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HAWKMOTHS (LEPIDOPTERA: SPHINGIDAE) COLLECTED IN GRAND TRAVERSE AND ADJACENT COUNTIES, MICHIGAN

Andrew W. Douglass¹, Christopher B. Douglass¹, and John F. Douglass²

ABSTRACT

Thirty-two (32) species of hawkmoths (Sphingidae) are reported from Grand Traverse and adjacent counties, Michigan, based on collecting carried out in 1979-1997 and an inventory of museum records.

The Grand Traverse Region is in an especially interesting position biologically in that it is part of a zone of transition in Michigan in which Carolinian floral and faunal elements intergrade with species typical of the Canadian zone (biotic provinces of Dice 1938; Douglass 1977, 1983, 1985, 1992).

To date, 48 species of hawkmoths have been recorded from Michigan (Nielsen 1997); two additional species are of possible occurrence in the state. We have been motivated by the work of Nielsen (1997 and pers. comm. 1980 to present) to begin a survey of the hawkmoths of Grand Traverse County, in northwestern Lower Michigan.

MATERIALS AND METHODS

Specimens were obtained almost exclusively by searching areas brightly illuminated with artificial lights at night. The majority of records cited in this paper were obtained by Andrew W. Douglass (AWD) and Christopher B. Douglass (CBD) during numerous nighttime collecting trips made to such localities during the period 9 July 1994-14 October 1997. In addition, John F. Douglass (JFD) collected specimens and made scattered observations in the area between June 1979 and September 1985.

Principal collecting localities were as follow, in descending order of our frequency of collecting visits to them:

Site NCR - Lights just SE of jct. U.S. 31 & M-137 (T26N R12W, NE 1/4 Sec. 16);
Site CNR - Lights just SW of jct. U.S. 31 & M-137 (T26N R12W, NW 1/4 Sec. 16);
Site HBS - Lights just NW of jct. U.S. 31 & Co. 633 (T26N R11W, NW 1/4 Sec. 7), village of Grawn;
Site YRD - Douglass property overlooking Green Lake, 1 mi. SW of village of Interlochen (T26N R12W, SW 1/4 Sec. 21);
Site MCC - Monroe Center Cemetery (flowering shrubs), just E of Co. 633 (T26N R11W, NW 1/4 Sec. 31).

Small series of each species observed were collected: JFD's specimens have been donated to Michigan State University, East Lansing; those of AWD and CBD remain in their private collections.

In order that we might cite museum specimen records which put our Grand Traverse Co. findings in broader context, one of us (JFD) visited five public collections in Lower Michigan during 1999-2000, at each of which all hawkmoth specimens of special zoogeographic interest related to this report were examined: Michigan State
RESULTS AND DISCUSSION

I. SPECIES ACCOUNTS

S 7771 Agrius cingulata (Fabricius), Pink-spotted Hawkmoth, Sweetpotato hornworm. Grand Traverse Co., outskirts of Traverse City, T27N R11W, NW 1/4 Sec. 22, 14 Oct. 1997, 1 ♀ (very fresh condition), A. W. Douglass. This primarily southern species is occasionally encountered in Michigan as a stray (Moore 1955, Hodges 1971, Covell 1984). Our single GT Co. specimen was found perched on the wall of a building; it appears to represent the northernmost known occurrence of cingulata in the state. Other NLP records: Isabella Co., 3 Sept. 1970, 1 specimen (very worn) [CMU]; Mason and Newaygo counties (NMap).

Other NLP records: Emmet Co., 31 Aug. 1945, 1 specimen [MSU]; Grand Traverse Co.?, (no locality labels), 4 specimens [NwMC]; Isabella Co., 2 Nov. 1997, 1 specimen (good condition) [CMU]; Oceana Co., yrs. 1964-1975, 4 specimens [MSU].

S 7776 Manduca quinquemaculata (Haworth), Five-spotted Hawkmoth. Tomato hornworm. Grand Traverse Co., 21 & 26 July 1965, 2 specimens (one is in excellent condition) [NwMC]; GT Co., 9 July 1985, 2 specimens [Dill collection]. Records of quinquemaculata exist from nine additional counties in the NLP (NMap, DSun).


S 7796 Sphinx eremitus (Hübner), Hermit Sphinx. Antrim Co., 4 July 1960, 1 specimen [MSU]; this appears to represent the northernmost known Michigan locality for this species to date. Other NLP records: Clare Co., MSU; Isabella Co., NMap, CMU; Lake Co., MSU; Midland Co., MSU.


