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MOTHS OF THE DOUGLAS LAKE REGION  
(EMMET AND CHEBOYGAN COUNTIES), MICHIGAN:  
V. CRAMBIDAE AND PYRALIDAE (LEPIDOPTERA)<sup>1</sup>

Brian Scholtens<sup>2</sup>

ABSTRACT

187 species of Pyraloidea from Emmet and Cheboygan Counties in Michigan are documented, providing the first extensive list of any microlepidopteran group for any part of the state. This list complements those of the well studied macrolepidoptera of the region, and provides a starting point for examining the remainder of the microlepidopteran fauna.

Over a period of many years our knowledge of the Lepidopteran fauna of the region around the University of Michigan Biological Station (UMBS) has expanded due to the efforts of many researchers (Welch 1915, Voss 1954, Voss and Wagner 1956). Most recently Voss (1970, 1981, 1984, 1991) has published a series of papers listing the macro-moths of the region (defined as Emmet and Cheboygan Cos.). Voss (1984) provided an excellent, concise description of the Douglas Lake region.

Unlike the well documented macrolepidopteran fauna, only two short lists for the region include microlepidopterans. Welch's 1915 list included 27 pyraloids and Moore (1922) published a list of northern Michigan lepidoptera which included 4 species of pyraloids from Emmet and Cheboygan Counties. Several very large families of microlepidoptera (a significant component of the total fauna) have not been covered. Listed here are the Crambidae and Pyralidae known from the Douglas Lake region, numbering 187 species, and bringing the total number of lepidopteran species documented from the area to 937 (including all earlier compilations, additions to these families and the current list). This is a 492% increase from Welch's (1915) first listing of 158 species and a 102% increase from the lists of Moore (1955, 1960). The number of pyraloids from the Douglas Lake region represents approximately 58% of the total number known from the state (Scholtens unpub. data), and the total known fauna of the region (still minus several large microlepidopteran families) now represents 48% of the total known from the state (not including families not yet listed for the Douglas Lake region)(Nielsen unpub. data). Approximately 20% of the lepidopteran species documented from the Douglas Lake region are pyraloids.

The pyraloids are an appropriate starting point for an inventory of the microlepidoptera of the region, because among the entomologists at the station during its first 50 years were several who described the biology of some

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aquatic crambids, primarily in the subfamily Nymphulinae (Berg 1949, 1950; Frohne 1938, 1939a,b; McGaha 1952, 1954; Welch 1916, 1919, 1922, 1924; Welch and Sehon 1928). Since that time little, if any, work has been done on the pyraloids of the region. The Pyraloidea also contain several species that have a significant economic impact on a wide variety of important products. Included in the group are the European corn borer (*Ostrinia nubilalis*) the sodwebworms (turfgrass and crop pests, subfamily Crambinae), pests of forest and fruit trees (*Dioryctria* and *Euzophera semifuneralis*), some of the most important stored product pests (*Plodia* and *Ephestia*), as well as many other species that are at least occasional pests (Holloway et al. 1987 and refs. therein, Zhang 1994).

Although most pyraloids can be easily recognized by wing pattern, until recently, very few illustrations of these moths had been published, making identification of specimens a challenge. Forbes (1923) provides useful, but now somewhat outdated keys. A start to making pyraloid identification easier was the publication of several fascicles of the Moths of America North of Mexico by Munroe. These cover the Scopariinae, Nymphulinae, Odontiinae, Glaphyriinae, Evergestinae (1972-3) and Pyraustinae through the genus *Pyrausta* (1976), providing not only useful keys, but also color figures of each species. For the Crambinae, Landry (1995) is an excellent source of identification, life history, and literature information and illustrations, but older papers by Klots (1940, 1942, 1968, 1970) are also useful for various species. Photos of confirmed specimens provided by George Balogh, along with several dissections done by him were extremely helpful. Identification of most Phycitinae by genitalic characters is possible using Heinrich (1956), and he also provides keys. Neunzig (1986, 1990, in press) has now treated several genera of this subfamily in 3 fascicles of the Moths of America North of Mexico, including the difficult *Acrobasis*. Some of our species are also figured in Covell (1984), Holland (1968) and Kimball (1965). Shaffer (1968) treated the species of Peoriini. I have reared only a few of the species; thus host plant information originates from the previously mentioned sources and work by Allyson (1976, 1977, 1981, 1984), unless otherwise noted.

## METHODS

The listing follows the Hodges (1983) numbering sequence, with species recognized subsequent to that list inserted as tenths in the sequence. The classification scheme follows that of Munroe, as presented in the Hodges (1983) checklist, with multiple changes in the Crambinae (Landry 1995) and Epipaschiinae (Solis 1992, 1993), along with several generic and subfamilial realignments as adopted in Heppner (1995). These two families have long been considered two major clades of the single family, Pyralidae, but they are now generally considered distinct families (e.g. Minet 1981, Solis and Mitter 1992, Solis 1993). Munroe, in his notes on the Pyraloidea in Heppner (1995), provides an excellent discussion of the reasons supporting such a split.

The conventions previously established in the Voss lists are followed here, but because there are so few published regional records for microlepidoptera, all records are based on specimens examined by the author. The counties in which each species has been collected are listed, and an indication of abundance is sometimes given, based on collection frequency and the author's experience. These abundance estimates must be interpreted cautiously. Relatively little collecting of microlepidoptera has been done, and only recently have some of the species been found to be common or abundant at appropriate times in specific habitats. Other little known, or apparently

rare species may be equally common in other habitats, or at other times of the year. Also included are the extreme flight dates and notes on habitats and host plants. Flight dates are no doubt somewhat influenced by my typical collecting season at the Biological Station, which runs from mid-June to mid-August, however, reasonable samples are available from myself and other collectors for earlier and later dates.

Records were gathered by examining all determined and undetermined material in the collections of the University of Michigan Biological Station, the University of Michigan Museum of Zoology (UMMZ), and Michigan State University (MSU). The private collections of Edward Voss and George Balogh were also examined. My collecting in the UMBS region over the last 13 years has provided the largest number of records. Most of my specimens were collected at ultraviolet light sheets or traps, but several species, particularly those in the Crambinae have been mainly netted during the day. All my specimens are now in my collection at the College of Charleston. All records are entered in a Filemaker Pro 3.0 database (Claris Corporation 1996) from which flight dates, collecting localities, collectors, and rearing information can be retrieved. Of the listed species, the author's collection contains 88% from our region, the Voss collection 46%, and the UMMZ 32%, with smaller percentages in the other collections.

