

2013 Survey of Odonata on the Upper Mississippi and Trempealeau National Wildlife Refuges

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Introduction

During the fall and winter of 2012, I decided to try to spend more time in 2013 surveying Odonata (Dragonflies and Damselflies) on the Upper Mississippi and Trempealeau National Wildlife Refuges. I applied for and received a permit to collect specimens and started looking for Odonata in late April, 2013. Unfortunately, high water, poor weather conditions, and equipment problems reduced the number of outings that I was able to take via boat onto the refuges. Instead, I spent the majority of my survey effort surveying on dry land adjacent to various wetlands on the refuges, often during my lunch breaks or at the end of my work day. This effort included 56 location surveys on about 40 different dates from April 28, 2013, when I spotted my first *Anax junius* (Common Green Darner) of the year, until October 17, 2013, when I saw my last *Sympetrum vicinum* (Autumn Meadowhawk) of the flight season.

I tried to take pictures and record sightings of other insects that I spotted while surveying for Odonata. I was able to record 147 sightings of Diptera (flies), Hemiptera (Cicadas), Hymenoptera (Bees), and Lepidoptera (butterflies) in addition to the 437 sighting records of Odonata that I recorded. A summary of those sightings will be included at the end of my Odonata survey results.

2013 was a frustrating year for surveying Odonata. Spring was relatively late, chilly, windy, and cloudy. The Mississippi River was also very high and this made surveying very difficult through June. As a result, I missed many of the odonates that fly in the early part of the flight season. The late part of the season was interesting as well. We did not have a killing frost until mid-October so there were several unusual species sightings in late September and early October. When it finally cooled off in October, the change was immediate and complete. After October 20, 2013, there were only a couple of days when the temperatures were higher than 50 degrees Fahrenheit. As a result, my last Odonata sighting of the year was that of a single *Sympetrum vicinum* (Autumn Meadowhawk) on October 17, 2013. This is about 2-3 weeks earlier than my normal last sighting of this species in this area of Wisconsin.

Method

Time was spent surveying from a boat on the refuges and surveying on land adjacent to various aquatic habitats on the refuges. When I was surveying on or at the edge of the water, I made a special effort to record breeding activity (pairs in tandem, patrolling males, and/or ovipositing females). Flying adults were photographed and/or netted when that was required to make a positive ID. At the request of Stephen Winter, specimens were also collected when possible.

Odonata spend a significant part of their adult life stage flying away from water. Immediately after they emerge, teneral typically make their first flight away from water in order to avoid confrontation with

adults and to find good feeding locations. They typically spend a few days to a couple of weeks eating and maturing before they head back to water habitats to mate and reproduce. Therefore, surveying of upland areas adjacent to various water habitats can be a good way of finding large numbers of immature adults and sometimes mature adults that are feeding and resting.

Results

Over the course of the 2013 flight season, I (with some help from Don Severson of rural Ettrick) recorded 50 species of Odonata on the Upper Mississippi and Trempealeau wildlife refuges. Some of these species were very common and seen on a regular basis and others were relatively rare and often only found at a single spot on a single outing. The following is a summary of my findings by family.

Sub-Order Zygoptera – Damselflies

Family Calopterygidae – Broad-Winged Damselflies

Broad-winged Damselflies prefer moving, more highly oxygenated water. In 2013, I only found one member of this family during my surveys. This was *Hetaerina americana* (American Rubyspot). I found a small number of this species in the Trempealeau NWR along the Trempealeau River. There were both males and females present but reproduction activity was not noted.

Family Lestidae – Spreadwing Damselflies

I found two species of Pond Spreadwings during my refuge surveys in 2013. The most common was *Lestes rectangularis* (Slender Spreadwing). It was documented with six sightings that were spread over 4 counties in Wisconsin ranging from Grant County in the south to Trempealeau County in the north. These included Vernon, La Crosse, Grant, and Trempealeau Counties. A single juvenile *Lestes unguiculatus* (Lyre-tipped Spreadwing) was also found on the prairie at the La Crosse District headquarters in La Crosse County. More species are present on the refuges but poor conditions in June and few opportunities to get on the water limited my ability to find them.

Family Coenagrionidae – Pond Damselflies

As expected, the pond damselflies were well represented on the Mississippi river. Most of the species of this family prefer still water areas with abundant vegetation. There are also a few species that prefer moving, well oxygenated water. Since both of these types of habitat occur on the upper Mississippi River, it is not a surprise that I found members of both of these groups in the appropriate habitat.

