A Survey of the Insects of the Fermilab Prairie Restoration with Special Emphasis on the Butterflies, Moths, Grasshoppers, Katydids, Leafhoppers, Treehoppers, Froghoppers, Dragonflies, Damselflies, and the Tabanid Flies.

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Introduction

Nearly all (99.99%) of the vast tall grass prairie that once blanketed large portions of Illinois has been destroyed (White 1978). Despite the enormity of this destruction, numerous fragments of the once extensive prairies and wetlands of Illinois remain intact. Unfortunately, these very small (most < 15 ha.) and widely spaced 'habitat islands' will likely prove inadequate as wildlife sanctuaries for habitat-restricted animals (Diamond 1975; Soule' et al 1980; Karr 1982; Blake and Karr 1984; Panzer 1984;). For this reason, the establishment of at least a few large prairie preserves is considered to be a major conservation priority in Illinois.

The Fermilab Prairie Restoration (FLP) represents one of the most ambitious efforts to establish a large native grassland in northeastern Illinois. Although less than 12 years old, and little more than a grade 'D' prairie from a botanical standpoint (see White 1978), FLP, by virtue of its large size, may play an important, if not crucial role in the long term survival of many of the indigenous prairie animals of northeastern Illinois. FLP already supports sizable populations of bobolinks, meadowlarks, and savanna sparrows, migratory prairie animals that were able to reach this isolated site with very little difficulty. Unfortunately, many animals, insects included, are apparently sedentary and reluctant to cross even seemingly inconsequential habitat gaps like roads and fences (Ehrich 1961; Terborgh 1975; Diamond 1976; Frankel and Soule' 1981; Arnold 1983; Wourms 1984; Panzer 1984; Cappucino and Karieva 1984). Can (or will) the numerous insect species that once flourished on the prairies of this region recolonize this reclaimed cornfield as the prairie habitat improves? Or, will it be necessary, as in the case of the prairie flora, to translocate many, perhaps most, habitat-restricted prairie, wetland, and savanna species to this site?

This (ongoing) survey represents an attempt to determine to what extent the native insects of this region have managed to reoccupy the Fermilab Prairie Restoration. More precisely, we are striving to accumulate qualitative base line insect data which will facilitate a comparison between the insect community on FLP, and those on nearby prairie remnants. It is hoped that this information will eventually contribute to insect translocation activities at FLP.

The following taxa, those with which we are most familiar, were heavily emphasized during the first year of this survey:

Butterflies & moths (Macrolepidoptera)
Grasshoppers (Orthoptera; Acrididae, Tetridgidae)
Katydids (Orthoptera; Tettigoniidae)
Tree crickets (Orthoptera; Gryllidae, Oecanthinae)
Dragonflies & Damselflies (Odonata)
Leafhoppers, treehoppers, and cicadas (Homoptera, in part)
Horse & deer flies (Diptera; Tabanidae)
Stink bugs, shieldbacked bugs, negro bugs (Hemiptera; Pentatomoidea)

Methods

The study site was visited by 2 (occasionally 3) investigators on 19 occasions between April 1 and September 26, 1986. Aerial nets and sweep nets were employed to capture specimens during each visit. A malaise trap was used in July and again in September in an effort to capture ellusive species that are difficult to capture by other means (eg. Tabanad flies). Black lights and fermented bait mixtures were employed as attractants during 5 evening surveys conducted between June 15 and September 20. Three bait traps were used for 7 nights in September in an effort to capture late-flying underwing moths.

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 wide variety of taxonomic manuals, keys, and field guides most of which are listed in the attached bibliography. Also, in the case of the moths, specimens were compared with reference specimens from the collection of the Field Museum of Natural History, Chicago Il.

Results

Two hundred and fifty-two species representing 56 families were captured and identified to genus; two hundred and thirty-six of these were identified to species [see attached listing]. Whereas the bulk of these animals were determined to be wide ranging species with broad ecological amplitudes, twenty-seven were determined to be potentially uncommon or rare habitat-restricted species [see table 1].

Discussion

As expected, the qualitative data gathered this first year demonstrate that the insect community at Fermilab Prairie closely resembles that of an old field or 'eurasian meadow'. We were somewhat suprised to find, however, that several uncommon, habitat-restricted species have managed to recolonize this young resoration, possibly from the few miniscule wet prairie remnants that occur along the roads within the accelerator ring.

