

## LEPIDOPTERA RECORDED FROM THE ISLANDS OF WESTERN LAKE ERIE, WITH A BRIEF ACCOUNT OF GEOLOGY AND FLORA

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### ABSTRACT

A list of Lepidoptera from the islands of western Lake Erie is presented along with a brief account of the geology, flora, and human activities in the area. The checklist contains 169 species representing 27 families. Suggestions are made for the improvement of this preliminary checklist as well as for future research.

Prompted by the absence of any previous survey, we compiled a list of Lepidoptera found on the western Lake Erie islands. Lepidopterans included in this list were collected from the five largest of the 22 western Lake Erie islands situated between the Catawba-Marblehead shore of Ohio and Point Pelee in Ontario (Fig. 1). The islands range in size from over 4,000 ha (Pelee) to about 800 m<sup>2</sup> (Little Chicken Is.). The 5 largest islands are South Bass, Middle Bass, and North Bass (Ottawa Co., Ohio), Kelleys (Erie Co., Ohio) and Pelee (Ontario, Canada). Gibraltar Is. (about 5 ha.) was also surveyed because of its convenient laboratory facilities.

Geological formation of the islands resulted from a unique combination of sedimentary uplifting plus glacial and water erosion. Two types of sediments constitute the bedrock of the islands: limestone composed entirely of calcium carbonate, and dolomite, a magnesium-bearing form of limestone. This limestone and dolomite bedrock originated during the Paleozoic Era when the area was covered by a warm, broad, shallow sea. Erosion commenced about 200 million years B.P. when the Paleozoic sea drained permanently, creating two cuestas whose crests create the islands (Forsyth 1988). The resistant rocks forming the two cuestas are the Columbus Limestone of Devonian age (about 350 million years old) and the Put-in-Bay Dolomite of Silurian age (about 400 million years old) (Carman 1946). The eastern belt of islands (Kelleys, Middle, and Pelee) represents the emerged summits of the Columbus Limestone cuesta, which also includes the Marblehead and Castalia areas on the Ohio mainland. The western belt of islands, the summits of the Put-in-Bay Dolomite cuesta, are South, Middle and North Bass, Rattlesnake, Green, Ballast, Lost Ballast, Gibraltar, Mouse, Starve, Hen and the Chickens, as well as Catawba "Island", Ohio (Carman 1946, Core 1948). (Catawba Island has been a peninsula throughout historic times and is now broadly connected to the Ohio mainland via filled marsh and vehicular causeways.)

Erosion ultimately formed valleys which provided tracks for the advancement of

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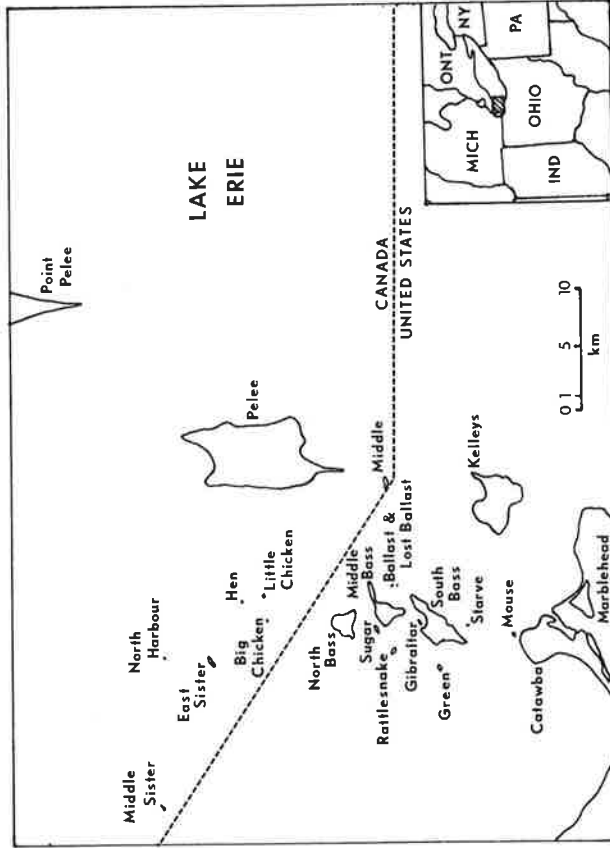


Figure 1. The Lake Erie islands. Inset shows regional location. (Based upon U.S.N.O.A.A. maps.)

