Don McFall
Division of Natural Heritage
Illinois Department of Conservation
Lincoln Tower Plaza
524 S. Second Street
Springfield, IL 62701-1787

May 20, 1991

Dear Don,

Enclosed you will find one original and 2 copies of 7 insect survey reports, and an invoice for expenses and services rendered in conjunction with this study. We were very successful last year, recording at least 20 rare species on one or more of your sites. We were thrilled to find new sites for two nationally-rare (C2) insects; the Dropseed leafhopper, *Aflexia rubraneura*, and the dragonfly *Somatochlora hineana*. We were thrilled to find what may prove to be an Illinois endemic, *Papaipema* n. sp. #10 (see photo enclosed).

Despite intensive searches, we were unable to record *Papaipema eryngii* on the *Eryngium*-rich Grant Creek and Iroquois sites.

We managed to rear 9 Papaipema species from larvae obtained on these study sites last year. I have enclosed record photos of 4 of these species for your files. I have also included photos of another rare moth, *Schinia nundina*, a rare butterfly (*Hesperia sassacus*), a rare leafhopper (*Aflexia rubraneura*), and a few additional shots. I hope to provide additional record photos next year.

Please feel free to call if you should require any additional information.

Sincerely,

Ron Panzer 345-34-2738
16248 S. Grove
Oak Forest, Illinois 60452
DHR Contractor ID Number 44793/00/9

P. S. I hope we still have a deal for this year ($9000.00?). Please write or call as soon as possible . . . "the game is afoot!"

VOLUNTEER STEWARDSHIP NETWORK ANIMAL ALERT

INSECT OF SPECIAL CONCERN

Site: Illinois Beach State Park, Lake County, IL.

Species: The Indiana Flower Moth, *Schinia indiana.*

Status: Proposed federal endangered species (C2), last seen in Illinois in 1936. Only 2 modern records for this species in North America.

Host Plant: prairie phlox, *Phlox pilosa.*

Description: Fore wings crimson, a bit darker than Phlox flower pedals. The hind wings are blackish. (see illustration attached). Head and body are olive to black. The wingspan of this tiny moth is roughly two-thirds of an inch (16mm).

Life History: One generation appears each year with adults first seen about May 25. Females deposit eggs on flowers and flower buds in June. Young caterpillars emerge within 2-3 weeks and feed on flowers, pupating within the soil in the fall .

Guidelines: Search for this species on prairie phlox flowers (sitting motionless with wings folded over back) from late May through June 20. Adults will be found sitting motionless on flowers, flower buds, or on nearby plants. These moths rely heavily on their cryptic coloration and are very easy to approach and photograph (Get as close as you like!)

Photograph only. Do not attempt to handle this rare and delicate savanna animal.

Report sightings to:

Illinois Department of Conservation
Randy Heidorn, Heritage Biologist
110 James Road
Spring Grove, IL
815 675-2385

A Survey of the Leafhoppers, Butterflies, Papaipema Moths, and Schinia Moths of the Goose Lake Prairie Nature Preserve, Grundy County, Illinois

1989-1990

Conducted for

Illinois Department of Conservation
and
Nongame Wildlife Conservation Committee

By

Ron Panzer & Don Stillwaugh
Biology Department
Northeastern Illinois University
and
George Derkovitz
Frankfort, IL
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Rich Gnaedinger
Highland Park, IL

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Introduction

Roughly one-fifth of the insects found on prairie and savanna remnants are restricted to these habitat "islands" by narrow habitat requirements. As annual species with widely fluctuating population sizes, these remnant-dependent [r-d] animals are very susceptible to the high extinction rates associated with extreme habitat fragmentation.

Sites as small as 1-2 acres have been found to support uncommon r-d insects. The "huge" Goose Lake Prairie Nature Preserve (GLP), comprised of more than 1500 acres, should harbor scores of uncommon r-d species. We initiated a search for r-d insect species on this site in the spring of 1989.

Methods

The following taxa, all of which include appreciable numbers of r-d species, were the focus of this survey:

Leafhoppers and froghoppers (Homoptera, in part)

Butterflies (Lepidoptera, in part)

Macro moths: *Schinia* spp., *Papaipema* spp. (Lepidoptera; Noctuidae)

Twenty-one diurnal surveys have been conducted by 2 (occasionally 3 or 4) investigators during the past 2 years. Aerial nets and sweep nets have been employed to capture adult specimens during each visit. Small knives were used to remove Papaipema larvae from plant stems and roots last year (We failed to find any in 1989!). These larvae were subsequently reared to adulthood, identified, photographed, and, in most cases, released.

Thirty-four nocturnal moth surveys have been conducted (from dusk to 2:00 or 3:00AM) in August, September, and early October during this period. Black lights were employed on each occasion. Adult Papaipemas are strictly nocturnal and exceedingly colonial, often occurring within only a small fraction of an apparently suitable habitat. Tractor batteries and blacklights were used to slowly move through the prairie "trolling" for localized colonies. In many instances, black lights were simply hung in front of pole-suspended bedroom sheets, and moths were captured when they flew in to "investigate" the glowing sheets. In addition, 4 funnel-type light traps powered by automobile batteries were moved between 9 areas and operated from 8 pm to 8 am on 40 nights during this period.

Common, easily identified insects have been captured, identified, and released. Uncommon species have been sacrificed and retained for further examination; these are currently housed as voucher specimens at Northeastern Illinois University and in the collection of the senior author.

Specimens have been identified using a variety of taxonomic manuals, keys, and field guides, most of which are listed in the attached bibliography. In the case of the moths, specimens were compared with reference specimens from the collections of the Field Museum of Natural History, Chicago, Il, and the Illinois Natural History Survey, Champaign, Il. Papaipema specimens (and a few other Noctuids) were forwarded to Eric Quinter at the American Museum of Natural History (NY) for verification.

Results

One hundred and thirty-one species representing 3 orders and 14 families have been captured and identified to genus; One hundred and twenty-nine of these have been identified to species. Whereas the bulk of these animals have been determined to be wide-ranging species with broad ecological amplitudes, 47 were determined to be uncommon prairie-dependent species (Table 1). Many of the leafhoppers and moths reported in this study represent records for Grundy County.

Five *Papaipema* species were reared from larvae extracted from *Eryngium*, *Cicuta*, *Baptisia leucantha*, and *Cacalia tuberosa* (Table 5). Two species, *P. baptisiae* and *P. maritima*, were reared from previously unrecorded host plants.

Discussion

GLP supports an impressive number of prairie-dependent insects, many of which are either uncommon or rare in both Illinois and neighboring Indiana (Tables 1 - 6). Decades of grazing have resulted in the degradation of much of the upland prairie on this site. Nevertheless, GLP, by virtue of its large size, almost certainly harbors more remnant-restricted insect species than do most of the smaller, high quality sites that persist in this region (see Table 2).

Butterflies (species abundance)

Roughly thirty percent (44 species) of the butterflies known to occur in Illinois were recorded at GLP in 1990*.

Fifteen prairie-dependent species were recorded on this site last year*. Three of these, the Regal fritillary†, the Two-spotted skipper†, and the Byssus skipper, are known to occur on less than 20 protected sites in Illinois and thus should be considered to be very uncommon elements (S2-S3).* Several others, including, the Dion skipper, the Silver bordered fritillary, and the Aphrodite are uncommon and tend to be restricted to larger remnants in this region. Species such as the Crossline skipper, the Black dash†, the Southern cloudy wing, the Bronze copper, and the Acadian hairstreak are somewhat common but will likely become much less so as shrinking habitat islands become more isolated and local extinctions accelerate.

The prairie-dependent butterfly fauna of GLP compares favorably with those recorded on the largest and highest quality prairie remnants in Illinois and Indiana, and far surpasses, in diversity, the faunas of most of the smaller prairie remnants in this area (Table 3). An additional 4 r-d species have been reported from this site within the past 10 years* . . . If 2 or more of these species are rediscovered, GLP will set the standard for prairie-dependent butterfly diversity in Illinois!

Butterflies (Population densities)

We have made no attempt to gauge either actual or relative population densities during this study. Nevertheless, we could not help but notice that some species were very abundant, while others were

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* Reliable investigators have reported an additional 8 butterfly species from this site within the past 10 years (Jim Wiker, 1989)

† Note:Three GLP species; *E. bimacula*, *E. conspicua*, and *S. idalia* are currently listed as "Watch Species" in Illinois.

very scarce. Dion skippers, Bronze coppers, and Silver bordered fritillaries (threatened in Ohio), for instance, were numerous (The Silver bordered fritillary population on this site must number in the thousands!) In sharp contrast, the Eyed brown and the Regal fritillary, two of the easiest animals to find, were very scarce. Despite an intensive search, we managed to record but 2 Eyed browns and one Regal fritillary. (The Regal Fritillary, seen late in its flight period [8-12-91], may have been a stray from a breeding area outside the existing preserve.)

Moths

Fifteen r-d moths have been recorded thus far. Chief among these have been several members of the genus *Papaipema.*

Papaipema

The North American genus Papaipema is comprised of approximately 55 species (Quinter 1983), with roughly 40 occurring in the East and/or Midwest (Hessel 1954). Most are restricted to native plant communities by narrow host plant requirements. As a consequence, most are uncommon or rare in large portions of their range.

The Chicago region has long been considered the metropolis for many of the members of this group. Twenty-seven species were recorded in and around Chicago between the years of 1915 and 1942 by A. K. Wyatt, E. Beer, and others (Wyatt 1915-1942). We have managed to "rediscover" 25 of these species, and have recorded 2 additional species within Illinois natural areas within the past 6 years.

The Papaipema moths of northeastern Illinois and northwestern Indiana can be categorized according to habitat requirements as follows: 17 prairie species; 4 fen species*; 4 savanna/woodland species; and 4 wide-ranging, unrestricted species. A site as large as GLP should probably support 10 to 12 of the prairie species (The host plants of 14 prairie species occur on this site.).

Nine prairie-restricted Papaipema species have been recorded, placing GLP among the richest prairie Papaipema sanctuaries in either Illinois or Indiana, and probably in the entire Midwest (Table 4). Of equal importance, this site has been found to support 4 rare species, all of which are known to occur on 3 or less sites in Illinois.

The critically imperiled Eryngium root borer (*P. eryngii*), previously thought to be extinct, may be the "black-footed ferret" of the tallgrass prairie**. Recorded only on the prairies of the Chicago region†, this beautiful moth has not been encountered in over 50 years, and has been nominated for listing (category 2) as a federally endangered species. The Hemlock root borer, *P. birdi*, is known from only one other site in Illinois. The Illinois root borer, *Papaipema* n. sp., is known only from Goose Lake Prairie. These three species should be treated as very rare elements (S1).

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* Most "prairie species" can also be found in prairie fens.

** Goose Lake Prairie may be the last refuge for the *Eryngium* root-borer; we have searched for this mythical creature unsuccessfully on many sites in Illinois and Indiana during the past 6 years, as have others in Michigan, Kentucky, and Indiana.)

† One questionable record exists for Iowa.

The Ironweed root borer, *P. cerussata*, although common to the north and east, has only been recorded twice in Illinois and may be very rare in this state. The Maritime root borer, *P. maritima*, has only been recorded on 4 sites in Michigan and seems to be nearly as rare in Illinois†. These species should be treated as very uncommon elements (S2-S3).

The Liatris root borer, *P. beeriana*, is known from only 4 sites in Michigan†, is listed as endangered in Ohio, and is apparently very uncommon in Illinois and Indiana. The Culver's root stem borer, *P. sciata*, is equally as uncommon in Illinois and Indiana. These species should be treated as uncommon elements (S3).

The Silphium root borer, *P. silphii*, is listed in Michigan (T), Wisconsin (T), and Ohio (E), but is fortunately a somewhat common member of our upland prairie fauna in Illinois and Indiana (Table 5). The Indigo stem borer (*P. baptisiae*) is still relatively common, and can usually be found where its host plants occur.

Two relatively common prairie species, The Sneezeweed borer, *P. impecuniosa* , and the Meadow-rue stem borer, *P. unimoda*, as well as the uncommon Sensitive fern borer, *P. inquisita*, were not recorded during this study but very likely persist in remote sections on this site. We will search once again for these species next year.

Schinia

The North American genus *Schinia* is comprised of more than 100 species, with roughly 40 occurring in the East and/or Midwest (Covell, 1984). Most are restricted to native plant communities by narrow host plant requirements. As a consequence, many are uncommon or rare in large portions of their range.

Sixteen species were recorded in and around Chicago between the years of 1915 and 1942 by A. K. Wyatt and others. We have managed to "rediscover" 12 of these species on Chicago-area prairie and savanna remnants within the past 8 years.

A site as large and diverse as GLP should probably support 5 to 6 flower moth species (The host plants of 9 prairie species occur on this site.). Three species were recorded at GLP last year.

The Leadplant flower moth,, *Schinia lucens*, is known from only 1 site in Michigan† where it is listed as endangered. This *Amorpha*-feeder is apparently very uncommon in Illinois and should be treated as a very uncommon element (S2-S3).

The Clouded crimson, *Schinia guarae*, is an uncommon member of our upland prairie fauna in Illinois and Indiana (S3).

Additional r-d moths

Tricholita notata, listed as an endangered species in Ohio, is known from only 5 sites in Illinois and should be considered to be a very uncommon species (S2).

Lemmeria digitalis is reportedly an uncommon, sedge meadow-associated species in Michigan†. This is only our second record for this species in northern Illinois.

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† Michigan records obtained from James Bess, Assistant Zoologist, Michigan Natural Features Inventory.

The Giant silphium tortricid, *Eucosma giganteana*, is an uncommon prairie-restricted species in this region (S3)

Leafhoppers

Forty-eight leafhopper species have been recorded to date. Whereas the bulk of these are clearly common, wide-ranging species, 15 are considered to be uncommon, r-d species (Table 6).

The Critically imperiled Dropseed leafhopper, *Aflexia rubraneura*, is currently known from 2 sites in the USA; **Illinois Beach State Park**, and **the Goose Lake Prairie.** This tiny, flightless animal has been nominated for listing (C2) as a federally endangered species, and should be considered to be a very rare element (S1) here in Illinois. Six species, *Xerophloea major*, *Parabolocratus grandis*, *Dorydiella kansana*, *Graminella pallidula*, *Paraphlepsius solidagensis*, and *Limotettix truncatus* seem to be very scarce in this region, and should be considered to be rare elements (S2-S3). *Laevicephalus schingwauki* and *Graminella aureovitatta* are currently known from less than 6 sites in northern Illinois and may be nearly as uncommon .

The prairie-dependent leafhopper fauna of GLP compares favorably with those recorded on most of the high quality prairie remnants in Illinois and Indiana (Table 6). However, a site of this size and diversity should probably support 20 or more r-d species. This apparent deficiency may be attributable to the poor condition of large portions of the uplands on this site (We caught little of consequence on the *Rubus flagellaris/Solidago gaminifolia/Panicum virgatum*-covered ridges.). It is also possible that we will add more r-d species next year.

Other r-d insects

The Slender toothpick, *Pseudopomala brachyptera*, was recorded throughout the sedge meadows within the southernmost burn unit last year. This uncommon, flightless grasshopper occurs within both xeric prairie (e.g.Harlem Hills) and sedge meadow (e.g. Romeoville Prairie) habitats in this region.

Blatchley's walking stick, *Diapheromera blatchleyi*, was recorded within a good wet-mesic section (with *Salix humilis*, *Parthenium integrifolium*, and *Gentiana puberula*) on the east side of the tracks. This seems to be an uncommon mesic and wet prairie species in this region.

Survey Thoroughness

Whereas we have likely recorded 80-100% of the butterflies, Papaipema moths, and Schinia moths that occur on this site, we have probably recorded less than 80% of the leafhoppers.The other insect groups listed below were treated very superficially. Given the extent of the fluctuations in density that insect populations tend to undergo, the very localized populations of many species within what appear to be homogeneous habitats, the propensity of many species to flee well in advance of investigators, and the large size of the GLP site, further efforts can be expected to unearth additional species.

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† Michigan records obtained from James Bess, Assistant Zoologist, Michigan Natural Features Inventory.

Prescribed burning

Fires can represent a threat to r-d leafhoppers, butterflies, and Papaipema moths, all of which are present as either eggs or larvae within the prairie litter during the spring and fall (Bird 1934, Swietzer 1988, Panzer 1988). A growing body of anecdotal evidence suggests, however, that fire-sensitive insects can routinely survive partial burns that leave sizable portions of their habitat unburned (Panzer 1988)*.

The GLP management plan requires that one of 3 permanent, 200 hectare fire units be burned annually. Two-thirds of the r-d species encountered so far have been recorded in at least 2 of these units (Table 1). Seven of the 9 Papaipema species, including *P. eryngii*, *P. cerussata*, and *Papaipema* n. sp. have been found to occur within two or more areas within all three fire units (Table 1). Given the widespread distribution of important host plants throughout this site, it is likely that most, if not all, of the r-d species encountered thus far will be found to occur within at least two fire units. Believing that this will prove to be the case, we see no reason to recommend any changes in the burning regime for this site.

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* And the evidence continues to mount. Seven Papaipema species were recorded in the section that was burned in the spring of 89. Eight were found in sections burned in 1990. These moths could have flown in to recolonize these sections from unburned units. It would seem, however, that some fire-sensitive organisms can, at least occasionally, survive the direct effects of fire; we found numerous *P. eryngii* larvae this year (in late June and Early July) within sections that had been burned earlier in the year. This means that significant numbers of tiny eggs, strewn about in the prairie litter the previous fall, somehow managed to survive the flames.

Literature cited

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Table 1. Host plants and habitat associations of the remnant-dependent insects of the Goose Lake Prairie*.

Species:	Host plants	wet prairie sedge meadow	dry to mesic prairie	Recorded in fire units†
Xerophloea major	*grasses*	x		BC
Hecalus lineatus	*Spartina*	x		ABC
Parabolocratus grandis	*wet prairie grasses or sedges*	x		C
Dorydiella kansana	*Scleria*	x		B
Flexamia reflexa	*Andropogon*		x	BC
Aflexia rubraneura	*Sporobolus*		x	BC
Laevicephalus shingwauki	*wet prairie grasses or sedges*	x		AC
L. unicoloratus	*Andropogon*		x	ABC
Graminella aureovitatta	*Panicum virgatum*		x	AC
Graminella pallidula	*prairie grasses*	x		BC
Limotettix truncatus	*wet prairiegrasses or sedges*		?	B
Paraphlepsius solidagensis	*Solidago*		x	BC
Chlorotettix spatulatus	*wet prairie grasses*	x	x	ABC
Cicadula melanogaster	*wet prairie grasses*	x		ABC
Cicadula cyperacea	*wet prairiegrasses or sedges*	x		BC
Euphyes dion	*Carex*	x		ABC
Euphyes conspicua	*Carex*	x		AC
Euphyes bimacula	*Carex?*	x	x	B
Problema byssus	*A. gerardii*		x	A
Polites mystic	*Carex*	x		BC
Polites origines	*grasses*		x	AB
Atrytone delaware	*Andropogon, Panicum*		x	ABC
Thorbyes bathyllus	*Leguminocae*		x	A
Satyrium acadica	*Salix*	x		ABC
Harkenclenus titus	*Prunus*		x	AB
Lycaena thoe	*Polygonum*	x		ABC
Boloria selene myrina	*Viola*	x		ABC
Speyeria aphrodite	*Viola*		x	ABC
Speyeria idalia	*Viola*		x	B
Lethe eurydice	*Carex stricta & C. atheroides*	x		AC
Schinia guarae	*Guara & Oenothera*		x	B
Schinia rivulosa	*Artemisia*		x	ABC
Schinia lucens	*Amorpha*		x	C
Papaipema silphii	*Silphium, Cacalia, Eryngium*		x	ABC
Papaipema maritima	*H. mollis, H. laetiflorus, & Cacalia*		x	ABC
Papaipema eryngii	*Eryngium*		x	ABC
Papaipema baptisiae	*Baptisia & Apocynum*		x	ABC
Papaipema beeriana	*Liatris*		x	ABC
Papaipema new species	*???*		?	ABC
Papaipema cerrusata	*Vernonia missourica*		x	ABC
Papaipema birdi	*Cicuta*	x		C
Papaipema sciata	*Veronicastrum*		x	AB
Lemmeria digitalis	*Carex?*	x		A
Tricholita notata	*S. rigida & Silphium*		x	B
Eucosma giganteana	*Silphium*		x	B
Pseudopomala brachyptera	grasses	x	x	C
Diapheromera blatchleyi	???	x	x	AC

* This listing includes species that are seldom encountered in old field settings. This listing does not include several classic prairie-associated species (e.g. Wood nymph, Wild rye leafhopper) that can be found, with regularity, in badly degraded areas. † see Figure 1.

4-15-91

Table 2. The number of prairie-dependent butterflies, moths, leafhoppers, froghoppers, and dragonflies known to occur on a variety prairie remnants and restorations in the Chicago region.

Sites:	GLP[1]	FLP[4]	POP[4]	BEAV[3]	NACH[2]	LOCK[2]	ROM[2]	GMP[1]	WCP[1]	CP[1]	LP2	CRP[1]	SHOE[1]	VCP[1]
Area (Ha)	600	240	240	200	100	75	60	60	50	16	6	3	2	1
Butterflies	15	3	8	12	14	11	11	15	16	13	10	3	2	1
Moths	15	1	1	1	9	6*	5*	18	8*	10	1*	5	5	3
Leafhoppers	15	9	2	8	14	17	11	21	11	11	11	12	6	5
Totals	**45**	**13**	**11**	**21**	**37**	**34**	**27**	**54**	**35**	**34**	**22**	**20**	**13**	**9**

GLP = Goose Lake Prairie; Beav = Beaver Lake Prairie; FLP= Fermilab Prairie Restoration; GMP=Gensburg Markham Prairie; POP= Poplar Creek Restoration; WCP= West Chicago Prairie; VCP= Vermont Cemetery Prairie; SHOE= Shoe Factory Road Prairie; LOCK= Lockport; ROM= Romeoville; CRP = Chicago Ridge Prairie; CP = Cook Prairie; LP = Liberty Prairie; NACH = Nachusa Grasslands.

[1] = higher quality sites; [2] = higher quality sites with uplands badly degraded; [3]= entire site degraded; [4] = restorations.

* Superficial survey.

3-15-91

Table 3. Distribution of butterfly species abundance on 29 grassland remnants in northern Illinois and Indiana.

