

**Survey of Northwest Iowa Prairies
for *Atrytone arogos* and *Poanes massasoit* 2018**

Prepared for Ann and Scott Swengel

August 2018

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Survey of Selected Northwest Iowa Prairies for *Atrytone arogos* and *Poanes massasoit* in 2018

Abstract

This report presents the findings of a survey for *Atrytone arogos* and *Poanes massasoit* at eighteen prairies and wetlands in northwest Iowa. The principal researcher conducted field surveys of these sites July 1 through July 4 during normal flight times for these species. Those surveys recorded a total of 223 butterflies and skippers representing 17 species. No target species were found.

Keywords: *Atrytone arogos*, *Poanes massasoit*

Introduction

Currently the State of Iowa lists two endangered butterflies/skippers, *Hesperia dacotae* and *Coenonympha tullia*. Both are believed by the author to be extirpated in the state. The state also lists five species of butterflies/skippers as threatened. These include *Oarisma poweshiek*, *Problema byssus*, *Poanes massasoit*, *Glaucopsyche lygdamus*, and *Euphydryas phaeton*. Of these, *O. poweshiek* and *G. lygdamus* are believed by this researcher to be extirpated, while *P. byssus* and *P. massasoit* appear to be in decline. The state's list of Special Concern butterflies/skippers includes *Atrytone arogos*, which I believe to be in steep decline.

The purpose of this study was to visit many sites with previous records for *A. arogos* and *P. massasoit* to see if these sites in northwest Iowa still hold populations of the two target species.

Particularly since 1980, butterfly researchers in Iowa have documented a number of sightings for these two species. For *A. arogos*, sightings have been recorded by Tim Orwig, Jerry Selby, John Downey, Jeff Nekola, Dennis Schlicht, Ron Harms, Frank Olsen, Mike Saunders, D. Stalling, Dave Cuthrell, Brian Scholtens, and Joan Bray¹. For *P. massasoit*, we have records from Tim Orwig, Jerry Selby, John Downey, Jeff Nekola, John Fleckenstein, Ron Harms, Ryan Rasmussen, Diane Debinski, and Frank Olsen.

In 1993 Mike Saunders found *A. arogos* at nine prairie sites²; of these, I visited five during the course of this study. The following year he found *A. arogos* at three additional sites: Road's End Prairie (Palo Alto Co.); Bertram Reservation (Clay Co.); and Cayler Prairie State Preserve (Dickinson Co.). I visited two of these 1994 sites.

Given the constraints of limited flight times for these species and time available to visit historic sites, I selected 18 prairies of widely varying size to sample. Of these, fourteen held previous records for *A. arogos* and four held previous records for *P. massasoit*.

¹ Bray's July 8, 2009 Dallas County record, the most recent in the state, was a visual sighting only, with neither a voucher nor a photograph.

² Mike Saunders found *Oarisma poweshiek* at 29 sites during 1993 and 1994. In Dickinson County he estimated "population size of *O. poweshiek* within the river bluffs of the Little Sioux River and Dugout Creek is at least 500 individuals." He added, "Other areas within Dickinson County that have significant (100+) populations of *O. poweshiek* include the Floete Prairarie/Garlock Slough area south of Wahpeton, the Little Swan Lake area north of Superior, and the Kettleston Hogsback/Bergman and Koppen Prairie areas northwest of Spirit Lake."

Surveys were conducted from July 1 through July 4, 2018 at sites in eight northwest counties. Weather conditions were good except for July 4th. Notably, in the weeks prior to my surveys, most of these counties had received exceptional amounts of rainfall. This researcher observed many streams and rivers at high levels, and many crop fields had several acres of standing water.

In the attachments to this paper I have included lists of historic records for *A. arogos* and *P. massasoit*; errors may exist in these compilations, but they represent the most accurate accounting I can provide. Following these attachments are log sheets for each site visit.

One further comment: Mike Saunders (1994) found *A. arogos* records at nine prairies during from July 6 through July 21, 1993 – which may bring into question my choice of survey dates from July 1 through July 4. Mike reported that “Surveying was completed between 2 July 1993 and 25 July 1993. Normally, the flight period for these two insects [*Hesperia dacotae* and *Oarisma poweshiek*] begins during the second or third week of June and concludes two or three weeks later. This year an abnormally cool and wet spring delayed emergence dates at least 15 days on most sites.” In his 1995 report, he states, “The unusual weather patterns of 1993 had a significant effect on the results of this study....most butterfly species had very late flight seasons, up to 4 weeks late.”

Methods

To accomplish the goal mentioned above, surveys were conducted during normal flight times for the two target species in various counties in northwest Iowa. Survey dates occurred July 1 through July 4, 2018. This time period was selected based on observed phenology of plants and butterflies in Iowa, and on discussions with Jerry Selby, who relies on phenology data to determine starting dates for similar studies in west and southwest Minnesota.

Surveys occurred when meteorological conditions favored the active presence of target species. Weather conditions – temperature, wind speed and direction, and approximate cloud cover percentage – were recorded for each visit. Data was recorded for all species seen and in what numbers along with information regarding nectar sources available at the sites.

Site visits consisted of meandering transects, concentrating on sampling habitat types appropriate for the target species. The researcher scanned an area to the left, to the front, and to the right to a distance of about five to ten meters, recording any butterfly or skipper seen.

Results

Results for the four days of surveys yielded a surprisingly low total of 223 butterflies and skippers representing 17 species. Only one skipper species was found – six *Anatrytone logan*, all at Gitchie Manitou State Preserve in Lyon County. Of the 223 butterflies and skippers, no less than 107 were the species *Danaus plexippus*.

July 1, 2018

Starting July 1st, the first site I visited was the 160-acre Kalsow Prairie State Preserve in Pocahontas County. We have historic records of *A. arogos* at this site in the years 1988, 1989, 1990, and 1992, from July 1 through July 22.