Insect Abundance

Many insects that tend to be exceedingly abundant in old field and even cultivated habitats were found to be very abundant at FLP as well. Examples include the Armyworm moth, *Pseudaletia unipuncta*, the Cabbage butterfly, *Pieris rapae*, the European skipper, *Thymelicus lineola*, the European leafhopper, *Anthysanus argentarius*, the Cucumber beetle, *Diabrotica undecimpunctata*, the Goldenrod beetle, *Trirhabda canadensis*, a flea beetle, *Systena sp.*, and certain undetermined weevils (Curculionidae), just to name a few.

In sharp contrast, most of the uncommon, habitat restricted species encountered during this study (see below) were found to occur in very small numbers. *Speyeria cybele, Erynnis baptisiae,* and *Mesamia nigridorsum,* for example, were each recorded 3 or less times this year.

It is interesting to note that the grasshoppers recorded for this site were found to be somewhat scarce as well. The very small population of *Melanoplus femurrubrum* at FPR contrasts sharply with the very large populations of this same species that typically occur in the 'weedy fields' of this region.

Species Diversity

Species diversity among several of the groups we examined appears to be very low as compared with comparable natural areas, as seen in Tables 2, 3, 4, and 5. This disparity is particularly evident in the case of the butterflies, as can be seen when FLP is compared with the larger remnants of this region (Table 5).

Unexpectedly, we found a few groups to be reasonably well represented on this site. Examples would include the leafhoppers, the grasshoppers (Table 6), and especially the katydids (Table7). In fact, FLP probably supports as many katydid species as do most comparable natural areas (This is the first site we have encountered that supports 4 coneheaded katydid species [*Neoconocephalus spp.*]).

Qualitative Assessment

As anticipated, the insect community at FLP resembles that of an old field from a qualitative standpoint. To begin with, many rather common prairie/savanna species were not recorded during this first year. Examples would include the Silphium weevil, (*Merynchites aenous*), the Little wood satyr (*Megisto cymele*), the bronze copper, (*Lycaena thoe*), the Delaware skipper, (*Atrytone logan*), the Milkweed tiger moth (*Euchaeteus egle*), the Tick clover beetle, (*Odontota horni*), and the Cordgrass leafhopper (*Hecalus lineatus*) , just to name a few.

Most of the species we recorded at FLP are known to be wide ranging animals with very broad habitat requirements. Interestingly, a moderate number of habitat-restricted insects, species that are not generally associated with early seral, weedy habitats, were recorded as well. Examples of species thought to be 'moderately' habitat restricted in this region would include: the Sweetheart underwing, *Catocala amatrix*, the wood nymph, *Cercyonis pegala olympus*, the Edwards hairstreak, *Satyrium edwardsii*, the Great-spangled fritillary,

Speyeria cebele, the cattail katydid, *Conocephalus attenuatus*, and the leafhoppers *Parabolocratus major*, *Cicadula melanogaster*, and *Graminella fitchi*. Examples of species thought to be decidedly habitat restricted in this region would include: the baptisea duskywing, *Erynnis baptisiae*, the nebraska conehead, *Neoconocephalus nebrascensis*, the Robust conehead, *N. robustus*, and the leafhoppers *Dorycephalus platyrhynchus*, *Paraphlepsius lobatus*, and *Mesamia nigridorsum*.

It is interesting to note that nearly half of the habitat restricted species shown in Table 1 are wetland species, while fewer than 25% are upland prairie forms. This may be accounted for by the fact that all of remnants within the ring are wetlands. Did these very small degraded wetland remnants serve as insect refugia or, were the extensive wetlands formed by the breaking of the tile drainage simply more easily recolonized from external sources than were the restored uplands? If the bulk of the wetland species listed in Table 1 did indeed simply expand into the resoration from adjacent remnants, then only the 13 upland prairie and savanna species may have managed to transverse a significant distance to reach this site; and many of these may have emanated from the upland woodlands immediately outside of the accelerator ring. In short, the listing of uncommon animals (Table 1) does not provide compelling evidence that there has been an appreciable movement of habitat-restricted insects into the Fermilab Prairie Restoration from distant remnants.

