

OBSERVATIONS AND NEW RECORDS
OF IOWA RHOPALOCERA

STEPHEN MILLER

12585 Jones Bar Road
Nevada City, California 95959

Our knowledge of the Lepidoptera of Iowa has suffered in recent years from minimal collecting and a resultant scarcity of published information. With the exception of a short paper by Miller (1961), Christenson's (1971) recent work is the first significant study of the state's butterfly fauna to appear in nearly fifty years. Encouraged through communication with Christenson and by the accessibility of available data, I decided to make a personal survey of Iowa butterfly populations in the vicinity of Iowa City (Johnson County) during a short period of residence in the state in 1971.

The more fragile elements of Iowa's native flora and fauna have suffered profoundly from the extensive commercial modification the state has experienced during the last fifty years. Thus I was interested in examining the few areas which had escaped the plow and were relictual associations of flora which predominated in the state prior to the advent of cultivation.

Christenson (1971) mentions 22 species of butterflies that have not been collected in Iowa since 1920, but were recorded prior to that time. I was eager to investigate the possibility that some of those species survived the drastic modification of the Iowa landscape and continued to maintain populations in the biotic refugia of the area. These areas might be expected to support populations of species of limited distribution in Iowa, owing to plant associations and other biotic requirements which only such isolated refugia could provide. Of the 130 species of butterflies known to occur in Iowa, 19 had been recorded from one county only (Christenson, 1971). Though 10 species appear to reach their distributional limits within the state (*op. cit.*), which might partially account for some of the single-county records, this fact also suggested the importance of examining the fauna of plant communities which had previously been overlooked. The recent state records of Miller (1961) also seemed to support this notion.

Several localities in Johnson County were selected which appeared to meet these considerations and, due to their proximity to my home, could be visited on a regular basis throughout the season: Williams Prairie, a small private preserve about 4 miles north of Oxford; the vicinity of

Cou Falls (the northeast corner of the 13,000-acre Hawkeye Wildlife Area which surrounds the Coralville Reservoir west of Highway 218); MacBride Field Campus of the University of Iowa, about 4 miles north of North Liberty; and the area to the southeast of the Field Campus and north of the Coralville Reservoir known as Sugar Bottoms. These localities were visited at least bi-weekly for the three-month period 20 April–20 July, following which other considerations were responsible for terminating my investigations. In addition, Muskrat Slough, a public hunting access owned and maintained by the State Conservation Commission and located approximately 7 miles north-northeast of Mechanicsville in Jones County, was visited on two occasions in July, and one trip was made to the Paint Creek Unit of the Yellow River State Forest, near Waukon Junction in Allamakee County, on 10–11 July.

Of the areas selected, Muskrat Slough is a typical marshland situation. Cou Falls, MacBride Field Campus, Sugar Bottoms and Yellow River State Forest are, in general, representative of the deciduous oak-hickory woodland bordering most of the state's major rivers. Virgin prairie, once the characteristic feature of the Iowa landscape, has succumbed nearly *in toto* to extensive cultivation and exists today essentially as four state-owned preserves and a few private holdings. Williams Prairie is representative of what little remains of these fascinating ecological communities. The flora of these areas has been described by Conard (1958).

Following is a descriptive list of the more significant records and observations. Included are 35 new county records representing 31 species, 5 of which had previously been reported from one or two counties only. In addition there are new records of all four species recently reported as new to the state by Miller (1961). Though I failed to discover populations of any of the 22 species which have not been collected in the state since 1920, 7 species were taken for which only one or two recent records exist. It is my hope that some of the observations which follow will serve to stimulate future investigations of Iowa's butterfly fauna, especially in view of the continuing threat of additional commercial exploitation.

HESPERIIDAE

Euphyes dion (Edwards). 5, 13 July 1971, Muskrat Slough, Jones Co. (5 ♂♂). This species was first credited to the Iowa fauna by Miller (1961), who took specimens at Pilot Knob State Park and a swamp near Klemme, both Hancock County, on 22 July 1960. With the exception of a few specimens in a display collection at the University of Iowa labelled "Banner area, Warren County" and bearing dates in the mid-1960s, the present series is the first taken since that time. New county record.

Euphyes conspicua (Edwards). 28 June, 1, 20 July 1971, Williams Prairie, Johnson

Co. (13 ♂♂, 4 ♀♀); 5, 13 July 1971, Muskrat Slough, Jones Co. (4 ♂♂, 1 ♀). New county records.

