

Addendum (November 2023)

As of November 2023, I have recorded 1,006 Macrolepidoptera species from Outagamie County, including 748 species recorded from both 1989-1996 (historical) and 2015-2023 (recent) surveys, 69 species recorded from historical but not recent surveys, and 189 species recorded from recent but not historical surveys. Of the 189 species added with recent surveys, 101 are strays or ephemeral migrants outside of their permanent range, including 88 species of southern origin, 5 of western origin, and 8 of northern origin. Twenty-four of the newly recorded species are new colonizations of Nearctic species, 19 of which are southern species that have expanded their ranges northward into the area since 1989-1996. Of the remaining newly recorded species, 8 are new colonizations of Palearctic species, 41 are known from few specimens and their status is unknown, 9 were likely overlooked by historical surveys due to insufficient seasonal coverage in their habitats, and 6 are from localities with no historical surveys. Only nine southern strays were found with historical but not recent surveys: *Erinnyis obscura* (7837), *Aellopos titan* (7849), *Alabama argillacea* (8554), *Catocala epione* (8773), *Catocala maestosa* (8793), *Tarachidia semiflava* (9085), *Acrionicta impleta* species 2 (9257b), and *Papaipema beeriana* (9508).

The species diversity recorded of resident Macrolepidoptera species was higher among Outagamie County study sites with recent surveys than with historical surveys. Only seven of the 69 species found with historical but not recent surveys were recorded from more than two specimens. These species, with the number of specimens in “()” include: *Datana perspicua* (9), *Apamea alia* (8), **Speranza loricaria* (7), **Sphinx gordius* (including *poecile*) (7), *Catocala luciana* (7), *Euxoa servita* (6), and **Ematurga amitaria* (3). Seventeen additional species were recorded from two specimens, and 45 from one specimen. These records were all from well surveyed localities, thus most or all of these species were likely strays or dispersers at the localities where they were found. These species include (*=recently recorded from southern Shawano County): *Homochlodes lactispargaria* (2), **Anagoga pulveraria* (2), *Caripeta divisata* (2), **Olceclostera angelica* (2), *Datana contractata* (2), *Datana integerrima* (2), **Dasychira vagans* (2), **Zale phaeocapna* (2), Eustroitiinae species (2), *Syngrapha epigaea* (2), *Tarachidia semiflava* (2), *Acrionicta fragilis* (2), **Papaipema pterisii* (2), **Melanchra assimilis* (2), *Euxoa redimicula* (2), **Euagrotis forbesi* (2), **Euretagrotis attentata* (2), **Archieris infans* (1), **Macaria fissinotata* (1), *Digrammia ordinata* (1), **Euchlaena irraria* (1), **Epirranthis substriataria* (1), **Probole amicaria* (1), **Hydriomena perfracta* (1), *Rheumaptera hastata* (1), *Spargania magnoliata* (1), *Sphinx drupiferarum* (1), *Erinnyis obscura* (1), *Aellopos titan* (1), *Datana angusii* (1), *Dasylophia anguina* (1), *Manuela bicolor* (1), **Dasychira dorsipennata* (1), **Dasychira obliquata* (1), **Hypena palparia* (1), *Alabama argillacea* (1), **Zale obliqua* (1), **Zale submediana* (1), *Catocala epione* (1), *Catocala maestosa* (1), **Lithacodia bellicula* (1), *Autographa ampla* (1), **Syngrapha abstrusa* (1), **Callopietria cordata* (1), *Schinia trifascia* (1), *Schinia lucens* (1), *Calocasia flavicornis* (1), *Acrionicta radcliffei* (1), *Acrionicta funeralis* (1), **Acrionicta laetifica* (1), **Acrionicta tristis* (1), *Acrionicta impleta* species 2 (1), *Apamea lutosus* (1), *Papaipema beeriana* (1), *Neoligia* species (1), *Caradrina multifera* (1), **Xystocheila rufago* (1), **Euxoa declarata* (1), *Euxoa comosa* (1), *Euxoa perpolita* (1), *Diarsia jucunda* (1), and *Ufeus plicatus* (1). Twenty-nine of the species not recorded from recent surveys in Outagamie County have recent records from the Navarino Wildlife Area in southern Shawano County.

