

**2011**

**Minutes from the Poweshiek  
Skipperling Workshop**



Photo: J. Dupont

**Winnipeg, Manitoba  
March 24th and 25th**

The minutes below represent the collective views captured and opinions of the experts who gathered to discuss the Poweshiek Skipperling. The views expressed in this document don't represent the views of any one participant. The Workshop was led by the Nature Conservancy of Canada, Manitoba Region, and the minutes were summarized from audio recording and written notes by Jaimée Dupont.

We would like to extend huge thank you to all of the individuals and organizations that attended and contributed to the workshop. We would also like to thank our sponsors:



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## Abstract

The objectives of this workshop were to bring together the Poweshiek Skipperling experts and those responsible for managing the species' habitat from across its range, and open the lines of communication between them. Key goals of this workshop included identifying common trends amongst populations, discussing potential causes of these trends, identifying key research gaps and discussing how to fill these gaps. Workshop discussions provided immediate feedback and direction for National Recovery Planning and Implementation efforts that are currently underway in Canada and the USA. Conservation actions that should occur (range-wide and locally) were identified to ensure ongoing persistence of the species. The dramatic and seemingly concurrent declines seen locally were, unfortunately, echoed by participants from across the range (with the exception of Michigan). Workshop participants identified several potential causes of the species' range-wide decline. Several potential factors that may be operating on a range-wide scale were discussed, and several lines of investigation were identified as critical research needs. Participants also identified the engagement of the general public in the conservation and awareness of this species as a key component of any recovery actions. The workshop really stressed the need to keep the lines of communication open between the jurisdictions and to pool our resources for the recovery of this species. By identifying the critical research gaps, our research and survey efforts can be focussed on the most important issues affecting this species.

## Suggest Citation

Poweshiek Skipperling Workshop Participants. 2011. Minutes from the Poweshiek Skipperling Workshop, March 24<sup>th</sup> & 25<sup>th</sup> Winnipeg, Manitoba. Edited by J. Dupont.

# Key Outcomes from the Meeting

Poweshiek Skipperling Workshop – Winnipeg, MB

## Critical Range Wide Data Gaps/Research Priorities

1. Biology → Larval life history
  - a. Rearing in lab
  - b. Is the history different across the range?
    - a. Multi Jurisdictional Project
  - c. Food Plant Preferences
  - d. Vulnerabilities
    - a. Parasites
    - b. Fungal
  - e. Dispersal
    - a. Clustering behaviour (ovipositional cues?)
    - b. Dispersal between sites
2. Genetics
  - a. Heterozygosity
  - b. Dispersal between populations
  - c. Food
3. Rangewide Habitat Characterization
  - a. Microsites
  - b. Flooding and Proximity to Water

## Key Range Actions Items

1. Survey – Critical to do intensive survey in all jurisdiction within 2011/2012 to verify extirpated or not.
  - i. **Lead** – Person in each region from workshop
2. Poweshiek Working Group
  - a. “Meet” in Fall of 2011
  - b. Discuss 2012 Field Plans, and results of any 2011
  - i. **Lead** – Jaimee will touch base in August.
3. Standardize Sampling Methods
  - a. Using skippers/time, or frequency values
  - b. Use standardized survey characteristics (Cloud cover, wind, temperature)

- i. **Lead** - Robert Dana, Ron Royer, Gerald Selby, and Richard Westwood to develop before 2011 field season. Inquire if Susan Borkin, Dennis Skadsen or anyone else may be interested in contributing.
- 4. Captive Breeding
  - a. Use now to fill knowledge gaps and maintain population
  - b. Assiniboine Park Zoo in Winnipeg and Reiman Butterfly Gardens in Iowa may be two key places to start.
- i. **Lead** - ?
- 5. Increase Public Profile
  - a. Website/Facebook
  - b. Increasing Awareness
- i. **Lead** - Across the range, raise awareness through articles, sharing photos and stories etc.

### ***Thursday March 24<sup>th</sup> Agenda***

#### **Day 1 Thursday, March 24 - Status reporting, Clarifying the problem, and Data Gaps**

7:30 Registration Opens, Continental Breakfast available

8:30 Welcome and Workshop Overview

Introductions, Expectations and Intent of Workshop

Introduce delegates

10:00 Status Reports

*Status of Poweshiek Skipperling across its range. . Each jurisdiction will report population status, history, trends, key information gaps, known or suspected causes of decline, current or upcoming research/monitoring.*

**Iowa (Indiana and Illinois)** - Jerry Selby and Harlan Ratcliff

**North Dakota, & South Dakota** – Ron Royer

**Minnesota** – Robert Dana

**Michigan**- Dave Cuthrell

**Wisconsin**- Su Borkin and Scott and Ann Swengel, presented by Jaimee Dupont

**Manitoba** – Richard Westwood and Jaimee Dupont

1:30 Papers Session – *sharing background knowledge and research on the Poweshiek Skipperling.*

Harlan Ratcliff - *The History of the Butterfly*

Jaimee Dupont – *Conservation and Enhancement of Poweshiek Skipperling in Manitoba*

Cary Hamel –*Characterization of a November Wildfire that Co-incided with Annually Monitored Poweshiek Skipperling Occurrences*

Sarah Semmler - *The nectar sources and flower preferences of the Poweshiek Skipperling (Oarisma poweshiek) in Manitoba*

2:45 Roundtable Discussion - What is causing the decline?

*Are there threats that are common to the species' populations range-wide, and that may be implicated in the decline? Why are some sites hanging on? What role does site management play?*

4:50 Closing comments

Welcome and Intro to Workshop – Ursula Goeres, Cary Hamel and Jaimee Dupont from the Nature Conservancy of Canada.

All participants introduced themselves –

**Table 1:** Participants in the Poweshiek Skipperling Workshop

Name	Affiliation	Location
Bill Watkins	Endangered Species Biologist, Manitoba Conservation	Manitoba
Bob Wrigley	Curator, Assiniboine Park Zoo	Manitoba
Cary Hamel	Conservation Science Manager - The Nature Conservancy of Canada, Manitoba Region	Manitoba
*Cathy Carnes	U.S. Fish and Wildlife Service	Wisconsin
*Charlene Bessken	U.S. Fish and Wildlife Service	South Dakota
Chris Friesen	Project Botanist, Conservation Data Centre	Manitoba
Christa Rigney	Graduate Student (Dakota Skipper), University of Winnipeg (Volunteered to take notes)	Manitoba
Christie Borkowsky	Tallgrass Prairie Preserve Biologist (MB Conservation)	Manitoba
*Dave Cuthrell	Conservation Scientist, Butterfly Expert Michigan Natural Features Inventory Michigan State University Extension	Michigan
Harlan Ratcliff	<a href="http://therousedbear.wordpress.com">http://therousedbear.wordpress.com</a> , Coordinator of the Poweshiek Skipper Project	Iowa
Heather Flynn	COSEWIC Arthropod Committee, Canadian Environmental Assessment Agency, Government of Canada	Manitoba
Jaimée Dupont	Nature Conservancy of Canada, University of Winnipeg Graduate Student (Powshiek Skipper)	Manitoba

James Duncan	Manager, Wildlife & Ecosystem Protection Branch Manitoba Conservation	Manitoba
*Jerry Selby	Ecological & GIS Services, Butterfly Expert	Iowa
Kevin Tenycke	Director of Conservation - The Nature Conservancy of Canada, Manitoba Region	Manitoba
Mark Wayland	Species at Risk Recovery Unit, Canadian Wildlife Service, Environment Canada	Saskatchewan
Meg Royer	North Dakota Teacher and Naturalist	North Dakota
Peggy Westhorpe	Habitat Stewardship Manager Manitoba Conservation	Manitoba
*Phil Delphey	U.S. Fish and Wildlife Service	Minnesota
Richard Westwood	Associate Professor (Entomology, Forest Ecology), University of Winnipeg, Butterfly Expert	Manitoba
Robert Dana	Biologist, Minnesota DNR, Butterfly Expert	Minnesota
Ron Bazin	Wildlife Biologist, Canadian Wildlife Service, Environment Canada	Manitoba
Ron Royer	Professor in the Division of Science, Minot State University, Butterfly Expert	North Dakota
Russ Reisz	The Nature Conservancy Land Steward, Tallgrass Aspen Parkland	Minnesota
Sarah Semmler	Graduate Student - Poweshiek Skipper(Honours), Pollinators (Masters), University of Manitoba (Volunteered to take notes)	Manitoba
Terry Galloway	Professor of Entomology, University of Manitoba	Manitoba
Ursula Goeres	Regional Vice President for Manitoba Region, Nature Conservancy of Canada	Manitoba

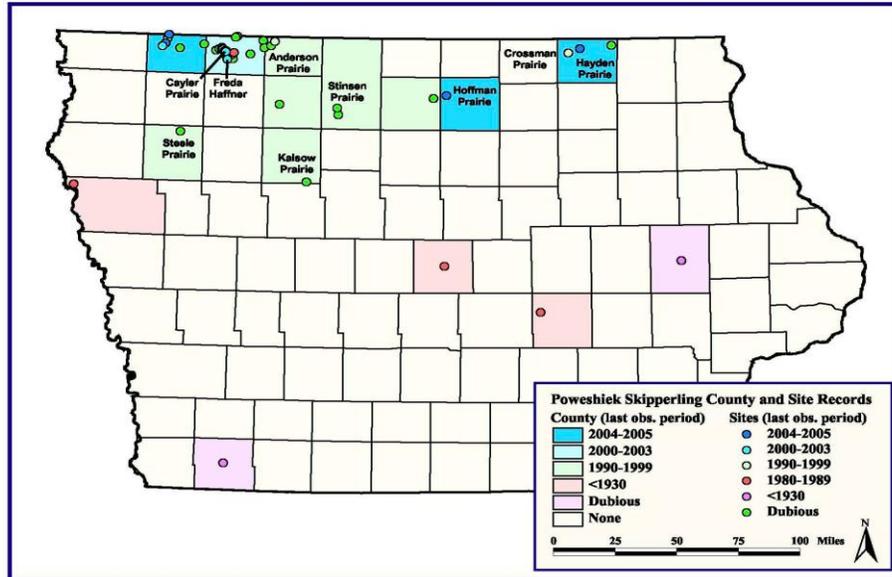
\*Participants with "\*" participated online and via conference call (due to weather and/or funding)

Susan Borkin and Scott and Ann Swengel from Wisconsin also contributed information to be presented.

