

The Seasons of Activity of some Spiders at Spurn Head, East Yorkshire

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Introduction

Between April 1968 and May 1970 over 1,000 spiders were caught in 11 pit-fall traps on a site periodically flooded by the sea at Spurn Head, East Yorkshire. The site has a thin cover of *Hippophae rhamnoides* L. at the south east end, separated from a dense stand of *Halimione portulacoides* (L.) by an area of mud. The north west end comprises sand dunes beside the Humber. A more detailed description of this site has been published elsewhere, with an analysis of the spatial distribution of the spiders (Sudd, 1972). The captures for this two-year period also illustrate the times of appearance of the adults of the commoner species, and in one case the seasonal growth cycle. Nomenclature follows Locket and Millidge (1953).

Results

The activity periods of adults

Table 1 shows the number of adults caught of the 19 commonest species. For each of these species, a total of 10 or more adults was caught over the two years and for most, an "interquartile" period has been defined, in which half or more of the total captures were made. This provides a measure of the spread of occurrences as well as of their location, and is easily confined to one month for male *Pocadicnemis pumila*, but impossible to reduce below 4 or 5 months in *Erigone dentipalpis* or *Stemonyphantes lineatus*, for example. The "total range", that is the months in which one or more adults of each species were caught is also shown in Table 1.

The species in Table 1 show 5 types of seasonal activity pattern. There are 12 species, of which the adults were caught in summer only, mostly in June and July, but earlier for *Trochosa terricola* and *Silometopus ambiguus* males. Three more species were also most active in summer but were also caught as adults in winter. The summer peak of activity was

perhaps a little later in these than in species whose activity was confined to summer. *Lycosa purbeckensis*, a summer species, showed signs of an autumn breeding season in 1968. One species, *Agroeca proxima*, is better described as an autumnal species, occurring in September and November, and three species were typical of winter. Finally, two species occurred as adults in both summer and winter.

The breeding and growth period of Lycosa purbeckensis

In addition to 235 adult *L. purbeckensis*, 76 immature lycosids were captured in the frequently flooded sites favoured by adults of this species. The only other lycosid caught in the area was *L. pullata* and this was confined to drier sites as an adult (Sudd, 1972). The spiderlings may thus be reasonably assigned to *L. purbeckensis*. The spatial association of the spiderlings with the more frequently flooded sites, measured by Kendall's tau (Sudd, 1972), was 0.3934 ($\alpha = 0.05$), less than in adults of this species (0.6729, $\alpha = 0.002$). This might indicate a higher degree of dispersal in immatures, or merely their avoidance of heavily flooded sites in autumn and early spring, when floods and immatures occur but adults do not. The overall length of each immature was measured to the nearest 0.5 mm and these details are shown in Figure 1. There were only slight differences in the degree of abdominal swelling and little inaccuracy was introduced by the use of this measurement instead of just taking the more accurate carapace length. In 1969 a number of typical lycosid cocoons were found in traps with *L. purbeckensis* females. It was also possible to separate adult females into 3 categories, based on the state of the opisthosoma - swollen, spent, and normal. This information is also incorporated in Figure 1.

It is clear that cocoons were carried in the months of June and July and that the young hatched in the same months. In July 1968, 13 very small spiderlings were found in a trap with a female *L. purbeckensis*; probably they had been carried into the trap on their mother's back. The growth of young spiders continued until August or September when they measured 4.5 to 6.0 mm. In 1969, 2 cocoons were taken in October and presumably a late brood was produced that year. The fate and growth of spiderlings from late cocoons was not determined. During

the winter, growth and activity were evidently low, but a few immatures about 5.0 mm long were caught. Only one adult was caught later than October; a damaged male whose specific identity was not certain. Immatures were caught again in April, and their length still fell within the range 4.5 to 6.0 mm, in which they entered winter. After this they grew rapidly to the adult length of 6.0 to 8.0 mm, when palpal organs became recognisable in the males. As Table 1 has already shown, the adults were active in

June.

