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A survey of the Rhopalocera of Jefferson County, Kentucky.

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A SURVEY OF THE RHOPALOCERA OF JEFFERSON COUNTY, KENTUCKY

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INTRODUCTION

Extensive studies have been made of the distribution of butterflies within the United States. These studies have been prompted both by the general interest in butterflies which arises from their beauty, and by the economic importance they attain in the larval stage. The results of such studies have been very good wherever they have been carried out with scientific standards and completeness.

The history of distribution studies of the butterflies has been marked by the continual narrowing of the territories considered in any preliminary study. At first it was attempted on the basis of a general observation of butterfly occurrences in the nation, to determine the ranges of the different species of butterflies. This could at best yield only approximations to the true ranges.

Soon it became the style to describe the range of a species in terms of states. The

statement of the range thus consisted of a list of states where the species was found. Naturally this was a more satisfactory method and is still more or less followed.

The movement continued, however, and it became obvious that there was need for yet more detailed studies of distribution. This called for a smaller unit of study. Since the previous units had been political divisions of the country, it was natural to turn to the county for this new division. In practice it was found that the county was just about the right size for the purpose. Smaller areas, as will be shown in this present study, have few distinctly different species of butterflies. Of course there are different habitats within each county which are characterized by certain species, but these do not have to do with the overall range since within its range any butterfly will be found in just such discontinuous areas presenting its habitat.

The more recent work in this field, then, has been concerned with county surveys and reports of these surveys. These county reports, when presented and gathered, make possible the next step. This is the synthesis of a fair number of these reports from representative counties scattered over the state concerned into a list of the species of the state. It is evident that this method of establishing ranges of the butterflies is just the opposite of the older method and much more accurate in its result.

Some states have carried out these surveys until their butterfly population is definitely known and the exact part of the state over which a species flies is also known. Therefore any new extension of range can immediately be detected and any new arrival in the state followed.

A good example of a state worked out in this way is Kansas. Of one hundred and

five counties in the State, over sixty have at least partly complete records of butterflies occuring in them. The time became ripe, therefore, for the synthesis of these records into a statewide list and a work has been published for that purpose. This paper is by William D. Field (1938).

Another state so worked out is Minnesota. Its lists are published in book form by Ralph W. Macy and Harold H. Shepard (1941).

No similar work exists for Kentucky. The author intended to embark in some small way upon such a work for the state and investigated the possibility of existing records. It soon was found that records of Kentucky butterflies were practically nonexistent or at least apparently so. As far as most collections are concerned, this state is practically a forgotten area. In fact, there was not discovered a single set of records for any part of the state. The state-wide list was,

of course, ruled out for it can only be begun when there are at hand at least several county lists.

As the only possible contribution to the knowledge of Kentucky's butterflies at this time, the writer now presents a list of the butterflies of Jefferson County, hoping that it will be the first of many more from other counties in the State.

Besides the simple listing of the species found, it has been decided to add a short description of each species and form. This description is not necessarily new in any way but is often in part based upon other descriptions in the literature. Nor is it complete, but designed to give some of the distinctive characters of the various butterflies that others may expect to find in Kentucky and thus possibly aid in their collecting.

In the absence of studies of life histories of the various butterflies in Kentucky it is assumed that our butterflies

feed upon the same plants or closely related ones as they do in the rest of their range. Therefore these food plants, as recorded in the literature are given with the description of the butterfly as a further aid to Kentucky's collectors.

A list of the various names assigned to each butterfly during the period of its study is given after its listing. The author has attempted to use, in this work, the most recently adopted classification and it may not correspond to the names by which some readers may have known the butterflies. To spare them confusion and much hard work these synonyms are listed. The writer follows the nomenclature and order of R. W. Macy and H. H. Shepard in their book, Butterflies (1941) which conforms to that of J. McDunnough's Check List of the Lepidoptera of Canada and the United States (1938) in this paper.

A discussion of the life zones and faunal regions of Jefferson County is included

at the end of this paper together with lists of species characteristic of these regions.

The method of this study was continued observation of and collection of the butterflies of Jefferson County. An effort was made to visit and collect in as many of the county's different habitats as possible. Deep woods, bluegrass pastures, clover and alfalfa fields, gardens, lawns and roadsides were collecting places. A large part of the collections were made near the eastern edge of the county where the writer lives, but several collecting trips were made to other parts of the county to make the list as inclusive as possible.

The writer wishes to acknowledge the kind help of Dr. William M. Clay of the University of Louisville as director of this study. I also want to take this opportunity to thank Mr. Don. B. Stallings of Caldwell, Kansas for his suggestions and for identifying a number of the more difficult species.

GENERAL LIST

Family PAPILIONIDAE

The Swallowtails

1. Papilio philenor Linnaeus

Pipe-vine Swallowtail

Papilio philenor Linnaeus, Mantissa Plantarum, p. 535, 1771.

---- Holland, Butterfly Book, p. 315, pls. 2, 6, and 42, 1898.

---- Jordan in Seitz, Macrolepidoptera of the World, Vol. 5, p. 20, pl. 6a, 1907.

---- Macy and Shepard, Butterflies, p. 42, 1941.

Laertias philenor Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1241, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 66, pl. 12, 1904.

Papilio philenor philenor Clark, U.S. Natl. Mus. Bull. No. 157, p. 174, pl. 30, 1932.

Descriptive notes. The wings of this species

are dark above with metallic blue-green reflections, especially in the hind wings, and with a row of submarginal pale whitish spots. Underneath there is a row of seven large orange spots along the outer margin of the hind wing. The wing expanse is about four inches.

a. The spring form of this species called P. p. hirsuta Skinner, is smaller than the typical and has the body covered by long hairs. It was taken in Jefferson county on April 18, 1946. The day was partly cloudy. The butterfly was feeding upon blooming Spiraea.

b. The typical P. philenor Linn. was found flying over varied pasture plants on June 5, 1946. It was seen occasionally up until the time of this writing which is August 21.

Food Plants. The main food plant of the species is Aristolochia, Dutchman's Pipe.

Distribution notes. The species occurs in

southern New England, south through the southern states and west to California. In fact, it ranges over nearly the whole of the Eastern half of the United States and along the southern part to California. Kentucky is, therefore, well within its known territory.

2. Papilio ajax Linnaeus

The Black Swallowtail

Papilio ajax Linnaeus, Systema Naturae, 10th ed., p. 462, 1758.

---- Macy and Shepard, Butterflies, p. 43, pl. 2, 1941.

Papilio polyxenes Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1353, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 62, pls. 4, 10, and 11, 1904.

Papilio asterias Holland, Butterfly Book, p. 314, pls. 2, 6, and 40, 1898.

Papilio polyxenes asterias Jordan in Seitz, Macrolepidoptera of the World, Vol. 5, p. 23, 1907.

---- Holland, Butterfly Book, 2d Ed., p. 314, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 191, pls. 40-44, 1932.

Descriptive notes. This butterfly is a velvety black above with two rows of parallel yellow spots on the outer half of both wings. On the hind wings there are areas of blue color between these spots which however are not metallic as in the preceeding species, but are made up of ordinary blue colored scales. On the underside the markings are similar, but with a more orange color in the spots. There is an orange spot with a black center located near the anal angle of the hind wing.

a. Typical P. ajax Linn. was netted in Jefferson county on March 30, 1946. It was flying about blooming Spiraea. Other individuals

were seen commonly throughout the summer. Another was caught on May 6 and it was also typical P. ajax. Mr. Don B. Stallings of Caldwell, Kansas kindly checked the identification. At the time of this writing the species was still commonly seen.

Food Plants. Numerous plants of the Umbelliferae or Parsley family are food for this species.

Distribution notes. The butterfly is found throughout the Mississippi Valley and eastward. It also ranges into the Southwest. Kentucky is close to the center of its territory.

3. Papilio glaucus Linnaeus

The Eastern Tiger Swallowtail

Papilio glaucus Linnaeus, Systema Naturae, 10th Ed., p. 460, 1758.

---- Jordan in Seitz, Macrolepidoptera of the World, Vol. 5, p. 26, 1907.

---- Clark, U. S. Natl. Mus. Bull., No. 157, p. 179, pls. 33-40, 1932.

---- Macy and Shepard, Butterflies, p. 45, 1941.

Jasoniades glaucus Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1289, 1889.

Papilio turnus Holland, Butterfly Book, p. 309, pls. 2, 6, and 43, 1898.

Descriptive notes. This is the swallowtail with a predominantly yellow color. The border of the wings is black containing a row of yellow spots. The hind wing is crossed in addition to this by one narrow black band running from the anterior margin posteriorally. The fore wing has four black bands running in the same direction, the inner most of which completely crosses the wings while each of the others is shorter than the one median to it. An orange and yellow spot occurs on the inner margin of the hind wing near the anal angle. The wing expanse is from three to five inches.

a. The typical P. glaucus Linn. was taken on March 29, 1946 in Jefferson county. It was

feeding from the blossoms of Spiraea.

b. The form P. g. glaucus Linn. of the dimorphic female of this species was captured on June 21, 1946. This is the dark form which is entirely black or dark brown above and below with only the yellow spots of the outer border present. The dark bands of the forewing of the male may usually be seen on the under side as bands which are slightly darker than the ground color. Both forms were still on the wing at the close of this study.

Food Plants. The larva will eat a great variety of trees and shrubs, but seems to prefer Prunus, expecially Wild Cherry.

Distribution notes. The butterfly occurs throughout North America from Newfoundland to Alaska and south to the Gulf of Mexico.

4. Papilio troilus Linnaeus

Green-Clouded Swallowtail

Papilio troilus Linnaeus, Systema Naturae, 10th Ed., p. 459, 1758.