## Status Updates

### Iowa - Jerry Selby and Harlan Ratcliff

Selby used to think that Dakota Skipper was the vulnerable species in Iowa, and that Poweshiek was secure. By 2003 Poweshiek was on the decline, especially by 2005. It is now presumed extirpated, though a thorough survey is required to verify. Last observed in 2008 at Hoffman Prairie, 2007 at Railroad Prairie site, and 2005 at Hayden prairie.



**Figure 1:** Poweshiek skipperling county and site distribution (© G. Selby)

Historically the densities were quite high in multiple sites (Hoffman prairie, Cayler Prairie, Garlock Slough). Between 2003-2005, there are declines, and in 2007, the Poweshiek was present in 2 out of 30 sites in 10 counties. In 2009-2010, a few Dakota skippers were found in Iowa, but no Poweshieks sighted.

At Cayler Prairie, there were good numbers, seemed secure in 2000, Selby thought they would persist. Between 2004-2007, no Poweshieks, no Arogos in this habitat

Some of the decline at the Cayler site may be attributed to management, a large burn was poorly timed in 2002 when the population was already suffering, adding to the problem. However the majority of the Iowa population and some of the Cayler population was not in burn area. Another source of decline could be from aphid spraying. Around the same time a major weather event that impacted the site, data prior to storm was limited but could have been an issue. As well there were multiple freeze thaw events that season.

Iowa had soybean aphids for multiple years. In 2001, farmers used mass spraying with broad spectrum insecticide. It has been hard to find info on how much was sprayed. Disconnect in regulations. In northern counties of Iowa and MN, 2001 and 2003, one third of acres on landscape were sprayed in July, aerial spraying. Can't say for sure if pesticides killed them. Residual action, pesticide vapourizes, spray a third of the landscape. Vapor drift is a potential issue, can't rule it out.

Good surveys in early 90s, density was high back then. Cayler prairie: hundred plus, 150+, mentions other sites (too fast). Lots of records just show one or two in those locations. Small site with good

numbers in Northern area. Hoffman: 2004 only saw 4, next year were gone. Hard to document trend.

In 2003 and 2004 there were limited surveys but that seems to be the zenith of the population. Found in many sites that year and were spilling over into marginal habitats..

### **North Dakota – Ron Royer**

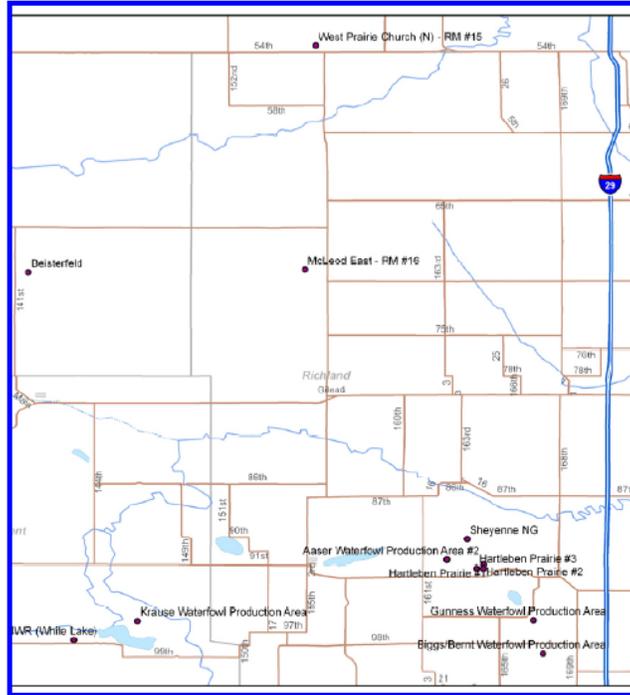
Information from the **Summary for North Dakota of information pertinent to *Oarisma poweshiek*** report and presentation by Ron Royer.

There appears to be very little remaining high quality *Oarisma poweshiek* habitat in the state of North Dakota. Much of the known present and historical habitat range is encompassed by or very near to the Sheyenne National Grassland, lying in Richland, Ransom and Sargent Counties in the far southeast. This is an area that is heavily grazed and subject to frequent, large-scale pest and weed management efforts.

Population fluctuations were common, a boom and bust species. Looked at likelihood of extinction, in 2008 in North Dakota. 8 were observed in 2001, next few years they weren't there. However the flight period is short, and we could have missed them for a variety of reasons.

Cause of decline may not be aphid spraying in North Dakota, but could cause local loss. There is no migration into sites with depleted numbers.. No single event for the cause, trend not understood. Principal habitat disturbances in SE North Dakota are related to (1) heavy, relatively long-term grazing (especially within the Sheyenne National Grassland), generally with very little "rest" given to the landscape; (b) almost unchecked invasion of the Eurasian perennial, Leafy Spurge (*Euphorbia esula*), within the Sheyenne National Grassland; and (c) chemical management (both aerial and terrestrial spraying) of both Leafy Spurge and grasshopper populations. The principal concern with these endeavours is that none of them takes the welfare of beneficial or neutral invertebrates seriously into account. Any spraying (not just aphid) can be detrimental to local sites.

A key information gap is the lack of knowledge about natural population dynamics. Surveys in time and space are faulted: more sampling needed. Work should also be extended further into Sheyenne area. Surveys conducted to date have not been sufficient to accurately define or describe the current or even the historic geographic distribution of *Oarisma poweshiek* within North Dakota. Additional focused surveys are needed. These should be aimed at identifying and precisely defining the extent of any areas in which *Oarisma poweshiek* is present and may remain capable of reproducing in continuity. There is a potential to extend any work done in Minnesota as the sites in North and South Dakota are just over the border.



**Figure 2.** Known *Oarisma poweshiek* occurrences within the state of North Dakota.  
(Map courtesy Phil Delphey, USFWS).

## South Dakota

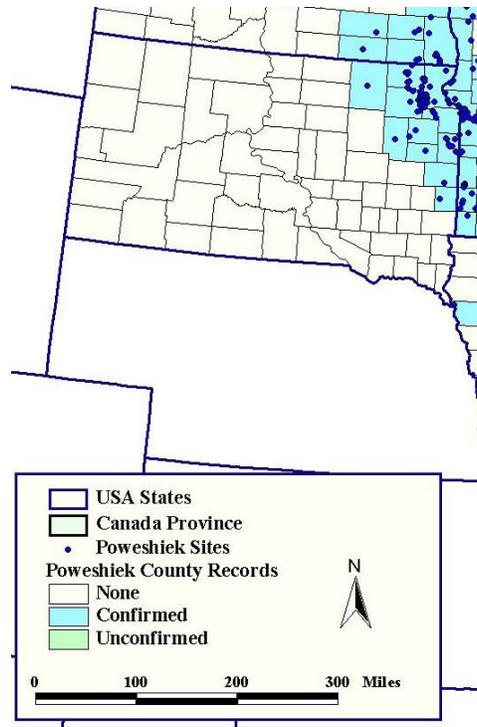
All South Dakota information is from “The Poweshiek Skipperling in South Dakota Brief History and Current Status” by Dennis Skadsen. Information was presented by Ron Royer.

In South Dakota they are thought to be extirpated. Poweshiek skipperlings have been documented at 69 sites in eleven northeast South Dakota counties. The majority of sites are located along the eastern highlands and escarpment of the Prairie (Report from Skadsen). The majority of recent Poweshiek skipperling records resulted from surveys to locate populations of the Dakota skipper from 1996 through 2008 by Dennis Skadsen. The majority of these Poweshiek sites have not been revisited since 2002.

The Poweshiek skipperling began to disappear from five South Dakota sites monitored yearly by Skadsen in 2002. Many of these sites were idle with no range/grass management. Dennis Skadsen attributed the decline of the Poweshiek and other prairie species like the Dakota skipper to the loss of floral diversity and abundance of native grasses and forbs, and an increase in exotic species like smooth brome and Kentucky bluegrass. Sites where the Poweshiek’s decline was observed include; Hartford Beach State Park and the Waubay National Wildlife Refuge where last observed in 2002, Pickerel Lake State Recreation Area where last observed in 2004, Wike Waterfowl Production Area where last observed in 2006, and Scarlet Fawn Prairie where last observed in 2008. Gerry Selby noted he saw a population in Brookings County in South Dakota in 2008. Close to field station for

the University. Several sites where Poweshieks had been recorded in the past were surveyed the summer of 2010, again no adults were observed.

Skadsen noted that Poweshieks have disappeared on sites that have never been burned or grazed, so fire or other factors such as ivermectin insecticides could not have caused the extirpation.



**Figure 3:** Poweshiek County Records, South Dakota (From Selby 2005)

### **Minnesota - Robert Dana:**

R. Dana started work with skippers in 1975, with Ron Huber. Found Poweshiek skipperling in prairie right of way between highway and railroad, almost any prairie remnant had Poweshiek skippers. He spent four years in Hole in the Mountain site in Lincoln country researching Dakota skippers, Poweshiek populations did not appear to fluctuate during that time though unfortunately no data for this species were collected. Historical records show it was widespread and common in some sites, but numbers have been declining since the end of the 1990s.

Pre- 2001, surveys would often find high numbers in Prairie Coteau Scientific and Natureal Area (116 observed over 2 days by Selby). Poweshieks were found in low numbers in Kitson county and Roseau county in 11 different sites by Cuthrell, also observed by Dana in a few additional locations. The Swengels reported 284 in Hole In The Mountain Prairie sites in the early 90's. This site was heavily managed by with fire. Usually partial burns, rotations, were seeing good numbers (See Tables 2 and 3).