In April 2009 this site was burned in its entirety by persons unknown. At the request of the Iowa Department of Natural Resources, I conducted a yearlong study of the site (July 2009 through

June 2010) consisting of ten site visits. Those surveys located 19 species and a total of 683 butterflies/skippers (but none of the target species sought by the current study).

My visit July 1 recorded six species and 26 butterflies, but no skipper species. Although the prairie was ablaze with abundant butterfly weed and milkweed, and many dogbane, I saw very few pollinators, and noted the site was very wet.

The second site for this day was a small roadside prairie on the north side of Highway 10 (and south of the railroad tracks) about 0.8 miles west of County Highway N28 in the town of Laurens. Although this prairie had many butterfly weed, daisy fleabane, phlox, and a few milkweed in bloom, I recorded just four species and a total of seven butterflies. No skippers were seen.

The third site I visited this day was a notable small prairie located on the north side of Highway 10, 2.0 miles west of County Highway N28 in Laurens³. This several-acre site, just on the north side of railroad tracks, has records for *A. arogos* from 1990, 1991, and 1992, from July 13 through July 19. When I visited this site May 22, 2014 looking for *Glaucopsyche lygdamus*, I found that the site had been radically altered, with much of the vegetation close to the railroad tracks stripped to the ground. On this July 1st visit I noted many prairie plants have returned, with abundant butterfly weed; some milkweed, phlox, pale spiked lobelia, and daisy fleabane; and a few leadplant, purple prairie clover, and dogbane. Nonetheless, I recorded just twelve butterflies representing four species, with no skippers.

The fourth site I visited was Fen Valley (previously known as Lindstrom-Simons) about one mile southeast of Gillett Grove in Clay County. This 160-acre site is low quality, with thousands of red clover and many queen anne's lace. This combination prairie/fen has one historic record for *P. massasoit* from June 28, 1988. My search here yielded 27 butterflies and six species, but no skippers. Again I noted very few pollinators on the abundant nectar sources.

The last site visit this day was the 147-acre Freda Haffner State Preserve in Dickinson County. We have two previous records for *A. arogos* from this site, July 13, 1990 and July 18, 1992⁴. Although butterfly weed, pale purple coneflowers, and milkweed were abundant here along with numerous other prairie plants, I found just 17 butterflies representing 3 species, with no skippers. Once again I noted the lack of pollinators.

July 2, 2018

Wolter's Prairie, a 40-acre prairie in Osceola County, was my first stop this day. We have three previous records for *A. arogos* here, in 1987, July 11, 1994, and on June 25, 2007 when I located two specimens of this species⁵. In just under an hour of searching, I located just 18 butterflies (four species), with no skippers and few pollinators. Nectar sources were rather sparse.

Next was Gitche Manitou State Preserve, a 91-acre site in Lyon County. We have previous *A. arogos* records here – 1971, 1980, and July 21, 1993. This was the only site where I located *any* skippers in the four days of surveys. I found six *Anatrytone logan* here, along with four other species and five other butterflies. Although prairie elements still exist at this site, I regard this prairie as low to medium quality.

³ We also have records from Laurens for *Feniseca tarquinius*, *Satyrrium edwardsii*, *Glaucopsyche lygdamus*, *Nymphalis vaualbum*, *Libytheana carinenta*, and *Limenitis arthemis arthemis* (White Admiral!).

⁴ On July 2, 1993 Mike Saunders found 10+ *O. poweshiek* here.

⁵ Amazingly, on July 11, 1994 Mike Saunders found 50+ specimens of both *Speyeria idalia* and *Speyeria aphrodite* here. I found none.

The third site this day was Blood Run/Rock Island National Landmark, 178 acres of marginal prairie and several very small wetlands. Historic records here include four sightings for *P. massasoit*, June 24, 1991, July 8, 1992, July 7, 2004 (seven seen by Selby), and July 8, 2004⁶. Despite knowing precisely where Selby's 2004 surveys found this species, I failed to locate any target species. In a recurring theme, I noted few pollinators and few nectar sources for the three species and nine butterflies I recorded here.

The next site was Hidden Bridge Wildlife Area, 155 acres of medium to high quality prairie located at the south terminus of Apple Avenue. We have a 1994 record for *A. arogos* here⁷, but I located only four species (no skippers) and just 14 butterflies. This prairie had abundant whorled milkweed and many leadplant, along with some pale purple coneflowers, milkweed, and gray-headed coneflowers.

The last site visited this day was the privately-owned Wuedker's Prairie, consisting of a few acres of native prairie on both sides of a waterway. Although Mike Saunders found *A. arogos* here on July 18, 1993 (he also found 10+ *O. poweshiek*), I found none both this day and on a visit some years ago. I recorded just four species and fourteen butterflies, despite abundant butterfly weed and a few pale purple coneflowers in bloom.

July 3, 2018

The first survey this day was at the Waterman Creek/Little Sioux River in O'Brien County. On July 7, 1989 Tim Orwig found *A. arogos* here, followed by Mike Saunders on July 20, 1993. My thorough search of the site found just 11 butterflies (4 species) with no skippers. This relatively high quality site had sufficient nectar sources, but few pollinators.

At the sprawling, 200 acre Steele Prairie State Preserve in Cherokee County, we have a historic *A. arogos* record from 1980 (John Downey) as well as four records – 1987, 1987, 1992, and 2005 – for *P. massasoit*. With scattered nectar sources and very few pollinators at this site, I found six common species and 26 butterflies, but no skippers.

At the large Bertram Reservation site in Clay County, we have no less than five records from various locations in this large complex during the years 1984 through 2004 for *A. arogos*. I concentrated on the easternmost, west-facing hillside prairies, finding five species and eight butterflies, but no skippers. These small remnant prairies on the east part of the site are essentially islands in a heavily wooded landscape.