Pleistocene glaciers into Ohio. When the Wisconsin glacier retreated (ca. 14,000 yrs. B.P.), the contemporary Lake Erie basin remained, although initially the western basin drained completely and the island area (two ridges separated by a shallow river valley) was recolonized by local plants and animals. The islands were reformed with rising Lake levels about 4,000 years B.P. Despite glacial erosion, Lake Erie is much shallower than the other Great Lakes, with an average depth of only 8 m in the western basin near the Erie Islands. Greater depths are present further east.

Before permanent settlement the islands were covered with forest, predominantly oak, hickory, and maple, with subdominants of hackberry, elm, basswood, and ash. Red cedar grew extensively on drier sites. During the early 19th century, white settlers converted most of the forests to agriculture, primarily vineyards and pasture. No primeval forest remains, although secondary forests similar to precolonial vegetation have developed within the past 100 years (Boerner 1984).

Today there are about 1,500 species of vascular plants on the islands and shoreline in western Lake Erie. About 68% of the islands' native flora is composed of widespread species. These include most common species that occur in the most frequently-encountered habitats. The remaining 32% of the islands' native flora contains endemics and hybrids. Nonindigenous species include 33% of the total flora, which indicates the degree of human disturbance that has occurred on the islands. About 75% of the non-indigenous species are of European origin (Herdendorf and Stuckey 1977). A great diversity of vascular plants exists primarily because of the varied habitats which are available for plant colonization and because of the continual natural and anthropogenic changes to which these habitats are subjected (Herdendorf and Stuckey 1977).

Habitats of particular interest containing lepidopteran host plants include shoreline cliffs, sandy beaches, and woodlands. Sandy beaches, which are scattered along the shorelines of the islands, provide suitable conditions for growth of cottonwood (*Populus*

*deltoides*), willows (*Salix* spp.), dogwoods (*Cornus* spp.), and ashes (*Fraxinus* spp.). Along the tops of the rocky shoreline cliffs are shrubs and small trees. These include ninebark (*Physocarpus opulifolius*), choke cherry (*Prunus virginiana*), hoptree (*Ptelea trifoliata*), bladdernut (*Staphylea trifolia*), staghorn sumac (*Rhus typhina*), mulberry (*Morus alba*), honeysuckle (*Lonicera* spp.), dogwoods, hop hornbeam (*Ostrya virginiana*), and red cedar (*Juniperus virginiana*). The secondary forests in the woodlands consist of a dominant maple-hackberry-basswood community, especially in drier areas. Subdominant species are blue ash (*Fraxinus quadrangulata*), Kentucky coffee tree (*Gymnocladus dioica*), hop hornbeam, and shrubs such as hoptree, choke cherry, and bladdernut. Other less extensive forest communities on the islands are hackberry (*Celtis occidentalis*), hackberry-blue-ash, boxelder-green-ash (*Acer negundo*), *Fraxinus pennsylvanica*, white ash (*F. americana*), swamp oak (*Quercus bicolor*), sugar maple (*A. saccharinum*), and formerly American elm (*Ulmus americana*) (Herdendorf and Stuckey 1977).

A variety of secondary successional habitats now exist as agriculture has been abandoned at various times throughout the 20th century. Pelee Is. remains largely agricultural whereas Kelleys and the Bass Islands contain parcels of successional habitats ranging from recently abandoned fields of annual grasses and forbs, including abundant milkweeds (*Asclepias* spp.), through extensive *Solidago-Daucus* fields to shrubby woods (McCormick 1968). Each habitat has its associated Lepidoptera, dominated by common and widespread species. The porosity of bedrock and rockiness of the shorelines result in a paucity of natural wetlands. The most extensive remaining wetlands surround small ponds on Middle and North Bass, or occur in abandoned limestone quarries on Kelleys.

Entomological activities have centered on general collecting associated with courses taught since 1940 at the Franz Theodore Stone Laboratory of The Ohio State University, located on Gibraltar Is. The only detailed survey of Lepidoptera on the islands was limited to Gibraltar (Horwath, 1964). Her methods were confined to general collecting, and neither blacklight nor sugaring was used. Wormington (1983) published an annotated list of 68 species of butterflies and skippers from Pt. Pelee National Park, on the Ontario mainland 12 km northeast of Pelee Is.

#### MATERIALS AND METHODS

Standard aerial collecting nets were used to capture both diurnal and nocturnal Lepidoptera. No lures aided collecting during the daytime, but at night an ultraviolet light and a sugary concoction proved successful. A 60-watt ultraviolet light was placed over a white, cotton bedsheet suspended between 2 small trees. The light was monitored infrequently during the evening, but checked every morning. Moths that are normally active after midnight may have been missed. "Schlep", the sugary concoction, consisted of rotten pears, stale beer, brown sugar and molasses. Schlep was applied by paintbrush to a small area of bark on the leeward side of large trees. This was intended primarily to lure *Catocala* spp. on Gibraltar Is. and South Bass Is. Trees were monitored often from 8 p.m. until 1 a.m.