Fire is a concern and may well have eliminated skippers from some sites, however Dana doesn't agree that fire is entirely the reason. Not any one management style responsible. Some sites with no burns, or with large adjacent areas not burned still experienced declines in Minnesota. In Cayler prairie northern Iowa, Selby

notes that the butterflies were gone before the adjacent property was acquired, though burns were conducted on the original site, that Selby felt were poorly timed. Many sites in Minnesota recently surveyed for the first time that have had no modern fire management, had no Poweshiek skippers. The character of the prairie in these was similar to that where the skipper was common in the past. Skadsen noted that the skipper had disappeared from sites in South Dakota that were not burned or grazed. Dana noted that he doesn't want to minimize the concern of fire, as it is a real concern for individual sites – but that there must be other reasons for the rangewide decline.

The last photos of Poweshiek from Minnesota are from 2006, there haven't been intensive surveys since 2008. Visits were made to several of the better historical sites in 2009 with good weather at peak flight, but none observed. In Minnesota there has been an effort to try and get funding for surveys of historical sites. Many historical sites have not been looked at for long time and need to be resurveyed. The best historical sites, though recently resurveyed, should also continue to be monitored. Since Poweshiek's have annual fluctuations, and it takes effort to find them at low numbers, a failure to find them never proves they are absent. The survey effort is needed to catch the recovery if it's happening. Ron Royer noted that survey efforts have been made in Minnesota in recent years. An effort like that is needed in North Dakota to confirm or deny their presence in North Dakota.

**Table 2: Pre-2001 Observations of Poweshiek Skipper (OP) in Minnesota**

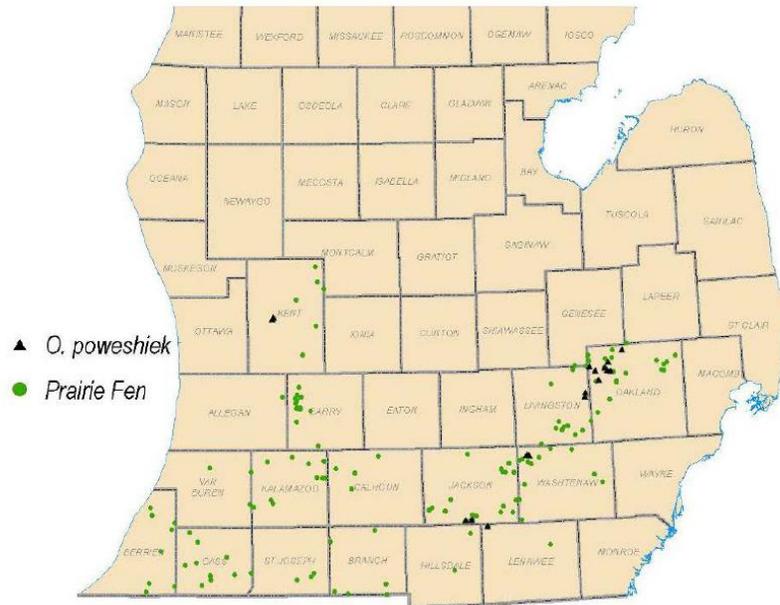
Year	Surveyor	Survey	Observations	Source
1990	G. Selby	Prairie Coteau study	116 OP obsrvd along transects over 2 days	Progress report
1991	D. Cuthrell	Kittson & Roseau counties survey	OP obsrvd in 9 sites in Kittson Co., and 2 in Roseau, none with prev records; no data on numbers	1991 final report (on line)
1989-1992	S. & A. Swengel	Prairie transect counts	284 OP obsrved in 89 during 146 min in original Hole-in-the-Mtn preserve; 196 in 92 in Prairie Coteau; 115 in 92 in Staffanson Prairie	letter
1993	D. Schlicht & M. Saunders	Status surveys for Dakota & Poweshiek skippers, MN	OP obsrvd in 16 of 54 surveyed sites--9 of 19 wth prev. records, 7 new sites; not in lrg nmbr of apparently appropriate habitats; OP "abundant" in Staffanson Prairie; 100+ in Roscoe Prairie; 25 at Glynn Prairie, all small, fire-managed sites. Weather rather poor.	1994 report
1995-1996	D. Schlicht	Prairie butterfly population monitoring project	Prairie Coteau: 74 OP on 7/11/95; 81 on 7/15/96. Hole-in-the-Mtn: 188 on 7/10/95; 89 on 7/14/96. Chippewa Prairie: 43 on 7/1/95; 13 on 7/4/96. Glacial Lakes St Prk: 38 on 7/8/95; 20 on 6/30/96. Bluestem Prairie: 18 on 7/3/95; 17 on 7/7/96. Felton Prairie: 1 on 7/13/95; 0 on 3 dates 96.	1997 report
1997	D. Schlicht	Surveys for Dakota skipper in MN	Uppr Mn Rvr Valley: 119 sections surveyed, OP on 4 sites. Gicl Lks St Prk area: 8 sections, OP obsrvd on 10 sites (57 individs). Chanarambie Crk valley: no total sections given, but OP obsrvd on 5 sites (30 individs)	1997 Rreport
2001	D. Schlicht	Lep survey in vic. Glacial Lakes S.P.	Not sure how many sites surveyed--ca. 20. In vicinity of Glacial Lks State Prk. OP obsrvd in 3, 2 individs in 1, 1 each in 2 others	2001 report
2001	D. Skadsen	Survey of prairie Leps in SW MN state parks incl. GlacL Lakes transects	95 OP obsrvd during transect surveys over 4 days in park	2001 report

**Table 3: Post 2001 Observations of Poweshiek Skipper (OP) in Minnesota**

Year	Surveyor	Survey	Observations	Source
2003	G. Selby	Grazing impact on Dakota skppr study in Anderson prairie & Gicl Lks S.P.	3 OP obsrvd during 30 days surveys in park and nearby sites	2005 report
2004	G. Selby	Same	0 OP observed during 23 days in same [?]	2005 report
2005	G. Selby	Same	0 OP observed during 7 days in same [?]	2005 report
2005	G. Selby	Status surveys for Dakota & Poweshiek skippers	1 new site Pipestone (Altona WMA), observed at 4 of 9 historic sites Lincoln, Murray, Pipestone; none in X historic sites	Report dated 2006 [?]
2006	R. Dana	SW county prairie lep survey	31 sites in 7 counties, 11 w/ potential OP habitat surveyed, 3 of these w/ prev records; obsrvd at only 1 site, new, and only one individual	Report
2007	G. Selby, F. Olsen, D. Schlicht, D. Skadsen	Prairie lep survey	70 sites in 15 counties, 26 w/ prev OP records surveyed; obsrvd at only 3 sites; only one confirmed individual each	2009 [?] report
2007	R. Dana	Long-transect count survey of SW MN sites	8 sites in 3 counties, 6 w/ prev OP records surveyed, 2 of which had large pops in past and were surveyed on 5-6 days over 2 wk interval; no OP obsrvd	Report
2008	G. Selby, F. Olsen, D. Schlicht, D. Skadsen	Prairie lep survey	58 sites in 13 counties, 21 w/ prev OP records surveyed; no OP obsrvd	2009 [?] report
2008	R. Dana	Comparison Pollard vs. Debinski transect counts 3 SW sites	Sites w/ 2 largest prev documented pops and 1 w/ prev obsrv but no pop data; transect counts 5 days one major site 8 days other, over 14 days including most of possible flight period; no OP obsrvd.	2010 LIP report
2009	R. Dana	Brief surveys of sites in south and west MN	1 site in Dodge Co. with prev obsrv, 2 others in Mower Co. with excellent habitat; no OP obsrvd. Altona WMA, Prairie Coteau SNA (both in Pipestone Co), Felton Prairie SNA (Bicentennial & Blazing Star) & county land (all in Clay Co), Lake Bronson State Park (Kittson Co), all w/ with prev obsrvns; no OP obsrvd.	2010 SWG report

## Dave Cuthrell, Michigan

Poweshiek skipperling is listed as a state threatened species. Poweshieks are tied to prairie fen habitats in Michigan, over 150 prairie fens, 16 Poweshiek sites. It was first found in 1890s, some of those old sites are historical and no longer exist, or have had no further surveys (access).



**Figure 4:** Distribution of Prairie Fens and Poweshiek Sites in Michigan (Cuthrell).

Lamberton and Emerald lake fen complex was one of the initial sites it was recorded. Housing complex eliminated historic habitat. Exotic species like Glossy Buckthorn have also over grown suitable habitat. Other historic sites have had none observed, or access not granted. Most sites are owned by public entities (government) or private conservation groups (TNC, Nature Michigan). There is a large distance separating sites so likely no movement between sites. Thus far Michigan populations seem stable, however in Michigan they are watching it carefully to see if the decline happens here, so far things look optimistic. Some sites such as Big Valley Preserve are seeing increasing in numbers between 2009 and 2010. First steps is to determine where on a site the Poweshiek's are occurring on the land to let manager know where to burn and where not to burn. Big Valley Preserve is managed using burn management.

After a burn, the number of Poweshiek skipperlings increased. For other sites, there aren't many pre-fire records. Most fires are spring burns, and while the first year the numbers are down, the Poweshiek seems to come back through time, but don't have the pre-fire data. Seem to have microhabitat requirement that we don't understand at present. Need to determine what they prefer. They are common on Peat domes and are almost always occurring in areas with either *Muhlenbergia richardsonis* and/or *Sporobolus heterolepis*. These are potential larval food species. Cuthrell mentions a microsite habitat and Westwood agrees with the term, and thinks it also applies to Manitoba. The Poweshiek seem to stay in these microhabitats, and a network of micro areas rather than large habitats Dana was finding poweshieks wandering outside of prairie habitats. Royer noted that the clumping may be seeing areas of oviposition, then dispersion. What is causing the clumping? What is the ovipositional cue that the females follow to establish such a site? Michigan's finds the abundance of two key grass species with clumping of Poweshieks. Muhly grass and Prairie dropseed are key, however there isn't a lot of little bluestem.

