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A COMPARISON OF THE SPIDER FAUNA OF FOUR DIFFERENT PLANT COMMUNITIES FOUND IN NEOTOMA, A SMALL VALLEY IN SOUTH CENTRAL OHIO[1, 2]

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ABSTRACT

The aerial spider fauna of the Mixed Mesophytic forest community was more abundant and more varied than those of the Mixed Oak and Chestnut Oak forest communities studied although all were similar in composition. A study of the leaf litter showed the spider populations to be similar in numbers and species present in all three forest communities. The aerial fauna of the Old Field community studied was as abundant, but less varied than the Mixed Mesophytic. The Old Field community fauna was distinct from that of the forest communities.

A number of ecological studies of spider fauna in various types of plant communities of North America have been made in the past 35 years. Elliott (1930) studied the spiders of a Beech-Maple forest in Indiana while Jones (1940) studied the spiders of an Illinois Elm-Maple forest. Gibson (1947) studied the spiders of a river-terrace forest in Tennessee. Muma and Muma (1949) studied the spiders of the grass prairie in Nebraska with some distinction between those species found in different prairie communities.

Lowrie (1948) was the first to consider a succession of spiders associated with a succession of plant communities. He studied the dune areas of the southern and eastern shores of Lake Michigan beginning with the barren beach and going back from the shore to the climax Beech-Maple forest. Barnes (1953) did a similar type of study on a salt-water influenced plant succession, but did not include the climax forest.

A later study by Barnes and Barnes (1955) dealt with the spider fauna of the abstract broomsedge community of the southern Piedmont. They found that a relatively homogeneous population of spiders existed throughout the segments of this abstract community.

Hansell (1961) studied the distribution of spiders in four forest areas of Ontario. His work indicates that the number of and abundance of different families may be dependent on methods of capturing prey as influenced by the structure of the forests in which these spiders are found.

Neotoma was chosen as the area for this study because a large quantity of environmental data was already available and the area is currently being studied. As far as could be determined, none of the forest types in the study area had ever been surveyed with regard to spider fauna nor had they been studied as to the habitat distribution of the spider groups present.

Representative ecological data are presented which may be used for comparison with previous studies of spider communities and references to publications contain-

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ing more detailed data are given. Environmental data taken during the study (summer, 1962) and not included here are currently being analyzed.

THE STUDY AREA

Neotoma is a small valley located in Goodhope Township of Hocking County in south central Ohio. The land was purchased in 1922 by Dr. Edward S. Thomas and has been studied since that time by a number of people. For more than 20 years the area has been studied intensively by plant ecologists from The Ohio State University and a great deal of environmental data have been published.

Four of the major plant communities of Neotoma were chosen for a comparison of their spider fauna. Three of these represent deciduous forest types common to the unglaciated, dissected Appalachian Plateau. The fourth is an Old Field community which is dominated by herbaceous species such as grasses, sedges, goldenrod, etc.

Vegetation of the Study Areas

Brief descriptions are given to show some of the obvious differences in the vegetation among the areas studied. The information presented is taken from

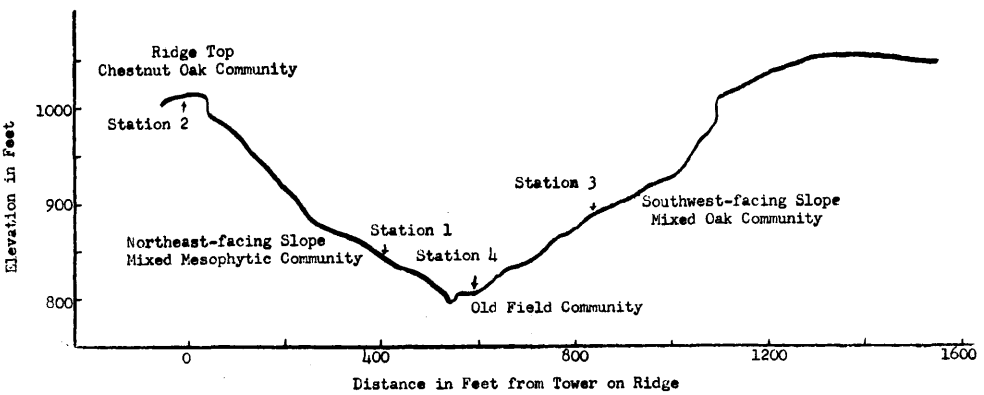

FIGURE 1. Cross section of the central portion of Neotoma.

Gilbert (1962) and Speer and Naskali (1962). Dominant canopy species are included to give a picture of the composition of the different communities named. The number of vascular plant species is given for each study area to indicate the possible variety of habitat niches available to spiders. Nomenclature is that of Fernald (1950).

Station one: Mixed Mesophytic community.—A young Mixed Mesophytic community dominates the lower half of the northeast-facing slope near station one (fig. 1). This community is believed to be a second or third growth stand which has developed following extensive selective cutting. It has been estimated that the last such cutting occurred between 1905 and 1910.