In contrast, recorded species diversity of resident butterfly species was higher historically among Outagamie County study sites. Four historical residents were not found with recent surveys: *Erynnis lucilius*, *Erynnis brizo*, *Thorybes pylades*, and *Aglais milberti*. The one Outagamie County locality where *Erynnis lucilius* and *E. brizo* were found has undergone significant plant community succession, but I currently have no explanation for the absence of the other two species. Also, *Polites themistocles* was formerly common but is seldom encountered now. *Speyeria aphrodite* colonized a prairie planting in 1994, was found again in 1995, but has not been found with recent surveys. The only butterfly species which appears to have colonized Outagamie County since 1996 is *Coenonympha inornata*.

Macrolepidoptera Species Newly Recorded in Outagamie County During the 2023 Season.

***Prochoerodes lineola* species 2 (6982):** Mosquito Hill: prairie planting, MV trap site 24, 24 August, one worn specimen. This is likely a short distance stray from slightly farther north. See pages 18 & 238-239.

***Haploa clymene* (8107):** Mosquito Hill: prairie planting near floodplain forest edge, MV sheet, 24 August. Prior to 2023 I had only collected or examined one Wisconsin specimen (Figure 83.3). Kyle Johnson and Steve Bransky collected multiple specimens in Manitowoc County during August 2023 (Kyle Johnson, pers. com. 2023).

***Arugisa lutea* (8509) [Figure 84.18, page 171]:** Appleton: UV lights, 26 June 2023. This is a rare southern stray or accidental (see page 48).

***Bulia deducta* (8614) [Figure 85.3, page 173]:** Mosquito Hill: upland prairie planting/mesic hardwood forest along south side of hill, MV sheet, 9 June. This is an abundant and widespread generalist of the southwestern United States that occasionally occurs eastward as a rare stray or accidental. This is the first specimen I have seen from Wisconsin.

***Catocala junctura* (8829):** Appleton: bait trap, 3 October. This specimen is a rare stray or accidental from south or southwest of the area, and to my knowledge there are only a few records of *C. junctura* from Wisconsin. During the latter half of September 2023, I collected a small series of *C. junctura* in Wheaton, Illinois (DuPage County). Most were in worn condition but one was fresh, raising the possibility that the species is now established in that area. These specimens are a different phenotype than the Appleton specimen, with brownish mottling and a purplish sheen. The Appleton specimen is a plainer, greyer phenotype, and perhaps originates from southwestern populations rather than those in northern Illinois?

Some Southern Strays and Ephemeral Migrant Records Recorded During 2023

I conducted less survey in the area during 2023 than with other recent seasons, particularly late in the season when southern strays and ephemeral migrants are most likely to be found. I conducted no survey in the area from 11 September-2 October and from 8-22 October. Local surveys combined with surveys I conducted in Ludington, Michigan and Wheaton, Illinois suggest it was a good year for migrants in the Upper Midwest. The following are some notable 2023 records of strays and ephemeral migrants from Outagamie County or the Navarino Wildlife Area in southern Shawano County. This is not comprehensive, and many 2023 records have not been databased.

SPHINGIDAE

***Manduca quinquemaculata* (7776):** Mosquito Hill: MV trap site 24, prairie planting, 5 September. The specimen is in fairly fresh condition, but with scales rubbed off of the thorax. This is the first season I rerecorded this species in the area during the 2016-2023 interval. There were multiple large tomato plants in the Appleton yard during 2023, but no larvae were found.