---- Holland, Butterfly Book, p. 315, pls. 2, 6, and 41, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 59, pl. 9, 1904.

---- Jordan in Seitz, Macrolepidoptera of the World, Vol. 5, p. 27, pl. 8c, 1907.

---- Macy and Shepard, Butterflies, p. 48, pl. 2, 1941.

Euphoeades troilus Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1313, 1889.

Papilio troilus troilus Clark, U.S. Natl. Mus. Bull., No. 157, p. 189, pls. 44-46, 1932.

Descriptive notes. The upper surface of the wings are black with a row of marginal yellowish spots on the fore wing. The hind wing above has a bright orange spot near the middle of the costal margin and a marginal row of blue-green lunules. Inward from these lunules extends a cloud of blue-green color which, however, is not irridescent as in the case of Papilio

philenor. It is distinguished from Papilio ajax by the absence of the row of bright spots across the middle of the upper surface of the hind wing. The wing measurement is usually about four inches.

a. The typical P. troilus Linn. was netted in Jefferson county, Ky., on May 5, 1946. It was found in late afternoon on the bloom of Ribgrass, Plantigo lanceolata. It never became common during the summer but was occasionally seen and another specimen was captured on August 16.

Food Plants. Sassafras and Benzoin or spice-bush are the food plants.

Distribution notes. From the Mississippi Valley eastward to the coast. Kentucky is well in the range.

5. Papilio marcellus Cramer

Zebra Swallowtail

Papilio marcellus Cramer, Papillons Exotiques, Vol. 2, p. 4, pl. 98, 1779.

---- Jordan in Seitz, Macrolepidoptera of the World, Vol. 5, p. 39, pl. 14c, 1907.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 197, pls. 48 and 49, 1932.

---- Macy and Shepard, Butterflies, p. 49, 1941.

Iphiclides ajax Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1264, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 49, pl. 5, 1904.

Papilio ajax Holland, Butterfly Book, p. 307, pls. 2, 6, and 44, 1898.

Descriptive notes. The upper surface of the wings are a more or less clear white crossed by several black bands rather similar to those of Papilio glaucus but far more extensive. Near the anal angle of the hind wing is a bright red spot which is a good distinguishing characteristic. The tails are narrow and longer than those of any other swallowtail, being often an inch or more in length. The

wing spread is about three inches.

a. The second of the three seasonal forms of this butterfly which occur, was found in Jefferson county on May 16, 1946. It was flying rapidly across a bluegrass pasture. This form is called telamonides Felder and Felder and is characterized by having two red anal spots on the upper surface of the hind wing instead of one.

b. The summer form, known as lecontei Rothschild and Jordan, was taken later on July 8. It has only the one red spot on the hind wing and is larger than telamonides with longer tails. It was flying along the edge of a thick woods at the time of capture.

Food Plants. The food plant is the pawpaw, Asimina triloba (Linn.).

Distribution notes. The species ranges from Canada south to Florida and west nearly to the Rocky Mountains.

Family PIERIDAE

The Whites, Yellows, and Orange-Tips

6. Anthocharis midea (Hubner)

Falcate Orange-Tip

Mancipium vorax midea Hubner, Sammlung Exotischer Schmetterlinge, Vol. 1, pl. 142, 1809.

Euchloe midea Hubner, Verzeichniss bekannte Schmetterlinge, p. 94, 1819.

Anthocharis genutia Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1147, 1889.

---- Clark, U.S. Natl. Mus. Bull., No. 1 57, p. 164, pl. 29, 1932.

Euchloe genutia Holland, Butterfly Book, p. 284, pls. 2, 5, and 32, 1898.

Synchloe genutia Comstock and Comstock, How to Know the Butterflies, p. 82, pl. 15, 1904.

Midea genutia Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 96, pl. 28b, 1910.

Anthocharis midea Macy and Shepard, Butterflies, p. 53, pl. 4, 1941.

Descriptive notes. In this species the apex of the fore wing is hooked or falcate. The general color is white with a series of black marginal spots at the ends of the veins. In the male the hooked apex of the fore wing is colored a brilliant orange which the female lacks. The under side of the wings are white with part of the fore wings and all of the hind wings marbled with green and black in both sexes.

a. This species was captured in Jefferson county on April 20, 1946. At the time there were seen four of these butterflies which were all flying ceaselessly about a blooming Spiraea bush but never alighting or feeding. Curiously, all of these four were males with the orange coloring conspicuous. The species was not seen again at any time during the rest of the season.

Food Plants. The butterfly feeds upon different members of the mustard family or Cruciferae.

Distribution notes. The Orange-tip is distributed over a broad belt extending from New

England westward and southward to Ohio, Illinois and Texas (Macy and Shepard, 1941, p. 53). This finding of it in Kentucky is therefore important as widening this very restricted territory to include this state.

7. Colias philodice Godart

The Roadside Sulphur

Colias philodice Godart, Encyclopedie Methodique, Vol. 9, p. 100, 1819.

---- Holland, Butterfly Book, p. 291, pls. 1, 2, and 5, 1898.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 91, pl. 27a, 1910.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 158, pl. 27, 1932.

---- Macy and Shepard, Butterflies, p. 56, pl. 3, 1941.

Eurymus philodice Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1111, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 92, pl. 17, 1904.

Descriptive notes. Although most authorities break this butterfly up into two species, Colias philodice Godart and Colias eurytheme Boisduval, calling the philodice the eastern species and eurytheme the western species, I cannot persuade myself that this is necessary or even warrented. I have collected the so-called eurytheme for years in Kansas and lately the so-called philodice in Kentucky. I must acknowledge that I cannot see any difference between the two. In my search of the literature on the descriptions of the two species I found that Comstock, although holding to the two species as distinct, states that except for the difference in ground color a description of philodice fits eurytheme as well (Comstock and Comstock, 1904, p. 95). It being admitted that color is the only difference, it seems to me that there is little justification for the division especially since the various forms described cover well both colors.

Field (1938, p. 180) has made the two

species into one called philodice Godart. He then describes as eastern and western subspecies Colias philodice philodice and Colias philodice eurytheme Boisduval. I cannot even see the justification for these subspecies, and in this paper regard the specimens caught in Kentucky as Colias philodice.

The butterfly is of orange or yellow ground color. The wings are bordered on the upper side by wide black marginal bands. In the male these bands are solid while in the female they contain yellow patches on the upper wings. There is a black spot at the end of the cell in the fore wing and an orange or yellow one at the end of the cell in the hind wing. Underneath, the wings are a paler color without the black borders and with the distal spots often a silvery color.

a. On March 21, 1946 a butterfly answering to the description of the spring form, ariadne Edwards, was caught in Jefferson county. It was a male of a yellow ground color with the

usual dark border and distal spots, the hind one of which was deep orange. In the center of the fore wing was a distinct orange flush of color. The wing spread was one and one quarter inches.

b. On the same day there was netted a form of this butterfly like the above in every respect but with no trace of orange either in the fore wing or in the hind distal spot. The color was a lemon yellow. According to Field (1938, p. 180) there are two forms with this yellow color. Form eriphyle Edwards, is distinguished by an orange colored distal spot on the hind wing and is of the western subspecies eurytheme. The other is the typical Colias philodice philodice which is the same but with the hind distal spot straw-colored instead of orange and which occurs only in the east. Field also states that he has never found the latter in Kansas. I, however, have a specimen caught in Cowly county, Kansas

in the summer of 1944 which is without doubt Colias philodice philodice having the lemon color with the straw-colored distal spot. It is entirely the same as this Kentucky specimen and constitutes in my opinion, a demonstration of the error of breaking the species up into subspecies.

c. The butterfly with its ground color of light orange throughout, which has been called variously a species, Colias eurytheme Boisduval, or a subspecies, Colias philodice eurytheme, was found in Jefferson county on April 2, 1946. I merely assign it the rank of a form and it is then, of course, designated as Colias philodice form eurytheme Boisduval.

d. On April 10, 1946 there was collected in this county a butterfly which was the form amphidusa Boisduval. This has the ground color of a deep brilliant orange which is sometimes almost metallic in its reflections. Its wing expanse is larger being about one and one half inches.

e. The white form of the dimorphic female was taken in Jefferson county on May 10, 1946. In this form the ground color is white more or less flecked with gray scales expecially on the hind wings. It is called alba Strecker.

f. On March 21, 1946 there was caught along with the specimen of ariadne, a specimen of this species which can only be described as an abberration of the form ariadne. It is the same size as the one caught at the same time and the ground color is identical, yellow with a cloud of orange at the center of the fore wing. The difference is in the black marginal border. On the upper side of the hind wing it is somewhat narrower than that of the typical ariadne. It is not a solid band but is definitely broken up into rectangular patches by the yellow coloring which follows each vein all the way through to the margin. On the upper side of the fore wing the black marginal band is wholly wanting.

The wing is thus solid yellow with the exception of the orange flush in the center and the black distal spot which is large and conspicuous. On the under side the wings are typical in every way.

This butterfly was found very commonly during the summer wherever dandelions, Taraxacum, or alfalfa bloomed. It was still on the wing at the end of the study.

Food Plants. Members of the clover family, Trifolium.

Distribution notes. The butterfly, considering all the forms, ranges over nearly all of the United States and Canada.

8. Phoebis sennae eubule (Linnaeus)

Cloudless Sulphur

Papilio eubule Linnaeus, Systema Naturae, 12th Ed., p. 764, 1768.

Callidryas eubule Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1053, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 88, pl. 16, 1904.

---- Holland, Butterfly Book, 2d Ed., p. 289, 1931.

Catopsilia eubule Holland, Butterfly Book, p. 286, pls. 2, 5, and 33, 1898.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 85, pls. 25a, 1910.

