*	9	—
Dry meadows	10	—
Meadows of medium-high humidity	9	—
Clear-cut or burnt forest ground	50	—
Forest plantations	24	—
Not specified (Coll. Mus. Zool.)	22	3

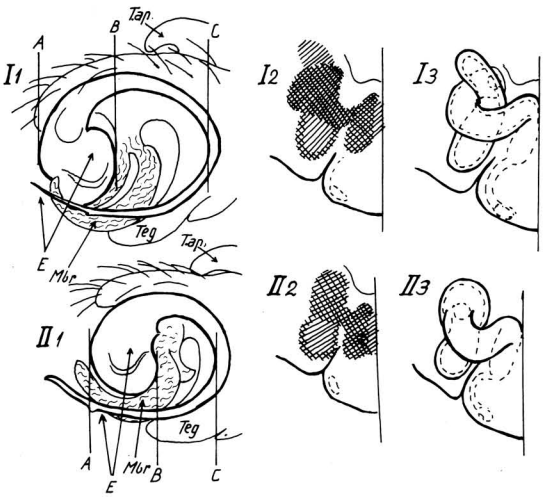

Fig. 1. — I. *W. alticeps*, II *W. antica*. — 1. Distal part of bulbus, antero-ektad view. In *W. alticeps* A-B shorter than B-C, in *W. antica* A-B about = B-C. Tip of embolus very narrow and straight in *W. alticeps*, broader and a little bent in *W. antica*. — 2. Right half of epigyne, ventral view. — 3. Left half of vulva, dorsal view (epigyne loosened), ducts and receptacles. — E=embolus, Mbr=membrane of the median apophyse, T.ap.=Tibial apophyse, Teg.=tegulum.

4. Discussion

It is a general rule that northern populations of a spider species are larger than southern populations (e.g. Lycosidae, Salticidae, Xysticidae, Philodromidae). The typical habitat of *W. alticeps* is no doubt colder than the habitats of *W. antica*. The size difference could thus perhaps be phenotypical (sexual maturation requiring a higher Q_{10} than the general growth). In such a case the taxonomic differences might be interpreted as results of allometric development. This seems, however, impossible: the taxonomic characters are constant over the whole range of size.

Kronestedt's figures (chiefly electron microscopy) elucidate the taxonomic characters excellently. My figures are presented only as a determination aid for Finnish collectors. It is worth mentioning that the embolus tip in recently matured *W. antica* males (still light coloured) may look very like the embolus of *W. alticeps* if viewed with only moderate magnification.

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