

AN ANNOTATED LIST OF THE SPIDERS OF AN EAST CENTRAL ILLINOIS FOREST (WM. TRELEASE WOODS, UNIVERSITY OF ILLINOIS)*

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Though the fauna and flora of Illinois have been the subject of many investigations, there have been but few reports upon the spiders of this State. Several workers have given accounts of spiders in or near Illinois, but the writer has found no record of a complete study of any part of the state.

William Trelease Woods (formerly University Woods), University of Illinois, occupies a 56-acre tract of land located six miles northeast of Urbana. Since the University purchased the land in 1918 it has not been disturbed. This is an elm-maple forest, being in part a climax community for the region. American elm, sugar maple, ash, basswood, and blue beech are the predominant trees. The most abundant shrubs are papaw and spice bush.

From August, 1936, to September, 1938, quantitative collections were made. For the first four inches of soil a tenth-meter iron ring was used. For the herb and shrub layers 50 sweeps of an insect net 30 centimeters in diameter were used as representing one square meter.

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In the two years of work 88 species of spiders were found. These are listed below, those of ecological significance being placed before the others.

ABUNDANT SPIDERS

Dictyna foliacea (Hentz) (Dictynidae)

This small, abundant spider spends the summer among herbs and, less, among shrubs. Eggs are laid in June or early July, and young spiders appear in late July or August; these hibernate in the soil and mature in May or June. The adult forms a small web on the upper surface of a leaf of spice bush or other plant, the edges of the leaf being curled upward slightly; the spider spends much of its time sitting inconspicuously on the web. The adults re-

produce, live through the summer, and die in the fall. Immature spiders may be found at any time of the year except the first few weeks of July.

Dictyna has been observed eating muscoids, chironomids, crane flies, and leafhoppers; several of these animals were larger than the spider.

Agelena naevia Walckenaer (Agelenidae)

This common spider overwinters as an egg, the cocoons being formed beneath loose bark and covered with dirt, wood chips, etc. The spiders emerge in May and form funnel webs, at first on or near the ground, but later on herbs and low shrubs as well. Reproduction occurs in the fall and the female often remains by her cocoon, becoming more and more sluggish and finally dying.

Agelena feeds largely on insects, including crane flies, various larvae, and nymphs. When an animal falls on the web *Agelena* runs out from the funnel, often helps to entangle the prey with silk, and sometimes inflicts a bite. The spider may eat on the exposed part of the web, though she usually carries the food into the funnel to be eaten.

The cocoons of *Agelena naevia* are rather commonly parasitized in the spring by *Gelis similis* (Strickland), a small ichneumon-fly. Often four or more pupae are found in one cocoon, in which case all the eggs are destroyed. When there is only one pupa some of the eggs are not disturbed, and will hatch.

Hahnia cinerea Emerton (Agelenidae)

This small, abundant spider seldom leaves the ground. Adults, present in all seasons, are seen most in winter and early spring, and least in early summer. Young spiders appear in late summer, and are usually mature by winter. Reproduction probably occurs in June; more individuals are seen in the summer than in other seasons.

Pisaurina mira (Walckenaer) (Pisauridae)

Adults of this common species may be seen in June, on the ground or among herbs, the females often carrying their cocoons in their chelicerae. Young spiders are abundant from June to October; numbers drop in the fall when the immature spiders hibernate in the soil. They move to the herbs and shrubs in the spring, and move about in search of food, rather than building a web.

Lycosa frondicola Emerton (Lycosidae)

Young specimens of this genus are abundant on the ground in March, running about actively among dead leaves; their activity forms one of the best indications of the shift from winter to prevernal season. During the summer young *Lycosas* also live in the herbs and shrubs. Specific identification of these immature animals is impossible.

Only two adults of *Lycosa frondicola* were taken, those being seen on a log in June.

Lycosa pulchra (Keyserling) (Lycosidae)

Rare adults were found in September and April; possibly, unlike *L. frondicola*, *L. pulchra* hibernates as an adult.

