

Butterfly Report for Neal Smith National Wildlife Refuge 2002

During the summer of 2002 a 4th of July butterfly survey was conducted at the Neal Smith National Wildlife Refuge in Jasper County, Prairie City, Iowa. The sites included the Tallgrass Trail, the Savanna Trail and the Basswood Trail. The count was taken on July 13, 2002. Due to time constraints on this observer this was the only day of observations made for this year.

Field notes and photographs were taken during the surveys at each site. Butterflies, plants and plant association were noted. No butterflies were netted or taken as specimens. Unknown or hard to identify butterflies were photographed by a Pentax camera with a 28-300 mm Macro Tamron zoom lens. Butterflies were then identified at home once the pictures were developed. Butterflies were identified according to Scott (1980), Heitzman and Heitzman (1987), Shull (1987) and Glassberg (1999).

Other factors noted were: date, time, and weather conditions. The weather conditions recorded included whether it was sunny, partly cloudy, cloudy or raining. An approximation of the wind was noted as calm, light or strong.

It does need to be noted that in 2002 the Tallgrass Trail had be mowed out from the trail from 6 to 8 feet along most of the trail. In some places this greatly reduced Horsemint *Monarda fistulosa* and other flower species used by the butterflies. This wider area also made it much harder to identify butterflies on both sides of the trail compared to last year.

RESULTS AND DISCUSSION

Species present

Table 1. Numbers of butterflies seen per site during 2002

	TALLGRASS TRAIL	SAVANNA TRAIL	BASSWOOD TRAIL	TOTAL
# SPECIES	17	5	4	
# INDIVIDUALS	100	14	17	131
TRAIL LENGTH	2.0 miles	0.5 miles	0.5 miles	

As can be seen from Table 1. the Tallgrass Trail had 17 different species, the Savanna Trail had 5 species, and the Basswood Trail had 4 species. The larger number of

different species at the Tallgrass Trail would be expected because of its longer length and more diverse habitat. For the same reason there were more individuals found along the Tallgrass Trail (100) than along the Savanna Trail (14) and Basswood Trail (17). It needs to be noted here that no butterflies were observed along the Basswood Trail in the woods! The butterflies observed were found either within 20 yards of the parking lot along the trail or in the parking lot itself. Eighteen different species were observed when all sites were combined.

Table 2. Most numerous butterflies seen per site during 2002.

	TALLGRASS TRAIL	SAVANNA TRAIL	BASSWOOD TRAIL
Eastern Tailed Blue	42	8	2
Clouded Sulfur	22	0	9
Orange Sulfur	9	2	5

Table 2 lists the most numerous butterflies per site. Any butterflies present at any site were added even though the species may not have been abundant so a comparison between sites could be viewed.

The Eastern Tailed Blue was the most numerous butterfly found on the Tallgrass Trail (42) and the Savanna Trail (8). Two Eastern Tailed Blues were seen at the Basswood Trail, however they were seen very close to the parking lot.

The Clouded Sulfur was the second most numerous along the Tallgrass Trail (22). None were observed on the Savanna Trail. On the Basswood Trail Clouded Sulfurs were the most numerous (9) but they were seen flying close to the parking lot and clover located just outside the fence of the parking lot to the south.

The Orange Sulfurs was the third most seen (9) on the Tallgrass Trail. At the Basswood Trail they were the second most abundant (5). All other butterflies were seen only 1, 2 or three times so they are not mentioned here.

See Table 3 for a complete list of all butterflies present in 2002. The totals of all individual species are found in the right hand column. Only the more common butterflies were found in large numbers. Less common species of butterflies were probably seen less often because they are usually found in lower numbers.

Table 3. Species of butterflies present and expected at each site 2002.

SPECIES PRESENT	Tallgrass trail	Savanna Trail	Basswood Trail	TOTAL
Black Swallowtail <i>Papilio polyxenes</i>	2			2
Eastern Tiger Swallowtail <i>Papilio glaucus</i>	1			1
Checkered White <i>Pontia protodice</i>	2			2
Cabbage White <i>Pieris rapae</i>	6			6
Clouded Sulfur <i>Colias philodice</i>	22		9	31
Orange Sulfur <i>Colias eurytheme</i>	9	2	5	16
Little Yellow <i>Euremalisa</i>	3	1		4
Gray Copper <i>Lycaena dione</i>				
Bronze Copper <i>Lycaena hyllus</i>				
American Copper <i>Lycaena phlaeas</i>				
Coral Hairstreak <i>Satyrium titus</i>				
Banded Hairstreak <i>Satyrium calanus</i>				
Edward's Hairstreak <i>Satyrium edwardsii</i>				
Gray Hairstreak <i>Strymon melinus</i>				
Spring Azure <i>Celastrina landon</i>	1			1
Eastern Tailed-Blue <i>Everes comyntas</i>	42	8	2	52
Variiegated Fritillary <i>Euptoieta claudia</i>	1			1
Great Spangled Fritillary <i>Syeyeria cybele</i>				
Meadow Fritillary <i>Boloria bellona</i>				
Silvery Checkerspot <i>Chlosyne nycteis</i>				
Pearl Crescent <i>Phyciodes tharos</i>	2	2		4
Question Mark <i>Polygonia interrogationis</i>	1			1
Eastern Comma <i>Polygonia comma</i>				
American Lady <i>Vanessa virginiensis</i>				
Painted Lady <i>Vanessa cardui</i>				
Red Admiral <i>Vanessa atalanta</i>	3			3
American Snout <i>Libytheana carinenta</i>				

