

**Targeted Skipper Inventory of
Selected Loess Hills Prairies 2014**

Prepared for Ann and Scott Swengel

November 2014

Franklin L. Olsen, Principal Researcher

Targeted Skipper Inventory at Selected Loess Hills Prairies 2014

Abstract

*This report presents the findings of a limited inventory of butterflies and skippers at fifteen Loess Hills prairie sites in Iowa. The principal researcher completed four days of field surveys of these sites during normal flight times for targeted species – *Hesperia leonardus leonardus* and *Hesperia leonardus pawnee*. Those surveys recorded a total of 364 butterflies and skippers representing 28 species. Of the targeted species, twelve *H. leonardus leonardus* and one *Leonardus l. pawnee* were found.*

Keywords: Lepidoptera, Loess Hills, *Hesperia leonardus leonardus*, *Hesperia leonardus pawnee*.

Introduction

Fifteen sites in the Loess Hills of western Iowa, including three State Preserves, were chosen as search sites for two target subspecies (*Hesperia l. leonardus* and *Hesperia l. pawnee*). Of these fifteen sites, at least eleven have previous records for the target species, as shown in the paragraphs to follow.

Per historical records, *Hesperia l. leonardus* is typically found in the southwestern Loess Hills counties while *H. l. pawnee* is usually found in the northwestern Loess Hills counties. According to *The Butterflies of Iowa* (Schlicht et al. 2007), “These two subspecies completely intergrade in a genetic cline within a 60-km. band extending over Monona, Harrison, and Pottawattamie counties in the Loess Hills (Spomer et al. 1993).”

The goals of this study were to visit many historic sites (and sites deemed to possibly hold populations of the target species) to determine if *Hesperia l. pawnee* is still extant, to locate existing populations of *Hesperia l. leonardus*, and to obtain data regarding specimens of the two target subspecies that might be intergrade individuals. An additional goal was to locate as many skipper and duskywing species as possible; the text that follows will illustrate this.

Attached with this report is a compact disk containing digital images of all the sites I visited. A review of these images should give the reader a better understanding of the nature of the sites than that provided by the brief descriptions in the following paragraphs.

Methods

To accomplish the goals mentioned above, surveys were conducted during normal flight times for the target species starting in Sioux County in northwest Iowa, and continuing southward to Harrison County in west-southwest Iowa. Survey dates ran from August 30 through September 2.

The principal researcher attempted to select days where field surveys had the greatest likelihood of locating the highest number of species. This means 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. Track logs were recorded on a Garmin eTrex 20 GPS mapping device for all sites.

Site visits consisted of meandering transects, concentrating on sampling habitat types appropriate for the target species. Particular emphasis was placed on searching prairie ridge tops, a habitat known to favor locating target species. The researcher scanned an area to the left, to the front, and to the right to a distance of about five meters, recording all butterfly/skipper species seen, and in what numbers.

Results

Results for the fifteen site surveys yielded a total of 364 butterflies and skippers representing 28 species. A total of twelve *Hesperia leonardus leonardus* and one *H. l. pawnee* were found. Target species were found at Sylvan Runkel State Preserve (three *leonardus* and one *pawnee*), Scenic Overlook Loess Hills State Forest (four *leonardus*), and Loess Hills State Forest Little Sioux Unit (five *leonardus*). Additional details regarding these individuals (GPS locations for each, sex of the specimens, if vouchered, etc.) is recorded on the log sheets for each site visited.

August 30, 2014

Starting August 30th, the first site I visited was Oak Grove Park in Sioux County. According to the Iowa Sportsman's Atlas, this park has 102 acres, of which 75% is timber. Dianne and Bill Blankenship of Sioux City, Iowa provided information on locations within the park that might be most favorable to finding skippers, and I visited the two areas that seemed to hold the best prospects. Back on Aug. 26, 1989, Tim Orwig found a target species here.

The first location was a one-acre prairie at a loop trail (signage indicates "Hiking Trail") north of the Park Residence and Administrative Office. Although this site had such plants as goldenrod, snakeroot, rough blazing star, compass plant, and evening primrose, I felt the site was too small to hold a permanent colony of any rare skippers. Weather conditions were marginal as well. The second location was south of Bluegill Bungalow at the west end of a large trailer park/campsite with a pond to its south/southwest. This several-acre prairie habitat contained hoary vervain, partridge pea, evening primrose, a few goldenrod, thistles, and snakeroot, but overall had few nectar sources. I regarded this site as (at best) marginal quality for the target species, and do not recommend it for future target species visits.

The next site visited was an unnamed property owned by The Nature Conservancy on the east side of Butcher Road, southeast of Broken Kettle Grasslands in Plymouth County. I walked a narrow ridge south to the transmission tower. Although the habitat seemed appropriate for locating rare skippers, I found very little here. Some of the prairie plants in bloom here included rough blazing star and goldenrod.

At the recommendation of Bill Blankenship, I next visited the Stevenson Family Preserve, also on the southeast side of Butcher Road, across from Broken Kettle Grasslands. The habitat here is hilly and of medium quality, with appropriate prairie grasses, a few rough blazing stars, sunflowers, snakeroot, and a few snow-on-the-mountain. I did find one female *Atalopedes campestris* here, but no other skippers.