## FAMILY CRAMBIDAE

### SUBFAMILY SCOPARIINAE

- 4716 *Scoparia biplagiatis* Wlk. —Cheboygan, Emmet: 18 June–8 Sept. Our most abundant member of the subfamily. Members of this genus and the next can be difficult to distinguish superficially, but are easily identified by genitalic dissection and reference to Munroe (1972–73).
- 4717 *Scoparia penumbralis* Dyar—Cheboygan, Emmet: 16 June–11 July. A drab, brown species of which there are few specimens, but which is common in cedar swamps during the flight period. Taken both during the day and at light at night.
- 4719 *Scoparia basalis* Wlk.—Cheboygan: 30 June–14 Aug. Only 3 specimens of this species are known, but because it is so similar to other species, it may be easily overlooked.
- 4737 *Eudonia lugubralis* (Wlk.)—Cheboygan: 14–23 June. A northern species unknown from the region until 1993. Since that time I have taken several specimens.
- 4738 *Eudonia strigalis* (Dyar)—Cheboygan: 30 June–9 Aug. The most striking member of the subfamily with distinct black markings on nearly white wings.
- 4739 *Eudonia heterosalis* (McD.)—Cheboygan: 13 July–15 Aug. This species and *S. biplagiatis* and *S. basalis* are the most difficult of the subfamily to distinguish in our area. Although most specimens can be placed reliably, confirmed identifications have been made by genitalic dissection.

### SUBFAMILY NYMPHULINAE

- 4747 *Nymphula ekthlipsis* (Grt.)—Cheboygan, Emmet: 16 June–4 Aug. Common to abundant in areas with standing water and waterlilies. This species, along with *M. icciusalis* and *P. allionealis*, form a trio of abundant aquatic species that are often seen flying together. All are easily kicked up while walking through appropriate habitat during the day, or can be taken at light. All the

- species in this subfamily are easily distinguished by reference to the figures in Munroe (1972-73).
- 4748 *Munroessa icciusalis* (Wlk.)—Cheboygan, Emmet: 14 June-6 Aug. As with *N. ekthlipsis*, very common in areas of standing water with emergent vegetation. According to Welch (1916) it feeds primarily on *Potamogeton natans* (pondweed), but it has been found on *Brasenia schreberi* (water-shield) and *Vallisneria americana* (tape-grass)(McGaha 1954).
- 4751 *Munroessa gyralis* (Hulst.)—Cheboygan: 18 July-26 Aug. This species was studied in some detail by McGaha (1954) and found to feed on *Nymphaea* (water-lily).
- 4755 *Synclita oblitalis* (Wlk.)—Cheboygan: 22 June-7 Aug.
- 4759 *Parapoynx maculalis* (Clem.)—Cheboygan: 17 June-22 Aug. Studied by Welch (1916), this species feeds on the yellow pond-lily (*Nuphar variegata*).
- 4760 *Parapoynx obscuralis* (Grt.)—Cheboygan: 20 June-6 Aug. Only 3 specimens are known. Berg (1950) found it feeding on *Potamogeton* spp. and *Nuphar advena*, (presumably from Washtenaw County in the southern part of the state) while McGaha (1954) reported it feeding on *Vallisneria americana*, although eggs were laid on *Potamogeton natans*.
- 4761 *Parapoynx badiusalis* (Wlk.)—Cheboygan, Emmet: 17 June-26 Aug. According to the work of Berg (1950) and McGaha (1954), the larvae feed primarily on *Potamogeton*.
- 4764 *Parapoynx allionealis* Wlk.—Cheboygan, Emmet: 16 June-9 Aug. A very abundant moth. It has been reared from *Potamogeton natans* (Berg 1950) and *Nymphaea odorata* (McGaha 1954) in our area.
- 4774 *Petrophila bifascialis* (Rob.)—Cheboygan: 15 July 1994. A single specimen taken in Reese's swamp near a small stream.
- 4779 *Petrophila canadensis* (Mun.)—Cheboygan: 18 June-9 Aug. This and the previous species are our only aquatic species associated with rivers and streams. This species is taken commonly, even a fair distance from flowing water. I have larvae that are presumably this species taken by Valerie Talsma from the Black River.
- 5299 *Acentria ephemerella* (D. & S.)—Cheboygan: 4 Aug 1990. Although only a single individual is known from our region, this European species is no doubt more common in the area. It is now known from Mackinac Co. just north of the Straits of Mackinaw and from Otsego Co. just to the south of our area. It was first recorded from North America in 1927, and has been spreading rapidly since then (Scholtens and Balogh 1996). Passoa (1988) showed that it is correctly placed in the Nymphulinae even though the checklist number indicates a placement in the Schoenobiinae. The larvae are aquatic and feed on Eurasian watermilfoil (*Myriophyllum*) as well as other aquatic plants, and they have been suggested as a possible biological control of this aquatic weed.

## SUBFAMILY ODONTINAE

- 4789 *Metrea ostreonalis* Grt.—Cheboygan: 6 July 1952. Voss took a single specimen of this species from UMBS at light. It is apparently rare throughout the state.
- 4796 *Microtheoris ophionalis* (Wlk.)—Cheboygan, Emmet: 6 July-15 Aug. This small moth is probably much more common, both in our region and statewide, than the sparse collection records would indicate. I have seen it very commonly at UV light and Voss took it at both gasoline lantern and incandescent light.

## SUBFAMILY GLAPHYRIINAE

- 4870 *Glaphyria sequistrialis* Hbn.—Emmet: 2 July 1991. I took a single specimen of this species in aspen woods east of Pellston. It is common in the southern part of the state.
- 4877 *Aethiophysa lentifualis* (Zell.)—Cheboygan, Emmet: 22 July–7 Aug. Statewide, collection records would indicate that this species is uncommon, but I see it regularly at UV light at UMBS.
- 4879 *Xanthophysa psychialis* (Hulst)—Cheboygan, Emmet: 2 July–5 Aug. This and the preceding 2 species are very similar in color pattern and size. This species is the only one of the 3 with metallic AM and PM lines on the forewing.
- [4888] *Lipocosmodes fuliginosalis* (Fern.)—Welch (1915) listed this species from our region, but I have not located a specimen to verify this.
- 4889 *Dicymolomia julianalis* (Wlk.)—Cheboygan: 17 June–8 July. Taken only on the dunes at Grass Bay Nature Preserve (GBNP) on Lake Huron, it is known to feed on the seed heads of cat-tail (*Typha*), other plant species and egg cases of psychid moths.

## SUBFAMILY EVERGESTINAE

- 4897 *Evergestis pallidata* (Hufn.)—Cheboygan, Emmet: 20 June–25 Aug. Occasionally a pest on crucifers, this species seems to be much more common in the late summer than in the spring brood.
- 4901 *Evergestis unimacula* (G. & R.)—Cheboygan, Emmet: 14 June–9 July. Apparently not a common moth in the region.

## SUBFAMILY PYRAUSTINAE

- 4935 *Saucrobotys fumoferalis* (Hulst)—Cheboygan, Emmet: 18 June–18 July.
- 4936 *Saucrobotys futilalis* (Led.)—Cheboygan, Emmet: 14 June–18 July. Larvae of this species are easily located, feeding gregariously in webs on dogbane (*Apocynum*).
- 4937 *Nascia acutella* (Wlk.)—Cheboygan: 1–27 July. This species is apparently much more common in the southern part of the state, although there are records well into the Upper Peninsula. I have taken it only along the shore of Lake Huron at GBNP.
- 4944 *Crocidophora seratissimalis* Zell.—Cheboygan: 4 July 1936. A single specimen taken by Peet at Burt Lake.
- 4949 *Ostrinia nubilalis* (Hbn.)—Cheboygan, Emmet: 30 May–27 Aug. This species, the European corn borer, causes tremendous damage to corn crops annually. It is common, even in our region where corn fields are not.
- 4950 *Fumibotys fumalis* (Gn.)—Cheboygan, Emmet: 17 July–26 Aug. The larvae feed in the rhizomes of mints and are sometimes a pest on peppermint (*Mentha piperita*)(Allyson 1981).
- 4951 *Perispasta caeculalis* Zell.—Emmet: 7 July 1993. I have 2 specimens of this species, which is common farther south, taken at UV light along the east branch of the Maple River.
- 4952 *Eurrhynpara hortulata* (L.)—Cheboygan: 25 June–17 July. This European introduction is strikingly marked with black on a white background. First collected in 1989, it is not widespread in the state, but it is evidently established around UMBS. The larvae are known to feed on a variety of plants in Europe (Munroe 1976).