The top of the canopy is approximately 85 ft above the soil surface with a visually estimated closure of 80 to 90 per cent. Dominant canopy species include Tuliptree (*Liriodenaron tulipifera* L.), White Oak (*Quercus alba* L.), Red Maple (*Acer rubrum* L.), White Ash (*Fraxinus americana* L.), Red Oak (*Quercus rubra* L.), Beech (*Fagus grandifolia* Ehrh.), Black Cherry (*Prunus serotina* Ehrh.), and Chestnut Oak (*Quercus prinus* L.).

A subcanopy level, a small tree level, and a lush herbaceous level consisting mostly of spring flowering species also occur. Several shrub species occur, but only sporadically are they dense enough to form a distinct layer. The ground is covered completely by leaf litter during the entire year.

The number of vascular plant species which have been identified in this area is 154 (Speer and Naskali, 1962).

Station two: Chestnut Oak community.—The original vegetation of the west ridge where station two is located (fig. 1), was dominated by Chestnut Oak. The present community is also dominated by Chestnut Oak and is an old second growth community which has developed from stump sprouts.

This community is relatively open and has a visually estimated canopy closure of approximately 50 per cent and a canopy height of 55 ft from the forest floor. Dominant canopy tree species are Chestnut Oak (*Quercus prinus* L.), and Black Oak (*Quercus velutina* Lam.). Canopy associates include Red Maple (*Acer rubrum* L.) and Sourwood (*Oxydendrum arboreum* (L.) DC.).

A relatively well-developed small tree level occurs, but shrubs are few. Patches of Huckleberry (*Gaylussacia baccata* (Wang.) K. Koch), Low Blueberry (*Vaccinium vacillans* Torr.), Mountain Laural (*Kalmia latifolia* L.), and occasional dense patches of Common Greenbrier (*Smilax rotundifolia* L.) occur. The herbaceous flora is sparse. The leaf litter is well developed and remains throughout the year.

The number of vascular plant species which have been identified in this area is 32 (Speer and Naskali, 1962).

Station three: Mixed Oak community.—The community occurring on the south-west-facing slope was originally an Oak-Chestnut forest (fig. 1). Following near clear cutting, evidently during 1910 to 1915, and later "chestnut blight" which essentially destroyed all the chestnut trees, there has developed a young Mixed Oak community. No major disturbance by man has occurred since 1923.

Visually estimated canopy closure of this community is 60 to 70 per cent. The height of the canopy is 75 ft above soil surface. Dominant species include Scarlet Oak (*Quercus coccinea* Muenchh), Black Oak (*Quercus velutina* Lam.), Chestnut Oak (*Quercus prinus* L.), White Oak (*Quercus alba* L.), and Red Maple (*Acer rubrum* L.).

Subcanopy and small tree levels are poorly developed and shrubs are few. The herbaceous level consists mostly of mosses with scattered herbaceous individuals. The amount of leaf cover is considerably less in this area than in any of the other areas here considered. Complete coverage occurs after leaf fall, but winds cause piling of the litter after which about 50 per cent of the surface is devoid of leaves during winter, spring, and summer.

The number of vascular plant species which have been identified in this area is 109 (Speer and Naskali, 1962).

Station four: Old Field community.—A blue-grass cattle pasture immediately preceded the Old Fried community now found in the open valley (fig. 1). Seven years ago grazing was terminated and the area was allowed to develop without interference. The community is dominated by Panic Grass (*Panicum clandestrum* L.), Soft-Rush (*Juncus effusus* L.) in the wetter areas, Agrimony (*Agrimonia parviflora* Ait.), and late summer annuals and perennials including asters, goldenrod, and ironweed. In the last four years scattered woody individuals have begun to appear. No collections, however, were made from the woody species.

The number of vascular plant species which have been identified in this area is 294 (Speer and Naskali, 1962).

Soil Types

The following descriptions of soil types are taken from Gilbert and Wolfe (1959):

Stations 1 and 3—Muskingum fine sandy-loam: The most prevalent soil type of Neotoma, dominating most of the opposing slopes.
Station 2—Wellston silt-loam: A brown acid, permeable, well-drained soil dominating opposing ridge tops, and believed developed from approximately two ft. of loess material overlying an even-textured sandstone bedrock.
Station 4—Atkins silt-loam: A relatively complex soil derived from stratified alluvium and occurring in the poorly drained valley bottom.

The results of a more detailed and complete study will be available in the near future.

Soil Moisture

Weekly soil moisture data for Neotoma from 1955 to 1961 have been published by Laughlin and Gilbert (1962). A summary of the data for the 1 to 3 inch level is included here (fig. 2) to give a comparison of the moisture conditions existing