Phoebis eubule eubule Clark, U.S. Natl. Mus. Bull., No. 157, p. 163, pl. 21, 1932.

Phoebis sennae eubule Macy and Shepard, Butterflies, p. 59, 1941.

Descriptive notes. This is the largest of the yellow butterflies common in this area. The male is completely of a bright canary yellow without any darker markings. The female is of the same color but with a discal brown spot and a row of small marginal brown spots on the fore wing. The wing expanse is about two and one half inches.

a. A solitary male of this species was seen flying rapidly across the campus of the University of Louisville on July 23, 1946.

The species was not seen again.

Food Plants. Various species of Cassia a leguminous plant.

Distribution notes. The species flies throughout the southern part of the United States and most of New England. It is rare in the midwest.

9. Eurema lisa (Boisduval and LeConte)

Little Sulphur

Xanthidia lisa Boisduval and LeConte, Lepidopteres de l'Amerique Septentrionale, p. 53, pl. 19, 1833.

Eurema lisa Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1087, 1889.

---- Holland, Butterfly Book, 2d Ed., p. 302, 1931.

---- Macy and Shepard, Butterflies, p. 61, 1941.

Terias lisa Holland, Butterfly Book, p. 297, pls. 2, 5, and 37, 1898.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 83, pl. 24d, 1910.

Eurema euterpe Comstock and Comstock, How to Know the Butterflies, p. 98, pl. 15, 1904.
Terias euterpe d'Almeida, Memorias do Instituto Oswaldo Cruz, No. 31, p. 251, 1936.
Descriptive notes. This is a small butterfly which is of yellow color with dark borders on the wings, broad at the apex of the fore wing and becoming narrower as they proceed back, finally running out before reaching the anal angle of the hind wing.

a. A single specimen of this butterfly was netted in Jefferson county on June 28, 1946. It was on the wing at the time.
Food Plants. Cassia and clover, Trifolium, are both food plants.
Distribution notes. This species ranges north from Central America north to New England and west to the Rocky Mountains. It is not common this far north.

10. Eurema nicippe (Cramer)

Sleepy Yellow

Papilio nicippe Cramer, Papillons Exotiques, Vol. 3, p. 31, pl. 210, 1782.

Xanthidia nicippe Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1066, 1889.

Terias nicippe Holland, Butterfly Book, p. 296, pls. 2, 5, and 37, 1898.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 81, pl. 24a, 1910.

Eurema nicippe Comstock and Comstock, How to Know the Butterflies, p. 97, pl. 15, 1904.

---- Holland, Butterfly Book, 2d Ed., p. 301, pls. 2, 5, and 37, 1931.

---- Clark, U. S. Natl. Mus. Bull., No. 157, p. 149, pl. 28, 1932.

---- Macy and Shepard, Butterflies, p. 62, 1941.

Descriptive notes. The butterfly is bright orange with broad black borders. These borders are wider on the lower wings than on the fore wings. There is a black discal spot on the fore wing.

a. A single individual of this species

was found on the wing in Jefferson county on July 6, 1946. This was the only appearance of the butterfly during the season.

Food Plants. This species also feeds upon Cassia and other leguminous plants.

Distribution notes. The butterfly is common in the south and occurs into New England. In this part of the country it has been reported only as far as Southern Indiana and Illinois. This Kentucky area is near its northern limit. Its measurement is up to two and one half inches.

11. Pieris protodice Boisduval and LeConte

Checkered White

Pieris protodice Boisduval and LeConte, Lepidopteres de l'Amerique Septentrionale, p. 45, pl. 17, 1833.

---- Holland, Butterfly Book, p. 278, pls. 2, 5, and 34, 1898.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 59, pl. 19c,

1909.

---- Clark, U. S. Natl. Mus. Bull., No. 157, p. 166, pl. 29, 1932.

---- Macy and Shepard, Butterflies, p. 65, pl. 4, 1941.

Pontia protodice Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, P. 1163, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 73, pl. 13, 1904.

Descriptive notes. This butterfly is white with a black bar at the end of the cell in the fore wing and other black markings more or less scattered over the wings. Many of these dark marks and lines follow the veins. The under side is similarly marked, but with the dark area not as heavy. The wing spread is up to two inches.

a. The spring form, characterized by a smaller size and reduced markings and with an overall yellowish brown color on the under side of the hind wings, was caught in Jefferson

county on April 1, 1946. It is called P. p. vernalis Edwards.

b. The typical P. protodice was taken on May 11, 1946. It was still occasionally found at the end of the period covered by this study.

Food Plants. Numerous Cruciferae.

Distribution notes. It is found all over the United States and Canada and South into Central America.

12. Pieris rapae (Linnaeus)

Cabbage Butterfly

Papilio rapae Linnaeus, Systema Naturae, 10th Ed., p. 468, 1758.

Pieris rapae Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1205, 1889.

---- Holland, Butterfly Book, p. 280, pls. 2, 5, and 35, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 78, pls. 3 and 14, 1904.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 58, pl. 19b, 1909.

---- Clark, U. S. Natl. Mus. Bull., No. 157, P. 170, pls. 28 and 29, 1932.

---- Macy and Shepard, Butterflies, p. 67, 1941.

Descriptive notes. The wings are white with the apex of the fore wing black. There is a black dot just below the end of the cell in the fore wing and another on the costal margin of the hind wing. The female has an extra black dot just below the first one on the fore wing. The under side of the hind wing is gray in typical rapae. The wings expand about two inches.

a. Typical rapae was observed in Jefferson county on March 20, 1946. It was not associated with any flower or plant but was flying.

b. The common summer form yreka Reakirt was caught in this county on May 23, 1946. It differs from the above form in that the underside of the wings are without any sign of dark color but instead are white, often shaded with pale yellow. The butterfly was seen throughout the rest of the period of

study.

Food Plants. The food plant is Cruciferae, especially cabbage.

Distribution notes. This species was introduced into North America about 1860. It rapidly spread over most of the continent.

Family DANAIDAE

The Royal Butterflies

13. Danaus plexippus (Linnaeus)

The Monarch

Papilio plexippus Linnaeus, Systema Naturae, 10th Ed., p. 471, 1758.

Danais archippus Fabricius, Entomologia Systematica, Vol. 3, p. 49, 1793.

---- Haensch in Seitz, Macrolepidoptera of the World, Vol. 5, p. 113, 1909.

Anosia plexippus Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 720, 1889.

---- Holland, Butterfly Book, p. 82, pl. 7, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 204, pls. 1, 28 and

32, 1904.

Danais plexippus Holland, Butterfly Book, 2d Ed., p. 68, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 115, pls. 6 and 58, 1932.

---- Macy and Shepard, Butterflies, p. 77, pl. 4, 1941.

Descriptive notes. The butterfly is orange-brown with the veins black, and with a black border which encloses two rows of white spots. The male has a prominent black enlargement along the third vein from the inner margin of the hind wing. The wing expanse is about four inches.

a. This butterfly was taken on April 20, 1946 in Jefferson county. It was never very common, but was occasionally seen throughout the rest of the study. It was usually found in flight.

Food Plants. It feeds upon milkweed (Asclepias).

Distribution notes. All of North America and into Central America is this species range.

Family SATYRIDAE

The Forest Nymphs

14. Megisto eurytus (Fabricius)

Little Wood Satyr

Papilio eurytus Fabricius, Entomologia Systematica, p. 487, 1775.

Cissia eurytus Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 214, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 197, pl. 30, 1904.

Neonympha eurytus Holland, Butterfly Book, p. 203, pls. 3,4, and 25, 1898.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 63, pls. 1 and 2, 1932.

Euptychia eurytus Weymer in Seitz, Macrolepidoptera of the World, Vol. 5, p. 202, pl. 47c, 1911.

---- Holland, Butterfly Book, 2d Ed., p. 180, 1931.

Megisto eurytus Macy and Shepard, Butterflies, p. 81, pl. 2, 1941.

Descriptive notes. The upper side of the wings

is a dark brown with two yellow-ringed black spots near the outer margin of the fore wings. There are from one to several of these spots along the margins of the hind wings. The under side is similar with the larger spots showing double silver dots in them.

a. This butterfly was first encountered in Jefferson county on May 23, 1946. From that day on it was fairly common in the woods where it flew through and among the wood plants in its queer halting manner. It was last seen on August 9.

Food Plants. The larvae feed upon various grasses (Poaceae).

Distribution notes. The butterfly occurs over most of the United States and Canada east of the Rocky Mountains.

Family NYMPHALIDAE

The Brush-Footed Butterflies

15. Dione vanillae (Linnaeus)

Gulf Fritillary

Papilio vanillae Linnaeus, Systema Naturae, 10th Ed., p. 482, 1758.

Agraulis vanillae Scudder, Butterflies of the Eastern United States and Canada, Vol. 3, p. 1814, 1889.

---- Comstock and Comstock, How to Know the Butterflies, pp. 107-8, pl. 18, 1904.

Dione vanillae Holland, Butterfly Book, p. 97, pl. 8, 1898.

---- Seitz, Macrolepidoptera of the World, Vol. 5, p. 401, pl. 84f, 1913.

---- Comstock, Butterflies of California, p. 76, 1927.

---- Macy and Shepard, Butterflies, p. 92, 1941.

Descriptive notes. The upper side of the wings is a reddish brown. The veins are dark in the upper wings with the dark color expanding into large spots near the margin. There are several other dark spots on the fore wings, those nearer the costal margin with white centers. The hind wings above have three dark spots in

the center and a marginal black band which contains a row of brownish spots. Underneath, the fore wing is brown in the center with several silver centered black spots and with several large silver spots at the apex. The hind wing is dark brown underneath with a large number of silver spots. The largest one is almost divided by a large cleft.

a. This species was taken in Jefferson county on June 18, 1946. It was the only observed appearance of it during the season.