Remnant	Prairie area† (ha)	Species number		
		Prairie-dependent species*	Other species	Total species
IL Beach State Park	600.0	14	36	50
Goose Lake Prairie	**600.0**	**15**	**29**	**44**
Iroquois County SWA	250.0	14	34	48
Nachusa Grasslands	100.0	14	41	55
Lockport Prairie	75.0	11	22	33
Spring Hill Farm Fen	70.0	13	32	45
Romeoville Prairie	60.0	11	24	35
G. M. Prairie	60.0	15	35	50
West Chicago Prairie	60.0	16	26	42
Clark and Pine Prairie	50.0	14	33	47
Green River	40.0	11	23	34
Pratts Wayne Marsh	40.0	9	22	31
Grant Creek Prairie	35.0	6	24	30
Toll-road Prairie	30.0	6	17	23
Sun Drop Prairie	28.0	8	24	32
Cook Prairie	16.0	12	25	37
Paintbrush Prairie	15.0	8	23	31
Somme Prairie	14.0	8	18	26
Long Run Seep	7.0	9	20	29
Buffalo Grove Prairie	6.4	6	16	22
Liberty Prairie	6.0	9	19	28
I- 57 Prairie	4.5	4	18	22
Belmont Prairie	4.2	6	27	33
Chicago Ridge Prairie	3.6	3	18	21
Shoe Factory Prairie	3.5	3	17	20
Santa Fe Prairie	3.0	4	18	22
Cary Prairie	2.0	3	19	22
Main Street Prairie	2.0	2	19	21
Vermont Cemetery Prairie	1.0	1	14	15

* This category includes those prairie species that are seldom encountered outside native prairie/wetland remnants. This figure does not include savanna/woodland restricted species such as *L. m. samuelis*, *C. irus*, *E. brizo*, etc. This figure does not include single sightings of conspicuous species from multiple year samples.

† Area estimates exclude savanna and old field habitats.

4-15-91

Table. 4 Distribution of Papaipema species diversity on thirteen prairies/wetlands in the Chicago region *

Species Site size (acres)	GLP 1,500	IROQ 1,000	SHFF 200	GMP 150	WCP 120	GCP 80	TRP 70	SP 60	CP 40	LRS 20	CRP 8	OFP 3	VMNT 2
pterisii (3)		x											
baptisiae (12)	x	x		x	x	x		x	x		x		
nepheleptena (4)		x	x						x				
harrisi (2)			x										
beeriana (7)	x	x		x	x			x	x				
birdi (2)	x												
cerussata (2)	x												
eryngii (1)	x												
unimoda (9)			x	x	x	x	x	x	x	x			
impecuniosa (6)			x	x					x	x			
new species # 10 (1)	x												
inquaesita (4)		x					x						
limpida (3)		x		x		x							
nelita (1)										x			
maritima (5)	x		x	x		x				x			
necopina (2)			x						x				
rigida (3)				x			x					x	
sciata (6)	x	x	x	x	x				x				
silphii (20)	x			x	x	x		x	x	x	x	x	x
speciosissima (2)							x						
eupatorii (2)			x							x			
Totals	9	7	8	9	5	5	4	4	8	6	2	2	1

GLP = Goose Lake Prairie; IROQ = Iroquois County State Wildlife Area; SHFF = Spring Hill Farm Fen; GMP = Gensberg Markham Prairie; WCP = West Chicago Prairie; GCP = Grant Creek Prairie; TRP = Toll Road Prairie (IN); SP Sundrop Prairie; CP = Cook Prairie (IN); LRS = Long Run Seep; CRP = Chicago Ridge Prairie; OFP = Oak Forest Prairie; VMNT = Vermont Cemetery.

* Four "weedy" species, *P. arctivorens*, *P. cataphracta* (?), *P. furcata*, and *P. nebris* are not included in this comparison.

(n) = Numbers in parenthesis after species names indicate total number of known sites for each species in northern Illinois and nw Indiana.

4-15-91

Table 5. Papaipema host plant data obtained from rearing studies in northern Illinois (Panzer & Derkovitz, 1990)

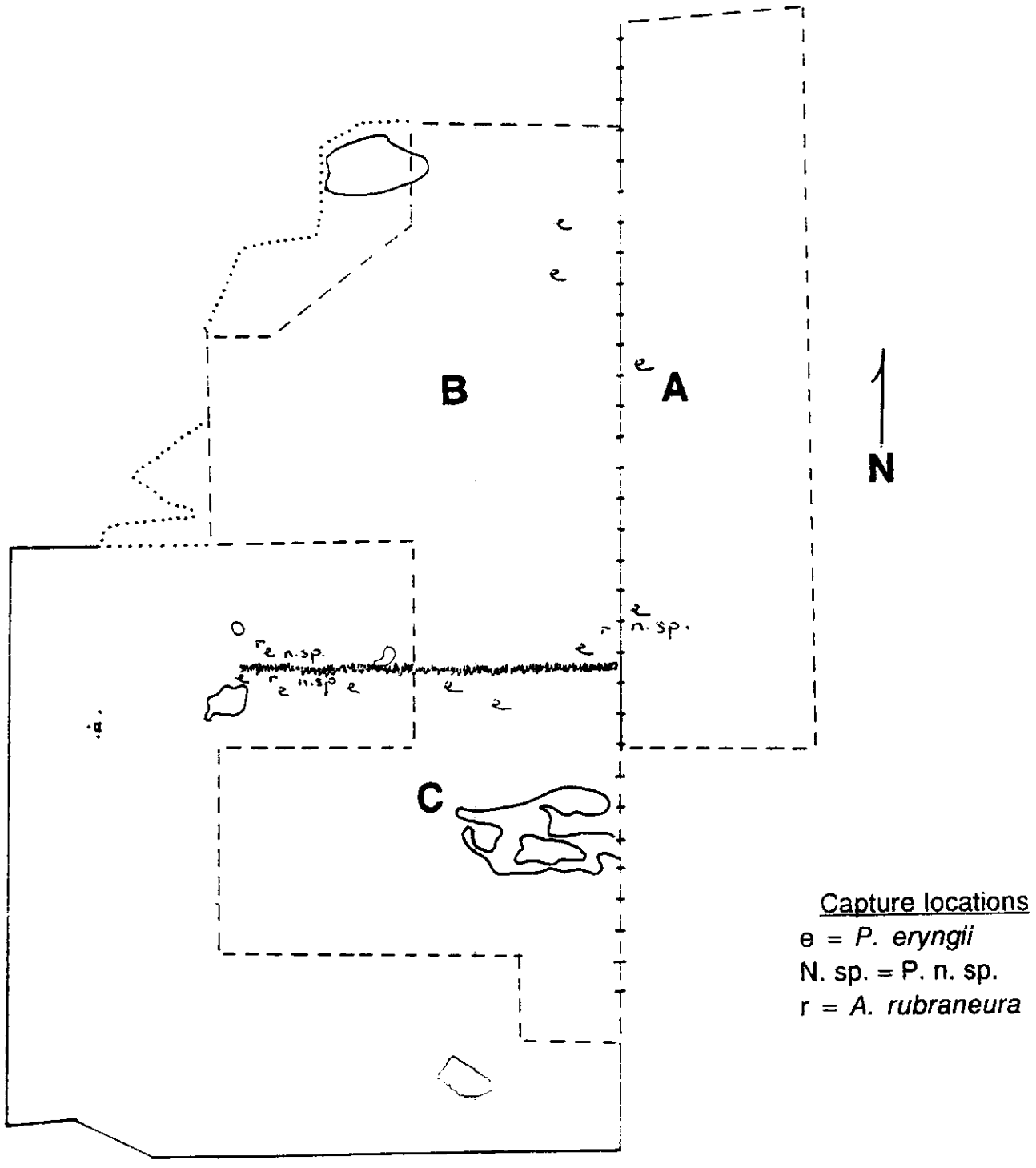
	Eryng	*Cicut*	*Cacal*	*Vernon*	*H mol*	*H laet*	*C mut*	*R. lacin*	*Silph*	*Verb*	*Bleuca*	*Apocy*	*Angel*
P. baptisiae	(3)*										(1)*	(1)	
P. arctivorens	?						(2)						
P. nepheleptena										(1)			
P. harrisii													(4)
P. birdi		(2)*											
P. cerussata				(1)									
P. eryngii	(12)*												
P. limpida				(1)									
P. nebris								(4)					
P. maritima			(3)*		(1)	(1)							
P. silphii	(1)*		(1)						(6)				

(number) = Number of individuals of a particular species reared from a particular foodplant.

Host plants listed above: *Eryngium yuccifolium, Cicuta maculata, Cacalia tuberosa, V. missourica, H. mollis, H. laetiflorus, C. muticum, R. laciniata, Silphium* spp., *Verbena* sp., *B. leucantha, Apocynum sibericum, Angelica atropurpurea.*

* = One or more of these individuals was captured on Goose Lake Prairie.

Fig. 1 Capture locations for 3 rare insect species within 3 burn units on the Goose Lake Prairie Nature Preserve.



An Annotated Listing of the Leafhoppers, Butterflies, Moths, and Other Insects of the Goose Lake Prairie, Grundy County, Illinois

Dates = earliest sightings
† = remnant-dependent species
(S1,S2,S3,S4) = proposed element rankings for Illinois . . . see narrative.
watch = Illinois watch species

Order **Orthoptera**: the grasshoppers and walking sticks

family **Acrididae**

Pseudopomala brachyptera (Scudder) **Bunch grass grasshopper†**
This is an uncommon sedge meadow and xeric prairie species in this region. 7-12-90

family **Phasmatidae**

Monomera blatchleyi (Caudell) **Blatchley's walking stick†**
This uncommon prairie species inhabits wet and mesic prairies in this region.

Order **HOMOPTERA:** cicadas and hoppers

family **Membracidae:** the treehoppers

Stictocephala lutea (Walker) **treehopper**
This is a common, wide ranging prairie species. 7-9-90

Campylenchia latipes (Say) **treehopper**
This common species feeds on a wide variety of herbaceous plants. 6-13-90

Publilia concava (Say) **treehopper**
This is a common, wide ranging species. 6-17-90

Micrutalis calva Say **treehopper**
This is another common, wide ranging species. Host plants include *Ambrosia* and *Helianthus*.

family **Cercopidae:** froghoppers

Philaenus spumarius (L.) **Meadow spittlebug**
This is a very common, wide ranging species. 6-13-90

Aphrophora quadrinotata Say **Four spotted spittlebug**
This is a common grassland species. 7-12-90

Clastoptera obtusa (Say) **Alder spittlebug**
This somewhat uncommon species feeds on a variety of native woody species. 8-1-90

family **Cicadellidae**: leafhoppers

Agallia constricta Van Duzee **leafhopper**
This is an exceedingly common and widespread species. 8-9-90

Aceratagallia sanguinolenta (Provancher) **Clover leafhopper**
This very common and widespread species feeds on legumes. 8-9-90

Helocharis communis Fitch **leafhopper**
This is reportedly a common, widespread species. 8-10-90

Draeculacephala producta Walker **leafhopper**
Reported to be common in Illinois. 8-9-90

Draeculacephala mollipes (Say) **leafhopper**
This is a common transcontinental species. 8-13-90

Draeculacephala portola paludosa Ball+China **leafhopper**
Occurs on *Scirpus fluviatilis*. 8-9-90

Draeculacephala sp. **leafhopper**

Xerophloea major Baker **leafhopper†**
This species ranges from the east coast to kansas, but seems to be rare in northern Illinois. 8-10-90

Hecalus lineatus (Uhler) **leafhopper†**
This is a somewhat common Spartina-feeding prairie species. 8-10-90

Parabolocratus major Osborn **leafhopper**
This prairie species is common in the this region. 8-9-90

Parabolocratus grandis Shaw **leafhopper†**
This southern species was recorded in Summit and Evergreen Park by DeLong in the 30's. This is our first record for this apparently rare species. 8-13-90

Dorydiella kansana Beamer **leafhopper†**
The host plant of this seemingly rare species may be *Scleria* spp..

Xestocephalus superbus (Provancher) **leafhopper**
This insect is reportedly common in open woodlands. 8-13-90

Xestocephalus pulicarius Van Duzee **leafhopper**
This common, wide ranging species was taken on 8-1-90.

Scaphoideus sp. **leafhopper**

Cloanthanus acutus (Say) **leafhopper**
This common, wide ranging species was taken on the 'garbage hill' on 8-1-90.

Cloanthanus cuprescens (Osborn) **leafhopper**
This is a midwestern species. Host plants are unknown. 6-21-90

Cloanthanus frontalis (Van Duzee) **leafhopper**
This common, wide ranging species was taken on 8-10-90.

Flexamia reflexa (Osborn & Ball) **leafhopper†**
This uncommon *Andropogon*-feeder was recorded on both sides of the tracks. 8-9-90

Aflexia rubraneura (DeLong) watch **leafhopper†**
This rare, category 2 species was described from specimens taken in Evergreen Park in the 30"s. Goose Lake Prairie and Illinois Beach State Park are the only modern records for this species in the USA. Host plant is *Sporobolus heterolepsis*.

Latulus missellus (Ball) **leafhopper**
This is reportedly a common northern species. 8-13-90

Polyamia inimica (Say) **leafhopper**
A very common transcontinental grass-feeder. 8-13-90

Commellus comma (Van Duzee) **leafhopper**
This uncommon, *Elymus* - feeding prairie species, has recently began to feed on *Agropyron* in this region! Recorded in dense stands of quack grass on . 8-10-90

Laevicephalus shingwauki Beamer & Tuthill **leafhopper†**
This is an uncommon, northern wet prairie/marsh (grass-feeding) species.

Laevicephalus unicoloratus (Gillette & Baker) **leafhopper†**
This uncommon prairie species apparently feeds on *Andropogon.*

Psammotettix striatus (L.) **leafhopper**
A common transcontinental grass-feeder. 6-17-90

Arthaldeus pascuellus (L.) **leafhopper**

Graminella aureovitatta (Sanders & DeLong) **leafhopper†**
This seems to be an uncommon, wet prairie species. Host plant has been reported to be *P. virgatum*. 8-13-90

Graminella nigrifrons (Forbes) **leafhopper**
Reportedly a common grass-feeder in the eastern USA. 8-10-90

Graminella pallidula (Osborn) (could be *oquaka* ?) **leafhopper†**
This very uncommon, wet prairie species reportedly feeds on grasses. 8-1-90

Stirellus bicolor (VanDuzee) **leafhopper**
Reported to be a common species in meadows and on crops. 6-28-90

Stirellus obtusus (Van Duzee) **leafhopper**
Reported to be a common species in meadows and on crops. 8-1-90

Athysanus argentarius Metcalf **leafhopper**
A ubiquitous introduction from Europe. 6-28-90

Exitianus obscurinervus (Stal) **leafhopper**
Reported to be a common species. Taken on unburned hill. 8-1-90

Limotettix truncatus Sleesman **leafhopper†**
This beautiful, midwestern, sedge meadow species seems to be rare in this region. 8-13-90

Paraphlepsius irroratus (Say) **leafhopper**
A very common species. 8-10-90

Paraphlepsius solidagensis (Walker) **leafhopper†**
This beautiful mesic prairie species seems to be rare in this region. 8-10-90

Paraphlepsius tigrinus (Ball) **leafhopper**
A very common pine-feeding species???. 8-13-90

Menosoma cincta (Osborn & Ball) **leafhopper**
This somewhat common, shade-loving species is distributed from the east coast to Colorado. 8-1-90

Chlorotettix spatulatus Osborn & Ball **leafhopper†**
This is a somewhat common prairie-dependent species. 8-13-90

Chlorotettix unicolor (Fitch) **leafhopper**
This wetland species is somewhat uncommon in this region. 6-28-90

Cicadula melanogaster (Provancher) **leafhopper†**
This would appear to be a somewhat common, wet prairie species. 6-28-90

Cicadula cyperacea (Osborn) **leafhopper†**
This would appear to be an uncommon, sedge meadow species in this region. 8-13-90

Macrosteles divisa (Uhler) **leafhopper**
A common species on crops. 8-13-90

Neocolida tumidifrons (Gillette & Baker) **leafhopper**
This is reportedly a common species in moist wooded areas. 6-28-90

Balclutha impicta (Van Duzee) **leafhopper**
This is a common transcontinental species. 8-9-90

Nesosteles neglecta (DeLong and Davidson) **leafhopper**
This is reportedly a common, wide ranging species. 8-1-90

Nesosteles divisa Davidson **leafhopper**
This is reportedly a common, wide ranging species. 8-1-90

Order **Lepidoptera** (Butterflies)

* Order and nomenclature follow Irwin, R. R. and Downey, J. C. 1973. Annotated Checklist of the Butterflies of Illinois. Illinois Natural History Survey. Urbana, Il.

family **Hesperiidae**

Euphyes dion (Edwards) watch **Dion skipper†**
This is a very uncommon sedge meadow species. Hosts include *Carex laucustris*. 7-4-90

Euphyes conspicua (Edwards) watch **Black dash†**
Local in wet prairies and sedge meadows. Host plants are sedges (*Carex*). Found to be very scarce this year .7-12-90

Euphyes bimacula (Grote & Robinson) watch **Two spotted skipper†**
This very uncommon, wet prairie species was first recorded on 6-24-90. **Illinois watch species**

Atrytone delaware (Edwards) **Delaware skipper†**
Host plants are grasses and include *Panicum virgatum* and *Andropogon* spp. 7-12-90

Problema byssus (Edwards) **Byssus skipper†**
This classic, mesic prairie species was recorded on several occasions in *A. gerardi*-dominated sections east of the tracks. 7-9-90

Wallengrenia egeremet (Scudder) **Broken dash**
This common butterfly was recorded nectaring on milkweeds along the tracks. 7-4-90

Polites coras (Cramer) **Peck's skipper**
This is a common skipper that occurs with regularity in both prairie and degraded habitats. Host plants are grasses. 6-24-90

Polites origenes (Fabricus) **Cross line skipper†**
This species seems to exhibit a high fidelity for upland prairie in this region. Host plants are grasses. 7-12-90

Polites mystic (Edwards) **Long dash†**
This species is somewhat common in wet prairies and sedge meadows in northern Illinois. Host plants are sedges (*Carex*). Three individuals seen on 6-22-90.

Thymelicus lineola (Ochsenheimer) **European skipper**
This exotic species was found to occur in small numbers along the public trails.

Ancyloxypha numitor (F.) **Least skipper**
This common species has been recorded along the edges of every wet depression. 6-7-90

Pholisora catullus Fabricius **Common sooty wing**
This is a common, wide-ranging species that occurs in degraded habitats where it is reported to feed on *Chenopodium album*, an exotic weed. Recorded along the tracks on 7-8-90.

Erynnis baptisiae (Forbes) **Baptisia dusky wing**
This uncommon upland butterfly occurs on both savannas and open prairies in this region. It is interesting to note that this dusky wing has recently begun to feed on Crown vetch and is expanding into degraded areas. 8-7-90

Thorybes bathyllus (J. E. Smith) **Southern cloudy wing†**
This is a species of open upland habitats, including xeric sand and hill prairies. Host plant species are legumes and include *Desmodium, Lespedeza,* and *Tephrosia.* Recorded on the ridges east of the tracks. 7-9-90

Epargyreus clarus (Cramer) **Silver-spotted skipper**
This is a common skipper that feeds on legumes, including *Robinia pseudo-acacia,* an introduced southern species. 7-4-90

Historical records for GLP (r-d species not encounered in this study):

Poanes viator (Edwards) watch **Broad winged skipper**
Erynnis martialis (scudder) **Mottled dusky wing**

family **Papilionidae**

Papilio polyxenes asterius Stoll **Black swallowtail**
Host plants are members of the family Umbelliferae and include *Zizea aurea* and the exotic *Daucus carota.* This is a common, wide-ranging species. 6-17-90.

Papilio glaucus Linnaeus **Tiger swallowtail**
This wide ranging, common ecotonal/savanna species is very common on this site. Host plant species include *Prunus* spp.6-24-90

family **Pieridae**: the sulphurs and whites

Pieris protodice Boisduval and La Conte **Checkered white**
This uncommon prairie species was recorded near the nature center on 7-4-90.

Pieris rapae Linnaeus **Cabbage butterfly**
This ubiquitous, wide ranging exotic species was found to occur in small numbers on this site. 6-13-90

Colias eurytheme Boisduval **Alfalfa**
A very common, wide ranging species. 6-13-90

Colias philodice Godart **Common sulphur**
Another very common, wide ranging species. 6-13-90

Eurema lisa (Boisduval & LeConte) **Little sulphur**
Host plants include *Cassia.* This uncommon species migrates northward regularly from stable populations to the south. 8-1-90

family **Lycaenidae:** the gossamer-winged butterflies

Satyrium acadica (Edwards) **Acadian hairstreak†**
This somewhat uncommon wetland species is restricted to the northern third of Illinois. 7-1-90

Harkenclenus titus (Fabricius) **Coral hairstreak†**
This species exhibits a high fidelity for upland prairies in this region. *Titus* seldom occurs in old field situations, despite its reported reliance on members of the genus *Prunus* as host plant species. One sighting on 7-9-90.

Lycaena thoe (Guerin-Meneville) **Bronze copper†**
This northern, wet prairie/sedge meadow species feeds on water dock, *Rumex orbiculatus*. This somewhat uncommon butterfly was recorded throughout this site and was abundant on 8-7-90.

Lycaena phlaeas americana Harris **American copper**
The reported food plant of this somewhat common species is *Rumex acetocella*, an exotic weed. This butterfly occurs throughout Europe and ranges into Africa and Asia. Four sightings on 7-9-90.

Everes comyntas (Godart) **Eastern tailed blue**
The host plants of this very common species include *Lespedeza, Desmodium, Baptisia*, and the exotic *Trifolium*. 6-13-90

Celastrina argiolus pseudargiolus (B. & L.) **Spring azure**
This is a very common, wide-ranging species. 6-24-90

Historical records for GLP (r-d species not encounered in this study):

Lycaena helloides (Boisduval) **Purplish copper**
Lycaena xanthoides dione (Scudder) **Great copper**

family **Nymphalidae**

Limenitis arthemis astyanax (Fabricius) **Red-spotted purple**
This common, woodland edge species is reported to feed on a wide variety of woody host plant species. One sighting on 6-17-90.

Limenitis archippus (Cramer) **Viceroy**
Host plants for this common wetland species include *Salix* and *Populus*. 7-12-90

Vanessa atalanta rubria (Fruhstorfer) **Red admiral**
Host plants include nettles (Urticaceae). This is a very common, wide ranging species. 6-13-90

Cynthia virginiensis (Drury) **American painted lady**
This common, wide-ranging species feeds on pussy toes (*Antennaria* spp.) 7-4-90

Precis coenia (Hubner) **Buckeye**
This is a common, southern grassland species that is apparently unable to survive the harsh winters at this latitude. 8-15-90

Nymphalis antiopa (Linnaeus) **Mourning cloak**
This common, wide ranging species feeds on willows (*Salix*) and overwinters as an adult. 7-19-90

Phycoides tharos (Drury) **Pearl crescent**
The host plants of this very common species are asters. 6-13-90

Boloria selene myrina (Cramer) **Silver bordered fritillary†**
The host plants for this uncommon, wet prairie species are violets. Countless individuals seen on 7-4-90.