Next I visited Watertower Prairie, a very small hillside area across the road from Lakeside Labs in Dickinson County. Although no target species records exist for this prairie, Mike Saunders found *Oarisma poweshiek* here, and given the high quality of the hillside, I deemed it worthy of a brief survey, particularly given the pale purple coneflowers, phlox, purple prairie clover, and other prairie-indicator plants here. I did find one *Speyeria idalia* here, but no other butterflies.

Although the sign in the small parking lot says "Grovers Lake," Kettleston Hogsback, located 0.2 miles north of 110th Street and 215th Avenue north of Highway 9 in Dickinson County is a gem of a site, with hundreds of pale purple coneflowers, milkweed, many rattlesnake masters, abundant butterfly weed, and many other prairie plants. Unfortunately, this spectacular-looking prairie was deficient in both pollinators and butterflies; all I found were two *Danaus plexippus*.

⁶ On July 9, 1994 Mike Saunders found 50+ *S. idalia* and 20+ *S. aphrodite* here. I found none.

⁷ On June 20, 1994 Mike Saunders found 50+ *S. idalia* and 20 *S. aphrodite* here; I found 4 *S. idalia*.

The last site for this date was Anderson Prairie State Preserve in Emmet County. My brief survey concentrated solely on the southwest portion of the site. We have a 1987 record for *A. arogos* here, but all I found were eight *D. plexippus* and one *Vanessa atalanta*. The site has many prairie-indicator plants, but few pollinators during this visit⁸.

July 4, 2018

Cayler Prairie State Preserve has a long history of rare skipper sightings⁹, including the now extirpated *Hesperia dacotae*. We also have numerous *A. arogos* sightings, including the ten *A. arogos* Jerry Selby found on July 4 and 5, 2000 in separate areas of this large native prairie. We also have a June 28, 1989 *P. massasoit* record from this site. I had planned to spend several hours at this site, but an imminent storm curtailed my survey to just an hour twenty minutes. Although pale purple coneflowers and a number of other prairie plants were in bloom, I found just three common species (18 butterflies) on the eskers.

The same storm that shortened my survey at the previous site limited my time at Little Swan Lake prairie. With black storm clouds rolling in from the north, I made a cursory survey of the best areas before hustling back to my car just before rain came down. Back on July 19, 1993 Mike Saunders found ten *A. arogos* here (he also found 25+ *O. poweshiek* that same day), but my hurried inspection found just one *D. plexippus*. From the time I started the survey here until 35 minutes later, the temperature dropped nine degrees, accompanied by a torrential downpour.

I had hoped to conduct a thorough survey of Christopherson Slough, located just west-northwest of Little Swan Lake, but a light rain limited the survey to a brief look at the prairie area from my car. We have an *A. arogos* record from this site on July 19, 1993, but to my eye the site looked marginal for this species.

Discussion

The limited scope of this study prevents any definitive conclusions regarding the status of *Atrytone arogos* and *Poanes massasoit*. However, the fact that no target species were found at sites holding previous records for these species does suggest a possible decline. Hampering this study was the exceptional amount of rainfall many of the sites had experienced in June. Several of the sites were unusually wet, and various rivers and streams had overflowed their banks not long before this study began. Numerous farm fields had a few acres with standing water in them, as well.

During the four-day survey of prairies, I noted a dearth of pollinators on the usually abundant nectar sources. At times, while walking the silent prairies, I felt I was witnessing the beginning of Earth's sixth extinction event. Interested parties have posted anecdotal observations on the University of Iowa Biology Department's insect list serve (IOWA-INSECTS@LIST.UIOWA.EDU). One such observation, from Bruce Morrison (July 7, 2018) in O'Brien County, follows:

I have been "seeing" much less activity in NW Iowa since pre-2012...not with just Butterflies but with a general invertebrate population. I am just an interested individual and not an entomologist or biologist or scientist. My situation is less than scientific, just practical. I am on the board of the Prairie Heritage Center in SE

⁸ On July 6, 1994 Saunders found 15 *O. poweshiek*, 20+ *S. idalia*, and 10 *S. aphrodite* here. I found none.

⁹ On July 13, 1993 Saunders and other observers found 150+ *O. poweshiek* at this site and adjoining areas.

O'Brien County and one of the (unrelated to the center's board) things I do for the center during the week is wash the large windows on the deck overlooking the Little Sioux River valley below.

I almost hesitate to bring this up because it is maybe more anecdotal than anything and may be a totally useless observation.

From 2007 until 2012, cleaning those windows took from 60-90 minutes each trip...they were caked "heavily" with bugs, their "trails" and debris; I also found myself constantly moving insects of all sorts out of the way while cleaning. The doors were the worst as there are night activated lights above them and it always appeared every insect from the valley was drawn up the hill to them! Some pretty interesting moths usually were clinging around the entries each week. The deck overlook door often took 20-30 minutes to clean in the summer on bad weeks...now it takes 2-3 minutes - no insects or at least 99% less than pre 2012. I've remarked this change many times to the staff and others, it is pretty dramatic.

Our own acreage along the Waterman Creek valley has seen the same dramatic decrease in our native pastures, especially in the absence of skippers and some of the less common butterflies and moths. For instance polyphemus moths were a common summer sighting here and it has been completely absent for the past 10 years. The fritillaries were once common here and now rarely seen.

Other invertebrates - our spiders, have seemed to have dropped dramatically, especially the argiopes. We do manage the pastures and burn, but have 5 different paddocks and normally only burn 2-3 each year, and rotate. We are also bordered by much larger pastures on our north and south and across the gravel road we live on...only one had a partial burn in the last 15 years and that was 6 years ago.