- 4953a *Phlyctaenia coronata tertialis* (Gn.)—Cheboygan, Emmet: 1–24 July. The larvae web leaves on shrubs, particularly elder (*Sambucus* spp.) (Allyson 1981).
- 5262 *Phlyctaenia* (= *Framinghamia*) *helvalis* (Wlk.)—Cheboygan, Emmet: 13 June–31 July. The genus *Framinghamia* was recently synonymized with *Phlyctaenia* (Maes 1994), and I have chosen to place the species here rather than in checklist order. It is often confused with the less common *Nealgedonia extricalis*. The two can most easily be told apart by the shape of the post-median band on the forewing. Just distal to the cell the band juts out distally. On *N. extricalis* this portion of the PM band has 4 distinct teeth and on *P. helvalis* it generally has only 3 distinct teeth (a 4th is present toward the costa, but doesn't project as far distally as the others). The larva is a leafroller on poplar (*Populus* spp.) (Allyson 1984).
- 4956 *Nealgedonia extricalis* (Gn.)—Emmet: 3–7 July. Allyson (1981) described the larvae as solitary leafrollers on alder (*Alnus* spp.), balsam poplar (*Populus balsamifera*) and white birch (*Betula papyrifera*).
- 4957 *Mutuuraia mysippusalis* (Wlk.)—Cheboygan: 18–30 June. This moth has been taken only a few times throughout the state, but I find it with some regularity at UMBS.
- 4958a *Anania funebris glomeralis* (Wlk.)—Cheboygan, Emmet: 16 June–4 July (18 Aug). This moth can be seen flying during the day around stands of golden-rod (*Solidago*), its larval host plant. I have also taken it at UV light at night.
- 4987 *Sitochroa chortalis* (Grt.)—Cheboygan, Emmet: 15 June–18 July. This species is known from open areas, including specialized calcareous fens and alvar habitats in the Upper Peninsula. Allyson (1976, 1977) described the larva from pigweed (*Amaranthus retroflexus*).
- 4992 *Uresiphita reversalis* (Gn.)—Cheboygan: 7 July 1952. This species, taken only once by Voss, is most likely an occasional migrant from the southern United States. Balogh has one specimen from Leelanau Co., just to our south. The larvae feed on various legumes and are gregarious and aposematic (Bernays and Montllor 1989), while the adults are apparently palatable and without sequestered chemicals (Leen 1995).
- 5004 *Loxostege sticticalis* (L.)—Cheboygan, Emmet: 26 June–18 Aug. This is apparently the most common of the three *Loxostege* species in the area. The larvae feed on many different plants and are occasional defoliators of sugar beets, alfalfa, and vegetable crops (Allyson 1981).
- 5016 *Loxostege commixtalis* (Wlk.)—Cheboygan: 22 June 1995. I have taken this species only once on the dunes at GBNP. It is a northern species found in the bogs of the Upper Peninsula. Welch (1915) listed *commixtalis*, but Munroe (1976) showed that this name had been misapplied to the next species, *L. cereralis*.
- 5017 *Loxostege cereralis* (Zell.)—Cheboygan, Emmet: 27 May–26 Aug. This species was long misidentified as *L. commixtalis*. Munroe (1976) showed that the true *commixtalis* was the northern species described above. The larvae of this species feed on a similar array of plants to *L. sticticalis* (Allyson 1981).
- 5032 *Pyrausta nicalis* (Grt.)—Cheboygan: 25 June 1990. Only taken once in the region, this species has been collected only a few times in the state.
- 5034 *Pyrausta signatalis* (Wlk.)—Cheboygan, Emmet: 7 July–9 Aug. Although only 4 specimens of this species are known from the region (all taken at light), it is widespread and common over most of the state.
- 5058 *Pyrausta orphisalis* Wlk.—Cheboygan, Emmet: 30 May–13 Aug. This double-brooded moth flies during the day and at night. I have observed oviposition on the flowers of beebalm (*Monarda fistulosa*) at the jack pine plains south of Indian River, and Balogh has reared the species from this same genus of mint. Campbell and Pike (1984) state that it feeds on all commercial mints (*Mentha*) in Washington.

- 5060a *Pyrausta inaequalis* (Gn.)—Cheboygan: 23 June 1934. This species has been taken only once in the region, and rarely in the state. Munroe (in Heppner 1995) synonymized *subaequalis* with this name, which was given priority.
- 5068 *Pyrausta unifascialis subolivialis* (Pack.)—Emmet: 4 July 1996. A single individual was taken flying during the day in an old field west of Pellston. Allyson (1981) described the larva from pussytoes (*Antennaria* spp.).
- 5071 *Pyrausta acronialis* (Wlk.)—Cheboygan: 27 May 1990. Taken only once in the area by Balogh, this species is common to abundant in other parts of the state.
- 5075 *Pyrausta socialis* (Grt.)—Cheboygan, Emmet: 4–28 July. This widespread species is very similar to *P. fodinalis*, a northern species that occurs in Upper Peninsula bogs. The latter species has never been taken the the Lower Peninsula, but there are records from Mackinac County just across the straits.
- 5079 *Udea rubigalis* (Gn.)—Cheboygan, Emmet: 14 June–22 July. One of our commonest pyraloid moths, it can be taken both at light and during the day when flying through low weeds. The larva, known as the celery leaf-tier, feeds on a wide variety of herbaceous plants and can be a major pest of several vegetable crops (Allyson 1984).
- 5117 *Loxostegeopsis merrickalis* (B. & McD.)—Cheboygan: 16 July 1931. Two specimens are in the collection at MSU.
- 5156 *Nomophila nearctica* Mun.—Cheboygan, Emmet: 12 June–24 Aug. An occasional pest on turf grass and forage plants, this moth is ubiquitous in the region and the state.
- 5159 *Desmia funeralis* (Hbn.)—Cheboygan: 18 June–2 Aug. This species and the next are easily confused and have been variously considered 1 or 2 species. Once a series is examined consistent differences can be noted. These include overall size, with *funeralis* the larger of the two (this only holds when comparing the same sex), and the extent of the white spotting on the wings, with *funeralis* having relatively larger spots (there is a great deal of variation in this character, however). An additional character that I have used is the white banding pattern on the underside of the abdomen. On *maculalis*, the white scaling is usually interrupted by two black bands on the 3rd and 5th abdominal segments, whereas on *funeralis* the white scaling is generally continuous or broken only once by a black stripe on the 5th segment. This character also shows some variation especially in the southern parts of the range. Both are recorded as feeding on grapes (*Vitis*) as larvae, but there may be some segregation by food plant because records also exist for evening primrose (*Oenothera*)(Forbes 1923), *Gaura* (Balogh pers. comm.), and redbud (*Cercis*)(Forbes 1923). In our region *funeralis* is apparently the more common of the two.
- 5160 *Desmia maculalis* Westwood—Cheboygan: 30 May–9 July.
- 5169 *Hymenia perspectalis* (Hbn.)—Emmet: 6 July 1946. Taken only once by Voss at light at Mackinaw City, this and the next species are abundant southern species that occasionally migrate north.
- 5170 *Spoladea recurvalis* (F.)—Cheboygan: 24 Oct 1975. 2 specimens taken by Nielsen at Grass Bay. Known as the Hawaiian beet webworm, the larva occasionally defoliates beet crops (Allyson 1984).
- 5174 *Diathrausta reconditalis* (Wlk.)—Cheboygan, Emmet: 1 July–21 Aug. The related southern species (*D. harlequinialis*) feeds as a larva on *Selaginella* (spike-moss)(Habeck et al. 1995). Both this pteridophyte genus and the related *Lycopodium* (club-moss) occur in our region, making these likely hosts.
- 5176 *Anageshna primordialis* (Dyar)—Cheboygan, Emmet: 16 June–8 July. Although it occurs in other habitats, it is most abundant in cedar swamps, where it has been implicated (along with mosquitoes) in the pollination of the blunt-leaf orchid, *Platanthera obtusata* (Voss and Riefner 1983).