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Allocosa funerea (Hentz) (Lycosidae)

Like *Lycosa*, *Allocosa* is abundant as an immature form on the ground in the winter and spring. Occasional adults are seen in early summer, and by late summer young specimens are numerous. *Allocosa* has been seen parasitized externally by the hippopis stage of a mite, attached to the side of the spider's abdomen.

Schizocosa ocreata (Walckenaer) (Lycosidae) *S. crassipes* (Walck.)

Schizocosa is a third, less abundant, genus of wolf-spiders seen as immature forms on the ground in the winter and early spring. *S. ocreata* adults were found occasionally in late summer, usually on the ground.

Schizocosa saltatrix (Hentz) (Lycosidae)

Adults of this species were rarely seen in late summer.

Erigone sp. (Linyphiidae)

This spider, the most abundant of the linyphiids, lives largely on the ground, though some move to the herbs and shrubs in the spring and summer. Adults occur in the winter and spring, and again in late summer; reproduction probably occurs in late spring or early summer.

Tetragnatha extensa (Linnaeus) (Argiopidae)

This abundant spider reproduces early in the summer, and both adults and young spiders are found regularly in herbs and shrubs during the summer. Adults die by the end of August, and the immature forms, active in the upper layers until mid-November, hibernate, some in the soil and some in protected places among herbs. Some are active in herbs late in March and in April and May, but are not consistently present until June.

Tetragnatha laboriosa (Hentz) (Argiopidae)

This species, much less abundant than *T. extensa*, lives primarily in herbs, occasionally moving upward to shrubs but rarely going to the ground. Adults are seen mostly in May and June, though some live through July and August. Reproduction occurs in June and young spiders appear in late summer and fall. They hibernate late, remaining among herbs and becoming active on warm winter days. In April they become active, to mature in about a month.

Araneus marmoreus Clerck (Argiopidae)

This large spider, though less abundant than some of the smaller species, forms one of the most conspicuous elements in the woods during the summer. Immature spiders build large orb-webs among herbs and shrubs in June, and these webs increase in both size and numbers as the season advances and the spiders mature. In August it is impossible to walk through the woods without destroying several webs. Reproduction occurs in late summer, and the spiders apparently pass the winter as first instars within the cocoon. Probably *A. marmoreus* is the species which forms cocoons by rolling a small leaf together to form a tube; the eggs are placed in this tube, and the edges are closed with silk. This sac is suspended from a twig of the shrubs by silk, and the cocoon hangs thus during the winter. Not over 50 young spiders have been seen in such a cocoon, so probably each female forms several cocoons. Over 50 cocoons have been seen on one plant.

A. marmoreus has been observed eating click beetles, scarabaeids, nymphalids, and

even long-horned grasshoppers, though webs often contain muscoid flies and other small insects. *Araneus* partially wraps its prey in silk.

Micrathena gracilis (Walckenaer) (Argiopidae) *Acrosoma rugosa* Emerton

Slightly less abundant than *Araneus marmoreus*, *Micrathena* is similar to it in summer habits, forming large orb-webs among herbs and shrubs, and increasing them in size and abundance as the summer advances. Reproduction occurs in early fall.

Tmarus angulatus (Walckenaer) (Thomisidae)

This spider, like others of its family, is conspicuous in early spring, though it differs from most of the Thomisidae in living primarily in herbs and shrubs during this season. Large immature forms are seen, which probably mature in late spring or summer. Few spiders are seen in the summer, though numbers increase with young specimens in the fall. *Tmarus* forms no web; it can run rapidly, but when motionless is inconspicuous.

Xysticus elegans Keyserling (Thomisidae)

This genus of spiders is represented by several species which cannot be distinguished when immature. These young forms hibernate in the soil, and are abundant on the ground in early spring, forming, with the Lycosidae, an indication of the shift from winter to prevernal season. Adults of *X. elegans* have been found on the ground in May; reproduction probably occurs in June, and probably this species spends all its life on the ground.