Survey Site	Rank	Location/ county	# PS observed 2007	# PS observed 2008	# PS observed 2009	# PS observed 2010
Liberty Fen Complex	A	Jackson	dozens	25	34	54
Liberty Fen - Melling		Jackson			3	4
Liberty Fen - Connin		Jackson			7	5
Liberty Fen - TNC		Jackson			24	45
Goose Creek Grasslands	BC	Lenawee	11	7 to 10	1	2
Brandt Road Fen	A	Oakland	100s	100+	59	115
Big Valley	B	Oakland	18	14	17	84
Long Lake - SE unit		Oakland	NC	35	38	31
Long Lake - SW unit		Oakland	Nc	NC	58	35
Long Lake - NW unit		Oakland	NC	NC	88	45
Long Lake - Central unit		Oakland	8		10	1
LONG LAKE - TOTAL	A	Oakland	NC	NC	190	112
Calla C. Burr Preserve	BC	Oakland	few	1	4	0
Whalen Lake	F	Oakland	0	0	0	NC
Bullard Lake Fen	F	Livingston	1	0	0	NC
Park Lyndon North	C	Washtenaw	11	10	12	8
Snyder Lake Fen W	C	Washtenaw	1	NC	NC	NC
Halstead Lake Fen	BC	Oakland	8 to 10	14	NC	NC

**Table 4:** Key Poweshiek sites in Michigan and observations (Cuthrell).

Meander method are used to survey for Poweshiek skipper. Go out 3-4m on each side. Thoroughly cover fen, map where species are seen. Can use track walk for each survey, can follow it next walk. Meander can vary depending on the species you're focused on, may move to a different habitat. Replicates are an issue, but get better data when you focus on the habitat and not the transect. Meander can improve the data significantly, main issue is repeatability. Westwood noted that they have wandering and permanent transects in MB, to limit trampling. Straight transects you often get zero observed skippers in low populations, so a meander is better for high populations.

Some key data gaps are: What are the larval host plants? Why certain areas in fens are preferred (clustering on peat domes and ridges)? What will happen to populations, will they decline? What are the effects of management (positive and negative)?

Land destruction from agriculture, wetland drainage, habitat fragmentation, feral hogs (damaging Poweshiek habitat with hog wallows), invasive species (glossy buckthorn), Wolbachia and global climate change are all identified as known or suspected causes of decline.

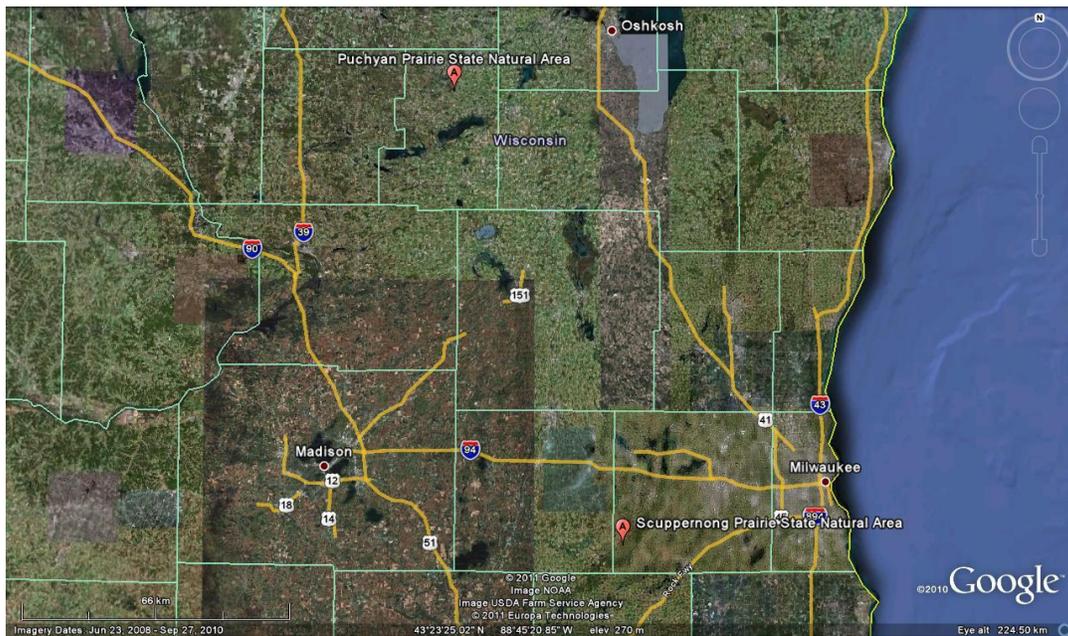
**Wisconsin: Information from Susan Borkin and Ann and Scott Swengel  
(Presented by Jaimee Dupont)  
Susan Borkin**

There are currently three extant populations of Poweshiek skipperling known in Wisconsin. Two (Scuppernong Prairie and 'Wilton Road') are about 0.5 km apart in the Southern Unit Kettle Moraine State Forest in Waukesha County. The third (Puchyan Prairie) is about 100 km northwest in Green Lake County.

This species was reported as common to abundant on prairies in SE Wisconsin by naturalists in the late 1800s (but exact localities unknown); one of first insects listed by WI as endangered in 1989.

Few attempts have been done with captive rearing, numbers too low. Continued surveys are needed. No species recovery plan, not enough Lepidoptera researchers.

Scuppernong had higher population numbers in the 1990s (transect count high ## just over 100 between 1994-1999); more recent range ##30-40s all at the same Scuppernong site\* even though recent tree cutting & brushing has improved the site. Cause of decline is unknown – possibly weather-related, but genetics, comparative mortality rates, and disease factors have not been studied.



**Figure 5:** Locations of Poweshiek Populations in Wisconsin (Image Google Earth 2011)

A few attempts at captive rearing by Borkin have been unsuccessful so far (## too low for augmentations). Borkin and a volunteer will continue to monitor the Scuppernong population. The long time site manager is expected to retire in June. The WI DNR does not develop species recovery plans and there are no lepidopterists on staff. The Scuppernong SNA is part of a large prairie complex that became increasingly fragmented due to conversion for human developments and encroachment of woody vegetation. Efforts are now underway to reconnect many of the fragments. Poweshieks have been found in three areas about 1-1.5 mi apart – one fragment of ca. 20 acres has the largest population and has been monitored since 1993, a second area at least 4 times larger in size (Kettle Moraine Low Prairie SNA) had the skippers in various portions, but it became very overgrown and the skipper population there never recovered after prescribed burns.

Puchyan Prairie SNA – Borkin noted that this population has not been studied as intensively as the ones at Scuppernong. The person who discovered it reported numbers of >25 individuals (1990s?). Recent surveys by several individuals (including the Swengels) spaced throughout the flight period indicate lower numbers (high counts in the low teens) and less of the habitat formerly occupied is being used (Borkin, personal observations). The prairie is surrounded by sedge meadow and

flooding may be an issue impacting the population in some years (One DNR staffer reported that the entire site was submerged one summer.) It is unknown whether there are other populations (metapopulation structure?) on adjoining private lands. No burn management is used or planned for the site. Reed canary grass is present in adjacent areas but does not appear to be an immediate threat. Prairie dropseed is presumed to be the preferred host plant here as well but further documentation is needed to confirm this.

### **Ann and Scott Swengel**

The Swengels reported a mean of 16 Poweshiek skipperlings per hour in Puchyan prairie between 2001-2002, 2005-2009 with 2010 results being in accord with the previous year's flights.

Standard fire management on preserves and without adequate or any permanent non-fire refugia are harmful to the skipperlings. The Wisconsin sites/complexes with extant Poweshieks are prairie management outliers: both have far less (Scuppernong) or no (Puchyan) fire since 1995 than the more westerly sites that mostly have zero known Poweshieks. Disproportionately high Poweshiek survival on preserves with minimal fire while intensively burned sites are losing their Poweshieks indicate both a threat (fire) and a conservation solution: create permanent non-fire refugia in the core Poweshiek habitat of preserves.

The Swengel's noted that the two most important things for Poweshiek conservation are:

1. to maintain the consistency of suitable management (unintensive, and with no fire) or non-management at sites where Poweshieks are still occurring relatively consistently.
2. This suitable management from known extant Poweshiek sites should be extended to sites that could still have Poweshieks (they may be there but too rare for likely detection) and to other prairies near such sites, in hopes that Poweshieks can recover in some sites.

Sources and additional information found in:

"Declines of prairie butterflies in the midwestern USA" in *Journal of Insect Conservation* 15(1-2): 327-339, April 2011--available free at <http://www.springerlink.com/content/1732444592662434/fulltext.pdf>

"Meta-analysis of survey data to assess trends of prairie butterflies in Minnesota, USA during 1979-2005" in *Journal of Insect Conservation* 13:419-447-- available free at <http://www.springerlink.com/content/b046w77486587636/fulltext.pdf>

### **Manitoba (Dupont, Westwood):**

Found in the Tall Grass Prairie Preserve with the majority of the population being found in the southern block. The trend is a decline in the number of specimens counted – from ~200, to 79 to 13 between 2008 and 2010. Initially reported in 1985, specimens in Manitoba museum from 1980, it is believed to be well established at that time. Vegetation of north section of the preserve is wetter and not suitable habitat, potentially suitable habitat in surrounding area, but no skippers present.