Food Plants. Passiflora (Passion flower).

Distribution notes. The butterfly ranges through the southern half of the United States. In Kentucky it is probably only a straggler.

16. Argynnis aphrodite (Fabricius)

Aphrodite Fritillary

Papilio aphrodite Fabricius, Mantissa Insectorum, Vol. 2, p. 62, 1787.

Argynnis aphrodite Scudder, Butterflies of the Eastern United States and Canada, Vol. 1,

p. 563, 1889.

---- Holland, Butterfly Book, p. 107, pls. 5 and 14, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 117, pl. 21, 1904.

---- Lehmann in Seitz, Macrolepidoptera of the World, Vol. 5, p. 409, pl. 85d, 1913.

---- Clark, U. S. Natl. Mus. Bull., No. 157, p. 112, pls. 16-20, 1932.

---- Macy and Shepard, Butterflies, p. 97, 1941.

Descriptive notes. This Fritillary has the typical complex pattern of dark spots upon a brown ground color on the upper wing. This color is, however, darker than that of most other related species. On the under side of the wings there are the usual wide-spread silver spots of the fritillaries. It may be distinguished from other related species by the absence of the yellow submarginal band between the two outer rows of silver spots. The wing spread is two and a half inches.

a. This species was taken on June 20, 1946 and seen rather commonly from that time until about July 30, when it was last seen.

Food Plants. Violets (Viola) are the food plants.

Distribution notes. The butterfly occurs in Canada and over the northern half of the eastern part of the United States. Kentucky is at the southern edge of its range.

17. Phyciodes gorgone (Hubner)

Gorgone Crescent-Spot

Dryas reticulate gorgone Hubner, Sammlung Exotische Schmetterlinge, Vol. 1, pl. 41, 1810.

Melitaea ismeria Boisduval and LeConte, Lepidopteres de l'Amerique Septemtrionale, p. 168, 1833.

Charidryas ismeria Scudder, Butterflies of the Eastern United States and Canada, Vol. 3, p. 1810, 1889.

Phyciodes ismeria Holland, Butterfly Book, p. 152, pl. 17, 1898.

---- Rober in Seitz, Macrolepidoptera

of the World, Vol. 5, p. 436, pl. 89c, 1913.

Phyciodes gorgone Holland, Butterfly Book, 2d Ed., p. 139, pl. 17, 1931.

---- Macy and Shepard, Butterflies, p. 108, 1941.

Phyciodes carlota Clark, U. S. Natl. Mus. Bull., No. 157, p. 247, pl. 18, 1932.

Descriptive notes. The upper side of the wings is fulvous, with heavy black borders which in this species enclose a marginal row of white spots. There is black containing fulvous spots on the inner parts of the wings. The under side of the wings is chocolate brown with the basal part of the hind wings containing a silver bar and numerous silver spots and lines. The outer part contains five small black spots some of which enclose white areas. Near the margin is a row of silver crescents which are thin and greatly bent. The wings measure about one and a quarter inches.

a. This butterfly was taken in Jefferson

county on June 29, 1946. It was not seen again.

Food Plants. The members of the family Aster are the food plants.

Distribution notes. The butterfly is a Midwestern species. It is only occasionally reported east of Kansas. However there seem to be stragglers farther east at times. It has been reported from different parts of the East such as Minnesota, Michigan, etc. Evidently this was another such straggler.

18. Phyciodes nycteis (Westwood)

Silver Crescent

Melitaea nycteis Doubleday, Westwood and Hewitson, Genera of Diurnal Lepidoptera, Vol. 1, p. 181, pl. 23, 1847.

Charidryas nycteis Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 658, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 127, pl. 22, 1904.

Phyciodes nycteis Holland, Butterfly Book,

p. 151, pls. 5 and 17, 1898.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 435, pl. 89c, 1913.

---- Macy and Shepard, Butterflies, p. 109, 1941.

Descriptive notes. This species is similar to gorgone on the upper side of its wings but it lacks the marginal row of white spots. On the under side the wings are much more pale in color with the marginal lunules wider and less bent. The expanse of the wings is one and three-quarter inches.

a. This butterfly was captured on May 24, 1946 in Jefferson county. From that time on it became very common and was to be seen at almost any time about the moist edges of pools of water during the whole study.

Food Plants. Various Compositae such as sunflowers and asters are the food plants.

Distribution notes. Reported to be from Maine to North Carolina and west to the Rockies.

Kentucky is thus well within the range.

19. Phyciodes tharos (Drury)

The Pearl Crescent

Danaus tharos Drury, Illustrations of Natural History, Vol. 1, pp. 43-44, pl. 21, 1770.

Phyciodes tharos Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 629, 1889.

---- Holland, Butterfly Book, p. 153, pls. 5 and 18, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 129, pl. 22, 1904.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 436, pl. 89d, 1913.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 97, pls. 7, 13, and 19, 1932.

---- Macy and Shepard, Butterflies, p. 110, 1941.

Descriptive notes. The upper surface of the wings is orange-brown with black borders and black basal portion. The hind wing has a row of small black spots running along the border.

On the underside there is a faint network of lines of different shades of brown. The rows of lunules on the hind wings of the two previous species are absent or replaced by black. The wing measurement is rarely over one and a half inches.

a. The spring form marcia Edwards, which has the underside very lightly lined was netted in Jefferson county on April 20, 1946.

b. The typical tharos was taken here on June 14, 1946. It has the markings of the underside darker. It was very common from that date on to the end of the observations.

Food Plants. This species also feeds upon the aster.

Distribution notes. The species ranges over all of the United States and Southern Canada except the Pacific Coast.

20. Polygonia interrogationis (Fabricius)

Question Mark

Papilio interrogationis Fabricius, Supplementum

Entomologiae Systematicae, p. 424, 1798.

Polygonia interrogationis Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 319, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 134, pl. 23, 1904.

---- Seitz, Macrolepidoptera of the World, Vol. 5, p. 455, pl. 93a, 1914.

---- Holland, Butterfly Book, 2d Ed., p. 149, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 94, pl. 10, 1932.

---- Macy and Shepard, Butterflies, p. 112, 1941.

Grapta interrogationis Holland, Butterfly Book, p. 164, pls. 1, 3, 4, and 19, 1898.

Descriptive notes. The upper side of the wings of this butterfly is orange but with the outer half clouded with a dark brown and the rest spotted with black. The under side is wood colored with light and dark brown and with a

silver mark in the center of each hind wing. This mark gives the species its name, but it is really shaped more like a semicolon.

a. Form P. i. fabricii Edwards was captured on May 18, 1946, in Jefferson county. It is characterized by having the wings more angular and the tails slightly longer. The outer portion of the hind wing is also lighter in color and contains a submarginal row of orange spots. The individual was found sitting on the ground sunning itself.

b. The typical interrogationis described above was taken in this county on June 2, 1946. It was found sunning itself on the leaves of an elm tree (Ulmus). The species was seen regularly throughout the study. It was especially to be found in an orchard where a dozen or more could be seen at almost anytime feeding upon some rotting peaches.

Food Plants. The food plants seem to be varied, including Urtica or nettles, Humulus or hops,

Tilia or basswood and Ulmus or the elms.

Distribution notes. Occuring all over Canada and the United States with the exception of the Pacific Coast.

21. Nymphalis antiopa (Linnaeus)

Mourning Cloak

Papilio antiopa Linnaeus, Systema Naturae, 10th Ed., p. 476, 1758.

Euvanessa antiopa Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 397, 1889.

---- Comstock and Comstock, How to Know the Butterflies, pp. 148-51, pls. 2, and 25, 1904.

Vanessa antiopa Holland, Butterfly Book, p. 169, pls. 1, 3, and 4, 1898.

---- Seitz, Macrolepidoptera of the World, Vol. 5, p. 457, pl. 93f, 1914.

Aglais antiopa Holland, Butterfly Book, 2d Ed., p. 153, 1931.

Vanessa antiopa creta Clark, U.S. Natl. Mus.

Bull., No. 157, p. 91, pl. 9, 1932.

Nymphalis antiopa Macy and Shepard, Butterflies, p. 121, 1941.

Descriptive notes. The upper surface of the wings are a very dark maroon. There is a rather broad marginal band of yellow around both wings and two yellow bars along the costal edge of the fore wings. Just inside the yellow band is a band of black enclosing a row of bluish spots. On the under side the bands around the margin are white with black flecks. The rest of the wings underneath are blue-black in color with many fine lines. The wings may measure from two and a half to three inches.

a. This butterfly was found flying along the edge of a woods in Jefferson county on March 20, 1946. It was apparently one of the generation which had hibernated during the winter, since it is stated that the first new adults emerge in late June and early July (Macy and Shepard, 1941, p. 122). The species

was not seen again.

Food Plants. Populus (Poplar), Ulmus (Elm), and Salix (willow).

Distribution notes. This species is found all over the Northern Hemisphere.

22. Vanessa atalanta (Linnaeus)

Red Admiral

Papilio atalanta Linnaeus, Systema Naturae, 10th Ed., p. 478, 1758.

Vanessa atalanta Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 441, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 154, pl. 26, 1904.

---- Holland, Butterfly Book, 2d Ed., p. 153, 1931.

---- Macy and Shepard, Butterflies, p. 122, pl. 1, 1941.

Pyrameis atalanta Holland, Butterfly Book, p. 170, pls. 3, 4, and 43, 1898.

---- Seitz Macrolepidoptera of the

World, Vol. 5, p. 458, pl. 94a, 1914.