The next prairie I visited was the 25-acre Knapp Prairie, located in Plymouth County southwest of the intersection of Weber and Evergreen (about four miles east-southeast of Five Ridge Prairie State Preserve). Although Tim Orwig has a record of the target species from this site – Aug. 24, 1988 – I was disappointed with the quality of this prairie, which I regarded a low to medium quality. I did locate one *Erynnis baptisiae* here along with two *Pieris rapae*, but nothing else. Some of the appropriate nectar sources I found here included one phlox species, a few purple

aster species, and one rough blazing star. Perhaps the site has degraded in the decades since Tim visited it.

Next I traveled to Sioux City to visit the 151-acre Sioux City Prairie in Woodbury County, and was accompanied by Dianne Blankenship who helped point out the precise areas where Tim Orwig found rare skippers many years ago. Tim's records for target species include Sept. 21, 1986; Aug. 24, 1988; Sept. 10, 1988; and July 20, 1991 [sic]. Despite spending an hour and forty minutes in very favorable conditions, the only skippers I located were one *A. campestris* and three *Polites themistocles*. I regard this prairie as medium to high quality.

The last site I visited this day was the Blankenship Prairie, a fairly high quality prairie surrounding the hilltop home owned by Dianne and Bill Blankenship on Buckwalter Drive, Sioux City. It was late in the day, and I spent just a short amount of time walking through the very tall prairie grasses, checking for skippers on the very limited nectar sources. Tim Orwig found the target species here on Sept. 2, 1988, but the only skipper I found was one *P. themistocles*.

August 31, 2014

My first stop this day was Mt. Talbot Prairie State Preserve in Plymouth County. Bill Blankenship accompanied me around the rolling hills of this 90-acre Preserve. Among those acres are native prairie (35 acres) and woodlands. The records we have for the target species from this site include those from Jerry Selby: Sept. 3, 1990 (32 individuals!) and Sept. 17, 2002 (2 individuals). Other records, all from Tim Orwig, include Sept. 9, 1989, Aug. 23, 1991, Sept. 7, 1991, and Aug. 25, 1993.

Given the high number of historic records from this site, I was disappointed with the dearth of appropriate nectar sources for skippers; indeed, the tall prairie grasses frequently obscured the presence of the few goldenrod, gerardia, and blazing stars that were at the site. I found no skippers at the preserve; I rate Mt. Talbot's quality as medium.

Perhaps of interest to butterfly researchers is the fact that we have an impressive historic list of non-target species from this site, including Olympia Marble, Dusted Skipper, Melissa Blue, Arogos Skipper, Ottoe Skipper, Regal Fritillary, and Reakirt's Blue. One wonders if a concentrated year-long survey of this Preserve would find these species again. The Iowa Department of Natural Resources may want to consider this site as a candidate for a future yearlong inventory.

Equally disappointing was the huge, 790-acre Five Ridge Prairie State Preserve, also in Plymouth County. As with other sites previously mentioned, I found few good nectar sources for skippers: a few goldenrod, a few blazing stars, snakeroot, thistles, and one aster. Our past records for target species at this State Preserve include Aug. 21, 1988, Sept. 17, 1988, and Aug. 29, 1989, all from Tim Orwig. Although I spent an hour and forty minutes walking up and down the hills, concentrating on ridges, the only skipper I found was one *Pyrgus communis*. Given the lack of good nectar sources, I rate this site as medium quality. Perhaps spending the entire day (or a good portion of it) so that more ridges would be accessed would have made a difference (or maybe not).

Next in the batting order was Sylvan Runkel State Preserve, a 330-acre site with as many prairie ridges as you could possibly want to traverse. About 100 acres of the site are native prairie. This site has records for such rare plants as pasqueflower, prairie moonwort fern, downy painted cup, yucca, and locoweed (Herzberg and Pearson, 2001).

Historic records from the site include: Sept. 16, 2002 (4 individuals), Sept. 8, 2011 (7 individuals), and Sept. 28, 2011 (all these from Jerry Selby); and Sept. 4, 2013 (2 individuals, Frank Olsen). Stephanie Shepherd of the Iowa Department of Natural Resources headed a team of researchers searching for *Hesperia leonardus* species in approximately the same time frame as me this year, and reports finding *H. l. leonardus* here.

I began surveying this site at 3:40 p.m., and had walked the ridges for more than an hour (and, incidentally, getting farther and farther away from my car), finding only one *P. communis* and one *P. themistocles*, and was about to reverse course when I encountered several blazing star species (with good numbers of each species) on a ridge top, and with target species of skippers in relative abundance nectaring on them. I was so absorbed by this small Eden of high-quality habitat and the appearance of target species that for fifteen minutes I was completely engrossed in observing and recording the *Hesperia leonardus leonardus* and *H. l. pawnee* specimens there. Suddenly it occurred to me that the landscape seemed to be getting dark. I looked up, and was astounded to see a huge bank of thick, black clouds heading my way from the southwest. From my perch high atop the ridge, I could see rain falling in the distance. It occurred to me that I was in a tight spot, since at this high location I might soon become a human lightning rod. Quickly reversing course on the ridge top, I “turned on the afterburners” and retraced my path at full speed, power-walking up and down ridges until I finally made the long descent to the southeast site entrance. By the time I reached my car, I was drenched in sweat from the effort as the first raindrops began to fall. By the time I pulled into the parking lot of my motel in nearby Onawa, very strong winds and a downpour had reached the area, accompanied by dark-as-night skies and lightning.

Two lessons were obvious: (1) it pays to look up once in a while, and (2) sometimes target species occupy a very small percentage of a site. If I had turned back five minutes earlier, I would not have found the target species. The fact that so little of the available habitat held target species has lessons not only for other Lepidoptera researchers but also for site management, as well.

