

**Insect Inventory at the Detroit River International Wildlife Refuge,
Humbug Marsh Unit, 2008**
Final report (amended)

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This report summarizes a follow-up inventory of Odonata (damselflies, suborder Zygoptera, and dragonflies, suborder Anisoptera) at the Detroit River International Wildlife Refuge, Humbug Marsh Unit, Trenton and Gibraltar, Wayne County, MI (hereafter referred to as “Humbug”) as recommended in Craves (2007). The 2008 surveys emphasized recording Odonata species with early flight seasons, as well as those species that may have been under-represented in 2007 due to hot, dry weather that year.

Another objective of these surveys was to compile a list of the Lepidoptera present at Humbug, and to try to determine the importance of Humbug as a migratory stopover for Monarchs (*Danaus plexippus*) by participating in the Monarch tagging project administered by the Kansas Biological Survey.

Methods

Odonata

Odonata surveys generally followed the same methods outlined in Craves (2007) with some adjustments. More emphasis was placed on early-season species, and locating new, easily overlooked species, with less time spent determining absolute abundance of species already established as abundant. Larval sampling was not done in 2008. The south end of Humbug, along old Gibraltar Road and the Handler Drain, was not accessible after mid-June due to construction activities. The area of the viewing platform in the “education triangle” was also periodically inaccessible for the same reason. Therefore, many of the surveys concentrated on the habitats adjacent to the Detroit River and Monguagon ditch.

The site was visited 15 times: twice in May, four times each in June and July, once in August, and two times each in September and October. One July visit was by boat along the Detroit River, primarily to determine where the state special concern Russet-tipped Clubtail was laying eggs (scientific names given in Appendix A). Any voucher specimens have been deposited into the University of Michigan Museum of Zoology, Insect Division, and have been cataloged by the Michigan Odonata Survey.

Lepidoptera

During site visits, all Lepidoptera were noted. This included moths and larvae in addition to adults, but only adult butterflies and skippers are reported here. Some individuals were netted and/or photographed to confirm identity, but none were collected. Species abundance was not recorded.

In late summer, attention was focused on Monarchs. The Kansas Biological Survey at the University of Kansas administers a Monarch tagging project in which Monarchs are captured and a paper tag is adhered to a hind wing (Monarch Watch 2008). These tags are later reported from the along the migratory route and wintering areas in Mexico. Tags were obtained from Monarch Watch, and any Monarchs encountered beginning in September were netted and tagged according to Monarch Watch protocol, and the tag numbers reported to the organization at the end of the season.

Results

Odonata

Forty-three species of Odonata were recorded in 2008: fourteen species of damselflies and 29 species of dragonflies. For comparison, in 2007 there were 37 species recorded, 12 damselflies and 25 dragonflies. Seven specimens were taken that represent new early or late flight dates for the county.

Eight new species were recorded for Humbug. Vouchers were obtained for five of the eight species. Three of the new species also represent new county records. One of the new county records is “unofficial” as a voucher was not obtained. In addition, two other species which had been recorded prior to 2007, but not that year, were found this year.

Only four species recorded in 2007 were not recorded this year. Two of them are rare species not expected to be regularly encountered. The absence of other two can be attributed to lack of access to Handler Drain, where they were previously found. Several other species were not found in similar abundance as last year; declines may or may not be reflected in a change in abundance class due to the tiered nature of the classes (Craves 2007). For some species, this was a perceived decline, also due to lack of access to Handler Drain or the viewing platform. For others, it was more likely due to the clearing of vegetation in the vicinity of the viewing platform and Monguagon ditch. This modification eliminated resting places for smaller species, territorial perches, and perhaps diminished prey. Portions of Monguagon ditch were less shaded than previous years. This exposure seems to have made it less appealing for some of the large darners and small damselflies. This could be due to vegetation structure (lack of perch, hiding, or emergence places), alteration in water temperatures, changes in prey abundance, or increased predation (exposure to birds or other predators). Natural population fluctuations, however, can't be ruled out.

Further details are provided under Notable Species. Appendix A lists all 47 species that have now been recorded at Humbug the past two years, and their status in 2007 and 2008.

NOTABLE SPECIES

Ebony Jewelwing. New species for site, one observation, no voucher obtained. Regionally, a fairly common species of shady streams.