Along the edge of the main channel and along the shore of sloughs with relatively fast current, I found that *Argia apicalis* (Blue-fronted Dancer) and *Enallagma exulans* (Stream Bluet) are widespread. These species were found in at least low numbers from mid-July through the end of August from Grant County to Trempealeau County.

Argia moesta (Powdered Dancer) and *Argia tibialis* (Blue-tipped Dancer), other damselflies that prefer moving water, were also both found in 2013 on the channel and along the banks of fast moving sloughs in Grant County, WI directly west of Wyalusing State Park.

In quiet water locations and in the upland areas nearby, *Enallagma carunculatum* (Tule Bluet), *Enallagma geminatum* (Skimming Bluet), *Enallagma signatum* (Orange Bluet), and *Ischnura verticalis* (Eastern Forktail) were common throughout the middle of the summer with the flight period for *I. verticalis* extending from early June to the end of August.

Enallagma boreale (Boreal Bluet) and *Enallagma eribium* (Marsh Bluet) are early fliers and were each detected one time this year. Given poor the poor weather and water conditions during the peak of their flight season, this relatively poor showing is probably not indicative of their population on the Mississippi.

Enallagma civile (Familiar Bluet) is a relatively late flying damselfly and it was detected in small numbers from mid-August to mid-October. This is consistent with what I have found in other years and other areas nearby.

One of the biggest surprises of the 2013 survey was the discovery of a single male *Ischnura hastata* (Citrine Forktail) in the sand prairie near the Stoddard sewage lagoons. This is the northern limit of the range for this species and it is not found anywhere in Wisconsin on a consistent basis. Unfortunately, since this individual was not found near water, it is impossible to say whether this is a part of a breeding population or was a stray from the south.

Sub-Order Anisoptera – Dragonflies

Family Aeshnidae – Darners

During 2013, six species of Darners were found during my refuge surveys. *Anax junius* (Common Green Darner), which is a migrant, was both the most common by a wide margin and it was also the first dragonfly seen in the spring and one of the last seen in the fall. Large numbers of this species migrate up the Mississippi in the spring and many were seen laying eggs in shallow backwaters. These eggs hatch immediately and the nymphs develop through the summer so that they are fully grown and ready to emerge from mid-August through early October. This new generation then flies south to reproduce.

In Wisconsin, there is also a population that emerges later in the spring and flies through the summer. This population lays eggs in mid-summer and this generation overwinters as nymphs to emerge the following year. Based on the fact that *A. junius* was seen on the refuges in mid-summer, it seems likely that some of this population reproduce on the Mississippi River.

The second-most common Darner found on the Mississippi was *Aeshna constricta* (Lance-tipped Darner). These were found in grassy open areas adjacent to the water from mid-July through early

October. Unfortunately, I was unable to find any adults in the act of ovipositing so am not sure what habitat they are using on the Mississippi River.

Single individuals of *Aeshna Canadensis* (Canada Darner), *Aeshna verticalis* (Green-striped Darner), *Aeshna umbrosa* (Shadow Darner), and *Nasiaeschna pentacantha* (Cyrano Darner) were also found. The first two were both found on the sand prairie at Stoddard, Wisconsin. The Shadow Darner was found in La Crosse County. The *N. pentacantha* was seen at the boat landing at Wyalusing State Park in Grant County. The breeding status of the first 3 species is unknown at this time. However, I have witnessed *N. pentacantha* ovipositing at the Grant County site in prior years.

Family Gomphidae – Clubtails

Pond Clubtails – Arigomphus

This year was a tough year for finding early Clubtails. The weather and water conditions were not optimal and did not allow me to get out very often during their flight season. However, I did see a single *Arigomphus submedianus* (Jade Clubtail) just south of the Wyalusing State Park boat landing. This is one of the best locations for this very rare Clubtail in Wisconsin. I was not in that area during the peak of their flight season but instead was there relatively late. It was nice to see one despite not being there at the appropriate time. Bill Smith of the WI DNR also found exuviae of this species in that same area on that date.

Common Clubtails – Gomphus

In 2013, I only had a single sighting of any common Clubtail species. This was a direct result of high water conditions and poor weather that hampered my survey efforts in June. The one individual that was seen was a male *Gomphus fraternus* (Midland Clubtail) that was found on the sand prairie at Stoddard.

Hanging Clubtails – Stylurus

2013 was a very productive year for finding Stylurus Clubtails on the Mississippi River. Despite only going out on the river a few times during their flight season, I found *Stylurus notatus* (Elusive Clubtails) on all three outings. This included an outing on 6/24/13 on an overcast day when 15 or more teneral were seen during and just after emergence. Adults were seen flying over wing dams later in the summer in Grant County, WI and on pool 7 just above the Dresbach Dam.