But there are blatant exceptions - we still have tons of black flies and (with all the flooding this year) mosquitoes! Ha - go figure! And thankfully we still see a good population most summers of Lightning Bugs. Our Monarch population seems good this summer too but then we have 4 species of asclepias and "Lots" of them, which helps.

But as in Frank Olsen's observations, we do not have the pollinators we used to (observed quantities) and our pastures are loaded with native forbs and grasses. An interested observer over the past half dozen years or more can't help but notice there is a change taking place. I watch the spraying going on in the surrounding properties and even video tape the activities when they seem contrary to "safe" practices (in higher winds or from hand held high pressure hoses - as if watering a lawn!). All this chemical spraying cannot do invertebrates any good nor benefit them in any way. It is too bad that this cannot be monitored in a scientific manner to gauge "real-time" affects on invertebrates in the rural landscape of agricultural states like Iowa...and even herps and birds as well - they consume insects too.

Another anecdotal observation (July 10, 2018) comes from Cindy Hildebrand of Ames, Iowa:

I've only been out recently on the prairie plantings/tiny remnants around my house, but the plantings range from five years old to twenty-eight years old and are pretty diverse, probably a hundred species or more. There are about 110 acres of

primarily-prairie-plants land, along with about 25 acres that are a combination of riparian-woodies, old-farmstead permanent vegetation, and four small wetlands.

I saw lots and lots of blooming flowers but not many pollinators, to the point that I felt uneasy when walking around this past weekend. I was remembering the much larger numbers of pollinators I used to see (and hear) twenty years ago. Then I told myself I might be remembering wrong. And just then, a young friend who was walking with me, someone who has sometimes helped me with prairie work for about six years, asked where all the bees and butterflies are. She remembers seeing more pollinators when she has worked here in previous years. I don't know what is going on, but I hope it is temporary and I don't like it. It doesn't help that I am seeing more herbicide damage than usual also, though it's most obvious on the usual victims, boxelders and wild grapes.

The two target species may be experiencing the same declines we are recording in Iowa with other species, including *Hesperia dacotae* (extirpated), *Oarisma poweshiek* (likely extirpated, and not recorded since 2008), *Lycaena helloides* (likely extirpated), *Coenonympha tullia* (likely extirpated, last recorded in 2004), and *Glaucopsyche lygdamus* (possibly extirpated; not recorded since 2008). Indeed, in discussing the status of rare skippers Selby (2004) stated “A totally unexpected result was the failure to find any Poweshiek skipperlings at any of the sites where they have been found regularly in the past (e.g. Anderson, Cayler and Freda). Arogos skippers were also absent from all but one site....There appears to have been major widespread catastrophic declines for Iowa populations of the Poweshiek skipperling and possibly also the Arogos skipper. Similar declines were observed at a research site in MN between 2003 and 2003, and continued in 2004.”

No definitive reason has been established for these declines, but possible causes may include some of the following: increased herbicide and insecticide use, including use of glyphosate and neonicotinoids; fire management; climate change; and minimal populations of these species which makes them particularly vulnerable to predators, disease, random extreme weather events, demographic stochasticity, genetic deterioration, and loss of habitat.

I need to digress a moment to address the curation and reliability of our historic records. In researching records for the two target species, I found a number of discrepancies and incomplete records. Some records lack exact location for the sighting, for example. In some cases, researchers have left no record of (1) number of individuals of any given species found at a given site, (2) weather conditions during the survey, and (3) time spent on site.

Our state suffers from having no central location for both Lepidoptera collections and data storage of sightings by Lepidoptera researchers. Researchers in Iowa today have access to an insect database – www.insectsofiowa.org – maintained by Jim Durbin of Marion, Iowa in which they can have their records entered, but not all researchers are using this database, nor are all historic records included here. And it is not a permanent solution to data storage.

We have a critical need for a commitment of time and resources to determine the true status of these two species as well as other prairie- and wetland-obligate skippers. My efforts, though helpful, are hardly the level of effort needed to determine the true status of these species. I would encourage state agencies, environmental organizations such as The Nature Conservancy and Iowa Natural Heritage Foundation, and concerned individuals to allocate resources to this end.

Funding Acknowledgement

This researcher acknowledges and wishes to thank Drs. William and Else Boyee for providing funding that made this study possible, and to Ann and Scott Swengel for their administration of funding and guidance regarding this inventory.

A Special Thanks to:

I'd like to thank a number of individuals for their assistance in this study. Stephanie Shepherd of the Iowa Department of Natural Resources provided records of the target species in Iowa; Mike Saunders, formerly of Iowa State University, conducted exceptional research at several dozen sites during the years 1993 and 1994; Jerry Selby conducted numerous studies in northwest Iowa for rare skippers in the last three decades; and Dennis Schlicht, Tim Orwig, Jeff Nekola, John Downey, and many others for decades laid the groundwork for our knowledge of which species are found in Iowa along with sites and flight times for these species. Schlicht, Downey, and Nekola's work culminated in their publication of *The Butterflies of Iowa* (2007). I have referred to that invaluable reference literally hundreds of times.

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Kalsow Prairie Log Sheet

Date: July 1, 2018
County Pocahontas

Weather: 11:25-12:35, 20-80% sun, S 2-9, NW 2-10, 71-75°

Species List	Number Seen	Comments
Papilio polyxenes	4	
Colias philodice	1	
Colias eurytheme	4	
Danaus plexippus	9	
Phyciodes tharos	6	
Vanessa atalanta	2	

Total Species: 6

Total Count: 26

Total hours: 1.2 on site

Comments

In bloom: abundant butterfly weed, abundant milkweed, leadplant, a few larkspur, wild rose, rattlesnake master, germander, one pale spiked lobelia, gray-headed coneflowers, many canada anemone, a few black-eyed susans, yarrow, many dogbane, phlox, a few white wild indigo, swamp milkweed, a few pale purple coneflowers.