Speyeria idalia (Drury) watch **Regal fritillary†**
This prairie species is rare in Northern Illinois. Host plants are violets and include *V. pedata, V petatifida,* and *V. sagitatta* Only one worn female seen on 8-14-90.

Speyeria cybele (Fabricius) **Great spangled fritillary**
The host plants of this savanna/prairie edge species are violets.

Speyeria aphrodite (Fabricius) **Aphrodite†**
The host plants of this uncommon prairie species are violets. Several sightings on 6-24-90.

family **Danaidae**: The Monarchs

Danaus plexippus (Linnaeus) **Monarch**
This is a very common, migratory species. 8-1-90

family **Satyridae:** The Satyrs and Wood Nymphs

Lethe eurydice (Johansson) **Eyed brown†**
Host plants of this wet prairie species are sedges (*Carex*). Common in the sedge meadow/fen on 7-9-90. This species seems to be very scarce on this site; two sightings in 12 hours of searching.

Euptychia cymela (Cramer) **Little wood satyr**
This butterfly of the prairie/woodland ecotone feeds on grasses. 6-17-90

Cercyonis pegala olympus (Edwards) **Wood nymph**
This inhabitant of the prairie/woodland ecotone is less restricted to edges than the preceeding species and in fact ventures well out into open prairies. Host plants are grasses. Many sightings on 7-9-90.

family **Sphingidae**

Ceratomia hageni Grote **Hagen's sphinx**
This common species feeds on Osage orange. 9-19-89

Paonias myops (Smith) **Small eyed sphinx**
This common species feeds on a variety of woody species. 7-28-90.

Hemaris thysbe (F.) **Hummingbird clearwing**
This common day-flying species also feeds on a variety of woody species. 7-3-90.

family **Lasiocampidae**

Tolype velleda (Stoll) **Large tolype**
This common moth reportedly feeds on a variety of woody species. 9-18-89 thru 9-28-89

family **Noctuidae**
subfamily **Acronictinae**

Simyra henrici (Grote) **Henry's marsh moth**
Caterpillar recorded on cattails in June.

subfamily **Hadeninae**

Pseudaletia unipunctata (Haw.) **Armyworm moth**
This ubiquitous species is a pest on many crops.

Nephelodes minians Guenee **Bronzed cutworm moth**
This is a common, wide-ranging species. Numerous on 9-16-89 (30 individuals were taken in one trap). 9-15-89 through 10-12-89.

Tricholita notata Strecker **Rigid goldenrod moth**†
This seems to be a very uncommon, prairie-restricted species. Host plants are *Solidago rigida* and *Silphium terebinthinaceum* (data from Wyatt's specimen labels.). One individual observed nectaring on *Helianthus* on 9-15-89.

subfamily **Cuculliinae**

Chaetaglaea sericea (Morr.) **Silky sallow**
This oak-feeding species is apparently common. 9-28-89

Eucirroedia pampina (Gn) **Scalloped sallow**
This moth reportedly feeds on a variety of woody species. 9-18-89

subfamily **Amphipyrinae**

Amphipoea americana (Speyer) **American ear moth**
Host plants are grasses and sedges. 10-1-90

A Survey of the Butterflies and Papaipema Moths of the Grant Creek Prairie Nature Preserve, Will County, Illinois

1990

Conducted for

Illinois Department of Conservation
and
Nongame Wildlife Conservation Committee

By

Ron Panzer
Biology Department
Northeastern Illinois University
and
George Derkovitz
Frankfort, IL

Report submitted on 5-15-91

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NARRATIVE

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Introduction

All prairie and savanna remnants support remnant-dependent (r-d) insects. Sites as small as 2 acres have been found to support at least a few uncommon r-d species. Sites as small as 40 acres have been found to support what seem to be full compliments of r-d species. Grant Creek Prairie Nature Preserve (GCP), being one of the larger prairie remnant in Illinois (80 acres), will almost certainly prove to be an important sanctuary for many uncommon r-d insects. We initiated a search for prairie-restricted insect species on this site in the spring of 1990.

Methods

The following taxa, all of which include appreciable numbers of r-d species, were the focus of this survey:

Butterflies (Lepidoptera, in part)

Macro moths: *Schinia* spp., *Papaipema* spp. (Lepidoptera; Noctuidae)

Nine diurnal surveys were conducted by 1 (occasionally 2) investigators last year. Aerial nets and sweep nets were employed to capture adult insects during each visit. Small knives were used to remove Papaipema larvae from plant stems and roots last year. These larvae were subsequently reared to adulthood, identified, photographed, and released.

Four nocturnal moth surveys were conducted (from dusk to 2:00 or 3:00AM) in August, September, and early October last year. Black lights were employed on each occasion. Black lights were hung in front of pole-suspended bedroom sheets, and moths were captured when they flew in to "investigate" the glowing sheets. In addition, 3 funnel-type light traps powered by automobile batteries were moved between 4 areas and operated from 8 pm to 8 am on 18 nights during this period (54 trap nights).

Common, easily identified insects were captured, identified, and released. Uncommon species were sacrificed and retained for further examination; these are currently housed as voucher specimens at Northeastern Illinois University and in the collection of the senior author.

Specimens have been identified using a variety of taxonomic manuals, keys, and field guides, most of which are listed in the attached bibliography. In the case of the moths, specimens were compared with reference specimens from the collections of the Field Museum of Natural History, Chicago, Il. Papaipema specimens (and a few other Noctuids) were forwarded to Eric Quinter at the American Museum of Natural History (NY) for verification.

Results

Forty-six species representing 2 orders and 10 families have been captured and identified to species. Whereas the bulk of these animals have been determined to be wide-ranging species with broad ecological amplitudes, 13 were determined to be uncommon prairie-dependent species (Table 1).

Two *Papaipema* species were reared from larvae extracted from *Silphium terebinthinaceum, Silphium laciniatum*, and *Cacalia tuberosa* (Table 5).

Discussion

GCP supports a significant number of prairie-dependent insects, several of which are either uncommon or rare in both Illinois and neighboring Indiana (Table 1).

Butterflies (species abundance)

Roughly twenty percent (30 species) of the butterflies known to occur in Illinois were recorded at GCP in 1990.

Six prairie-dependent species were recorded on this site last year. One of these, the Two-spotted skipper†, is known to occur on less than 20 protected sites in Illinois and thus should be considered to be a very uncommon element (S2-S3). The Aphrodite is uncommon and tends to be restricted to larger remnants in this region. The Long dash, the Bronze copper, and the Acadian hairstreak are somewhat common but will likely become much less so as shrinking habitat islands become more isolated and local extinctions accelerate.

Decades of heavy grazing have apparently taken their toll on the GCP butterfly community. This prairie-dependent butterfly fauna does not compare favorably with those recorded on the largest and/or highest quality prairie remnants in this region (Table 3). More than half of the r-d butterfly species recorded on the nearby Goose Lake Prairie seem to be absent from GCP. The Black dash and the Eyed brown, tenacious species that often manage to survive in tiny wetland pockets, seem especially conspicuous in their absence from this fast-recovering site. The apparent absence of these species suggests that every inch of this site was heavily grazed at one time.

Butterflies (Population densities)

Most species were found to be very scarce on this site last year. Only one Aphrodite was seen (This conspicuous butterfly is very easy to find, when present). This suggests that this site may not support a breeding population of this "classic", violet-feeding prairie species.

Moths

Six r-d moths have been recorded thus far. Chief among these have been several members of the genus *Papaipema.*

Papaipema

The North American genus Papaipema is comprised of approximately 55 species (Quinter 1983), with roughly 40 occurring in the East and/or Midwest (Hessel 1954). Most are restricted to native plant communities by narrow host plant requirements. As a consequence, most are uncommon or rare in large portions of their range.

---

† Note: *E. bimacula* is currently listed as a "Watch Species" in Illinois

The Chicago region has long been considered the metropolis for many of the members of this group. Twenty-seven species were recorded in and around Chicago between the years of 1915 and 1942 by A. K. Wyatt, E. Beer, and others (Wyatt 1915-1942). We have managed to "rediscover" 25 of these species, and have recorded 2 additional species within Illinois natural areas within the past 6 years.

The Papaipema moths of northeastern Illinois and northwestern Indiana can be categorized according to habitat type as follows: 17 prairie species; 4 fen species*; 4 savanna/woodland species; and 4 wide-ranging, unrestricted species. A site as large as GCP should probably support 7 to 8 of the prairie species (The host plants of 12 prairie species occur on this site.).

Five prairie-restricted Papaipema species have been recorded, establishing GCP as an important prairie Papaipema sanctuary (Table 1). Although reportedly common in other states, *P. limpida* is currently known from less than 6 sites in Illinois. The Maritime root borer, *P. maritima*, has only been recorded on 4 sites in Michigan and seems to be nearly as rare in Illinois†. These species should be treated as very uncommon elements (S2-S3).

The Silphium root borer, *P. silphii*, is listed in Michigan (T), Wisconsin (T), and Ohio (E), but is fortunately a somewhat common member of our upland prairie fauna in Illinois and Indiana (Table 5). The Indigo stem borer, *P. baptisiae*, and the Meadow-rue stem borer, *P. unimoda*, are still relatively common, and can usually be found wherever their host plants occur.

Several species seem conspicuous in their absence from this large site. These would include the Sneezeweed root borer, The Liatris root borer, and the critically imperiled Eryngium root borer. (We conducted an exhaustive search for *P. eryngii* in and around the thousands of *Eryngium yuccifolium* plants that occur on this site††)

Schinia

The North American genus *Schinia* is comprised of more than 100 species, with roughly 40 occurring in the East and/or Midwest (Covell, 1984). Most are restricted to native plant communities by narrow host plant requirements. As a consequence, many are uncommon or rare in large portions of their range.

Sixteen species were recorded in and around Chicago between the years of 1915 and 1942 by A. K. Wyatt and others. We have managed to "rediscover" 12 of these species on Chicago-area prairie and savanna remnants within the past 8 years.

A site as large and diverse as GCP should probably support 3 to 4 flower moth species (The host plants of 8 prairie species occur on this site.). No flower moths were recorded at GCP last year. We searched many of the leadplants on this site for the Leadplant flower moth, *Schinia lucens*, to no avail.

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* Most "prairie species" can also be found in prairie fens.

† Michigan records obtained from James Bess, Assistant Zoologist, Michigan Natural Features Inventory.

†† = We will search for this imperilled animal again next year.

Additional r-d moths

The Giant silphium tortricid, *Eucosma giganteana*, is an uncommon prairie-restricted species in this region (S3).

Other r-d insects

Blatchley's walking stick, *Diapheromera blatchleyi*, was recorded within a good wet prairie section (with *Cacalia tuberosa, Alium cernuum*, and *Eryngium yuccifolium*) near the preserve sign. This seems to be an uncommon mesic and wet prairie species in this region.

Survey Thoroughness

We have likely recorded 80-90% of the butterflies and Papaipema moths that occur on this site. The other insect groups listed below were treated very superficially. Given the extent of the fluctuations in density that insect populations tend to undergo, the very localized populations of many species within what appear to be homogeneous habitats, the propensity of many species to flee well in advance of investigators, and the large size of the GCP site, further efforts can be expected to unearth additional species.

Prescribed burning

Fires can represent a threat to r-d leafhoppers, butterflies, and Papaipema moths, all of which are present as either eggs or larvae within the prairie litter during the spring and fall (Bird 1934, Swietzer 1989, Panzer 1988). A growing body of anecdotal evidence suggests, however, that fire-sensitive insects can routinely survive partial burns that leave sizable portions of their habitat unburned (Panzer 1988).

Insects populations were found to be relatively small last year. It may be prudent to spare as much as 50% of this site from burning each year as a sanctuary for fire-sensitive insects and the host plants they may require.

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Table 1. Host plants and habitat associations of the remnant-dependent insects of the Grant Creek Prairie*.

Species:	Host plants	wet prairie	mesic prairie
Diapheromera blatchleyi	?	x	x
Euphyes bimacula	*Carex*?	x	x
Polites mystic	*Carex*	x	
Atrytone delaware	*Andropogon, Panicum*	x	x
Satyrium acadica	*Salix*	x	
Lycaena thoe	*Rumex*	x	
Speyeria aphrodite	*Viola*		x
Papaipema silphii	*Silphium, Cacalia, Eryngium*		x
Papaipema maritima	*H. mollis, H. laetiflorus, & Cacalia*	x	x
Papaipema unimoda	*Thalictrum*	x	
Papaipema limpida	*Vernonia*		x
Papaipema baptisiae	*Baptisia & Apocynum*		x
Eucosma giganteana	*Silphium*		x

* This listing includes species that are seldom encountered in old field settings. This listing does not include prairie-associated species (e.g. Wood nymph, Great spangled fritillary) that can still be found, with regularity, in badly degraded areas.

4-15-91

Table 2. The number of prairie-dependent butterflies and moths known to occur on a variety of prairie/wetland remnants in the Chicago region.

Sites:	GLP	IROQ	NACH	SHFF	ROM	GMP	WCP	GCP	CP	LRS	CRP	SHOE	VCP
Area (Ha)	600	600	100	80	60	60	50	30	16	8	3	2	1
Butterflies	15	14	14	13	11	15	16	6	13	9	3	2	1
Moths	15	13	9	11	5*	18	8	6	10	7	5	5	3
Totals	30	27	23	24	16	33	24	**12**	23	16	8	7	4

GLP = Goose Lake Prairie; IROQ = Iroquois County State Wildlife Area; SHFF = Spring Hill Farm Fen; GMP=Gensburg Markham Prairie; GCP = Grant Creek Prairie; WCP= West Chicago Prairie; VCP= Vermont Cemetery Prairie; SHOE= Shoe Factory Road Prairie; LRS = Long Run Seep; ROM= Romeoville; CRP = Chicago Ridge Prairie; CP = Cook Prairie; NACH = Nachusa Grasslands.

* Superficial survey.

3-15-91

Table 3. Distribution of butterfly species abundance on 29 grassland remnants in northern Illinois and Indiana.

Remnant	Prairie area† (ha)	Species number		
		Prairie-dependent species*	Other species	Total species
IL Beach State Park	600.0	14	36	50
Goose Lake Prairie	600.0	15	29	44
Iroquois County SWA	250.0	14	34	48
Nachusa Grasslands	100.0	14	41	55
Lockport Prairie	75.0	11	22	33
Spring Hill Farm Fen	70.0	13	32	45
Romeoville Prairie	60.0	11	24	35
G. M. Prairie	60.0	15	35	50
West Chicago Prairie	60.0	16	26	42
Clark and Pine Prairie	50.0	14	33	47
Green River	40.0	11	23	34
Pratts Wayne Marsh	40.0	9	22	31
Grant Creek Prairie	**35.0**	**6**	**24**	**30**
Toll-road Prairie	30.0	6	17	23
Sun Drop Prairie	28.0	8	24	32
Cook Prairie	16.0	12	25	37
Paintbrush Prairie	15.0	8	23	31
Somme Prairie	14.0	8	18	26
Long Run Seep	7.0	9	20	29
Buffalo Grove Prairie	6.4	6	16	22
Liberty Prairie	6.0	9	19	28
I- 57 Prairie	4.5	4	18	22
Belmont Prairie	4.2	6	27	33
Chicago Ridge Prairie	3.6	3	18	21
Shoe Factory Prairie	3.5	3	17	20
Santa Fe Prairie	3.0	4	18	22
Cary Prairie	2.0	3	19	22
Main Street Prairie	2.0	2	19	21
Vermont Cemetery Prairie	1.0	1	14	15

* This category includes those prairie species that are seldom encountered outside native prairie/wetland remnants. This figure does not include savanna/woodland restricted species such as *L. m. samuelis*, *C. irus*, *E. brizo*, etc. This figure does not include single sightings of conspicuous species from multiple year samples.

† Area estimates exclude savanna and old field habitats.

3-15-91

Table 4. Distribution of Papaipema species diversity on thirteen prairies/wetlands in the Chicago region *

Species Site size (acres)	GLP 1,500	IROQ 1,000	SHFF 200	GMP 150	WCP 120	GCP 80	TRP 70	SP 60	CP 40	LRS 20	CRP 8	OFP 3	VMNT 2
pterisii (3)		x											
baptisiae (12)	x	x		x	x	x		x	x		x		
nepheleptena (4)		x	x						x				
harrisi (2)			x										
beeriana (7)	x	x		x	x			x	x				
birdi (2)	x												
cerussata (2)	x												
eryngii (1)	x												
unimoda (9)			x	x	x	x	x	x	x	x			
impecuniosa (6)			x	x					x	x			
new species # 10 (1)	x												
inquaesita (4)		x					x						
limpida (3)		x		x		x							
nelita (1)										x			
maritima (5)	x		x	x		x				x			
necopina (2)			x						x				
rigida (3)				x			x					x	
sciata (6)	x	x	x	x	x				x				
silphii (20)	x			x	x	x		x	x	x	x	x	x
speciosissima (2)							x						
eupatorii (2)			x							x			
Totals	9	7	8	9	5	5	4	4	8	6	2	2	1

GLP = Goose Lake Prairie; IROQ = Iroquois County State Wildlife Area; SHFF = Spring Hill Farm Fen; GMP = Gensburg Markham Prairie; WCP = West Chicago Prairie; GCP = Grant Creek Prairie; TRP = Toll Road Prairie (IN); SP Sundrop Prairie; CP = Cook Prairie (IN); LRS = Long Run Seep; CRP = Chicago Ridge Prairie; OFP = Oak Forest Prairie; VMNT = Vermont Cemetery.

* Four "weedy" species, *P. arctivorens*, *P. cataphracta* (?), *P. furcata*, and *P. nebris* are not included in this comparison.

(x) = Numbers in parenthesis after species names indicate total nunmber of known sites for each species in northern Illinois and nw Indiana.

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Table 5. Papaipema host plant data obtained from rearing studies in northern Illinois (Panzer & Derkovitz, 1990)

	Eryng	*Cicut*	*Cacal*	*Vernon*	*H mol*	*H laet*	*C mut*	*R. lacin*	*Silph*	*Verb*	*Bleuca*	*Apocy*	*Angel*
P. baptisiae	(3)										(1)	(1)	
P. arctivorens	?						(2)						
P. nepheleptena										(1)			
P. harrisii													(4)
P. birdi		(2)											
P. cerussata				(1)									
P. eryngii	(12)												
P. limpida				(1)									
P. nebris								(4)					
P. maritima			(3)*		(1)	(1)							
P. silphii	(1)*		(1)						(6)				

(number) = Number of individuals of a particular species reared from a particular foodplant.

Host plants listed above: *Eryngium yuccifolium, Cicuta maculata, Cacalia tuberosa, V. missourica, H. mollis, H. laetiflorus, C. muticum, R. laciniata, Silphium* spp., *Verbena* sp., *B. leucantha, Apocynum sibericum, Angelica atropurpurea.*

* = One or more of these individuals was captured on Grant Creek Prairie.

Annotated Listing fo the Butterflies and Moths of the Grant Creek Prairie Nature Preserve, Will County, Illinois.

Dates = earliest records

† = remnant-dependent species; Watch = Illinois watch species
(S1,S2,S3,S4) = proposed element rankings for Illinois.

Order **Lepidoptera** (Butterflies)

* Order and nomenclature follow Irwin, R. R. and Downey, J. C. 1973. Annotated Checklist of the Butterflies of Illinois. Illinois Natural History Survey. Urbana, Il.

family **Hesperiidae**

Euphyes bimacula (Grote & Robinson)Watch **Two spotted skipper†**
This very uncommon, wet prairie species was first recorded on 6-19-90.

Atrytone delaware (Edwards) **Delaware skipper†**
Host plants are grasses and include *Panicum virgatum* and *Andropogon* spp. 7-7-90

Wallengrenia egeremet (Scudder) **Broken dash**
This common butterfly was recorded nectaring on milkweeds along the tracks. 7-7-90

Polites coras (Cramer) **Peck's skipper**
This is a common skipper that occurs with regularity in both prairie and degraded habitats. Host plants are grasses. 6-24-90

Polites mystic (Edwards) **Long dash†**
This species is somewhat common in wet prairies and sedge meadows in northern Illinois. Host plants are sedges (*Carex*). Three individuals seen on 6-22-90.

Thymelicus lineola (Ochsenheimer) **European skipper**
This exotic species was found to occur in small numbers along the RR tracks.

Ancyloxypha numitor (F.) **Least skipper**
This common species was recorded in every wet depression. 6-9-90

Epargyreus clarus (Cramer) **Silver-spotted skipper**
This is a common skipper that feeds on legumes, including *Robinia pseudo-acacia*, an introduced southern species. 7-4-90

Pholisora catullus Fabricius **Common sooty wing**
This is a common, wide-ranging species that occurs in degraded habitats where it is reported to feed on *Chenopodium album*, an exotic weed. Recorded along the tracks and along the frontage road on 7-8-90.

family **Papilionidae**

Papilio polyxenes asterius Stoll **Black swallowtail**
Host plants are members of the family Umbelliferae and include *Zizea aurea* and the exotic *Daucus carota*. This is a common, wide-ranging species. 6-7-90.

Papilio glaucus Linnaeus **Tiger swallowtail**
This wide ranging, common ecotonal/savanna species is very common on this site. Host plant species include *Prunus* spp.6-22-90

family **Pieridae**: the sulphurs and whites

Pieris rapae Linnaeus **Cabbage butterfly**
This ubiquitous, wide ranging exotic species was found to occur in small numbers on this site. 6-7-90

Colias eurytheme Boisduval **Alfalfa**
A very common, wide ranging species. 6-9-90

Colias philodice Godart **Common sulphur**
Another very common, wide ranging species. 6-13-90

Eurema lisa (Boisduval & LeConte) **Little sulphur**
Host plants include *Cassia.* This uncommon species migrates northward regularly from stable populations to the south. 8-1-90

family **Lycaenidae:** the gossamer-winged butterflies

Satyrium acadica (Edwards) **Acadian hairstreak†**
This somewhat uncommon wetland species is restricted to the northern third of Illinois. 7-7-90

Lycaena thoe (Guerin-Meneville) **Bronze copper†**
This northern, wet prairie/sedge meadow species feeds on water dock, *Rumex orbiculatus.* This somewhat uncommon butterfly was recorded throughout this site and was abundant on 7-7-90.

Everes comyntas (Godart) **Eastern tailed blue**
The host plants of this very common species include *Lespedeza, Desmodium, Baptisia,* and the exotic *Trifolium.* 6-13-90

Celastrina argiolus pseudargiolus (B. & L.) **Spring azure**
This is a very common, wide-ranging species. 6-22-90

family **Nymphalidae**

Leminitis arthemis astyanax (Fabricius) **Red-spotted purple**
This common, woodland edge species is reported to feed on a wide variety of woody host plant species. 6-11-90.