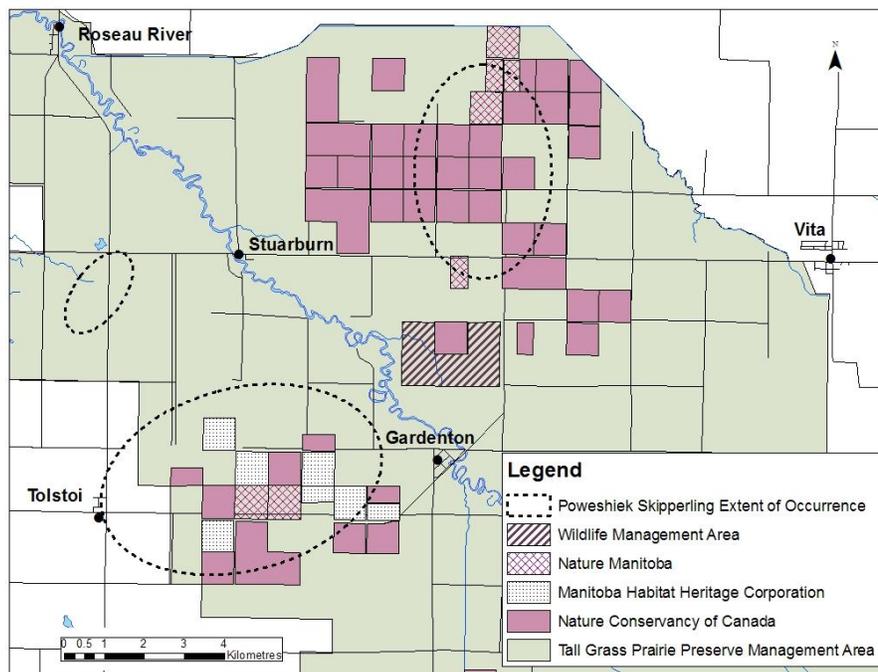
Work done by Dupont and Westwood shows the population peaks on sites burned about 6-8 years prior, but not on unmanaged sites. Sites with grazing were also promising.

In MB, initial surveys were done working on other projects through the summer. In 2010, surveys 2-3 times per week over flight period, and every day (weather permitting) in 2008 and 2009. Survey effort was pretty intense for last few years. Concentrated on known sites, however in 2010 NCC had a list of other properties owned by NCC to be surveyed. Plans are in the works to add further sites over time. Key observation from new sites was that North and south sections of the preserve are very different. Additional barriers include no access to certain areas, access to private

lands, no roads to certain areas where the skipperling could be found. Need more access to privately owned sites for surveys, yet to survey skippers in those locations.

The estimated fire cycle on the preserve is 3-7 years. Records before 2000 are based on memory. TNC has been keeping discs from any old oak trees that have died or been cut down. Locations have been GPS'd, but fire history has not really been looked into dendrochronologically.

In this area, fire is cultural, Ukrainian farmers burn to improve cattle grazing. NCC has done some work to look for suitable habitat from road allowances and identified 70 potential prairie sites that could be surveyed in the summer of 2011 and 2012 if funding is received and access granted to private lands. In 1988 when the preserve was being established there was an overall survey of private land to establish preserve location, may be info in that survey. Aerial surveys may also detect other prairie remnants.



**Figure 6:** Poweshiek Skipperling extent of occurrence within and adjacent to the Tall Grass Prairie Preserve (data obtained from Nature Conservancy of Canada and Manitoba Conservation Data Center). Figure from Environment Canada. 2010. Recovery Strategy for the Poweshiek skipperling (*Oarisma poweshiek*) in Canada [Draft]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. 25 pp + Appendices.

Other Recent Poweshiek Updates also found at:

[http://www.fws.gov/midwest/eco\\_serv/soc/insects/POSKsaUpdateNov2010.html](http://www.fws.gov/midwest/eco_serv/soc/insects/POSKsaUpdateNov2010.html)

## Discussion

The following discussion captures the thoughts of the workshop participants after all of the regional updates.

Royer noted a need to define broadly occurring ecological traits, relate to ovipositional sites and make a rangewide attempt to characterize habitat.

Teneycke commented that we don't know if the management is directly killing the individual in some cases, or changing the habitat.

Difference in emergence times through the range, is the cue Temperature or plant phenology?

Selby uses degree days to track emergence. Can use temp records collected to evaluate when they would have been out, were they inside or outside predicted flight period. Flight times vary throughout the range from early to mid June in the southern part, to early August further north.

## **Presentations**

### **History of the Butterfly**

#### **Written and Presented by Harlan Ratcliff, Iowa**

*Oarisma poweshiek* was originally described as *Hesperia powesheik*, by Henry W. Parker in 1870. Henry Parker was a professor at Iowa College (now Grinnell College), an ordained Congregational minister, a published poet, and an accomplished writer. Henry's writings on insects and invertebrates in general were sparse. Henry's wife, Helen Fitch Parker, was also an accomplished author. Three of her books, although written for a Sunday school audience, were specifically about invertebrates. *Rambles after Land Shells* is available on line and describes in detail characteristics of terrestrial snails. My conclusion that Helen, rather than Henry, was the primary force behind finding and describing the butterfly was reinforced by my discovery that Henry's brother Samuel L. Parker had attempted to describe a new species of snail in 1850, but was not able to answer questions about why it should be considered a new species. Could it be that Helen had discovered two new species?

Poweshiek was a chief of the Meskwaki (called Fox in treaty documents) tribe of Native Americans, and was born in a village where the city of Davenport, Iowa now stands. Poweshiek signed a number of treaties relinquishing lands to the United States, although he actively resisted the removal. After signing a treaty that relinquished the rights of the Meskwaki to live in Iowa, he re-entered the state with his group and was removed back to Kansas under military escort on two separate occasions. Within a year of Poweshiek's death in Kansas, his band, including one of his sons, obtained legal permission to purchase land in Iowa and formed a settlement near Tama, Iowa.

Poweshiek encountered a number of famous people in his lifetime, including William Clark, Andrew Jackson, George Davenport, Russell Farnham (who circumnavigated the globe by the land route), Keokuk, Black Hawk, Wapello, General Winfield Scott, Brigham Young, and Joseph Smith. He might have been seen by Henry Parker during a visit a number of Sauk and Meskwaki leaders made to Washington, D.C. in 1837.

"The History of the Butterfly" is an attempt to provide a narrative about this butterfly and tie it to place and time. I have been writing blog entries on the subject at [www.therousedbear.wordpress.com](http://www.therousedbear.wordpress.com). *Oarisma poweshiek* has charisma that goes beyond its small size and non-flashy coloration.

## **Conservation and Enhancement of the Poweshiek Skipperling in Manitoba Presented by Jaimée Dupont, Manitoba**

Jaimée Dupont<sup>1,2</sup> and Richard Westwood<sup>1</sup>

<sup>1</sup>Department of Biological Sciences, University of Manitoba, Winnipeg, Manitoba, Canada

<sup>2</sup> Nature Conservancy of Canada, Manitoba Region

The Poweshiek skipperling is an endemic tall grass prairie species currently listed as threatened in Canada and the United States. Most remaining Poweshiek skipperling populations in North America are highly fragmented and restricted to isolated prairie remnants. The only Canadian population of Poweshiek skipperling is found in scattered pockets within the Tall Grass Prairie Preserve (TGPP) in south-eastern Manitoba. Within TGPP, fire and grazing regimes impact the survival of prairie specialists such as the Poweshiek skipperling. The Nature Conservancy of Canada (NCC), along with their partners, are currently managing the TGPP using prescribed burning and a rotational grazing program. Limited data exists on the basic biology, habitat requirements and behaviour of the Poweshiek skipperling in Canada and how management techniques are impacting the skipperling. This study (2008-2009), along with supplementary surveys in 2010 by R. Westwood for NCC were designed to determine key habitat preferences and management attributes for the Poweshiek skipperling. We hypothesized that Poweshiek skipperling shows preferential site selection based on vegetative and physical site characteristics.

Moreover, we believe that different grazing and burning treatments will alter the desirability of these characteristics involved in site selection. Skipperlings showed a preference for sites that were burned in the 200-2002 year range (6-8 years of rest) as well as grazed sites. The presence of Little Bluestem (*Schizachyrium scoparium*) may also be a factor in the 2000-2002 sites. Additional analysis is required.

## **Characterization of a November Wildfire that Co-occurred with Annually Monitored Poweshiek Skipperling Occurrences: Early Results. Written and Presented by Cary Hamel<sup>1</sup>, Manitoba.**

<sup>1</sup>Science Manager for the Nature Conservancy of Canada, Manitoba Region, Winnipeg, Manitoba.

In November of 2009 a wildfire burned across approximately 2,700 acres of land in southeastern Manitoba, including 8 properties (1,200 acres total size) of conservation land that form part of the Manitoba Tall Grass Prairie Preserve. This wildfire coincided with the monitored portion of the Canadian range of Poweshiek Skipperling (*Oarsima poweshiek*). In April of 2010, the extent and impact of the fire was assessed, with the expectation that survey data may assist in explaining any differences in adult Poweshiek Skipperling numbers observed in monitored areas in summer 2009 (pre-burn) and summer 2010 (post-burn). This fire effects survey delimited and quantified the extent of the area burned within affected land parcels, the macro- and micro-patchiness within the burn, and quantified fire effects on duff and vegetation. Five 150 metre transects were randomly placed on Preserve parcels that burned and that had Poweshiek Skipperling populations that were monitored in 2009 and that were to be monitored in 2010. The placement of these transects was constrained by grass or shrub-dominated upland areas where a 150 metre transect would fit. Ten sampling points were taken along the transect, and circles with 5 metre radius were used as plots. Sampling points looked at Height of Shrub Scorch, Degree to which transect burned, Unburned Moss/Near-ground cover, Percent Shrub Canopy Scorch, % mineral soil and Height of Duff (dm). This survey found that of the 1,200 acres of conservation lands intercepted by the reported burned extent, 38.0% of these lands (458 acres) did not burn. Of the sampling points that burned, none

exhibited 100% exposure of mineral soil, and nearly half (18/ 41) of the plots exhibited <10% exposed mineral soil cover. A complete analysis of the post-burn fire effects data is in progress. The data examined thus far suggest that the November 2009 fire was patchy at both a macro and micro-scale, and may have left unburned refugia for the Poweshiek Skipperling. Subsequent examination of Poweshiek Skipperling monitoring results from summer 2010 and comparison to results from 2009 suggest that the November wildfire did not eliminate Poweshiek Skipperling from the site – individuals were observed both in burned and unburned prairie patches. A Poweshiek Skipperling population decline was observed in the vicinity of the Manitoba Tall Grass Prairie Preserve between 2009 and 2010 (see Manitoba report elsewhere in this document) – examination of the extent of the November wildfire in relation to monitored prairie patches revealed that this decline occurred both in burned and unburned prairies.