Except for South Bass and Gibraltar, collecting was not conducted systematically. Most collection dates ranged from late June through early September, coinciding with the scheduling of courses taught at the F. T. Stone Laboratory.

#### RESULTS AND DISCUSSION

Table 1 lists 169 species of Lepidoptera in 27 families. Almost all are represented by at least one specimen in the collections at F. T. Stone Laboratory and at The Ohio State University, Columbus. Wormington (1983) reported a few records from Pelee Is. Table 1 gives the earliest dates of collection. Catalog numbers correspond to those of Hodges et al. (1983).

Table 1. A preliminary checklist of Lepidoptera recorded from the islands of western Lake Erie.

198	<i>Tegeticula yuccasella</i> (Riley): S. Bass, n.d. (GM).	INCURVARIIDAE:	4318	<i>Mitoura grynea</i> (Hbn.): Kelleys, 29 July 1988 (P. Kovarik—specimen not taken). Pelee, 7 July 1918 (Wormington 1983).
1014	<i>Antaeotricha leucillana</i> (Zell.): S. Bass, 23 July 1987 (DJH).	OECOPHORIDAE:	4361	<i>Everes comyntas</i> (Godt.): M. Bass, 28 July 1988 (DJH). S. Bass, 25 July 1988 (DJH).
2401	<i>Atteva punctella</i> (Cram.): Gibraltar, July 1962 (ABH). M. Bass, 27 July 1987 (BAN). S. Bass, 23 Aug. 1985 (DJH).	YPONOMEUTIDAE:	4363	<i>Celastrina ladon</i> (Cram.): Gibraltar, 24 June 1980 (S. W. Nichols). Kelleys, 29 July 1988 (DJH). M. Bass, 31 July 1920 (n.c.). S. Bass, 20 July 1987 (BAN).
2536	<i>Melititis cucurbitae</i> (Harr.): Pelee, 5 July 1967 (RHD), S. Bass, 12 July 1945 (O. Weeks).	SESIIDAE:	4410	<i>Libytheana bachmanii</i> (Kirtland): N. Bass, 8 July 1966 (MWB). Pelee, 11 July 1966 (n.c.). S. Bass, 20 July 1987 (BAN).
2550	<i>Synanthedon pictipes</i> (G. & R.): S. Bass, 17 Aug. 1949 (MWB).	TORTRICIDAE:	4420	<i>Polygona interrogatilis</i> (F.): N. Bass, 4 July 1941 (MWB). S. Bass, 30 July 1987 (BAN).
2583	<i>Synanthedon exitiosa</i> (Say): S. Bass, 27 July 1987 (BAN).	COSSIDAE:	4432	<i>Nymphalis antiopa</i> (L.): N. Bass, 24 July 1987 (BAN). S. Bass, 7 Aug. 1942 (MWB).
2693	<i>Pritoxystus robiniae</i> (Peck): Gibraltar, July 1962 (ABH).	TORTRICIDAE:	4434	<i>Vanessa virginiensis</i> (Drury): S. Bass, 2 June 1988 (BAN).
3633	<i>Choristoneura parallela</i> (Rob.): S. Bass, 21 July 1987 (DJH).	COSSIDAE:	4435	<i>Vanessa cardui</i> (L.): S. Bass, 20 Aug. 1988 (K. Lamoucha).
3648	<i>Archips argyrosipila</i> (Wlk.): Gibraltar, 27 June 1967 (RHD).	TORTRICIDAE:	4437a	<i>Vanessa atalanta rubria</i> (Fruhstorfer): Gibraltar, June 1962 (ABH). N. Bass, 20 July 1987 (BAN). S. Bass, 9 July 1941 (MWB).
3661	<i>Archips cerastivorana</i> (Fitch): Gibraltar, July 1962 (ABH). N. Bass, 14 July 1941 (MWB). S. Bass, 10 July 1943 (MWB).	TORTRICIDAE:	4440	<i>Junonia coenia</i> (Hbn.): S. Bass, 20-30 June 1946 (MWB).
3870	<i>Epargyreus clarus</i> (Cram.): Gibraltar, July 1962 (ABH). M. Bass, 8 Aug. 1988 (Z. Chen). S. Bass, 30 July 1987 (DJH).	HESPERIIDAE:	4450	<i>Speyeria cybele</i> (F.): M. Bass, 30 June 1941 (MWB). S. Bass, 21 July 1943 (n.c.).
3910	<i>Thorybes pylades</i> (Scudder): S. Bass, n.d. (GM).	HESPERIIDAE:	4481	<i>Phyciodes tharos</i> (Drury): Kelleys, 22 July 1987 (BAN). M. Bass, 28 July 1988 (DJH). S. Bass, 7 Aug. 1942 (n.c.).
3932	<i>Staphylus hayhurstii</i> (Edw.): Pelee, n.d. (Wormington, 1983).	HESPERIIDAE:	4522b	<i>Basilarchia arthemis asynax</i> (F.): Kelleys, 29 July 1988 (DJH). M. Bass, 28 July 1988 (DJH). S. Bass, 19 Aug. 1945 (C. Langlois).