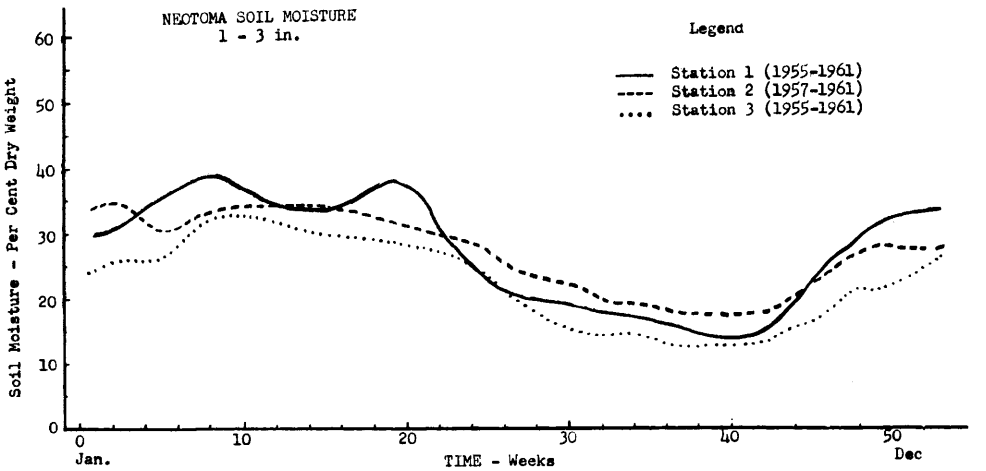

FIGURE 2. Approximated mean curves giving the average soil moisture at stations one, two, and three for the periods indicated.

under the leaf litter in the three forest communities. Generalized curves show the weekly averages during this period expressed as per cent of dry weight.

Solar Radiation

Pyroheliometers were used to measure the quantity of solar radiation reaching the top of the canopy and the forest floor at stations one, two, and three. The curves shown in figure 3 were drawn from daily totals for one year. Data from clear days only have been analyzed. Units are expressed in Langleys (gram-

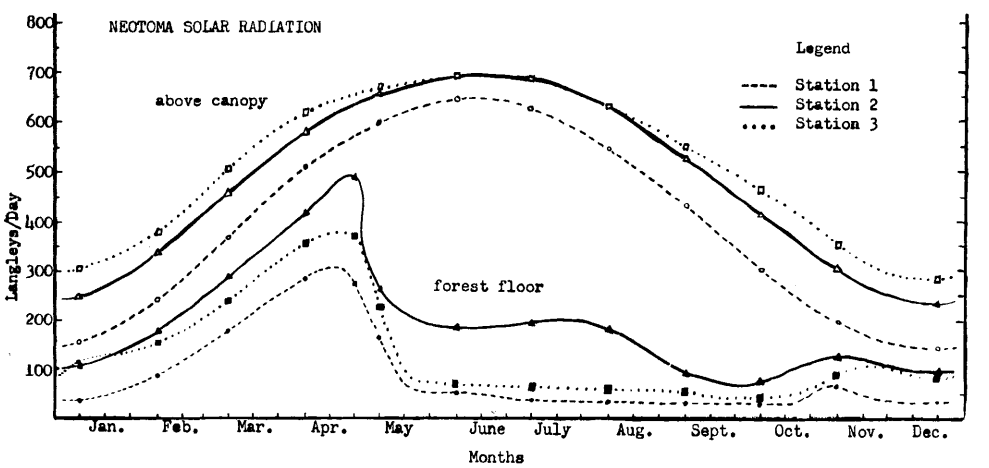

FIGURE 3. Average amount of solar radiation striking the canopy and the forest floor on clear days during an entire year (from Gilbert and Brown, 1962).

calories/m²) per day. More extensive data are available in Gilbert and Brown (1962).

Temperature

Temperature data were available for stations one, two, and three from a number of levels. Data for 3 to 5 ft in the air and under the leaf litter were chosen as