Very few pollinators; site is very wet.

Roadside Prairie 0.8 miles west of Laurens Log Sheet

Date: July 1, 2018
County Pocahontas

Weather: 1:25-1:35, 30% sun, NW 2-9, 74°

Species List	Number Seen	Comments
Papilio polyxenes	1	
Colias eurytheme	2	
Danaus plexippus	1	
Phyciodes tharos	3	

Total Species: 4

Total Count: 7

Total hours: 0.2 on site

Comments

In bloom: many butterfly weed, daisy fleabane, a few milkweed, phlox, a few rattlesnake masters.

This site is 0.8 miles west of center of Laurens on the north side of highway, south of RR tracks. GPS location is: N 42° 51.019', W 94° 52.275'.

Laurens Prairie Log Sheet

Date: July 1, 2018
County Pocahontas

Weather: 1:40-2:00, 50-30% sun, NW 2-9, 76°

Species List	Number Seen	Comments
Colias eurytheme	8	
Pyrisitia lisa	1	
Danaus plexippus	2	
Phyciodes tharos	1	

Total Species: 4

Total Count: 12

Total hours: 0.33 on site

Comments

In bloom: 100+ butterfly weed, milkweed, phlox, pale spiked lobelia, daisy fleabane, silvery scurf pea, a few leadplant, a few canada anemone, a few purple prairie clover, a few dogbane.

This small prairie looks *much* better than the last time I was here several years ago; back then part of the prairie had been all but scraped to the ground. It has now recovered substantially – but the butterflies are lackluster.

Fen Valley Log Sheet

Date: July 1, 2018
County Clay

Weather: 2:45-3:40, 30-50% sun, NW 3-12, 76-77°

Species List	Number Seen	Comments
Colias philodice	1	
Colias eurytheme	11	
Danaus plexippus	12	
Phyciodes tharos	1	
Polygonia interrogationis	1	Caught & released
Vanessa atalanta	1	

Total Species: 6

Total Count: 27

Total hours: 0.9 on site

Comments

In bloom: 10,000 red clover, many queen anne's lace, many milkweed, thistle, black-eyed susans, daisy fleabane, hoary vervain, leadplant, a few cinquefoil, swamp milkweed, one blue flag iris, yarrow, mullein.

This is a low quality site. I saw *very few* pollinators.

Freda Haffner Log Sheet

Date: July 1, 2018
County Dickinson

Weather: 4:35-5:35, 67-40% sun, NW 0-6, 76-77°

Species List	Number Seen	Comments
Papilio polyxenes	2	
Colias eurytheme	4	
Danaus plexippus	11	

Total Species: 3 **Total Count: 17**

Total hours: 1.0 on site

Comments

In bloom: abundant milkweed and butterfly weed, hoary vervain, leadplant, rattlesnake master, hundreds of pale purple coneflowers, phlox, swamp milkweed, whorled milkweed, yarrow, a few wood lily, silvery scurf pea.

Very few pollinators. Site looked as if it had been burned earlier this year.

Wolter's Prairie Log Sheet

Date: July 2, 2018
County Osceola

Weather: 9:40-10:35, sunny, S 1-10, 74°

Species List	Number Seen	Comments
Colias eurytheme	8	
Satyrrium titus	1	Condition 1 on butterfly weed
Danaus plexippus	7	
Vanessa atalanta	2	

Total Species: 4

Total Count: 18

Total hours: 0.9 on site

Comments

In bloom: milkweed, hoary vervain, pale purple coneflowers, leadplant, abundant parsnip, a few butterfly weed, a few yarrow, silvery scurf pea, a few purple prairie clover, a few pale spiked lobelia.

Few pollinators. Site looked as if it had not been burned. Saw some bobolinks. Medium quality site.

Gitchie Manitou Log Sheet

Date: July 2, 2018
County Lyon

Weather: 11:55-12:45, 30-100% sun, S 0-9, 79°

Species List	Number Seen	Comments
Anatrytone logan	6	1 voucher, Waypoint 3; C&R 2
Colias eurytheme	1	
Satyrrium titus	2	C&R both
Satyrrium edwardsii	1	Voucher, Waypoint 2
Vanessa atalanta	1	

Total Species: 5

Total Count: 11

Total hours: 0.8 on site

Comments

In bloom: tall white clover, many hoary vervain, many leadplant, daisy fleabane, thistles, mullein, silvery scurf pea, gray-headed coneflower.

Few pollinators. Low to medium quality site.

Waypoint 2: 43° 29.984', 96° 35.592'

Waypoint 3: 43° 29.913', 96° 35.702'

Blood Run Log Sheet

Date: July 2, 2018
County Lyon

Weather: 1:00-1:50, 90-100% sun, S 2-15, 83°

Species List	Number Seen	Comments
Colias eurytheme	1	
Danaus plexippus	7	
Vanessa atalanta	1	

Total Species: 3

Total Count: 9

Total hours: 0.8 on site

Comments

In bloom: milkweed, hoary vervain, daisy fleabane, whorled milkweed, pale purple coneflowers (most had gone to seed), a few gray-headed coneflowers, and black-eyed susans.

Few pollinators. Low to medium quality site. Entrance to this site is at Apple and 120th Street.

Hidden Bridge Log Sheet

Date: July 2, 2018
County Lyon

Weather: 2:10-2:55, sunny, S 2-20, 84°

Species List	Number Seen	Comments
Colias eurytheme	2	
Satyrium titus	2	
Danaus plexippus	6	
Speyeria idalia	4	Scattered across the site

Total Species: 4

Total Count: 14

Total hours: 0.75 on site

Comments

In bloom: pale purple coneflowers, gray-headed coneflower, black-eyed susans, thistle, milkweed, abundant whorled milkweed, compass plant, many leadplant, a few purple prairie clover.