Leminitis archippus (Cramer) **Viceroy**
Host plants for this common wetland species include *Salix* and *Populus.* 7-7-90

Vanessa atalanta rubria (Fruhstorfer) **Red admiral**
Host plants include nettles (Urticaceae). This is a very common, wide ranging species. 6-7-90

Cynthia virginiensis (Drury) **American painted lady**
This common, wide-ranging species feeds on pussy toes (*Antennaria* spp.) 6-7-90

Precis coenia (Hubner) **Buckeye**
This is a common, southern grassland species that is apparently unable to survive the harsh winters at this latitude. 8-1-90

Nymphalis antiopa (Linnaeus) **Mourning cloak**
This common, wide ranging species feeds on willows (*Salix*) and overwinters as an adult. 7-1-90

Phycoides tharos (Drury) **Pearl crescent**
The host plants of this very common species are asters. 6-13-90

Speyeria cybele (Fabricius) **Great spangled fritillary**
The host plants of this savanna/prairie edge species are violets. 7-1-90

Speyeria aphrodite (Fabricius) **Aphrodite†**
The host plants of this uncommon prairie species are violets. One sightings on 7-1-90.

family **Danaidae**: The Monarchs

Danaus plexippus (Linnaeus) **Monarch**
This is a very common, migratory species. 7-1-90

family **Satyridae:** The Satyrs and Wood Nymphs

Cercyonis pegala olympus (Edwards) **Wood nymph**
This inhabitant of the prairie/woodland ecotone ventures well out into open prairies. Host plants are grasses. Many sightings on 7-9-90.

family **Sphingidae**

Hemaris thysbe (F.) **Hummingbird clearwing**
This common day-flying species feeds on a variety of woody species. 7-2-90.

family **Noctuidae**
subfamily **Acronictinae**

Simyra henrici (Grote) **Henry's marsh moth**
Caterpillar recorded on cattails in June.

subfamily **Hadeninae**

Pseudaletia unipunctata (Haw.) **Armyworm moth**
This ubiquitous species is a pest on many crops. 6-22-90

Nephelodes minians Guenee **Bronzed cutworm moth**
This is a common, wide-ranging species. Numerous throughout September.

subfamily **Amphipyrinae**

Amphipoea americana (Speyer) **American ear moth**
Host plants are grasses and sedges. 10-1-90

Papaipema baptisiae (Bird) **Indigo stem borer**†
This somewhat common species is known to feed on both Indigos (*Baptisia* spp.) and dogbanes (*Apocynum* spp.) 9-14 through 10-1-90

Papaipema maritima Bird **Maritime root borer**†
The host plants for this very uncommon species are sunflowers (*Helianthus* spp.), and *Cacalia* in this region. Reared from *H. laetiflorus* on this site.

Papaipema silphii Bird **Silphium root borer**†
This somewhat common prairie species feeds on *Silphium* spp. Reared from *S. laciniatum* and *S. terebinthinaceum* on this site.

Papaipema unimoda Smith **Meadow rue root borer**†
This somewhat uncommon species feeds on *Thalictrum.* 9-22 through 10-1-90

Papaipema limpida Guenee **root borer**†
This very uncommon (?) species feeds on *Vernonia* and probably other species. 9-21-90

Hydraecia immanis Guenee **Hop vine borer**
This *Silphium*-feeding species is a common associate of *P. silphii* in this region. 9-25-90.

subfamily **Heliothinae**

Heliothis zea (Boddie) **Corn earworm moth**
This is another wide-ranging pest species.

subfamily **Catocalinae**

Caenurgina erechtea (Crammer) **Forage looper moth**
This may be the most common moth in this region. Host plants are weeds. 6-22-90

Argyrostrotis anilis (Drury) **Short-lined chocolate**
Host plants of this uncommon species are reportedly *Sabatia* and *Crataegus.*

family **Tortricidae**

Eucosma giganteana (Riley) **Silphium tortricid**†
This is an uncommon *Silphium*-feeder in this area. 7-9-90

Order **Orthoptera**

family **Phasmatidae**

Monomera blatchleyi (Caudell) **Blatchley's walking stick†**
This uncommon prairie species inhabits wet and mesic prairies in this region.

A Survey of the Butterflies of the Green River State Conservation Area, Lee County, Illinois

1990

Conducted for

Illinois Department of Conservation
and
Nongame Wildlife Conservation Committee

By

Ron Panzer & Don Stillwaugh
Biology Department
Northeastern Illinois University

Report submitted on 5-15-91

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Introduction

Many prairie and sand savanna-inhabiting Lepidoptera are known to occur on only a small number of sites in either Illinois or neighboring Indiana*. The Green River State Conservation Area (GRSCA), being one of the larger examples of the sand prairie ecosystem in Illinois, will likely prove to be an important sanctuary for several of these rare animals. A survey of the butterflies of the GRSCA was initiated in the spring of 1990.

Methods

Five diurnal surveys were conducted by 1 or 2 investigators from 5-25-90 through 8-20-90. Aerial nets were employed to capture adult specimens during each visit.

Surveys were conducted within 3 areas: (1) East of Pump Factory Road between Route 26 and parking area # 5; (2) west of Pump Factory Road across from parking lot # 6, and (3) west of Pump Factory Road northwest of parking lot # 2.

Common, easily identified species were captured, identified, and released. Uncommon species were sacrificed and retained for further examination; these are currently housed as voucher specimens in the collection of the senior author. Specimens were identified using a variety of taxonomic manuals, keys, and field guides, most of which are listed in the attached bibliography.

Results

Thirty-four species representing 6 families were captured and identified to species. Whereas the bulk of these animals have been determined to be wide-ranging species with broad ecological amplitudes, 10 were determined to be uncommon prairie-dependent species (Table 1).

Discussion

GRSCA has been found to support a significant number of prairie and/or savanna-dependent butterflies, several of which are uncommon in both Illinois and neighboring Indiana (Table 1). Decades of grazing, plowing, and other abuses have resulted in the degradation of much of the upland prairie on this site. Nevertheless, GRSCA, by virtue of its larger size, harbors significantly more remnant-dependent butterfly species than do most of the smaller, high quality sites that persist in this region (Table 2).

Ten prairie-dependent species were recorded on this site last year. Two of these, the Dion skipper† and the Byssus skipper, are known to occur on a limited number of protected sites in Illinois and should be considered to be very uncommon elements (S2-S3). Two others, the Silver bordered fritillary and the Aphrodite are uncommon and tend to be restricted to larger remnants in this region. The Gorgone checkerspot, while reportedly common in West Central Illinois, is very

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* Five sand prairie butterflies, the Dusted skipper, the Ottoe skipper, the Cobweb skipper, the Leonard's skipper, and the Mottled dusky wing are known from a limited number of sites in either Indiana or neighboring Illinois; All 5 have been listed as either endangered or threatened by the Indiana Department of Natural Resources.

† Two GRSCA prairie species, *E. conspicua* and *E. dion*, are listed as watch species in Illinois.

uncommon on prairie remnants in this region. The Crossline skipper, the Black dash†, and the Eyed brown are somewhat common but will likely become much less so as shrinking habitat islands become more isolated and local extinctions accelerate.

The relative richness of the GRSCA butterfly fauna not withstanding, this site has almost certainly experienced a decline in butterfly species abundance within the last several decades. Several conservative sand prairie species, all of which still fly in similar habitats in Northern Illinois*, West Central Illinois, and in Northwestern Indiana, seem conspicuous in their absence from this site. These include The Cobweb skipper, *Hesperia metea*, the Ottoe skipper, *Hesperia ottoe*, the Dusted skipper, *Atrytonopsis hianna*, and the Regal fritillary, *Speyeria idalia.* It is likely that human activities such as plowing and the planting of non indigenous trees and forbs have resulted in the extirpation of one or more of these narrowly restricted upland species from this site.

Survey Thoroughness

We have likely recorded 75-90 % of the butterflies that occur on this site. Given the extent of the fluctuations in density that butterfly populations tend to undergo, the tendency of many species to be restricted to tiny pockets within what appear to be homogeneous habitats, and the large size of the GRSCA site, further efforts can be expected to result in the capture of another 5-10 species.

Recommendations

All of the remnant-dependent butterflies recorded this year were found to occur in small numbers. We would suggest that a sanctuary of at least 100 acres be designated and managed to bolster and protect the r-d butterfly (and other insect) populations of this important site. This protected area would ideally serve as a stable source of uncommon prairie-requiring insects for the entire site.

Fires can represent a threat to r-d leafhoppers, butterflies, Papaipema and prairie-dwelling Underwing moths, all of which are present as either eggs or larvae within the prairie litter during the spring and fall (Bird 1934, Swietzer 1988, Panzer 1988). A growing body of anecdotal evidence suggests, however, that fire-sensitive insects can routinely survive partial burns that leave sizable portions of their habitat unburned (Panzer 1988). We would suggest that IDOC spare roughly 50% of the prairie sections of GRSCA each year as sanctuaries for fire-sensitive invertebrates.

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† Two GRSCA prairie species, *E. conspicua* and *E. dion*, are listed as watch species in Illinois.

*The Regal fritillary still flies on a Lee County site (Nachusa Grasslands) 30 miles northwest of GRSCA.

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Table 1. Host plants and habitat associations of the remnant-dependent insects of the Green River Conservation Area, Lee County, Illinois*.

Species:	Host plants	sedge meadow	wet/mesic prairie	xeric Prairie
Euphyes conspicua	*Carex*	x		
Euphyes dion	*Carex*	x		
Polites origines	*grasses*			x
Atrytone delaware	*Andropogon, Panicum*		x	
Problema byssus	*Andropogon*		x	
Thorybes bathyllus	*Lespedeza*			x
Chlosyne gorgone	*Helianthus*			x
Boloria selene	*Viola*	x	x	
Speyeria aphrodite	*Viola*		x	
Lethe eurydice	*Carex stricta & C. atheroides*	x		

* This listing includes species that are seldom encountered in old field settings. This listing does not include several classic prairie-associated species (e.g. Wood nymph, Great spangled fritillary) that can still be found, with regularity, in badly degraded areas.

4-15-91

Table 2. Distribution of butterfly species abundance on 29 grassland remnants in northern Illinois and Indiana.

Remnant	Prairie area† (ha)	Species number		
		Prairie-dependent species*	Other species	Total species
IL Beach State Park	600.0	14	36	50
Goose Lake Prairie	600.0	15	29	44
Iroquois County SWA	250.0	14	34	48
Nachusa Grasslands	100.0	14	41	55
Lockport Prairie	75.0	11	22	33
Spring Hill Farm Fen	70.0	13	32	45
Romeoville Prairie	60.0	11	24	35
G. M. Prairie	60.0	15	35	50
West Chicago Prairie	60.0	16	26	42
Clark and Pine Prairie	50.0	14	33	47
Green River	**40.0**	**10**	**24**	**34**
Pratts Wayne Marsh	40.0	9	22	31
Grant Creek Prairie	35.0	7	23	30
Toll-road Prairie	30.0	6	17	23
Sun Drop Prairie	28.0	8	24	32
Cook Prairie	16.0	12	25	37
Paintbrush Prairie	15.0	8	23	31
Somme Prairie	14.0	8	18	26
Long Run Seep	7.0	9	20	29
Buffalo Grove Prairie	6.4	6	16	22
Liberty Prairie	6.0	9	19	28
I- 57 Prairie	4.5	4	18	22
Belmont Prairie	4.2	6	27	33
Chicago Ridge Prairie	3.6	3	18	21
Shoe Factory Prairie	3.5	3	17	20
Santa Fe Prairie	3.0	4	18	22
Cary Prairie	2.0	3	19	22
Main Street Prairie	2.0	2	19	21
Vermont Cemetery Prairie	1.0	1	14	15

* This category includes those prairie species that are seldom encountered outside native prairie/wetland remnants. This figure does not include savanna/woodland restricted species such as *S. edwardsii*, *E. olympia*, *E. brizo*, etc. This figure does not include single sightings of conspicuous species from multiple year samples.

† Area estimates exclude savanna and old field habitats.

3-30-91

An Annotated Listing of the Butterflies of the Green River State Conservation Area, Lee County, Illinois

Dates = earliest sightings
† = remnant-dependent species
Watch = species listed as an Illinois watch species.

Order **Lepidoptera:** the Butterflies

* Order and nomenclature follow Irwin, R. R. and Downey, J. C. 1973. Annotated Checklist of the Butterflies of Illinois. Illinois Natural History Survey. Urbana, Il.

family **Hesperiidae**

Euphyes dion (Edwards)**Watch** **Dion skipper†**
This is a very uncommon sedge meadow species. Hosts include *Carex laucustris*. Recorded in two *Carex stricta* patches but absent from degraded *Phalaris/Polygonum*-dominated areas. 7-17-90

Euphyes conspicua (Edwards)**Watch** **Black dash†**
Local in wet prairies and sedge meadows. Host plants are sedges (*Carex*). Recorded in two *Carex stricta* patches but absent from degraded *Phalaris/Polygonum*-dominated areas. 7-17-90

Atrytone delaware (Edwards) **Delaware skipper†**
Host plants are grasses and include *Panicum virgatum* and *Andropogon* spp. 6-25-90

Problema byssus (Edwards) **Byssus skipper†**
This classic, mesic prairie species was recorded within *A. gerardi*-dominated sections midway between parking lots 5 and 6. 7-17-90

Wallengrenia egeremet (Scudder) **Broken dash**
This common butterfly was recorded nectaring on *Asclepias* on 7-1-90.

Polites coras (Cramer) **Peck's skipper**
This is a common skipper that occurs with regularity in both prairie and degraded habitats. Host plants are grasses. 6-25-90

Polites origines (Fabricus) **Cross line skipper†**
This species seems to exhibit a high fidelity for upland prairie in this region. Host plants are grasses. Common in the area supporting *Rhus aromatica, Coreopsis lanceolata*, and *Lithospermum croceum* at the north edge of the park on 6-25-90.

Pholisora catullus (F.) **Common sooty wing**
This common species was recorded nectaring on *Rubus flagellaris* on 5-30-90.

Thorybes bathyllus (J. E. Smith) **Southern cloudy wing†**
This is a somewhat common xeric species in sandy areas. Host plants are legumes, especially *Lespedeza*. 7-17-90.

Epargyreus clarus (Cramer) **Silver-spotted skipper**
This is a common skipper that feeds on legumes, including *Robinia pseudo-acacia*, an introduced southern species. 6-5-90

family **Papilionidae**

Papilio polyxenes asterius Stoll **Black swallowtail**
Host plants are members of the family Umbelliferae and include *Zizea aurea* and the exotic *Daucus carota*. This is a common, wide-ranging species. 6-5-90

Papilio glaucus Linnaeus **Tiger swallowtail**
This wide-ranging, common ecotonal/savanna species is very common on this site. Host plant species include *Prunus* spp. 7-17-90

family **Pieridae**: the sulphurs and whites

Pieris protodice Boisduval and La Conte **Checkered white**
This uncommon species was recorded within the foredunes. One individual on 7-1-90.

Pieris rapae Linnaeus **Cabbage butterfly**
This ubiquitous, wide-ranging exotic species was found to be common on this site. 6-5-90

Colias eurytheme Boisduval **Alfalfa**
A very common, wide-ranging species. 6-5-90

Colias philodice Godart **Common sulphur**
Another very common, wide-ranging species. 7-17-90

family **Lycaenidae**: the gossamer-winged butterflies

Lycaena phlaeas americana Harris **American copper**
The reported food plant of this common species is *Rumex acetocella*, an exotic weed. This species occurs throughout Europe and ranges into North Africa and Asia. This species was numerous on *Coreopsis lanceolata* on 5-30-90.

Everes comyntas (Godart) **Eastern tailed blue**
The host plants of this very common species include *Lespedeza, Desmodium, Baptisia*, and the exotic *Trifolium*. 6-5-90

Celastrina argiolus pseudargiolus (B. & L.) **Spring azure**
This is a very common, wide-ranging species. 6-25-90

family **Nymphalidae**

Leminitis archippus (Cramer) **Viceroy**
Host plants for this common wetland species include *Salix* and *Populus*. 6-25-90

Vanessa atalanta rubria (Fruhstorfer) **Red admiral**
Host plants include nettles (Urticaceae). This is a very common, wide-ranging species. 6-5-90

Cynthia virginiensis (Drury) **American painted lady**
This common, wide-ranging species feeds on pussy toes (*Antennaria*). 5-25-90

Precis coenia (Hubner) **Buckeye**
This is a common, southern grassland species that is apparently unable to survive the harsh winters at this latitude. 8-15-90

Nymphalis antiopa (Linnaeus) **Mourning cloak**
This common, wide-ranging species feeds on willows (*Salix*) and overwinters as an adult. 6-5-90

Polygonia interrogationis (F.) **Questionmark**
This is a very common species throughout Illinois. 7-17-90

Phycoides tharos (Drury) **Pearl crescent**
The host plants of this very common species are asters. 6-5-90

Chlosyne gorgone carlota (Reakirt) **Gorgone checkerspot†**
This is a very uncommon upland prairie species in northern Illinois. Host plants are sunflowers and possibly asters (*Helianthus* and *Aster*). 7-1-90

Boloria selene myrina (Cramer) **Silver bordered fritillary†**
Host plants for this uncommon, wet prairie species are violets. 6 sightings on 7-17-90.

Speyeria cybele (Fabricius) **Great spangled fritillary**
The host plants of this savanna/prairie edge species are violets. 7-1-90

Speyeria aphrodite (Fabricius) **Aphrodite†**
The host plants of this uncommon prairie species are violets. Three sightings on 7-1-90; Four on 7-17-90.

Euptoieta claudia (Cramer) **Variagated fritilllary**
This uncommon species migrates northward regularly from stable populations to the south.8-15-90

family **Danaidae**: The Monarchs

Danaus plexippus (Linnaeus) **Monarch**
This is a very common, migratory species. 7-1-90

family **Satyridae:** The Satyrs and Wood Nymphs

Lethe eurydice (Johansson) **Eyed brown†**
Host plants of this wet prairie species are sedges (*Carex*). 7-17-90

Cercyonis pegala olympus (Edwards) **Wood nymph**
This inhabitant of the prairie/woodland ecotone ventures well out into open prairies. Host plants are grasses. Common on 6-25-90.

A Survey of the Leafhoppers, Froghoppers, Butterflies, and Other Insects of the Illinois Beach State Park Nature Preserve (south unit), Lake County, Illinois

1990

Conducted for

Illinois Department of Conservation
and
Nongame Wildlife Conservation Committee

Conducted by

Ron Panzer & Don Stillwaugh
Biology Department
Northeastern Illinois University

Report submitted on 5-15-91

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Introduction

Illinois Beach State Park (IBSP) protects the last examples of Lake Michigan dune, foredune, panne, and northern sand prairie plant communities in Illinois. Not surprisingly, this unique natural area has been found to support a myriad of uncommon plants and animals. Many state-rare (or extirpated) insects have been recorded on or near this site within the past 60 years (DeLong 1949; Irwin & Downey, 1973). Examples would include the Hoary elfin, the Olympic marble, and the Indiana flower moth, just to name a few. We initiated a search for these and other important remnant-dependent (r-d) insects within the nature preserve (south unit) in the spring of 1990.

Methods

The following taxa, all of which include appreciable numbers of remnant-dependent (r-d) species, were the focus of this survey:

Leafhoppers and froghoppers (Homoptera, in part)
Butterflies (Lepidoptera, in part)

Twenty-five surveys were conducted by 2 or more (usually 3 or 4) investigators last year. Aerial nets and sweep nets were employed to capture adult specimens within each habitat type.

Common, easily identified insects were captured, identified, and released. Uncommon species were sacrificed and retained for further examination; these are currently housed as voucher specimens at Northeastern Illinois University and in the collection of the senior author.

Specimens were identified using a variety of taxonomic manuals, keys, and field guides, most of which are listed in the attached bibliography. In the case of the moths, specimens were compared with reference specimens from the collections of the Field Museum of Natural History, Chicago.

Results

One hundred and nineteen species representing 4 orders and 12 families were captured and identified to genus; One hundred and ten of these have been identified to species. Whereas a majority of these animals have been determined to be wide-ranging species with broad ecological amplitudes, 44 were determined to be uncommon, prairie-dependent species (Table 1).

Discussion

IBSP supports an impressive number of prairie-dependent insects, many of which are either uncommon or rare in both Illinois and nearby Indiana (Tables 1-6). IBSP, by virtue of its habitat heterogeneity and large size, harbors considerably more remnant-dependent insect species than do most (perhaps all) of the smaller sites that persist in this region (Table 2). Nevertheless, there is reason to suspect that several species may have been extirpated from this site within the last several decades.

Butterflies (species abundance)

One third (50 species) of the butterflies known to occur in Illinois were recorded at IBSP in 1991.

Eighteen prairie and/or savanna-dependent species were recorded on this site last year. The *Arctostaphylos*-feeding Hoary elfin is restricted to this site only in Illinois. The Olympic marble† is known to occur on less than 6 protected sites in this state. Both of these species should be considered to be rare elements (S1). The Dreamy dusky wing is also known from less than 6

protected sites and should be treated as a very uncommon element (S2). Several other species, including, the Dion skipper†, the Silver bordered fritillary, the Appalachian brown, and the Aphrodite are uncommon and tend to be restricted to larger remnants in this region. Species such as the Long dash, the Black dash†, the Mulberry wing†, the Bronze copper, and the Acadian hairstreak are somewhat common but will likely become much less so as shrinking habitat islands become more isolated and local extinctions accelerate.

The r-d butterfly fauna of IBSP compares favorably with those recorded on a majority of the large, high quality prairie and savanna remnants in both Illinois and Indiana, and far surpasses, in diversity, the faunas of most of the smaller remnants in this area (Tables 3 & 4). This relative richness not withstanding, IBSP has almost certainly experienced a significant decline in butterfly species abundance within the last several decades*. Most conservative, sand-associated butterfly species are apparently absent from this site. Surprisingly, few sand savannas support less conservative savanna species than does IBSP (see Table 5).

Eight species seem conspicuous in their absence from this site. The Karner blue was recorded from "northern Illinois" (probably from this site) many years ago (Irwin & Downey 1973). Both the Ottoe skipper (Wyatt 1946) and the Frosted elfin (1922) have been recorded from the IBSP area in the past. The Indian skipper was recorded in Evanston (1896) in what was almost certainly very similar habitat. Ottoe, Dusted, and Byssus skippers still fly within the Clark and Pine Savanna, a site that is very similar to IBSP (near the lake in Lake Co., Indiana). Dusted, Mottled, and Cobweb skippers were all reported (Hoy) to be common along the lake in the Racine area near the turn of the century.

Butterflies (Population densities)

We have made no attempt to gauge either actual or relative population densities during this study. Nevertheless, we could not help but notice that most species were somewhat scarce. As examples, we recorded only 1 Checkered white, 1 Acadian hairstreak, 2 Aphrodites, and 1 Appalachian brown. Silver bordered fritillaries (threatened in Ohio) were somewhat scarce, with seldom more than 2 or 3 sighted during each outing. A few species, namely Hobomok skippers, Hoary elfins, and Eyed browns were found to occur in sizable numbers.