Xysticus fraternus Banks (Thomisidae)

This species, unlike *X. elegans*, has been seen as an adult from May through July, though only rarely. In the summer it lives among herbs and shrubs.

Xysticus funestus Keyserling (Thomisidae)

Immature and adult spiders were seen among herbs in August.

Xysticus gulosus Keyserling (Thomisidae)

Like *X. elegans*, *X. gulosus* was rarely found as an adult in May; but it lived in herbs and shrubs rather than on the ground.

Anyphaena pectorosa L. Koch (Clubionidae)

This common spider is immature in the spring, but matures and reproduces in early summer. Young spiders are seen in late summer and fall, being more abundant than adults in the summer. Late in the fall the immature forms hibernate among leaves on the ground and become active on warm days, when they may even move to the herbs for a short time. In early April the spiders return to herbs and shrubs, where nests are formed; each is made of a leaf rolled lengthwise and lined with silk. There is no web for capturing prey.

One specimen was observed to be parasitized by a nematode of the family Mermithidae; the worm was coiled in the abdomen, filling it completely.

Aysha gracilis (Hentz) (Clubionidae)

This spider, though less numerous than *Anyphaena pectorosa*, appears to be much like it in habits, the main difference being that *Aysha* matures and reproduces earlier in the spring than does *Anyphaena*. It leaves herbs and shrubs late in the fall, being seen there through November; it also appears there early in the spring, living in herbs more than shrubs.

Phidippus audax (Hentz) (Salticidae)

This species is not abundant in the woods. Adults and large immature spiders hibernate in late November, on the ground, or, more commonly, in sacs under bark. Reproduction occurs in mid-summer; nests are formed for the eggs, in empty acorn shells on the ground or among leaves of hackberry or wild grape. The female remains with the cocoon and dies in the fall. Young forms live among herbs and shrubs in late summer. One nest was found parasitized by larvae and pupae of *Phalacrotophora epeirae* (Brues), a phorid; none of the eggs were alive.

Dendryphantus capitatus (Hentz) (Salticidae)

This, the most abundant salticid, matures and reproduces in the summer; adults are found in the herbs from late spring through the fall. Young spiders appear in late summer, and hibernate on the ground or in rolled leaves among herbs. They become active in April and mature in May or June. The peak of the year's abundance is produced by the young spiders in the fall. *Dendryphantus* has been seen eating cantharids, ants, and other spiders.

Zygoballus bettini Peckham (Salticidae)

The adult of this species is slightly more abundant than the following one, but the immature forms cannot be distinguished. Each species is seen only occasionally. *Z. bettini* lives mostly on herbs, less among shrubs, and, apparently, not at all on the ground. Adults are seen in late summer and fall, and immature spiders probably hibernate.

Zygoballus nervosus (Peckham) (Salticidae)

Like *Z. bettini*, *Z. nervosus* may be seen as an adult during the summer and fall, while young specimens appear in the fall. A few were seen on the ground, though the majority were in higher layers.

INFREQUENT AND INCIDENTAL SPIDERS

Atypus abboti (Walckenaer) (Atypidae)

Adults and large immature spiders of this rare species overwintered on the ground, but moved to herbs during the summer.

Mimetes interfector Hentz (Mimetidae)

Occasional immature specimens were found in herbs and shrubs in the summer, and a few adults were taken in June and July.

Uloborus americanus Walckenaer (Uloboridae)

Immature specimens have rarely been seen in the autumn, and adults in the summer.

Hyptiotes cavatus (Hentz) (Uloboridae)

Occasional immature specimens were found in herbs and shrubs from May through the summer, with adults in August. Evidently immature forms overwinter.

Coelotes sp. (Agelenidae)

A few immature specimens have been found on the ground during the winter and early spring.