Smoky Rubyspot. New county record. Listed as a Species of Greatest Conservation Need in Michigan (Eagle et al. 2005). A female collected along the Detroit River, perched in the dogwoods on the former Chrysler site on 21 September, was quite a surprise. There are only seven other specimens from the state, from Jackson and Livingston counties (MOS 2008). There are no records from Essex County, Ontario (OOA 2005), or the counties bordering Lake Erie in

Ohio (Rosche et al. 2007, Glotzhober and McShaffrey 2002). The much more common and widespread American Rubyspot (*H. americana*) would be the expected species, but even that species has never been collected along the Detroit River.



Smoky Rubyspot, first Wayne County record, 21 September 2008, Detroit River International Wildlife Refuge, Humbug Marsh Unit.

Northern Spreadwing. New species for site, one specimen. The two former subspecies of “Common” Spreadwing are considered by most taxonomists to be separate species, Northern and Southern Spreadwing, based on the work on Donnelly (2003). Despite the former name, this species is not common in the county.

Southern Spreadwing. New species for site, first county record, one specimen. A female collected on 29 June was verified as this species by comparing it to other specimens in the collection of the University of Michigan Museum of Zoology, Insect Division.

Swamp Darner. New species for site, one observation, no voucher obtained. These large darners are uncommon but regular early summer migrants in the state.

Cobra Clubtail (*Gomphus vastus*). Unofficial new county record. A fresh female was photographed on 15 June 2008 in the dogwoods near the Detroit River on the former Chrysler site. Unfortunately, she eluded capture. This is a distinctive species identifiable from a photograph, but a voucher is required by the Michigan Odonata Survey for county and state records. There are only ten state specimens, and none from the southern half of the Lower Peninsula since 1917 (MOS 2008). It is considered rare in Essex County, Ontario (Pratt 2008). Historically, this was a common species of the Bass Islands (Ohio) of Lake Erie (Kennedy 1922). Although the status in Ohio overall is common but limited (Glotzhober and McShaffrey 2002), Rosche et al. (2008) describe it as accidental in Ohio east of Ottawa County.



Cobra Clubtail, first Wayne County record, 15 June 2008,
Detroit River International Wildlife Refuge, Humbug Marsh Unit.

Elusive Clubtail. This is a species of special concern in Michigan. It was recorded at Humbug in 2006 and 2007, and a female was recorded on 21 September 2008.

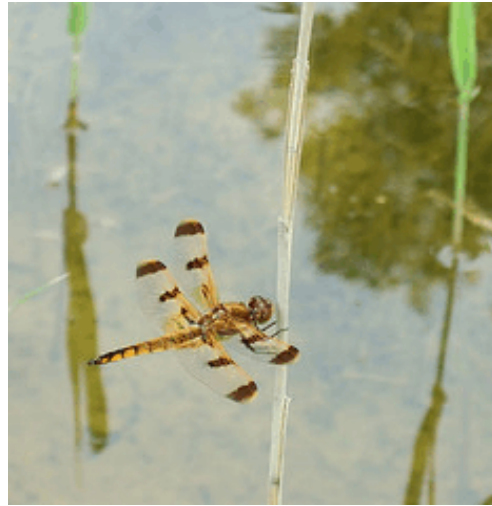
Russet-tipped Clubtail. Also a species of special concern in Michigan. In 2007, a total of 121 individuals were recorded, with a high count of 68 on 18 August (Craves 2007). This year, 217 were counted, with a high count of 91 in a single hour on 17 August. The first Russet-tipped Clubtails were seen on 4 July and the last on 27 September. These are new early and late flight dates for this species in the state, extending the overall flight period by 29 days. This is valuable data for a species for which so little is known.

An effort was made to locate territorial patrolling males and/or ovipositing females on the Detroit River by exploring the shoreline by boat on 31 July. No clubtails were seen over the river adjacent to Humbug, even though nearly 30 individuals were recorded on the mainland a few days previously, mostly at the southeastern corner of the former Chrysler property. Nor were any Russet-tipped Clubtails found near any of the other nearby islands or shores that were explored that day. Determining where the larvae of this species are developing is important to the preservation of this species on Refuge property.

I have published requests for information on Russet-tipped Clubtails in the Upper Midwest both online and in the Michigan Odonata Survey newsletter, *Williamsonia*, reaching hundreds of readers. The lack of response to my requests and the extraordinary abundance of Russet-tipped Clubtails at Humbug substantiates the likelihood that this is the largest known population of this species in the Great Lakes region.

Dot-tailed Whiteface. New for site, one specimen. A common pond species of early summer.

Painted Skimmer (*Libellula semifasciata*). The first Wayne County record of this species was collected by the author at Humbug in 2005. Another was not seen in the county until two were found this year at Humbug on the former Chrysler property on 15 June.