Schinia (flower moths)

The North American genus *Schinia* is comprised of more than 100 species, with roughly 40 occurring in the East and/or Midwest (Covell, 1984). Most are restricted to native plant communities by narrow host plant requirements. As a consequence, many are uncommon or rare in large portions of their range. The rarest member of this genus, *Schinia indiana,* has been nominated for listing as a federally endangered species (category 2). This Savanna species is known from only 6 midwestern sites, 3 of these being Hessville Indiana, Palos Park, and IBSP (1936). We conducted an exhaustive search for this small purple moth throughout the *P. pilosa* blooming period (May 24 through June 20). Despite good weather conditions and a profusion of blooming *P. pilosa*, we failed to locate this illusive species (This tiny, cryptically colored moth sits motionless atop flowers and is very difficult to see). Although the habitat conditions seem ideal for *S. indiana* at IBSP, this species may (?) simply not be present (We expended more than 60 man-hours in our search for this "myth".). It is possible that this species has been extirpated from Illinois.

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† Four IBSP butterflies are listed as Illinois watch species.

* This site has been grazed, sand mined, used to make a movie, and used by the US Army for tank and other military maneuvers during World War ll (Large pits were reportedly dug in the nature preserve to house anti aircraft guns)!

Three additional prairie\savanna-restricted flower moths have been recorded on this site within the past 50 years (by A. K. Wyatt and I. Leeuw); these include The Liatris flower moth, *Schinia gloriosa*, the Leadplant flower moth, *Schinia lucens*, and the Goldenrod flower moth, *Schinia nundina*. We recorded *Schinia gloriosa* on the foredunes and within the savanna in early August. This *Liatris* feeder is apparently very uncommon in Illinois and should be treated as a very uncommon element (S2).

Leafhoppers and Froghoppers

Forty-four leafhopper and 6 froghopper species have been recorded to date. Whereas the bulk of these are clearly common, wide-ranging species, 21 are considered to be uncommon, r-d species (Table 1, 6, & 8).

The Critically imperiled Dropseed leafhopper, *Aflexia rubraneura*, is currently known from 2 sites in the USA; **Illinois Beach State Park**, and **the Goose Lake Prairie.** This tiny (3.0mm), flightless animal has been nominated for listing (C2) as a federally endangered species, and should be considered to be a very rare element (S1) here in Illinois. Six species, *Xerophloea major*, *Prairiana kansana*, *Dorydiella kansana*, *Texananus cumulatus*, *Paraphlepsius solidagensis*, and *Deltocephalus gramus* seem to be very scarce in this region, and should be considered to be rare elements (S2-S3). *Laevicephalus schingwauki* is currently known from less than 6 sites in northern Illinois and may be nearly as uncommon .

The prairie-dependent leafhopper fauna of IBSP compares favorably with those recorded on most of the high quality prairie remnants in Illinois and Indiana (Table 6). However, a site of this size and diversity should support 25 or more r-d species . . .

DeLong surveyed the leafhoppers of this area in the early 30's and recorded an impressive total of 29 r-d species. We have thus far failed to produce comparable results. We managed to record only 9 of his species last year (Table 7). We are at a loss to explain the size of this disparity. What is equally perplexing, we managed to record 10 r-d species that were apparently overlooked by DeLong. The disparity between our "catch" and DeLong's may be attributable to the considerable disturbances that have taken place† or, more likely, our failure to adequately survey this very large site (We did, admittedly, concentrate on butterflies this year). We will make a serious effort next year to determine the extent to which "DeLong's species have managed to survive on this site.

Bumblebees

Bumblebees play an important role in the pollination of prairie and savanna plants. (See Table 10)*. Five of the 9 species that inhabit this region were recorded on this site (Table 9).

Other r-d insects

Dawson's grasshopper (*Melanoplus dawsoni),* first recorded in IBSP in 1906, was recorded throughout the savanna and sand prairie last year. This is one of 3 records for this flightless grasshopper in Illinois. This insect is near the southern edge of its range in northern Illinois.

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† Delong's survey occurred 7 - 8 years before IBSP was purchased. Since that time, a hotel has been built near the beach, a nuclear power plant has been built to the north, the park has been used to make a movie, and 500 acres of what is now nature preserve was turned over to the US Army for tank and other military maneuvers during World War II! Large pits were reportedly dug in the nature preserve to house anti aircraft guns and the entire area may have been treated for mosquitoes!

* These "huge" insects are the only beasts that can force their way into our closed gentians.

The Seaside grasshopper (*Trimerotropsis maritima interior),* once common along the lake from Chicago through Zion, was found to be common in loose sand habitats near the lake. This is probably the only protected population of this species in Illinois.

Blatchley's walking stick *(Diapheromera blatchleyi),* first recorded in IBSP by Hart in 1906, was recorded within a good wet-mesic section of sand prairie just west of the Nature Center. This seems to be an uncommon mesic and wet prairie species in this region.

Survey Thoroughness

Whereas we have likely recorded 80-100% of the froghoppers, butterflies, and bumblebees that occur on this site, we have probably recorded less than 66% of the leafhoppers, and less than 50% of the grasshoppers. The other insect groups listed below were treated very superficially. Given the extent of the fluctuations in density that insect populations tend to undergo, the very localized populations of many species within what appear to be homogeneous habitats, the propensity of many species to flee well in advance of investigators, and the large size of the IBSP site, further efforts can be expected to produce many additional species.

Prescribed burning

Fires can represent a threat to r-d leafhoppers, butterflies, and Papaipema moths, all of which are present as either eggs or larvae within the prairie litter during the spring and fall (Bird 1934, Swietzer 1988, Panzer 1988). A growing body of anecdotal evidence suggests, however, that fire-sensitive insects can routinely survive partial burns that leave sizable portions of their habitat unburned (Panzer 1988). We would suggest that 1/3 to 1/2 of this site (especially the xeric plant communities) be spared from burning each year to provide sanctuary for fire-sensitive insects.

The Prairie phlox moth, *Schinia indiana,* ranks among the rarest grassland insects in North America. Currently known from single sites in Michigan and Wisconsin (both of which are unprotected), this savanna species was once present in Palos Park and IBSP (1936). It is possible that this illusive moth still flies at IBSP, despite our failure to find it last year. We would suggest that IDOC consider distributing the enclosed "Animal Alert" circular to interested Stewardship Network volunteers in an attempt to stimulate interest in this "Unicorn".

Acknowledgements

We managed to survey the entire south nature preserve (both sides of the Dead River) last year with the considerable help of June Keibler and Suzanne Masi, Environmental Studies Department, Northeastern Illinois University, and Rich Gnaedinger.

Note: Three rare species, *A. rubraneura*, *E. olympia*, and *C. polios* were found to occur on both sides of the Dear River (The 2 butterflies, however, were very scarce south of the River.).

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Table 1. Host plants and habitat associations of the remnant-dependent insects of the Illinois Beach State Park Nature Preserve*.

Species:	Host plants	wet prairie sedge meadow	mesic/xeric prairie	sand savanna
Prairiana kansana	*grasses*		x	x
Xerophloea major	*grasses*	x		
Hecalus lineatus	*Spartina*	x		
Parabolocratus flavidus	*prairie grasses*		x	
Dorydiella kansana	*Scleria*	x		
Flexamia prairiana	*Andropogon*		x	
Aflexia rubraneura	*Sporobolus*		x	
Deltocephalus caperatus	*Andropogon*		x	
Deltocephalus gramus		x		
Laevicephalus shingwauki	*wet prairie grasses or sedges*	x		
Laevacephalus unicoloratus	*Andropogon*		x	
Laevicephalus acus				
Amblicephalus osborni		x		
Ophiola osbornii			x	
Paraphlepsius solidagensis	*Solidago*		x	
Texananus cumulatus	*Arctostaphylus*		x	x
Chlorotettix spatulatus	*wet prairie grasses*	x	x	
Chlorotettix tergatus		x		
Cicadula melanogaster	*wet prairie grasses*	x		
Philaenarcys bilineata	*prairie grasses*		x	
Prosapia ignipectus	*Andropogon*		x	
Euphyes dion	*Carex*	x		
Euphyes conspicua	*Carex*	x		
Poanes massasoit	*Carex*	x		
Polites mystic	*Carex*	x		
Polites origines	*grasses*		x	
Atrytone delaware	*Andropogon, Panicum*		x	
Erynnis icelus	*Salix*		x	x
Erynnis baptisia	*Baptisia*			x
Euchloe olympia	*Arabis lyrata*			x
Incisalia polios	*Arctostaphylus*		x	
Satyrium acadica	*Salix*	x		
Satyrium edwardsii	*Quercus*			x
Harkenclenus titus	*Prunus*		x	
Lycaena thoe	*Polygonum*	x		
Boloria selene myrina	*Viola*	x		
Speyeria aphrodite	*Viola*		x	
Lethe eurydice	*Carex stricta & C. atheroides*	x		
Lethe appalachia	*Carex*			x
Schinia gloriosa	*Liatris*		x	
Hesperotettix viridis	Composites		x	x
Melanoplus dawsoni			x	x
Trimerotropis maritima interior	*Ammophilia*		x	
Diapheromera blatchleyi		x	x	

* This listing includes species that are seldom encountered in old field settings. This listing does not include several prairie-associated species (e.g. Wood nymph, Wild rye leafhopper) that can be found, with regularity, in badly degraded areas.

4-15-91

Table 2. The number of prairie-dependent butterflies and leafhoppers known to occur on a variety prairie remnants in the Chicago region.

Sites: Area (Ha)	IBSP 600	GLP 600	NACH 100	LOCK 75	GMP 60	C&P 50	WCP 50	CP 16	LP 6	CRP 3	SHOE 2	VCP 1
Butterflies	14	15	14	11	15	14	16	13	10	3	2	1
Leafhoppers	19	15	14	17	21	13	11	11	11	12	6	5
Totals	**33**	**30**	**28**	**28**	**36**	**27**	**27**	**24**	**21**	**15**	**8**	**6**

GLP = Goose Lake Prairie; IBSP = Illinois Beach State Park; GMP=Gensburg Markham Prairie; WCP= West Chicago Prairie; VCP= Vermont Cemetery Prairie; SHOE= Shoe Factory Road Prairie; LOCK= Lockport; CRP = Chicago Ridge Prairie; CP = Cook Prairie; LP = Liberty Prairie; NACH = Nachusa Grasslands.

4-30-91

Table 3 . Distribution of butterfly species abundance on 29 grassland remnants in northern Illinois and Indiana.

Remnant	Prairie area† (ha)	Species number		
		Prairie-dependent species*	Other species	Total species
IL Beach State Park	**600.0**	**14**	**36**	**50**
Goose Lake Prairie	600.0	15	29	44
Iroquois County SWA	250.0	14	34	48
Nachusa Grasslands	100.0	14	41	55
Lockport Prairie	75.0	11	22	33
Spring Hill Farm Fen	70.0	13	32	45
Romeoville Prairie	60.0	11	24	35
G. M. Prairie	60.0	15	35	50
West Chicago Prairie	60.0	16	26	42
Clark and Pine Prairie	50.0	14	33	47
Green River	40.0	11	23	34
Pratts Wayne Marsh	40.0	9	22	31
Grant Creek Prairie	35.0	7	23	30
Toll-road Prairie	30.0	6	17	23
Sun Drop Prairie	28.0	8	24	32
Cook Prairie	16.0	12	25	37
Paintbrush Prairie	15.0	8	23	31
Somme Prairie	14.0	8	18	26
Long Run Seep	7.0	9	20	29
Buffalo Grove Prairie	6.4	6	16	22
Liberty Prairie	6.0	9	19	28
I- 57 Prairie	4.5	4	18	22
Belmont Prairie	4.2	6	27	33
Chicago Ridge Prairie	3.6	3	18	21
Shoe Factory Prairie	3.5	3	17	20
Santa Fe Prairie	3.0	4	18	22
Cary Prairie	2.0	3	19	22
Main Street Prairie	2.0	2	19	21
Vermont Cemetery Prairie	1.0	1	14	15

* This category includes those prairie species that are seldom encountered outside native prairie/wetland remnants. This figure does not include savanna/woodland restricted species such as *S. edwardsii*, *E. olympia*, *E. brizo*, etc. This figure does not include single sightings of conspicuous species from multiple year samples.

† Area estimates exclude savanna and old field habitats.

3-30-91

TABLE 4. The prairie and savanna-dependent butterflies of 15 prairie/savanna complexes in Illinois and Indiana

	Illinois silt loam				Illinois sand						Indiana sand				
Species: Site:	Somm	Fork	Wads	Oak	SRSF	IBSP	Iroq	Grn	Nach	B'wd	Tft	Hoos	C&P	Gibs	Spin
Atrytonopsis hianna											(*)		(*)		
Euphyes dion		X		X		X		X		X			X	X	
Euphyes conspicua	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Euphyes bimacula							*		*	*					
Poanes viator										*					
Poanes massasoit	X	X	X	X		X	X		X			X			
Problema byssus					*		*	*		*	*		*	*	
Atrytone delaware	X	X		X	X	X		X	X	X	X	X	X	X	X
Polites origines	X				X	X	X	X	X	X	X	X	X	X	
Polites mystic				X		X						X			
Hesperia metea					(*)						(*)				
Hesperia sassacus							(*)				(*)				
Hesperia ottoe					(*)								(*)		
Hesperia leonardus													(*)		
Amblyscirtes vialis					X		X			X	X				
Erynnis icelus						X				X	X	X	X	X	
Erynnis brizo					X		X				X				
Erynnis baptisiae						X	X		X	X	X	X			X
Erynnis martialis					(*)		(*)				(*)	(*)			
Thorybes bathyllus					X		X	X	X	X	X		X	X	
Thorybes pyllades					X					X			X		
Euchloe olympia					(*)	(*)					(*)			(*)	
Harkenclenus titus	X	X	X	X	X	X	X		X	X	X	X	X	X	
Strymon acadica	X	X	X			X	X		X	X	X	X		X	X
Satyrium edwardsii	X	X		X	X	X					X	X		X	
Lycaena thoe		X		X		X			X	X	X	X	X		
Lycaena helloides							X			X		X			
Lycaena xanthoides													*		
Lycaeides m. samuelis														(*)	
Incisalia polios						(*)									
Callophrys irus											(*)				
Glaucopsyche lygdamus			(*)												
Polygonia progne					X				X						
Chlosyne nycteis	X	X	X								X				
Chlosyne gorgone					*			*		*					
Euphydryas p. phaeton			X				X		X						
Boloria selene myrina						X	X	X	X	X	X				
Boloria bellona					X				X						
Speyeria idalia					*		*		*	*					
Speyeria aphrodite						X	X	X	X	X	X	X			
Lethe appalachia	*	*	*			*									
Lethe eurydice	X	X	X	X		X		X	X	X		X	X	X	
Lethe portlandia anthedon	X	X	X	X							X				
Totals:	11	12	10	10	17	18	18	10	17	21	23	15	15	13	4

Somm = Somme Woods; Fork = Middlefork Savanna; Wads = Wadsworth Prairie, Oak = Oak Openings Savanna; IBSP = IL Beach State Park; Iroq = Iroquois County State Wildlife Area; B'wd = Braidwood Dune & Savanna; Tefft = Teft Savanna; C&P = Clarke & Pine Nature Preserve; Hoos = Hoosier Prairie; Nach = Nachusa Grasslands; Spin = Spinn Prairie; Grn = Green River State Shooting Area; SRSF = Sand Ridge State Forest (data from Hess et al)

* = Very uncommon species in this region. (*) = Rare prairie/savanna species (<12 sites in Illinois and Indiana combined).

TABLE 5. Distribution of conservative savanna-associated butterflies within a system of 10 sand prairie/savanna complexes in Illinois and Indiana.

Species:	Site:	Illinois sand savannas						Indiana sand savannas			
		SRSF	IBSP	Iroq	Grn	Nach	B'wd	Tfft	Hoos	C&P	Gibs
		600+ha.	600+ha	600+ha	50 ha.	60ha.	100ha.	600+ha	200ha.	50ha.	100ha.
Atrytonopsis hianna								(*)		(*)	
Problema byssus		*		*	*		*	*		*	*
Hesperia metea		(*)						(*)			
Hesperia sassacus				(*)				(*)			
Hesperia ottoe		(*)								(*)	
Hesperia leonardus										(*)	
Erynnis martialis		(*)		(*)				(*)	(*)		
Euchloe olympia		(*)	(*)					(*)			(*)
Lycaeides m. samuelis											(*)
Callophrys irus								(*)			
Incisalia polios			(*)								
Glaucopsyche lygdamus									(*)		
Speyeria idalia		*		*		*	*				
Totals:		6	2	4	1	1	2	7	2	4	3

IBSP = IL Beach State Park; Iroq = Iroquois County State Wildlife Area; B'wd = Braidwood Dune & Savanna; Teft = Tefft Savanna; C&P = Clarke & Pine Nature Preserve; Hoos = Hoosier Prairie; Nach = Nachusa Grasslands; Grn = Green River State Shooting Area; Gibs = Gibson woods; SRSF = Sand Ridge State Forest (data from Hess et al)

* = Very uncommon prairie/savanna species in Illinois (S2-S3); (*) = Rare prairie/savanna species in Illinois (S1-S2)).

Table 6. Distribution of leafhopper species abundance on 21 sites in northern Illinois and Indiana.

Site:	Prairie-dependent species	Other species*	Total species
IL Beach State Park (600 ha.)	**19**	**25**	**44†**
Gooselake Prairie (600 ha.)	15	33	48
Fermilab Restoration (250 ha.)	10	58	68†
Pop Cr Restoration (250ha.)†	2	36	38
Beaver Lake Prairie (250 ha.)	8	22	30
Tefft Savanna	13	49	62†
Nachusa Grasslands (100 ha.)	14	59	73†
Lockport Prairie (75 ha.)	16	24	40
Gensburg Markham Prairie (60ha.)	21	30	51
Romeoville Prairie (60 ha.)	11	16	27
West Chicago Prairie (50 ha.)	11	30	41
Clark and Pine Prairie (50 ha.)	13	26	39
Somme Woods & Prairie (40 ha.)	12	60	72†
Oak Openings (20 ha)	6	15	21
Cook Prairie (16 ha.)	11	20	31
Middlefork Savanna (12 ha.)	13	59	72†
Fermi raparian site (6 ha.)	8	27	35
Liberty Prairie (6 ha.)	11	26	37
Shoe Factory Prairie (4 ha.)†	6	22	28
Chicago Ridge Prairie (3 ha.)	12	16	28
Vermont Cemetery (1ha.)	5	16	21

* "Other species" include savanna/woodland species as well as wide-ranging species with wide ecological amplitudes.

† Prairie/savanna complexes

3-30-91

Table 7. Prairie-dependent leafhoppers recorded within Illinois Beach State Park from 1936 through 1990

Recorded by:	DeLong* 1930's	Panzer etal 1990
Hecalus lineatus	x	x
Parabolocratus rotundus	x	
Parabolocratus viridis	x	
Parabolocratus flavidus		x
Dorydiella kansana	x	x
Xerophloea major		x
Prairiana kansana		x
Paraphlepsius turpiculus	x	
Paraphlepsius altus	x	
Paraphlepsius solidagensis	x	x
Cloanthanus cinereus	x	
Ohiola osborni		x
Amplicephalus osborni		x
Texananus cumulatus	x	x
Flexamia prairiana	x	x
Flexamia delongi	x	
Aflexia rubraneura		x
Polyamia apicata	x	
Polyamia compacta	x	
Hebecephalus signatifrons	x	
Hebecephalus cruciatus	x	
Graminella mohri	x	
Graminella oquaka	x	
Graminella fitchii	x	
Deltocephalus caperatus		x
Deltocephalus gramus		x
Laevicephalus schingwauki	x	x
Laevicephalus unicoloratus	x	x
Laevicephalus acus		x
Limotettix striolis	x	
Limotettix parallelus	x	
Euscelis sahlbergi	x	
Mesamia nigridorsum	x	
Chlorotettix obsenus	x	
Chlorotettix tergatus		x
Chlorotettix rugicollis	x	
Chlorotettix spatulatus	x	x
Chlorotettix brevidis	x	
Cicadula melanogaster	x	x
Totals (39 species)	29	19†

* DeLong, 1949. Leafhoppers of Illinois.

† 20 species recorded by DeLong were not encountered in 1990!

TABLE 8. The distribution of froghopper diversity on nine prairie/savanna complexes in northern Illinois.

Species: Site:	IBSP	Iroq	Somme	M'fork	W'worth	Fermi	Nachusa	LibPr	LibSav
Philaenus spumarius	X	X	X	X	X	X	X	X	X
Paraphilaenus paralellus							(*)	(*)	
Philaenarcys bilineatus	*						*		
Aphrophora quadrinotata	X	X	X		X		X	X	
Aphrophora cribrata							*(e)*		
Aphrophora saratogensis		*(e)*					*(e)*		
Clastoptera obtusa	X		X	X		X	X		X
Clastoptera proteus	X		X	X	X			X	X
Clastoptera arborina							X		
Prosapia ignipectus	*			*	*			*	
Lepyronia quadrangularis		X							
Lepyronia gibbosa							(re)		
Total <u>indigenous</u> species:	6	4	4	4	4	2	7	5	3

Somme = Somme Woods Prairie; M'fork = Middlefork Savanna; Wadsworth = W'worth Prairie; Fermi = Fermilab Prairie; Nachusa = Nachusa Grasslands; IBSP = IL Beach State Park; Iroq = Iroquois County State Wildlife Area; LibPr = Liberty Prairie; LibSav = Liberty Savanna.
* = uncommon, prairie-dependent species.
(*) = rare, prairie-dependent species.
(e) = invassive conifer-feeders
(re) = Very uncommon prairie-dependent species; reestablished on this site in 1989.

Table 9. Bumblebee species known to occur on eight prairies in northern Illinois.

Taxon:	Sites:	IL Beach 600 ha	Fermilab† 200 ha	Nachusa 200 ha	PopCr 200 ha	GMP 60 ha	WCP 50 ha	Lib'ville 120 ha	VCP 1 ha
Bombus	*affinis*	x			x	x	x	x	
Bombus	*bimaculatus*	x	x	x	x	x	x		x
Bombus	*fervidus*	x	x			x	x	x	x
Bombus	*fraternus*								
Bombus	*griseocolis*		x						
Bombus	*impatiens*	x	x	x	x	x	x	x	x
Bombus	*nevadensis*		x	x	x	x	x		
Bombus	*pennsylvanicus*	x	x	x	x	x	x	x	
Bombus	*vagans*			x					
Totals:		**5**	6	5	5	6	6	4	3

† = Restoration

Table 10. A partial listing of prairie plant species visited by bumblesbees in northern Illinois*.