Survey Thoroughness

Whereas we have likely recorded 80-90% of the butterflies, grasshoppers, and katydids that occur on this site, we have almost certainly recorded less than 80% of the leafhoppers and certain of the other groups examined -- far less in the case of the moths. Given the extent of the fluctuations in density that insect populations tend to undergo, the very localized distributions of many species within what appear to be homogeneous habitats, the tendency of certain species to flee well in advance of an investigator, and the large size of the Fermilab Prairie, a second and possibly third year of study will be required to complete this survey. The effectiveness of this study might be further improved by expanding to include a qualitative and quantitative comparison of the FLP insect community with that of the nearby West Chicago Prairie, a high quality preserve that includes sedge meadow, wet and mesic prairie, and tall grass savanna on similar soils.

Conclussion

Fermilab Prairie supports a wide variety of common, wide ranging insects, as well as a modest number of what are generally considered to be prairie and wetland insects. The data obtained in this study seem to support the view that restorations, at least the large ones, can potentially contribute, within resonably short periods of time, to the conservation of habitat-restricted insect species. Our results also suggests, however, that many native species may be excluded from the 'apparently' suitable habitats within isolated restorations by the inhospitable gaps that separate these sites from nearby prairie remnants. Planned attempts to reintroduce appropriate insect species into the FermiLab Prairie should provide an interesting test of this hypothesis.

TABLE 1
HABITAT ASSOCIATIONS OF THE UNCOMMON INSECTS
OF THE FERMILAB PRAIRIE RESTORATION

Species:	Habitat: Wetland	Prairie	Savanna
Enallagma aspersum	X		
Calopteryx maculata	X		
Scudderia texensis	X		
Neoconocephalus robustus		X	
Neoconocephalus nebrascensis?			
Conocephalus attenuatus	X		
Orycephalus platyrhynchus		X	
Parabolocratus rotundus	X		
Scaphoideus ochraceous			X
Prescottia lobata			X
Flexamia inflata		X	
Graminella fitchii	X		
Aplicephalus osborni	X		
Ablysellus curtisii	X		
Lisnotettix striolus	X		
Mesamia nigrodorsum		X	
Paraphlepsius eburneolus			X
Paraphlepsius lobatus	X		
Elymana acrita			X
Cicadula melanogaster	X		
Satyrium edwardsii			X
Speyeria cebele			X
Lethe eurydice	X		
Cercyonis pegala		X	
Erynnis baptisiae		X	
Catocala amatrix			X
Catocala amica			X

TABLE 2
THE SPITTLEBUG COMMUNITIES OF FOUR
PRAIRIE/WETLAND/SAVANNA COMPLEXES IN THE CHICAGO REGION

	Somme	Middlefork	Wadsworth	Fermilab
Philaenus spumarius	X	X	X	X
Aphrophora quadrinota	X		X	
Clastoptera obtusa	X	X		
Clastoptera proteus	X	X	X	
Prosapia bicincta		X	X	

TABLE 3
THE UNDERWING MOTH COMMUNITIES OF FOUR
PRAIRIE/WETLAND/SAVANNA COMPLEXES IN THE CHICAGO REGION

	Somme	Middlefork	Wadsworth	Fermilab
Catocala micronympha		X		
Catocala mira	X			
Catocala ultronia	X			X
Catocala cerogama	X			
Catocala briseis			X	
Catocala ilia	X	X	X	X
Catocala parta			X	
Catocala blandula			X	
Catocala lacrymosa			X	
Catocala paleogama			X	
Catocala grynea	X		X	
Catocala concubens			X	
Catocala amica		X		X
Catocala cara	X	X	X	
Catocala obscura		X	X	
Catocala neogama		X		
Catocala amatrix		X		X

TABLE 4
THE TREEHOPPER COMMUNITIES OF FOUR
PRAIRIE/WETLAND/SAVANNA COMPLEXES IN THE CHICAGO REGION

	Somme	Middlefork	Wadsworth	Fermilab
Campylenchia latipes	X	X	X	
Enchynopa binotata		X	X	
Acutalis tartarea	X	X	X	X
Micrutalis calva		X	X	X
Stictocephalus taurina	X	X		X
Stictocephalus bubalus	X	X	X	X
Stictocephalus lutea	X	X	X	X
Stictocephalus diceros	X	X	X	X
Stictocephalus basilis		X		
S. constans or *palmeri?*	X			
Spissostilus borealis	X		X	
Publilia concava	X	X	X	X
Atymna querci		X		
Ophiderma salamandra		X		
Ophiderma grisea	X			
Xantholobus muticus	X	X		
Cyrtolobus maculifrontis	X	X		
Cyrtolobus vau	X			
Cyrtolobus dixianus	X			
Cyrtolobus griseus		X		
Cyrtolobus pallidifrontis		X	X	
Cyrtolobus sp.		X		
Telamona spreta		X		
Telamona unicolor		X		
Telamona compacta		X		
Telamona reclivata		X		
Telamona westcotii		X		X
Telamona sp.				X
Archasia pallida		X		
Glossonotus crataegi			X	
Microcentrus perditus		X	X	X