Cicurina arcuata Keyserling (Agelenidae)

Young specimens appeared in June, and were frequently found on the ground and among herbs and shrubs in August and September. Older forms were seen less frequently on the ground in winter and early spring. Here on warm winter days *Cicurina*

was active among the leaves. No webs were seen, though this genus is reported to have small webs under stones or in moss.

Cryphoea sp. (Agelenidae)

Young individuals occurred commonly during late spring and summer, though no adults were seen.

Dolomedes tenebrosus Hentz (Pisauridae)

This large spider, less abundant than *Pisaurina*, lives among herbs and shrubs, where immature specimens may be seen during the summer and fall. Large immature forms and adults hibernate beneath bark, and mature in June. Though an agile runner, *Dolomedes* does not move about much, but rests with its legs widespread on tree trunks and other surfaces.

Pirata sp. (Lycosidae)

Immature forms were rarely seen on the ground during the winter.

Pardosa sp. (Lycosidae)

Young specimens were often found on the ground in the fall.

Euryopis funebris (Hentz) (Theridiidae)

This spider has seldom been seen, and then only in an immature stage in late October; it was probably moving down from its summer home in the trees to hibernate in lower layers (Davidson, 1930).

Dipoena nigra (Emerton) (Theridiidae)

One adult was seen in shrubs in June.

Oedothorax sp.? (Linyphiidae)

Adults of this genus were rarely seen on the ground in the winter. Their very small size makes identification difficult.

Origanates rostratus (Emerton) (Linyphiidae)

This species, like *Oedothorax*, is rarely found among dead leaves in the winter.

Cornicularia sp.? (Linyphiidae)

A few adults were seen on the ground in the winter.

Eperigone tridentatus (Emerton) (Linyphiidae)

One adult was found on the ground in late spring.

Ceraticelus emertoni (Cambridge) (Linyphiidae)

An adult was taken from herbs in August.

Ceraticelus laetabilis (Cambridge) (Linyphiidae)

Rare adults were seen on the ground in early summer and in the fall.

Ceratinella brunnea Emerton (Linyphiidae)

An adult was taken from the ground in April.

Microneta sp. (Linyphiidae)

Rare adults were seen on the ground during the winter.

Microneta cornupalpis (Cambridge) (Linyphiidae)

Rare adults were seen on the ground in the autumn.

Microneta variata (Cambridge) (Linyphiidae)

One adult was seen on the ground in March.

Bathypantes sp. (Linyphiidae)

Large immature and adult spiders were occasionally found late in the fall.

Bathypantes formica Emerton (Linyphiidae)

Occasional adults were seen on herbs in the summer.

Linyphia communis Hentz (Linyphiidae)

Rare adults were found on herbs in August.

Linyphia marginata C. Koch (Linyphiidae)

An adult was found in shrubs late in the fall.

Marxia stellata (Walckenaer) (Argiopidae)

Araneus stellatus (Walckenaer)

One immature specimen was seen in April.

Wicia infumata Banks (Argiopidae)

One immature specimen was found on shrubs in October.

Araneus thaddeus (Hentz) (Argiopidae)

This spider has been rarely seen as an adult among herbs in the fall. It is smaller than *Araneus marmoreus*, but builds similar webs.

Neoscona benjamina (Walckenaer)

(Argiopidae) *Araneus benjaminus* (Walckenaer)

Neoscona is less abundant than *Araneus marmoreus*, and differs from it mainly in hibernating as a juvenile, usually remaining in shrubs during the winter.

Neoscona arabesca (Walckenaer) (Argiopidae)

Araneus arabesca (Walckenaer)

This orb-weaver was rarely seen as an adult in herbs and shrubs during the summer.

Eustala anastera (Walckenaer) (Argiopidae)

One immature specimen was found in shrubs in November.

Misumena aleatoria (Hentz) (Thomisidae)

Adults were seen rarely in early summer, and young specimens in late summer and in the spring, among herbs and shrubs.