Plant species	
Allium cernuum	*Gentiana saponaria*
Amorpha canescens	*Gentiana andrewsii*
Apocynum sibericum	*Liatris spicata*
Arabis lyrata	*Liatris cylindracea*
Arctostaphylos uvi-ursi	*Lupinus perennis*
Asclepias tuberosa	*Lithospermum canadensis*
Asclepias hirtella	*Lithospermum croceum*
Asclepias incarnata	*Monarda fistulosa*
Aster novae-anglea	*Opuntia humifusa*
Baptisia leucantha	*Pedicularis canadensis*
Baptisia leucophea	*Penstemon* sp.
Castelleja coccinea	*Petalostemum purpureum*
Cicuta maculata	*Pycnanthemum virginianum*
Commandra richardsiana	*Pysostegia virginiana*
Coreopsis lanceolata	*Rosa carolina*
Coreopsis palmata	*Silphium integrifolium*
Dodecatheon meadii	*S. terebinthimaceum*
Echinacea pallida	*Veronicastrum virginicum*
Eupatorium maculatum	*Viola pedata*
Gaylussacia bacatta	

* Data gathered by Panzer & Stillwaugh, 1980-1990.

An Annotated Listing of the Leafhoppers, Froghoppers, Butterflies, and Other Insects of the Illinois Beach State Park Nature Presreve, Lake County, Illinois

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Dates = earliest sightings
† = prairie-dependent species
W = Illinois watch species

Order **ODONATA**
suborder **Anisoptera: dragonflies**

family **Aeshnidae**

Anax junius (Drury) **Green darner**
This is a very common, migratory species. 5-20-90

Aeshna constricta Say **Autumn darner**
This common migratory species was recorded on 9-6-90.

family **Libellulidae**

Sympetrum rubicundulum (Say) **Red topper**
This is a common, early summer species. Members of this genus breed in the temporary waters of wet prairies, sedge meadows, and marshes. 7- 22-90

Sympetrum semicinctum (Say) **Half banded topper**
This is an uncommon species in Northern Il. 9-6-90

Libellula pulchella Drury **Ten-spotted skimmer**
This very common, wide-ranging species breeds in the permanent waters of ponds and ditches.

Libellula luctuosa Burmeister **The Widow**
This is a common, wide-ranging species. 7-3-90

Tramea lacerata Hagen **Saddle bags**
This is a very common, wide-ranging species. 7-3-90

Order **ORTHOPTERA**
suborder **Caelifera: grasshoppers & grouse locusts**

family **Acrididae**
subfamily **Acridinae**

Chorthippus curtipennis (Harris) **slant-faced grasshopper**
This is a very common wetland species. 7-3-90

Agenotettix deorum (Scudder) **Sand grasshopper**
This sand-loving species was first recorded in Zion in 1906. This seems to be a common species in Illinois. 8-16-90

subfamily **Oedipodinae**

Encoptolophus sordidus (Burmeister) **Sordid grasshopper**
This is a common, dry prairie species. 8-1-90

Psinidia fenestralis (Serville) **Sand longhorn**
This is a common open sand species in this region. 8-1-90

Trimerotropis maritima interior E. M. Walker **Seaside grassshopper†**
This uncommon species is restricted in distribution to the shores of the great lakes in the Midwest. IBSP may be the only protected location for this species in Illinois. 7-22-90

subfamily **Cyrtacanthacridinae**

Melanoplus bivitattus (Say) **Two-striped grasshopper**
This common, bimodal species occurs both in wet prairies and on xeric hill prairies. 8-1-90

Melanoplus dawsoni (Scudder) **Dawson's grasshopper†**
This northern species is at the southern edge of its range in the Chicago region. This is only our second record for this apparently rare, Chicago Lake Plain species. 8-11-90

Hesperotettix viridis pratensis Scudder **Purple striped grasshopper†**
This uncommon, sand prairie species reportedly feeds on forbs, especially composites. Blatchley found this species to be rare in Indiana. Hart recorded this species in Zion near the turn of the century. 8-9-90

family **Phasmatidae**

Monomera blatchleyi (Caudell) **Blatchley's walking stick†**
This uncommon prairie species inhabits wet and mesic prairies in this region. 7-3-90

Order **HOMOPTERA**: leafhoppers & froghoppers

family **Cicadellidae**

Draeculacephala mollipes (Say) **leafhopper**
Common in the east and midwest. 7-9-90

Gypona melanota Spangberg **leafhopper**
This seems to be a somewhat common prairie species. 8-8-90

Gyponana octolineata serpenta DeLong **leafhopper**
A widely distributed species in eastern and midwestern U.S. 8-8-90

Prairiana kansana Ball **leafhopper†**
This is a very uncommon sand prairie species in this region. 8-19-90

Xerophloea major Baker 8-19-90 **leafhopper†**
This species ranges from the east coast to kansas, but seems to be rare in northern Illinois.

Hecalus lineatus (Uhler) **leafhopper†**
This is a somewhat common, *Spartina*-feeding prairie species. 8-13-90

Parabolocratus flavidus Signoret **leafhopper†**
This is an uncommon prairie species in northern Illinois. 8-8-90

Parabolocratus major Osborn **leafhopper**
This prairie species is common in this region. 7-9-90

Dorydiella kansana Beamer **leafhopper†**
This is apparently a rare wet prairie/sewdge meadow species in this region. (known from only two other sites in this region) 8-19-90

Aphrodes costata (Panzer) **Subterranean leafhopper**
This common species is apparently introduced from Europe. 7-9-90

Xestocephalus superbus (Provancher) **leafhopper**
Reported to be common on herbaceous growth in open woodlands. 8-25-89

Xestocephalus pulicarius Van Duzee **leafhopper**
This common, wide-ranging species was taken on 8-1-90.

Anoscopus serratulae (L.) **leafhopper**
This is apparently another exotic species. 8-19-90

Lonenus intricatus (Uhler) **leafhopper**
This seems to be a somewhat uncommon savanna species. 8-13-90

Platymetopius vitellinus (Fitch) **leafhopper**
This wide-ranging species reportedly occurs in 'open woods'. 8-13-90

Cloanthanus acutus (Say) **leafhopper**
Reported to be a common transcontinental species. 8-13-90

Flexamia prairiana (Osborn & Ball) **leafhopper†**
This *Andropogon*-feeder is uncommon on the prairies in this region. 7-9-90

Aflexia rubraneura (DeLong)**Watch** **leafhopper†**
This rare, category 2 species was described from specimens taken in Evergreen Park in the 30's. Goose Lake Prairie and Illinois Beach State Park are the only modern records for this species in the USA. Host plant is *Sporobolus heterolepsis*. 8-8-90

Latulus missellus (Ball) **leafhopper**
A northern species reportedly found in meadows and open woodlands. 8-19-90

Polyamia inimica (Say) **leafhopper**
A very common transcontinental grass-feeder. 8-13-90

Deltocephalus caperatus Ball **leafhopper†**
This uncommon *Andropogon*-feeder was captured on 8-15-90.

Deltocephalus gramus (DeLong) **leafhopper†**
This wet prairie species, recorded on prairies in Chicago in 1930, seems to be very uncommon or rare today. 8-30-90

Laevicephalus acus (Sanders & DeLong) **leafhopper†**
This is a somewhat common, wet prairie species. 7-9-90

Laevicephalus shingwauki Beamer & Tuthill **leafhopper†**
This is an uncommon, northern wet prairie/marsh (grass-feeding) species. 8-13-90

Laevicephalus unicoloratus. (Gillette & Baker) **leafhopper†**
This *Anropogon*-feeder is somewhat common on the prairies in this area. 8-19-90

Amplicephalus osborni (Van Duzee) **leafhopper†**
This is reportedly a northern, marsh species. 8-8-90

Amblysellus curtisii (Fitch) **leafhopper**
This northeastern species reportedly feeds on *Calamogrostis*. 8-15-90

Graminella nigrifrons (Forbes) **leafhopper**
Reportedly a common grass-feeder in the eastern USA. 8-10-90

Athysanus argentarius Metcalf **leafhopper**
A ubiquitous introduction from Europe. 7-9-90

Exitianus obscurinervis (Stal) **leafhopper**
This species is reportedly common and widespread. 8-15-90

Ophiola osborni Ball (?) **leafhopper†**
This is an uncommon, dry prairie species. 8-19-90

Paraphlepsius solidagensis (Walker) **leafhopper†**
This beautiful mesic prairie species seems to be rare in this region. 8-15-90

Texananus cumulatus Ball **leafhopper†**
This is the only Illinois location for this *Arctostaphyl0s*-feeding species.

Eutettix variabilis Hepner (?) **leafhopper**
This seems to be an uncommon savanna species in Illinois. 8-15-90

Menosoma cincta (Osborn & Ball) 8-1-90 **leafhopper**
This somewhat common, shade-loving species is distributed from the east coast to Colorado.

Chlorotettix tergatus (Fitch) **leafhopper†**
This seems to be an uncommon wetland species. 8-19-90

Chlorotettix unicoloratus (Fitch) **leafhopper**
This wetland species is very common in this region. 8-8-90

Chlorotettix spatulatus Osborn and Ball **leafhopper†**
This wet prairie species is somewhat common in this region. 8-13-90

Cicadula melanogaster (Provancher) **leafhopper†**
This would appear to be a somewhat common, wet prairie species. 6-28-90

Macrosteles divisa (Uhler) **leafhopper**
A common species on crops. 8-19-90

Jassus olitorius Say **leafhopper**
Common on oaks from mid July onward. 8-13-90

Balclutha sp. 8-19-90 **leafhopper**

Nesosteles divisa Davidson **leafhopper**
This is reportedly a common, wide-ranging species. 8-1-90

family **Cercropidae**: the froghoppers

Philaenus spumarius (L.) **Meadow spittlebug**
This is a very common, wide-ranging species.

Aphrophora quadrinotata Say **Four spotted spittlebug**
This is a common grassland species.

Philaenarcys bilineata (Say) **Prairie spittlebug†**
This uncommon xeric prairie species inhabits both sand and gravel hill prairies in this region.

Clastoptera obtusa (Say) **Alder spittlebug**
This somewhat uncommon species feeds on a variety of native woody species. 8-23-87

Clastoptera proteus Fitch **Dogwood spittlebug**
This common species feeds on *Cornus* spp. 7-20-90 .

Prosapia ignipectus (Fitch) **Black prairie froghopper†**
This uncommon prairie species feeds, as a nymph, on the roots of *Andropogon scoparius*.

Order **Lepidoptera:** the Butterflies

* Order and nomenclature follow Irwin, R. R. and Downey, J. C. 1973. Annotated Checklist of the Butterflies of Illinois. Illinois Natural History Survey. Urbana, Il.

family **Hesperiidae**

Euphyes dion (Edwards) **Watch** **Dion skipper†**
This is a very uncommon sedge meadow species. Hosts include *Carex laucustris*. 7-6-90

Euphyes conspicua (Edwards) **Watch** **Black dash†**
Local in wet prairies and sedge meadows. Host plants are sedges (*Carex*). Found in both pannes and in sedge meadows to the west. Abundant on 7-17-90.

Poanes hobomok (Harris) **Hobomok skipper**
This is a somewhat common savanna species in northern Illinois. 6-6-90

Poanes massasoit (Scudder) **Watch** 7-6-90 **Mulberry wing skipper†**
This is an uncommon sedge meadow species in northern Illinois. Host plants are sedges (*Carex).*

Atrytone delaware (Edwards) **Delaware skipper†**
Host plants are grasses and include *Panicum virgatum* and *Andropogon* spp. 7-12-90

Wallengrenia egeremet (Scudder) **Broken dash**
This common butterfly was recorded nectaring on *Asclepias tuberosa*. 7-4-90

Polites coras (Cramer) **Peck's skipper**
This is a common skipper that occurs with regularity in both prairie and degraded habitats. Host plants are grasses. 6-21-90

Polites origines (Fabricus) **Cross line skipper†**
This species seems to exhibit a high fidelity for upland prairie in this region. Host plants are grasses. 7-6-90

Polites themistocles (Latreille) **Tawny edge**
This is another common skipper that occurs with regularity in both prairie and degraded habitats. Host plants are grasses. 6-12-90

Polites mystic (Edwards) 6-25-90 **Long dash†**
This species is somewhat common in wet prairies and sedge meadows in northern Illinois. Host plants are sedges (*Carex*). Recorded in the sedge meadows at the western edge of the park.

Thymelicus lineola (Ochsenheimer) **European skipper**
This exotic species was found to occur in small numbers throughout the nature preserve.6-25-90

Ancyloxypha numitor (F.) **Least skipper**
This common species has been recorded along the edges of several swales. 6-25-90

Erynnis baptisiae (Forbes) **Baptisia dusky wing**
This uncommon upland butterfly occurs on both savannas and open prairies in this region. It is interesting to note that this dusky wing has recently begun to feed on Crown vetch and is expanding into degraded areas. 5-18-90 through 6-21-90

Erynnis icelus (Scudder & Burgess) **Dreamy dusky wing†**
This very uncommon dusky wing shows a high fidelity to larger, high quality sand prairies and savannas in the Chicago region. Wyatt reported this species from Zion in 1922. Host plants include willows. 6-10-90

Erynnis horatius (Scudder & Burgess) 8-15- 90 **Horaces dusky wing**
This oak-feeder is still somewhat common in Illinois but is never abundant in northern Illinois.

Erynnis juvenalis (F.) 5-8-90 **Juvenal's dusky wing**
This oak-feeder is still somewhat common in Illinois but is never abundant in northern Illinois.

Epargyreus clarus (Cramer) **Silver-spotted skipper**
This is a common skipper that feeds on legumes, including *Robinia pseudo-acacia*, an introduced southern species. 7-6-90

family **Papilionidae**: the swallowtails

Papilio polyxenes asterius Stoll **Black swallowtail**
Host plants are members of the family Umbelliferae and include *Zizea aurea* and the exotic *Daucus carota*. This is a common, wide-ranging species. 5-18-90.

Papilio glaucus Linnaeus **Tiger swallowtail**
This wide-ranging, common ecotonal/savanna species is very common on this site. Host plant species include *Prunus* spp. Sixteen individuals on 6-25-90

family **Pieridae**: the sulphurs and whites

Euchloe olympia (Edwards)**Watch** **Olympic marble**
This is a rare sand savanna species in Illinois. Host plant is *Arabis lyrata*. 12 sighting on 5-8-90.

Pieris protodice Boisduval and La Conte **Checkered white**
This uncommon species was recorded within the foredunes. One individual on 6-21-90

Pieris rapae Linnaeus **Cabbage butterfly**
This ubiquitous, wide-ranging exotic species was found to be common on this site. 5-18-90

Colias eurytheme Boisduval **Alfalfa**
A very common, wide-ranging species. 6-13-90

Colias philodice Godart **Common sulphur**
Another very common, wide-ranging species. 6-13-90

Colias cesonia (Stoll) **Dog face**
Host plants are *Amorpha* and *Petalostemum*. This uncommon species migrates northward regularly from stable populations to the south. One individual on 8-15-90.

A Survey of the Butterflies, Papaipema Moths, Flower Moths, and Other Insects of the Iroquois County State Wildlife Area, Iroquois County, Illinois

1989-1990

Conducted for

Illinois Department of Conservation
and
Nongame Wildlife Conservation Committee

By

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Report submitted on 5-15-91

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Introduction

Numerous prairie and savanna-inhabiting Lepidoptera are known to occur on only a small number of sites in either Illinois or neighboring Indiana*. The Iroquois County State Wildlife Area (ICSWA), being one of the largest, high quality examples of the sand savanna/prairie ecosystem in Illinois, will almost certainly prove to be an important sanctuary for many of these rare animals. A survey of the butterflies within the Hooper Branch Savanna Nature Preserve was initiated in the summer of 1989. This study was expanded in 1990 to include the butterflies and macro moths of the entire ICSWA site.

Methods

Twenty-two diurnal surveys have been conducted by 1 or more (usually 2 or 3) investigators during the past 2 years. Aerial nets and sweep nets have been employed to capture adult specimens during each visit. Small knives were used to remove Papaipema larvae from plant stems and roots last year. These larvae were subsequently reared to adulthood, identified, photographed, and retained as specimens. Six *Amorpha*-feeding larvae were "plucked" from leafs, reared to adulthood, and then released in the areas within which they were captured.

Twelve nocturnal moth surveys were conducted (from dusk to 2:00 or 3:00AM) in July, August, September, and early October of last year. Black lights were positioned in front of pole-suspended bedroom sheets, and moths were captured when they flew in to "investigate" the glowing sheets. In addition, 3 funnel-type light traps powered by automobile batteries were moved between 6 areas and operated from 8 pm to 8 am on 13 nights during this period.

Common, easily identified insects have been captured, identified, and released. Uncommon species have been sacrificed and retained for further examination; these are currently housed as voucher specimens at Northeastern Illinois University and in the collection of the senior author.

Specimens were identified using a variety of taxonomic manuals, keys, and field guides, most of which are listed in the attached bibliography. In the case of dusky wing butterflies (*Erynnis* spp.), specimens were compared with reference specimens from the collection of the Milwaukee Public Museum. Moth specimens were compared with reference specimens from the collections of the Field Museum of Natural History, Chicago, Il. Papaipema specimens (and a few other Noctuids) were forwarded to Eric Quinter at the American Museum of Natural History (NY) for verification.

An arbitrary butterfly census route, designed to traverse representative portions of the Hooper Branch Nature Preserve, was established in 1989 (Fig. 1). Four censuses were completed between 5-26-90 and 7-11-90 in accordance with the procedures outlined by Pollard (1977). The following criteria were observed: The census taker (DS) . . .

(1) proceeded at a uniform pace (1 hour/census)
(2) conducted surveys between the hours of 10 AM and 3 PM.
(3) surveyed only on days with less than 50% cloud cover.
(4) surveyed only on days with moderate to light winds.
(5) recorded all species sighted within 6 meters
(6) paused briefly to chase, capture, and identify fast-moving or illusive individuals. Returned to departure point to resume route.

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* Nine savanna butterflies, The Dusted skipper, the Ottoe skipper, The Cobweb skipper, the Indian skipper, the Leonard's skipper, the Frosted elfin, the Karner blue, the Silvery blue, and the Olympic marble are known from 10 or less sites in either Indiana or neighboring Illinois; (two, the Frosted elfin and the Karner blue, are thought to be extinct in Illinois). All 9 have been listed as either endangered or threatened by the Indiana Department of Natural Resources.

Results

One hundred and five species representing 3 orders and 15 families have been captured and identified to genus; One hundred and two of these have been identified to species. Whereas the bulk of these animals have been determined to be wide-ranging species with broad ecological amplitudes, 41 were determined to be uncommon prairie and/or savanna-dependent species (Table 1).

Forty-eight butterflies have been captured and identified to species. . Twenty-four species were recorded during the census portion of this study (Table 7). Relative daily population densities ranged from 1/hr to 12/hour; one hundred and thirty-four individuals were recorded along the census route in 1989.

Two Papaipema moths, *P. baptisiae* and *P. nepheleptena*, were reared from larvae extracted from *Baptisia leucantha*, and *Verbena* sp. (Table 5). *Verbena* is a new host plant record for the *Chelone*-requiring *P. nepheleptena* .

One Underwing moth, *Catocala amestris*, was reared from larvae captured on *Amorpha canescens*.

Discussion

ICSWA has been found to support an impressive number of prairie and/or savanna-dependent insects, many of which are either uncommon or rare in both Illinois and neighboring Indiana (Tables 1-5). Decades of grazing have resulted in the degradation of much of the upland prairie and savanna on this site. Nevertheless, ICSWA, by virtue of its large size, harbors significantly more remnant-dependent insect species than do most of the smaller, high quality sites that persist in this region (Table 2).

Butterflies (species abundance)

Roughly thirty-two percent (48 species) of the butterflies known to occur in Illinois were recorded at ICSWA in 1990.

Fourteen prairie-dependent species were recorded on this site last year. Three of these, the Regal fritillary†, the Two-spotted skipper†, and the Byssus skipper, are known to occur on less than 20 protected sites in Illinois and thus should be considered to be very uncommon elements (S2-S3). Several others, including, the Purplish copper, the Silver bordered fritillary, and the Aphrodite are uncommon and tend to be restricted to larger remnants in this region. Species such as the Crossline skipper, the Black dash†, the Southern cloudy wing, the Bronze copper, and the Acadian hairstreak are somewhat common but will likely become much less so as shrinking habitat islands become more isolated and local extinctions accelerate.

The prairie-dependent butterfly fauna of ICSWA compares favorably with those recorded on the largest and highest quality prairie remnants in Illinois and Indiana, and far surpasses, in diversity, the faunas of most of the smaller prairie remnants in this area (Table 3).

The combined prairie-and-savanna-dependent butterfly fauna of ICSWA compares favorably with those found on many of the finest sand savanna complexes in this region (Table 4). Two species,

† Four ICSWA prairie species, *E. bimacula*, *E conspicua*, *P. massasoit*, and *S. idalia* are listed as watch species in Illinois.

Hesperia sassacus and *Erynnis martialis,* are rare in both Illinois and Indiana (Threatened) and should be considered to be rare elements (S1). Irwin and Downey (1973) listed only one Illinois record for *H. sassacus* (Evanston, June 22, 1896!!!)

The relative richness of the ICSWA butterfly fauna not withstanding, this site has almost certainly experienced a decline in butterfly species abundance within the last several decades. Five conservative savanna species, all of which still fly within the nearby Tefft Savanna Nature Preserve (Jasper County, IN), seem conspicuous in their absence from this site. These include The Cobweb skipper, *Hesperia metea*, the the Dusted skipper, *Atrytonopsis hianna*, the Frosted elfin, *Callophrys irus*, the Edward's hairstreak, *Satyrium edwardsii*, and the Olympic marble, *Euchloe olympia.* It is possible that extensive grazing has resulted in the extirpation of one or more of these narrowly restricted upland species from this site.

Moths

Thirteen r-d moths have been recorded thus far. Chief among these have been several members of the genus *Papaipema.*

Papaipema

The North American genus Papaipema is comprised of approximately 55 species (Quinter 1983), with roughly 40 occurring in the East and/or Midwest (Hessel 1954). Most are restricted to native plant communities by narrow host plant requirements. As a consequence, most are uncommon or rare in large portions of their range.

The Chicago region has long been considered the metropolis for many of the members of this group. Twenty-seven species were recorded in and around Chicago between the years of 1915 and 1942 by A. K. Wyatt, E. Beer, and others (Wyatt 1915-1942). We have managed to "rediscover" 25 of these species, and have recorded 2 additional species within Illinois natural areas within the past 6 years.

The Papaipema moths of northeastern Illinois and northwestern Indiana can be categorized according to habitat requirements as follows: 17 prairie species; 4 fen species*; 4 savanna/woodland species; and 4 wide-ranging, unrestricted species. A site as large as ICSWA should probably support 10 to 12 r-d species (The host plants of 16 r-d species occur on this site.).