Painted Skimmer, 15 June 2008,
Detroit River International Wildlife Refuge, Humbug Marsh Unit.

Great Blue Skimmer (*Libellula vibrans*). The first specimens of this species for the state were collected elsewhere in Wayne County in 2005 (Craves 2006). In 2007 it was found at multiple locations in the county, including a sight record at Humbug on 26 August. This year, an immature male was collected near the Detroit River at the transition of the old field to oak-hickory forest on 29 June.

White-faced Meadowhawk. New for site, several observations, one specimen. A common species that was expected with wetter weather.

Lepidoptera

Since 2005, thirty-nine species adult butterfly and skippers have been identified at Humbug (Appendix B). In addition, 21 species of moths have been positively identified as they have been encountered, but no specific effort has been made to inventory them. Over two-dozen of the butterfly and skipper species have been seen annually. Two new species, Bronze Copper and “Northern” Oak Hairstreak (scientific names in Appendix B), were first recorded in 2008, which was judged to be a poor year overall for butterflies; see Monarch account. The most notable species on the list include:

- **“Northern” Oak Hairstreak** (formerly “Northern” Southern Hairstreak). On 29 June 2008, a hairstreak was photographed near the ecotone between the mature oak forest and old field habitats. As the look was brief, it was presumed to be a Gray Hairstreak. Upon examination of the photograph, it appeared to instead be an Oak Hairstreak of the northern subspecies. There is enough similarity between the two species that Michigan experts were initially reluctant to identify it as this very rare species. Several outside experts were consulted, and the consensus is that this is the second record of “Northern” Oak Hairstreak for Michigan (Oosting et al. 1979), a species of special concern in the state (MNFI 2007).

- **Gray Hairstreak.** One recorded 29 September 2007. Rare in region (Washtenaw, Wayne, Monro, and Lenawee counties), with only six individuals recorded in 2007 and 2008 (Kuhlman 2008). **Northern Pearly-eye.** One on 22 June 2005 is the only record.
- **American Snout.** One on 28 July 2007. A southern species that is very uncommon, especially in Wayne County, although 2007 was an excellent year for them in this area (Kuhlman 2008).
- **Common Buckeye.** A few individuals of this southern species are seen annually. Sites along the Detroit River are often the best places to see them.
- **Fiery Skipper.** Another southern species that can be common some years. A few have been seen most years except in 2008.



“Northern” Oak Hairstreak, 28 June 2008,
second state record, first county record
Detroit River International Wildlife Refuge, Humbug Marsh Unit.

Monarch tagging

The highly migratory Eastern populations of Monarch butterflies winter in Mexico. Like birds, they require feeding sites during migration that provide fuel for their long flight (Brower et al. 2006). They are reluctant to cross the Great Lakes (Brower 1995) and tend to take the shortest route across water. Humbug may be an important crossing point and stopover site, particularly in light of the scarcity of natural habitats at this lower Great Lakes crossing point.

In previous summers, large numbers (many dozens) of these butterflies were noted nectaring on acres of *Eupatorium* and *Solidago* located on the former Chrysler property, as well as along old Gibraltar Road. Unfortunately, very few were seen in 2008. During the migratory period, four

visits were made to Humbug to tag Monarchs. Fewer than ten individuals were observed! Only one was tagged, a female on 12 October. Two other sites within Refuge boundaries were also visited, Lake Erie Metropark and the nature area on Grosse Ile. Three Monarchs were observed at Lake Erie Metropark, and one was seen at Grosse Ile. One at each location was able to be captured and tagged.

This lack of Monarchs was noted by Monarch Watch participants (Taylor 2008). Journey North, an educational project that compiles migratory animal sightings, also reported low numbers with 135 migratory roost sites reported, compared to 270 in 2007 and 170 in 2006 (Journey North 2008). This year's average migration rate at the Monarch Monitoring Project in New Jersey was 30 monarchs per hour, the fifth lowest count in 16 years. For perspective, in 2007 there were 80 per hour and 202 per hour in 2006.

The slump was apparently due to a low population of reproducing adults (the generation that lays eggs that develop into the adults that migrate to Mexico). Potential factors for this reduction put forth by Taylor (2008) included poor weather in May and June limiting dispersal, reducing egg laying, and increasing mortality of adult Monarchs of the previous generation; and/or low numbers of the northbound population reaching eastern breeding areas.