3966	<i>Pyrgus communis</i> (Grt.): S. Bass, 9 July 1941 (MWB).	HESPERIIDAE:	4523	<i>Basilarchia archippus</i> (Cram.): Kelleys, 28 Aug. 1949 (MWB). M. Bass, 8 Aug. 1988 (DJH).
3977	<i>Pholisora catullus</i> (F.): Kelleys, 29 July 1988 (DJH). M. Bass, 8 Aug. 1988 (DJH).	HESPERIIDAE:	4557	<i>Asterocampa celtris</i> (Bdv. & Leconte): Pelee, n.d. (Wormington 1983). S. Bass, 28 June 1988 (DJH).
4004	<i>Ancyloxypha numitor</i> (F.): Kelleys, 29 July 1988 (DJH). S. Bass, 28 June 1980 (S. W. Nichols). N. Bass, 24 July 1987 (DJH).	HESPERIIDAE:	4562.1	<i>Asterocampa clyton</i> (Bdv. & Leconte): Kelleys, 22 July 1987 (DJH). Pelee, n.d. (Wormington 1983). S. Bass, 27-28 June 1941 (MWB).
4012	<i>Thymelicus lineola</i> (Ochs.): Pelee, 3 July 1978 (NWB). S. Bass, 4 July 1972 (L. Fay).	HESPERIIDAE:	4578	<i>Megisto cymela</i> (Cram.): S. Bass, 9 July 1941 (MWB).
4036	<i>Polites coras</i> (Cram.): S. Bass, 30 July 1987 (DJH).	HESPERIIDAE:	4587	<i>Cercyonis pegala</i> (F.): Kelleys, 22 July 1987 (BAN). S. Bass, 28 June 1940 (n.c.).
4078a	<i>Euphyes ruricola metaconet</i> (Harr.): Kelleys, 29 July 1988 (DJH). M. Bass, 8 Aug. 1988 (DJH).	HESPERIIDAE:	4614	<i>Danaus plexippus</i> (L.): Gibraltar, July 1962 (ABH). Kelleys, 29 July 1988 (DJH). M. Bass, 28 July 1988 (DJH). N. Bass, 19 Aug. 1988 (T. Grimm). S. Bass, 20 July 1987 (BAN).
4159a	<i>Papilio polyxenes asterius</i> Stoll: Kelleys, 22 July 1987 (DJH). N. Bass, 19 Aug. 1988 (T. Grimm). S. Bass, 14 Aug. 1985 (DJH).	PAPILIONIDAE:	4624	<i>Harrisina americana</i> (Guér.): Gibraltar, 27 June 1967 (RHD).
4170	<i>Papilio cressphontes</i> Cram.: Gibraltar, 31 July 1988 (P. Kovarik). S. Bass, 20 July 1987 (BAN).	PAPILIONIDAE:	4671	<i>Prolimacodes badia</i> (Hbn.): S. Bass, 16 July 1967 (RHD).
4176	<i>Papilio glaucus</i> L.: Gibraltar, 19 July 1987 (BAN). Kelleys, 22 Jul 1987 (DJH). M. Bass, 28 July 88 (DJH). N. Bass, 19 Aug. 1988 (T. Grimm). S. Bass, 14 Aug. 1985 (DJH).	PAPILIONIDAE:	4697	<i>Enclea delphinii</i> (Bdv.): S. Bass, 30 July 1967 (RHD).
4197	<i>Artogeia rapae</i> (L.): Gibraltar I., June 1964 (ABH). Kelleys, 29 July 1972 (L. Fay). M. Bass, 17 July 1946 (MWB). N. Bass, 27 June 1947 (n.c.). S. Bass, 20 July 1987 (BAN).	PAPILIONIDAE:	4949	<i>Ostrinia nubilalis</i> (Hbn.): S. Bass, 21 Aug. 1985 (DJH).
4209	<i>Colias philodice</i> Godt.: Kelleys, 29 July 1988 (DJH). N. Bass, 4 July 1941 (MWB). S. Bass, 2 June 1988 (DJH).	PAPILIONIDAE:	5156	<i>Nomophila nearctica</i> Mun.: M. Bass, 27 July 1987 (BAN). S. Bass, 18 Aug. 1985 (DJH).
4210	<i>Colias eurytheme</i> Bdv.: Gibraltar, 27 July 1988 (S. Beck). Kelleys, 29 July 1988 (DJH). M. Bass, 10 Aug. 1944 (GM). S. Bass, 9 July 1940 (n.c.).	PAPILIONIDAE:	5159	<i>Desmia funerals</i> (Hbn.): Gibraltar, July 1962 (ABH). M. Bass, 10 July 1950 (MWB).
4237	<i>Eurema lisa</i> Bdv.: S. Bass, 9 July 1941 (MWB).	PAPILIONIDAE:	5169	<i>Hymenita perspectalis</i> (Hbn.): S. Bass, 23 Aug. 1985 (DJH).
4251a	<i>Lycycaena phlaeas americana</i> Harr.: N. Bass, 24 July 1987 (BAN).	PAPILIONIDAE:	5241	<i>Pantographa timata</i> (G. & R.): Gibraltar, July 1962 (ABH).
4256	<i>Hylolycaena hylus</i> (Cram.): Kelleys, 30 Sept. 1980 (J. V. Calhoun). M. Bass, 27 July 1987 (DJH). N. Bass, 4 July 1941 (MWB). S. Bass, 30 July 1987 (DJH).	PAPILIONIDAE:	5510	<i>Pyralis farinalis</i> L.: S. Bass, 27 July 1941 (MWB).