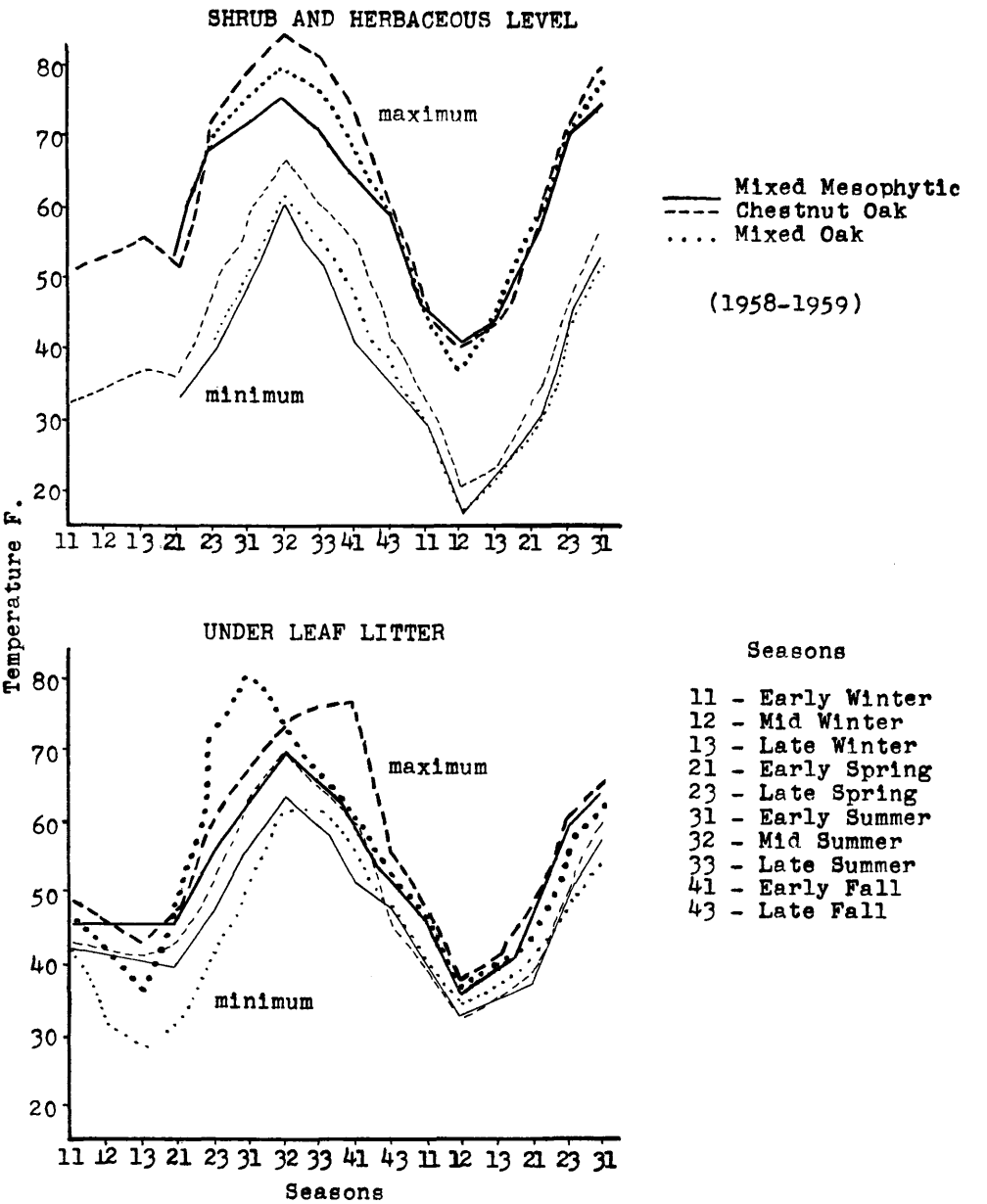

FIGURE 4. Mean maximum and minimum temperature for the shrub and herbaceous level and under the leaf litter at stations one, two, and three for each of the ten phenological seasons.

being closest to the levels of collections. No data were available for the Old Field community.

Thermocouples were used to measure the temperature and readings were recorded hourly. Only data combined to give the mean maximum and minimum temperature for each of ten phenological seasons (table 1) during the years indicated in fig. 4 were available to the author. The data have not been published at the time of this writing.

TABLE 1. *The seasons in the Hocking Hills*

Season	Beginning	Ending
	Month Day	Month Day
Early Winter	11/12	12/11
Mid Winter	12/12[a]	1/25
Late Winter	1/26	3/1
Early Spring	3/2	4/10
Late Spring	4/11	5/15
Early Summer	5/16	6/24
Mid Summer	6/25	8/3
Late Summer	8/4	9/12
Early Fall	9/13	10/12
Late Fall	10/13	11/11

[a]Assigned to following year.

METHODS

An insect sweep net was used for collecting specimens from shrubs, grass, and other herbaceous plants. Larger specimens were often collected by sight. A plastic box approximately 12×15×5 inches with a sheet of white paper fastened to the bottom with cellophane tape made a convenient container in which to sort leaf litter. The sides of the box were high enough to prevent the immediate escape of any specimens and the white paper enabled even the smallest spiders to be seen. Plastic was desirable because of its light weight and because damp leaves would not damage it.

A total of thirteen collecting trips were made, each time attempting to collect in all of the areas studied. Collections were not begun until July 1962, at station four because this community was not originally included in the study. During June, July, and August a collecting trip was made each week. One night collecting trip was made in July to obtain nocturnal spiders. More night collecting was desirable but not convenient.

Both aerial and ground collections were made in each of the three forest areas. All collections were qualitative rather than quantitative.

Only aerial samples could conveniently be obtained in the Old Field community. Because of the plant ecology studies being made, vegetation could not be destroyed. The data collected in the Old Field community, therefore, are compared only with the aerial data of the forest communities studied.

Some general collecting was done to compile a faunal list of the spiders of the entire area. This included collecting around a small cabin used for instruments near station four, and a brief survey of the cliff face spider fauna. Spiders collected in areas other than the study area are listed under Misc. in table 2.

Spiders were identified with the help of Dr. Andrew Weaver of The College of Wooster, Wooster, Ohio, and Mr. Joseph Beatty of Harvard University, Cambridge, Massachusetts.