Recommendations

- Continue to monitor Russet-tipped Clubtail population and determine breeding areas.
- Continue to monitor effects of restoration and construction projects on Odonata species richness and abundance.
- Search for a breeding population of the state special concern "Northern" Oak Hairstreak.
- Make another attempt to tag migrating Monarchs.
- Initiate a North American Butterfly Association annual Butterfly Count; once established, public can participate.

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Appendix A

Adult Odonata recorded at the Detroit River International Wildlife Refuge,
Humbug Marsh Unit, 2007 and 2008.

Species	Abundance class - 2007 ¹	Abundance class - 2008	Notes
SUBORDER ZYGOPTERA			
FAMILY CALOPTERYGIDAE			
<i>Calopteryx maculata</i> , Ebony Jewelwing		Rare	New species for site, voucher not obtained.
<i>Hetaerina titia</i> , Smoky Rubyspot		Rare	New county record. See Notable Species.
FAMILY LESTIDAE			
<i>Lestes dryas</i> , Emerald Spreadwing	Rare	Rare	
<i>Lestes [disjunctus] disjunctus</i> , Northern Spreadwing		Rare.	New species for site.
<i>Lestes [disjunctus] australis</i> , Southern Spreadwing		Rare	New county record. See Notable Species.
<i>Lestes rectangularis</i> , Slender Spreadwing	Uncommon	Uncommon	
FAMILY COENAGRIIDAE			
<i>Argia apicalis</i> , Blue-fronted Dancer	Uncommon	Uncommon	
<i>Enallagma carunculatum</i> , Tule Bluet	Extremely abundant	Extremely abundant	Vouchered new early and new late dates for county.
<i>Enallagma civile</i> , Familiar Bluet	Extremely abundant	Extremely abundant	Vouchered new late date for county.
<i>Enallagma exsulans</i> , Stream Bluet	Extremely abundant	Extremely abundant	

Appendix A, continued.

<i>Enallagma geminatum</i> , Skimming Bluet	Extremely abundant		Not recorded in 2008; previously only found on Handler Drain, which was not accessible due to construction work.
<i>Enallagma signatum</i> , Orange Bluet	Abundant	Frequent	Vouchered new late date for county.
<i>Enallagma vesperum</i> , Vesper Bluet	Rare	Rare	
<i>Ischnura posita</i> , Fragile Forktail	Frequent	Frequent	
<i>Ischnura verticalis</i> , Eastern Forktail	Extremely abundant	Extremely abundant	
<i>Nehalennia irene</i> , Sedge Sprite	Rare		Not recorded in 2008.
SUBORDER ANISOPTERA			
FAMILY AESHNIDAE			
<i>Aeshna constricta</i> , Lance-tipped Darner	Rare	Rare	
<i>Aeshna umbrosa</i> , Shadow Darner	Uncommon	Uncommon	
<i>Anax junius</i> , Common Green Darner	Abundant	Extremely abundant	
<i>Anax longipes</i> , Comet Darner	Rare	Rare	
<i>Epiaeschna heros</i> , Swamp Darner		Rare	New species for site, voucher not obtained.
FAMILY GOMPHIDAE			
<i>Arigomphus villosipes</i> , Unicorn Clubtail	Rare		Not recorded in 2008; previously only found on Handler Drain, which was not accessible due to construction work.
<i>Gomphus vastus</i> , Cobra Clubtail		Rare	New species for site. See Notable Species.
<i>Stylurus notatus</i> , Elusive Clubtail	Uncommon	Rare	See Notable Species.
<i>Stylurus plagiatus</i> , Russet-tipped Clubtail	Abundant	Extremely abundant	See Notable Species.

Appendix A, continued.

FAMILY MACROMIIDAE			
<i>Macromia taeniolata</i> , Royal River Cruiser	Rare	Rare	
FAMILY CORDULIIDAE			
<i>Epitheca cynosura</i> , Common Baskettail	Rare	Uncommon	
<i>Epitheca princeps</i> , Prince Baskettail	Uncommon	Rare	Previously often recorded on Handler Drain and at viewing platform, which were not accessible due to construction work.
FAMILY LIBELLULIIDAE			
<i>Celithemis elisa</i> , Calico Pennant		Uncommon	This species had been recorded prior to 2007.
<i>Celithemis eponina</i> , Halloween Pennant	Rare	Rare	
<i>Erythrodiplax umbrata</i> , Band-winged Dragonlet	Rare		Not recorded in 2008. Those present in 2007 represented vagrants that were the first recorded for Michigan (Craves and O'Brien 2007).
<i>Erythemis simplicicollis</i> , Common [Eastern] Pondhawk	Frequent	Uncommon	Previously often recorded on Handler Drain and at viewing platform, which were not accessible due to construction work.
<i>Leucorrhinia intacta</i> , Dot-tailed Whiteface		Rare	New species for site.
<i>Libellula luctuosa</i> , Widow Skimmer	Rare	Rare	
<i>Libellula lydia</i> , Common Whitetail	Uncommon	Uncommon	
<i>Libellula pulchella</i> , Twelve-spotted Skimmer	Uncommon	Frequent	
<i>Libellula semifasciata</i> , Painted Skimmer		Rare	See Notable Species.