- 5222 *Palpita arsaltealis* (Wlk.)—Cheboygan, Emmet: 27 May–7 Aug. Both species of *Palpita* have complex and variable mottled patterns of black or brown on a lighter background. Because of this they have often been confused. The background color of *arsaltealis* is typically brown-gray, much darker than the nearly white background of *magniferalis*. *P. magniferalis*, on average, also has a much larger and pronounced discal spot on the forewing. Both were treated in Munroe (1952) which also gives good genitalic characters.
- 5226 *Palpita magniferalis* (Wlk.)—Cheboygan, Emmet: 13 June–11 July. This species feeds on ash (*Fraxinus* spp.) (Allyson 1984).
- 5241 *Pantographa limata* (G. & R.)—Cheboygan, Emmet: 14 June–28 July. This is the largest of our pyraloids, with a wingspan well over an inch. As a larva it rolls the leaves of basswood (*Tilia*).
- 5250 *Lygropia rivulalis* Hamp.—Cheboygan: 27 June–20 July. This species is apparently much more common in the southern part of the state.
- 5255 *Diastictis ventralis* (G. & R.)—Cheboygan: 14 June–7 Aug. Not taken commonly in the state or our region. I have taken only two specimens, and Voss only one, all at light.
- 5276 *Herpetogramma abdominalis* (Zell.)—Cheboygan, Emmet: 18 June–14 Aug. This species and the next are members of a group of taxonomically very difficult species in the genus *Herpetogramma*. Apparently only these two occur in the northern part of the state, but probably two others occur further south. This confusion evidently led to Welch's (1915) listing of *H. pertextalis*. The pattern of spots and lines is nearly identical in these species, with *abdominalis* averaging lighter and *thestealis* darker, especially along the outer margin of the wings. Complicating matters is the sexual dimorphism of the species (females are lighter than males). Both are common species. Several of the food plant records for *H. pertextalis* in Allyson (1984) may well apply to one or both of these species.
- 5277 *Herpetogramma thestealis* (Wlk.)—Cheboygan, Emmet: 3 July–5 Aug.
- 5280 *Herpetogramma aeglealis* (Wlk.)—Cheboygan: 11 July–7 Aug. The most distinctive of our *Herpetogrammas*, although still often confused with the other two. The background color of this species is grayer and the spots and lines less pronounced.
- 5281 *Pilocrocis ramentalis* Led.—Cheboygan: 27 Aug 1989. Another immigrant from the south. I took one specimen at UV light at UMBS. The only other state records are from Washtenaw Co. (UMMZ) and Allegan Co (GJB).

## SUBFAMILY SCHOENOBIINAE

- 5307 *Carectocultus perstrialis* (Hbn.)—Cheboygan: 22 June–4 Aug. I have taken this and the next species both during the day and at UV light at GBNP, where they are associated with the interdunal wetlands. *C. perstrialis* has a white longitudinal stripe on the forewing, while *repugnatalis* has a plain, dark brown forewing. Both are transferred from the genus *Scirpophaga* (Munroe in Heppner 1995).
- 5308 *Carectocultus repugnatalis* (Wlk.)—Cheboygan: 5–18 July.
- 5316 *Donacaula melinella* (Clem.)—Cheboygan, Emmet: 17 June–14 Aug. This is apparently the more common and widespread of our two *Donacaula* species. It is generally darker in coloring, but the actual pattern on the forewing varies a great deal. It can be nearly plain light brown, have a darker longitudinal stripe, or have a distinct light stripe along the costal margin. These forms have all received names, but they all occur together where this species flies, and the genitalia are identical. The females have a distinctly pointed forewing tip which the males lack. Frohne (1939b) found that this species feeds on *Eleocharis smallii* (spike-rush) in Douglas Lake, Lancaster Lake and Black

Lake, all in Cheboygan County. Welch (1915) reported *Donacaula tripunctella* questionably from the region, but I have not found specimens of this species for any location in Michigan, and his were no doubt misidentified.

- 5319 *Donacaula longirostrella* (Clem.)—Cheboygan: 18 June–7 Aug. A generally lighter colored species, marked similarly to the form of *melinella* with a dark, longitudinal stripe on the forewing. Females of this species do not have the distinctly pointed forewing tip. The male genitalia of these two species are distinctive and can be seen by brushing the tip of the abdomen (Forbes 1923).