***Ceratomia amyntor* (7786):** Mosquito Hill, prairie planting near floodplain forest edge, MV sheet, 18 July (2 somewhat worn specimens). These records are from a similar time of year and in close proximity to where a specimen in good condition was collected during 2022. More survey is needed to investigate the possibility that this species has become established, although thus far there are still only four specimens recorded from Outagamie County and three from Mosquito Hill.

***Sphinx eremitus* (7796):** Mosquito Hill: mesic hardwood forest along sandstone cliffs near top of hill, UV trap, 9 June; prairie planting near floodplain forest edge, MV sheet, 18 July (3), 5 August (1).

***Sphinx chersis* (7802):** Mosquito Hill, prairie planting near floodplain forest edge, MV sheet, 18 July, 1 somewhat worn specimen. This record is from a similar time of year and near the location of a 2022 Mosquito Hill record. More survey is needed to investigate the possibility that this species may have become established. While thus far there are just two recent records and only one is in fresh condition, I suspect this species is difficult to detect with the survey methods I have been using.

***Hyles lineata* (7894):** Mosquito Hill: MV lights, prairie planting, 24 August (20), 5 September (8); Bluemound Drive power line cut: UV trap, 4 September.

NOCTUIDAE

***Zanclognatha pedipilalis* species B (8348b):** Mosquito Hill: prairie planting near floodplain forest edge, MV sheet, 5 August.

***Tetanolita* near *palligera* (8367.1):** Appleton: MV trap, 4 October. This was the first season I rerecorded this species in the area during the 2015-2023 interval. It apparently underwent a significant northward migration into the Upper Midwest during 2023. I collected series of this species in Ludington, Michigan and Wheaton, Illinois in the latter half of September, and Steve Bransky (pers. com. 2023) found it in numbers in southeastern Wisconsin.

***Renia discoloralis* (8381):** Appleton: nectaring on butterfly bush, 12 August. I searched for this species on 26 July at the Navarino Wildlife Area along the same bait trail where I found this species in numbers during 2022, but did not find it. This is consistent with the hypothesis that this species is still an ephemeral migrant from the south and not established in the area. However, bait was attracting few moths during the 26 July 2023 survey, despite high numbers of moths at lights. Since most area records of *Renia discoloralis* are from bait rather than lights, it might have gone undetected during the 2023 Navarino survey if it was present in the area.

***Garella nilotica* (8974):** Mosquito Hill: MV sheet, prairie planting, 24 August.

***Hyperstrotia pervertens* (9037):** Navarino Wildlife Area: sandy oak-pine barrens, MV sheet, 23 June. This is the second record for the area.

***Amyna stricta* (9070), *Ctenoplusia oxygramma* (8889), *Pseudoplusia includens* (8890), *Anicla infecta* (10911):** Appleton: MV trap, 3 October. I also found all of these species in Ludington, Michigan and Wheaton, Illinois during the latter half of September.

***Trichoplusia ni* (8887):** Mosquito Hill: MV sheet, prairie planting, 24 August.

***Rachiplusia ou* (8895):** Prairie Hill Park: netted at night, 3 September; Fox Cities Paper Trail: UV trap, 3 September; Appleton: MV trap, 3 October.

***Oruza albocostaliata* or species near (9025):** On 26 July I collected a small series at the Navarino Wildlife Area, the second consecutive season I found it here with no records from Outagamie County. This is more evidence favoring the hypothesis that there is a disjunct population or second species in the Central Sands biogeographic area, as opposed to the hypothesis that this material is from a northward migration from the Austral Zone. However, most of the specimens were worn, and future survey is needed earlier in the flight of this species in order to confirm that there is a resident population.

***Heliothis subflexus* (11070):** Navarino Wildlife Area: sandy oak-pine barrens, MV sheet, 23 June (Figure 79.14, page 161). This specimen is in fairly fresh condition and is the first record for the area. Most Wisconsin specimens I have examined are from the southwestern Counties (Grant, Green, La Crosse), including a small series of fresh specimens collected by Tom Barina in the early 1990s.