TABLE 5
DISTRIBUTION OF BUTTERFLY DIVERSITY ON 18 PRAIRIE AND WETLAND REMNANTS IN THE CHICAGO REGION

Remnant:	Area (ha.)	Species number: Restricted species*	Nonrestricted species	Total species
Fermilab Restoration	**200.0**	**1**	**28**	**29**
Braidwood Dunes/Savanna	100.0	17	29	46
Gensburg Markham Prairie	90.0	16	35	51
Lockport Prairie	86.0	10	22	32
West Chicago Prairie	70.0	14	25	39
Romeoville Prairie	62.0	10	24	34
Pratts Wayne Marsh	44.0	10	20	30
Midlothian Prairie	29.0	8	24	32
Paintbrush Prairie	17.0	7	22	29
Somme Prairie	14.0	8	18	26
Cook Prairie	14.0	13	25	38
Buffalo Grove Prairie	6.4	5	16	21
I- 57 Prairie	4.5	3	17	20
Belmont Prairie	4.1	6	27	33
Chicago Ridge Prairie	3.6	3	17	20
Cary Prairie	2.0	3	19	22
Main Street Prairie	2.0	2	19	21
Vermont Cemetery Prairie	1.0	1	14	15

* includes prairie restricted species only.

TABLE 6.
THE GROUSE LOCUST, GRASSHOPPER, AND WALKING STICK COMMUNITIES OF FOUR PRAIRIE/WETLAND/SAVANNA COMPLEXESIN THE CHICAGO REGION

	Somme	Middlefork	Wadsworth	Fermilab
Acrididae: Grasshoppers				
Chortophaga viridifasciata	X	X	X	X
Dissosteira carolina	X	X	X	X
Chorthippus curtipennis	X	X	X	X
Chloealthis conspersa	X	X	X	X
Melanoplus bivittatus	X	X	X	X
Melanoplus viridipes	X	X		
Melanoplus gracilis		X		
Melanoplus femurrubrum	X	X	X	X
Trachyrachis kiowa			X	
Tetridgidae: Grouse locusts				
Nomotettix cristatus	X	X		
Tetrix ornatum				X
Phasmatidae: Walking sticks				
Diapheromera blatchleyi		X		
Diapheromera femorata		X	X	

TABLE 7.
THE KATYDID COMMUNITIES OF FOUR PRAIRIE/WETLAND/SAVANNA COMPLEXES IN THE CHICAGO REGION

	Somme	Middlefork	Wadsworth	Fermilab
Pterophylla camellifolia	X	X	X	X
Amblycorypha rotundifolia	X	X	X	
Amblycorypha oblongifolia	X	X	X	X
Microcentrum rhombifolium	X			X
Neoconocephalus ensiger	X	X	X	X
Neoconocephalus retusus	X		X	X
Neoconocephalus robustus				X
Neoconocephalus nebrascensis				X
Scudderia curvicauda			X	X
Scudderia furcata	X	X	X	X
Scudderia texensis			X	X
Scudderia pistillata		X		
Atlanticus testaceus	X	X	X	
Conocephalus attenuatus		X	X	X
Conocephalus nigropleurum			X	
Conocephalus fasciatus	X	X	X	X
Conocephalus brevipennis	X	X	X	X
Conocephalus strictus			X	
Orchelimum vulgare	X	X	X	X
Orchelimum nigripes	X	X	X	X

AN ANNOTATED LISTING OF THE INSECTS OF THE FERMILAB PRAIRIE RESTORATION, DUPAGE COUNTY ILLINOIS

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

family **Aeshnidae**

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

family **Libellulidae**

Sympetrum rubicundulum (Say) 6-16-86 **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.

Sympetrum obtrusum Hagen 7-9-86 **White-faced topper**
This is a somewhat common, late summer species.

Plathymis lydia (Drury) **White-tailed dragonfly**
This very common, wide ranging species breeds in the permanent waters of ponds and ditches.

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.

Tramea lacerata Hagen 7-9-86 **Saddle bags**
This is a very common, wide ranging species.