TABLE 2. *List of species and those stations and strata at which they were collected*

	Aerial				Ground			Misc.
	1	2	3	4	1	2	3	
Agelenidae								
Agelenopsis sp.					X			
Cicurina sp.							X	
Cicurina robusta Simon					X	X		
Coras juvenalis (Keyserling)								X
Wadotes sp.						X		
Wadotes calcaratus (Keyserling)					X		X	
Wadotes hybridus (Emerton)								X
Amaurobiidae								
Amaurobius sp.					X			
Amaurobius bennetti (Blackwell)							X	
Anyphaenidae	X	X	X			X		
Argiopidae								
Acacesia hamata (Hentz)	X	X						
Aranea solitaria (Emerton)								X
Aranea trifolium (Hentz)				X				
Argiope trifasciata (Forskai)				X				
Cyclosa conica (Pallas)	X	X						
Epeira raji (Scopoli)								X
Leucage venusta (Walckenaer)	X		X					
Mangora maculata (Keyserling)	X		X	X				
Micrathena gracilis (Walckenaer)	X		X					
Micrathena mitrata (Hentz)	X	X		X	X		X	
Micrathena sagittata (Walckenaer)								X
Mimognatha foxi (McCook)				X				
Neoscona sp.	X	X	X					
Neoscona arabesca (Walckenaer)				X				
Tetragnatha laboriosa Hentz				X				
Verrucosa arenata (Walckenaer)				X				
Clubionidae	X				X	X	X	
Castianeira sp.						X	X	
Phrurotimpus alarius (Hentz)					X	X	X	
Dicynidae								
Dictyna sp.	X							
Gnaphosidae								
Drassylus virginianus Chamberlin					X		X	
Litopylus rupicolens Chamberlin							X	
Zelotes duplex Chamberlin						X	X	
Zelotes hentzi Barrows						X		
Hahniidae								
Neoantistea sp.					X		X	
Neoantistea agilis (Keyserling)						X		
Linyphiidae								
Bathyphantes pallida (Banks)				X				
Centromerus cornupalpis (Cambridge)								X
Frontinella pyramitela (Walckenaer)				X			X	
Lepthyphantes appalachia Chamb. and Ivie					X		X	
Linyphia marginata Koch		X					X	
Meioneta unimaculata (Banks)			X			X	X	
Microlinyphia mandibulata (Emerton)				X				
Microneta viaria Blackwall							X	
Pityophantes costatus Hentz	X							
Tapinopa bilineata Banks	X		X					
Lycosidae	X			X	X	X	X	
Lycosa aspersa Hentz								X
Lycosa gulosa Walckenaer								X
Lycosa punctulata Hentz								X
Schizocosa crassipes (Walckenaer)						X		
Micryphantidae	X			X	X	X	X	
Ceratinopsidis formosa (Banks)	X			X				
Ceratinopsis nigripalpis Emerton	X							
Origantes rostatus (Emerton)					X			

TABLE 2. *Continued*

	Aerial				Ground			Misc.
	1	2	3	4	1	2	3	
Oxyopidae								
Oxyopes salticus Hentz	X			X				
Pisauridae	X		X	X		X		
Dapanus sp.[a]	X			X		X		
Dolomedes tenebrosus Hentz						X		
Dolomedes urinator Hentz				X				
Salticidae	X	X	X	X	X	X	X	
Habrocestum pulex (Hentz)		X					X	
Icius formicarius Emerton								X
Marpissa pikei (Peckham)				X				
Metaphidippus sp.				X		X	X	
Paraphidippus sp.	X							
Phidippus audax (Hentz)				X				
Phidippus hirsutus Barrows				X				
Zygoballus bettini Peckham								
Segestriidae								
Ariadne bicolor (Hentz)					X			
Theridiidae								
Archaeranea tepidariorum (Koch)								X
Argyrodes trigonum (Hentz)	X		X					X
Euryopis argentea Emerton						X		
Pholcomma hirsutum (Emerton)					X	X	X	
Spintharus flavidus Hentz		X		X				
Robertus frontata (Banks)					X			
Theridion albidum Banks	X				X			
Theridion differens Emerton				X				
Theridion lyricum Walckenaer	X							
Theridion opulenta (Walckenaer)				X				
Thomisidae	X	X	X	X	X	X	X	
Misumena calycina (Linnaeus)	X							
Misumenops asperatus (Hentz)		X		X				
Misumenops oblongus (Keyserling)								X
Philodromus sp.		X						
Philodromus placidus Banks	X							
Tmarus sp.	X	X	X	X				
Xysticus sp.				X		X	X	
Uloboridae								
Hyptiotes cavatus (Hentz)	X							

[a]Formerly the genus *Pisaurina*.

RESULTS

A total of 631 specimens were collected and examined in this study. The number collected in each stratum studied in each area is given in the corresponding graph (fig. 5 and 6) for that stratum.

In the graphs (fig. 5 and 6), the number of specimens in each family collected in one community are presented as a percentage of the total number collected in the same community. This technique was employed by Hansell (1961) and enables the fauna of each area to be compared with the other areas on a proportional basis in the absence of density data.

The various species are related in table 2 to the area(s) in which they were collected in this study. No attempt is made to give numbers of each species found because of the many immature specimens which could not be identified. An attempt is made, however, to determine the minimum number of species which occur in each community. Immature specimens may or may not be additional

species. This information is given in table 3 and should be used for only general comparisons since it is incomplete.