***Heliothis virescens* (11071):** Appleton: MV trap, 3 October. This is the second record of this southern stray for the area. I also found this species in Ludington, Michigan and Wheaton, Illinois during the latter half of September during 2023.

***Schinia gaurae* (11168):** Mosquito Hill: upland prairie planting/mesic hardwood forest edge along south side of hill, MV sheet 6, 9 June 2023. This is the second specimen from this locality, and it is in remarkably fresh condition.

***Parabagrotis exsertistigma* (11047):** Mosquito Hill, mesic hardwood forest on south side of hill, beginning of steep trail up hill, UV trap, 5 September (1 worn specimen).

HESPERIIDAE

Hylephila phyleus (4013): Mosquito Hill: butterfly garden by parking lot, late afternoon, 5 September (1 male).

DEPRESSARIDAE

Gonioterma mistrella (1032): Mosquito Hill: MV trap site 24, prairie planting, 5 September; Appleton: UV sheet, 9 September. This is the second consecutive season fresh specimens have been found in the area, including in the Appleton yard during both seasons, so it may be established now.

PLUTELLIDAE

Plutella porrectella (2363): Appleton: UV lights, 14 July 2023 (Figure 86.5, page 175). This is the second area record of this species, which was first recorded on 24 June 2022 (Figure 86.8, page 175).

YPSOLOPHIDAE

Ypsolopha barberella (2370): Navarino Wildlife Area: sandy oak-pine barrens, UV trap site 27, 23 May.

PYRALIDAE

Uresphita reversalis (4992): Mosquito Hill: prairie planting, MV trap site 24, 24 August.

Hymenia perspectalis (5169): Appleton: MV trap, 26 October (1).

Herpetogramma bipunctalis (5272): Appleton: MV trap, 26 October (1).

Hypsopygia nostralis (5531): Appleton, UV lights on front porch, 22 May (1 worn specimen) (Figure 90.9, page 183). Other than this specimen, I have not seen this species north of the Gulf Region. This record is undoubtedly a rare stray or accidental.

I found the following species in southeastern Wisconsin on 3 October.

Choeophora fungorum (NOCTUIDAE) (10998): Kenosha County: Visitor's Center on northbound Interstate I94 just over the state line (N 42.52146° W 87.94927°): I flushed one slightly worn specimen walking through a field. In late September and early October 2023 I was regularly encountering this species in a variety of habitats in Wheaton, Illinois, but I was not aware of any Wisconsin records. There are several possibilities for the Kenosha County record: it might be a southern species expanding its range northward, it might be a stray (I don't know if this species is prone to straying outside of its permanent range), or it might be an accidental which potentially hitched a ride in someone's vehicle. In Wheaton some individuals of this species were in fresh condition during mid and late September, but mostly worn by early October.

Hylephila phyleus (HESPERIIDAE) (4013): Kenosha County: Visitor's Center on northbound Interstate I94 just over the state line (N 42.52146° W 87.94927°): nectaring on New England Aster (1 male); Ozaukee County: Mequon, nectaring on butterfly bush (1 female).

PALEARCTIC SPECIES

Stigmella multispicata (NEPTICULUDAE) (86.1): Thus far I have only one specimen from the area: Navarino Wildlife Area: sandy oak-pine barrens, MV sheet site 8, 31 May 2023 (1 fresh specimen) (Figure 95.1, page 193).

Hedya salicella (TORTRICIDAE) (2864.1): Thus far I have only one specimen from the area: Mosquito Hill: prairie planting near floodplain forest edge, UV sheet, 5 July 2022. The specimen had been unidentified until recently. MPG (2023) states this species is introduced from Europe, and Wikipedia (2023) reports the larvae feed on willow and poplar.

Paracorsia repandalis (PYRALIDAE) (4992.5): One additional record was obtained in 2023: Mosquito Hill: prairie planting, MV trap site 24, 5 September (1 fresh specimen).

