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AN INVESTIGATION INTO THE EFFECT OF ENVIRONMENT ON THE NUMBER OF PEDIFEROUS SEGMENTS IN *HAPLOPHILUS SUBTERRANEUS* SHAW - SOME PRELIMINARY RESULTS.

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INTRODUCTION

Dr.E.Eason's paper of 1979 discussed the effect of environment on the number of trunk segments in the Geophilomorpa with special reference to *Geophilus carpophagus* Leach. His study was carried out on British specimens of *G.carpophagus* from two habitat types, natural and urban/domestic derived from Mortlake (london), Bourton Far Hill and numerous natural sites. It is suggested that the phenotype in *G.carpophagus* is flexible and that this flexibility becomes manifest under environmental pressure by the appearance of a different number of trunk segments: the genotype remains unchanged, merely dictating the flexibility of the phenotype and that the phenotype should therefore revert to its former state once the environmental pressure is removed.

Further, *G.carpophagus* is almost certainly a European species which, when faced with the British climate lost some of its trunk segments and has only regained them on entering the relatively protected environment provided by urban/domestic habitats.

The present investigation into *H.subterraneus* Shaw was prompted by Dr.Eason's paper as this species is also a European species which is relatively common in urban/suburban and natural sites in the south of Britain.

MATERIAL

The material examined so far in this investigation has been collected from urban/suburban sites from the north of Surrey and from natural sites in Surrey and Sussex. A total of 121 specimens have been examined and have exhibited pediferous segment counts of 77 - 83. There have been no instances of male specimens with in excess of 81 pediferous segments, nor have there been any instances of female specimens with fewer than 79 pediferous segments.

Table 1 Numbers of male/female specimens collected from each environmental type.

	Males	Females
Synanthropic sites	30 (38%)	49 (62%)
Natural sites	21 (50%)	21 (50%)

It is of note that *H.subterraneus* appears to be found at a greater density in synanthropic sites than in natural sites and that females are more commonly found than males in such sites.

Table 2 Number of individuals by number of pediferous segments.

	77	79	81	83
Synanthropic sites	2	16	43	18
Natural sites	12	13	14	3

Clearly there are differences in the number of pediferous segments between the two habitat types. This becomes even clearer when comparisons are made between each sex at habitat level :-

Table 3

	Male				Female			
Leg count	77	79	81	83	77	79	81	83
Synanthropic sites	2	13	15	0	0	3	28	18
Natural sites	12	6	3	0	0	7	11	3

A two way Contingency table was constructed from the data in Table 2 above to compare the frequency with an "expected" value for leg count across the data.

Table 4 2- way Contingency table

Site type	-	Synanthropic	Natural
Leg count frequency	77	2	12
expected		9.1	4.9
Leg count frequency	79	16	13
expected		18.9	10.1
Leg count frequency	81	43	14
expected		37.2	19.8
Leg count frequency	83	18	3
expected		13.7	7.3

The above table displays significant variation between the frequency and expected values and therefore the data is not "normally" distributed with regard to an "even" spread of numbers of pediferous segments per habitat.

DISCUSSION

Although the data above gives an indication that specimens of

H.subterraneus found in synanthropic sites are likely to have a greater number of pediferous segments than are those from natural sites, this is a difficult hypothesis to prove. What is a "natural" site? I ask this because there are very few sites which have been unaffected by the activities of man over the centuries.

Possibly what we can intimate is that close association with man may provide the environmental pressure required to force the upward variation in pediferous segments.

The specimens used in this survey were collected from a relatively small geographical area and therefore there may be genetic involvement in distortion of the data. It is therefore my intention to continue this study by collecting further data on this species from a greater geographical area - any assistance with collecting *H.subterraneus* from synanthropic/natural sites would be welcome.

REFERENCES

Eason,E.H.,(1979) The Effect of the Environment on the Number of Trunk-segments in the Geophilomorpha with Special References to *Geophilus carpophagus* in *Myriapod Biology*. Ed. Camatini. Academic Press.

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