### SUBFAMILY CRAMBINAE

- 5333 *Prionapteryx nebulifera* Steph.—Cheboygan, Emmet: 4–25 July. This distinctive looking species flies in sandy areas including inland jack pine plains and on the lakeshore dunes. Balogh has reared this species from sand cherry (*Prunus pumila*), on which it forms sand tubes leading from the substrate to the leaves of the plant. Daecke (1905) described this species making sand tubes on huckleberry and sand myrtle in New Jersey. Larvae retreat into the tube when not feeding. This, and related species used to be placed in the subfamily Ancyloleptinae, but are now referred to the Crambinae (Landry 1995).
- 5339a *Crambus pascuellus floridus* Zell.—Cheboygan, Emmet: 16 June–16 Jul (15 Aug). The genus *Crambus* is one of the most diverse in our fauna. Although several species are occasional turf grass pests and can be found in many weedy areas, the highest diversity of species seems to be along the Great Lakes shoreline in the interdunal wetlands. At GBNP, where the largest population of *pascuellus floridus* is known, 12 different species of *Crambus* have been recorded in the interdunal wetlands. The most abundant species are divided into three distinct flight periods, early summer, mid-summer and late summer. There is also evidence that within these flight periods, the co-occurring species fly during primarily different times of day (Scholtens et al. unpubl. data). Few data are available on what hosts are used in their native habitat, and larvae have not been located at Grass Bay. Our sampling during 1995 indicates that even though the species are most active from dusk till dawn, UV lights are much less efficient at sampling the species than hand netting during the day.
- 5340 *Crambus hamellus* (Thunb.)—Emmet: 18 Aug. 1990. Taken at UV light at Wilderness State Park by Balogh. Statewide it is known from only a few localities, all in dry, sandy habitats similar to those known in Great Britain (Goater 1986) and the rest of Europe (Bleszynski 1957).
- 5341a *Crambus alienellus labradoriensis* Christoph.—Cheboygan: 11 July 1992. I took this species, usually thought of as a denizen of Upper Peninsula bogs and fens, once at UV light in Reese's swamp.
- 5342 *Crambus bidens* Zell.—Cheboygan, Emmet: 2 July–11 Aug. Although found in other wetland situations, such as interdunal wetlands, this species is most abundant in true *Sphagnum* bogs.
- 5343a *Crambus perlentellus innotatellus* Wlk.—Cheboygan, Emmet: 26 June–20 Aug. One of the weedy *Crambus* species in northern Michigan, it is found in specialized wetland areas as well as old fields.
- 5344 *Crambus unistriatellus* Pack.—Cheboygan, Emmet: 22 June–19 Aug. Apparently restricted to areas of wetland, it is common along the northern Great Lakes shore.
- 5354 *Crambus ainliellus* Klots.—Cheboygan: 4–7 Sept. One of the latest flying pyraloids. It is most easily confused with *C. leachellus*, but differs from this species in having grayish, rather than white hindwings. Klots (1942) illustrates the genitalia, which are distinctive. Balogh (pers. comm.) has found this species associated with dry, sandy habitats south and west of our area.

- 5355 *Crambus praefectellus* (Zinck).—Cheboygan, Emmet: 16 June–30 July. This species is an occasional turf grass pest (Ainslie 1923b), but also occurs in interdunal wetlands as one of the main elements of the *Crambus* fauna. It is sometimes confused with *C. leachellus*, but in *leachellus* the longitudinal silver stripe on the forewing touches the costal margin at the base of the wing, whereas it does not in *praefectellus*. The flight times are also virtually non-overlapping.
- 5357 *Crambus leachellus* (Zinck).—Cheboygan, Emmet: 30 July–30 Sept. Probably the most common late season weedy species.
- 5361 *Crambus albellus* Clem.—Cheboygan, Emmet: 22 June–6 Aug. This small *Crambus* is very abundant in bogs, but is also found consistently in other areas. This species is evidently one of the few that is most active during daylight hours (Scholtens unpubl. data).
- 5362 *Crambus agitatellus* Clem.—Cheboygan, Emmet: 6–31 July. Most similar to *C. saltuellus*, the silver stripe in this species is not divided lengthwise and the wings are shorter relative to their width than in *saltuellus*.
- 5363 *Crambus saltuellus* Zell.—Cheboygan, Emmet: 14 June–6 Aug. One of the most abundant early to mid-summer *Crambus*, it occurs in many different habitats.
- 5365 *Crambus girardellus* Clem.—Cheboygan, Emmet: 7–23 July. We know little about the habitats or biology of this rarely taken species. I have taken it once at UV light along the east branch of the Maple River and Michelle Halloran caught one specimen at GBNP.
- 5366 *Crambus watsonellus* Klots.—Cheboygan, Emmet: 5–21 Aug. The most abundant late summer species in the interdunal wetlands, it is not known from our area in any other habitat. It resembles *C. leachellus*, but at the distal end of the silver stripe there is a separate, elongate-oval, satellite silver spot toward the costal margin of the wing. In *leachellus* there is a silver streak in this position, usually connected with the main silver stripe.
- 5378 *Crambus laqueatellus* Clem.—Cheboygan, Emmet: 13–22 June. An early flying species, it has been taken sporadically, mainly on the dunes of the Great Lakes shore. Ainslie (1922) reared this species on moss (*Thuidium*) and found that although it will feed on grasses in later instars, mosses are needed in at least early instars.
- 5379 *Neodactria luteolella* Clem.—Cheboygan, Emmet: 13 June–4 Aug. This and the next two species were long placed in *Crambus*, but following the manuscript name of Klots, Landry (1995) has removed them to the new genus *Neodactria*. All three are closely related and there is some question as to the status of the individual species. Because no taxonomic decision has yet been made the three are here considered separately, because of their relatively distinct colorations. *N. luteolella* is yellowish on the forewing, *caliginosella* is darker brown, and *zeella* is light yellow to cream, usually with a pair of distinct vertical lines across the forewing. *N. luteolella* and *caliginosella* are common and *zeella* is uncommon.
- 5380 *Neodactria zeella* Fern.—Cheboygan, Emmet: 22–24 June.
- 5381 *Neodactria caliginosella* Clem.—Cheboygan, Emmet: 18 June–14 Aug.
- 5391 *Chrysoteuchia topiaria* (Zell.)—Cheboygan, Emmet: 30 May–6 Aug. An extremely common weedy species known as the cranberry girdler because of the damage sometimes done to cranberry crops. It actually has a very wide range of host plants.
- 5392 *Arequipa turbatella* Wlk.—Cheboygan: 30 June–16 July. Not generally considered a common moth, but I have found it in some numbers at two localities in Cheboygan County. One on UMBS property runs along an oil pipeline as it passes through a cedar swamp, and the other is a wet, sedge-dominated roadside in the southern part of the county.