Some Microlepidoptera Species Newly Recorded in Outagamie County During the 2023 Season.

TINEIDAE

Oenoe hydromella (283): Mosquito Hill: mesic hardwood forest along sandstone cliffs near top of hill, UV trap, 18 July (1).

DEPRESSARIDAE

Depressaria cinereocostella (921): Mosquito Hill: upland prairie planting/mesic hardwood forest edge, MV sheet site 6, 9 June (1); Navarino Wildlife Area: sandy oak-pine barrens, MV trap 10, 11 May (1).

OECOPHORIDAE

Mathildana newmanella (1059): Mosquito Hill: 9 June: upland prairie planting/mesic hardwood forest edge, MV sheet site 6 (1); mesic hardwood forest by sandstone cliffs near hill top, UV trap site 28 (1).

TORTRICIDAE

Bactra maiorina (2708): Mosquito Hill: prairie planting near floodplain forest edge, MV sheet, 24 August. This species appears to be associated with wetlands. Other local records are from Navarino Wildlife Area sedge meadows on 23 June. I also have specimens from sedge meadows in Portage and Jackson Counties in central Wisconsin.

Endothenia heinrichi (2733): Mosquito Hill: wet-mesic prairie planting near floodplain forest edge, netted in flight (not flushed) in late afternoon, 9 June (1).

Barbara mappana (2905): Fallen Timbers: white cedar-hardwood swamp, MV trap site 18, 14 April (1 specimen in fresh condition). I also collected one specimen in fair condition at the Navarino Wildlife Area: Pike's Peak Flowage, sedge meadow with bog elements/oak-pine forest edge, UV trap site 18, 11 May. The MPG (2023) distribution map shows records only from the northeast and west coast. This distribution pattern, followed by subsequent records from the Upper Midwest, is consistent with a Palearctic species that first colonizes the coastal areas and then moves its range inland. However, the type locality is British Columbia from 1941, and I am not aware of reports of this species from the Palearctic region.

Notocelia culminana (3211): Fox River Walk: mesic hardwood forest along Fox River, UV trap, 23 August.

Proteoteras moffatiana (3235): Appleton: UV lights on front porch, 1 July 2023 (1). The specimen is tattered, and may represent a stray from the south?

Proteoteras obnigrana (3237): Appleton: UV lights on front porch, 1 July 2023 (1). I wonder if I might have overlooked this species in the past due to similarity with the abundant *Proteoteras aesculana*, although this individual did stand out as being something unusual. It might represent a stray from the south.

PYRALIDAE

Thaumatopsis pexellus (5439): I found five specimens at three localities during early September: Mosquito Hill: prairie planting, MV trap 24, 5 September (2); mesic hardwood forest on steep trail on south side of hill, UV trap, 5 September; Bluemound Drive power line cut: prairie planting/field, UV trap, 4 September; Appleton: UV sheet, 9 September. I am uncertain if this species is an ephemeral migrant, disperser, or recent colonization.

***Eoreuma crawfordi* (5498):** Appleton: UV lights on front porch, 14 July (Figure 117.13, Pages 236-237); Mosquito Hill: prairie planting, MV sheet, 18 July. Prior to these records, all Wisconsin specimens I collected or examined were from prairie remnants in the southern counties. Since the Outagamie County specimens are in fresh condition, it appears that this species has expanded its range northward and is able to colonize prairie plantings. I suspect the Appleton specimen is a short distance disperser from one of the prairie plantings in the area, such as the Bluemound Drive power line cut, Fox Cities Paper Trail, or Prairie Hill Park, but additional survey at these localities is needed to confirm this.

***Telethusia ovalis* (5812):** Mosquito Hill: prairie planting/floodplain forest edge, MV sheet, 18 July.

Some Lepidoptera Species Newly Recorded from the Outagamie County Area During the 2023 Season.