---- Clark, U.S. Natl. Mus. Bull,, No. 157, p. 84, pl. 7, 1932.

Descriptive notes. The wings are black above with a bright red band running across the fore wing and with several white spots near the apex of the fore wing. The hind wing is bordered by a red band containing several black dots. The lower surface of the fore wing is practically as the above surface, but the lower surface of the hind wing is of mottled black and gray. The expanse is two inches.

a. This well-known species was first found in Jefferson county this season on May 6. It was observed in a dense grove of Red Cedar (Juniperus virginiana) where it was flying about and alighting upon the trunks of the trees. The species was seen fairly common until August 10 when it was last seen.

Food Plants. Humulus (hops) and Urtica (nettles).

Distribution notes. The species is almost cosmopolitan, occuring all over North America, Europe, and over most of Asia and Africa.

23. Vanessa virginiensis (Drury)

Painted Beauty

Papilio cardue virginiensis Drury, Illustrations of Natural History, Vol. 1, pp. 10-11, pl. 5, 1770.

Vanessa huntera Geyer in Hubner, Sammlung Exotische Schmetterlinge, Vol. 3, pl. 7, 1828.

---- Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 457, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 156, pl. 26, 1904.

Pyrameis huntera Holland, Butterfly Book, p. 170, pls. 1, 3, 4, and 33, 1898.

Pyrameis huntera form virginiensis Seitz, Macrolepidoptera of the World, Vol. 5, p. 459, pl. 94b, 1914.

Vanessa virginiensis Holland, Butterfly Book, 2d Ed., p. 154, 1931.

---- Macy and Shepard Butterflies, p. 123, 1941.

Pyrameis virginiensis Clark, U.S. Natl. Mus. Bull., No. 157, p. 86, pl. 27, 1932.

Descriptive notes. The wings above are light brown in the centers. There is much black coloration along the margins of the fore wing and the apex is black containing several white spots. The hind wings are bordered by two narrow black bands separated by a row of light brown lunules. Farther on there is a row of rather indistinct black spots pupilled with blue. Underneath the fore wing is duplicated with all of the colors much lighter and the ground color sometimes a decided pink. The hind wing is gray and brown with the center crossed by several distinct branching lines of white. There are two large submarginal eye spots on this wing. The wing spread is two inches.

a. On May 5, 1946 several specimens of this species were found in Jefferson county feeding upon blooms of the blackberry or Rubus. The butterfly was observed occasionally until the project was ended on August 21.

Food Plants. The larvae feed upon Artemisia (wormwood or sagebrush), Arctium (burdock), Gnaphalium (cudweed), and Antennaria (everlasting).

Distribution notes. All of North America is included in this butterfly's territory.

24. Vanessa cardui (Linnaeus)

Painted Lady

Papilio cardui Linnaeus, Systema Naturae, 10th Ed., p. 475, 1758.

Vanessa cardui Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 469, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 158, pl. 26, 1904.

---- Holland, Butterfly Book, 2d Ed., p. 154, 1931.

---- Macy and Shepard, Butterflies, p. 125, pl. 4, 1941.

Pyrameis cardui Holland, Butterfly Book, p. 170, pls. 1, 3, and 4, 1898.

---- Seitz, Macrolepidoptera of the World, Vol. 5, p. 458, 1914.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 88, pl. 8, 1932.

Descriptive notes. The description of V. virginiensis fits cardui equally except for the facts that the submarginal row of spots on the upper side of the hind wing is made up of more distinct spots which lack blue pupils and that there are more than two large eye spots on the under side of each hind wing. The wings expand to two inches.

a. V. cardui was taken in Jefferson county on June 3, 1946, from which time it was occasionally seen until the end of the observations.

Food Plants. Included in the usual preference are nettle (Urtica), hollyhocks (Althaea), burdock (Arctium) and thistle (Cirsium).

Distribution notes. This is the most widely distributed of all known butterflies since it is found in almost all temperate regions and in many tropic regions of the earth (Holland, 1903, p. 170).

25. Junonia coenia Hubner

The Buckeye

Junonia coenia Hubner, Sammlung Exotische Schmetterlinge, Vol. 2, pl. 32, 1822.

---- Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 494, 1889.

---- Holland, Butterfly Book, p. 173, pls. 3, 4, and 20, 1898.

---- Comstock and Comstock, How to Know the Butterflies, pp. 160-62, pl. 24, 1904.

---- Macy and Shepard, Butterflies, p. 126, pl. 1, 1941.

Precis lavinia form coenia Seitz, Macrolepidoptera of the World, Vol. 5, p. 461, pl. 94e, 1914.

Junonia lavinia coenia Clark, U.S. Natl. Mus. Bull., No. 157, p. 79, pl. 7, 1932.

Descriptive notes. The wings above are a dark brown. The fore wing has two eye spots, the apical one very small and the other very large. Crossing this wing and partly enclosing the large eye spot is a white band. Basal to it are two short orange-red bands. The hind wing has two large eye spots. The wing expanse is very variable (Field, 1938, p. 89) but the average is about two inches.

a. A single specimen of this butterfly was caught in Jefferson county on July 8, 1946. It was feeding on clover (Trifolium) blooms.

Food Plants. The caterpillar feeds upon plantain (Plantago) and snapdragon (Artirrhinum).

Distribution notes. This is a southern species

ranging from South America as far north as northern California, Iowa and Illinois. Kentucky is therefore near the northern limit of its territory.

26. Basilarchia astyanax (Fabricius)

Red Spotted Purple

Papilio astyanax Fabricius, Entomologia Systematica, p. 447, 1775.

Basilarchia astyanax Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 280, 1889.

---- Holland, Butterfly Book, p. 183, pls. 3, 4, and 22, 1898.

----- Comstock and Comstock, How to Know the Butterflies, pp. 166-67, pl. 27, 1904.

---- Macy and Shepard, Butterflies, p. 130, 1941.

Limenitis astyanax Seitz, Macrolepidoptera of the World, Vol. 5, p. 534, pl. 109e, 1915.

Basilarchia arthemis astyanax Clark, U.S. Natl.

Mus. Bull., No. 157, p. 76, pl. 5, 1932.
Descriptive notes. The wings are black, with an elusive blue-green luster. The only markings above are three rows of blue spots on the outer third of the wings. Underneath there are several conspicious red spots. The expanse is at least three inches.

a. This beautiful species was taken in Jefferson county on the campus of the University of Louisville, June 14, 1946 and was seen occasionally after that time. It is an unusual butterfly in regard to habits. It was not seen feeding on any flowers but was often flying or sunning itself. It was often seen in town, but rarely in the country.
Food Plants. The larva feeds upon a variety of plants, among them Salix (willow), Quercus (oak), Cydonia (quince), Malus (apple), Crataegus (hawthorn), and Prunus (cherry).
Distribution notes. It occurs throughout the United States east of the Rocky Mountains.

27. Basilarchia archippus (Cramer)

The Viceroy

Papilio archippus Cramer, Papillons Exotiques, Vol. 1, p. 24, pl. 16, 1779.

Basilarchia archippus Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 267, 1889.

---- Comstock and Comstock, How to Know the Butterflies, pp. 170-73, pl. 28, 1904.

---- Holland, Butterfly Book, 2d Ed., p. 165, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 78, pl. 6, 1932.

---- Macy and Shepard, Butterflies, p. 130, pl. 4, 1941.

Basilarchia disippus Holland, Butterfly Book, p. 185, pls. 3, 4, and 7, 1898.

Limenitis archippus Seitz, Macrolepidoptera of the World, Vol. 5, p. 534, pl. 109f, 1915.

Descriptive notes. This species is very unlike the other members of the genus. The ground color is brownish red with black borders

containing white spots. The veins are outlined in black and there is a narrow black line across the hind wing from the costal margin to the anal angle. It is famous for its mimicracy of the Monarch, Danaus plexippus (Linnaeus). The description of the Monarch fits it well with the following exceptions. There is only one row of white spots in the black border and the narrow band of black across the hind wing which is never present in the Monarch. These two characters serve to distinguish it from that species. The wing spread is from two and a half to three inches.

a. This butterfly was netted on May 6, 1946 in Jefferson county. It was in a marshy part of a blue grass pasture, sunning itself upon a rock. It was not common here, being seen only at widely separated intervals and last on August 9.

Food Plants. Salix, Populus, Quercus and Prunus.

Distribution notes. It occurs over the United States and southern Canada east of the Rocky Mountains.

28. Asterocampa celtis (Boisduval and LeConte)

Hackberry Butterfly

Apatura celtis Boisduval and LeConte, Lepidopteres de l'Amerique Septintrionale, p. 210, pl. 57, 1833.

Chlorippe celtis Scudder, Butterflies of the Eastern United States and Canada, Vol. 3, p. 1788, 1889.

---- Holland, Butterfly Book, p. 189, pl. 23, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 174, pl. 29, 1904.

---- Clark, U.S. Natl. Mus. Bull., No. 157, pp. 74-75, pl. 4, 1932.

Asterocampa celtis Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 549, pl. 110Ac, 1916.

---- Holland, Butterfly Book, 2d Ed., p. 168, 1931.

---- Macy and Shepard, Butterflies, p. 132, 1941.

Descriptive notes. The wings are russet brown

marked with dark brown. The fore wing has two brown spots and a bar in the cell and is crossed by two irregular rows of white splotches. There is also a large black spot ringed by the ground color in cell Cu_1 of the fore wing. The hind wing has a submarginal row of six spots similar to that on the fore wing. The wing expanse varies from one and three quarter inches in the male to two and a quarter in the female.

a. Subspecies A. celtis alicia (Edwards) first appeared in Jefferson county, Kentucky on June 18, 1946. It was flying swiftly about a maple (Acer) tree and lighting upon its leaves at intervals. The species became rather common, always being found about trees, and continued so until the end of the study.
Food Plants. There is a single food plant which is the Hackberry or Celtis occidentalis.
Distribution notes. This subspecies normally ranges from Texas through the Gulf States to

Florida (Field, 1938, p. 103). Kentucky is probably at the northern edge of its range although Macy and Shepard (1941, p. 132) mention the occurrence of the species from southern Pennsylvania and central Minnesota.