Seven prairie/savanna-restricted Papaipema species have been recorded, placing ICSWA among the richer prairie Papaipema sanctuaries in either Illinois or Indiana (Table 5). Of equal importance, this site has been found to support 2 rare species, both of which are known to occur on 3 or less sites in Illinois . . . The Bracken root borer, *P. pterisii*, although common to the north and east, has only been recorded twice in Illinois and may be very rare in this state. (Wyatt did not record this species in Illinois) The Turtlehead root borer, *P. nepheleptena*, has only been recorded on 2 other Illinois sites. These species should be treated as rare elements (S1-S2).

The Liatris root borer, *P. beeriana*, is known from only 4 sites in Michigan†, is listed as endangered in Ohio, and is apparently very uncommon in Illinois and Indiana. The Culver's root stem borer, *P. sciata*, is equally as uncommon in Illinois and Indiana. The Limpida root borer,

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* Most "prairie species" can also be found in prairie fens.

† Michigan records obtained from James Bess, Assistant Zoologist, Michigan Natural Features Inventory.

P. limpida, and the Sensitive fern borer, *P. inquisita*, although common in Michigan†, seem to be uncommon in Illinois. These species should be treated as uncommon elements (S3).

The Indigo stem borer, *P. baptisiae*, is still relatively common, and can usually be found where its host plants occur.

Schinia

The North American genus *Schinia* is comprised of more than 100 species, with roughly 40 occurring in the East and/or Midwest (Covell, 1984). Most are restricted to native plant communities by narrow host plant requirements. As a consequence, many are uncommon or rare in large portions of their ranges.

Sixteen species were recorded in and around Chicago between the years of 1915 and 1942 by A. K. Wyatt and others. We have managed to "rediscover" 12 of these species on Chicago-area prairie and savanna remnants within the past 8 years.

A site as large and diverse as ICSWA should probably support 5 to 6 flower moth species (The host plants of most r-d species occur on this site.). Three species were recorded at ICSWA last year.

The Goldenrod flower moth, *Schinia nundina*, is reportedly uncommon throughout its entire range. This *Solidago*-feeder is apparently very uncommon in Illinois and should be treated as a rare element (S1-S2).

The Lynx flower moth, *Schinia lynx*, is a somewhat uncommon member of our sand prairie/savanna fauna in Illinois and Indiana (S3-S4).

Thoreau's flower moth, *Schinia thoreaui*, is still relatively common and may, in fact, not be restricted to natural area remnants.

Underwing moths

The North American genus *Catocala* is comprised of more than 110 species, with roughly 60 occurring in the East and/or Midwest (Covell, 1984). Four underwing species (all recorded in IL) feed predominantly on leadplants (*Amorpha* spp.) and are, as a consequence, uncommon or rare in large portions of their ranges. We recorded 2 of these species within Hooper Branch last year.

The Three staff underwing, *Catocala amestris,* seems to be restricted to sand savannas in Illinois and Indiana. Six larvae were captured (in June), reared to adulthood, and released. This is our first record for C. *amestris* in Illinois*. The "Classic" prairie species, *Catocala abbreviatella,* is known from only 2 hill prairie sites in Illinois. Both of these animals should be treated as a rare elements (S1-S2).

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† Michigan records obtained from James Bess, Assistant Zoologist, Michigan Natural Features Inventory.

* There is at least one other record for this species in Illinois (Godfrey, Natural History Survey)

Other r-d insects

We have recorded the Goldenrod stowaway, *Cirrophanus triangulifer*, on only 4 sites in Illinois. This beautiful prairie moth should be treated as an uncommon element (S2-S3).

The Striped sedge meadow grasshopper, *Stethophyma lineatum*, may be a rare sedge meadow species in Illinois. We know of only one other site for this species in Illinois. This beautiful insect should be treated as a rare element (S1-S2).

The Panicum-feeding leafhopper *Graminella aureovitatta* is currently known from less than 6 sites in northern Illinois and may be very uncommon in this region.

Survey Thoroughness

Whereas we have likely recorded 75-100% of the butterflies, Papaipema moths, and Schinia moths that occur on this site, we have almost certainly recorded less than 33% of the grasshoppers and leafhoppers. The other insect groups listed below were treated very superficially. Given the extent of the fluctuations in density that insect populations tend to undergo, the very localized populations of many species within what appear to be homogeneous habitats, the propensity of many species to flee well in advance of investigators, and the large size of the ICSWA site, further efforts can be expected to result in the capture of additional members of each group.

Recommendations

Fires can represent a threat to r-d leafhoppers, butterflies, Papaipema and prairie-dwelling Underwing moths, all of which are present as either eggs or larvae within the prairie litter during the spring and fall (Bird 1934, Swietzer 1988, Panzer 1988)*. A growing body of anecdotal evidence suggests, however, that fire-sensitive insects can routinely survive partial burns that leave sizable portions of their habitat unburned (Panzer 1988). We would suggest that IDOC spare roughly 50% of the prairie and savanna habitats of ICSWA each year as sanctuaries for fire-sensitive invertebrates.

Butterfly monitoring . . . Only 6 of the 18 remnant-dependent species of ICSWA appeared along our savanna census route during this study. We would recommend that IDOC consider adding an open prairie route at some point in the future . . . An effort should be made to recruit a volunteer butterfly monitor for this important site. (Doug Taron coordinates volunteer butterfly monitoring for the Volunteer Stewardship Network in northern IL)

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* We searched for *Amorpha*-feeding Catocala larvae for 2 hours in Hopper branch, along the southern border, and in the high quality savanna directly to the south. These 2 very similar areas are separated by the east-west road. The area south of Hopper Branch was burned in the spring; Hopper branch was not. We found 13 caterpillars (two species) in the unburned area; we found none in the burned section (despite the presence of hundreds of leadplants).

Table 1. Host plants and habitat associations of the remnant-dependent insects of the Iroquois County State Wildlife Area.

Species:	Host plants	wet prairie sedge meadow	mesic/xeric prairie	sand savanna
Stethophyma lineatum	*Carex?*	x		
Hecalus lineatus	*Spartina*	x		
Cloanthanus hastus				x
Cloanthanus abbreviatus				x
Flexamia sp.	*grasses*		x	
Graminella aureovitatta	*P. virgatum*	x	x	
Mesamia nigridorsum	*Helianthus*		x	
Eutettix pictus	*Quercus*			x
Chlorotettix spatulatus	*wet prairie grasses*	x	x	
Cicadula meanogaster	*wet prairie grasses*	x		
Amblyscirtes vialis				x
Euphyes conspicua	*Carex*	x		
Euphyes bimacula	*Carex?*	x	x	
Poanes massasoit	*Carex*	x		
Problema byssus	*Andropogon*		x	
Polites origines	*grasses*		x	
Hesperia sassacus	*Andropogon scararius*			x
Erynnis brizo	*Quercus*		x	x
Erynnis baptisea	*Baptisia*			
Erynnis martialis	*Ceanothus*		x	x
Thorybes bathyllus	*Legumes*		x	x
Satyrium acadica	*Salix*	x		
Harkenclenus titus	*Prunus*		x	
Lycaena helloides	*Polygonum*	x		
Euphydryas phaeton	*Chelone*	x		
Boloria selene myrina	*Viola*	x	x	
Speyeria aphrodite	*Viola*		x	
Speyeria idalia	*Viola*		x	x
Papaipema baptisiae	*Baptisia*		x	
P. beeriana	*Liatris*		x	
P. nepheleptena	*Chelone, Verbena*	x		
P. limpida	*?*		x	x
P. pterisii	*Pteridium*			x
P. Inquisita	*Onoclea*	x		
P. sciata	*Veronicastrum*	x	x	
Schinia lynx	*Erigeron*		x	x
Schinia thoreaui	*Ambrosia?*		x	
Schinia nundina	*Solidago*		x	x
Catocala amestris	*Amorpha*		x	x
Catocala abbreviatella	*Amorpha*		x	
Cirrhophanus triangulifer	*Bidens*	x		

* This listing includes species that are seldom encountered in old field settings. This listing does not include several classic prairie-associated species (e.g. Wood nymph, Wild rye leafhopper) that can be found, with regularity, in badly degraded areas.

4-20-91

Table 2. The number of prairie-dependent butterflies and moths known to occur on a variety of prairie/wetland remnants in the Chicago region.

Sites:	GLP	IROQ	NACH	SHFF	LOCK	GMP	WCP	GCP	CP	LRS	CRP	SHOE	VCP
Area (Ha)	600	600	100	80	75	60	50	30	16	8	3	2	1
Butterflies	15	14	14	13	11	15	16	7	13	9	3	2	1
Moths	15	13	9	11	6*	18	8	5	10	7	5	5	3
Totals	**30**	**27**	**23**	**24**	**17**	**33**	**24**	**12**	**23**	**16**	**8**	**7**	**4**

GLP = Goose Lake Prairie; IROQ = Iroquois County State Wildlife Area; SHFF = Spring Hill Farm Fen; GMP=Gensburg Markham Prairie; GCP = Grant Creek Prairie; WCP= West Chicago Prairie; VCP= Vermont Cemetery Prairie; SHOE= Shoe Factory Road Prairie; LRS = Long Run Seep; LOCK = Lockport; CRP = Chicago Ridge Prairie; CP = Cook Prairie; LP = Liberty Prairie; NACH = Nachusa Grasslands.

* Superficial survey.

4-20-91

Table 3 . Distribution of butterfly species abundance on 29 grassland remnants in northern Illinois and Indiana.

Remnant	Prairie area† (ha)	Species number		
		Prairie-dependent species*	Other species	Total species
IL Beach State Park	600.0	14	36	50
Goose Lake Prairie	600.0	15	29	44
Nachusa Grasslands	100.0	14	41	55
Lockport Prairie	75.0	11	22	33
Spring Hill Farm Fen	70.0	13	32	45
Romeoville Prairie	60.0	11	24	35
G. M. Prairie	60.0	15	35	50
West Chicago Prairie	60.0	16	26	42
Clark and Pine Prairie	50.0	14	33	47
Green River	40.0	11	23	34
Pratts Wayne Marsh	40.0	9	22	31
Grant Creek Prairie	35.0	7	23	30
Toll-road Prairie	30.0	6	17	23
Sun Drop Prairie	28.0	8	24	32
Cook Prairie	16.0	12	25	37
Paintbrush Prairie	15.0	8	23	31
Somme Prairie	14.0	8	18	26
Long Run Seep	7.0	9	20	29
Buffalo Grove Prairie	6.4	6	16	22
Liberty Prairie	6.0	9	19	28
I- 57 Prairie	4.5	4	18	22
Belmont Prairie	4.2	6	27	33
Chicago Ridge Prairie	3.6	3	18	21
Shoe Factory Prairie	3.5	3	17	20
Santa Fe Prairie	3.0	4	18	22
Cary Prairie	2.0	3	19	22
Main Street Prairie	2.0	2	19	21
Vermont Cemetery Prairie	1.0	1	14	15

* This category includes those prairie species that are seldom encountered outside native prairie/wetland remnants. This figure does not include savanna/woodland restricted species such as *S. edwardsii*, *E. olympia*, *E. brizo*, etc. This figure does not include single sightings of conspicuous species from multiple year samples.

† Area estimates exclude savanna and old field habitats.

4-20-91

TABLE 4. The prairie and savanna-dependent butterflies of 15 prairie/savanna complexes in Illinois and Indiana

	Illinois silt loam				Illinois sand						Indiana sand				
Species: Site:	Somm	Fork	Wads	Oak	SRSF	IBSP	Iroq	Grn	Nach	B'wd	Tft	Hoos	C&P	Gibs	Spin
Atrytonopsis hianna											(*)		(*)		
Euphyes dion		X		X		X		X		X			X	X	
Euphyes conspicua	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Euphyes bimacula							*		*	*					
Poanes viator										*					
Poanes massasoit	X	X	X	X		X	X		X			X			
Problema byssus					*		*	*		*	*		*	*	
Atrytone delaware	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Polites origines	X				X	X	X	X	X	X	X	X	X	X	
Polites mystic				X		X						X			
Hesperia metea					(*)						(*)				
Hesperia sassacus							(*)				(*)				
Hesperia ottoe					(*)								(*)		
Hesperia leonardus													(*)		
Amblyscirtes vialis					X		X			X	X				
Erynnis icelus						X				X	X	X	X	X	
Erynnis brizo					X		X				X				
Erynnis baptisiae						X	X		X	X	X	X			X
Erynnis martialis					(*)		(*)				(*)	(*)			
Thorybes bathyllus					X		X	X	X	X	X		X	X	
Thorybes pyllades					X					X			X		
Euchloe olympia					(*)	(*)					(*)			(*)	
Harkenclenus titus	X	X	X	X	X	X	X		X	X	X	X	X	X	
Incisalia polios						(*)									
Strymon acadica	X	X	X			X	X		X	X	X	X		X	X
Satyrium edwardsii	X	X		X	X	X					X	X		X	
Lycaena thoe		X		X		X			X	X	X	X	X		
Lycaena helloides							X			X		X			
Lycaena xanthoides													*		
Lycaeides m. samuelis														(*)	
Callophrys irus											(*)				
Glaucopsyche lygdamus			(*)												
Polygonia progne					X				X						
Chlosyne nycteis	X	X	X								X				
Chlosyne gorgone					*			*		*					
Euphydryas p. phaeton			X				X		X						
Boloria selene myrina						X	X	X	X	X	X				
Boloria bellona					X				X						
Speyeria idalia					*		*		*	*					
Speyeria aphrodite						X	X	X	X	X	X	X			
Lethe appalachia	*	*	*			*									
Lethe eurydice	X	X	X	X		X		X	X	X		X	X	X	
Lethe portlandia anthedon	X	X	X	X							X				
Totals:	11	12	10	10	17	18	19	10	17	21	23	15	15	13	4

Somm = Somme Woods; Fork = Middlefork Savanna; Wads = Wadsworth Prairie, Oak = Oak Openings Savanna; IBSP = IL Beach State Park; Iroq = Iroquois County State Wildlife Area; B'wd = Braidwood Dune & Savanna; Tefft = Tefft Savanna; C&P = Clarke & Pine Nature Preserve; Hoos = Hoosier Prairie; Nach = Nachusa Grasslands; Spin = Spinn Prairie; Grn = Green River State Shooting Area; SRSF = Sand Ridge State Forest (data from Hess et al)

* = Very uncommon species in this region. (*) = Rare prairie/savanna species (<12 sites in Illinois and Indiana combined).

Table. 5 Distribution of Papaipema species diversity on thirteen prairies/wetlands in the Chicago region *

Species Site size (acres)	GLP 1,500	IROQ 1,000	SHFF 200	GMP 150	WCP 120	GCP 80	TRP 70	SP 60	CP 40	LRS 20	CRP 8	OFP 3	VMNT 2
pterisii (3)		x											
baptisiae (12)	x	x		x	x	x		x	x		x		
nepheleptena (4)		x	x						x				
harrisi (2)			x										
beeriana (7)	x	x		x	x			x	x				
birdi (2)	x												
cerussata (2)	x												
eryngii (1)	x												
unimoda (9)			x	x	x	x	x	x	x	x			
impecuniosa (6)			x	x					x	x			
new species # 10 (1)	x												
inquaesita (4)		x					x						
limpida (3)		x		x		x							
nelita (1)										x			
maritima (5)	x		x	x		x				x			
necopina (2)			x						x				
rigida (3)				x			x					x	
sciata (6)	x	x	x	x	x				x				
silphii (20)	x			x	x	x		x	x	x	x	x	x
speciosissima (2)							x						
eupatorii (2)			x							x			
Totals	9	7	8	9	5	5	4	4	8	6	2	2	1

GLP = Goose Lake Prairie; IROQ = Iroquois County State Wildlife Area; SHFF = Spring Hill Farm Fen; GMP = Gensburg Markham Prairie; WCP = West Chicago Prairie; GCP = Grant Creek Prairie; TRP = Toll Road Prairie (IN); SP= Sundrop Prairie; CP = Cook Prairie (IN); LRS = Long Run Seep; CRP = Chicago Ridge Prairie; OFP = Oak Forest Prairie;VMNT = Vermont Cemetery.

* Four "weedy" species, *P. arctivorens*, *P. cataphracta* (?), *P. furcata*, and *P. nebris* are not included in this comparison.

(n) = Numbers in parenthesis after species names indicate total nummber of known sites for each species in northern Illinois and nw Indiana.

4-15-91

3-15-91

Table 6. Papaipema host plant data obtained from rearing studies in northern Illinois (Panzer & Derkovitz, 1990)

	Eryng	*Cicut*	*Cacal*	*Vernon*	*H mol*	*H laet*	*C mut*	*R. lacin*	*Silph*	*Verb*	*Bleuca*	*Apocy*	*Angel*
P. baptisiae	(3)										(1)*	(1)	
P. arctivorens	?						(2)						
P. nepheleptena										(1)*			
P. harrisii													(4)
P. birdi		(2)											
P. cerussata				(1)									
P. eryngii	(12)												
P. limpida				(1)									
P. nebris								(4)					
P. maritima			(3)		(1)	(1)							
P. silphii	(1)		(1)						(6)				

(n) = Number of individuals of a particular species reared from a particular foodplant.

Host plants listed above: *Eryngium yuccifolium, Cicuta maculata, Cacalia tuberosa, V. missourica, H. mollis, H. laetiflorus, C. muticum, R. laciniata, Silphium* spp., *Verbena* sp., *B. leucantha, Apocynum sibericum, Angelica atropurpurea.*

* These larvae were captured within the large prairie tract in the Iroquois County State Wildlife Area.

TABLE 7. Butterfly census route data: **Seasonal summary (by Transect)**
Hooper Branch Nature Preserve
Census dates: May, 26; June 4; June 17; July 9 (1990)

Species:	Transect: A	B	C	Total sightings
Polites coras	-	1	-	1
P. themistocles	-	1	-	1
P. origines	1	1	-	2
Pholisora catullus	8	11	7	26
Erynnis juvenalis	5	-	5	10
Hesperia sassacus	2	-	-	2
P. glaucus	3	1	2	6
P. triolus	6	4	1	11
Pieris protodice	1	11	-	12
Colias eurytheme/philodice	2	6	-	8
Eurema lisa	4	-	-	
Harkenclenus titus	1	-	2	3
Lycaena phlaeas americana	2	3	3	8
Everes comyntas	2	1	-	3
Lycaena helloides	-	1	-	1
Cynthia virginiensis	2	1	-	3
Cynthia cardui	1	1	-	2
Nymphalis antiopa	3	-	-	3
Polygonia interrogationis	1	-	-	1
Phyciodes tharos	-	-	1	1
Speyeria cybele	1	-	-	1
Speyeria aphrodite	-	1	-	1
Danaus plexippus	6	9	1	16
Euptychia cymela	1	-	-	1
Cercyonis pegala olympus	3	-		

A = open savanna; B = old field; C = roadside (see route map)

TABLE 8

Butterfly Census Route Data: Hooper Branch Nature Preserve **(May 26, 1990)**
Observer: D. Stillwaugh Experience 6 yrs. Time 1:00 to 2:00
Temperature: 80 F Wind conditions (underline one) relatively still moderately windy
Sky (underline one) clear (80-100% cloudless) partial clouds (50-80% cloudless)
Comments:

Species:	**Transect:**	**S**	**P**	**C**	**Total Sightings:**
Polites coras		-	1	-	1
Erynnis juvenalis		2	-	4	6
Pholisora cattulus		2	1	2	5
Papilio glaucus		2	-	1	3
Papilio troilus		4	-	1	5
Lycaena helloides		-	1	-	1
Lycaena phlaeas		1	2	1	4
Cynthia virginiensis		1	-	-	1
Danaus plexippus		1	-	-	1

A = open savanna; B = old field; C = roadside (see route map)

TABLE 9

Butterfly Census Route Data: Hooper Branch Nature Preserve **(June 4, 1990)**
Observer: D. Stillwaugh Experience 5 yrs Time 11:00 to 12:00
Temperature: 90 F Wind conditions (underline one) relatively still moderately windy
Sky (underline one) clear (80-100% cloudless) partial clouds (50-80% cloudless)
Comments:

Species:	**Transect:**	**S**	**P**	**C**	**Total Sightings:**
Polites origines		1	-	-	1
Pholisora cattulus		-	1	2	3
Erynnis juvenalis		1	-	-	1
Papilio troilus		2	1	-	3
Cynthia virginiensis		2	-	-	2
Nymphalis antiopa		3	-	-	3
Polygonia interrogationis		1	-	-	1
Phycoides tharos		-	-	1	1
Danaus plexippus		1	1	-	2

A = open savanna; B = old field; C = roadside (see route map)

TABLE 10

Butterfly Census Route Data: Braidwood Dunes & Savanna Nature Preserve **(June-17-90)**
Observer: D. Stillwaugh Experience 5 yrs Time 12:30 to 1:30
Temperature: 90 F Wind conditions (underline one) relatively still moderately windy
Sky (underline one) clear (80-100% cloudless) partial clouds (50-80% cloudless)
Comments:

Species:	**Transect:**	**S**	**P**	**C**	**M**	**Total Sightings:**
Pholisora cattulus		3	2	1		6
Erynnis juvenalis		2	-	1		3
Hesperia sassacus		2	-	-		2
Papilio triolus		-	3	-		3
P. glaucus		1	1	1		3
C. eurytheme/philodice		1	1	-		2
Lycaena phlaeas		-	1	-		1
Cynthia virginiensis		-	1	-		1
Cynthia cardui		1	1	-		2
Danaus plexippus		4	2	-		6
Euptychia cymela		1	-	-		1

A = open savanna; B = old field; C = roadside (see route map)

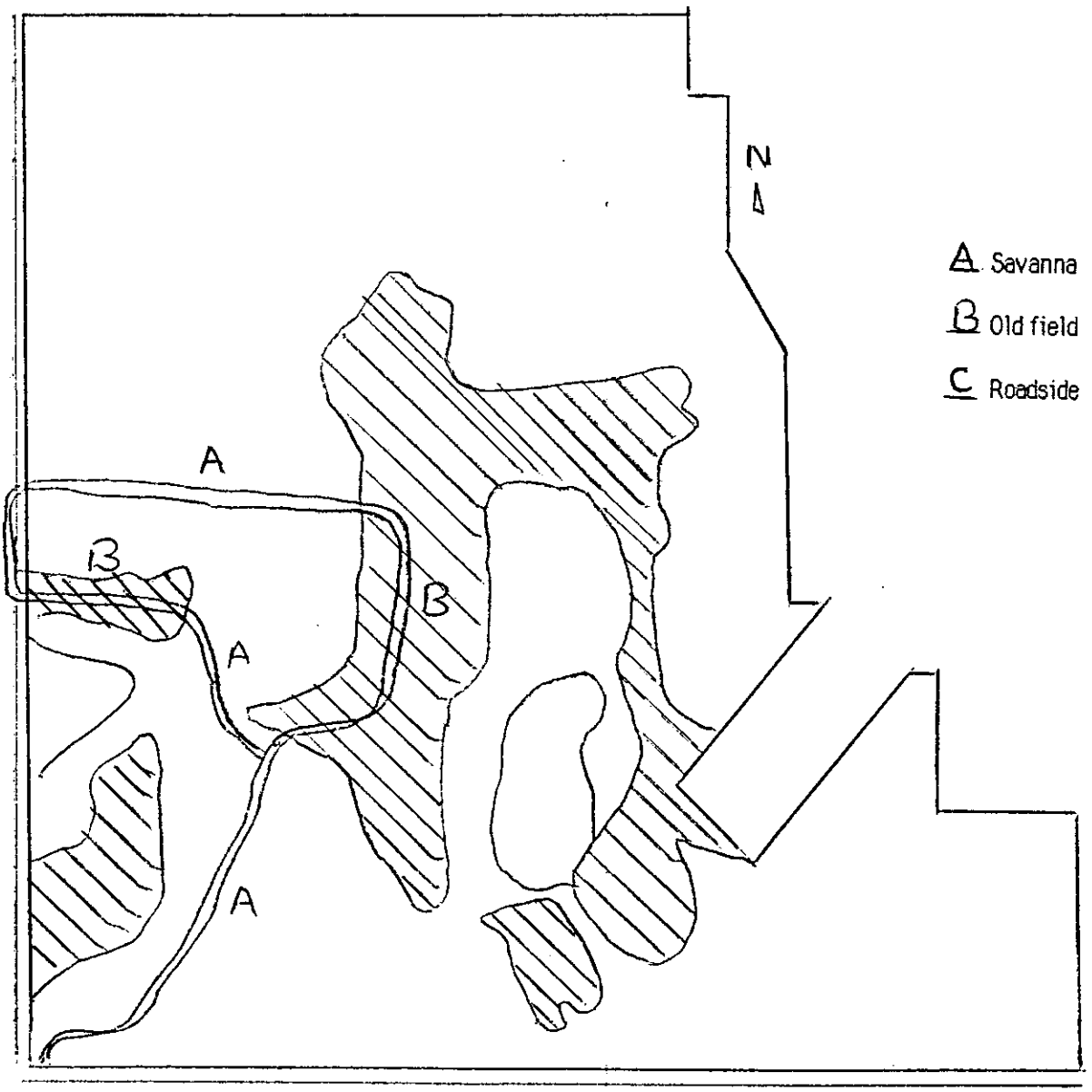
TABLE 11.