Appendix A, continued.

<i>Libellula vibrans</i> , Great Blue Skimmer	Rare	Rare	See Notable Species.
<i>Pachydiplax longipennis</i> , Blue Dasher	Abundant	Uncommon	Previously often recorded on Handler Drain or at viewing platform, which were not accessible due to construction work.
<i>Pantala flavescens</i> , Wandering Glider	Abundant	Frequent	Dry late season probably depressed numbers.
<i>Pantala hymenaea</i> , Spot-winged Glider	Uncommon	Uncommon	Vouchered new early date for county.
<i>Perithemis tenera</i> , Eastern Amberwing	Uncommon	Rare	Previously often recorded on Handler Drain or at viewing platform, which were not accessible due to construction work.
<i>Symptetrum obtrusum</i> , White-faced Meadowhawk		Uncommon	New for site.
<i>Sympetrum rubicundulum</i> , Ruby Meadowhawk	Rare	Uncommon	Vouchered new late date for county.
<i>Sympetrum vicinum</i> , Autumn Meadowhawk	Uncommon	Uncommon	
<i>Tramea carolina</i> , Carolina Saddlebags	Rare	Rare	
<i>Tramea lacerata</i> , Black Saddlebags	Abundant	Abundant	

¹Based on the survey date with the largest number of individuals recorded. 1 = Rare, 2 = Uncommon, 3 = Frequent, 4 = Abundant, 5 = Extremely abundant.

Appendix B

Adult butterflies and skippers recorded at the Detroit River International Wildlife Refuge,
Humbug Marsh Unit, 2005-2008.

Family Papilionidae:

Swallowtail Butterflies

Black Swallowtail, *Papilio polyxenes*
Giant Swallowtail, *Papilio cresphontes*
Eastern Tiger Swallowtail, *Papilio glaucus*

Family Pieridae:

Whites and Sulphurs

Cabbage White, *Pieris rapae*
Clouded Sulphur, *Colias philodice*
Orange Sulphur, *Colias eurytheme*

Lycaenidae:

Coppers, Blues, Hairstreaks and Harvesters

Bronze Copper, *Lycaena [Hyllolycaena] hyllus*
Banded Hairstreak, *Satyrium calanus*
“Northern” Oak Hairstreak, *Satyrium favonius ontario*
Striped Hairstreak, *Satyrium liparops*
Gray Hairstreak, *Strymon melius*
Eastern Spring Azure, *Celastrina lucia*
Summer Azure, *Celastrina neglecta*
Eastern Tailed Blue, *Cupido [Everes] comyntas*

Family Nymphalidae:

Brush-footed Butterflies

Common Wood-Nymph, *Cercyonis pegala*
Northern Pearly-eye, *Enodia anthedon*
Little Wood Satyr, *Megisto cymela*
American Snout, *Libytheana bachmanii*
Monarch, *Danaus plexippus*
Baltimore Checkerspot, *Euphydryas phaeton*
Common Buckeye, *Junonia coenia*
Mourning Cloak, *Nymphalis antiopa*
Pearl Crescent, *Phyciodes tharos*
Comma, *Polygonia comma*
Question Mark, *Polygonia interrogationis*
Red Admiral, *Vanessa atalanta*
Painted Lady, *Vanessa cardui*
American Lady, *Vanessa virginiensis*
Viceroy, *Limenitis archippus*
Red-spotted Purple, *Limenitis arthemis*

Family Hesperiidae: Skippers

Least Skipper, *Ancyloxypha numitor*
Fiery Skipper, *Hylephila phyleus*
Hobomok Skipper, *Poanes hobomok*
Long Dash, *Polites mystic*
Peck's Skipper, *Polites peckius*
Little Glassywing, *Pompeius verna*
European Skipper, *Thymelicus lineola*
Northern Broken-Dash, *Wallengrenia egeremet*
Silver-spotted Skipper, *Epargyreus clarus*