September 1, 2014

This day, spent in Monona County, started with the Loess Hill Wildlife Management Area, a 2,742-acre behemoth with lots of rolling hills of medium quality, having both prairie and expansive woodlands. Last year I rated this site at medium to high quality, but this year the site was handicapped by few nectar sources being available to target species and other skippers. Historic records include: Aug. 21, 1991, Aug. 30, 1991, and Aug. 31, 1991 (all Tim Orwig); Sept. 8, 2012 (Aaron Brees and Tom Jantscher); and Sept. 4, 2013 (Frank Olsen). Stephanie Shepherd reports finding *H. l. leonardus* here this year. This year the only skipper I came upon was an *Anatrytone logan*.

One of my favorite sites in the Loess Hills is the 220-acre Turin Loess Hills State Preserve. The 300-foot ascent to the highest ridge top is both treacherous and exhilarating, featuring a very narrow ridge-top path, with precipitous hillsides having up to 60-degree slopes. Last year, on September 24th, I found five *Erynnis baptisiae*, one *H. leonardus*, one *A. campestris*, and one *P. themistocles* here; this year all I found were two *E. baptisiae* and one *Epargyreus clarus*. Several years earlier, on Aug. 24, 2008, I located three target species. Parts of this site are high quality while other portions are significantly lower (including, of all things, a soybean field in a lower area).

The last site of the day, the Scenic Overlook, Loess Hills State Forest, was the crown jewel of the trip – a site that for practical purposes on this day was a veritable lepidopterist’s Shangri La. In

the space of two hours and 15 minutes, I encountered 21 species of butterflies and skippers, including seven *E. clarus*, one *Erynnis horatius*, one *P. communis*, four *H. leonardus*, one *A. campestris*, three *P. themistocles*, and two *Euphyes vestris*. Nectar sources on the ridges were abundant, including many rough blazing stars, the nectar source of choice for discerning skippers. This site, incidentally, also features a huge, handicapped-accessible deck with commanding views of the flattened landscape stretching far below to the west and southwest. Indeed, I returned to this site the same evening to survey for moths with a 15-watt blacklight, and was treated to a ringside seat for a spectacular display of a distant lightning storm in northeastern Nebraska. The habitat that I walked at this site was the highest quality of any site during the four-day-long inventory.

September 2, 2014

The last day of the inventory encompassed three sites in Harrison County, starting with the Murray Hill Scenic Overlook. The three-acre site with an upward-leading ridge path is fairly high quality, with some blazing stars, sunflowers, goldenrod, snow-on-the-mountain, yucca plants, and lots of big bluestem. Several decades ago Tim Orwig identified target species here, specifically on Aug. 31, 1989 and two years later, on Aug. 31, 1991. I recorded five *E. baptisiae* and one *A. campestris* here during this survey. As with the previously mentioned Scenic Overlook, Loess Hills State Forest, this site has a commanding view of the flattened landscape far below in the west.

My second stop of the day was at the Loess Hills State Forest, Little Sioux Unit, specifically beginning at the parking lot southwest of the intersection of Geneva and 138th Street. Skippers and duskywings I located here include one *E. baptisiae*, one *P. communis*, five *H. leonardus*, and two *P. themistocles*. The total expanse of the Loess Hills State Forest is approximately 9,000 acres. Given the acreage, one could spend days in this area alone. Past records from the Loess Hills State Forest include Sept. 12, 2010 and Sept. 25, 2011 (Aaron Brees); and Sept. 8, 2012 (Aaron Brees and Tom Jantscher). Stephanie Shepherd reports finding *H. l. leonardus* here this year, as well.

Two landscape features of the Little Sioux Unit deserve mention: first, the hilltops and hillsides have a surprising number of holes in the ground (gophers?) – so you need to be particularly vigilant regarding where you’re walking, and second, the site has a very extensive cedar invasion that is well on its way to taking over the aforementioned hilltops and hillsides. Management needs to devote time and resources to remedying this situation. The nectar sources, including blazing star, thistles, and goldenrod, are rather sparse in the targeted habitat.

The last site visited was the 165-acre Gleason-Hubel Wildlife Area. Instead of mimicking a mountain goat and heading up the steep hillsides and prairie ridge tops to the north of the parking lot, I chose to follow a dirt road that led east, then south through woods. A dirt road has been cut up a hillside all the way up to the ridge top; management has cut down many small to large deciduous and cedar trees in what appears to be an effort to restore the open ridge tops and hillsides that existed decades ago. Although the quality of the habitat is not high in this area, I did locate four *E. clarus*, two *E. horatius*, and one *P. communis* nectaring primarily on hoary vervain and, to a lesser degree, on snakeroot near the top of the site.

I would advise future researchers who visit this site to concentrate their efforts on the hillsides and prairie ridge tops in the northwest portion of this site. It seems to me that target species would be more likely to occur in those areas.

Looking at the general results for each site, we find the following:

<u>Site</u>	<u>Species</u>	<u>Total Butterflies</u>	<u>Total Hrs.</u>
Blankenship Prairie	2	2	0.25
Five Ridge Prairie State Pres.	5	20	1.7
Oak Grove Park	1	1	0.6
Gleason-Hubel W.M.A.	12	29	1.1
Knapp Prairie	2	3	0.6
Loess Hills St. For. Little Sioux	12	43	1.8
Loess Hills Wildlife Area	3	14	0.75
Mt. Talbot State Preserve	5	16	1.0
Murray Hill Scenic Overlook	5	16	0.75
Scenic Overlook, Loess Hls SF	21	114	2.25
Sioux City Prairie	7	31	1.7
Stevenson Family Preserve	6	18	0.7
Sylvan Runkel State Preserve	10	24	1.75
TNC Property, Plymouth Co.	2	2	0.3
Turin Loess Hills State Pres.	12	31	1.3

Following the text of this report are individual log sheets for each site visit. The Waypoints data – GPS locations for skippers and duskywings – for each site are shown at the bottom of each log sheet.