Butterfly Census Route Data: Hooper Branch Nature Preserve **(July 9, 1990)**
Observer: D. Stillwaugh Experience 5 yrs Time 11:00 to 12:00
Temperature: 90 F Wind conditions (underline one) relatively still moderately windy
Sky (underline one) clear (80-100% cloudless) partial clouds (50-80% cloudless)
Comments:

Species:	**Transect:**	**S**	**P**	**C**	**Total Sightings:**
Polites themistocles		-	1	-	1
Polites origines			1	-	1
Pholisora cattulus		3	5	2	10
Colias erytheme		1	5	-	6
Eurema lisa		4	-	-	4
Pieris protodice		1	11	-	12
Everes comyntas		2	1	-	3
Harkenclenus titus		1	-	2	3
Lycaena phlaeas		1	-	2	3
Speyeria cybele		1	-	-	1
Speyeria aphrodite		-	1	-	1
Danaus plexippus		-	6	1	7
Cercyonis pegala		3	-	1	4
Euptychia cymela		1	-	-	1

A = open savanna; B = old field; C = roadside (see route map)

Fig. 1 Hooper Branch Nature Preserve Butterfly Census Route



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An Annotated Listing of the Butterflies, Papaipema Moths, and Other Insects of the Iroquois County State Wildlife Area. 1989-1990

Watch = Listed as a "watch" species in Illinois (S1,S2,S3,S4) = proposed element rankings for Illinois.
† = Prairie-restricted species . . . species which occur very infrequently outside of prairie remnants in this region.
Dates = earliest records
S = uncommon or rare savanna-associated species.

Order **ORTHOPTERA**
suborder **Caelifera: grasshoppers & grouse locusts**

family **Acrididae**
subfamily **Acridinae**

Chorthippus curtipennis (Harris) **slant-faced grasshopper**
This is a very common wetland species. 7-9-90

Stethophyma lineatum (Scudder) **Striped sedge meadow grasshopper†**
This would seem to be a rare sedge meadow species in Illinois. We know of only one other site for this species in Illinois. This northern grasshopper is reportedly restricted to cold water habitats such as bogs in Canada. 7-9-90

subfamily **Oedipodinae**

Spharagemon collare collare (Scudder) **bandedwing grasshopper**
This is a somewhat common species in sandy habitats. 6-26-90

subfamily **Cyrtacanthacridinae**

Melanoplus bivitattus (Say) **Two-striped grasshopper**
This common, bimodal species occurs both in wet prairies and on xeric hill prairies. 7-9-90

Melanoplus mexicanus mexicanus Saussure **Mexican grasshopper**
This is a common, wide-ranging xeric species. 7-9-90

Order **HOMOPTERA**: leafhoppers & planthoppers

family **Cicadellidae**

Idiocerus moniliferae Osborn and Ball **leafhopper**
This may be a savanna species. 6-28-90

Idiocerus duzeei Provancher **leafhopper**
This common species feeds on *Populus deltoides*. 6-28-90

Graphocephala coccinea (Forster) **leafhopper**
This common eastern species can be found on ornamentals and on a variety of native plant species

Neocola hieroglyphica (Say) **leafhopper**
This is a common willow-feeding species. 8-30-90

Oncometopia undata (F.) **Ironweed leafhopper**
This *Vernonia*-feeder is somewhat uncommon in this region. 8-1-90

Hecalus lineatus (Uhler) **leafhopper†**
This is a somewhat common, *Spartina*-feeding prairie species. 7-12-90

Parabolocratus major Osborn **leafhopper**
This prairie species is common in the this region. 8-1-90

Cloanthanus hastus DeLong **leafhopper^S**
This is a midwestern (Savanna ?) species. Host plants are unknown. 6-28-90

Cloanthanus abbreviatus (DeLong) **leafhopper^S**
This may be a very uncommon, Midwestern savanna species (?). 6-28-90

Flexamia sp. **leafhopper†**
The members of this genus tend to be uncommon, prairie-restricted species. 8-1-90

Deltocephalis flavicostis Stal **leafhopper**
This is reportedly a common, grass-feeding species. 8-30-90

Acinopterus acuminatus Van Duzee **leafhopper**
Reportedly common throughout Illinois on grasses and forbs. 8-1-90

Graminella aureovitatta (Sanders & DeLong) **leafhopper†**
This seems to be an uncommon, wet prairie species. Host plant has been reported to be *P. virgatum*. 8-10-90

Mesamia nigridorsum Ball **leafhopper†**
This beautiful prairie species is is apparently uncommon in Minnesota but is rather common in this region. Host plants include *H. grossoseratus*. 8-1-90

Eutettix pictus Van Duzee **leafhopper^S**
This is a somewhat uncommon oak-feeder. 6-28-90

Menosoma cincta (Osborn & Ball) **leafhopper**
This somewhat common, shade-loving species is distributed from the east coast to Colorado. 8-1-90

Chlorotettix spatulatus Osborn and Ball **leafhopper†**
This wet prairie species is common in this region. 7-12-90

Cicadula melanogaster (Provancher) **leafhopper†**
This would appear to be a somewhat common, wet prairie species. 7-12-90

Jassus olitorius Say **leafhopper**
Common on oaks from mid July onward. 8-1-90

Order **Lepidoptera:** Butterflies

* Order and nomenclature follow Irwin, R. R. and Downey, J. C. 1973. Annotated Checklist of the Butterflies of Illinois. Illinois Natural History Survey. Urbana, Il.

family **Hesperiidae:** The Skippers

Amblyscirtes vialis (Edwards) **Roadside skipper**[S]
This is a very uncommon sand savanna species in northern Illinois. Recorded visiting *V. pedata* on 5-20-90 through 6-4-90.

Euphyes conspicua (Edwards)[Watch] **Black dash**†
Uncommon in wet prairies and sedge meadows. Host plants are sedges (*Carex* spp.). 7-10-89 & 7-13-90

Euphyes vestris metacomet (harris) **Dun**
A common, wide-ranging species with a wide ecological amplitude. 6-7-90

Euphyes bimacula (Grote and Robinson)[Watch] **Two-spot**†
Host plants of this very uncommon wet/mesic prairie species are reported to be sedges. Recorded on mountain mint on the large wet prairie to the south of Hooper Branch. 7-13-90

Poanes massasoit (Scudder)[Watch] **Mulberry wing**†
This uncommon sedge meadow species is near the edge of its range on this site. Host plants are sedges (*Carex* spp.). 7-5-89 & 7-13-90

Wallengrenia egeremet (Scudder) **Broken dash**
A common, wide-ranging species with a wide ecological amplitude. 7-13-90

Problema byssus (Edwards) **Bunch grass skipper**†
Reported to be limited in occurrence to high quality prairie remnants in Kansas and Missouri. Host plants are reported to be grasses. Three individuals recorded in the prairie on 7-3-90.

Polites coras (Cramer) **Peck's skipper**
A common skipper that occurs with regularity in both prairie and degraded habitats. Host plants are grasses. 5-26-90

Polites themisticles (Latreille) **Tawny-edged skipper**
A common, wide-ranging species with a wide ecological amplitude. 6-7-90 through 7-13-90

Polites origenes (Fabricus) **Cross line skipper**†
This species exhibits a high fidelity for upland prairie in this region. Host plants are grasses. Recorded visiting *Lithospermum* on 6-4-90.

Hesperia sassacus Harris **Indian skipper**[S]
This is a rare sand savanna species in Indiana (Threatened) and Illinois. Recorded in Hooper Branch and in the savanna to the south on 6-7-90. This may be the only protected population in Illinois!

Pholisora catullus Fabricius **Common sooty wing**
This is a common, wide-ranging species that occurs along roadsides and other degraded habitats where it is reported to feed on *Chenopodium album*, an exotic weed.

Erynnis brizo (B. & L.) **Sleepy dusky wing**[S]
This savanna species appears to be uncommon in northern Illinois. Host plants are oaks. Two individuals captured on 5-20-90.

Erynnis baptisiae (Forbes) **Baptisia dusky wing**[S]
This once rare upland prairie and savanna species has recently begun to feed on crown vetch and is becoming more common. 7-13-90

Erynnis martialis (Scudder) **Mottled dusky wing**†
This is a rare prairie/savanna species in Indiana (Threatened) and Illinois. Host plant is *Ceanothus americanus*. Recorded in Hooper Branch and in the savamnna to the south on 5-6-90.

Erynnis juvenalis (Scudder & Burgess) **Juvenal's dusky wing**
This common spring savanna/woodland species feeds on oaks, including *Quercus velutina*. Nectar plants at ICSWA include *Lithospermum, P. bifida*, and *Linaria canadensis*. 5-20-90 - 6-7-90.

Thorybes bathyllus (J. E. Smith) **Southern cloudy wing**†
This prairie/savanna species is somewhat common in this region. Leguminous host plants include *Amorpha* and *Lespedeza*. 7-10-89 and 7-13-90

Epargyreus clarus (Cramer) **Silver-spotted skipper**
This is a common, wide-ranging skipper that feeds on *Amorpha, Lespedeza, Desmodium*, and other legumes, including *Robinia pseudo-acacia*, an introduced southern species. 7-5-89 & 6-7-90

family **Papilionidae**: The Swallowtails

Papilio polyxenes asterius Stoll **Black swallowtail**
Host plants are members of the family Umbelliferae and include *Zizia aurea* and the exotic *Daucus carota*. This is a common, wide-ranging species. 5-20-90

Papilio glaucus Linnaeus **Tiger swallowtail**
This is a wide-ranging, common ecotonal/savanna species. Host plant species include *Prunus* spp. 5-20 through 6-7-90.

Papilio troilus Linnaeus **Spicebush swallowtail**
This savanna/woodland species is somewhat common in this region. Host plant species include Sassafras (*Sassafras albidum*) and prickly ash (*X. americanum*). 5-26-90 through 6-7-90.

family **Pieridae:** The Sulfurs and Whites

Pieris protodice Boisduval & LeConte **Checkered white**
This is a somewhat common species in sandy areas of all types. 6-27-90

Pieris rapae Linnaeus **Cabbage butterfly**
This is a ubiquitous, wide-ranging exotic species. 7-5-89 & 6-5-90

Colias eurytheme Boisduval **Alfalfa**
A very common, wide-ranging species. 5-30-90

Colias philodice Godart **Common sulphur**
Another very common, wide-ranging species. 5-30-90

Eurema lisa (Boisduval & LeConte) **Little sulphur**
Host plants are legumes and include *Cassia*. This uncommon species apparently migrates northward regularly from stable populations to the south. 7-13-90

family **Lycaenidae**: The Gossamer-Winged Butterflies

Harkenclenus titus (Fabricius) **Coral hairstreak†**
This species exhibits a high fidelity for upland prairies in this region. *Titus* seldom occurs in old field situations, despite its reported reliance on members of the genus *Prunus* as host plant species. 6-27-90

Strymon melinus humuli (Harris) **Gray hairstreak**
This uncommon southern hairstreak migrates into this area regularly but is apparently unable to overwinter at this latitude. 7-10-89 and 8-1-90

Strymon acadica (Edwards) **Acadian hairstreak†**
This uncommon wet prairie species is at the southern edge of its range in northern Illinois. 7-5-89 & 6-30-90

Lycaena helloides (Boisduval) **Purplish copper†**
This increasingly uncommon wet prairie/sedge meadow species feeds on smartweeds (*Polygonum* spp.). Recorded in an old field section of Hopper Branch on 7-5-89.

Lycaena phlaeas americana Harris **American copper**
The reported food plant of this common species is *Rumex acetocella*. This species occurs throughout Europe and ranges into North Africa and Asia, and may be an introduced species. 6-27-90

Everes comyntas (Godart) **Eastern tailed blue**
Host plants of this very common species are legumes and include *Lespedeza*, *Desmodium*, *Baptisia*, and exotics such as *Trifolium* and *Coronilla*.

family **Nymphalidae**: The Brush Footed Butterflies

Limenitis arthemis astyanax (Fabricius) **Red-spotted purple**
This somewhat common, woodland species is reported to feed on a wide variety of woody host plant species. 7-7-89

Limenitis archippus (Cramer) **Viceroy**
Host plants for this common species include *Salix* and *Populus*. 7-13-90

Cynthia cardui (Linnaeus) **Painted lady**
The host plants of this very common, migratory species are composites. 7-13-89

Cynthia virginiensis (Drury) **American painted lady**
The host plants of this common, wide-ranging species include pussy toes (*Antennaria* spp.). 5-26-90 through 7-13-90

Precis coenia (Hubner) **Buckeye**
This is an uncommon, southern grassland species that is apparently unable to survive the harsh winters at this latitude. 7-11-89 & 7-13-90

Nymphalis antiopa (Linnaeus) **Mourning cloak**
This common, wide-ranging species feeds on willows and overwinters as an adult. 7-13-89

Polygonia interrogationis (Fabricius) **Questionmark**
This is a common woodland species. 6-4-90

Phycoides tharos (Drury) **Pearl crescent**
The host plants of this very common species are asters, especially *A. novae-angliae*. Ubiquitous on 7-5-89 & 5-20-90

Euphydryas phaeton phaeton (Drury) **Baltimore checkerspot†**
This *Chelone*-feeder is always found in fens in northern Illinois! Several sightings within the large prairie tract on 6-30-90.

Boloria selene myrina (Cramer) **Silver bordered fritillary†**
The host plants for this uncommon, wet prairie species are violets. Several sightings within the large prairie tract on 7-11-89 and 6-4-90.

Speyeria idalia (Drury) **Watch** **Regal fritillary†**
This prairie species is uncommon/rare throughout its entire range and is certainly rare in the Chicago area. Host plants are violets and include *V. pedata*. Two individuals were sighted within Hooper Branch on 7-10-89; thirteen sightings within the large prairie tract on 7-3-90.

Speyeria cybele (Fabricius) **Great spangled fritillary**
The host plants of this savanna/prairie edge species are violets. 7-11-89 & 6-28-90

Speyeria aphrodite (Fabricius) **Aphrodite†**
The host plants of this uncommon, prairie species are violets. Recorded on the large wet prairie to the south of Hooper Branch. 7-11-89 and 7-13-90.

family **Danaidae**: The Monarchs

Danaeus plexippus (Linnaeus) **Monarch**
This is a very common, migratory species.

family **Satyridae:** The Satyrs and Wood Nymphs

Euptychia cymela (Cramer) **Little wood satyr**
This butterfly of the prairie/woodland ecotone feeds on grasses. 6-7-90 through 7-11-90

Cercyonis pegala olympus (Edwards) **Wood nymph**
This inhabitant of the prairie/woodland ecotone is less restricted to edges than the preceeding species and in fact ventures well out into open prairies. Host plants are grasses. 7-11-89 & 6-30-90

family **Sphingidae**

Paonias myops (Smith) **Small eyed sphinx**
This common species feeds on a variety of woody species. 7-28-90.

Smerinthus jamaicensis (Drury) **Twin-spotted sphinx**
This common species also feeds on a variety of woody species. 7-28-90.

Hemaris thysbe (F.) **Hummingbird clearwing**
This common day-flying species also feeds on a variety of woody species. 7-3-90.

family **Lasiocampidae**

Tolype velleda (Stoll) **Large tolype**
This common moth reportedly feeds on a variety of woody species. 9-18-90

family **Noctuidae**
subfamily **Acronictinae**

Simyra henrici (Grote) **Henry's marsh moth**
Caterpillar recorded on cattails in June.

subfamily **Hadeninae**

Pseudaletia unipunctata (Haw.) **Armyworm moth**
This ubiquitous species is a pest on many crops. 7-3-90

Nephelodes minians Guenee **Bronzed cutworm moth**
This is a very common, wide-ranging species. Numerous on 9-18-90.

subfamily **Amphipyrinae**

Papaipema baptisiae (Bird) **Indigo stem borer†**
This somewhat common species is known to feed on both Indigos (*Baptisea* spp.) and dogbanes (*Apocynum* spp.) One individual was reared from a larva extracted from *B. leucantha* in June.

Papaipema beeriana Bird **Gayfeather stem borer†**
This uncommon species feeds on blazing stars on mesic and wet mesic prairies. 9-25-90

Papaipema nepheleptena (Dyar) **Turtlehead root borer†**
This rare prairie species feeds on *Chelone glabra* . We reared one individual from *Verbena* (from this site) but this is apparently a seldom-used food plant. Larva taken on 6-28-90. *Chelone glabra* will probably be found growing within the large prairie tract.

Papaipema limpida Guenee **Limpida root borer†**
This very uncommon (?) species feeds on *Vernonia* and probably other species as well. Swept from the eastern edge of the large prairie tract on 9-24-90. (Wyatt failed to record *limpida* in Illinois)

Papaipema pterisii Bird **Bracken root borer[S]**
The larvae of this regionally rare sand savanna species bore into the rhizomes of bracken ferns. Wyatt described this species as rare in northeastern Indiana. He failed to record *pterisii* in Illinois. This is our only record for this beast in Illinois. 9-11-90

Papaipema inquisita (Grote & Robinson) **Sensitive fern root borer†**
This seems to be another uncommon species in northern Illinois. 9-10-90

Papaipema sciata Bird **Culver's root borer†**
This very uncommon species feeds on *Veronicastrum virginicum.* Captured on the northern edge of the prairie on 9-30-90.

Hydraecia straminosa Guenee **root boring moth**
This seems to be an uncommon species in this region. Captured in a light trap within a patch of royal ferns on 8-25-90.

Callopistria cordata (Ljungh) **Silver spotted fern moth**
The host plant of this somewhat common sand savanna species is bracken fern.

Cirrhophanus triangulifer Grote **Goldenrod stowaway†**
The host plants of this beautiful prairie species are marigolds (*Bidens* spp). 8-18-90

subfamily **Heliothinae**

Heliothis zea (Boddie) **Corn earworm moth**
This very common, wide-ranging species was found throughout this site. 9-12 through 10-15

Schinia lynx (Guenee) **Lynx flower moth†**
This is a somewhat common sand prairie/savanna species in this region. The caterpillar host plants are Fleabanes. 8-25-90

Schinia thoreaui (Grote & Robinson) **Throreau's flower moth†**
This is an uncommon prairie species reportedly feeds on giant ragweed as a caterpillar.(?)

Schinia nundina (Drury) **Goldenrod flower moth†**
This is a very uncommon *Aster* and *Solidago*-feeding, sand prairie/savanna species in Illinois and Indiana. (I suspect this species is restricted to *Solidago speciosa* in our region) 8-18-90

subfamily **Catocalinae**

Catocala amica (Hubner) **Girlfriend underwing**
Host plants of this somewhat common species include *Quercus velutina.* Abundant in late August.

Catocala ilia (Cramer) **Ilia underwing**
This is a very common oak-feeding species. 9-12-90

Catocala concumbens Walker **Pink underwing**
Host plants are Poplars and willows. 8-25-90

Catocala amestris Stecker **Three staff underwing†**
This rare *Amorpha*-feeder seems to be restricted to sand savannas in Illinois and Indiana Six larvae were captured (in June), reared to adulthood, and released. This is our first record for *amestris* in Illinois.

Catocala abbreviatella Grote **Abbreviated underwing†**
This "classic" sand and hill prairie species is known from few sites in Illinois. Host plant is *Amorpha canescens*. Larvae recorded on 6-15-90.

Scolioptryx libatrix (L.) **The Herald**
This is an uncommon, Holarctic species. Host plants are reportedly poplars and willows. Swept from royal ferns on 9-26-90.

Euparthenos nubilis Hubner **Locust underwing**
The host plant of this common species is reportedly *Robinia psuedoacacia*. 8-7-90

Zale lunata (Drury) **Lunate zale**
The host plants of this common species include willows and plums.

Caenurgina erechtea (Crammer) **Forage looper moth**
This may be the most common moth in this region. Host plants are weeds.

family **Notadontidae**

Pheosia rimosa Pack. **Black-rimmed prominent**
This seems to be a somewhat common denizen of sandy prairies and savannas in northern Illinois. Host plants are reportedly poplars and willows. 8-27-90.

family **Tortricidae**

Sparganothis sp. **moth**
The members of this genus apparently feed on a variety of common woody species. 8-28-90

family **Oecophoridae**

Antaeotricha schlaegeri (Zeller) **moth**
This is apparently a common, oak-feeding species. 8-11-90