7809 Sphinx kalmiae J. E. Smith, Laurel Sphinx. Grand Traverse Co., Sites NCR & HBS, 2 July 1994, 9 June-12 July 1995, 7♂♂, 1♀. Fairly common in GT Co. All eight of our specimens show moderate wear; two fresh individuals were seen 20 June 2000.

8010.1 Sphinx poecila Stephens, Northern Apple Sphinx. Grand Traverse Co., Sites CNR & NCR, 6 specimens (2♂♂, 1 ♀♂, 2♀♀), all det. M. C. Nielsen; 16 June 1982 (1♀, fresh), 10 August 1985 (1♂, very worn), 26 May 1986, 16 June 1995. An additional individual was seen 20 June 2000. Fairly common in GT Co. Caution must be used in distinguishing this taxon from the closely similar S. gordius and from worn ♀♂ of S. luscitiosa (M. C. Nielsen pers. comm.). Riotte’s (1980) distribution map indicates that poecila occurs throughout Upper and Lower Michigan. M. C. Nielsen (pers. comm.) reports having found a nearly full-grown larva of poecila (reported as gordius in Voss 1969) on sweet gale (Myrica gale L.) in Cheboygan Co.


common in GT Co. Our freshest specimen is a ♀ collected 26 June 1995; a ♀
collected 21 July 1994 shows much wear.

7817 *Lapara bombycoides* Walker, Northern Pine Sphinx. **Grand
Traverse** Co., Sites CNR, NCR, & YRD, 5♂♂ 1♂: 16 June 1982 (our freshest
specimen), 2 June 1985 (1♂, much wear), 2 July 1994, 26 June 1996 (2♂♂, much
wear). A fresh individual was seen 25 May 1998. Fairly common in GT Co.

7821 *Smerinthus jamaicensis* (Drury), Twin-spotted Sphinx. **Grand
Traverse** Co., Sites CNR & NCR, 3♂♂ 1♀: 11 August 1985 (1♂, fresh), 16-25 June
1995 (2♂♂, ♀, worn). Fairly common in GT Co.

7822 *Smerinthus cerisyi* W.F.Kirby, One-eyed Sphinx. **Grand
Traverse** Co., Site NCR, 16-20 June 1995, 3♂♂, 1♀ (all four specimens show

7824 *Paonias excaecatus* (J. E. Smith), Blinded Sphinx. **Grand
Traverse** Co., Sites CNR, NCR, YRD, & Traverse City, 10 August 1985, 14
June-12 July 1995, 7 July 1996, 4♂♂, 3♀♀. Fairly common in GT Co. Our only
fresh specimens are a ♀ collected 10 August 1985 and a ♀ collected 12 July
1995; an additional fresh individual was seen 2 July 2000.

7825 *Paonias myops* (J. E. Smith), Small-eyed Sphinx. **Grand
Traverse** Co., Sites YRD, CNR, & NCR, 14 July 1985, 11 June-12 July 1995, 26 June-3 July
other ♀♀ from mid-June to mid-July show considerable wear.

7827 *Laothoe juglandis* (J. E. Smith), Walnut Sphinx. **Grand
Traverse** Co., Site NCR, late June 1995, 1♀ (moderately worn), A. W. Douglass;
GT Co., 16 May 1970, 1 specimen [NWMC]; GT Co., 12 July 1985, 4 specimens
[Dill collection]. Uncommon in GT Co. Records of *juglandis* exist from seven
additional counties in the NLP (NMap, DSum).

7828 *Pachysphinx modesta* (Harris), Big Poplar Sphinx. **Grand
Traverse** Co., Sites CNR & NCR, 2 June-14 July 1985, 9 July 1994, 16 June-
12 July 1995, 5♂♂, 6♀♀. Common to abundant in GT Co. Our freshest speci-
mens are from 2 June 1985 (1♂), 14 July 1985 (1♀), and 12 July 1995 (1♀).

7853 *Hemaris thysbe* (Fabricius), Hummingbird Clearwing, Humming-
bird Moth. **Grand Traverse** Co., Site MCC, 4 & 6 June 1979, 1♂, 1♀, J. F.
Douglass. Apparently common in GT Co. Both individuals collected were seen
avidly visiting flowers of lilac (*Syringa vulgaris* L.) during daylight (1400-1500
h EDT). In addition, two *thysbe* adults were watched avidly visiting flowers of
spotted knapweed (*Centaurea maculosa* Lam.) on a sunny afternoon (1400 h
EDT), 7 August 2002.