The following species recorded from the Navarino Wildlife Area (southern Shawano County) in 2023 represent new records for the Outagamie County area:

GEOMETRIDAE

***Metarranthis warneri* (6821):** mesic hardwood-pine-hemlock forest near hardwood swamp and open wetlands, UV trap 12, 23 May (1 male). This species is typically found in barrens in central and northern Wisconsin, thus this specimen may represent a disperser from the nearby sandy oak-pine barrens, although as yet I have not found this species there.

***Metarranthis amyrisaria* (6824):** sandy oak-pine barrens, MV sheet site 8, 31 May 2023 (2, Figure 100.6, page 203). This species is typically found in barrens in central and northern Wisconsin, and might be dependent on this habitat.

NOCTUIDAE

***Zanclognatha deceptricalis* (8341.1):** sedge meadow with bog elements in the Pike's Peak Flowage/oak-pine forest edge, UV trap site 18, 26 July (1) (Figure 120.5, page 243).

***Zale near duplicata* (8703.1):** sandy oak-pine barrens, 23 May 2023, bait trail & MV sheet (1 female each, Figures 125.8 & 125.9, page 253). See page 252 for an explanation of this taxon. An additional likely specimen was photographed in oak-pine forest adjacent to the sand barrens on 29 May 2022, but I missed the specimen and cannot be certain of the identification.

***Heliothis subflexus* (11070):** See 2023 records for strays and ephemeral migrants (above).

***Bellura brehmei* (9524):** mesic hardwood-pine-hemlock forest near hardwood swamp and open wetlands, UV trap 12, 31 May (1 male, 1 female) (Figures 128.4 & 128.5, page 259).

HEPIALIDAE

***Sthenopsis thule* (0021):** sandy oak-pine uplands just south of the Pike's Peak Flowage wetlands, MV sheet, 26 July (1) (Figure 110.10, page 223). This is a local and uncommon wetland species. It surely originates from the sedge meadow with bog elements to the south rather than the uplands. I have also found it in calcareous fen habitat around Ottawa Lake in Waukesha County, southeastern Wisconsin.

TINEIDAE

***Scardia anatomella* (311):** mesic hardwood-pine-hemlock forest, UV trap 12, 31 May (1).

GELECHIIDAE

Exotelia pinifoliella (1840): sandy oak-pine barrens: MV sheet site 8, 31 May (1); UV trap 10, 26 July (1).

TORTRICIDAE:

Rhyacionia species: sandy oak-pine barrens, MV sheet site 8, 31 May (1 fresh specimen). The closest match I have found is the western species *Rhyacionia salmonicolor*, although it is clearly not this species.

Pelochrista pallidipalana (3153): sandy oak-pine barrens, UV trap site 10, 26 July (1).

Rhopobota dietziana (3277): mesic hardwood-pine-hemlock forest, UV trap 12, 23 May (1).

Ancylis comptana (3374): sandy oak-pine barrens, MV trap site 10, 11 May (1).

Neocochyliis dubitana (3774): sandy oak-pine barrens, MV sheet site 8, 31 May (1 fresh specimen).

PYRALIDAE

Eoparargyractis plevie (4787): MV sheet, sandy oak-pine barrens, 23 June (1). This specimen must be a disperser from one of the wetlands in the vicinity, as all members of this subfamily (Nymphulinae) have aquatic larvae.

Pediasia abnaki (5416): sedge meadow with bog elements in the Pike's Peak Flowage/oak-pine forest edge, UV trap site 18, 23 June (2). My other Wisconsin specimens are from prairie/wetland complexes in southeastern Wisconsin, including the Scuppernong Prairie State Natural Area in Waukesha County.

Acrobasis vaccinii (5653): sedge meadow with bog elements in the Pike's Peak Flowage/oak-pine forest edge, UV trap site 18, 23 June (1). Larvae of this species are reported on various species of *Vaccinium*, and both blueberries and cranberries occur near the collection site.