### **The nectar sources and flower preferences of the Poweshiek Skipperling (*Oarisma poweshiek*) in Manitoba.**

**Presented by Sarah Semmler, Manitoba**

Sarah J. Semmler<sup>1</sup> and Richard Westwood<sup>2</sup>

<sup>1</sup>Department of Biological Sciences, University of Manitoba, Winnipeg, Manitoba, Canada.

<sup>2</sup>Department of Biology, University of Winnipeg, Winnipeg, Manitoba, Canada.

The Poweshiek Skipperling, *Oarisma poweshiek*, is a threatened butterfly found within the 2300 ha Tall Grass Prairie Preserve in southern Manitoba. Land management practices to maintain prairie habitats in a natural state, primarily burning and grazing, have been linked to a reduction in Poweshiek Skipperling habitat. Management activities in prairie habitat can change flowering plant composition, which may reduce the amount or type of nectar sources available for adult butterflies. In this study nectar plant diversity and adult Poweshiek Skipperling flower utilization between two sites with different burn histories was assessed. Poweshiek Skipperling showed a strong preference for a 2002 burn site versus a 2008 burn site. Flowering plant diversity increased in the 2002 burn over the flight period in comparison to the 2008 burn. Poweshiek Skipperling preferred *Rudbeckia hirta* and *Solidago ptarmicoides* as nectar sources and avoided other flowering species during foraging flights. The 2002 burn had shorter, less dense grass cover as well as a greater number of flowering stems of *R. hirta* and *S. ptarmicoides*. The level of competition by arthropods for the nectar or basking area on *R. hirta* was similar between the 2002 and 2008 burns. A greater abundance of non-target butterflies was observed in the 2002 burn site. Flower nectar analysis indicated that sugar concentrations in *R. hirta* and *S. ptarmicoides* were relatively low compared to other flowering species during the flight period. Measurements of floret length were similar for *R. hirta* and *S. ptarmicoides*. The results of this study support other research showing that time since burn will influence flowering plant composition, and may alter the suitability of prairie habitats for Poweshiek Skipperling. Future burns in the Tall Grass Prairie Preserve should be planned to conserve or enhance Poweshiek Skipperling populations.

### **Roundtable Discussion - What is causing the decline?**

The following is a list of Key Potential Causes of Decline. The group did not come up with a definitive cause of decline for this species – however they created a comprehensive list of potential causes.

- Other Vectors – Parasites, Fungi, Multi-colored Lady Beetle? Others?)
- Fragmentation of Population (species just dying off, inbreeding, population sink)

- Disease and Parasites
- Incompatible Agricultural Spraying
  - Soybean Aphid Spraying
  - Broad Lepidoptera Sprays
  - Parasites for agricultural pest control
- Climate Change
  - Hydrology
  - Changes in Precipitation and Temperature
  - Enabling range expansion of Parasites
  - Better Conditions for Fungi
- Incompatible Fire History (Local decline on some sites)

## Discussion

The following discussion captures the thoughts and hypothesis of the workshop participants while creating the potential decline list.

Management alone cannot be the cause of decline. While burning is a threat and can have potentially devastating effects at a local level, it is not the sole cause of decline. There are habitats that do not have a fire history with similar declines. There is a widespread dramatic impact outside of management, but management can make it worse.

It appears we have reached a threshold from multiple factors (management, pesticide etc,) that is causing the decline. This will make it hard to re-establish populations

Is there a potential for disease? A compiled a list of pathogens? There are many “unknown unknowns” in this regard. A number of things may be interacting to add to the decline, including a potential for wasp parasitoids, or fungal pathogens? If it is a pathogen, is it something that was already occurring in the landscape and has recently become more virulent and expanded its host range to include Poweshiek, or something recently introduced (pests or parasitoids used in biocontrol?). Could all grass skippers be more susceptible?

Noted that there have been multiple years of uncharacteristic weather and flooding in many areas. There have also been altered hydrological regimes over the last three decades including control of surface and subsurface water levels. Wetter and warmer prairies over time could create conditions conducive to fungal disease? Or allow a pathogen to spread through the habitat that happens to infect Poweshieks incidentally. We need to look for populations that are large enough to sample for pathogens, it maybe already be too late for Manitoba, and many other populations.

Is there a new insecticide on the market? What are the possible effects? Other insecticides like BT corn, Roundup ready beans? Chemical vapours from spraying (aphids).

Are there other species beginning to show a similar decline? A “Poweshiek effect”. There have been noted declines in other skippers, ex. *Polites mystic*. Royer observed that grassland skippers in general are in decline, based on personal surveys in North Dakota. There are parallel crashes in prairie bird species, and other insects (beetles) caused by a multitude of factors related to habitat destruction and climate change. The loss of these prairie species can be described as isolated populations that are slowly winking out.

Could the increase in multicolored Asian lady beetle populations be affecting Poweshieks? Either through predation of larvae, or possibly acting as a vector in the case of disease. Increase in aphid levels, causing an increase in lady beetles.

Why does Michigan seem to be stable? Is there a relation to soybean fields and lady beetles?

Although the current decline is unprecedented in the recorded history of the butterfly, is there still a possibility that this is a natural fluctuation? Intensive surveys have been performed in many areas, which decreases the chance that populations are overlooked.

Agreement is that land management is not the only factor in declines; need to look beyond land management to find the rangewide cause.

### ***Captive Breeding: A means of bringing back the Poweshiek?***

Karner Blues have had success, but the species is easier to rear in comparison. The loss of that species was directly related to habitat loss. They also had a sister subspecies. The closest subspecies for Poweshiek would likely be the Garita.

The Butterfly conservatory with the Assiniboine Park Zoo is a potential location for breeding program and parasite studies. Captive breeding may be a viable option, and developing rearing techniques is important. Developing rearing techniques now may be beneficial before species is completely gone, including genetic records and samples.

Some are not convinced that releasing captive raised butterflies into a habitat where they have disappeared would be successful. Since the reason for their disappearance is not known and therefore cannot be addressed, this agent may have the same effect on the released butterflies that it had on the ones originally present.

To properly identify pathogens, experts note you need to establish a lab population for study. You may miss pathogens if you are simply sampling in the field during the adult flight period. If the pathogen infects a different portion of the life cycle, it can be very difficult to observe even in a controlled environment.

### ***Friday Marsh 25<sup>th</sup> Agenda***

#### **Day 2 Friday March 25<sup>th</sup> - Solutions, recommended conservation actions, building a rangewide conservation structure**

7:30 Continental Breakfast available

8:30 Welcome, Recap of Day one, Day two objectives

8:45 Panel Discussion - Sharing Perspectives on Poweshiek Skipperling Conservation in Manitoba

**Jim Duncan**, a Manager with the Manitoba government's Department of Conservation.

**Richard Westwood**, Associate Professor with the University of Winnipeg, Butterfly Expert

**Kevin Teneycke**, Director of Conservation, Nature Conservancy of Canada's Manitoba Region

10:30 Roundtable Discussion - *What are the Key, Range-wide Research Gaps?*

- *Develop list of the Top 5 research priorities*

11:30 National Recovery Actions – reports on current and upcoming recovery planning, action implementation

- Phil Delphy, United States Fish and Wildlife Service (via the web)
- Mark Wayland, Environment Canada

1:30 Roundtable Discussion – Local-scale Recovery Actions – *Reports on current and upcoming recovery planning, action implementation from species experts and habitat managers.*

**Iowa** - Jerry Selby and Harlan Ratcliff

**North Dakota, & South Dakota** – Ron Royer

**Minnesota** – Robert Dana

**Michigan**- Dave Cuthrell

**Wisconsin**- Tba

**Manitoba** – Richard Westwood and Jaimee Dupont

**Others** – TNC, NCC

2:45 Roundtable Discussion – Coordinating National and Local-scale Recovery efforts, Incorporating Top 5 Research Priorities

4:00 Continued communication - *How do we maintain regular sharing of results, status, lessons learned, and successes?*

4:15 Closing Comments

### ***Panel Discussion***

#### **Jim Duncan**

Main role of Manitoba Conservation is to look for advice and find resources to fund the recommendations that come forth, and help eliminate any potential roadblocks.

Mandate is to conserve biodiversity, including this species and the habitat on which it depends. Successes are to enable and facilitate research actions that can help to maintain this species. Some of the biggest challenges – facing ever declining resources. Key questions – Species ecology, learn more about the species basic life history, better understanding. Enough population for minimum viable populations, elements that make up the species critical habitat. Fact that so many groups are around the table, shows the need to work in partnership.

Partnerships with University of Winnipeg and the TGPP, and within MB Conservation. Entertain proposals (international in scope), and partner up with people in Manitoba, and collaborative work in other jurisdictions.

Provincial government has an endangered species advisory committee. Using IUCN criteria, uses the same designation. The committee has met and recommended that it be listed as Endangered. Currently not listed provincially, but listed under the CDC as a high priority species, as well as listed nationally.

#### **Kevin Teneycke**

The issues that we have with Poweshiek, are fundamentally similar to many other issues we deal with, a land use issue. Human nature and our obsession with order. Getting on the same mindset

as rural land owners, difficult to relate. Victim of Thrift. Land use issues are deep in the human psyche.

NCC is focused on habitats and their importance to species at risk. Tall Grass Prairie habitat is identified as one of the key biodiversity targets in natural area conservation plan and within that Poweshiek is one of the nested targets. Including protecting and managing tallgrass habitats to maintain a functioning ecosystem, and through that maintain the species that make up those ecosystems.

