NEW MICHIGAN BUTTERFLY RECORDS

M. C. NIELSEN
3415 Overlea Drive, Lansing, Michigan

Since the death of Sherman Moore in 1956, and the publication of his list of Michigan butterflies (1960), the writer has assumed the task of maintaining a card-file index of all Michigan butterfly records, with the goal of preparing a new annotated list. During this period, considerable collecting has occurred throughout the state, particularly in the Upper Peninsula and on Isle Royale. This period has seen a definite increase in the number of resident lepidopterists and young insect collectors, especially among the 4-H group. Therefore, it seems worthwhile to publish certain new significant records at this time. Hopefully, this addendum may encourage lepidopterists to search diligently in the state for additional species to further the knowledge of the distribution and habits of Michigan's butterfly fauna.

Field trips to Isle Royale by David Bixler, Edward Voss and Ron Willson have added immeasurably to our meager knowledge of the island's butterfly fauna, which incidentally appears to be similar to that of northern Minnesota and northern Ontario. Collecting by Virgil Warczynski of Bay City is responsible for many new county records, particularly in the Saginaw Bay area. Brief collecting forays by John Masters of Minnesota into the western portion of the Upper Peninsula have produced interesting new records; John Newman and the writer have done extensive collecting in the numerous sphagnum-heath bogs in the eastern Upper Peninsula since the publication of Moore's list. Additional Upper Peninsula records were found in the insect collections at Northern Michigan University in Marquette and Michigan Technological University in Houghton.

As a result of these additional records, we can now add over 300 new county records, including 7 new species (noted with an asterisk) to our list. Only those new county records which significantly extend a species' range, or relate to a scarce or extremely local species are treated in this supplement. Also, there is recognition of certain subspecies heretofore omitted by Moore. With the addition of these new state records, our Michigan butterfly fauna now constitutes 147 recognized species. Hopefully, further collecting on Isle Royale, in the Upper Peninsula, and in the southwestern Lower Peninsula should eventually bring the state list to at least 155 species. Knowledge of any new state or county records not previously published from Michigan would be appreciated by the writer.

In presenting the following records, the nomenclature and arrangement

of Klots (1951) has been adopted in order to maintain conformity to Moore's list.

SATYRIDAE

Euptychia mitchellii (French). Branch, Lenawee Counties, June 30, July 11. These two locations were previously unrecorded (McAlpine, Hubbell, Pliske, 1960). Additional data is still needed to delineate its exact range in Michigan, especially the northern limits.

Oeneis macounii (Edwards). Isle Royale, June 27, 1964. A fresh pair was collected by Ron Willson in Section 22, T66N, R34W; other specimens were observed in this section on Greenstone Ridge. The specimens are deposited in the Michigan State University collection at East Lansing. This is the first record of the species from the main island since its discovery on one of Isle Royale's satellite islands by R. N. Rysgaard (Newcomb, 1941). It would indicate that *macounii* is a resident on Isle Royale and should be searched for elsewhere on the island, as well as in suitable habitats in the Upper Peninsula. The butterfly has a tendency to resemble *Limenitis archippus* (Cramer) in flight (Fletcher, 1888), and inhabits open jack pine forests (Masters, Sorensen, Conway, 1967).

Oeneis jutta ascerta Masters & Sorensen. Chippewa, Mackinac Counties, May 29, June 15. Several specimens were collected and observed in black spruce-tamarack bogs (Nielsen, 1965). This recently described subspecies (Masters, Sorensen, 1968) should also occur on Isle Royale and in many acid bogs throughout the Upper Peninsula.

* *Erebia discoidalis* (Kirby). Baraga County, May 31, 1968. One torn male collected by J. H. Masters in a black spruce bog around 5:00 PM. According to correspondence with Masters, *discoidalis* apparently flies early in the morning and late in the afternoon in most northern bogs, a habit that could account for its scarcity to date. This alpine should occur in many bogs across the Upper Peninsula, as it has been previously collected in Minnesota (Huber, 1965) and Wisconsin (Elder, 1961). The Michigan specimen has been deposited in the MSU collection.

NYMPHALIDAE

* *Boloria eunomia dawsoni* (Barnes & McDunnough). Chippewa, Mackinac Counties, June 13–23. The writer has taken additional specimens and located two new colonies in Chippewa County since its discovery (Nielsen, 1965).

* *Boloria freija* (Thunberg). Chippewa, Ontonagon Counties, May 27, 29. The first record was that of a worn male collected by John Newman in Section 9, T49N, R7W in 1965, on a sandy ridge extending across the huge

bog located about seven miles northwest of Paradise (Nielsen, 1965). More recently, it was taken by John Masters in the eastern edge of the Porcupine Mountains State Park.