- 5393 *Raphiptera argillaceella* (Pack.)—Cheboygan, Emmet: 30 June–5 Aug. This small species is very common in *Sphagnum* bogs and other sedgy wetlands, and is taken occasionally elsewhere.
- 5399 *Agriphila ruricolella* (Zell.)—Cheboygan, Emmet: 4–19 Aug. This species and the next are both common species of weedy areas.
- 5403 *Agriphila vulgivagella* (Clem.)—Cheboygan, Emmet: 7 Aug–9 Sept.
- 5408 *Catoptria latiradiella* (Wlk.)—Cheboygan, Emmet: 31 July–18 Aug. An uncommon species throughout the state. Balogh has seen it most commonly at moist sandy sites. Several of its European congeners are known to feed on mosses (Goater 1986).
- 5413 *Pediasia trisecta* (Wlk.)—Cheboygan, Emmet: 18 June–26 Sept. Known as the sodwebworm because of damage done to turfgrass, this species is very common throughout the state. The life history was first described by Ainslie (1927).
- 5419 *Microcrambus biguttellus* (Fbs.)—Cheboygan: 16–22 July. This species is very similar in appearance to *Crambus albellus*. It differs in having two distinct black spots along the anterior median band of the forewing. According to rearing records from specimens in the UMMZ, this species feeds on mosses. Klots (1968) revised the species of this genus in North America.
- 5420 *Microcrambus elegans* (Clem.)—Cheboygan, Emmet: 30 June–10 Aug. A very common species that feeds on many different plants as a larva.
- 5429 *Loxocrambus awemensis* McD.—Cheboygan: 29 July 1995. I have taken this species only once at UV light at GBNP. Balogh reports that J.F. Landry and B. Landry took it also at Wilderness St. Pk. It is common on the dunes of both peninsulas. Balogh reared a specimen from a pupa in a sand tube near dune grasses at Saugatuck dunes.
- 5435 *Fissicrambus mutabilis* (Clem.)—Cheboygan, Emmet: 5–7 July. A reasonably common moth in the southern part of the state, it is apparently rare this far north. I have taken a single specimen by the east branch of the Maple River and another at GBNP. The life history of this species was first described by Ainslie (1923a).
- 5439 *Thaumatoopsis pexella* (Zell.)—Cheboygan, Emmet: 14 Aug–11 Sept. Our most common species in the genus, it can be abundant at UV light at UMBS during late August.
- 5447 *Thaumatoopsis pectinifer* (Zell.)—Cheboygan: 18 July–14 Aug. This species and the next are difficult to tell apart and are best identified by dissection of the genitalia. Balogh (pers. comm.) indicates that in *pectinifer* the forewing is lighter brown than the hindwing and the subterminal line is apparent, whereas in *solutella* the forewing and hindwing are similar in color and the subterminal line is weak or absent. The separation of flight times is also a good clue to their identities.
- 5449 *Thaumatoopsis solutella* (Zell.)—Cheboygan: 4 Aug–8 Sept.
- 5464 *Urola nivalis* (Drury)—Cheboygan: 27 July 1990. This striking white species was captured one time at UV light at UMBS. It is common in the southern part of the state.
- 5465 *Argyria auratella* (Clem.)—Cheboygan, Emmet: 2–24 July. This species can be common in *Sphagnum* bogs, but is rare outside of these habitats. I have also taken in it association with marl pools in Presque Isle County. Munroe (in Heppner 1995) moved this species to *Argyria* from its previous placement in *Vaxi*.
- 5473 *Thopetis forbesellus* (Fern.)—Cheboygan: 1 July–18 Aug. This species was intensively studied by Frohne (1939a). He found that mating and oviposition took place at dusk over stands of bulrush (*Scirpus acutus*, *S. americanus*, *S. validus*). Although common in such habitats, this species is rarely taken away from these areas.

- 5474 *Acigona comptulatalis* (Hulst)—Cheboygan: 6 July–14 Aug. This species feeds on the same species of bulrushes as *T. forbesellus* (Frohne 1939b).  
 5500 *Xubida panalope* (Dyar)—Cheboygan: A single specimen labelled Douglas Lake without a date is in the UMMZ. This group of crambines was revised by Klots (1970).

## FAMILY PYRALIDAE

## SUBFAMILY PYRALINAE

- 5510 *Pyralis farinalis* L.—Cheboygan: 4 July–15 Aug. This is a common stored grain pest.  
 5511 *Aglossa costiferalis* (Wlk.)—Cheboygan: 25 June–4 Aug. This species and the next have not been collected many times in the state, but both seem to be common at UMBS. *P. costiferalis* has the lines on the wings darkened only along the costal margin, while in *disciferalis* the markings are dark over the entire width of the wing. Both species were transferred from *Pyralis* to *Aglossa* by Shaffer and Solis (in Heppner 1995).  
 5512 *Aglossa disciferalis* (Dyar)—Cheboygan: 18 June–29 July.  
 5518 *Aglossa cuprina* Zell.—Cheboygan: 18 June–27 July.  
 5524 *Hypsopygia costalis* (F.)—Cheboygan, Emmet: 18 June–15 Aug.  
 5526 *Pseudasopia intermedialis* (Wlk.)—Cheboygan: 7–11 July. This is most distinctive of our species formerly placed in *Herculia* (revised genera assigned by Shaffer and Solis, in Heppner 1995), with a reddish-brown ground color and more angular markings. Both *thymetusalis* and *olinalis* have a pinker ground color and smoother wing markings. This species and its relatives feed on decaying vegetation.  
 5529 *Dolichomia thymetusalis* (Wlk.)—Cheboygan: 30 June 1990. Recorded only once at UMBS, it appears to be a northern moth with records from Luce, Chippewa and Schoolcraft Counties in the Upper Peninsula. It is very similar to *D. olinalis*, but has the light-colored lines on the wings more heavily shaded with black and the two lines on the hindwing are smooth, parallel arcs without angulations or bends.  
 5533 *Dolichomia olinalis* (Gn.)—Cheboygan, Emmet: 18 June–29 Aug. A very abundant moth throughout our region. The females are larger and brighter pink than the males, which are more a deep magenta color.

## SUBFAMILY CHRYSAUGINAE

- 5552 *Galasa nigrinodis* (Zell.)—Cheboygan: 27 June–4 Aug. A very distinctive moth that is common at UV light. The indentation on the costal margin of the forewing is distinctive. On males this contains scent scales.  
 5571 *Condylolomia participalis* Grt.—Cheboygan: 6 July–3 Aug. The small size of this species may contribute to the few collections of it in the state. It is very common at UV light at UMBS.

## SUBFAMILY EPIPASCHIINAE

- 5579 *Macalla zelleri* (Grt.)—Cheboygan: 17 July–7 Aug. Apparently not a common moth in our area. Solis (1992) found *Macalla* to be the correct generic name rather than the long-used *Epipaschia*.  
 5588 *Oneida lunulalis* (Hulst)—Cheboygan: 18 June–24 July. There are rela-

- tively few collections of this species in the state, but it is common at UMBS. This genus was recently revised by Solis (1991).
- 5595 ***Pococera robustella* Zell.**—Cheboygan: 30 June 1968. Two specimens collected by Voss at mercury vapor light at the Biological Station. This and the following three species were long placed in the genus *Tetralopha*, but Solis (1993) recently synonymized this genus with *Pococera*. The larvae in this genus are generally colonial and web together the leaves of their host plant. This is our only pine-feeding *Pococera* (Forbes 1923, Allyson 1977).
- 5605 ***Pococera aplastella* (Hulst)**—Cheboygan, Emmet: 30 June–18 Aug. Distinguishing among this and the next two species is very difficult. Although certain characteristics are typical of each species, the wing patterns vary a great deal and seem to blend almost imperceptibly from one to another if you look at a long series of specimens. Also similar to these species, and possibly present in our area are *P. maritimalis*, *P. vacciniivora* and *P. melanogrammos*. I have consulted Alma Solis of the USNM on most determinations. Munroe (1963) provides descriptions of adults of the species, but these are difficult to apply to many specimens. Allyson (1977) described the larvae and indicated that they feed on several species of aspen (*Populus*), birch (*Betula*), hazelnut (*Corylus*), willow (*Salix*), alder (*Alnus*), and cherry (*Prunus*).
- 5606 ***Pococera asperatella* (Clem.)**—Cheboygan, Emmet: 30 May–9 Aug. Said by Munroe (1963) to feed on maples (*Acer*), but Allyson (1977) indicates that they have been found on maples, elm (*Ulmus*), beech (*Fagus*), hickory (*Carya*), hophornbeam (*Ostrya*), honeylocust (*Gleditsia*), and sumac (*Rhus*).
- 5608 ***Pococera expandens* (Wlk.)**—Cheboygan: 13 June–22 July. According to Munroe (1963) and Allyson (1977), an oak (*Quercus*) feeder.