## Victim of “thrift and prosperity”?

**When a person, whether a prospective buyer or a passer-by, sees a farm where the sloughs are well drained, and the fields laid out squarely and regularly, he will usually find also neat, attractive and well arranged buildings, the garden, lawn and shade trees about the place well cared for, the weeds kept in check, and the fences neat, straight and well cared for — every indication of thrift and prosperity. Passing on he may come to another farm of equal fertility where numerous sloughs dot the fields, water-logging the adjacent land, and where the fields are necessarily irregular. There he will almost invariably find unsightly farm buildings, the yard and field full of weeds, and the fences crooked and ill-kept — all evidence of indifference and unprogressiveness.**

FROM - Better Farming Association. FARM ECONOMY: A CYCLOPEDIA OF AGRICULTURE FOR THE PRACTICAL FARMER AND HIS FAMILY. Minneapolis, Better Farming Association:1921.

**Figure 7:** Slide from Kevin Teneyke during his panel presentation

Increased survey efforts in the area, incorporate management recommendations into stewardship activities including modifying burn plans and creating refugia.

Challenges face – many are endemic to our business (not just Poweshiek) such as funding. Have a species or suite of species identified for potential donors. Knowledge gaps for this species are a challenge for us. Understanding of ecology or biology is below the norm of information, a “bigger black box”. Makes it difficult, hopefully with increased research will thin the fog.

Managing habitats in a “multi multi” environment is difficult, with multiple species at risk. Different restrictions placed on different species that all depend on the same habitat. Different partners have different concerns, as well as the lack of knowledge on this species sometimes make things difficult. Multiple land use issue, potential land use context. NCC farms biodiversity different than our neighbour farms, there is the potential for conflict.

Doing nothing is our only non-option. Something has to be done, or NCC will not be successful in preserving this biodiversity. There is a shortage of contract staff (people do to surveys), short timing, is atypical. There is a shortage of people skilled to do these surveys.

Sometimes difficult to raise awareness for “A little ugly brown flying Poweshiek skipperling”.

Management activities – which are benign, which may be negative? Which may be positive? How will they affect other species?

How widespread is this species? Are there other habitats?

Integrating recovery actions, working with partners, working with multi species action plans. Knowledge sharing, in this environment of lack of knowledge, any knowledge we have is worth alot. Applying some of NCC's abilities in terms of extension and education (Weston Tall Grass Prairie Interpretive Centre).

Continue survey work to identify where exactly this species is.

## **Richard Westwood**

Different viewpoint

Research lab was initially approached about ten years ago to look at three endangered prairie skippers. This is where the initial funding for this research took place.

Federal government was the initiator and got everything started, a key partner. World Wildlife Funds, Province of Manitoba and now NCC have come on board.

In consultation with various interested partners, developed a set of long and shorter objectives. Characterize the habitat in a details fashion from a vegetative and physical way. Made progress in determining critical habitat in Manitoba, and have also realized how different it is from other parts of the range. Realize there is probably additional habitat within Manitoba, but lacked resources to explore it further. Second objective core and secondary habitat. Third objective is to characterize usage of adults within the habitats. A lot of the information generated south of the border doesn't seem to apply here (for example, nectar species).

Long term objectives are more focussed on the immature stage, and the impact of things like climate in the short term and long term on survival. We have started to look at data loggers within sites, and move to a yearly characterization of what's going on at the soil level for the immatures. Long term goal is to pin down what food plants are used here. Examine the different management styles within the Tall Grass Prairie.

Funding, in terms of funding – for the Poweshiek skipper, including the federal funding for COSEWIC and Status reports ~10%. Mainly involves students (grad and summer). The provincial government has contributed another ~10%. NCC has been quite helpful in the past few years. Overall partner contribution has been about ~40%, the rest has been from scholarships and other various sources. The majority of the funding has come from other pots of money that have little direct interest in the project. Not necessarily sustainable – to look at some of these key questions, we need to increase the funding directly for this project and this species.

Discussion

The following discussion is from all of the participants of the panel as well as questions and comments from the workshop participants as a whole.

The importance of graduate students for research was observed. Jim Duncan noted that summaries of research in Canada show that over 80% of research is conducted by graduate students. Westwood noted that it costs a minimum of \$50,000 to support a graduate student for two years. He feels there would be the interest and the talent available to perform more research on this species.

There seems to be a switch to more laboratory based programs and research at Universities across North America. Questions into why more Universities within the U.S. range aren't involved? They likely have a greater number of qualified people than in Winnipeg. Looking into Butterfly Gardens etc. for lab based research on larval stages.

Karner Blue is another butterfly that has received a lot of attention and has had a successful recovery program. Some of that species successes were likely attributed to the fact that it was already listed in the U.S. so more researchers were on board do some of the necessary research (higher profile) and to receive funding for an endangered species.

Quite a few other organizations showed interest in this workshop and species. Pulling everyone together and keeping everyone informed will be a key step in building some of that higher profile for this species.

Persuasion and marketing will be important to create public interest for this species and creating both funding and research opportunities both within Manitoba and throughout the range. Making this species more charismatic, or tying to another factor that may grab people's attention. Using the decline of these butterflies as an indicator for prairie habitat, where the loss of Poweshiek is loss of habitat. You can also recognize the current state of pollinators all over the place, and the cost that agriculture is incurring because of it in favour of the butterfly. This process will be severely handicapped until we know a cause that we can take to the public to sell for support. People like to have a sense that their money would solve the problem. Butterflies have an intrinsic attractiveness to them, and that there is a hook there – loss of biodiversity.

Is this one of the top ten endangered species in the Tall grass prairie? That could also be used as a hook. Another approach is to sell the prairie itself, and highlight the butterfly as a key species within the habitat.

It was noted by one participant that a little brown butterfly on a flower may not get us far in today's society. Another participant noted that it wasn't just a little brown butterfly, it has pin stripes.

Well designed and informative information in the form of things like postcards, buttons, magnets and calendars are a great way to get information out. Events such as festivals also help raise awareness (Tall Grass Prairie Day in Manitoba at the Preserve).

### ***Critical Range Wide Data Gaps/Research Priorities***

1. Biology → Larval life history
  - a. Rearing in lab
  - b. Is the history different across the range?
    - a. Multi Jurisdictional Project
  - c. Food Plant Preferences
  - d. Vulnerabilities
    - a. Parasites
    - b. Fungal
  - e. Dispersal
    - a. Clustering behaviour (ovipositional cues?)
    - b. Dispersal between sites

2. Genetics
  - a. Heterozygosity
  - b. Dispersal between populations
  - c. Food
  - d. Is the population in Michigan different genetically?
3. Rangewide Habitat Characterization
  - a. Microsites
  - b. Flooding and Proximity to Water

### ***National Recovery Actions***

Reports on current and upcoming recovery planning, action implementation

#### **Phil Delphey – U.S. Fish and Wildlife Service**

Where the U.S.F.W.S. is in respect to the Poweshiek skipperling and listing a species. There are a couple different ways to list a species in the U.S. Someone can petition for a species to be listed. In the case of the Poweshiek, this has not happened so the USFWS is taking another route and taking the initiative to list it.

The candidate form (usually a 30-40 page document) is filled out with information on the species biology to determine there is enough information to list the species. Once completed, the form goes to the field offices (crosses two regions) then the species is officially a candidate once signed by the director in Washington, D.C.

Typically a one year process from the proposal and the species being added to the list. There is an option for an emergency listing. These are most applicable to situations where there is an identifiable threat.

Right now there are about 260 species that are on the listing of candidates. Right now about 40 species are being proposed for listing. The listing priority number can be very important – given the number of species on the list. For example Dakota skipper has been a candidate for 9 years. Litigation is an issue with the USFWS where they are getting sued, or having to make settlements before species can be listed.

Conservation activities – working with Dr. David Andow at the University of Minnesota or develop a rangewide GIS database. This will pull together all of the information for decision makers and potential funders, as well as be a powerful tool to look at relationships for the rangewide decline.

Status assessment by Gerald Selby, updated in 2010.

Created a model incorporating knowledge from the experts to predict the likelihood of any population of Poweshiek skipperlings going extinct. This project was cut short, as the decline was suddenly very apparent in the middle of the process, so information was focussed elsewhere.

Charlene Bessken in South Dakota is currently looking at the effects of wind power development on prairie butterflies.

Landscape Cooperation Cooperative may be a potential for funding sources in the Plains and Prairie Potholes. <http://www.fws.gov/science/shc/lcc.html>

**Mark Wayland** – Environment Canada

The Species at Risk Act (SARA). [http://www.sararegistry.gc.ca/default\\_e.cfm](http://www.sararegistry.gc.ca/default_e.cfm)

Mark is representing the Prairie and Northern Regions of Canada.

Most provinces have their own listings for species at risk that are complementary to the national listings.

How do they protect species? Through the species at Risk Act, and through habitat stewardship on private land.

Purpose of SARA is to prevent species from becoming extirpated or endangered. Different components in the act: Listing, Protection, Recovery Strategy and implementation.

Listing is through the COSEWIC process. Independent of the Federal Government. Representatives are selected from different government agencies (Provincial and Federal) and Academia and other experts. They evaluate species and make a recommendation to list species. In most cases, species recommended by COSEWIC get listed. There can be some back and forth, and some controversial and commercial species are exceptions and difficult to list.

The Poweshiek was listed as threatened in 2003 federally. Once the species gets listed a number of things happen including protection. SARA provides protection against killing, harming, harassing or taking of individuals and destroying habitat. This protection applies automatically to aquatic and migratory birds, and species on federal lands. Certain constitutional powers and abilities lay with both the Federal and Provincial governments. Key difference between Canadian and U.S.A Federal listing is that in U.S. it applies on private land, and in Canada it doesn't. However there are provincial standards and regulations that may protect the species on private lands.

Critical Habitat is important and one of the most controversial aspects of SARA currently. Critical habitat is vital to the survival or recovery of wildlife species. It may be an identified breeding site, nursery area or feeding ground. For species at risk, such habitats are of the utmost importance, and must be identified, where possible, and included in recovery strategies or action plans.