Boloria frigga (Thunberg). Schoolcraft County, May 30–June 1. Additional specimens have been collected which indicate that the species may prefer a wet, sedgy bog habitat, with willow and dwarf birch, to the true sphagnum-heath bog previously reported (Hubbell, 1957). The writer has collected it in a habitat similar to that reported by Brown (1954) for *frigga sagata* (Barnes & Benjamin) in the Rocky Mountains of Colorado.

* *Polygonia zephyrus* (Edwards). Schoolcraft County, May 29, 1960. One torn male of this western species was collected in an acid bog by the writer (Section 14, T42N, R16W). The specimen was determined by Cyril F. dos Passos and is now in the writer's collection. It would appear this record represents a stray specimen which probably overwintered as suggested by its condition. Undoubtedly, bait could be used to attract additional material, including other scarce boreal species as *P. gracilis* (Grote & Robinson) and *satyrus marsyas* (Edwards).

Anaea andria Scudder. Van Buren County, July 17. This record represents the second location in the state. One specimen was collected by William Bouton at Breedsville. Collectors should look for it in other southern counties, especially at bait.

LYCAENIDAE

* *Strymon m-album* (Boisduval & LeConte). Muskegon County, August 12, 1964. One fresh male, Michigan's first, was collected by John Taggart in Section 13, T11N, R18W, along a sandy road adjacent to scrub oak. The specimen is in the writer's collection. This hairstreak may occasionally occur in our southern scrub oak locations; although it is doubtful that it breeds in the state. According to Clench (1961), the species is triple-brooded in Pennsylvania.

Strymon melinus humuli (Harris). Baraga, Chippewa Counties, May 17, June 21. These are the first records of this hairstreak collected from the Upper Peninsula and they constitute a substantial northern extension. Two worn specimens were taken by the writer near Strongs in an open jack pine area, flying with *Incisalia niphon clarki* Freeman and *Hesperia sassacus* Harris.

Incisalia henrici (Grote & Robinson). Schoolcraft County, June 1. This is the first capture of this elfin in the Upper Peninsula. John Newman collected one fresh specimen along a sandy trail separating a jack pine ridge

and an acid bog; *Vaccinium* sp., one of its known foodplants (Klots, 1951), was abundant in the area.

Incisalia eryphon (Boisduval). Chippewa, Luce, Marquette Counties, May 16–22. The determination of these specimens has been confirmed by Harry Clench (Nielsen, 1966) as representing the western pine elfin. The Mackinac County specimens, referred to by Moore (1960), have since been examined by the writer and were found to represent *eryphon* and not *niphon clarki* as determined by Klots. There is good reason to believe that *eryphon* will be found in pine areas throughout the Upper Peninsula, and that it has previously been overlooked or confused with *niphon clarki.*

PAPILIONIDAE

Papilio glaucus canadensis Rothschild & Jordan. Keweenaw County, June 26. Five specimens taken by Ron Hodges at Copper Harbor were determined by Dr. Lincoln P. Brower. This is the first recognition of this subspecies from Michigan; Moore (1960) did not distinguish this from the typical form. No doubt the populations on Isle Royale and throughout the Upper Peninsula and extending south into the Lower Peninsula represents *canadensis.* Specimens collected from Otsego County are indistinguishable from those taken farther north. Further collections of long series should be made to determine the southern limits of *canadensis.*

PIERIDAE

* *Euchloe ausonides* Lucas. Isle Royale, June 17–29. The species was first collected by Ron Willson in 1964 near Rock Harbor Lodge at the northeastern end of the island. Additional specimens were taken on Mt. Ojibway by David Bixler, and again at Rock Harbor by Ed Voss. Correspondence from Voss indicated that *ausonides* was associated with *Arabis.* Willson's specimen was determined by Dr. A. B. Klots, but was undeterminable as to subspecies. The species has also been collected in northern Minnesota and in the vicinity of Port Arthur, Ontario.

Pieris virginiensis Edwards. Arenac, Otsego Counties, May 5, 26. Several specimens were collected by Virgil Warczynski in hardwoods, thus extending the known range of this pierid to the southeast. Collectors should look for this butterfly in beech-hard maple woodlots in early spring before full leaf development.

HESPERIIDAE

Pyrgus centaureae wyandot (Edwards). Montcalm County, May 8, 18. The writer has taken this skipper feeding on blueberry blossoms in scrub oak

openings in Section 7, T12N, R10W. This represents the most southern collection site in the state.

Erynnis baptisiae (Forbes). Monroe County, June 5. This skipper was collected by the writer in Section 24, T7S, R6E, in close proximity to wild indigo in scrub oak opening; subsequently, adults were reared from eggs and larvae found on wild indigo plants in this same location. The species is easily confused with our other *Erynnis* species.