Discussion

The results outlined above are not particularly encouraging. Populations of target species, when found, have been small, and only one specimen of *H. l. pawnee* was found. A four-day survey is hardly adequate in making broad assumptions of the status of rare skippers; we need a much greater level of effort over a large number of years to ascertain the true status of the target species. By this I recommend having a minimum of five consecutive years of surveys by teams of experienced individuals who would visit each site several times during the adult flight time for the target species, and spend sufficient time at each site to cover as much appropriate habitat as is possible.

The erratic weather of the past few years may be affecting the populations of both target and other species. As mentioned in my Loess Hills report from last year (“Targeted Butterfly and Skipper Inventory of Selected Loess Hills Prairies 2013”), the year 2012 brought drought conditions to the state. As reported in *The Gazette* on January 1, 2013, during 2012 Iowa experienced its worst drought since the 1936 Dust Bowl year. They also reported that during the winter of 2011-2012, the temperature failed to drop to zero degrees or below for the first time since record keeping began with the winter of 1878-1879. This was followed by an extremely wet and cool spring in 2013.

This year Sioux City received more than ten inches of rain in August; and prior to August, that city received more than 29 inches of rain – far above what is normal for that time period. Bill Blankenship theorized that the heavy amounts of rain have favored prairie grasses over the forbs,

leading to the dearth of nectar sources we experienced during late August and early September this year.

Although this survey recorded target species at three sites, I did not find *H. l. leonardus* or *H. l. pawnee* at eight other sites having historical records. Those sites that did hold target species also appear to have extremely localized populations, and populations that are quite small.

Small populations pose risk to the continued viability of those species for a wide variety of reasons. Wilcove (1987) highlights this problem in Missouri prairies (though his conclusions apply to Iowa prairies). Noting that less than 0.5 percent of that state's presettlement prairie remains, and what little left consists mostly of small, isolated patches, he highlights why small populations are susceptible to extinction:

1. Vulnerability to Natural Catastrophes – fire, storms, and disease epidemics, though rare events in the life of an individual organism, inevitably occur and can easily wipe out a small population.
2. Demographic Stochasticity – refers to the chance events in the reproduction or survival of a finite number of individuals. Such chance events can include a dearth of females during a particular year, resulting in the possibility of far fewer offspring.
3. Genetic Deterioration – loss of genetic variability can lead to reduced fertility, the establishment of deleterious traits within a small population, or the inability to adapt successfully to sudden environmental changes.

Intrinsic in the maintenance of small populations is the necessity to identify precisely where on the site the population resides (I use, and highly recommend for other studies, GPS coordinates), and to make extraordinary efforts to assure that the species is protected throughout its life cycle from any management practice that might jeopardize the population. I emphasize that basic to this tenet is the assurance that the appropriate habitat for that population is subdivided into several distinct management units so that no single management technique will impact the entire population in a given year. Monitoring should be mandatory for threatened and endangered species to assess the effects of various management techniques.

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 Aaron Brees, Dennis Schlicht, Jerry Selby, Tom Jantscher, and Stephanie Shepherd for providing information regarding their records of the target species from various Loess Hills sites. In addition, I'd like to thank Dennis Schlicht, Jerry Selby, and Tom Jantscher for their examinations of target-species specimens I collected during this study, and opinions regarding whether the specimens were *Hesperia l. leonardus* or *H. l. pawnee*. Although the final determination of identifications is mine, their expertise was most helpful. And in nearly all cases, we agreed on the determination of vouchered specimens to subspecies level. They also confirmed my identifications of the duskywing specimens I vouchered. I'd also like to thank Tim Orwig (formerly of Sioux City) who established invaluable baseline data on the target species during his surveys of Loess Hills prairie sites several decades ago.

Literature Cited

- Herzberg, Ruth and John Pearson, 2001. The Guide to Iowa's State Preserves. University of Iowa Press, Iowa City, for the Iowa Department of Natural Resources.
- Schlicht, Dennis W., John C. Downey, and Jeffrey C. Nekola, 2007. The Butterflies of Iowa. University of Iowa Press, Iowa City.
- Spomer, S.M., L. G. Higley, T. T. Orwig, G. L. Selby, and L. J. Young, 1993. Clinal variation *Hesperia leonardus* (Hesperiidae) in the Loess Hills of the Missouri River Valley. J. Lep. Soc. 47(4):291-302.
- Wilcove, David S., 1987. From Fragmentation to Extinction. Natural Areas Journal, Volume 7 (1).

Oak Grove Park Log Sheet

Date: Aug. 30, 2014

Weather: 10:25-11:10*, 65-66°, cloudy, winds NW 0-2

<u>Species List</u>	<u>Number Seen*</u>	<u>Comments</u>
Vanessa cardui	1 - 0	

Total Species: 1

Total Count: 1

Total hours: 0.6 hr.

This site is in Sioux County.

In bloom: goldenrod, rough blazing star, many snakeroot, compass plant, evening primrose, partridge pea, thistles, 1 hoary vervain. Overall, few nectar sources were available for butterflies. Many grasshoppers were present.