In studying table 2 it can be observed that aerial strata and ground strata have distinctly different fauna during daylight hours with a few exceptions. In only a

TABLE 3. *Minimum number of species found at each station*

Station number	Aerial				Ground		
	1	2	3	4	1	2	3
No. of Web-spinners	16(62%)	6(50%)	8(67%)	14(56%)			
No. of Hunting Spiders	10(38%)	6(50%)	4(33%)	11(44%)			
Total No. of Species	26	12	12	25	16	19	21

small number of cases were the same species found in both aerial and ground collections. These were usually occasional specimens of very immature aerial forms or mature aerial web-spinning males found on the ground. Males of many web-building species are known to leave their webs upon reaching maturity (Gertsch, 1949: 74). One species of which a male was found in both aerial and ground collections was *Micrathena mitrata* (Hentz).

Station one: Mixed Mesophytic community.—The Mixed Mesophytic community (fig. 5) contains the greatest diversity of forms in the aerial population of any of the four communities. A total of 13 families and at least 26 species are represented from a collection of 97 specimens. Diversity is indicated here more by families than by species.

Two families and several species collected in this area were not collected in any other area. Very few of the species collected in the Mixed Mesophytic community were collected in the Old Field community, however, nearly all of the species collected in the Chestnut Oak and Mixed Oak communities were also collected in the Mixed Mesophytic community (table 2).

Web-building forms represent a majority of the total spider fauna in the Mixed Mesophytic community and this is the only area studied in which that is true (fig. 5). Of the web-builders, Argiopidae are the most numerous by far, due to the abundance of *Mangora ornata* (Walckenaer), *Micrathena mitrata* (Hentz), and *Micrathena gracilis* (Walckenaer).

Families and species found in the leaf litter (fig. 6) did not vary to any great extent from those found in the leaf litter in any other area. Linyphiidae, Micryphantidae, and Clubionidae seem to be the most abundant forms in the Mixed Mesophytic leaf litter community.

Station two: Chestnut Oak community.—The ridgetop Chestnut Oak community yielded the poorest aerial fauna (fig. 5). The amount of aerial collecting in the Chestnut Oak community was comparable to the amount of aerial collecting in any of the other areas and yet, only 31 specimens were found representing 6 families. Never more than 6 specimens were taken in any one collection. Several collections yielded no specimens at all.

Argiopidae, Thomisidae, and Salticidae were the most abundant forms. The other 3 families found in this community were represented by only a few scattered specimens. All of the species found in the Chestnut Oak community were found in at least one of the other communities.

The population of the leaf litter (fig. 6) seems to be much the same as in other areas with Lycosidae and Clubionidae being dominant.

Station three: Mixed Oak community.—The aerial spider fauna of the Mixed Oak community is nearly as sparse as that of the Chestnut Oak community.

Only 12 species represent 8 families of which only 3 families, Argiopidae, Thomisidae, and Anyphaenidae exist as more than scattered individuals. As in the Chestnut Oak community, each collection yielded but a few specimens and only