After a species is listed – the next stage is the recovery planning process. This is the stage the Poweshiek Skipperling is at. The recovery strategy includes an assessment of the recovery feasibility (for example the individuals and habitat available and recovery techniques be developed). The Poweshiek Skipper recovery has been deemed feasible. The strategy aims to maintain the population found in the past decade, not to expand (due to lack of habitat).

Action plans include monitoring and surveying, research and improved understanding of species biology for preservation of critical habitat. It also includes required stewardship activities. Recovery strategies must have critical habitat identified.

After the recovery strategy is written, it goes to the approval stage. After it is approved there is a 60 day public comment period. After that any changes needed are made and the document is finalized.

Within the Draft Recovery Strategy, a key part is the Activities Likely to Result in Destruction of Critical Habitat.

Activities that are likely to result in destruction of critical habitat, include but are not limited to:

- 1) Conversion of prairie habitat to cropland or non-native grassland.
- 2) Excessive frequency, intensity and scale of prescribed.

- 3) Hydrological changes. Intentional flooding, land drainage, stream straightening and/or water impoundment.
- 4) Chronic over-grazing. Prolonged and intensive livestock grazing of an area may remove critical larval and adult plant host plants therefore reducing habitat quality.
- 5) Improper grassland management. Succession can result in reduced abundance and productivity of larval and adult host plants.
- 6) Deliberate introduction or promotion of invasive species.

For Poweshiek skipperling critical habitat, it was identified as a quarter-section with at least 4 occurrences recorded, based on surveys done and information from the MB Conservation Data Centre. This doesn't include non-tall grass prairie habitat (i.e. swamp or trees) and it doesn't include existing infrastructure.

Environment Canada provides funds for stewardship activities through the Habitat Stewardship Program (HSP). This doesn't provide funds for baseline research though, just stewardship. Environment Canada also supports programs which buy or place conservation easements on lands with Species at Risk. Organizations such as Nature Conservancy of Canada benefit from this.

Everything done goes up on the Public Registry. The final step is action planning for Poweshiek skipperling. There is a hope to do a multi-species approach for species listed both federally and provincially.

### ***Local Scale Recovery Actions***

**Iowa** – Jerry Selby and Harlan Ratcliff

*Oarisma poweshiek* is listed as threatened in Iowa, under Iowa's T & E law. Unfortunately, that listing does little except to prohibit "taking" of the species. The T & E state listing in Iowa has very little teeth. It does not require additional surveys or planning, nor is it usually enforced on privately owned property.

In 2009 Ratcliff attempted to make an alternate path for preserving the species by asking the Governor (then Gov. Chet Culver) to recognize the species as "Iowa's Legacy Butterfly" by Executive Order. He wrote a letter and had a few other people sign it, and copied it to the IDNR, Department of Agriculture, and Iowa DOT (because the IDOT owns a site where the butterfly was recently seen.)

This was an attempt to do something conservation groups are doing with "Important Birding Areas"—that is, get some kind of recognition of the value of conservation, in this case of the Poweshiek skipper that is outside of the normal regulatory process.

There was no response from the governor, or IDOT, the Department of Agriculture responded quickly that they would be happy to help us in any way they were legally required to, and the Iowa DNR responded with a couple of meetings and started to write up a recovery plan.

We did get some cooperation from the Department of Agriculture pesticide bureau in the meetings, and from the Iowa DNR. In 2008/2009 there was one meeting with the DNR and the pesticide people to make sure that they were looking at the preserves etc. when marking off the no spray zones to collaborate. There was no follow up. Shortly thereafter that meeting the Poweshiek dropped. There really was no driver (legal or otherwise) to complete the management plan, and limited funds were put elsewhere. There are currently no plans to continue surveys, would like to continue but it will be a combination of time and funding. Department of Agriculture has a sensitive crop registry for pesticide applicators, and one of the prairie areas was going to be added. No follow up as to what happened.

Jerry will try to hit some of the key sites if possible (i.e. the last known site is on the drive to Minneapolis). He feels there are several areas that should be revisited to verify if they are there or not.

#### **North Dakota – Ron Royer**

Anything in the near future will likely be purely a “volunteer” effort by the Royers. If the species can be indicated – it would be worth contacting one of the other 4 universities in North Dakota to try and illicit interest for grad students etc.

A more wide scale survey effort is needed. May be the potential for funding from State Parks fund, Game and Fish department, endangered species small grant program or USFWS.

#### **South Dakota – Ron Royer, Phil Delphey and Charlene Bessken**

Surveys were planned for South Dakota, there was funding potentially available from USFWS under section 6 of the Endangered Species Act. That fund was threatened to be cut by congress, so the future is uncertain of that funding. After the meeting, an update was provided that an additional funding source was found for these surveys.. There are potentially some funds from the conservancy to do intensive studies.

Royer noted that if there was funding in South Dakota, it would be silly to separate the two states. The North Dakota population can almost be seen from the South Dakota border.

Wind farm environmental work in South Dakota has done some butterfly surveys in the past – the potential for more surveys there. The LCC is another potential source for funding for surveys (From Phil Delphey’s talk).

#### **Minnesota – Phil Delphey and Robert Dana**

No surveys planned for this upcoming summer. No funding from USFWS or DNR for surveys. If any surveys it will be people like Dana or Selby doing it on their own.

A one year research proposal from Dr. David Andow, an insect ecologist from University of Minnesota. Was involved with the Karner Blue efforts, and has an interest in insect conservation. Dana initially contacted him to look for more information and interested people and Dr. Andow submitted a proposal. Funding was provided by the USFWS. The project will consist of a rangewide GIS database that is able to be queried. Showing known, presumed and possible distribution of Poweshiek skipperling from the 1960’s to present. The most recent population size information and trend information.

Quantitative analysis of population trends in sites where information is available. Be able to investigate tolerance to uncertainties. Plans are to develop this research into a publishable paper. Any sites where there is sufficient data to do this type of analysis such a Prairie Couteau will be used.

Also like to incorporate pesticide usage and potential causes of decline. Not “exactly” a recovery plan, more of a diagnosis.

#### **Michigan and Wisconsin – no current information available**

#### **Manitoba – Richard Westwood, and Jaimée Dupont**

Species is currently on the list to become a listed species in Manitoba. If it doesn’t happen by July it may be on hold due to a provincial election.

In Manitoba, NCC with (potential) funding from the Provincial Government and in partnership with Dr. Westwood at the University of Winnipeg a comprehensive study is planned for the summer of 2011 and 2012.

This study will do a systematic survey of known Poweshiek habitat as well as tall grass prairie remnants identified (over 100 sites) surrounded and to the north of the TGPP. These sites will be systematically surveyed with two teams throughout the flight period to attempt to identify the any additional populations.

NCC and TNC have been working on a Climate Adaptation strategy looking at increased temperatures and more precipitation (in fall, winter and spring). This looks at fire sensitive lepidopteron such as the Poweshiek along with a variety of other factors.

Some potential actions include changing the seasonality of burns and using more mechanical control for encroaching woody vegetation on Poweshiek sites. We are trying to get away from doing the same method of control at the same time of year over and over again and avoid “hedging our bets”.

The plan is to continue doing surveys at least at the same intensity from the last few years.

Utilizing degree days to find flight period.

Roundtable Discussion – Coordinating National and Local-scale Recovery efforts, Incorporating Top 5 Research Priorities. Continued communication - *How do we maintain regular sharing of results, status, lessons learned, and successes?*

**Key Range Actions Items:** The following actions were deemed the most important and immediate activities to be taken for this species.

1. Survey – Critical to do intensive survey in all jurisdictions within 2011/2012 to verify extirpated or not. **MOST IMPORTANT**
  - c. Critical Research Gaps are highest priority.
    - i. **Lead** – Person in each region from workshop
    - j. Poweshiek Working Group
      - a. “Meet” in Fall of 2011
      - b. Discuss 2012 Field Plans, and results of any 2011
      - c. Who makes up this working group? Who is the lead
    - ii. **Lead** – Jaimee will touch base in August.
2. Standardize Sampling Methods
  - a. Using skippers/time, or frequency values to ensure comparability
  - b. Use standardized survey characteristics (Cloud cover, wind, temperature)
  - c. This could also include minimum times at sites.
  - iii. **Lead** - Robert Dana, Ron Royer, Gerald Selby, and Richard Westwood to develop before 2011 field season. Inquire if Susan Borkin, Dennis Skadsen or anyone else may be interested in contributing.

3. Captive Breeding
  - a. Use now to fill knowledge gaps and maintain population
  - b. Assiniboine Park Zoo in Winnipeg and Reiman Butterfly Gardens in Iowa may be two key places to start. Su Borke has had limited success in captive rearing of Poweshiek and may be a good source of information.
- iv. **Lead - ?**
4. Increase Public Profile
  - a. Website/Facebook
  - b. Increasing Awareness
- v. **Lead - Across the range, raise awareness through articles, sharing photos and stories etc.**

#### Discussion

The following discussion captures the thoughts and hypothesis of the workshop participants while the critical range wide actions were created.

GIS project may be a great Rosetta stone for future projects. Having all the data and coordinating some of the survey efforts. Entomological societies, butterfly enthusiast groups etc. maybe be involved in some of the surveys, or a "Bio Blitz" type format.

Some of the different funds available that need to be more thoroughly examined. North Dakota may have some state grants for surveys, R. Royer will look into. For the 2012 season – look at a plan for a rangewide survey and further research.

Captive breeding and reintroduction are different things, and we aren't at the reintroduction stage yet.

Increasing public profile - Conservation Volunteer in Minnesota, "Have you seen this animal" posters. Bringing it into the school systems (posters etc.). DNR and TNC have grassland monitoring crews with flashcards or key chains of skipperling. North Dakota Outdoors is another magazine. The Ark from NCC has a featured article in the upcoming summer issue.

These minutes can also be used as a tool with certain aspects and technical summaries pulled out to use for grant and funding applications. Multiple versions can be created for different purposes.