Weather conditions for this site were marginal, at best. I visited two portions of the park – the first was a small prairie (perhaps one acre, at most) at a loop trail north of the Park Residence and Administrative Office, and the second (south of Bluegill Bungalow) was west of a large trailer/campsite with a large pond. Both locations were at best medium quality.

*The time spent at the first location was 15 minutes; time at the second location was 20 minutes.

TNC Property SE of Broken Kettle Grasslands Log Sheet

Date: Aug. 30, 2014

Weather: 12:20-12:40, 67°, 90% clouds, winds WNW 017

<u>Species List</u>	<u>Number Seen</u>	<u>Comments</u>
Everes comyntas	1	
Cercyonis pegala	1	

Total Species: 2

Total Count: 2

Total hours: 0.33 hr.

This site is in Plymouth County.

In bloom: goldenrod, rough blazing star, sunflowers.

Weather conditions for this site were marginal. The location is east of Butcher Road, which winds from the SW to the E portion of Broken Kettle Grasslands. I walked south to the transmission tower/lines. Quality of the area I walked was medium-high.

Stevenson Family Preserve Log Sheet

Date: Aug. 30, 2014

Weather: 12:50-1:30, 67°, 95-50% clouds, winds WNW 0-4

<u>Species List</u>	<u>Number Seen</u>	<u>Comments</u>
Atalopedes campestris	1	Vouchered at Waypoint 83
Colias eurytheme	5	
Everes comyntas	6	
Danaus plexippus	2	On rough blazing stars.
Vanessa cardui	2	
Cercyonis pegala	2	

Total Species: 6

Total Count: 18

Total hours: 0.67 hr.

This site is in Plymouth County.

In bloom: goldenrod, a few rough blazing star, sunflowers, snakeroot, a few evening primrose, a few snow-on-the-mountain.

The location is southeast of Butcher Road, which winds from the SW to the E portion of Broken Kettle Grasslands. Site is medium quality.

Atalopedes campestris: Waypoint 83, 42° 41.525, 96° 33.372. Skipper was nectaring on rough blazing star about 80 yards from Butcher Road.

Knapp Prairie Log Sheet

Date: Aug. 30, 2014

Weather: 2:05-2:40, 70°, 80-75% clouds, winds W 0-6

Species List

Number Seen

Comments

Erynnis baptisiae

1

Vouchered at Waypoint 84

Pieris rapae

2

Total Species: 2

Total Count: 3

Total hours: 0.6 hr.

This site is in Plymouth County at the intersection of Weber and Evergreen, about four miles ESE of Five Ridge Prairie State Preserve.

In bloom: sunflowers, prairie sage, flowering spurge, gray-headed coneflower, snakeroot, a few purple asters, one rough blazing star, one phlox, one evening primrose.

Site is low to medium quality.

Erynnis baptisiae: Waypoint 84, 42° 39.871, 96° 27.052.

Sioux City Prairie Log Sheet

Date: Aug. 30, 2014

Weather: 3:55-5:35, 74-76°, 0% clouds, winds W 0-2

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Atalopedes campestris	1	♀ condition 1, Waypoint 87
Polites themistocles	3	2 ♂, 1 ♀, Waypoints 86, 87, 88
Papilio glaucus	3	
Colias eurytheme	8	
Everes comyntas	11	
Danaus plexippus	4	
Euptoieta claudia	1	

Total Species: 7

Total Count: 31

Total hours: 1.67 hr.

This site is in Woodbury County. I was accompanied by Dianne Blankenship.

In bloom: goldenrod, dotted gayfeather, aromatic aster, cutleaf iron plant, a few rough blazing stars.

Site is medium to medium-high quality.

Atalopedes campestris: Waypoint 87: 42° 31.518, 96° 26.100

Polites themistocles: Waypoint 86: 42° 31.495, 96° 26.259
Waypoint 87: 42° 31.518, 96° 26.100
Waypoint 88: 42° 31.534, 96° 26.056

Also vouchered a small moth at Waypoint 85: 42° 31.428, 96° 26.290

Blankenship Prairie Log Sheet

Date: Aug. 30, 2014

Weather: 6:00-6:15, 76°, 0% clouds, winds W 0-1

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Polites themistocles	1	♂
Everes comyntas	1	

Total Species: 2

Total Count: 2

Total hours: 0.25 hr.

This site is in Plymouth County at 737 Buckwalter Drive toward the north end of Sioux City. It is the residence of Dr. William and Dianne Blankenship. I made but a cursory survey of the site late in the day.

In bloom: snow-on-the-mountain and a few others.

Site is medium quality with an abundance of grass species but (at this time) few good nectar sources.

Mt. Talbot Prairie State Preserve Log Sheet

Date: Aug. 31, 2014

Weather: 9:35-10:35, 72-74°, 85-90% clouds, wind WSW 0-5

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Pieris rapae	1	
Colias eurytheme	3	
Everes comyntas	10	
Danaus plexippus	1	
Vanessa cardui	1	

Total Species: 5

Total Count: 16

Total hours: 1.0 hr.

This site is in Plymouth County. I was accompanied by Dr. William Blankenship.

In bloom: goldenrod, dotted gayfeather, snow-on-the-mountain, nine-anther dalea, gerardia.

Site at this time is medium quality. Very few nectar sources for butterflies/skippers; a multitude of tall grasses hide many of the nectar sources that are present. Near the end of the survey, we encountered a few raindrops.