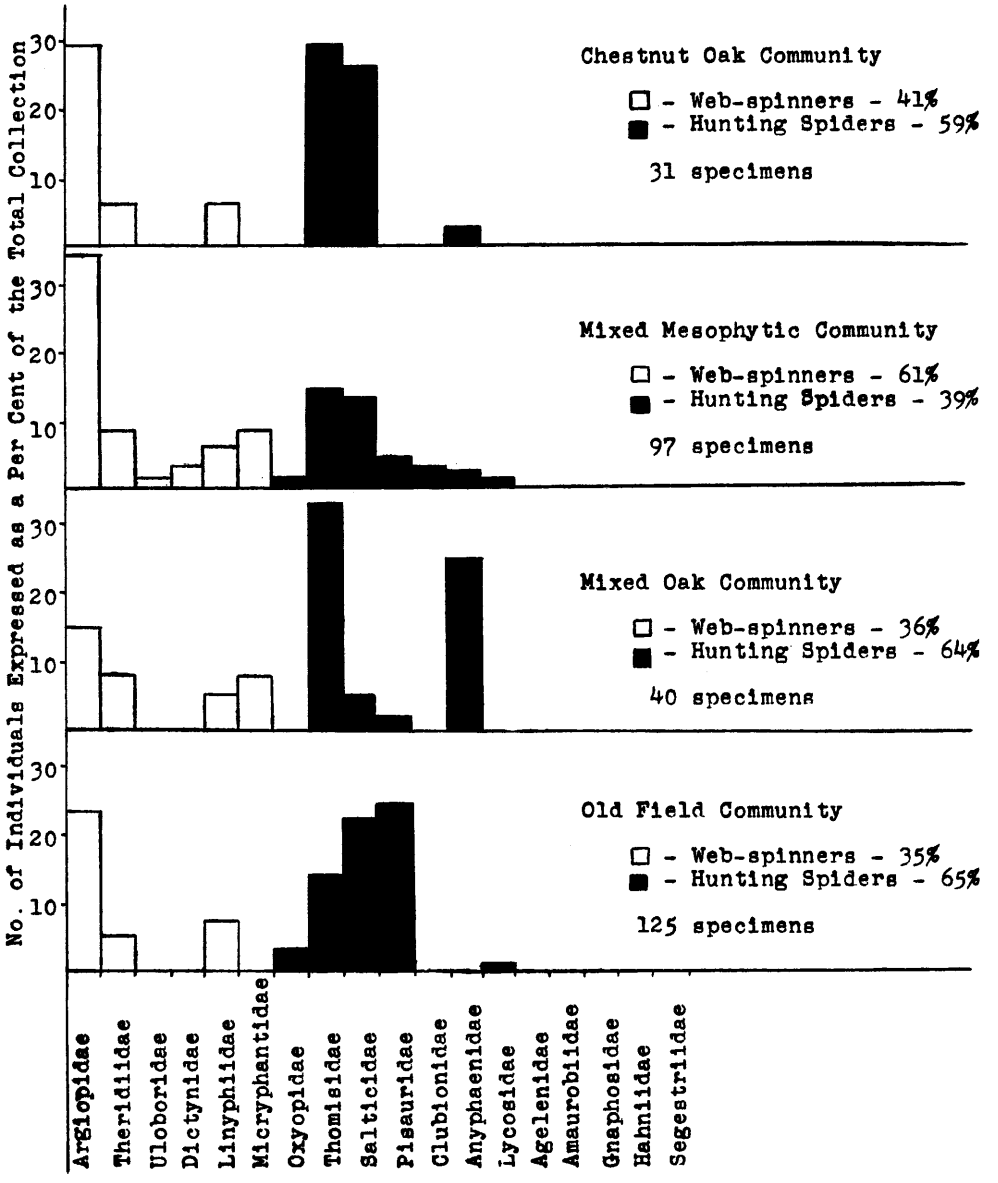

FIGURE 5. Collections from the aerial stratum in all four communities.

the sparse clumps of herbaceous and shrub vegetation were swept. All of the species present in the Mixed Oak community were found in at least one other area.

Web-spinners constitute an even smaller percentage of the total aerial population than in either the Mixed Mesophytic or the Chestnut Oak communities.

Only slightly over a third of the total specimens collected were web-spinners as compared with nearly the opposite situation in the Mixed Mesophytic community.

The leaf litter fauna (fig. 6) is nearly the same as that found in the leaf litter of other areas. Individuals of the family Clubionidae were the most numerous due mostly to the abundance of *Phrurotimpus alarius* (Hentz). No collecting was done in the mosses.

Station four: Old Field community.—Essentially the same number of species were found in the Old Field community (fig. 5) as in the Mixed Mesophytic com-

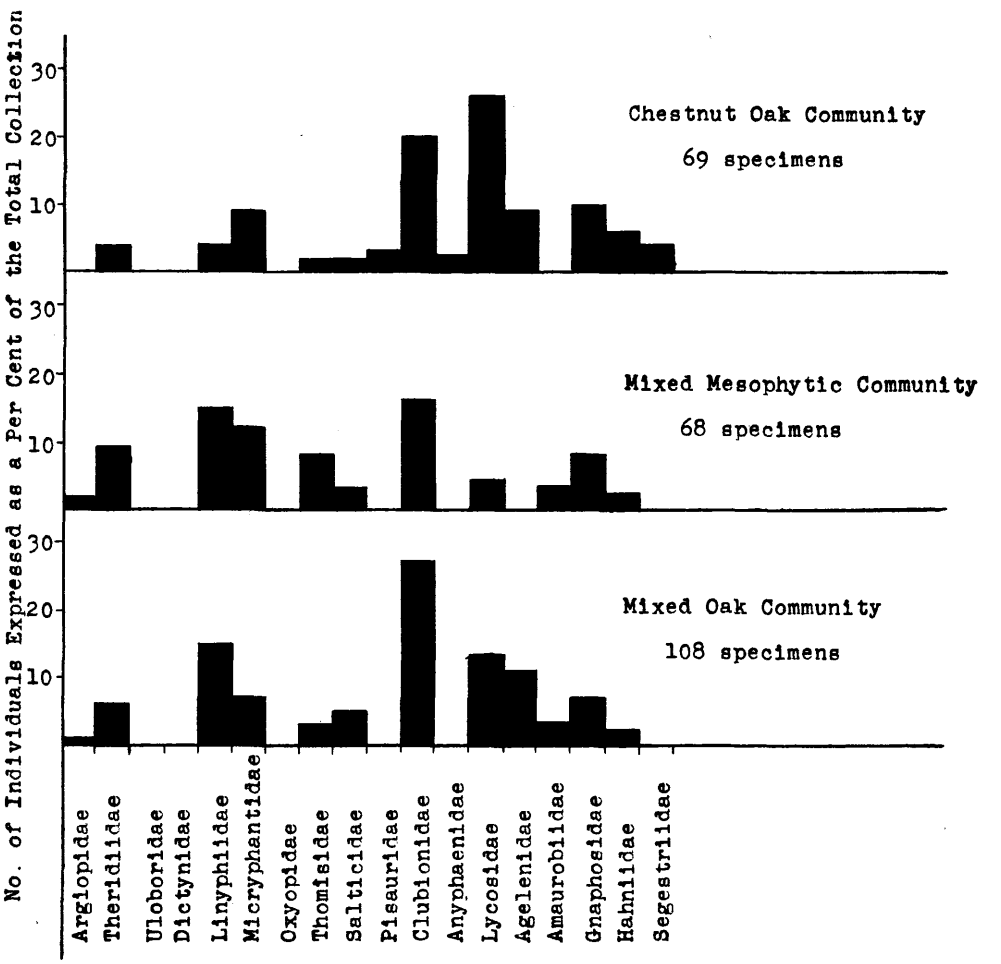

FIGURE 6. Collections from the ground stratum in the three forest communities.

munity, but these 25 species represent only 8 families. Individuals were quite abundant and 125 specimens were taken in the 5 collections from this community.

