

1940

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Recommended Citation

Stiles, Karl A. and Stevens, Virginia G. (1940) "Studies of Eastern Iowa Spiders," *Proceedings of the Iowa Academy of Science*, 47(1), 333-342.

Available at: <https://scholarworks.uni.edu/pias/vol47/iss1/92>

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STUDIES OF EASTERN IOWA SPIDERS ¹

KARL A. STILES ² AND VIRGINIA G. STEVENS

The spiders of Eastern Iowa included in this study constitute a part of a general geographical and seasonal survey of the spiders of Iowa. The majority of them have been collected by the authors, although much assistance has been given by others.¹ For the first time some spiders have been collected from the woodland floor by the sifting of dead leaves and other debris. Most of them have been found in Linn County, but there are also species from Wapello, Henry, Muscatine, Pottawattamie, Black Hawk, Clayton, Louisa, and Washington counties. Of the ninety-four different spiders here reported, thirty-five species and ten families are represented. Twelve are males, seventy-seven females, and five immature spiders. For the first time, specimens of the family Gnaphosidae have been added to our collection. More species have been found of the orb weavers, the Argiopidae, than of any other family.

The spiders listed below, for the most part, follow the classification of Petrunkevitch as given in the *Transactions of the Connecticut Academy of Arts and Sciences* (3), April, 1933, in the paper "An Inquiry into the Natural Classification of Spiders, Based on a Study of Their Internal Anatomy."

Most of the determinations were checked by Dr. A. M. Chickering, Albion College, Albion, Michigan. It is a pleasure for the authors to acknowledge their indebtedness to Professor Chickering for this service.

FAMILY AMAUROBIIDAE

The Amaurobiidae have a cribellum and calmar present; the cribellum being divided into two parts. The chelicerae are prominent. The tarsi possess three claws. The eight eyes are arranged in two rows with those located anterior and median, dark colored. The webs are loose and irregular.

Amaurobius bennetti (Blackwall)

The spider is brownish-black in color with a yellowish white mark on

¹ Aided by an academy grant from the American Association for Advancement of Science through the Iowa Academy of Science.

² The number of people who have cooperated with the author in collecting is too numerous to mention but special acknowledgment should be given to Mr. Joe Radloff and Dr. A. W. Meyer.

the abdomen. On the anterior half this marking consists of two parallel, longitudinal stripes and on the posterior half are several light chevrons. The lateral lobes of the epigynum of the female meet behind the central lobe. Linn County, two females, July 19, 1936 and October 16, 1938.

FAMILY AGELENIDAE

The Agelenidae have long posterior spinnerets, three claws on the tarsi and eight eyes which are usually all white in color. Their webs are sheet-like and are usually furnished with a tunnel for a retreat.

Coras medicinalis (Hentz)

The medicinal spider was thought to have a narcotic effect in case of fever. The female is about one-half an inch in length. The cephalothorax is yellow and darkest in front and is marked with two gray lines in the anterior part that meet at the median furrow; in the posterior part there are two longitudinal dark bands. The abdomen, which is gray, is marked with many irregular spots. Muscatine County, one female, October 3, 1937.

Tegenaria domestica (Clerck)

This is a domestic spider and all those collected were found in the dwellings of man. The anterior part of the abdomen is pale white the posterior is spotted with gray. Two males and two females are in our collection. Cedar Rapids, April 28, 1938; June 14, 1937; June 25, 1937; and June 25, 1938.

FAMILY LYCOSIDAE

The Lycosidae or wolf spiders have a distinctive arrangement of their eight eyes. The eyes are in three rows with two in the posterior two rows, and four small eyes in the anterior row. The trochanter possesses a deep notch. The tarsi have three claws.

Lycosa aspersa Hentz

The cephalothorax has a very narrow, light, longitudinal band. The dorsal abdomen is very dark. This is a large spider being over an inch in length. Wapello County, one female, September 12, 1937; Muscatine County, one female, July 20, 1937.