Euphyes bimacula (Grote & Robinson). 19, 21, 23, 28 June, 1 July 1971, Williams Prairie (10 ♂♂, 6 ♀♀). New county record.

It should be noted that *E. dion* appears to be absent from the Williams Prairie fauna. On several occasions during July, when the species was flying at Muskrat Slough, an intensive search of the area failed to produce specimens. In conjunction with the need to determine whether *E. bimacula* occurs at Muskrat Slough (my first visit to the area was made at the terminus of the species flight), this observation provides excellent opportunity for subsequent investigations of host-plant specificity and biotic studies in general of these poorly-known hesperiids.

Poanes viator (Edwards). 5 July 1971, Muskrat Slough, Jones Co. (1 ♀). All previous records of this species have been from Pilot Knob State Park, Hancock County, where Miller (1961) first discovered it in Iowa on 22 July 1960. New county record.

Polites origines (Fabricius). 23 June 1971, MacBride Field Campus, Johnson Co. (1 ♂). Christenson (1971) mentions the rarity of this species in Iowa. New county record.

Polites mystic (Edwards). 19, 21 June 1971, Williams Prairie, Johnson Co. (7 ♂♂, 6 ♀♀). *P. mystic* seems to be very locally distributed throughout Iowa. This previously unrecorded population is of some interest due to the extent of variation apparent in the series. Specimens run as dark in the ground color of the ventral hindwing as typical eastern *mystic* to even lighter than the norm of the prairie subspecies *dacotah* (Edwards). Specimens collected farther west in Dallas County by Miller (in litt.) seem referable to *dacotah*. Other Iowa populations should be closely examined to determine the extent of this blend zone. New county record.

LYCAENIDAE

Harkenclenus titus (Fabricius). 28 June, 1 July 1971, Williams Prairie, Johnson Co. (6 ♂♂, 1 ♀); 3 July 1971, Cou Falls, Johnson Co. (1 ♂); 11 July 1971, Yellow River State Forest, Allamakee Co. (2 ♀♀). An unusually abundant species in 1971. New county records.

Satyrium liparops strigosa (Harris). 11 July 1971, Yellow River State Forest, Allamakee Co. (1 ♀). One of three recent captures. New county record.

Satyrium acadica (Edwards). 1 July 1971, Williams Prairie, Johnson Co. (1 ♂). With the exception of three specimens in a display collection at the University of Iowa taken at Sheeder Prairie, Guthrie County, on 23 June 1965, the present record is the first for the species in recent years. New county record.

Callophrys (Incisalia) henrici (Grote & Robinson). 22, 23, 24 April 1971, Sugar Bottoms, Johnson Co. (2 ♂♂, 1 ♀). Prior to my discovery of this species in Johnson County it had been recorded only from Fremont and Pottawattamie Counties in the extreme southwestern corner of the state. Christenson (1971) implies that the paucity of records in Iowa may be due to the absence of redbud (*Cercis canadensis* Linnaeus), a commonly-mentioned host, from most areas of the state. This plant does not occur in the Sugar Bottoms area. *Prunus*, however, also mentioned as a host, is abundant there. New county record.

Callophrys (Mitoura) gryneus (Hübner). 22 April 1971, Sugar Bottoms, Johnson Co. (1 ♂, 1 ♀); 23, 25 April, 8 May, 14 July 1971, 2 miles west of Cou Falls, Johnson Co. (14 ♂♂, 6 ♀♀). Previously recorded only from Henry and Linn Counties, I found *C. gryneus* to be fairly abundant at both locales where I discovered it in Johnson County, though restricted to the immediate vicinity of its foodplant, *Juniperus virginiana* Linnaeus (red cedar). It was also observed, though not collected, at Effigy Mounds National Monument, Allamakee County, on 11 July 1971. Further collecting should prove the species to be much more widely distributed in Iowa than the records indicate. New county record.

Panthiades m-album (Boisduval & LeConte). 3 May 1971, Cou Falls, Johnson Co. (1 ♂). Miller (1961) took a single female of this species at Waubonsie State Park, Fremont County (extreme southwest Iowa), on 22 May 1960, thus discovering it for the first time in Iowa. The fact that the present specimen, the second recorded from the state, was taken in fresh condition at the same time of year seems to indicate that *P. m-album* very likely breeds in Iowa, if only sporadically. Miller (in litt.) is of the opinion that the species probably occurs in small, very local populations throughout at least the southern half of the state. New county record.