The percentage of web-spinners was about one-third of the total. Argiopidae was the most abundant of the web-spinning families collected.

Most abundant of the hunting spiders were the Thomisidae, Salticidae, and Pisauridae. Nearly all of the Pisauridae were very immature forms.

Most of the species found in the Old Field community were not found in any

other area. Only 8 out of the 25 species identified were found in other communities and there seemed to be no pattern to the other locations in which they were found.

DISCUSSION

The presence of more different families of spiders in the aerial fauna of the Mixed Mesophytic community could be due to the increased variety of habitats offered in the shrub and herbaceous levels. Barnes (1953) states that increased stratification in the climax forest is likely to be responsible for the greater number of species found there. The herbaceous stratum is particularly dense and affords many points of attachment for webs as well as many retreats which could be utilized by hunting spiders such as Thomisidae, Salticidae, and Clubionidae.

The northeast-facing slope (Mixed Mesophytic community) is more protected from the wind than the remaining two forest areas studied. Other workers at Neotoma have observed that most winds of the area are westerly and therefore, the southwest-facing slope (Mixed Oak community) is subjected to more wind action than the northeast-facing slope.

The scarcity of aerial fauna in the Chestnut Oak community (fig. 5) may be due in part to the type of herbaceous and shrub vegetation present there, but this does not seem likely since there appears to be sufficient vegetation for attachment of webs. The vegetation may have an indirect effect on the spiders, however, since it appears that only a small number of insects feed on it. No study was made of the numbers of insects, but few were collected while sweeping. A combination of wind, high temperatures, and the type of vegetation produced the most rigorous above ground habitat for animals of any of the four study areas.

In the Mixed Oak community as in the Chestnut Oak community, there appears to be enough herbaceous and shrub vegetation to support more spiders as well as a larger percentage of web-spinners than the numbers found. Wind action on this southwest-facing slope is considerable as evidenced by the disturbance of leaf litter. In early fall the ground cover of fallen leaves is 100 per cent. Due to piling by the wind the amount of cover is reduced to about 50 per cent by late fall and remains at this percentage through the rest of the year. Again frequent destruction of webs by wind could reduce the number and variety of web-spinners. High evaporation rates caused by air movement and high temperatures due to penetration of solar radiation through a relatively open canopy could aid in reducing the total population.

The spider fauna of the Old Field community was quite distinct from the fauna of any of the forest communities (table 2). None of the species which were abundant in this area were abundant in the other areas. Some species which were abundant in the other communities were found as scattered individuals in the Old Field community. *Micrathena mitrata* (Hentz), for example, was found to be common in the Mixed Mesophytic community and only a single mature male was found in the Old Field community.

The large number of species from only a small number of families (fig. 5) found in the Old Field community would seem to indicate a high population density in a rather homogeneous environment. A relatively homogeneous environment which is able to support a large population would allow for some variation such as from species to species in the same family, but might provide fewer opportunities for a great deal of variation such as from family to family. It is also very possible that a reduction in the available points of attachment for webs and therefore, fewer web-spinners present would account for the small number of families.

Very immature Pisauridae were extremely abundant in the Old Field community because their eggs are hatched in "nursery webs" which are usually built on plants such as goldenrod or astors (Gertsch, 1949; Kaston, 1948). A female *Dolomedes urinator* Hentz was observed in this community guarding a nursery web containing many newly hatched young. Only the female was collected in this case because

the young would greatly distort the data since they were not collected in normal sweeping.

Figure 2 shows that soil moisture under the leaf litter varies little from one forest area to another throughout the year. This probably accounts for the similarity of the spider fauna of the leaf litter in the three forest communities.

The smaller number of families and specimens collected from the leaf litter in the Mixed Mesophytic community could be due to a difference in collecting time and the loss of one collection. It seems likely that quantitative sampling would show more spiders in this area due to the greater coverage of the ground surface by leaf litter.

The leaf litter in the Chestnut Oak community was little disturbed by wind movements and served as a protective cover against loss of moisture and excessive heat at the level where most spiders are found.

SUMMARY

Three forest communities, Mixed Mesophytic, Mixed Oak, and Chestnut Oak, and an Old Field community were studied in order to compare qualitatively the aerial spider fauna of all four areas and the leaf litter fauna of the three forest areas.

The aerial fauna of the Mixed Mesophytic community was the most abundant and most varied of any aerial fauna of the forest communities studied. The aerial fauna of the remaining two forest communities was similar, but less varied and less dense. The spider fauna of the Old Field community was distinct from that of the forest communities. Abundance of individuals was as great as in the Mixed Mesophytic community, but there was less variety.

The spider populations under the leaf litter were quite similar. The same families were present with few exceptions and many of the same species were common in all three communities. Leaf litter spider communities were distinct from aerial spider communities during daylight hours. No study was made of communities at night.

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