The extreme halobiont *Silometopus ambiguus* also seemed to lay its eggs in June and July. Females caught in April 1969 were smooth and rounded, but in June and July more than half of them had flat and wrinkled opisthosomata. The capture of adults in October 1968 and February 1969 seems to indicate the survival of adults over the winter. No immatures of this small species were recovered.

Species	Total caught		Interquartile period	Total range
	♂	♀		
Summer species:				
<i>Bathyphantes concolor</i> (Wider)	7	6	June	April-July
<i>Lepthyphantes zimmermanni</i> Bertkau	8	8	June-July	June-Nov.
<i>Lycosa pullata</i> (Clerck)	45	14	June	May-Sept.
<i>Lycosa purbeckensis</i> (O. P.-C.)	111	124	June ♂ June-July ♀	May-Oct.
<i>Oedothorax retusus</i> (Westring)	38	41	June	May-Aug.
<i>Pachygnatha clercki</i> Sundevall	20	40	June ♂ May ♀	April-Aug.
<i>Pocadicnemis pumilla</i> (Blackwall)	38	18	June	May-July (Dec.)
<i>Silometopus ambiguus</i> (O. P.-C.)	13	61	April ♂ June-July ♀	Feb-Oct.
<i>Tarentula pulverulenta</i> (Clerck)	22	2	June	May-Aug.
<i>Trochosa terricola</i> Thorell	10	8	April-May ♂ May? ♀	April-Sept.
Summer species occurring also in winter:				
<i>Bathyphantes gracilis</i> (Blackwall)	51	11	July	June-Aug. Dec.-Jan.
<i>Erigone atra</i> (Blackwall)	39	5	Aug.	April-Oct.
<i>Oedothorax fuscus</i> (Blackwall)	11	6	May-June & Oct.-Nov.	April-Nov.
Autumn species:				
<i>Agroeca proxima</i> (Blackwall)	8	8	Oct.	Sept.-Nov.
Winter species:				
<i>Centromerita concinna</i> (Thorell)	45	14	Dec.-Jan.	Oct.-May
<i>Centromerus sylvaticus</i> (Blackwall)	9	11	Dec.-Jan.	Nov.-April
<i>Mengea scopigera</i> (Grube)	20	79	Sept.-Oct. ♂ Nov. ♀	Aug.-Nov.
Species found in most months:				
<i>Erigone longipalpis</i> (Sundevall)	29	15		Nov.-Aug.
<i>Stemonyphantes lineatus</i> (L.)	3	8		Jan.-Aug.

Table 1. Seasonal occurrence of 19 species of spider at Spurn Head 1968-1970.

