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LOCAL DIFFERENCES IN AGE STRUCTURE OF POPULATIONS OF THE CENTIPEDE *LITHOBIUS VARIEGATUS* LEACH IN THE QUANTOCK HILLS, SOMERSET.

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INTRODUCTION

Eason (1964) described the post-larval stadia of *Lithobius variegatus*. In the first post-larval stadium there are two pores on each coxa of the twelfth pair of legs and one pore on each coxa of leg pairs 13,14 and 15. This is denoted 2.1.1.1. In the second post-larval stadium there are 3.2.2.2 pores, in the third 4.3.3.3 and in the fourth 5.4.4.4. The two adult stadia, 5 and 6, almost invariably have 6.5.5.5 and 7.6.6.6 coxal gland pores. This regular increment in the number of coxal gland pores means that the stadia are very easy to distinguish thus rendering *L.variegatus* suitable for life history studies.

Successive groups of Sixth Form pupils at Taunton School have collected data on the succession of post-larval stadia of *L.variegatus* in Muchcare Wood at Lydeard Hill, near Taunton, Somerset.

The survey, begun in January 1987, showed similar successions of stadia in successive years until the autumn of 1990 when there was a sudden increase in the numbers of post-larval stadium 2 individuals. They represented 60-80 per cent of the entire post-larval stadia between October 1990 and February 1991 as compared with 10-30 per cent during this period in the previous year (Lewis, unpublished data).

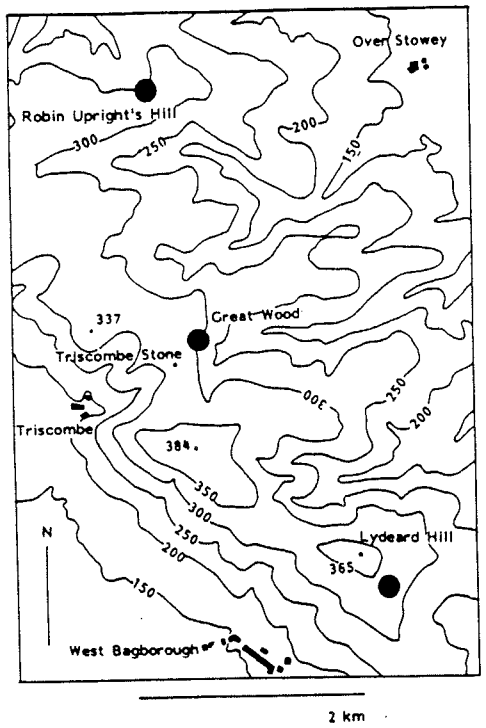
In an attempt to ascertain whether this was a local effect, two other populations in the Quantocks were sampled for comparative data.

THE LOCALITIES

Muchcare Wood is on the gentle SE facing slope of Lydeard Hill (grid ref. ST 183339) at an altitude of 320-330m.

It is a mature stand of beech (*Fagus sylvatica* L.). A sample of 42 *L.variegatus* was collected here, mainly from beneath stones, on 26 February 1991 (Fig.1).

A second sample, of 48 specimens, was collected from Great Wood near Triscombe Stone (Grid ref. ST 166361) at an altitude of 300m, some 5.5km NW of Muchcare Wood on 7 March 1991. The



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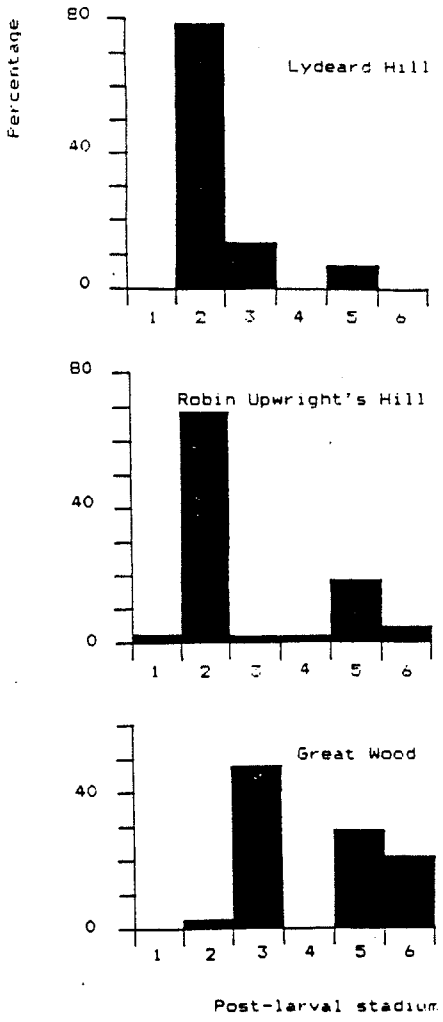

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Fig 1) Map of an area of the Quantock Hills to show the localities sampled.

Fig 2) The percentage occurrence of the post-larval developmental stadia in three samples of *L.variegatus* from the Quantock Hills.

specimens were collected from beneath logs and stones. The site was on an ESE facing slope in beech and sessile oak (*Quercus petraea* (Mattuschka) Lieblein) wood bordering upon a Norway Spruce (*Picea abies* (L.)) plantation.
The third sample, of 42 specimens, was collected from Robin Upright's Hill (Grid ref. ST 162383), at an altitude of 300m, some 10km NW of Muchcare Wood also on 7 March 1991. The specimens were collected from beneath bark, mainly of standing dead trees. The site is on a NNW facing slope. It is a wood of stunted sessile oak with some downy birch (*Betula pubescens* Ehrh.) and ground cover bilberry (*Vaccinium myrtillus* (L)).

RESULTS

Table 1 shows the numbers of each stadium of *L.variegatus* collected at the three sites. The percentage composition is shown in Table 1 and Figure 2.

Table 1. The number of the various post-larval stadia of *L.variegatus* in three samples from The Quantock Hills.

Stadium	Lydeard Hill	Robin Upright's Hill	Great Wood
1	0	1	0
2	33	23	1
3	6	1	29
4	0	1	0
5	3	8	14
6	0	2	10
Sample Size	42	42	48

The populations from Muchcare Wood and Robin Upright's Hill were similar in that the predominant post-larval stadium was stadium 2. The X^2 test showed that these two populations were significantly different ($p>0.05$). The Great Wood population differed markedly from the other two. The predominant post-larval stadium was stadium 3. The X^2 test showed that the Great Wood population very significantly different ($p>0.001$) from the other two.

DISCUSSION

This investigation was undertaken to determine whether the change in the pattern of succession of post-larval stadia in a

frequently sampled population of *L.variegatus* was paralleled in other local populations. The population was similar to one and markedly dissimilar from a second nearby population.

The data revealed major differences in the two populations that had not been previously sampled, those from Robin Upright's Hill and Great Wood. Had such differences in developmental phenology been recorded from widely separated localities, they could have been attributed to macroclimatic geographical or clinal genetic variation. Differences between developmental phenologies between specimens from widely separated localities, for example the north and south west of England, should therefore not be interpreted as necessarily being due to some factor or factors relating to their wide geographical separation. Similar differences could occur locally.

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REFERENCES

Eason,E,H.,(1964) *Centipedes of the British Isles*. x+294 Frederick Warne & Co Ltd, London and New York.

Lewis,J.G.E.,(1981). *The Biology of Centipedes*. Cambridge University Press.