29. Anaea andria Scudder

Goatweed Butterfly

Anaea andria Scudder, Bulletin of the Buffalo Society of Natural Sciences, No. 2, p. 248, 1875.

---- Scudder, Butterflies of the Eastern United States and Canada, Vol. 3, p. 1794, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 177, pl. 29, 1904.

---- Rober in Seitz, Macrolepidoptera of the World, Vol. 5, p. 581, pl. 117e, 1916.

---- Holland, Butterfly Book, 2d Ed., p. 173, 1931.

---- Macy and Shepard, Butterflies, p. 135, 1941.

Pyrrhanaea andria Holland, Butterfly Book, p. 192, pl. 24, 1898.

Descriptive notes. The Goatweed Butterfly is easily recognized by the shape of its wings and by its bright orange color. The fore wings are very pointed and the tip is curved forming an excellent example of a falcate wing. The male is solid orange above with dusky brown borders all around both wings. The only other marking is a short bar of black across the end of the fore wings' cell. The female is the same with the ground color usually somewhat lighter. Across the outer third of the wing there runs a broad band of light brown or tan which is bounded on each side by a narrow dark brown line. Underneath both sexes are a dead-leaf brown. The wings reach two and a half inches in span.

a. While the writer was walking across a recently worked field upon which there was not a sprig of any plant growing, he was startled to have the brilliant red wings of

A. andria flash before him as it took flight. The butterfly had been resting with closed wings upon a bare clod where its brown under surface blended perfectly with the earth. This was on March 27, 1946 in Jefferson county. The species was not seen again until July 8, after which it was occasionally seen throughout the rest of the study. It was often about the decaying fruit in the orchard.

Food Plants. Croton (croton or Goatweed) is the food plant of this species.

Distribution notes. The distribution is fairly limited. It occurs in Texas and from there north to Nebraska and east as far as Indiana, Tennessee and Georgia. This occurrence of it in Kentucky is therefore on the eastern edge of its range.

Family LIBYTHEIDAE

The Long-beaks

30. Libythea bachmanii Kirtland

The Snout Butterfly

Libythea bachmanii Kirtland, American Journal of Science, No. 63, series 2, Vol. 13, pp. 336-37 and fig., 1852.

---- Holland, Butterfly Book, p. 227, pls. 5 and 28, 1898.

---- Holland, Butterfly Book, 2d Ed., p. 210, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 128, pl. 6, 1932.

---- Macy and Shepard, Butterflies, p. 137, 1941.

Hypatus bachmanii Scudder, Butterflies of the Eastern United States and Canada, Vol. 1, p. 760, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 210, 1904.

Libythea carinenta form bachmani Seitz, Macrolepidoptera of the World, Vol. 5, p. 623, pl. 120De, 1916.

Descriptive notes. There is one characteristic possessed by this butterfly which distinguishes it at a glance from any other species found in the Eastern United States. It is the unusual form of the labial palpi which are produced in length to resemble a snout. They actually extend about half the length of the antennae. The upper side of the wings are a dark gray with rather large red areas in the centers and several white spots near the apices of the fore wings. The expanse is one and three-quarters inches.

a. This species was caught in Jefferson county on July 30, 1946. Two specimens were found about a tiny pool of water in a hollow in a bluegrass pasture. They were apparently seeking the water. It was the only time that the butterfly was seen during the observations.

Food Plants. The only food plant is the hackberry, Celtis.

Distribution notes. L. bachmanii occurs

sparingly in New England and from there south over the rest of Eastern United States.

Family LYCAENIDAE

The Gossamer-winged Butterflies

Subfamily THECLINAE

The Hairstreaks

31. Strymon cecrops (Fabricius)

Cecrops Hairstreak

Hesperia cecrops Fabricius, Entomologia Systematica, Vol. 3, p. 270, 1793.

Calycopis cecrops Scudder, Butterflies of the Eastern United States and Canada, Vol. 3, p. 1821, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 231, pl. 34, 1904.

Thecla cecrops Holland, Butterfly Book, p. 246, pls. 29 and 30, 1898.

---- Draudt in Seitz, Macrolepidoptera of the World, Vol. 5, p. 795, pl. 158b, 1920.

Strymon cecrops Macy and Shepard, Butterflies, p. 147, 1941.

Descriptive notes. This species is a dark brown with, in some individuals, a decided bluish coloring. The female has several black spots near the margin of the hind wing. Below the wings are crossed by a narrow band of white and just inside it a conspicious band of red. There are two marginal black spots in the hind wing tinged with gray and red. There is an anal spot which is also black and lined with white and red. The only other hairstreak which might be confused with this species is Strymon titus (Fabricius) which also has red coloring underneath. The two are easily distinguished in fresh specimens, however, by the presence of the two tiny tails characteristic of the hairstreaks in S. cecrops which are not present in S. titus.

a. A single specimen of this species was taken in Jefferson county on July 30,

1946. The butterfly was not observed here again. It was feeding upon the blooms of ironweed, Vernonia noveboracensis.

Food Plants. Field (1938, p. 142) says that the food plant of this species is apparently unknown, while Macy and Shepard (1941, p. 147) refer to Scudder as stating that the caterpillar probably feeds on the huckleberry (Vaccinium).

Distribution notes. This is a southern species. It is reported by Macy and Shepard (1941, p. 147) as ranging as far north as Kentucky and West Virginia. The finding of it in this county which is at the north edge of Kentucky would probably be an extension of its range.

Subfamily LYCAENINAE

The Coppers

32. Lycaena hypophlaeas (Boisduval)

American copper

Polyommatus hypophlaeas Boisduval, Annales de la Societe Entomologique de France, series 2, Vol. 10, p. 291, 1852.

Heodes hypophlaeas Scudder, Butterflies of

the Eastern United States and Canada, Vol. 2, p. 998, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 241, pl. 36, 1904.

Chrysophanus hypophlaeas Holland, Butterfly Book, p. 254, pls. 5 and 28, 1898.

---- Draudt in Seitz, Macrolepidoptera of the World, Vol. 5, p. 813, pl. 145c, 1920.

Chrysophanus phlaeas hypophlaeas Clark, U.S. Natl. Mus. Bull., No. 157, p. 131, pl. 22, 1932.

Lycaena hypophlaeas Macy and Shepard, Butterflies, p. 167, pl. 2, 1941.

Descriptive notes. The upper side of the fore wing is brilliant orange. It has a heavy black border on the outer margin. There are several black spots in the orange area. The hind wing is dark brown with a very bright reddish-orange band on the outer margin. The expanse is one inch. There is another copper which is so similar to hypophlaeas that it is almost impossible to write descriptions which

will distinguish them. The other copper is the female of Lycaena thoe (Gray). The sizes of the two will serve to distinguish them, however. As a contrast to L. hypophlaeas expanse of one inch that of L. thoe is always about one and a half inches.

a. Hypophlaeas was captured in Jefferson county on April 30, 1946. The day was very cloudy with intermittent rain showers. This butterfly was frightened into flight from the pasture grasses where it had been resting. It was the only observation of the species that season.

Food Plants. Rumex acetosella Linnaeus which is commonly known as sheep sorrel or dock.

Distribution notes. This is one of the northern species. It is found over southern Canada and as far south in the United States as Pennsylvania, Kansas and in the Appalachian Mountains into Georgia (Field, 1938, p. 158). This occurrence in Kentucky would seem, therefore, to be an extension of its known

range south and west in this part of the country.

Subfamily PLEBEIINAE

The Blues

33. Everes comyntas (Godart)

The Eastern Tailed Blue

Polyommatus comyntas Godart, Encyclopedie Methodique, Vol. 9, p. 660, 1924.

Everes comyntas Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 911, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 254, pl. 37, 1904.

---- Draudt in Seitz, Macrolepidoptera of the World, Vol. 5, p. 818, pl. 144i, 1921.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 133, pl. 22, 1932.

---- Macy and Shepard, Butterflies, p. 170, pl. 2, 1941.

Lycaena comyntas Holland, Butterfly Book,

p. 268, pls. 5, 31, and 32, 1898.

Descriptive notes. This butterfly is typically a blue in appearance. The female is a dark gray, almost slate gray in color above. There are two marginal black spots capped with orange at the back of the hind wing. The male is the sex presenting the blue ground color and having a broad margin of black around the outer edges. Below both are lighter gray with two rows of dark spots crossing the wings. There are black points at the back of the hind wings tipped with metallic green and with orange. E. comyntas may most easily be recognized by its tails which occur one on each hind wing and which no other blue has.

a. It was first taken in Jefferson county on May 28, 1946. From that time it was perhaps the most common of all butterflies. Dozens lined the moist edges of the creeks and other dozens could be found on the clover and blackberry blossoms. It was almost as common at

the end of the study on August 21.

Food Plants. Trifolium or clover, Lespedeza, Phaseolus or bean, and other legumes.

Distribution notes. Everywhere east of the Rocky Mountains in the United States and south to Costa Rica.

34. Lycaenopsis argiolus pseudargiolus (Boisduval and LeConte)

Spring Azure

Argus pseudargiolus Boisduval and LeConte, Lepidopteres de l'Amerique Septentrionale, p. 118, pl. 36, 1833.