(continued)

- 8134 *Spilosoma congrua* Wlk.: S. Bass, 21 July 1987 (DJH).  
 8137 *Spilosoma virginica* (F.): Gibraltar, July 1962 (ABH). S. Bass, 31 July 1943 (n.c.).  
 8140 *Hyphantria cunea* (Drury): Gibraltar, 24 July 1972 (L. Fay), Kelleys, 28 July 1988 (DJH) (larvae). S. Bass, 25 July 1988 (DJH).  
 8146 *Ecpanttheria scribbonia* (Stoll): S. Bass, 10 June 1944 (MWB).  
 8156 *Phragmatobia fuliginosa* (L.): Gibraltar, July 1962 (ABH).  
 8169 *Apanetix phalerata* (Harr.): S. Bass, 7 Aug. 1988 (DJH).  
 8171 *Apanetix nais* (Drury): S. Bass, n.d. (n.c.).  
 8203 *Halysidota tessellaris* (J. E. Smith): Gibraltar, July 1962 (ABH). S. Bass, 22 July 1967 (RHD).  
 8230 *Cynia tenera* Hbn.: S. Bass, 2 Aug. 1988 (S. Ellenberger).  
 8267 *Cispeps fulvicollis* (Hbn): Gibraltar, 8 Sept. 1987 (R. W. Kings). N. Bass, 19 Aug. 1985 (DJH).  
 8316 *Orgyia leucostigma* (J. E. Smith): Gibraltar, 26 June 1980 (S. W. Nichols) (larva). S. Bass, 23 July 1987 (DJH).  
 8318 *Lymantria dispar* (L.): Kelleys, 28 July 1988 (DJH). S. Bass, 22 July 1987 (DJH).  
 8322 *Idia americanalis* (Gn.): S. Bass, 14 Aug. 1985 (DJH).  
 8334 *Idia lubricalis* (Gey.): Gibraltar, July 1962 (ABH). S. Bass, 19 Aug. 1985 (DJH).  
 8338 *Phalaenophana pyramusalis* (Wlk.): S. Bass, 21 Aug. 1985 (DJH).  
 8348 *Zanclonathia pedipalpis* (Gn.): S. Bass, 2 June 1988 (BAN).  
 8398 *Palthis asoptialis* (Gn.): S. Bass, 25 Aug. 1985 (DJH).  
 8465 *Plathyrena scabra* (F.): Gibraltar, 12 Sept. 1988 (DJH). Kelleys, 29 July 1988 (DJH). M. Bass, 27 July 1987 (BAN). S. Bass, 21 Aug. 1985 (DJH).  
 8649 *Ascalapha odorata* (L.): S. Bass, 16 July 1941 (B. Brown).  
 8689 *Zale lunata* (Drury): S. Bass, 30 Aug. 1985 (DJH).  
 8727 *Parallexia bistriaris* Hbn.: S. Bass, 4 Aug. 1988 (DJH).  
 8739 *Caenurgina erechtea* (Cram.): Kelleys, 29 July 1988 (DJH). M. Bass, 8 Aug. 1988 (DJH), Pelee, 17 July 1981 (NWB). S. Bass, n.d. (GM).  
 8771 *Catocala piatrix* Grt.: S. Bass, 8 Aug. 1988 (P. Kovarik).  
 8792 *Catocala vidua* (J. E. Smith): S. Bass, 19 Aug. 1985 (DJH).  
 8797 *Catocala subnata* Grt.: S. Bass, 25 Aug. 1985 (DJH).  
 8801 *Catocala itia* (Cram.): Gibraltar, Aug. 1962 (ABH). S. Bass, 19 Aug. 1985 (DJH).  
 8802 *Catocala cerogama* Gn.: S. Bass, 29 Aug. 1985 (DJH).  
 8806 *Catocala parva* Gn.: S. Bass, 1 Aug. 1988 (DJH).  
 8832 *Catocala cara* Gn.: S. Bass, 26 July 1987 (BAN).  
 8834 *Catocala amatric* (Hbn.): S. Bass, 25 Aug. 1985 (DJH).  
 8857 *Catocala ultronia* (Hbn.): Gibraltar, July 1962 (ABH). S. Bass, 27 July 1988 (DJH).  
 8858 *Catocala crataegi* Saund.: S. Bass, 1 Aug. 1988 (DJH).  
 8864 *Catocala grynea* (Cram.): S. Bass, 21 July 1987 (DJH).  
 8890 *Pseudoplusia includens* (Wlk.): S. Bass, 2 Aug. 1988 (DJH).  
 8908 *Autographa precatomis* (Gn.): Kelleys, 22 July 1987 (BAN). S. Bass, 21 Aug. 1985 (DJH).  
 8924 *Anagrapha falcifera* (Kby.): Kelleys, 22 July 1987 (BAN). N. Bass, 19 Aug. 1988 (S. Ellenberger). S. Bass, 19 Aug. 1985 (DJH).  
 8952 *Plusia compta* Grt.: S. Bass, 21 July 1987 (DJH).  
 8955 *Marathyssa inficta* (Wlk.): S. Bass, 26 Aug. 1985 (DJH).  
 8973 *Baileya australis* (Grt.): S. Bass, 29 July 1987 (DJH).  
 9053 *Lithacodia carneola* (Gn.): S. Bass, 28 July 1987 (DJH).  
 9095 *Tarachidia erastrioides* (Gn.): S. Bass, 21 July 1987 (DJH).  
 9199 *Acronicta rubricoma* Gn.: S. Bass, 26 Aug. 1985 (DJH).  
 9200 *Acronicta americana* (Harr.): Gibraltar, July 1962 (ABH). S. Bass, 27 July 1988 (DJH).  