Oarisma powesheik (Parker). Kent County, July 4, 13. Several specimens have been collected in recent years by Wilbur McAlpine, V. Warczynski and the writer along the marsh edge of Button and Lamberton Lakes in the north section of Grand Rapids. Somehow, this small and restricted colony has continued to flourish since first reported by Wolcott (1893) despite the suburban encroachment. The writer found the species to be rather fond of black-eyed susan flowers growing near the marsh perimeter. Companion species taken in this habitat included *Calephelis muticum* McAlpine and *Lycaena dorcas* Kirby. It would appear this species can be easily overlooked in this type of habitat.

Adopaea lineola (Ochsenheimer). Cheboygan, Crawford, Houghton, Oscoda, Otsego, Roscommon Counties, June 19–July 22. Several specimens were collected by the writer in the northern Lower Peninsula during the 1960–67 period, and by Ted Ellis, Jr. in Houghton County; these represent significant northern extensions in range for this skipper. Undoubtedly, this skipper will spread to all counties of the state within the next several years. The writer recently collected a long series in two northern Ontario locations (Nielsen, 1966), indicating that the European Skipper is still extending its range in North America.

* *Lerodea eufala* (Edwards). Ontonagon County, August 25, 1959. One torn female was collected by the late Dr. R. R. Dreisbach. Determination of this skipper was confirmed by Dr. A. W. Lindsey; the specimen is in the writer's collection. The skipper may be extending its range northward into the western end of the Upper Peninsula and should be searched for in upland grassy areas.

LITERATURE CITED

BROWN, F. MARTIN, 1954. Some Notes on *Boloria* in Central Colorado (Nymphalidae). Lepid. News, 8: 64–66.

CLENCH, H. K., 1961. *Panthiades m-album* (Lycaenidae): Remarks on Its Early Stages and on Its Occurrence in Pennsylvania. Jour. Lepid. Soc., 15: 226–232.

ELDER, W. H., 1961. Early Records of *Erebia discoidalis* (Satyridae) in Wisconsin. Jour. Lepid. Soc., 15: 95–96.

FLETCHER, J., 1888. A Trip to Nepigon. Ann. Report Ent. Soc. Ontario, 19: 74–88.

HUBER, R. L., 1965. Probable Second U. S. Record for *Erebia discoidalis*. Jour. Lepid. Soc., 19: 76.
HUBBELL, S. P., 1957. *Boloria frigga* (Nymphalidae) in Michigan. Lepid. News, 11: 37–38.
KLOTS, A. B., 1951. A Field Guide to the Butterflies of North America, East of the Great Plains. Houghton Mifflin Co., Boston, 349 pp.
MASTERS, J. H., and J. T. SORENSEN & P. J. CONWAY, 1967. Observations on *Oeneis macounii* (Satyridae) in Manitoba and Minnesota. Jour. Lepid. Soc., 21: 258–260.
MASTERS, J. H., and J. T. SORENSEN, 1968. A New Subspecies of *Oeneis jutta* (Lepidoptera: Satyridae). Ent. News, 79: 80–85.
MCALPINE, W. S., and S. P. HUBBELL & T. E. PLISKE, 1960. The Distribution, Habits, and Life History of *Euptychia mitchellii* (Satyridae). Jour. Lepid. Soc., 14: 209–226.
MOORE, S., 1960. A Revised Annotated List of the Butterflies of Michigan. Occ. Papers Mus. Zool., Univ. Mich., 617, 39 pp.
NEWCOMB, W. W. 1941. Note on the Occurrence of *Oeneis macounii*. Bull. Brooklyn Ent. Soc., 36: 56.
NIELSEN, M. C., 1965. Discovery and Observations of *Boloria eunomia* (Nymphalidae) in Michigan. Jour. Lepid. Soc., 18: 233–237.
———— 1966. Occurrence of *Callophrys eryphon* (Lycaenidae) in Michigan. Jour. Lepid. Soc., 20: 41–42.
———— 1966. New Canadian Records for *Thymelicus lineola* (Hesperiidae). Jour. Lepid. Soc., 20: 243–244.
WOLCOTT, R. H., 1893. The Butterflies of Grand Rapids, Michigan, Canad. Ent., 25: 98–107.

HEAD MEASUREMENTS AND WEIGHTS OF THE BEAN LEAF ROLLER, *URBANUS PROTEUS* (HESPERIIDAE)[1]

GERALD L. GREENE
Central Florida Experiment Station, Sanford, Florida 32771

The bean leaf roller, *Urbanus proteus* (Linn.), is common on beans and other legumes in Florida during the fall of the year. Head widths and weights of newly molted larvae were determined to learn if larval instars could be accurately distinguished when making field observations.

Larvae were reared on Harvester variety snap bean leaves held in an insect rearing room with the temperature about 85°F. Larvae were kept individually on bean leaflets in round plastic dishes 2 cm deep by 10 cm in diameter with moistened filter paper to maintain leaf turgidity. Fresh leaves were supplied after each molt. Eggs were measured within five hours after oviposition and larval head widths were recorded soon after molting when the head became black. Pupal heads were measured two

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