

SOME LIFE HISTORY DATA ON SEVERAL SPECIES OF
COMMON SPIDERS FROM THE JACKSON HOLE
AREA OF WYOMING

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During the summer of 1950, a study of the spiders of the Grand Teton National Park area was carried out, Lowrie and Gertsch (1955), including a study of the spiders of the herbaceous vegetation of the region by means of sweeping the vegetation with an insect net and using sampling units of 50 strokes. In addition, data from collecting besides the 50 stroke sweeps were included. On further examining the data it became apparent that some information on life history could be gleaned in the cases of several species which were common enough to provide good data. Collecting was done fairly regularly during about twelve weeks of the summer period. These data were separated into six periods of two weeks each. The percent of specimens in each of three categories was determined for each of the periods (Table 2). These categories were the following: adults, immatures of all but the first few instars and immatures of the first few instars—too immature to determine their sex. Though 10,000 sweeps were made (200 samples of fifty strokes of the sweep net each approximately 4 cubic feet of herbaceous stratum space) they were not made equally in each of the two week periods. They varied will be seen in Table 1 from 14 to 61 per two week period. Nevertheless, the proportion of individuals in each of the categories in each of the periods is indicative if not always conclusive.

Pityohyphantes cristatus Chamberlin and Ivie, of the family Linyphiidae, as may be seen from Table 1 was a common species with a total of 149 specimens collected. It is a woods species which builds an inverted bowl-shaped sheet web beneath which it hangs most of the time. It is found rarely in places other than the shade, moist depths of spruce-fir and other mid and low altitude forested areas. The young apparently hatch sometime in mid-June (Table 2) as the first young appear about that time and until early July mainly adults are collected. By August the adults are nearly all females probably because the males all die off by late July (actually after early July very few were found). This is a species which is restricted mainly to lower altitudes below about 9,000 feet partly because the

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TABLE 1. Number of specimens of each species collected.

Two-week period		No. of 50-stroke Units	<i>Misumena vatia</i>	<i>Pityohyphantes cristatus</i>	<i>Tetra- gnatha laboriosa</i>	<i>Tetra- gnatha versicolor</i>	<i>Tibellus paral- lelus</i>	<i>Par- dosa tristis</i>
I	June 11-24	22	4	15	34	10	7	10
II	June 25-July 8	26	12	38	17	9	11	17
III	July 9-22	61	24	14	29	9	1	18
IV	July 23-Aug. 5	48	36	43	43	19	61	10
V	Aug. 5-19	29	48	29	47	7	25	21
VI	Aug. 20-Sept. 2	14	4	10	50	16	44	9
Totals		200	128	149	217	70	149	85

coniferous forests are not extensive above that altitude in the Tetons. The general shift of the population from adults to very immature, to penultimate forms, to adults indicates a fairly clear picture of young produced in the mid-June period through the mid-August period with a preponderance of adults beginning to appear in the last week of August.

Misumena vatia (Clerck), of the family Thomisidae, is the only yellow crab spider (subfamily Misumeninae) to be found in the Tetons. Of the other genera, *Misumenops* and *Misumenoides* and other species of *Misumena*, only this holarctic species *M. vatia* has been found in the Tetons. Table 2 indicates that the young are born in late June and mature during July and August. By the end of August the adults again predominate and apparently pass the winter in hibernation to appear again when the flowers blossom in the early spring. No adults were found from mid-July until mid-August. However, only six adults were collected indicating that these heavier forms move off onto sturdier vegetation, are capable of resisting the sweeping net, or have an extremely low density. In support of the last hypothesis it should be mentioned that careful hand examination of many flowers showed that the number of adults was actually quite low. They are found mainly crawling on the yellow flowers of *Berberis*, *Ranunculus*, *Potentilla*, *Solidago*, *Arnica*, *Wyethia* and *Senecio* where they ambush butterflies and other insects which come to the flower heads for nectar. A total of 128 individuals was found in sweeping of the vegetation at the lower altitudes.

Dondale (1961) indicates this as a biennial species in Nova Scotia. My data would not preclude that interpretation but since virtually mature specimens were found by the late August period it would seem that in the Tetons they may mature in one season.