 9235 *Acronicta spinigera* Gn.: S. Bass, 28 July 1987 (DJH).  
 9272 *Acronicta oblongata* (J. E. Smith): S. Bass, 21 July 1987 (DJH).
- 8134 *Hyagyrtis unipunctata* (Haw.): S. Bass, 21 Aug. 1985 (DJH).  
 8137 *Lomographa vestaliata* (Gn.): S. Bass, 2 June 1988 (DJH).  
 8140 *Euchlaena obtusaria* (Hbn.): S. Bass, 7 Aug. 1988 (DJH).  
 8146 *Pero honestaria* (Wlk.): Gibraltar, 21 June 1971 (n.c.).  
 8156 *Pero huberaria* (Gn.): S. Bass, 31 July 1987 (DJH).  
 8169 *Ennomos magnaria* Gn.: S. Bass, 28 July 1987 (DJH).  
 8171 *Eusarca confusaria* Hbn.: S. Bass, 22 Aug. 1985 (DJH).  
 8203 *Prochoerodes transversata* (Drury): S. Bass, 1 Aug. 1988 (DJH).  
 8230 *Dichorda iridaria* (Gn.): S. Bass, 22 July 1987 (DJH).  
 8267 *Haematopis grataria* (F.): M. Bass, 8 Aug. 1988 (DJH). N. Bass, 24 July 1987 (BAN). Pelee, 8 Aug. 1962 (RHD). S. Bass, 5 July 1950 (MWB).  
 8316 *Scopula limboundata* (Haw.): S. Bass, 13 July 1966 (RHD).  
 8318 *Dysstroma hersiliata* (Gn.): S. Bass, 22 July 1987 (DJH).  
 8319 *Eulithis diversilineata* (Hbn.): Gibraltar, July 1962 (ABH). S. Bass, 22 July 1987 (DJH).  
 8322 *Epirrhoe alternata* (Müller): S. Bass, 3 June 1988 (DJH).  
 8334 *Orthonama centrostrigaria* (Woll.): S. Bass, 29 July 1987 (DJH).  
 8338 *Dyspteris abortivaria* (H.-S.): Gibraltar, July 1962 (ABH).  
 8348 *Apatelodes torrefacta* (J.E. Smith): S. Bass, 22 June 1949 (F. Langlois).  
 8398 *Totype vellela* (Stoll): S. Bass, 1 Aug. 1987 (DJH) (larva).  
 8465 *Sphingicampa bicolor* (Harr.): S. Bass, 20 July 1987 (BAN).  
 8649 *Automeris io* (F.): Kelleys, 28 July 1988 (M. Pauff) (larvae). S. Bass, 11 July 1945 (C. Langlois).  
 8689 *Antheraea polyphemus* (Cram.): S. Bass, 24 June 1942 (MWB).  
 8727 *Actias luna* (L.): S. Bass, 7 July 1949 (F. Webster).  
 8739 *Hyalophora cecropia* (L.): S. Bass, 20 June 1942 (n.c.).  
 8771 *Manduca quinquemaculata* (Haw.): S. Bass, 11 July 1941 (n.c.).  
 8778 *Ceratonia amytor* (Geyer): S. Bass, 2 July 1946 (MWB).  
 8787 *Ceratonia undulosa* (Wlk.): Gibraltar, 18 July 1972 (L. Fay). N. Bass, 11 Aug. 1947 (A. Badola). S. Bass, n.d. (GM).  
 8789 *Ceratonia catalpae* (Bdv.): Gibraltar, July 1962 (ABH). S. Bass, 21 July 1987 (BAN).  
 8802 *Sphinx chersis* (Hbn.): Gibraltar, 19 July 1979 (n.c.). S. Bass, 17 July 1946 (MWB).  
 8821 *Smerinthus jamaicensis* (Drury): S. Bass, 6 Aug. 1945 (C. Langlois).  
 8853 *Hemaris thysbe* (F.): Kelleys, 22 July 1987 (DJH).  
 8855 *Hemaris diffinis* (Bdv.): Kelleys, 22 July 1987 (BAN).  
 8859 *Eurmorphia pandorus* (Hbn.): S. Bass, 4 Aug. 1942 (n.c.).  
 8871 *Deidamia inscripta* (Harr.): Gibraltar, June 1962 (ABH).  
 8885 *Darapsa myron* (Cram.): S. Bass, 2 Aug. 1987 (BAN).  
 8896 *Closteria inclusa* (Hbn.): S. Bass, 25 July 1987 (DJH).  
 8902 *Datana ministra* (Drury): S. Bass, 22 July 1967 (RHD).  
 8906 *Datana contracta* Wlk.: Gibraltar, July 1962 (ABH). S. Bass, 21 July 1987 (DJH).  
 8915 *Noada gibbosa* (J.E. Smith): S. Bass, 28 Aug. 1985 (DJH).  
 8929 *Nerice bidentata* Wlk.: S. Bass, 3 Aug. 1988 (DJH).  
 8985 *Heterocampa subrotata* Harv.: Gibraltar, 23 June 1966 (RHD). S. Bass, 25 July 1987 (DJH).  
 8005 *Schizura ipomoeae* Doubleday: S. Bass, 27 July 1967 (RHD).  
 8009 *Schizura apicalis* (G. & R.): S. Bass, 30 July 1988 (DJH).  
 8112 *Haploa confusa* (Lyman): Gibraltar, 16 July 1972 (L. Fay).  
 8129 *Pyrrharctia isabella* (J. E. Smith): Gibraltar, July 1962 (ABH).