Cyaniris pseudargiolus Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 927, 1889.

Lycaena pseudargiolus Holland, Butterfly Book, p. 267, pls. 5, 30 and 31, 1898.

Cyaniris ladon Comstock and Comstock, How to Know the Butterflies, p. 249, pl. 38, 1904.

---- Draudt in Seitz, Macrolepidoptera of the World, Vol. 5, p. 818, pl. 144b, 1921.

Lycaenopsis argiolus pseudargiolus Clark,
U.S. Natl. Mus. Bull., No. 157, p. 136,
pl. 22, 1932.

---- Macy and Shepard, Butterflies,
p. 176, 1941.

Descriptive notes. It is very difficult to give a description of this species. It is found throughout the whole Northern Hemisphere and in the United States alone there are seven subspecies and many forms. Pseudargiolus is the subspecies found throughout the entire United States, east of the Rocky Mountains. Typically it is entirely violet-blue above. There are no dark markings on this side. The underside is whitish with numerous elongate or square black spots. The row of black points along the outer margin is set off from the rest of the wings by a row of gray crescents. The expanse is one and a quarter inches.

a. Typical L. a. pseudargiolus was taken in Jefferson county on April 26, 1946. It was not seen again.

b. L. argiolus pseudargiolus form neglecta Edwards was netted in this county on May 23. The specimen was identified by Mr. Don B. Stallings of Caldwell, Kansas.

c. L. argiolus pseudargiolus form neglecta-major Tutt, was caught in this county on July 27, 1946. It also was identified by Mr. Stallings.

The butterfly was not common, the three described above being the only ones seen during the study.

Food Plants. Typical pseudargiolus, the spring brood, lays its eggs upon Svida (dogwood). Form neglecta, the second brood deposits its eggs on Tium racemosum Pursh (rattleweed). The third brood, form neglecta-major, lays its eggs on Verbesina helianthoides Michx (crown beard) (Field, 1938, p. 173).

Distribution notes. The species L. argiolus, as stated above, ranges over all of the Northern Hemisphere. Subspecies pseudargiolus ranges throughout Eastern United States.

Family HESPERIIDAE

The Skippers

Subfamily PYRGINAE

35. Proteides clarus (Cramer)

Silver Spotted Skipper

Papilio tityrus Fabricius, Entomologia Systematica, p. 532, 1775.

Papilio clarus Cramer, Papillons Exotiques, Vol. 1, p. 66, pl. 41, 1779.

Epargyreus tityrus Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1399, 1889.

---- Holland, Butterfly Book, p. 323, pls. 2, 6, and 48, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 293, pls. 14 and 43, 1904.

---- Lindsey, Bell, and Williams, Denison University Bulletin, Vol. 31, p. 20, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 202, pl. 50, 1932.

Proteides tityrus Williams and Bell, Transactions of the American Entomological Society, Vol. 59, p. 69, 1933.

Epargyreus clarus Hemming, The Generic Names of the Holarctic Butterflies, Vol. 3, p. 199, 1934.

Proteides clarus Macy and Shepard, Butterflies, p. 181, 1941.

Descriptive notes. This is the largest skipper common in this area. Its wings may measure one and three quarters inches or even sometimes two inches. It is easily recognized by the large silver spot on the underside of the hind wing and by the gold colored band across both the upper and underside of the fore wing.

a. This conspicious butterfly was first found in Jefferson county on May 3, 1946. It was feeding upon the blooms of blackberry. It was very common throughout the study.

Food Plants. The larva feed upon Robina pseudacacia L. (locust) and Wistaria (wistaria).

Distribution notes. It ranges throughout the United States into South America.

36. Pholisora catullus (Fabricius)

The Common Sootywing

Hesperia catullus Fabricius, Entomologia Systematica, Vol. 3, p. 348, 1793.

Pholisora catullus Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1519, 1889.

---- Holland, Butterfly Book, p. 330, pls. 6 and 45, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 297, pl. 44, 1904.

---- Lindsey, Bell, and Williams, Denison University Bulletin, Vol. 31, p. 52, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 208, 1932.

---- Macy and Shepard, Butterflies, p. 189, 1941.

Descriptive notes. Black ground color with a submarginal row of small white spots on the forewings. The outer margins of the wings are rounded.

a. This skipper was caught in Jefferson county on April 22, 1946. It was feeding on the blooms of dandelion (Taraxacum). The specimen was identified by Mr. Stallings. The butterfly was seen occasionally until the end of the study.

Food Plants. Ambrosia (ragweed), Chenopodium album Linnaeus (lamb's quarter), and Amaranthus (pigweed).

Distribution notes. It is found throughout the entire United States.

37. Pholisora hayhurstii (Edwards)

Hayhurst's Sooty wing

Hesperia hayhurstii Edwards, Transaction of the American Entomological Society, Vol. 3, p. 22, 1870.

Pholisora hayhurstii Scudder, Butterflies of the Eastern United States and Canada, Vol. 3,

p. 1857, 1889.

---- Holland, Butterfly Book, p. 331, pl. 48, 1898.

---- Lindsey, Bell, and Williams, Denison University Bulletin, Vol. 31, p. 54, 1931.

---- Macy and Shepard, Butterflies, p. 190, 1941.

Descriptive notes. This is another dark colored skipper but it is easily recognized by the shape of its hind wing which has a wavy margin and a slight anal lobe. The upper surface of the wings are crossed by two dark bands.

a. This skipper was taken in Jefferson county on May 15, 1946. It was not seen again.

Food Plants. The food plants are unknown.

Distribution notes. From Southern Pennsylvania south to Florida and west to Kansas and Texas. Kentucky would thus appear to be near its northern limit.

Subfamily HESPERIINAE

38. Ancyloxypha numitor (Fabricius)

Least Skipper

Hesperia numitor Fabricius, Entomological Systematica, Vol. 3, p. 324, 1793.

Ancyloxipha numitor Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1558, 1889.

---- Comstock and Comstock, How to Know the Butterflies, p. 272, pl. 39, 1904.

Ancyloxypha numitor Holland, Butterfly Book, p. 345, pl. 47, 1898.

---- Lindsey, Bell, and Williams, Denison University Bulletin, Vol, 31, p. 71, 1931.

---- Macy and Shepard, Butterflies, p. 201, 1941.

Descriptive notes. This is the smallest of this subfamily. It is golden above with brown borders about the wings and with an orange ray along the costal margins of the fore wings. Underneath the forewings are brown with orange borders and the hind wings are entirely

orange.

a. This species was observed as a slowly flying inhabitor of the dense marsh grasses along a small creek in Jefferson county on June 20, 1946. It was last seen there on July 16. The identification was by Mr. Stallings.

Food Plants. Spartina (marsh grass) is the food plant.

Distribution notes. Although seldom noticed it occurs throughout Eastern United States west to the Rocky Mountains.

39. Polites themistocles (Latreille)

The Tawny-Edged Skipper

Papilio taumas Fabricius, Mantissa Insectorum, Vol. 2, p. 84, 1787.

Hesperia themistocles Latreille, Encyclopedie Methodique, Vol. 9, p. 723, 1824.

Hesperia cernes Boisduval and LeConte, Lepidopteres de l'Amerique Septentrionale, pl. 76, 1833.

Limochores taumas Scudder, Butterflies of the Eastern U.S. and Canada, Vol. 2, p. 1725, 1889.

---- Holland, Butterfly Book, p. 357, pls. 6 and 47, 1898.

Thymelicus cernes Comstock and Comstock, How to Know the Butterflies, p. 281, pl. 41, 1904.

Polites taumas Holland, Butterfly Book, 2d Ed., p. 381, pls. 6, 47 and 53, 1931.

Talides themistocles Lindsey, Bell and Williams, Denison University Bulletin, Vol. 31, p. 100, 1931.

Polites cernes Clark, Bulletin of the U.S. Natl. Museum, No. 157, p. 222, pl. 49, 1932.

Polites themistocles Macy and Shepard, Butterflies, p. 216, 1941.

Descriptive notes. In the male the hind wing is plain olive brown both above and below. The fore wing is the same color above, but with a large black stigma in the center of the wing. Above the stigma is a large triangle of lighter brown. The female is darker in color without the stigma, of course, and with a group of yellowish hyaline spots on the outer third of the fore wing.

a. This species was taken in Jefferson county on July 27, 1946. It was feeding upon the blooms of ironweed (Vernonia). It was identified by Mr. Stallings. It was not observed again in this study.

Food Plants. Poaceae (grasses) is the food plant.

Distribution notes. The entire eastern United States and Canada west to Manitoba, Utah, and New Mexico.

40. Polites verna (Edwards)

The Little Glassy Wing

Pamphila verna Edwards, Proceedings of the Academy of Natural Science of Philadelphia, p. 57, 1862.

Euphyes verna Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1742, 1889.

---- Holland, Butterfly Book, p. 360, pl. 46, 1898.

---- Comstock and Comstock, How to

Know the Butterflies, p. 283, pl. 41, 1904.

Talides verna Lindsey, Bell, and Williams, Denison University Bulletin, Vol. 31, p. 99, 1931.

Polites verna Holland, Butterfly Book, 2d Ed., p. 380, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 221, pl. 49, 1932.

---- Macy and Shepard, Butterflies, p. 217, 1941.

Descriptive notes. The ground color is dark brown with a group of subapical hyaline spots and several larger ones below those. On the under side there is a row of small light spots.

a. This butterfly was caught in Jefferson county on May 25, 1946. It was seen seldom, but continued as late as August 1. Mr. Stallings checked the identification.

Food Plants. The food plant of this species is Poaceae (grass).

Distribution notes. It is found throughout the eastern United States.