Over the past few years, I have also discovered that *Stylurus plagiatus* (Russet-tipped Clubtails) are very common on Pools 7, 8, 9 and 10 of the Mississippi River. This was very evident this year with 15 sightings of this species from mid-July through mid-October. My September 29 outing near the power plant boat landing below the Genoa dam was especially impressive when I found over 50 males, females, and mating pairs in a small half acre grassy area on the bank of a large slough off of the main channel. This species lays its eggs in riffles near wing dams and turbulent areas on large sloughs. Juveniles and resting adults can be found in nearby grassy, open areas.

Family Macromiidae – Cruisers

To this point, the only Cruiser known to use the Mississippi River on Pools 6 through 10 is *Macromia taeniolata* (Royal River Cruiser). Prior to 2011, it had only been found in Grant County in Pool 10. Starting in 2011, I have helped in an effort to expand this species' know range. In 2012, the range was extended north to the top of Pool 8 just below the Dresbach dam. This year, I was able to observe this species in Pool 10 and on Pool 7 a few miles above the Dresbach dam. Although this is not much of an extension, it did mean a new northern-most sighting of this species.

On the Mississippi, I have found this species along the banks of the main channel and along wooded sloughs with fairly good current. Bill Smith found the first known WI exuviae of this species along the shore of the main channel in the Cassville, WI area of pool 10.

Family Corduliidae– Emeralds

In 2013, I once again found 2 species of Emeralds on the Mississippi. These included *Epitheca cynosura* (Common Baskettail) and *Epitheca princeps* (Prince Baskettail) and both were found patrolling along shorelines in areas with little current. *E. cynosura* is an early flier and was seen in several locations in June and once in late July despite poor weather that hampered my surveys. *E. Princeps* was seen consistently in June, July and August along with one late sighting at the end of September. I also found exuvia of *E. princeps* in a couple of locations.

Family Libellulidae– Skimmers

In general, skimmers prefer backwaters and ponds and other still, shallow water locations. The Mississippi River backwaters provide excellent habitat and this family is well represented in all of the areas that I surveyed.

Whitetails - Plethemis

We have one Whitetail in the Midwest. That species, *Plethemis lydia* (Common Whitetail) is not plentiful but is found fairly regularly on the upper Mississippi. This year, I found it on 5 occasions in June and July along the Mississippi River from Pool 10 up to the Trempealeau NWR.

King Skimmers – Libellula

Three species of King Skimmers were found during this survey in 2013. Don Peterson photographed a new county record *Libellula quadrimaculata* (Four-spotted Skimmer) on the Trempealeau NWR in July. *Libellula luctuosa* (Widow Skimmer) and *Libellula pulchella* (Twelve-spotted Skimmer) were seen consistently from mid-June through late September. Both of these species are very common along shorelines of shallow backwaters and are also seen occasionally along smaller sloughs.

Amberwings - Perithemis

There is a single species of Amberwing found in the Midwest and they are relatively common on the Mississippi River. This species is *Perithemis tenera* (Eastern Amberwing). It prefers still water areas with

lily pads and when present, can be found in very large numbers. In 2013, this species was seen from mid-June through late August from pool 6 through pool 10.

Small Pennants - *Celithemis*

I have found two species of small pennants along the upper Mississippi River in Pools 6 through 10. These are *Celithemis eponina* (Halloween Pennant) and *Celithemis elisa* (Calico Pennant). *C. eponina* is relatively common in backwater areas while *C. elisa* is relatively uncommon along this section of the river. During this year's survey, I was excited to find two individuals of *C. elisa* on either side of Pool 8 just above the Genoa dam (1 on the dike on the west side and one in the Stoddard Sand Prairie). These represent new county records for Vernon County, WI and Houston County, MN.

C. eponina was relatively common in locations surveyed in pools 6,7 and 8 in both the Upper Mississippi and Trempealeau NWRs.

Whitefaces - *Leucorrhinia*

In a typical year, the first emergent skimmer of the year is usually *Leucorrhinia intacta* (Dot-tailed Whiteface). This's year's poor weather in May and June kept the number of observations low, but it was seen on 5 occasions on pools 7 and 8.