Lycosa baltimoriana (Keyserling)

The cephalothorax of this spider possesses a light median longitudinal band. The lower margin of the furrow of the chelicerae is armed with three teeth. The legs are similar in color, but the patellae and often the distal end of the tibiae are black on the ventral side. There are fine longitudinal dark lines on the anterior femora, and faint dark spots on the posterior femora. The venter behind the epigastric furrow is black. Cedar Rapids, a male, October 5, 1938.

Lycosa helluo Walckenaer

This spider is about three-fourths of an inch in length. The cephalothorax possesses a narrow yellow median stripe and a light stripe along each lateral

margin of the thorax. On the anterior portion of the dorsal aspect of the abdomen there is a lanceolate stripe which is dark at the edges and bordered by lighter bands. There are indistinct chevrons on the posterior half of the abdomen. The legs are without markings. This spider is commonly found under stones and other shelters in the forest and lives in a shallow nest lined with silk. Muscatine County, one female, June 11, 1937.

FAMILY LINYPHIIDAE

The Linyphiidae are known as the sheet weavers. Most of them are of small size and because of their secluded habits rarely attract attention.

They have eight eyes which are similar in color. The tarsi have three claws.

Linyphia clathrata Sundevall

This spider is about one-eighth of an inch in length. The cephalothorax is yellowish brown. The abdomen of the female is pale brown, thickly spotted with white, and marked with brownish-black bars. Linn County, one female, June 9, 1938.

FAMILY THERIDIIDAE

The Theridiidae or comb-footed spiders have the tarsi of the fourth pair of legs armed on the inside with a series of spines of six to ten strong curved setae in a single row and diminishing in length toward the tip of the tarsus. The eight eyes are heterogeneous in color. The tarsi possess three claws.

Latrodectus mactans texanus Chamberlin and Ivie

The first record of the black widow in Iowa was made by the senior author. It was collected in the warehouse of a Cedar Rapids machinery company in the fall of 1936. This specimen which proved to be a female does not possess the typical hour-glass marking on the ventral abdomen. Instead the markings consist of two separate abdominal markings on the anterior and posterior parts of the abdomen, representing the top and bottom of the hour-glass with the central portion missing.

Theridion frondeum Hentz

This spider is usually white marked with black. The markings are quite variable. Those on the two females identified consist of a median black band bordered by white on the dorsal abdomen and black and white irregular stripes on the sides. It is commonly found in fields. Muscatine County, two females, September 29, 1937.

FAMILY ARGIOPIDAE

The Argiopidae or orb weavers include the spiders commonly known as garden spiders. The tarsi have three claws. The eyes are eight in number, the color differing among them. The hind spinnerets are short. The spiders of this family make an orb-web

which has from the central portion a series of radiating lines of dry and inelastic silk which support a thread of viscid and elastic silk. When they are active and the food supply is good, a new web is made every day, and the old one is torn down. The spider destroys his web by walking out from the center on one of the rays and gathering the web it can reach with its front feet. This is then formed into a ball and dropped. Then it builds a new one.

Araneus angulatus Clerck

This is a large spider which has an angulate abdomen with humps on the shoulders. A group of yellow spots are in front of the shoulder humps, and these occupy the area between these humps. Yellow spots are also on the posterior half of the abdomen. The dark line bordering the folium is broken up into the several pairs of dark oblique bars. The scape of the female epigynum is longer than its width at the base and ends in a spoon-shaped tip.

Sac County, a female, October 6, 1937. This is the only spider of this study that is not an Eastern Iowa specimen, but it is included to make the family as well represented as possible.

Araneus arabesca (Walckenaer)

The abdomen is oval, and is spotted red and brown with a yellowish background. The orb web is made on low bushes and is almost perpendicular to the ground. The spider usually rests in the center. Linn County, two females, August 23 and 29, 1938; the former having been collected from its web on bridal wreath.