Lycaena thoe Guérin-Ménéville. 28 May, 5, 12, 19, 21, 23 June 1971, Williams Prairie, Johnson Co. (11 ♂♂, 5 ♀♀).

Lycaena xanthoides dione Scudder. 19, 21, 23, 28 June, 1 July 1971, Williams Prairie, Johnson Co. (11 ♂♂, 9 ♀♀).

Lycaena helioides (Boisduval). 28, 29 May, 5 June, 1 July 1971, Williams Prairie, Johnson Co. (15 ♂♂, 12 ♀♀).

Lycaena phlaeas americana Harris. 28 May, 23 June 1971, Williams Prairie, Johnson Co. (11 ♂♂, 7 ♀♀). Two of the 11 males collected at this locality are of the aberrant phenotype "*fasciata*" (Strecker).

Mention is made of the occurrence at a single locale of all four species of *Lycaena* native to the state in light of the unusual nature of this observation. There are probably very few spots in Iowa where this situation exists. There are records for each of the four species from Story County (Christenson, 1971), though it is not known whether there is any area in the county where the populations occur sympatrically. Data on host-plant specificity for each of the species at Williams Prairie would be of great interest, as well as observations on the territorial aspects of courtship and mating.

SATYRIDAE

Lethe eurydice fumosa (Leussler). 19, 21, 23 June 1971, Williams Prairie, Johnson Co. (20 ♂♂, 3 ♀♀); 5 July 1971, Muskrat Slough, Jones Co. (4 ♂♂, 1 ♀). Special notice is given the present records of *L. e. fumosa* in light of the recent treatment of the *Lethe eurydice* complex by Cardé *et al.* (1970). This subspecies appears to be restricted to "small, isolated colonies (many now extinct) in sedgy, permanent marshes in the prairie regions from Minnesota and South Dakota to Indiana, Nebraska and Colorado" (op. cit.). The early stages of *fumosa* are unknown, and the discovery of two large populations of the subspecies in eastern Iowa should increase the feasibility of subsequent investigations of the biology of this insect. Miller (in litt.) has seen typical *eurydice* from northern Iowa, but does not have the exact locality. Collectors should also be aware of the possible occurrence of *Lethe appalachia* R. L. Chermock within at least the eastern third of the state. New Jones County record.

Cercyonis pegala (Fabricius). 28 June, 1 July 1971, Williams Prairie, Johnson Co. (15 ♂♂). Emmel (1969) states in his discussion of *C. pegala* that the *alope* (Fabricius) phenotype "ranges from Virginia and New Jersey north to eastern Quebec and Maine," and indicates that to the north and west of this area it intergrades with the *nephele* (Kirby) phenotype, which evidences none of the yellow forewing patch of *alope*. One would expect Iowa populations to be predominantly of the *nephele* phenotype and, indeed, most records from the state refer to this morph. It was with some surprise, then, that of the 15 males taken at Williams Prairie two display the conspicuously yellow-patched forewing of *alope*. All 13 additional specimens taken at Williams Prairie and those collected at other localities in Iowa during 1971 are typical *nephele*. Miller (in litt.) has occasionally taken *alope*-like females farther west in Polk and Dallas Counties, but has seen no males from those areas with a yellow-patched forewing. Further collecting may uncover other polymorphic populations of *C. pegala* in Iowa.

Additional New County Records

HESPERIIDAE

Euphyes vestris metacomet (Harris). 10, 16 June, 3 July 1971, Cou Falls, Johnson Co. (3 ♂♂); 11 July 1971, Yellow River State Forest, Allamakee Co. (2 ♀♀).

Poanes hobomok (Harris). 6, 9, 10, 15, 16 June 1971, Cou Falls, MacBride Field Campus, Johnson Co. (7 ♂♂, 3 ♀♀).

Pompeius verna (Edwards). 3 July 1971, Cou Falls, Johnson Co. (2 ♀♀).

Wallengrenia otho egeremet (Scudder). 14 July 1971, Cou Falls, Johnson Co. (1 ♂); 11 July 1971, Yellow River State Forest, Allamakee Co. (1 ♂).

Polites themistocles (Latreille). 28 May, 6, 9, 15 June 1971, Cou Falls, MacBride Field Campus, Williams Prairie, Johnson Co. (6 ♂♂, 1 ♀).