- Eudryas unio* (Hbn.): S. Bass, 10 Aug. 1946 (n.c.).  
*Eudryas grata* (F.): S. Bass, 20 June 1967 (RHD).  
*Alypia octomaculata* (F.): N. Bass, 24 July 1987 (BAN). S. Bass, 7 July 1940 (n.c.).  
*Apamea amputatrix* (Fitch): S. Bass, 10 July 1966 (RHD).  
*Amphipoea americana* (Speyer): S. Bass, 24 July 1987 (DJH).  
*Hyppa xylinoides* (Gn.): S. Bass, 26 Aug. 1985 (DJH).  
*Amphipyra pyramitoides* Gn.: Gibraltar, 12 Sept. 1988 (DJH). S. Bass, 30 Aug. 1985 (DJH).  
*Galgula partita* Gn.: S. Bass, 3 Aug. 1988 (DJH).  
*Stirioides obtusa* (H.-S.): S. Bass, 28 July 1987 (DJH).  
*Anathix ralla* (G. & R.): S. Bass, 23 Aug. 1985 (DJH).  
*Cucullia convexipennis* G. & R.: S. Bass, 23 Aug. 1985 (DJH).  
*Lacinipolia renigera* (Steph.): S. Bass, 21 Aug. 1985 (DJH).  
*Pseudaletia unipuncta* (Haw.): Gibraltar, July 1962 (ABH). Kelleys, 29 July 1988 (DJH). S. Bass, 20 July 1967 (RHD).  
*Leucania multineata* Wlk.: S. Bass, 21 Aug. 1985 (DJH).  
*Agrotis ipsilon* (Hufn.): Kelleys, 29 July 1988 (DJH). S. Bass, 20 July 1967 (RHD).  
*Feltia jaculifera* (Gn.): S. Bass, 19 Aug. 1985 (DJH).  
*Peridroma saucia* (Hbn.): Gibraltar, July 1962 (ABH). S. Bass, 26 July 1967 (RHD).  
10942.1 *Xestia dolosa* Franc.: S. Bass, 30 July 1987 (DJH).  
111068 *Heliothis zea* (Boddie): Gibraltar, 12 Sept. 1988 (DJH).  
111135 *Schinia rivulosa* (Gn.): S. Bass, 23 Aug. 1985