7854 *Hemaris gracilis* (Grote & Robinson), Slender Clearwing. Spec-
ies *gracilis* almost certainly occurs in GT Co. (M. C. Nielsen pers. comm.);
records exist from as close to the Grand Traverse Region as Mason,
Roscommon, Crawford, and Otsego counties (Moore 1955, LSSS 1967[1968],
UMMZ).

7855 *Hemaris diffinis* (Boisdouval), Snowberry Clearwing, Bumblebee
Moth. **Grand Traverse** Co., Site MCC & at a leatherleaf depression in T26N
R12W, 4 & 5 June 1979, 3♂♂ 1♀ (all show slight to moderate wear), J. F. Douglass.
Apparently common in GT Co. Each of the ♀♀ collected was seen avidly visiting
flowers: two were visiting lilac (*Syringa vulgaris* L.); the third and an addi-
tional individual were visiting chokeberry (*Aronia prunifolia* (Marsh.) Rehder)
at the leatherleaf site. Additional observations of flower visitation by *diffinis*
in GT Co.: one individual was seen avidly visiting flowers of lilac, 23 May 1980;
one was avidly visiting flowers of lilac and honeysuckle (*Lonicera sp.*), 26 May
1980. Each of the preceding observations of flower visitation (involving six
individual *diffinis*) occurred during daylight (1200-1400 h EDT).

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S 7861 Eumorpha achemon (Drury), Achemon Sphinx. Voss’s (1969) record of achemon from Cheboygan Co. [UMBS collection] was overlooked in an earlier report (Douglass 1992) in which a Benzie Co. 2 (5 July 1984) was cited as Michigan’s northernmost record to date. One of the Benzie Co. specimen’s tarsi has a milkweed pollinarium (Asclepias sp.) attached. Other NLP records: Bay Co., MSU; Mason Co., MSU; Midland Co., UMMZ; Oceana Co., LSSS 1990[1991], LSSS 1997[1998], UMMZ.

S 7870 Sphecodina abbottii (Swainson), Abbot’s Sphinx. Grand Traverse Co., Site YRD, 21 May 1988, 1♂ (Douglass 1992); Site NCR (3 specimens, A. W. Douglass), 22 June 1995 (slight wear), 21 June 1997 (fresh/slight wear), 28 June 1997 (moderate wear); GT Co., T27N R11W, 1 June 1970, 1 specimen [NwMC]. Uncommon to locally common in GT Co. The above records represent Michigan’s northernmost known localities for this species. The only previously reported NLP locality for abbottii is Bay Co. (Opler 1995, NMap); the CMU collection contains one specimen from Kent Co. in the SLP (14 June 1983). The capture of rather fresh individuals at the same microlocality in GT Co. in successive years suggests that abbottii may be reproducing in the vicinity.


S 7873 Amphion floridensis B. P. Clark, Nessus Sphinx. Grand Traverse Co., T26N R12W, SE 1/4 Sec. 34, 6 June 1982, 1♀ (much-worn), J. F. Douglass; GT Co., years 1963-1987, 4 specimens [NwMC]. Uncommon in GT Co. Our single specimen was collected during daylight (6 June 1982) as it alit near a stream crossing. Additional observations of floridensis made in GT Co.: one individual was seen hovering around oozing willow trunks, 8 June 1979; one alit in sun, 13 June 1979; one was seen hovering around fluid-stained (oozing) willow trunks, 16 June 1979 (several butterflies, i.e., Vanessa atalanta, Polygonia comma, and P. interrogationis, were seen visiting these trunks at the time, alighting and actively probing with their proboscises). Each of the three preceding observations was made during daylight (1400-1500 h EDT) at a willow thicket at the microlocality of capture of the 6 June 1982 specimen; Virginia creeper (Parthenocissus sp.), one of the reported foodplants of floridensis (Mitchell and Zim 1977), is common in and around this thicket.