Table 3 continued from previous page

SPECIES PRESENT	Tallgrass trail	Savanna Trail	Basswood Trail	TOTAL
Common Buckeye <i>Junonia coenia</i>				
Red-spotted Purple <i>Limenitis arthemis astyanax</i>				
Viceroy <i>Limenitis archippus</i>	2			2
Hackberry Emperor <i>Asterocampa celtis</i>		1		1
Tawny Emperor <i>Asterocampa clyton</i>				
Common Wood Nymph <i>Cercyonis pegala</i>				
Eyed Brown <i>Satyroides eurydice</i>				
Little Wood Satyr <i>Megisto cymela</i>				
Monarch <i>Danaus plexippus</i>	1		1	2
Cloudless sulfur <i>Phoebis sennae</i>	1			1
Silver-spotted Skipper <i>Epargyreus clarus</i>				
Checkered Skipper <i>Pyrgus communis</i>				
Delaware Skipper <i>Anatrytone logan</i>				
Common Sooty Wing <i>Pholisora catullus</i>	1			1
TOTAL	100		17	

INDIVIDUALS PRESENT

The Eastern Tailed-Blue is very common and would be expected to be found in large numbers. It uses members of the Fabaceae as a food source.

Clouded Sulfurs are found in open fields, roadsides and suburban areas. They are common and have multiple broods. Their food sources are from members of the Fabaceae family.

The Orange Sulfur's major food source is herbaceous Fabaceae, especially alfalfa (*Medicago*) (Heitzman and Heitzman, 1987). This species of butterfly also has multiple broods and tends to be found in large numbers.

One individual species of note is Cloudless sulfur *Phoebis sennae*. It is rarely seen this far north because it is a resident of Florida.

COMPARISON BETWEEN 2001 AND 2002

Table 4. Comparison of numbers of butterflies seen per site on Fourth of July butterfly Count during July 22, 2001 and July 13, 2002.

	TALLGRASS TRAIL	SAVANNA TRAIL	BASSWOOD TRAIL	TOTAL
# SPECIES-2001	14	7	10*	
# SPECIES-2002	17	5	4	
# INDIVIDUALS 2001	174	24	37*	235
# INDIVIDUALS 2002	100	14	17	131
TRAIL LENGTH	2.0 miles	0.5 miles	0.5 miles	

* Data from Stephanie Shepherd Fourth of July Butterfly Count July 22, 2002.

Looking at Table 4 one can see there were 14 different species of butterflies on the Tallgrass Trail in 2001 and 17 in 2002. The Savanna Trail had 7 in 2001 and 5 in 2002. The Basswood Trail had 10 in 2001 and 4 in 2002. Data marked with an * was provided by Stephanie Shepherd.

In 2002 the Tallgrass Trail had 174 individuals while in 2002 there were 100. The Savanna Trail had 24 in 2001 and 14 in 2002. The Basswood Trail had 37 in 2001 and 17 in 2002. As can be seen in Table 4 the number of individual species dropped for each site in 2002.

Table 5 shows the number of different species present at the Tallgrass Trail, the Savanna Trail and the Basswood Trail in 2001 (black) and 2002 (blue). The information from Basswood Trail in 2001 comes from Stephanie Shepherd. In the 2001 columns butterflies observed in the Tallgrass Trail and Basswood Trail but not seen on the day of the fourth of July Butterfly Count were noted with a dash (-). In a comparison between years one can observe that the more common and numerous butterflies were seen both years. The more rare ones were not.

The American Painted Lady was not seen in 2002. This butterfly tends to have boom and bust years and this may have been its bust year. Fewer of the hairstreaks and skippers were found but that may not be significant since these butterflies tend to be more wary and rare. The number of the Pearl Crescent were also much lower. The numbers of the Eastern Tailed-Blue were only slightly lower. This species appears to have been able to handle the harsher summer. The only species that appeared to increase in numbers were the Clouded Sulfur.