Five Ridge Prairie Log Sheet

Date: Aug. 31, 2014

Weather: 11:20-1:00, 75-80°, 95-40% clouds, wind S 0-8

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Pyrgus communis	1	Condition 1, Waypoint 89
Colias eurytheme	1	
Everes comyntas	14	
Speyeria cybele	1	Nectaring on thistle
Vanessa cardui	3	Condition 1

Total Species: 5

Total Count: 20

Total hours: 1.67 hr.

This site is in Plymouth County.

In bloom: few goldenrod, few dotted gayfeather, few snow-on-the-mountain, 1 skeleton weed, yucca (not in bloom), snakeroot, thistles, mullein, 1 aromatic aster. Very few good nectar sources for butterflies. Site at this time is medium quality. This is a huge site; I walked just a small portion of it.

Pyrgus communis: Waypoint 89 at 42°41.030, 96°31.594

Sylvan Runkel State Preserve Log Sheet

Date: Aug. 31, 2014

Weather: 3:40-5:25, 76-75°, 90-100% clouds, S/NW 0-4

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Pyrgus communis	1	♀, condition 1, Waypoint 90
Hesperia leonardus	3	2 ♂, 1 unknown sex, WP 92, 93
Hesperia l. pawnee	1	♀; WP 92
Polites themistocles	2	2 ♀, cond. 1, Waypoints 91, 92
Papilio glaucus	1	
Pieris rapae	1	
Colias eurytheme	2	
Strymon melinus	1	Waypoint 92; 4:45 p.m.
Everes comyntas	9	
Cercyonis pegala	3	

Total Species: 10

Total Count: 24

Total hours: 1.75 hr.

This site is in Monona County.

In bloom: goldenrod, snow-on-the-mountain, dotted gayfeather, rough blazing star, a few aromatic aster.

Pyrgus communis: Waypoint 90: 42° 06.364, 95° 58.392. Female, condition 1.

Hesperia leonardus: Waypoint 92 (2): 42° 06.303, 95° 58.938 4:45 p.m. Male vouchered.

Waypoint 93: 42° 06.287, 95° 58.956 5:00 p.m. Male.

Hesperia l. pawnee: Waypoint 92: 42° 06.303, 95° 58.938 4:45 p.m. Female, vouchered.

Polites themistocles: Waypoint 91: 42° 06.384, 95° 58.808 Female

Waypoint 92: 42° 06.303, 95° 58.938 Female 4:45 p.m.

The *H. leonardus*, *H. l. pawnee*, *P. themistocles*, and *S. melinus* were all nectaring on rough blazing star. Also, the immediate area of the site from the Sylvan Runkel sign to close to the top of the ridges looks like junk habitat with few nectar sources or prairie grasses; not sure why. At 5:00 p.m., thick dark clouds rolled in. I barely made it back to the car before rain, lightning, and high winds started. Site is medium-low to, along the ridge tops, medium to high quality. The best skippers were in short grass ridge top areas with ample nectar sources.

Loess Hills WMA Log Sheet

Date: Sept. 1, 2014

Weather: 9:50-10:35, 67-69°, 75-70% clouds, WNW 0-7

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Anatrytone logan	1	Caught & released ♀, Waypoint 94
Pieris rapae	2	
Everes comyntas	11	

Total Species: 3

Total Count: 14

Total hours: 0.75 hr.

This site is in Monona County, south of Oak and Nutmeg intersection.

In bloom: goldenrod, dotted gayfeather.

Anatrytone logan: Waypoint 94: 42° 06.013, 95° 58.266. Condition 1.

Site is rather low quality, having predominantly tall grasses and very few nectar sources.

Turin Loess Hills State Preserve Log Sheet

Date: Sept. 1, 2014

Weather: 11:10-12:30, 71-75°, 75-45% clouds, NW 0-10

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Epargyreus clarus	1	
Erynnis baptisiae	2	Vouchered ♂, both at Waypoint 95
Papilio cressphontes	1	
Pieris rapae	4	
Colias philodice	3	
Colias eurytheme	3	
Everes comyntas	7	
Danaus plexippus	5	Nectaring on thistles
Speyeria cybele	2	
Polygonia comma	1	
Vanessa cardui	1	
Cercyonis pegala	1	

Total Species: 12

Total Count: 31

Total hours: 1.33 hr.

This site is in Monona County.

In bloom: goldenrod, snow-on-the-mountain, dotted gayfeather, rough blazing star, one aromatic aster, sunflowers, thistles, gerardia, nine-anther dalea, one hoary vervain. Yucca and leadplant are not in bloom.

Erynnis baptisiae: Waypoint 95: 42° 02.679, 95° 57.842. One ♂, 1 ♀.

Site is fairly high quality, and has spectacular views to the west from the very high ridge tops. I vouchered a crambus-type moth at the north-northeasterly limit of my survey track.

Scenic Overlook, Loess Hills S. F. Log Sheet

Date: Sept. 1, 2014

Weather: 2:00-4:15, 74-77°, 33-60% clouds, WSW 0-5

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Epargyreus clarus	7	Condition 1 to 2-
Erynnis horatius	1	Voucher at Waypoint 100
Pyrgus communis	1	Waypoint 99, condition 1
Hesperia leonardus	4	WPs 96 (2 ♂), 98 (♀), 100 (♂)
Atalopedes campestris	1	Waypoint 99, caught & released ♂
Polites themistocles	3	Waypoints 98 & 99; two ♂, one ♀
Euphyes vestris	2	Waypoint 97, vouchered one
Papilio glaucus	1	
Papilio cressphontes	1	
Pieris rapae	1	
Colias philodice	1	
Colias eurytheme	10	
Eurema lisa	1	
Everes comyntas	30	Nearly all condition 1
Celastrina neglecta	1	
Danaus plexippus	5	Condition 1
Speyeria cybele	1	
Phyciodes tharos	5	
Vanessa cardui	35	
Vanessa virginiensis	1	Caught & released
Cercyonis pegala	2	

Total Species: 21

Total Count: 114

Total hours: 2.25 hr.