Araneus benjaminus (Walckenaer)

The abdomen is usually triangular oval in shape and is mottled with brown and red. The cephalothorax possesses three dark indistinct stripes. The webs are usually made just before dark. This spider spends more time in the web during the night than in the day. It matures as late as August. Linn County, nine females, August 14, 19, 29, 1937; and August 1, 12, 20, 22, 25, 1938. Muscatine County, two females, July 14 and 27, 1937. Pottawattamie County, one female, August 9, 1938. Washington County, one female, September 1, 1938. Wapello County, three females, August 20 and 31, 1938 and September 11, 1938.

Araneus cornutus Clerck

This foliate spider is so-called because it possesses a distinct folium on the dorsal abdomen. It is light grayish brown in color with distinct light, scalloped median stripe on the abdomen. The cephalothorax is reddish brown with dark stripes on each side and a less distinct median stripe. The epigynum of the female has a finger-like scape, and there is a prominent lobe on each anterior lateral part of it; the posterior lateral thickenings are widely separated, and the posterior half of the central portion of the epigynum is elevated. It makes its webs about houses, but more often in bushes. The spider is usually found in its retreat near the web. Clayton County, one female, May 4, 1938.

Araneus cucurbitinus Clerck

The cephalothorax and legs of this spider are brownish yellow. Its abdomen is oval and light yellow in color with three pairs of black spots surrounded by lighter rings at the sides of the posterior half. The ventral aspect is a little darker than the dorsal aspect. The webs are usually small and made among leaves. Cedar Rapids, an immature form, July 17, 1938.

Araneus gemmus (McCook)

The abdomen has humps on the shoulders. The ground color is yellow with dark markings. The folium is indistinct. On the ventral abdomen a brown band extends from the epigynum to the spinnerets and is bordered on each side by more or less broken lines. Linn County, a female, October 6, 1937.

Araneus nauticus (L. Koch)

The abdomen is triangular oval. It has an irregular, triangular light patch pointed forward in front of the first pair of muscle impressions, behind which is a narrower light band running to the tip of the abdomen. A series of four to five black spots are on each side of this band. The epigynum is short and not much longer than its width at the base. Linn County, July 16 and 19, 1937; Wapello County, July 15, 1938.

Araneus trifolium (Hentz)

The shamrock spider has a round shouldered abdomen. The markings vary. The male is smaller than the female. The dorsal abdomen of the male which was identified has three pairs of dark brown spots on an almost white background. Linn County, a male, July 22, 1938 and a female, September 15, 1938.

Leucauge venusta (Walckenaer)

The Leucauge is one of the most beautiful of all spiders. The abdomen is silver white with a median black line from which extends four more or less distinct bars. On the sides of the abdomen are two yellowish stripes. The posterior femora have a series of long hairs that are of a bluish tinge. The feet are blue-green in color. Linn County, an immature form, September 3, 1938.

Tetragnatha elongata Walckenaer

This spider is about one-half of an inch in length. The chelicerae of the female are about as long as the cephalothorax. The anterior third of the abdomen is enlarged. The general color of the abdomen is gray with a broken median gray stripe. Cedar Rapids, a female, August 15, 1937.

Tetragnatha extensa (Linnaeus)

This spider is about three-eighths of an inch in length. The lateral eyes of each side are not as widely separated as the median eyes. The chelicerae of the female are a little more than one-half as long as the cephalothorax. The colors are dark, dull yellow, brown with three lines on the cephalothorax, and a median dark stripe on the abdomen. There are three lines on the cephalothorax and a median dark stripe on the abdomen on each side of which is a light silvery stripe. Linn County, a female, June 17.

Tetragnatha laboriosa Hentz

This spider has a slender abdomen that is a little more than twice as long as the cephalothorax in the female. The lateral eyes on each side are separate and about the same distance apart as the anterior and posterior median eyes. The general color is yellow. The abdomen is silvery white with some indistinct median gray markings. On the ventral side there are dark stripes. Linn County, a female, July 18, 1938 and a male, May 24, 1939.

FAMILY THOMISIDAE

The crab-spiders, the Thomisidae, are so-called because their legs are extended in a crab-like fashion and their shape is similar to that of crabs. The first and second legs are usually longer and thicker than the third and fourth. The small dark eyes are in two rows. No webs are spun. The lower margin of the chelicerae are indistinct and unarmed. Some make nests or retreats by the rolling or folding of leaves.