#### SUBFAMILY GALERIINAE

- 5630 ***Aphomia terrenella* Zell.**—Cheboygan: 16–17 July. 2 specimens taken at UV light at UMBS and another at Colonial Pt.

#### SUBFAMILY PHYCITINAE

- 5651 ***Acrobasis indigenella* (Zell.)**—Cheboygan: 24 June–27 July. For all identifications of *Acrobasis*, Neunzig (1986) should be consulted for excellent descriptions and figures. All host plant information comes from his work. Neunzig mentions two forms of *A. indigenella*, suggesting that they represent more southern (with separate discal spots) and more northern (with fused discal spots) morphs. In our area, only one record of the "southern" morph is known, taken 9 July 1934. All other records are of the "northern" morph.
- 5653 ***Acrobasis vaccinii* Riley**—Cheboygan: 22 June–5 July. Known only from GBNP, but no doubt more common, given the abundance of blueberries (*Vaccinium*), the larval host, in the region.
- 5655 ***Acrobasis tricolorella* Grt.**—Cheboygan, Emmet: 30 June–18 July. An uncommon, but distinctive species, described well by its specific epithet.
- 5661 ***Acrobasis juglandis* (LeBaron)**—Cheboygan: 27 June 1991. I have one specimen, taken at UV light at UMBS. The usual hosts, walnut (*Juglans*) and hickory (*Carya*), do not occur in our area.
- 5662 ***Acrobasis sylviella* Ely**—Cheboygan: 17–24 July. 3 specimens were taken at UMBS and 4 others at Colonial Pt, all at UV light.
- 5665 ***Acrobasis carpiniorella* Neunzig**—Cheboygan: 16 July. Taken only on one night at UMBS. Its occurrence is surprising because the known host, blue-beech (*Carpinus*), is absent from our region.

- 5680 *Acrobasis ostryella* Ely—Cheboygan: 22 July–13 Aug. Only a few records are known from the state, but its host plant, hop-hornbeam (*Ostrya*), is common.
- 5688 *Acrobasis betulella* Hulst—Cheboygan: 30 June–22 July. Taken relatively infrequently, but no doubt more common, given the abundance of birch (*Betula*) in our area.
- 5690 *Acrobasis rubrifasciella* Pack.—Cheboygan, Emmet: 30 June–23 Aug. Our commonest *Acrobasis* based on collection records.
- 5691 *Acrobasis comptoniella* Hulst—Cheboygan: 7 July–9 Aug. Very similar to *rubrifasciella*, and probably best told apart by host associations. Adults have been collected and larvae are easily found on the sweetfern (*Comptonia*) at the jack pine plains south of Indian River
- 5718 *Myelopsis subtetricella* (Rag.)—Cheboygan: 26–29 May 1939. One of our earliest flying pyralids, no doubt the reason for so few records.
- 5719 *Myelopsis minutularia* (Hulst)—Emmet: 18–19 Aug. 1990. Collected only by Balogh at Wilderness State Park, who states (pers. comm.) that the species can be common on dunes.
- 5721 *Apomyelois bistriatella* (Hulst)—Cheboygan, Emmet: 30 May–14 Aug. An abundant species; a Balogh specimen from Cheboygan Co. is pictured in Neunzig (1990).
- 5744 *Etiella zinckenella* (Tr.)—Cheboygan, Emmet: 17 June–22 July. Sometimes a pest of legumes in the southern part of the country, in our region this species is confined to the dunes on the shores of the Great Lakes, where it has been collected in good numbers, and likely uses beach pea (*Lathyrus*) as a larval host. This and several other legume-feeding phycitines were studied extensively by Neunzig (1979) in the southern United States.
- 5745 *Glyptocera consobrinella* (Zell.)—Emmet: 7 July 1993. 3 specimens taken by the east branch of the Maple River. Neunzig (1991) has described the life history of this species which feeds on *Viburnum*.
- 5759 *Ambesa laetella* Grt.—Cheboygan: 15 July 1968. Voss has one specimen taken at mercury vapor light at UMBS. It has been collected only a few times in the state.
- 5766 *Immyrta nigrovittella* Dyar—Cheboygan: 30 June–7 July. All my specimens (the only ones known for the state) were taken at UMBS.
- 5767 *Oreana unicolorella* (Hulst)—Cheboygan, Emmet: 30 May–4 Aug. Probably overlooked most places in the state, this species can be very common at UV light.
- 5771.1 *Salebriaria ca. turpidella* (Rag.)—Cheboygan: 24–25 June. Two specimens match ones that Balogh sent Neunzig for determination. They are apparently an undescribed species. Neunzig (1988) revised this genus for North America.
- 5773 *Salebriaria engeli* (Dyar)—Cheboygan: 18 June–16 July. Our most common *Salebriaria*, as might be expected for an oak feeder in our area.
- 5775 *Salebriaria tenebrosella* (Hulst)—Cheboygan: 22 July 1990. I took a single specimen at UV light at UMBS. Museum records indicate that this species is more common in the southern part of the state.
- 5781.1 *Ortholepis nov. sp.*—Cheboygan: 11–16 July. This species is similar to *O. myricella* but differs in having no hint of white on the forewings and a distinct coppery luster. This species apparently does not have a raised scale ridge near the base of the forewing. It has been in found in a fen area dominated by shrubby cinquefoil (*Potentilla fruticosa*) and in the interdunal wetlands at GBNP, as well as other areas of the state. Many plants are common to these two areas including *Myrica gale*, the host of true *myricella*. Balogh has reared one individual of this species on *Potentilla fruticosa* at a southern Michigan fen.
- 5782.1 *Ortholepis myricella* McD.—Cheboygan: 22 June–11 July. I have taken this