Table 5. Species of butterflies present and expected at sites in 2001 and 2002.

SPECIES PRESENT	T01	T02	S01	S02	B01 *	B02
Black Swallowtail <i>Papilio polyxenes</i>		2	-			
Eastern Tiger Swallowtail <i>Papilio glaucus</i>	1	1	-			
Checkered White <i>Pontia protodice</i>	1	1	-			
Cabbage White <i>Pieris rapae</i>	9	6			1	
Clouded Sulphur <i>Colias philodice</i>	9	22	1			
Orange Sulphur <i>Colias eurytheme</i>	8	9	1	2		5
Little Yellow <i>Euremalisa</i>	12	3	7	1	3	
Gray Copper <i>Lycaena dione</i>	2					
Bronze Copper <i>Lycaena hyllus</i>	-					
American Copper <i>Lycaena phlaeas</i>						
Coral Hairstreak <i>Satyrium titus</i>	2					
Banded Hairstreak <i>Satyrium calanus</i>						
Edward's Hairstreak <i>Satyrium edwardsii</i>						
Gray Hairstreak <i>Strymon melinus</i>						
Spring Azure <i>Celastrina landon</i>	-	1	-			
Eastern Tailed-Blue <i>Everes comyntas</i>	53	42	7	8	20	
Variiegated Fritillary <i>Euptoieta claudia</i>		1				
Great Spangled Fritillary <i>Syeyeria cybele</i>			-		3	
Meadow Fritillary <i>Boloria bellona</i>	-					
Silvery Checkerspot <i>Chlosyne nycteis</i>						
Pearl Crescent <i>Phyciodes tharos</i>	33	2	5	2		
Question Mark <i>Polygonia interrogationis</i>		1			1	
Eastern Comma <i>Polygonia comma</i>						
American Lady <i>Vanessa virginiensis</i>	36					
Painted Lady <i>Vanessa cardui</i>	-		-			
Red Admiral <i>Vanessa atalanta</i>		3	-		2	
American Snout <i>Libytheana carinenta</i>			1			

Table 5 continued from previous page

SPECIES PRE SPECIES PRESENT	T01	T02	S01	S02	B01	B02
Common Buckeye <i>Junonia coenia</i>	-					
Red-spotted Purple <i>Limenitis arthemis astyanax</i>						
Viceroy <i>Limenitis archippus</i>	-	2				
Hackberry Emperor <i>Asterocampa celtis</i>				1		
Tawny Emperor <i>Asterocampa clyton</i>	-		2			
Common Wood Nymph <i>Cercyonis pegala</i>						
Eyed Brown <i>Satyroides eurydice</i>						
Little Wood Satyr <i>Megisto cymela</i>						
Monarch <i>Danaus plexippus</i>	7	1	-		1	
Cloudless sulfur <i>Phoebis sennae</i> (2002)		1				
? Swallowtail	1					
? Copper	-					
Silver-spotted Skipper <i>Epargyreus clarus</i>	-		-			
Checkered Skipper <i>Pyrgus communis</i>						
Delaware Skipper <i>Anatrytone logan</i>	-		-			
? Hairstreak	1					
? Comma	1		-		1	
? Satyrid	1					
Giant Swallowtail <i>Papilio cresphontes</i>	1				3	
? Skipper	-		-			
? Butterfly			-			
Common Sooty Wing <i>Pholisora catullus</i>						
? Fritillary	-				2	
TOTAL	174	100	24	14	37*	17

KEY

T = Tallgrass Trail, S = Savanna Trail, B = Basswood Trail, Black = 2001, Blue = 2002

- = species present at site during the year but not on Fourth of July Count Day

* Data from Stephanie Shepherd July 22, 2002.

Differences in 2001 and 2002 number of species and the number of individuals could be explained in several different ways. The summer of 2002 was warmer and dryer than normal and this may have affected the numbers of individuals. While there were no days when temperatures were in the triple digits there were many days in June and July where temperatures were in the 90's or above. This was unusual. This year was also a

dry year with a shortage of rainfall. The weather conditions may have affected the number of individuals and species present.

Another reason may have been that some of the species were between brood times with only a few representatives living at the time of the count. The survey may have been done at the wrong time. Or the lower numbers may be a true reflection of fewer butterflies present this year. Only after a comparison with other butterfly surveys from the midwest in 2002 will one be able to make any statements about the year 2002.

It should be noted this survey is only just that. Next year will provide more data as to the number of species and individuals present. Butterfly numbers are usually in a state of flux as are all biological organisms depending upon rainfall, temperature and other species present. It will be interesting to see what shows up next year.

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