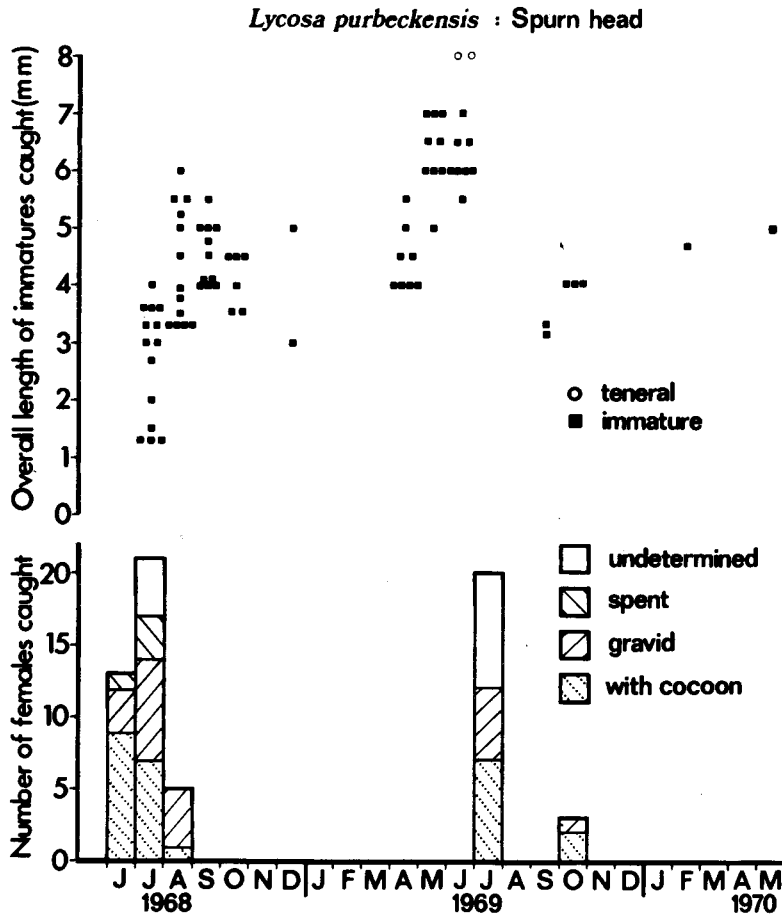


Figure 1. Above: The overall length of immature and teneral *Lycosa purbeckensis*, according to the month in which they were trapped. Below: The numbers of female *Lycosa purbeckensis* caught in the breeding months, and the proportions of them in different reproductive states.

Discussion

The seasonal occurrence of spiders at Spurn Head closely resembled that in Schleswig (Heydemann, 1960), as might be expected from the similarities in the habitats and in their spider fauna. It appears, however, that conditions at Spurn may be relatively mild in early winter and allow some species longer activity periods than they enjoy elsewhere. Heydemann described *Mengea scopigera* as a stenochronous summer spider (actually he found it from August to October) and my records agree with this, but I also caught 61 adults in 5 traps during November.

Almquist (1968) has recently published a very detailed study of the growth of some dune living spiders in southern Sweden. Cocoons of *Lycosa nigriceps* (syn. *Pardosa nigriceps* Thorell) were found in June and most juveniles which hatched from these reached a prosoma length of 1.8 to 2.5 mm by winter, though some spent the winter in a smaller stage. As in this and other species of *Lycosa* studied by Vlijm and Kessler-Geschiere (1967) in the Friesian Islands, and by Edgar (1971) in Scotland, females continued to bear cocoons over a long period, into September or even October. Vlijm *et al* state that because of the lowered activity of cocoon-bearing

females and the lower temperatures few were caught in traps. Probably *L. purbeckensis* behaves similarly at Spurn Head. The limited data provided in Figure 1 could be interpreted as showing the growth of some spiders to sub-adult size by September in 1968. However, most only reached 6.0 mm in total length, and then stopped growing until the following summer.

Summary

1. The seasonal occurrence of adults of 19 species of spiders at Spurn Head, East Yorkshire is described.

2. Ten species were active in summer and 3 more in summer and, to a lesser extent, in winter. *Agroeca proxima* was an autumn spider; *Centromerita concinna*, *Centromerus sylvaticus* and *Mengea scopigera* were typical of winter. *Erigone longipalpis* and *Stemonyphantes lineatus* were caught in most months of the year.

3. The growth of immature *Lycosa purbeckensis* is described. Cocoons were produced in June and less often in autumn. Juveniles mostly reached an overall length of 4.5 to 6.0 mm by winter and completed their growth in spring.

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Notes on *Ostearius melanopygius* (O.P.-Cambridge) (Araneae: Linyphiidae)

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Ostearius melanopygius was recorded for the first time in Britain relatively recently (1906) and is believed to originate from New Zealand (Jackson, 1933; Denis, 1963). It has been found here in a variety of man-made habitats, especially rubbish tips. These notes are based on observations made between 1969 and early 1971 at a large tip at

Kirkby, near Liverpool, Lancashire, and on several captive specimens.

At the rubbish tip

The tip is situated on exposed peat, with *Pteris*, *Betula* scrub and *Molinia* grass and takes up an area of several hundred acres. It is being extended over the next few years on to surrounding farmland. The rubbish is mostly domestic refuse from Kirkby and Liverpool, spread out and covered with soil. In places the tip is about 6 m above the surrounding land. *Ostearius* is mostly found on the less disturbed parts of the tip, especially where the rubbish is old