Misumena vatia (Clerck) (Thomisidae)

One adult was found on the ground in July.

Misumenops asperatus (Hentz) (Thomisidae)

Occasional adults were seen in herbs and shrubs in May; immature specimens occurred in the same layers in the summer and fall.

Ozyptila americana Banks (Thomisidae)

Immature specimens usually hibernate, occasionally being found on the ground. Adults were seen at scattered intervals during the spring and summer.

Platygysticus versicolor (Keyserling)

(Thomisidae) *Coriarachne versicolor* Keyserling

One adult was found on the ground in March.

Synema sp. (Thomisidae)

Only immature specimens of this genus were seen, these being on the ground on December.

Philodromus ornatus Banks (Thomisidae)

Adults were rarely seen in herbs in June.

Philodromus rufus Walckenaer (Thomisidae)

Adults were occasionally seen in herbs and shrubs in June, with immature specimens occurring in the fall. Presumably these hibernate and reproduce in early summer.

Ebo sp. (Thomisidae)

One immature specimen was taken from shrubs in October.

Drassylus sp. (Gnaphosidae)

One immature specimen was seen on the ground in November.

Zelotes sp. (Gnaphosidae)

One immature specimen was seen on the ground in January.

Clubiona riparia L. Koch (Clubionidae)

Only immature forms have been found, occurring occasionally from May through September.

Phrurolithus sp. (Clubionidae)

A few adults of this undetermined species were seen in late summer; rare immature forms occurred in May.

Phrurolithus delicatulus Gertsch

(Clubionidae)

Both adults and immature spiders were rarely seen on the ground in the winter.

Phrurolithus formica Banks? (Clubionidae)

One adult was found on the ground in December.

Phrurolithus pugnatus Emerton (Clubionidae)

Rare adults were taken from the ground during the winter.

Castianeira cingulata (C. Koch)

(Clubionidae)

Occasional mature and immature specimens were seen on the ground during the winter, one hibernating in an empty acorn shell; young spiders were rarely found on the ground in the summer.

Castianeira longipalpus (Hentz)

(Clubionidae)

Only immature specimens were seen, these small individuals being on herbs in late summer, and larger ones on the ground in early spring. Presumably reproduction occurs in early summer.

Thiodina puerpera (Hentz) (Salticidae)

Like other Salticidae, this large jumping spider forms no web, but moves among herbs and shrubs to capture its prey. *Thiodina* was seen most in late summer and fall, when it matured and reproduced. Probably it hibernated as an egg; young individuals were occasionally seen in spring and summer.

Salticus sp. (Salticidae)

One immature specimen was seen in herbs in August.

Hycia sp. (Salticidae)

A few immature representatives were taken from herbs in August.

Marpissa undata (DeGeer) (Salticidae)

An immature female was seen on herbs in May.

Wala palmarum (Hentz) (Salticidae)

Only immature specimens were seen, these being most abundant in late summer and less so in early spring.

Phidippus mystaceus (Hentz) (Salticidae)

One adult was seen on the ground in November with her cocoon full of young spiders.

Phidippus whitmanni Peckham (Salticidae)

This spider, the most abundant member of the genus, has been seen immature in the spring and mature in June. Like others of its family, *P. whitmanni* stalks its prey; one was seen on the back of a crane fly three times its size, biting the thorax.

Dendryphantas flavipedes Peckham (Salticidae)

An immature male was found in herbs during October.

Habrocestum pulex (Hentz) (Salticidae)

One adult was found in herbs in June.

Habrocestum parvulum (Banks) (Salticidae)

One adult was seen on the ground in September.

Pellenes sp. (Salticidae)

An immature specimen was taken from the ground in September.

Maevia vittata (Hentz) (Salticidae)

Occasional immature specimens have been seen among herbs and shrubs throughout the summer.

Fuentes lineatus (C. Koch) (Salticidae)

One adult was seen on the ground in July.

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