Ancyloxypha numitor (Fabricius). 9, 12, 19, 21 June 1971, MacBride Field Campus, Williams Prairie, Johnson Co. (4 ♂♂, 1 ♀).

Erynnis brizo (Boisduval & LeConte). 22, 23, 24 April, 3, 9 May 1971, Sugar Bottoms, Cou Falls, Johnson Co. (7 ♂♂, 6 ♀♀).

Erynnis horatius (Scudder & Burgess). 3 May 1971, Cou Falls, Johnson Co. (1 ♂). (det. H. A. Freeman).

Epargyreus clarus (Cramer). 9 May, 6, 9, 15, 16 June 1971, Cou Falls, MacBride Field Campus, Johnson Co. (5 ♂♂, 1 ♀).

LYCAENIDAE

Satyrium calanus falacer (Godart). 11 July 1971, Yellow River State Forest, Allamakee Co. (1 ♂).

Strymon melinus humuli (Harris). 3 July 1971, Cou Falls, Johnson Co. (1 ♂).

Everes comyntas (Godart). 23 April, 15 May, 9, 12 June 1971, Sugar Bottoms, MacBride Field Campus, Williams Prairie, Johnson Co. (4 ♂♂, 3 ♀♀).

Celastrina argiolus pseudargiolus (Boisduval & LeConte). 11 July 1971, Yellow River State Forest, Allamakee Co. (1 ♀).

NYMPHALIDAE

Chlosyne gorgone carlota (Reakirt). 20, 27, 28, 29 May 1971, Cou Falls, Williams Prairie, Johnson Co. (5 ♂♂, 2 ♀♀).

Boloria toddi ammiralis (Hemming). 11 July 1971, Yellow River State Forest, Allamakee Co. (1 ♂).

Speyeria cybele (Fabricius). 11 July 1971, Yellow River State Forest, Allamakee Co. (2 ♂♂).

Speyeria aphrodite alcestis (Edwards). 11 July 1971, Yellow River State Forest, Allamakee Co. (1 ♂).

SATYRIDAE

Lethe anthedon (Clark). 11 July 1971, Yellow River State Forest, Allamakee Co. (1 ♀).

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 SOME NOTES ON THE SPHINGIDAE

Since the appearance over a year ago of the first published part of the continuing work on the Moths of America (Hodges, R. W. in Dominick, R. B. *et al.*, 1971, *Moths of America North of Mexico*, fasc. 21, *Sphingoidea*), some additional information has been gathered by the author on this group in the area of McClellanville, South Carolina.

Darapsa myron (Cramer) is taken frequently at bait. We use fermented peaches or bananas, no extras added, with good results. It should be added that *myron* and *D. pholus* (Cramer) generally are not easy to differentiate in the traps, if only to emphasize the difficulties inherent in field identification.

Darapsa versicolor (Harris) occurs here somewhat later than stated in the reference, being taken at light in latter July and August, though we have only half a dozen specimens in the Wedge Plantation collection (WPC).

Paonias astylus (Drury) in this locality has two definite broods, the first in April, and the second in late July to early August. All WPC specimens to date have been taken at light.

Sphinx franckii Neumoegen. Four specimens have been taken. One on 8 June 1968, and three in 1971, dated 23 June, 14 August, and 1 September. All were ♂♂, and all came to light. This sudden 1971 take of three induced us to look for the foodplant, ash, so far without success. Either there is undiscovered ash nearby, or in this locality *franckii* has fixed on some other foodplant.

Erinnyis obscura (Fabricius), one ♂, 25 October 1968, to light.

Deidamia inscripta (Harris). Hodges notes that it flies just before sunrise. This information was taken from a note in the WPC collection which related to only two specimens that were actually seen by me to fly into one of our traps at that time. The collection, however contains not only several specimens flying at this time of day, but also a goodly number flying from roughly midnight on. It would therefore seem more accurate to say that it is a *late* flier. Both sexes have been taken at light (none at bait), and the larva has been reared on *Vitis* sp.

I should like to add at this point that the editors of *Moths of America North of Mexico* hope that such additional information as this will be published as available by various workers, for we fully realize that there is much still to be learned and much that collectors and institutions have already available which has not been assembled. Many life histories, distribution records, habits and other information of interest have been studied and recorded by individuals who have not published, with resulting gaps in the literature.

RICHARD B. DOMINICK, *The Charleston Museum, Charleston, South Carolina 29401.*