High to medium quality. This site is at the far south end [dead end] of Apple. Vouchered a beetle on whorled milkweed for Doug Veal.

Wuedker Prairie Log Sheet

Date: July 2, 2018
County Dickinson

Weather: 4:45-5:05, sunny, S 2-14, 84°

Species List	Number Seen	Comments
Danaus plexippus	4	
Vanessa atalanta	2	

Total Species: 2

Total Count: 6

Total hours: 0.33 on site

Comments

In bloom: abundant butterfly weed, canada anemone, leadplant, a few pale purple coneflowers.

Got a walking tour of the place from Nancy. Site is on west side of 160th Avenue, south of Highway 9.

Waterman Creek/Little Sioux River Log Sheet

Date: July 3, 2018
County O'Brien

Weather: 9:15-10:00, 20% sun, SE 0-3, 75-76°

Species List	Number Seen	Comments
Colias eurytheme	1	
Satyrrium titus	2	Both condition 1
Everes comyntas	1	Condition 1
Danaus plexippus	7	

Total Species: 4

Total Count: 11

Total hours: 0.75 on site

Comments

In bloom: many butterfly weed, leadplant, a few chicory, a few hoary vervain, a few thistles, a few purple prairie clover, a few catnip, compass plant, abundant birdfoot trefoil, prairie sage, four pale purple coneflowers, and some yellow flowers (photo).

Few pollinators; medium to medium-high quality site. I used a crisscross pattern to survey the site.

Site is at the intersection of 455th Street/B53 and Yellow.

Steele Prairie Log Sheet

Date: July 3, 2018
County Cherokee

Weather: 10:30-11:35, 10-80% sun, SE 2-7, 79-82°

Species List	Number Seen	Comments
Papilio polyxenes	1	
Colias eurytheme	4	
Everes comyntas	3	Condition 1
Danaus plexippus	15	
Euptoieta claudia	2	Condition 1
Phyciodes tharos	1	

Total Species: 6

Total Count: 26

Total hours: 1.1 on site

Comments

In bloom: butterfly weed, phlox, silvery scurf pea, many leadplant, two larkspur, a few wood lily, thistles, abundant milkweed, a few dogbane, canada anemone, yarrow, one white prairie clover.

Very few pollinators. Bobolinks; site looks burned this year.

Bertram Reservation East Log Sheet

Date: July 3, 2018
County Clay

Weather: 12:25-1:00, sunny, SE 0-7, 84-85°

Species List	Number Seen	Comments
Colias philodice	1	
Celastrina neglecta	1	
Danaus plexippus	3	
Speyeria cybele	2	
Phyciodes tharos	1	

Total Species: 5

Total Count: 8

Total hours: 0.6 on site

Comments

In bloom: pale purple coneflowers, leadplant, milkweed, purple prairie clover, compass plant.

I entered from the extreme east side at a large parking lot on the west side of 140th Avenue. Walked on trails through woods to get to two small, high-quality hillside prairies. Saw a turkey and eight chicks.

Watertower Prairie East Log Sheet

Date: July 3, 2018
County Dickinson

Weather: 2:05-2:17, 70% sun, SE 3-7, 85°

Species List	Number Seen	Comments
Speyeria idalia	1	

Total Species: 1

Total Count: 1

Total hours: 0.2 on site

Comments

In bloom: milkweed, many leadplant, yarrow, many hoary vervain, thistle, some yellow clover, daisy fleabane, a few phlox, black-eyed susans, many sumac, pale purple coneflowers and purple prairie clover on east-facing hillside next to road.

It's incredible to think that *O. poweshiek* used to be at this site.

Kattleson Hogsback East Log Sheet

Date: July 3, 2018
County: Dickinson

Weather: 2:35-3:15, 30-75% sun, SE 2-12, 85°

Species List	Number Seen	Comments
Danaus plexippus	2	

Total Species: 1

Total Count: 2

Total hours: 0.67 on site

Comments

In bloom: two larkspur, thistles, milkweed, a few compass plants, many hundreds of pale purple coneflowers, one purple prairie clover, abundant butterfly weed, many rattlesnake masters, a few wild rose, silvery scurf pea, a few swamp milkweed, a few phlox.

This is a spectacular-looking prairie of very high quality.

Site is 0.2 mile north of 110th Street and 215th Ave. Very few pollinators; ground not wet.

Sign in parking lot says "Grovers Lake."

Anderson Prairie East Log Sheet

Date: July 3, 2018
County Emmet

Weather: 4:25-4:55, 80-90% sun, SE 1-13, 86°

Species List	Number Seen	Comments
Danaus plexippus	8	
Vanessa atalanta	1	

Total Species: 2

Total Count: 9

Total hours: 0.5 on site

Comments

In bloom: abundant leadplant, many butterfly weed, a few phlox, a few white prairie clover, a few compass plants, a few pale purple coneflowers, a few yarrow, a few swamp milkweed, canada anemone.

My survey was in the southwest portion only. Bobolinks.

Cayler West Prairie Log Sheet

Date: July 4, 2018
County Dickinson

Weather: 8:55-10:15, 70-0% sun, S 2-9, NE 0-6 winds, 80-76°

Species List	Number Seen	Comments
Pieris rapae	1	
Colias eurytheme	5	
Danaus plexippus	12	

Total Species: 3

Total Count: 18

Total hours: 1.3 on site

Comments

In bloom: leadplant, many pale purple coneflowers (nearly all on eskers), phlox, thousands of milkweed, yarrow, canada anemone, pale spiked lobelia, a few hoary vervain, butterfly weed, a few gray-headed coneflowers, whorled milkweed, a few larkspur, one clump of bergamot, a few white prairie clover, a few daisy fleabane.