41. Polites peckius (Kirby)

Peck's Skipper

Hesperia peckius Kirby, Fauna Borealli Americani, part 4, p. 300, pl. 4, 1837.

Polites peckius Scudder, Butterflies of the Eastern United States and Canada, Vol. 2, p. 1683, 1889.

---- Holland, Butterfly Book, p. 353, pl. 47, 1898.

---- Comstock and Comstock, How to Know the Butterflies, p. 282, pl. 41, 1904.

---- Macy and Shepard, Butterflies, p. 218, 1941.

Talides peckius Lindsey, Bell and Williams, Denison University Bulletin, Vol. 31, p. 102, 1931.

Polites coras Clark, U.S. Natl. Mus. Bull., No. 157, p. 220, pl. 49, 1932.

Descriptive notes. This is a small skipper. It is dark brown with several yellowish-orange spots and a patch of yellowish orange on the fore wing. Underneath the wings are

dark brown with a number of large yellow, square spots on the hind wings and smaller spots on the fore wings.

a. This skipper was taken on July 27, 1946 in Jefferson county. It was found on blooming wild carrot (Daucus carota). The identification was by Mr. Stallings.

Food Plants. This species feeds on Poaceae (grasses).

Distribution notes. This species is found in the Eastern United States.

42. Poanes zabulon (Boisduval and LeConte)

The Zabulon Skipper

Hesperia zabulon Boisduval and LeConte, Lepidopteres de l'Amerique Septentrionale, pl. 76, 1833.

Atrytone zabulon Comstock and Comstock, How to Know the Butterflies, p. 274, pl. 39, 1904.

Poanes zabulon Lindsey, Bell, and Williams, Denison University Bulletin, Vol. 31, p. 110, 1931.

---- Holland, Butterfly Book, 2d Ed., p. 390, pl. 53, 1931.

---- Clark, U.S. Natl. Mus. Bull., No. 157, p. 230, pl. 54, 1932.

---- Macy and Shepard, Butterflies, p. 223, 1941.

Descriptive notes. This species and another P. hobomok are so similar that they are almost identical on the upper side and on the under side of the fore wing. On the underside of the hind wing zabulon is mostly yellow with two large brown spots at the base of the wing, several brown spots in the center and a broken brown border around the margin. There is also a brown streak slightly in from the inner margin. The female is distinguished by the reddish-brown ground color of its underside.

a. This species was captured in Jefferson county on May 6, 1946, feeding upon clover blooms. It was seen occasionally during all the rest of the study. The identification

was by Mr. Stallings.

Food Plants. The food plant of this species is Poaceae (grass).

Distribution notes. This species is found throughout most of the eastern United States.

LIFE ZONES, LOCAL REGIONS OF THE COUNTY, AND COMPARATIVE LISTS

Kentucky lies within the Carolinian Life Zone. Jefferson county is not divided by these large zones. The only division of the county which could, therefore, hold any significance as far as the fauna is concerned are those arising from the geological formations of the county. An effort was made to secure lists of the butterflies occuring in these different areas for comparative study to ascertain whether or not certain species are limited to certain of these areas. The result was as a whole disappointing for there were few instances of such restrictions in the range of any species. Two factors probably are responsible for this result. One is the extreme motility of butterflies which can fly quickly and easily across the whole county at will. The other is the rarity of many of the species concerned which were seen only once during the whole

study. Because of their rarity the chances against finding them on a few hours collecting trip into an area was so great that it must be conceded that they could have been as numerous there as anywhere else and still not have been observed at all. The importance of this latter fact is only felt when it is realized that of the forty-two species found, fifteen or over a third were only seen once in any area.

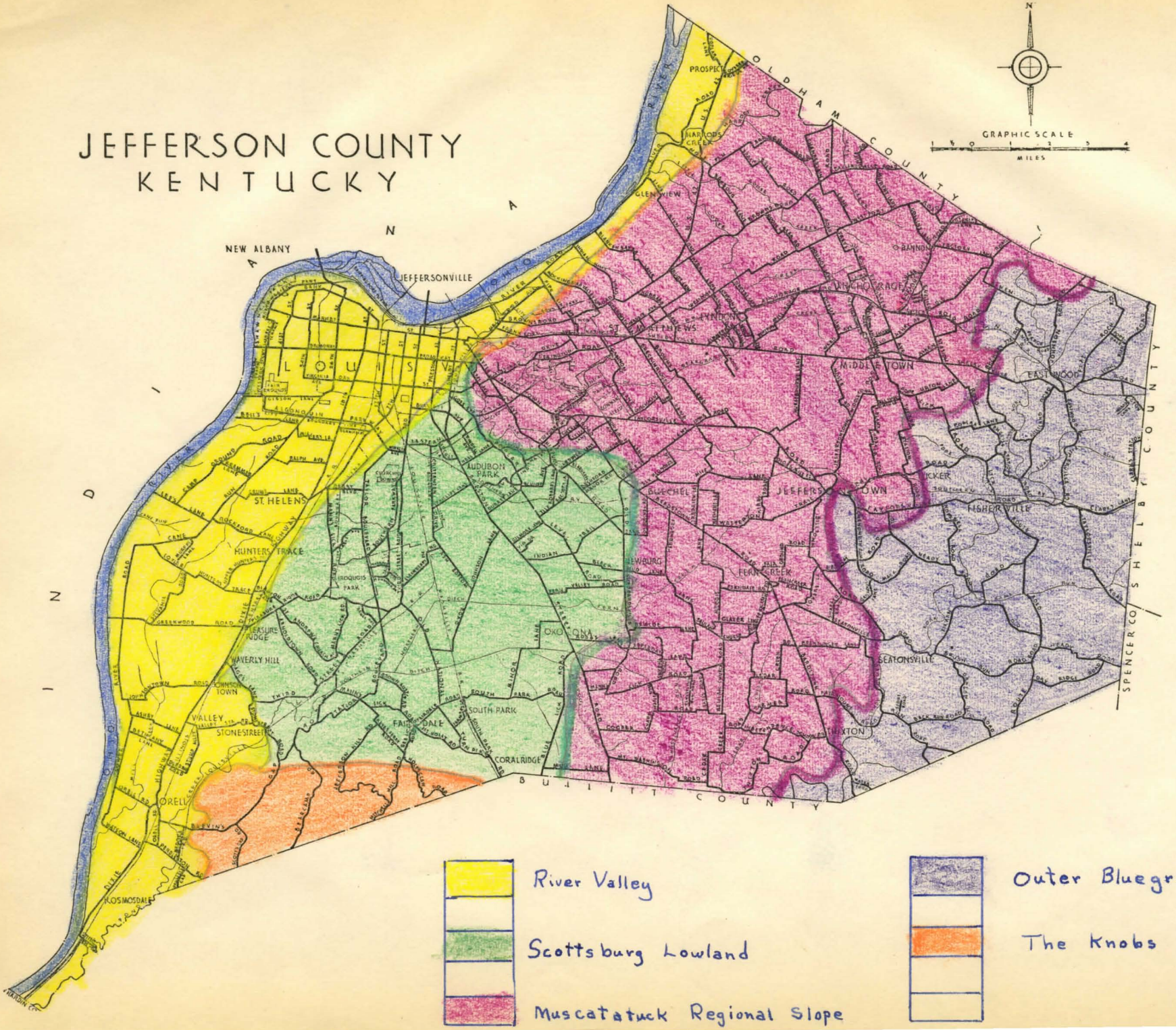
The regions of the county are the following: (1) Outer Bluegrass (featured by Ordovician limestone), (2) Muscatatuck Regional Stope (Devonian Limestone), (3) Scottsburg Lowland (New Albany Shale), (4) Ohio River Valley proper, (5) The Knobs. These regions are indicated on the accompanying map of the county.

A list of the species follows with indications of regions in which they were observed.

	River Valley	Scotts-burg Lowland	Muscatatuck Regional Slope	Outer Blue-grass	The Knobs
Papilio philenor	X	X	X	X	X
Papilio ajax	X	X	X	X	X
Papilio glaucus	X	X	X	X	X
Papilio troilus	X		X	X	
Papilio marcellus		X		X	
Anthocharis midea				X	
Colias philodice	X	X	X	X	X
Phoebis sennae eubule		X			
Eurema lisa					X
Eurema nicippe				X	
Pieris protodice	X	X	X	X	X
Pieris rapae	X	X	X	X	X
Danaus plexippus	X	X	X	X	X
Megisto eurytus	X	X	X	X	X
Dione vanillae			X		
Argynnis aphrodite	X	X	X	X	X
Phyciodes gorgone				X	
Phyciodes nycteis	X	X	X	X	X
Phyciodes tharos	X	X	X	X	X
Polygonia interrogationis	X	X	X	X	X
Nymphalis antiopa				X	
Vanessa atalanta	X	X	X	X	X
Vanessa virginiensis			X	X	X
Vanessa cardui	X	X	X	X	X

	River Valley	Scotts-burg Lowland	Muscatatuck Regional Slope	outer Blue-grass	The Knobs
Junonia coenia				X	
Basilarchia astyanax	X	X		X	X
Basilarchia archippus	X		X		
Asterocampa celtis	X	X	X	X	X
Anaea andria			X	X	X
Libythea bachmanii				X	
Strymon cecropss				X	
Lycaena hypophlaeas			X		
Everes comyntas	X	X	X	X	X
Lycaenopsis argiolus pseudargiolus				X	
Proteides clarus	X	X	X	X	X
Pholisora catullus		X	X	X	X
Pholisora hayhurstii				X	
Ancyloxypha numitor			X		
Polites themistocles			X		
Polites verna			X		
Polites peckius				X	
Poanes zabulon			X	X	X

JEFFERSON COUNTY
KENTUCKY



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