n.d. = no date on collection label.

n.c. = no collector on collection label.

collectors, abbreviated: MWB = Marion W. Boesel; NWB = N. Wilson Brit; RHD = Ralph H. Davidson; DJH = David J. Horn; ABH = Anne B. Horwath; GM = Great Mystery (label records initials only); BAN = Brian A. Nault.

Some species that are encountered infrequently on the mainland of Ohio, Michigan, or Ontario are common in certain island habitats due to the relative abundance of their host plants. *Asterocampa celtis*, *A. clyton*, and *Libytheana bachmannii* are found in the woodlands and abandoned fields where their food plant, *Celtis occidentalis*, grows profusely. *Papilio cresphontes* is common and widespread due to the presence of its host, *Xanthoxylum americanum*. *Hylolycaena hylus* is common at borders of marshes on Middle and North Bass Is. where *Rumex crispus* grows profusely.

*Lymantria dispar*, the gypsy moth, has recently dispersed into the western Lake Erie area, causing concern to many persons. Eradication procedures have been effective at times. In 1980, 120 ha of woodland on Catawba Island were treated with trichorfon without success. In 1981, 250 ha were treated with carbaryl, and no male moths were found in pheromone traps during 1982. Since 1985, male gypsy moth adults have been found on the western Lake Erie islands in increasing numbers. Most are thought to have been blown across Lake Erie from Michigan (K. Roach, pers. comm.), although eggs were discovered on South Bass Is. in 1989, and about 40 ha. were treated with diflubenzuron. Widespread use of insecticides against gypsy moths would have a negative impact on most Lepidoptera.

The islands lie along a major migration pathway for *Danaus plexippus*. Numbers of the monarch butterfly appear to fluctuate greatly from year to year in late summer (Teraguchi 1988, and our observations). Additional intensive study might reveal a major role of the islands as a breeding and staging area for the monarch migration. South Bass is also one of the few Ohio localities from which the long-distance flier *Ascalapha odorata* has been recorded. Wormington (1983) listed 12 species of southern migrants from Pt. Pelee and some of these may migrate northward across the islands.

Additional collecting may expand this checklist to increase its utility. Examination of additional collections, especially in Canada, should produce additional data. Standard

collecting procedures may be applied year round so that species limited to early spring and late autumn will be accounted for. Efforts should be made to collect from other islands. With such data, one could compare species composition among the various islands; relationships between species richness and island size plus distance from the mainland would be of interest. Species turnover on the smallest islands would be of interest, as host plants are known to colonize and disappear almost at random on the outer islets (Duncan and Stuckey 1970). A larval survey could be conducted to distinguish between transitory and endemic species. Much greater emphasis could be concentrated on collecting microlepidoptera. We hope that dissemination of this list will stimulate further interest in researching the terrestrial entomofauna of this unique area.

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