While on site, I watched very dark rain clouds roll in from the northwest. Wind direction suddenly changed from S to NE, and temperature suddenly dropped about five degrees.

Also saw a few bobolinks.

Little Swan Lake Log Sheet

Date: July 4, 2018
County: Dickinson

Weather: 11:00-11:08, 0% sun, S 2-9, NW 3-11 winds, 75-74°

Species List	Number Seen	Comments
Danaus plexippus	1	

Total Species: 1

Total Count: 1

Total hours: 0.1 on site

Comments

In bloom: butterfly weed, milkweed; others not noted due to weather front coming in.

This was an absolutely cursory survey using a rapid walk. Storm clouds were rolling in, and rain started within four minutes of survey end. By 11:35 a.m. the temperature had dropped to 66° with a downpour.

Records since 1980 for *Atrytone arogos*

County	Location	Date	Researcher
Lyon	Gitchie Manitou	July 22, 1980	Dean Roosa
Lyon	Lyon Bluffs Hwy 18 T98 R48 S16 EC¼	July 8, 1992	Tim Orwig
Lyon	Wandscheer Prairie T99 R49 S1 SE4	July 6, 1993	Mike Saunders
Lyon	Gitchie Manitou T100 R49 S11 SW4 NE4	July 21, 1993	Mike Saunders
Lyon	Hidden Bridge T99 R48 S7	1994	
Osceola	Iowa Lake Park T100 R39 S9	July 8, 1980	John Downey
Osceola	Wolter's Prairie	1987	
Osceola	Highway 60 MN-IA	July 21, 1993	Mike Saunders – 2 seen
Osceola	Wolter's Prairie	June 25, 2007	Frank Olsen
Dickinson	Cayler Prairie	June 27, 1980	John Downey
Dickinson	Lakeside Labs	July 12, 1980	John Downey
Dickinson	Floete Prairie T99 R37 S26	July 6, 1986	Jeff Nekola
Dickinson	Cayler Prairie	July 8, 1987	John Downey
Dickinson	Cayler Prairie	June 30, 1988	Tim Orwig
Dickinson	Cayler Prairie	July 8, 1989	Tim Orwig
Dickinson	Freda Haffner Kettlehole	July 13, 1990	Ron Harms
Dickinson	Cayler Prairie	July 18, 1992	Tim Orwig
Dickinson	Freda Haffner Kettlehole	July 18, 1992	Tim Orwig
Dickinson	Wuedker Prairie T99 R38 S12 NE4 NE4	July 18, 1993	Mike Saunders
Dickinson	Christopherson Slough T100 R35 S12	July 19, 1993	Mike Saunders
Dickinson	Little Swan Lake T100 R35 S23 NE4	July 19, 1993	Mike Saunders – 10
Dickinson	Cayler Prairie	July 5, 1994	Mike Saunders
Dickinson	Dugout Creek WPA T99 R38 S10	1994	
Dickinson	Cayler Prairie SW S17 NW	July 4, 2000	Jerry Selby – 7 seen
Dickinson	Cayler Prairie SE S17 NE	July 5, 2000	Jerry Selby – 3 seen
Emmet	Eagle Lake T100 R34 S11/14	July 10, 1980	John Downey
Emmet	High Lake T98 R33 S14	July 10, 1980	John Downey
Emmet	Anderson Prairie T100 R34 S33	1987	
Kossuth	Hoover Hill [?]	July 12, 1984	INAI
Kossuth	T96 R27 S33 2 mi. north of Titonka	July 9, 1986	Dennis Schlicht –2 seen
Sioux	Big Sioux River WMA 97 48 23/24	July 21, 1993	Mike Saunders – 3 seen
Sioux	Oak Grove Park	July 21, 1993	Mike Saunders
O'Brien	T94 R39 S15 EC¼	July 7, 1989	Tim Orwig
O'Brien	McCormack Area	July 7, 1989	Tim Orwig
O'Brien	Waterman Creek #1 94 39 2 SE4 SW4	July 20, 1993	Mike Saunders
Clay	Bertram Reservation	July 13, 1984	Wayne Schennum
Clay	Little Sioux Area 94 38 35 road corners	July 7, 1986	Jeff Nekola
Clay		July 8, 1986	Dennis Schlicht
Clay		July 17, 1986	Dennis Schlicht
Clay	Bertram Reservation 94 38 27 SE4	July 10, 1994	Mike Saunders – 10
Clay	Bertram Reservation 94 38 27 SE4	July 5, 2000	Jerry Selby
Clay	Bertram Reservation Feeks Tract 94 38 22	July 5, 2000	Jerry Selby
Palo Alto	Rush Lake	July 14, 1990	Ron Harms
Palo Alto	Telford Prairie	June 14, 1991	Ron Harms
Palo Alto	Telford Prairie	July 8, 1991	Ron Harms
Palo Alto	Telford Prairie	July 9, 1992	Ron Harms
Palo Alto	Telford Prairie	July 19, 1993	Ron Harms
Palo Alto	Road's End Prairie (NW Emmetsburg)	June 27, 1994	Mike Saunders
Hancock		July 9, 1980	Jeff Nekola