This site is in Monona County.

In bloom: goldenrod, one snow-on-the-mountain, abundant dotted gayfeather, many rough blazing star, some aromatic aster, thistles, snakeroot, one gerardia, many nine-anther dalea. Lots of big bluestem here.

Erynnis horatius: Waypoint 100: 41° 54.302, 95° 56.750.

Pyrgus communis: Waypoint 99: 41° 54.248, 95° 56.759. Condition 1.

Hesperia leonardus: Waypoint 96: 41° 54.286, 95° 56.759. Both male, vouchered one.

Waypoint 98: 41° 54.022, 95° 56.887 Female

Waypoint 100: 41° 54.302, 95° 56.750. Male

Atalopedes campestris: Waypoint 99: 41° 54.248, 95° 56.759. Male, condition 1.

Polites themistocles: Waypoints 98 & 99: 41° 54.022, 95° 56.887 and 41° 54.248, 95° 56.759.
Euphyes vestris: Waypoint 97: 41° 54.063, 95° 56.803.

Site is the highest quality of any I've seen on this Loess Hills foray, and has spectacular views to the west from the huge scenic overlook deck. The site looks as if it has been burned earlier this year. Also saw two or three 3-inch-long lizards with colorful tails.

Murray Hill Scenic Overlook Log Sheet

Date: Sept. 2, 2014

Weather: 10:25-11:10, 64-67°, 0% clouds, variable 0-3

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
<i>Erynnis baptisiae</i>	5	2 at Waypoint 101, 1 at WP 102
<i>Atalopedes campestris</i>	1	Vouchered ♂, Waypoint 101
<i>Polites themistocles</i>	1	Caught & released ♀, Waypoint 101
<i>Colias philodice</i>	1	
<i>Everes comyntas</i>	8	

Total Species: 5

Total Count: 16

Total hours: 0.75 hr.

This site is in Harrison County.

In bloom: goldenrod, snow-on-the-mountain, dotted gayfeather, sunflowers. This site also has big bluestem, many yucca plants not in bloom, and leadplant, also not in bloom.

Erynnis baptisiae: Waypoint 101: 41° 50.313, 96° 00.020. Both nectaring on dotted gayfeather.
I vouchered one specimen at this Waypoint.

Erynnis baptisiae: Waypoint 102: 41° 50.287, 96° 00.023. Nectaring on dotted gayfeather.

Atalopedes campestris: Waypoint 101: 41° 50.313, 96° 00.020. Vouchered ♂ on dotted gayfeather.

Polites themistocles: Waypoint 101: 41° 50.313, 96° 00.020. ♀ on dotted gayfeather.

Site is fairly high quality, and has spectacular views to the west from the high ridge tops. Two of the duskywings (not included in the GPS readings above) were near the southernmost point of my track log.

Loess Hills State Forest Little Sioux Log Sheet

Date: Sept. 2, 2014

Weather: 11:40-1:30, 69-74°, 0% clouds, SSW 0-5

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Erynnis baptisiae	1	Vouchered at entrance; 1:28 p.m.
Pyrgus communis	1	Waypoint 107; condition 1
Hesperia leonardus	5	Five ♂; Waypoints 104, 105, 107
Polites themistocles	2	2 ♂; Waypoint 103, on dot. gayfeather
Pieris rapae	1	
Colias eurytheme	6	
Eurema lisa	2	Vouchered 1 at Waypoint 106
Everes comyntas	19	
Speyeria cybele	1	
Phyciodes tharos	2	Caught & released 1; both condition 1
Junonia coenia	1	
Vanessa cardui	2	

Total Species: 12

Total Count: 43

Total hours: 1.8 hr.

This site is in Harrison County.

In bloom: goldenrod, snow-on-the-mountain, dotted gayfeather, sunflowers, thistles, gerardia. This site has very extensive cedar invasion, tons of grasshoppers, and lots of big bluestem.

Pyrgus communis: Waypoint 107: 41° 48.160, 95° 58.911

Hesperia leonardus: Waypoint 104 (2): 41° 48.101, 95° 58.625. Both on dotted gayfeather.

Vouchered a male at this Waypoint.

Waypoint 105 (1): 41° 48.148, 95° 58.863

Waypoint 107 (2): 41° 48.160, 95° 58.911 Vouchered a male at this Waypoint.

Polites themistocles: Waypoint 103 (2): 41° 48.083, 95° 58.586

Eurema lisa: Waypoint 106 (1): 41° 48.199, 95° 58.835

Site is medium quality. Oddly, this site has lots of holes in the ground (gophers?) in the central and west areas of my survey, and has relatively few good nectaring sources for target species.