Determinations of the Thomisidae have been made by Arden B. Hughes, Coe College, Cedar Rapids, Iowa.

Misumena vatia (Clerck)

The female of this species is from one-third to one-half of an inch in length. It is milk white or yellow in color. In many there is a light crimson band on each side of the abdomen and another in the eye region. The sides of the thorax are slightly darkened. On the anterior margin the epigynum possesses a protecting plate in the median posterior part of which there is a deep notch, and on each side a more or less distinct notch. The openings of the spermatacae are situated one on each side behind the point of the protecting plate and between the central and lateral notch. Linn County, July 10, 1937.

Misumenoides aleatorius (Hentz)

This spider is common for a short period each fall. Between the eyes there is a pale transverse band. The rest of the cephalothorax is green with the sides dark brown. The abdomen is bright yellow. The eyes in each row are equidistant. They commonly live on flowers and resemble them in color. One was collected on a marigold. Linn County, seven females, July 15, 1937, August 24, 25 and September 14, 1938; and two immature forms July 24, 1937 and August 16, 1938. Black Hawk County a male, July 1, 1938, Wapello County, an immature form, June 23, 1938 and a female, September 14, 1938.

Philodromus barrowsi Gertsch

The following is a description of the male. The integument of the carapace is gray, the sides light brown; a light median longitudinal stripe, about as wide as the last eye row, encloses a light brown streak that runs the length of the carapace. The abdomen is gray with a spear-like mark on the anterior part extending one-half the length of the dorsum. Lateral of this marking are paired brown spots which are posteriorly coalesced into a band. The first row of eyes is shorter than the second row. The median ocular

quadrangle is wider than it is long. The clypeus is as wide as the median ocular quadrangle. Linn County, a male, October 2, 1938.

Philodromus pernix Blackwall

The general color of this spider is gray. The head possesses a well marked V-shaped band. On the anterior part of the abdomen there is a lanceolate stripe, and on the hind part a herring bone pattern. Linn County, a female, July 18, 1937.

Xysticus elegans Keyserling

The male is about one-fourth of an inch in length. The cephalothorax is reddish brown, streaked and flecked with yellow. There is also a broad, light median longitudinal band which is bordered by yellow lines that come together posteriorly to form a point, as well as a transverse band between the two rows of eyes. Muscatine County, July 17, 1937.

Xysticus fraternus Banks

The cephalothorax of this spider possesses a wide light median band which has irregular light brown markings. The ocular quadrangle is also light. The sides of the cephalothorax are brown with light irregular yellow markings. The median eyes are smaller than the lateral eyes. The legs are spotted with brown, which is more pronounced on the first and second than on the third and fourth. The dorsal abdomen has a wide, yellow, longitudinal band that is bordered by light brown. At the anterior end there is a brown spot at each side. The posterior half has three transverse dark brown markings that do not meet. Louisa County, a female, July 14, 1937.

Xysticus gulosus Keyserling

The color of this spider is grayish brown with a white background that is practically covered with minute brown specks. The median area of both the cephalothorax and abdomen is lighter and more or less distinct. A light band traverses the posterior part of the abdomen. The part of the cephalothorax covered by the abdomen is white and on each side of this area is a small white spot on a black patch. The epigynum of the female has on each side a dark colored pear-shaped body. Linn County, a female, October 4, 1938 and two males, June 16 and October 1, 1938, Henry County, a female, April 9, 1939.

Xysticus limbatus Keyserling

The cephalothorax of this spider is reddish brown and is streaked and mottled with a lighter color. There is a white seam on each lateral margin. The middle possesses a broad longitudinal band that is bordered and marked with irregular lines of yellow. The sides of the abdomen are yellowish-white with rows of brown points in the oblique furrows. The cavity of the epigynum is large and deep. Cedar Rapids, a female, September 19, 1937.