S 7884 Darapsa versicolor (Harris), Hydrangea Sphinx. Grand Traverse Co., Site NCR, 4 July 1996 (1 adult ♂, fresh), 23 June 1997 (1 adult ♂, moderate wear), A. W. Douglass. Uncommon in GT Co. These and the larval records reported below appear to represent the northernmost known occurrences of versicolor in the state. One mature (pre-pupal) versicolor larva was collected as it fed actively on leaves of Decodon verticillatus (L.) Ell. along the Little Betsie River (T26N R12W, SE 1/4 Sec. 20) on 12 August 2000. At the same microlocality on 20 August 2000, a smaller larva of the same species, with numerous braconid wasp cocoons attached, was collected as it rested on a sprig of D. verticillatus. D. verticillatus is abundant along streams in GT Co., and it appears that versicolor may be maintaining itself in the area. Other NLP records: Bay Co., NMap; Clare Co., 14 July 1969, 1 specimen [MSU]; NMap. The northernmost records of versicolor in the SLP are from Gratiot and Montcalm counties (NMap).


S 7893 *Hyles gallii* (Rottemburg), Galium Sphinx. **Grand Traverse** Co., Site HBS (i.e., village of Grawn), 7 July 1996, 1♀ (fresh condition), A. W. Douglass. Apparently rare in GT Co. In Michigan, *gallii* is known from the SLP (7 counties), NLP (6 counties), and UP (11 counties) (NMap, DSum).

7894 *Hyles lineata* (Fabricius), White-lined Sphinx. **Grand Traverse** Co., Sites CNR, NCR, & HBS, 3♂♂, 1♀: 11 August 1985 (found dead, dry), 24 August 1994 (1♂, moderate wear), 14 June 1995 (1♀, fresh), 26 June 1996 (1♂, fresh). Fairly common in GT Co. Voss (1969) reported this species to be very rare in the extreme NLP of Michigan (Emmet and Cheboygan counties).

II. SPECIES OF POSSIBLE OCCURRENCE

A number of additional hawkmoth species may be found to occur in the Grand Traverse Region of Michigan in the future. Most sphingids are strong fliers, and some species may occur infrequently in Michigan under unusual conditions of weather. It seems, too, that the present warming trend in climate will increase the likelihood that particular southern species will be recorded in the area as strays or colonists.

The following species are included here based on published reports (Moore 1955, Hodges 1971, Covell 1984, others cited in DSum), maps (Opler 1995, NMap), Nielsen's (1997) checklist, and discussions with M. C. Nielsen (pers. comm. 2000). Two species not appearing in Nielsen (1997) are added here, bringing the total number of species treated in this report (i.e., those collected (above) plus those of possible occurrence (below)) to 50. Although 7877 *Proserpinus flavofasciata* (Walker), the Yellow-banded Day Sphinx, is occasionally encountered in the UP (uncommon resident), its possible occurrence in the Grand Traverse Region is doubtful (M. C. Nielsen pers. comm.).

Species of possible occurrence as strays or colonists in the NW Lower Peninsula (details are in DSum):

1) Species known as residents in the SLP
   P 7789 *Ceratomia catalpae* (Boisduval), Catalpa Sphinx.
   P 7790 *Ceratomia hageni* Grote, Hagen's Sphinx.
   P 7793 *Paratrea plebeja* (Fabricius), Plebeian Sphinx.
   P 7810 *Sphinx gordius* Cramer, Apple Sphinx.
   P 7859 *Eumorpha pandorus* (Hübner), Pandorus Sphinx.

2) Primarily southern or tropical species, known in Michigan as strays
   P 7774 *Neococytius cluentius* (Cramer), Cluentius Sphinx.
   P 7834 *Erinnyis ello* (Linnaeus), Ello Sphinx.
   P 7837 *Erinnyis obscura* (Fabricius), Obscure Sphinx.
   P 7847 *Aellopos tantalus* (Linnaeus), Tantalus Sphinx.
   P 7849 *Aellopos titan* (Cramer), Titan Sphinx.
   P 7851 *Enyo lugubris* (Linnaeus), Mournful Sphinx.
   P 7864 *Eumorpha vitis* (Linnaeus), Vine Sphinx.
   P 7865 *Eumorpha fasciata* (Sulzer), Banded Sphinx.
   P 7866 *Eumorpha labruscae* (Linnaeus), Gaudy Sphinx.
   P 7890 *Xylophanes tersa* (Linnaeus), Tersa Sphinx.
3) Species not yet recorded from Michigan

P 7803 Sphinx vashti Strecker, Vashti Sphinx. Expected as a stray from the west.

P 7892 Hyles euphorbiae (Linnaeus), Spurge Hawkmoth. Expected as a stray or colonist from the east.

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LITERATURE CITED