Hancock	Eagle Lake	July 10, 1980	John Downey
Hancock	1.5 east of Garner	July 9, 1986	Nekola/Schlicht
Cerro Gordo	Hoffman Prairie	July 8, 1984	Howe
Cerro Gordo	Bokelman Prairie	July 18, 1984	Wayne Schennum
Cerro Gordo	Don Hityhusen land 95 19 24 far west	July 19, 1984	Wayne Schennum
Plymouth	T91 R48 S8 (2 miles N. of 5 Ridge Pr.)	June 30, 1980	D. Stalling
Plymouth	T91 R48 S16 (1 mile N. of 5 Ridge Pr.)	June 30, 1980	D. Stalling
Plymouth	Deer Creek Lake	June 30, 1980	D. Stalling
Plymouth	4 mi. SE of Westfield	July 1, 1980	McGuire et al
Plymouth	Butcher Rd. & C43 (NE of 5 Ridge Pr.)	July 1, 1980	McGuire et al
Plymouth	Five Ridge Prairie State Preserve	Sept. 17, 1988	Tim Orwig
Plymouth	Mt. Talbot State Preserve T90 R48 S35	1989	
Plymouth	Mt. Talbot State Preserve	July 4, 1990	Tim Orwig
Plymouth	Five Ridge Prairie State Preserve	2002	
Cherokee	Steele Prairie State Preserve	July 4, 1980	John Downey
Buena Vista	Lew Morris Prairie T93 R38 S11	July 10, 1984	Howe and Schennum
Buena Vista	Lew Morris Prairie T93 R38 S11	July 13, 1984	Howe and Schennum
Buena Vista	RR Marathon	July 22, 1989	Ron Harms
Buena Vista	Cottonwood Creek 93 38 10 SW4 SW4	June 30, 2000	Jerry Selby – 2 seen
Pocahontas	Kalsow Prairie	July 1, 1988	Tim Orwig
Pocahontas	Kalsow Prairie	July 1, 1989	Ron Harms
Pocahontas	RR Prairie Laurens	July 13, 1990	Ron Harms
Pocahontas	Kalsow Prairie	July 22, 1990	Ron Harms
Pocahontas	Prairie 2 mi. west of Laurens	July 13, 1991	Ron Harms
Pocahontas	Kalsow Prairie	July 12, 1992	Ron Harms
Pocahontas	Prairie 2 mi. west of Laurens	July 19, 1992	Tim Orwig
Woodbury	Stone State Park	June 30, 1980	McGuire et al
Woodbury	3.5 miles east of Hornick	July 2, 1980	McGuire et al
Woodbury	Sioux City Prairie	July 17, 1986	Tim Orwig
Woodbury	Briar Cliff Prairie	June 26, 1988	Tim Orwig
Woodbury	42.3166, 95.9833	9-17-88 [sic]	Tim Orwig
Woodbury	Sioux City Prairie	July 21, 1991	Jerry Selby
Woodbury	Sioux City Prairie	July 21, 1991	Tim Orwig
Woodbury	War Eagle Monument	July 17, 1992	Tim Orwig
Woodbury	Sioux City Prairie	July 10, 1993	Tim Orwig
Hardin	Hubbard Prairie	July 7, 1989	Dave Cuthrell
Hardin	Hubbard Prairie	July 15, 1990	Tim Orwig
Black Hawk	Cedar Hills Sand Prairie	July 5, 1989	Dave Cuthrell
Monona	Loess Hills State Forest T82 R44 S22	2002	
Story	42.1040, 93.5003	June 26, 1988	Tim Orwig
Dallas	Kuehn Conservation Area	July 8, 2009	Joan Bray – see text
Pottawattamie	41.39115, -95.47778	July 3, 1980	Opler
Madison	10 miles west of Winterset	June 24, 1982	Brian Scholtens
Madison	10 miles west of Winterset	July 3, 1982	Brian Scholtens
Madison	10 miles west of Winterset	July 11, 1982	Brian Scholtens
Warren	Rolling Thunder Prairie State Preserve	July 12, 2002	Frank Olsen

Records since 1980 for *Poanes massasoit*

County	Location	Date	Researcher
Lyon	Blood Run Nat'l Monument	June 24, 1991	Tim Orwig
Lyon	Blood Run Nat'l Monument	July 8, 1992	Tim Orwig
Lyon	Blood Run Nat'l Monument	July 7, 2004	Frank Olsen
Lyon	Blood Run Nat'l Monument	July 7, 2004	Jerry Selby – 7 seen
Lyon	Hidden Bridge/Peterson Prairie W.A.	July 8, 2004	Jerry Selby – 4 seen
Dickinson	Lakeside Lab T99 R37 S23	July 6, 1980	John Downey
Dickinson	Milford Fen T98 R37 S11	July 9, 1986	Nekola and Schlicht
Dickinson	Milford Fen T98 R37 S11	July 12, 1986	John Downey
Dickinson	Spring Run Wetland Complex 99 36 32	1988	
Dickinson	Milford T989 R36 S6	1988	
Dickinson	Cayler Prairie State Preserve	June 28, 1989	John Fleckenstein
Dickinson	Milford Fen	July 8, 1989	Tim Orwig
Emmet	T98 R34 S35	2012	
Kossuth	Seeley Seep/Prairie T96 R28 S8 NE4	July 12, 1984	Ron Harms
Allamakee	T100 R5 S27	2012	
Sioux	Big Sioux River Wildlife S24 SW 1/4	July 10, 2012	DNR
O'Brien	Waterman Pr. Raper Tract T94 R39 S27	July 12, 2009	Ryan Rasmussen
Clay	Fen Valley T95 R35 S29-30	June 28, 1988	John Fleckenstein
Palo Alto	Telford Prairie	June 26, 2007	Frank Olsen – 2 seen
Hancock	Eagle Lake T96 R24 S18	2015	
Cherokee	Steele Prairie State Preserve	July 1, 1987	John Fleckenstein
Cherokee	Steele Prairie State Preserve T93 R40 S16	1989	
Cherokee	Steele Prairie State Preserve	July 9, 1992	John Fleckenstein
Cherokee	Steele Prairie State Preserve	June 27, 2005	Jerry Selby
Ida	Garth Lacey Fen T86 R41 S32 middle	July 18, 1990	Tim Orwig
Jasper	Kimberly Wetland both sides Hwy 65/330	1999	Diane Debinski