FAMILY GNAPHOSIDAE

The Gnaphosidae have their eight eyes arranged in two rows of four each. The tarsi have three claws. The anterior spinnerets are separate.

Herpyllus vasifer (Walckenaer)

The abdomen is black with a dorsal, longitudinal, median white mark extending along the anterior two-thirds, and a white spot near the posterior tip. In the anterior portion this median band is markedly narrowed but only slightly so near the posterior part. Linn County, four females, July 14, 1937 and September 1, 1938, February 24, 1939, collected on the side of the tree; May 12, 1939. Wapello County, a female, June 22, 1938.

Sergiolus variegatus (Hentz)

This specimen has a black abdomen with three transverse white stripes, and a T-shaped white mark between the posterior two stripes. The female is about one-fourth of an inch in length. Linn County, a female, October 2, 1938, collected on a woodland floor among dead leaves and a male, May 23, 1939.

FAMILY CLUBIONIDAE

The Clubionidae have external features very similar to those of the Gnaphosidae for the eyes are in two rows of four each, and the tarsi have two claws. The spinnerets of this family are together instead of separate as in Gnaphosidae.

Castianeira cingulata (C. Koch)

The legs are lined with black. The general color of the body is dark brown, but on the abdomen there are two transverse white stripes, one median and the other anterior. Linn County, September 25, 1938 collected on a woodland floor among dead leaves.

FAMILY SALTICIDAE

The Salticidae or jumping spiders have eight eyes that usually are pearly white in color and characteristically arranged in three rows with two very small eyes in the middle row. The tarsi have three claws.

Dendryphantes (Metaphidippus) capitatus (Hentz)

The abdomen is yellow with four pairs of brown spots, the second pair are the largest and they connect with a paler brown middle marking. Linn County, a male, October 30, 1938.

Maevia vittata (Hentz)

This spider has two longitudinal red stripes on the abdomen between which are indistinct chevrons. In alcohol the red changes to brown. Two of the females were found on a woodland floor among dead leaves. Linn County, three females, June 10, and October 9, 1938.

Marpissa undata (De Geer)

The whole body of this spider is much flattened. The cephalothorax is gray on the dorsal aspect and dark brown along the edge on each side. The abdomen possesses a wide gray median band with indented margins and bordered by black. The female identified was about three eighths of an inch in length. Muscatine County, a female, September 12, 1937.

The list which follows is a summary of the species and families of this study.

Family Amaurobiidae

Amaurobius bennetti (Blackwall)

Family Agelenidae

Coras medicinalis (Hentz)

Tegenaria domestica (Clerck)

Family Lycosidae

Lycosa aspersa Hentz

Lycosa baltimoriana (Keyserling)

Lycosa helluo Walckenaer

Family Linyphiidae

Linyphia clathrata Sundevall

Family Theridiidae

Latrodectus mactans texanus Chamberlin and Ivie

Theridion frondeum Hentz

Family Argiopidae

Araneus angulatus Clerck

Araneus arabesca (Walckenaer)

Araneus benjaminus (Walckenaer)

Araneus cornutus Clerck

Araneus cucurbitinus Clerck

Araneus gemmus (McCook)

Araneus nauticus (L. Koch)

Araneus trifolium (Hentz)

Leucauge venusta (Walckenaer)

Tetragnatha elongata Walckenaer

Tetragnatha extensa (Linnaeus)

Tetragnatha laboriosa Hentz

Family Thomisidae

Misumena vatia (Clerck)

Misumenoides alcatorius (Hentz)

Philodromus barrowsi Gertsch

Philodromus pernix Blackwall

Xysticus elegans Keyserling

Xysticus fraternus Banks

Xysticus gulosus Keyserling

Xysticus limbatus Keyserling

Family Gnaphosidae

Herpyllus vasifer (Walckenaer)

Sergiolus variegatus (Hentz)

Family Clubionidae

Castianeira cingulata (C. Koch)

Family Salticidae

Dendryphantès (Metaphidippus) capitatus (Hentz)

Maevia vittata (Hentz)

Marpissa undata (De Geer)

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