Gleason-Hubel Wildlife Area Log Sheet

Date: Sept. 2, 2014

Weather: 1:55-3:00, 74-78°, 0% clouds, var. 0-3

<u>Species List</u>	<u>Number Seen</u>	<u>Comment</u>
Epargyreus clarus	4	
Erynnis horatius	2	Vouchered one at Waypoint 108
Pyrgus communis	1	Located at Waypoint 108
Papilio glaucus	1	Condition 2-
Papilio cresphontes	1	
Pieris rapae	5	
Everes comyntas	5	
Celastrina neglecta	1	
Danaus plexippus	1	
Speyeria cybele	1	
Polygonia comma	4	3 at entrance to site
Vanessa cardui	3	

Total Species: 12

Total Count: 29

Total hours: 1.1 hr.

This site is in Harrison County.

In bloom: goldenrod, hoary vervain, tons of snakeroot. Also present: lots of big bluestem and leadplant (not in bloom). The butterflies and duskywings were nectaring primarily on hoary vervain, and to a much lesser degree on snakeroot.

Erynnis horatius: Waypoint 108: 41° 47.343, 96° 00.427. Both were nectaring on hoary vervain.

Pyrgus communis: Waypoint 108: 41° 47.343, 96° 00.427

The portion of the site I surveyed – to the east and south from the entrance – is low to medium quality. Management has undertaken an extensive program of removing small to large trees from hillsides and hilltops to restore prairie elements; it looks as if woody progression took over most of this portion of the site a number of decades ago.

Waypoint Information for Lepidoptera Sightings

<u>Waypoint #</u>	<u>Species</u>	<u>Site</u>	<u>GPS Coordinates</u>
83	<i>Atalopedes campestris</i>	Stevenson Family Pres.	42° 41.525, 96° 33.372
84	<i>Erynnis baptisiae</i>	Knapp Prairie	42° 39.871, 96° 27.052
86	<i>Polites themistocles</i>	Sioux City Prairie	42° 31.495, 96° 26.259
87	<i>Atalopedes campestris</i>	Sioux City Prairie	42° 31.518, 96° 26.100
	<i>Polites themistocles</i>	Sioux City Prairie	42° 31.518, 96° 26.100
88	<i>Polites themistocles</i>	Sioux City Prairie	42° 31.534, 96° 26.056
89	<i>Pyrgus communis</i>	Five Ridge Prairie S. P.	42° 41.030, 96° 31.594
90	<i>Pyrgus communis</i>	Sylvan Runkel St. Pres.	42° 06.364, 95° 58.392
91	<i>Polites themistocles</i>	Sylvan Runkel St. Pres.	42° 06.384, 95° 58.808
92	<i>Hesperia l. leonardus</i>	Sylvan Runkel St. Pres.	42° 06.303, 95° 58.938
	<i>Hesperia l. pawnee</i>	Sylvan Runkel St. Pres.	42° 06.303, 95° 58.938
	<i>Polites themistocles</i>	Sylvan Runkel St. Pres.	42° 06.303, 95° 58.938
93	<i>Hesperia l. leonardus</i>	Sylvan Runkel St. Pres.	42° 06.287, 95° 58.956
94	<i>Anatrytone logan</i>	Loess Hills Wild. Area	42° 06.013, 95° 58.266
95	<i>Erynnis baptisiae</i> (2)	Turin Loess Hills S. P.	42° 02.679, 95° 57.842
96	<i>Hesperia l. leonardus</i>	Scenic Overlook, LHSF	41° 54.286, 95° 56.759
97	<i>Euphyes vestris</i>	Scenic Overlook, LHSF	41° 54.063, 95° 56.803
98	<i>Hesperia leonardus</i>	Scenic Overlook, LHSF	41° 54.022, 95° 56.887
	<i>Polites themistocles</i> (2)	Scenic Overlook, LHSF	41° 54.022, 95° 56.887

99	<i>Pyrgus communis</i>	Scenic Overlook, LHSF 41° 54.248, 95° 56.759
	<i>Atalopedes campestris</i>	Scenic Overlook, LHSF 41° 54.248, 95° 56.759
	<i>Polites themistocles</i>	Scenic Overlook, LHSF 41° 54.248, 95° 56.759
100	<i>Erynnis horatius</i>	Scenic Overlook, LHSF 41° 54.302, 95° 56.750
	<i>Hesperia leonardus</i>	Scenic Overlook, LHSF 41° 54.302, 95° 56.750
101	<i>Erynnis baptisiae</i> (2)	Murray Hill Overlook 41° 50.313, 96° 00.020
	<i>Atalopedes campestris</i>	Murray Hill Overlook 41° 50.313, 96° 00.020
	<i>Polites themistocles</i>	Murray Hill Overlook 41° 50.313, 96° 00.020
102	<i>Erynnis baptisiae</i>	Murray Hill Overlook 41° 50.287, 96° 00.023
103	<i>Polites themistocles</i> (2)	LHSF Little Sioux Unit 41° 48.083, 95° 58.586
104	<i>Hesperia leonardus</i> (2)	LHSF Little Sioux Unit 41° 48.101, 95° 58.625
105	<i>Hesperia leonardus</i>	LHSF Little Sioux Unit 41° 48.148, 95° 58.863
106	<i>Eurema lisa</i>	LHSF Little Sioux Unit 41° 48.199, 95° 58.835
107	<i>Pyrgus communis</i>	LHSF Little Sioux Unit 41° 48.160, 95° 58.911
	<i>Hesperia l leonardus</i>	LHSF Little Sioux Unit 41° 48.160, 95° 58.911
108	<i>Erynnis horatius</i>	Gleason-Hubel WMA 41° 47.343, 96° 00.427
	<i>Pyrgus communis</i>	Gleason-Hubel WMA 41° 47.343, 96° 00.427