TABLE 2. Percent of specimens of each species in each age class. (A—adult males and females; I—immature males and females; Y—immatures too young to determine their sex)

Coll. Period	<i>Misumena vatia</i>			<i>Pityohyphantes cristatus</i>			<i>Tibellus parallelus</i>		
	A	I	Y	A	I	Y	A	I	Y
I	75	25	0	80	0	20	0	14	86
II	8	17	75	45	0	55	27	0	73
III	4	13	83	21	43	36	0	100	6
IV	0	28	72	30	20	50	2	34	6
V	0	63	37	20	10	70	4	4	9
VI	25	75	0	40	40	20	5	61	3
Totals	5	38	57	37	14	49	5	34	61

Coll. Period	<i>Tetragnatha laboriosa</i>			<i>Tetragnatha versicolor</i>			<i>Pardosa tristis</i>	
	A	I	Y	A	I	Y	A	I
I	0	97	3	0	70	30	100	0
II	6	82	12	0	80	20	59	18
III	70	30	0	44	55	0	89	11
IV	93	5	2	70	5	25	90	10
V	21	4	74	100	0	0	82	18
VI	18	4	78	6	0	94	67	22
Totals	36	28	36	36	28	36	81	13

Tetragnatha laboriosa Hentz, of the family Tetragnathidae, is probably the most abundant spider in Jackson Hole as well as in many places in the United States. It builds its web in the drier herbaceous vegetation of meadows and open areas in woods. Over two hundred specimens have been collected in sweepings. Few were found above 9,000 ft. Practically all of the specimens collected prior to the second week in July were nearly adult (Table 2). For the next four weeks over 70% of the specimens collected were adults and cocoons were being laid during this period. By the week of August 6th, newly emerged young were the predominant specimens (74% or more of catch). Sexable immatures were still not very abundant indicating that they either grow markedly during the rest of the fall period before hibernating or else during the next spring.

Tetragnatha versicolor Walckenaer is a spider of very moist woods elsewhere in the United States, with the bulk of specimens being found in webs stretched directly over streams. In the Tetons it may be found in slightly drier situations often some distance away from the actual stream but still in moist habitats. Over one hundred specimens

were collected and their life cycle seems to follow closely that of *T. laboriosa* (Table 2). The main change is that they mature a week or two later, in mid-July rather than early July.

Tibellus parallelus (C. L. Koch), of the family Thomisidae, is the fifth species collected in enough abundance to warrant conclusions as to its life cycle. A total of 165 specimens was collected in the quantitative and general collecting but only eleven of these were adults for the same reasons noted above. It is a protectively colored and behaved roving species common on stems of monocots in moist areas, though not restricted to the grass-like forms. It would seem to mature in fall or early spring with eggs laid the latter part of June. Young are in abundance by mid-July and seem to reach a peak by late August or September when most of them can be classified as well-developed immatures. The departure from the trend shown by the July 9 to 20 collections is insignificant as only one specimen was collected then because sweeping was done in areas not frequented by the species. In addition, it should be noted that only about 20 specimens were collected during the first six weeks, so more sweeping of habitats in which they would be found during spring and early summer must be done.

Besides these species, trends in life cycles of several species may be noted though enough specimens were not collected to give as clearcut results. The agelenid *Agelenopsis utahensis* (Chamberlin and Ivie) seems to mature in late summer by mid-July or later. The argiopid *Araneus patagiatus* (Clerck) becomes adult by early August, as seems to be true of *Araniella displicata* (Hentz), the salticid *Evarcha hoyi* (Peckham) and possibly also *Metaphidippus nigromaculatus* (Keyserling). The linyphiid *Microlinyphia bonita* (Chamberlin and Ivie) is mature by mid-June and possibly overwinters as an adult. Presumably the eggs are laid shortly after early July but collecting data are not clear on this point. One ground-inhabiting species, *Pardosa tristis* Thorell of the family Lycosidae, was found and collected in enough numbers to determine its life history. This is an ecologically widespread species tolerant of a variety of conditions and varying enough that it was collected extensively and with a minimum of bias. Table 2 indicates that young emerge by the end of June and continue to be common into September. Adults, including females with egg cases, were found as late as collecting was done, in early September. The high percentage of young during early July indicates that they were leaving their mothers at this time and mov-

ing out onto the vegetation alone. The presence of very immature specimens again towards the end of the period may indicate a second brood though more collecting will be essential for determining this.

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