Pondhawks – *Erythemis*

There is a single pondhawk found in the Midwest. This is *Erythemis simplicicollis* (Eastern Pondhawk). This year was a great year for this species. I found it on over 25 different occasions from mid-June through late August and even had a single sighting in early October. Some of these sightings included huge numbers of individuals with a high of over 200 seen on June 19, 2013 along the east edge of Lake Onalaska on Pool 7. This species, like other skimmers is found along the shore line of backwaters and ponds.

Meadowhawks *Sympetrum*

This year was a very good year for Meadowhawks along the upper Mississippi River. I found 7 different species including a few observations that were new county record sightings in Trempealeau County, WI and Houston County, MN.

Most Meadowhawks are relatively late fliers with the (*Sympetrum vicinum*) Autumn Meadowhawk typically being the last species of Odonata seen in this region each year. The single exception to this rule is the migrant *Sympetrum corruptum* (Variegated Meadowhawk) which is usually one of the first two species of odonates seen each year.

Although May and June weather didn't cooperate very well, I did have a single observation of *S. corruptum* in a flooded field area in the Halfway Creek waterfowl production area in La Crosse County, WI.

Especially noteworthy during this survey were a relatively high number of sightings of *Sympetrum costiferum* (Saffron-winged Meadowhawk). This species was first added as county records in this count area in 2012 and therefore the nine different sightings of this species represents another great year for this species in this area. These sightings did include a new county record for Houston County, MN.

Also interesting were a sighting of *Sympetrum internum* (Cherry-faced Meadowhawk) and 4 sightings of *Sympetrum rubicundulum* (Ruby Meadowhawk). These *S. rubicundulum* records were spread over 2 Wisconsin and one Minnesota counties and included new county records in Houston County, MN and Trempealeau County, WI.

As expected, *Sympetrum obtrusum* (White-faced Meadowhawk) was very common and seen at almost every survey location from mid-June through early October.

Another good species that was found this year was *Sympetrum semicinctum* (Band-winged Meadowhawk). This is a regular but uncommon resident of this area. Individuals were seen on two occasions on the spillway dike on the west side of French Island.

Meadowhawks lay eggs along the edges of ponds and backwaters. Juveniles are often found in open grassy or prairie areas as far as a mile from water.

Blue Dasher – *Pachydiplax*

2013 was a very good year for *Pachydiplax longipennis* (Blue Dasher). It is a common dragonfly that patrols along the shorelines of ponds and still backwaters. I found good numbers in many locations including an amazing count of 400 along the east shoreline of Lake Onalaska on June 19, 2013.

Gliders – *Pantala*

There are two species of gliders found in the Midwest. *Pantala flavescens* (Wandering Glider) and *Pantala hymenea* (Spot-winged Glider) are long distance migrants that show up from mid-June through July and then are seen again on their way south in September and October. This year, both species were recorded in several locations along pools 7 and 8 with *P. flavescens* being the most common. These species typically lay eggs in fishless rain pools so may not use the Mississippi for reproduction.

Saddlebags – *Tamea*

Four species of Saddlebags have been recorded in Wisconsin, Minnesota, and Iowa on the upper Mississippi River. Of these, 2 are very rare and two are seen fairly regularly. All are migratory and over the past 5 years, my experience has indicated that the annual population of these species can be greatly affected by weather – specifically by how early spring arrives and how quickly it turns very warm.

2013 was a relatively late and cool spring. Therefore, I wasn't surprised that I found relatively few *Tamea onusta* (Red Saddlebags) along the Mississippi River this year. I did have two sightings this year, but that is far less than number seen last year when spring weather arrived nearly 5 weeks earlier and it was also very warm.

Numbers of *Tramea lacerata* (Black Saddlebags) are not as affected by spring weather as their red cousin. Populations show less fluctuation from year to year and this year was no exception. I saw this species on 15 occasions from mid-June when adults arrived from the south until mid-September when immature adults were last seen migrating south.

When they first arrive, adult male *T. lacerata* are usually found patrolling along shorelines of still water areas like backwaters, open ponds and lake edges. In the fall, immature adults are often seen during migration in meadows and grassy areas near water including the Stoddard Sand Prairie.

Other Insects

In addition to Odonata, I made an effort to observe record and photograph other insects that I saw when surveying Odonata. This year, this resulted in recorded sightings of 28 species of butterflies, 2 species of moths, 1 species of Cicada, 2 species of Robber Flies, 10-15 species of bees and wasps, as well as some interesting flies. Not all species have been identified, but pictures have been submitted to BugGuide.org in hopes that they will be identified by professional entomologists.

A copy of a spreadsheet including all records for 2013 will be included with this report.