- species only at GBNP near the interdunal wetlands. This species lacks the distinct coppery luster of that above, and has the forewing bands black on a dark gray background. There are hints of some lighter color on fresh specimens. These specimens match those identified as *myricella* in the USNM.
- 5783 ***Ortholepis pasadamia* (Dyar)**—Cheboygan: 30 June–3 Aug. The common member of the genus, it has well defined dark forewing bands and distinct light markings on the wings. The host of this species is birch (*Betula*).
- 5787 ***Meroptera pravella* (Grt.)**—Cheboygan, Emmet: 30 May–7 Aug. It is not surprising that this species may be our most common phycitine, given that its larval hosts are aspens (*Populus*).
- 5788 ***Meroptera abditiva* Heinr.**—Cheboygan: 3–8 July. Much less common in our region than *M. pravella*, and impossible to tell apart reliably without dissection. Heinrich (1956) figures the genitalia of both species.
- 5789 ***Nephoterix subfuscella* (Rag.)**—Cheboygan, Emmet: 30 June–4 Aug. This species is very similar in appearance to the *Meroptera* species, but can be told apart because of the pale, rose colored scales at the base of the forewing. Doerksen and Neunzig (1976) described the life history of this species, which feeds on sumac (*Rhus*).
- 5794 ***Nephoterix vetustella* (Dyar)**—Cheboygan: 18 June–24 July. This and the next three *Nephoterix* species are all common and are often seen at UV light on the same night. Heinrich (1956) has good figures of the female genitalia needed for identification and describes the distinctive wing pattern of each species.
- 5796 ***Nephoterix subcaesiella* (Clem.)**—Cheboygan: 30 May–27 Aug. Both this and the next species feed on black locust (*Robinia pseudo-acacia*) (Doerksen and Neunzig 1976), a well established species at UMBS.
- 5797 ***Nephoterix virgatella* (Clem.)**—Cheboygan: 17 June–24 July.
- 5799 ***Nephoterix basilaris* Zell.**—Cheboygan, Emmet: 18 June–18 July.
- 5809 ***Tulsa finitella* (Wlk.)**—Cheboygan: 6 July 1996. A single individual was taken at UV light at UMBS. The only other records of this species from the state are from Baraga Co. in the Upper Peninsula.
- 5812 ***Telethusia ovalis* (Pack.)**—Cheboygan, Emmet: 30 June–31 July.
- 5824 ***Pyla aequivoca* Heinr.**—Cheboygan: 4 Aug 1949. The date is for a female in the the UMBS collection, taken by Voss at Mackinaw City. There is also a single male specimen labelled Douglas Lake without a collection date in the UMMZ.
- 5824.1 ***Pyla nov. sp.***—Cheboygan, Emmet: 15 June–19 Aug. This undescribed species is common on the dunes along the Great Lakes. Balogh has found that larvae construct sand tubes on bearberry (*Artostaphylos uva-ursi*). It shows a great deal of variation in the darkness of the background and markings on the wings; thus the most reliable identification technique is dissection.
- 5826 ***Pyla insinuatric* Heinr.**—Emmet: 26 June–18 July. Taken by Voss twice at Mackinaw City, this species is associated with fens and sedgy wetlands in the Upper Peninsula (Balogh pers. comm.)
- 5829 ***Pyla fusca* (Haw.)**—Cheboygan: 30 June–15 Aug. The most common of our *Pyla* species.
- 5841 ***Dioryctria abietivorella* (Grt.)**—Cheboygan, Emmet: 8–23 Aug. All *Dioryctria* species were identified using the papers of Mutuura, Munroe and Ross (1969), Mutuura and Munroe (1972, 1973) and Mutuura (1982). They are very similar in wing patterns, and all feed on various conifers, sometimes having an economic impact on tree growth and survival.
- 5843 ***Dioryctria reniculelloides* Mutuura & Mun.**—Cheboygan, Emmet: 9 July–19 Aug.
- 5847 ***Dioryctria disclosa* Heinr.**—Cheboygan, Emmet: 16 July–7 Aug. This is our



- most distinctive *Dioryctria*, with a background color that is orange brown rather than the usual shades of gray.
- 5852 *Dioryctria zimmermani* (Grt.)—Cheboygan: 28 July 1949. Voss took a single specimen at light at UMBS.
- 5852.1 *Dioryctria resinosella* Mutuura—Cheboygan: 3–13 Aug. This species feeds on red pine (*Pinus resinosa*).
- 5858 *Dioryctria banksiella* Mutuura, Mun. & Ross—Cheboygan: 5–7 Aug. The larvae of this species feed on jack pine (*Pinus banksiana*).
- 5926 *Canarsia ulmiarrosorella* (Clem.)—Cheboygan, Emmet: 30 May–7 July.
- 5944 *Homoeosoma deceptorium* Heinr.—Cheboygan: 3 Aug 1985. Balogh took a single specimen east of Cheboygan, which is cited in the Goodson and Neunzig (1993) revision of this difficult genus. Although it has never been reared this species presumably feeds on composite heads, as do at least three other congeners.
- 5946b *Phycitodes albatella* reliquella (Dyar)—Cheboygan: 18 July 1991. I took this small species once at UV light at UMBS.
- 5995 *Euzophera semifuneralis* (Wlk.)—Cheboygan: 16–29 July. Although not common in our area, this species is sometimes a pest on cherry and apple trees in the western part of the state (Biddinger et al. 1992)
- 5999 *Eulogia ochrifrontella* (Zell.)—Cheboygan, Emmet: 18 June–8 Sept.
- 6001 *Ephesiodes infimella* Rag.—Cheboygan: 9–22 July. This species is very similar to three other diminutive phycitines that occur in our area, *Ephestia columbiella*, *Eurythmia angulella*, and *Erelieva parvulella*. All three are small gray moths with obscure wing markings. Although each is slightly different, many specimens get rubbed in mounting and dissection of the genitalia is the most reliable method of identification.
- 6005 *Moodna ostrinella* (Clem.)—Cheboygan: (26 June) 3 Aug.–8 Sept. This and the next species are similar in appearance, but, as the epithet implies, the reddish shading at the base of the forewing of *M. pallidostrinella* is paler than that of *ostrinella*. They also seem to be segregated by flight periods.
- 6005.1 *Moodna pallidostrinella* Neunzig—Cheboygan, Emmet: 30 May–22 July.
- 6007 *Vitula edmandsii* (Pack.)—Cheboygan: 22 June–8 Sept. This is a common species that is known to live in bee and wasp nests as a larva. I have taken several specimens inside a cabin at UMBS. I presume that these specimens emerged from a carpenter ant nest known to be present in the wall of the cabin, because the moths no longer appeared after the nest was exterminated.
- 6011 *Vitula broweri* Heinr.—Cheboygan: 6 July 1990. I took a single specimen at UV light at UMBS. The only other specimens known from Michigan were taken on Isle Royale.
- 6020.1 *Ephestia columbiella* Neunzig—Cheboygan: 18 June–7 Aug. Evidently recorded here for the first time outside the southeastern United States, although the USNM has specimens identified as this species from Maine. This species was recently described by Neunzig (1990), and is no doubt overlooked because of its small size and similarly to several other common species (see note above under *Ephesiodes infimella*, #6001).
- 6032 *Eurythmia angulella* Ely—Cheboygan: 6 July–4 Aug. The commonest of our small, gray phycitines.
- 6035 *Erelieva parvulella* (Ely)—Cheboygan, Emmet: 4–14 Aug.
- 6038 *Anerastia lotella* (Hbn.)—Cheboygan, Emmet: 25 July–19 Aug. Suspected to feed on dune grasses along the Great Lakes shores, I confirmed this in 1996, by rearing a female from *Agropyron dasystachyum*. Just at the surface of the sand the larva formed a sand case attached to the culm of the grass, into which it bored. I found similar larval cases on beach grass (*Ammophila breviligulata*), but did not obtain adults from these larvae.

- 6040 *Coenochroa illibella* (Hulst)—Cheboygan, Emmet: 2 July–4 Aug. 2 specimens are known, one from UMBS and one from aspen woods east of Pellston.
- 6048 *Peoria gemmatella* (Hulst)—Cheboygan: 29 July 1995. The species in this and related genera were generally assigned to the subfamily Peoriinae (Shaffer 1968), but more recently are considered a tribe (Peoriini) of the Phycitinae (Solis and Mitter 1992). I have taken only a single specimen of this species in a UV trap at GBNP. Balogh has taken it elsewhere in the state, but it is not common.
- 6053 *Peoria approximella* (Wlk.)—Cheboygan, Emmet: 28 June–14 Aug. This species is common in most wetland habitats in the area.

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