Pachydiplax longipennis (Burmeister) **Blue pirate**
This is a common, wide ranging species.

suborder **Zygoptera: damselflies**

family **Coenagrionidae**

Ishnura verticalis (Say) **Common fork-tail**
This is a very common, wide ranging species.

Enallagma civile (Hagen) 8-12-86 **bluet**
This is a common species, inhabiting ponds, lakes, and slow streams.

Enallagma aspersum (Hagen) 8-31-86 **bluet**
This uncommon species inhabits sedge and grass-bordered ponds.

family **Calopterygidae**

Calopteryx maculata Burmeister **Black-winged damselfly**
One individual was recorded on this date. This somewhat uncommon stream species probably does not breed in the stagnant waters on this site. 8-11-86

family **Lestidae**

Lestes uncatus Hagen **damselfly**
Several members of this common, widespread species were observed mating on this date. 6-16-86

Lestes uniguiculatus Hagen **damselfly**
This is a very common member of this genus. Several individuals were observed mating on 8-11-86.

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

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

Chloealthis conspersa Harris 7-9-86 **Sprinkled locust**
This would appear to be a somewhat uncommon, northern savanna/woodland species. . .recorded within plots 1 and 4.

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

subfamily **Oedipodinae**

Chortophaga viridifasciata (DeGeer). **Green-striped g'hopper**
This common, wide ranging spring species overwinters as an adult. 5-28-86

Dissosteira carolina (L.) **Carolina grasshopper**
This very common, wide ranging species thrives in denuded habitats such as paths and gravel roadways.

subfamily **Cyrtacanthacridinae**

Melanoplus bivittatus (Say) **Two-striped grasshopper**
This common, bimodal species occurs both in wet prairies and on xeric hill prairies. 7-9-86

Melanoplus femurrubrum (DeGeer) **Red-legged grasshopper**
This is a very common, wide ranging species. Although this species typically occurs in tremendous numbers in recently degraded, weedy habitats, we found it to be somewhat scarce within the restored prairie plots on this site. 8-11-86

family **Tetridgidae**

Acadicus granulatus Kirby 8-11-86 **grouse locust**
This northern prairie species is somewhat common in the Chicago region.

suborder **Ensifera: katydids & crickets**

family **Tettigoniidae**
subfamily **Phaneropterinae**

Scudderia curvicauda (DeGeer) **Curve-tailed bush katydid**
This would appear to be a somewhat common, wide ranging wetland species. 7-9-86

Scudderia furcata Brunner **Fork-tailed bush katydid**
This is a common, wide ranging ecotonal species.
8-11-86

Scudderia texensis Saussuer & Picket **Texas bush katydid**
This is a somewhat uncommon prairie species. Found in large numbers in predominantly weed-free stands of prairie grasses on this site.
8-11-86

Amblycorypha oblongifolia (DeGeer) **Oblong-winged katydid**
This common species was recorded singing from shrubs and herbaceous vegetation on several occassions.

Microcentrum rhombifolium (Saussure) **Angle-winged katydid**
This common arboreal species was recorded singing within the savanna on 8-25-86.

subfamily **Copiphorinae**

Neoconocephalus ensiger (Harris) **Sword-bearing conehead**
This is a common, wide ranging species. Favored host plants include *Andropogon spp.* 8-11-86

Neoconocephalus robustus Scudder **Robust cone-head**
While apparently restricted to sand prairies in the Chicago region, this species apparently occurs along roads and in oldfields in the Aurora area. 8-29-86

Neoconocephalus retusus (Scudder) **Brown conehead**
This ubiquitous southern species has apparently expanded into this region within the past 20 years.

Neoconocephalus nebrascensis (Bruner) **Nebraska conehead**
Blatchley stated that it was the most common conehead in central and northern Indiana. Nevertheless, this is only our second record of this species in this region. It has been reported to be more of a savanna species in Nebraska. We captured this individual while singing in the savanna.

subfamily **Conocephalinae**

Conocephalus fasciatus (DeGeer) **Slender meadow katydid**
This is a common, wide ranging species. 8-11-8

Conocephalus attenuatus (Scudder) **Long-tailed meadow katydid**
This would appear to be an uncommon, marsh-inhabiting species in this region. 8-11-86

Conocephalus brevipennis (Scudder) **Short-winged meadow k'did**
This is apparently the most common member of this genus in this region. It seems to be present in most prairies and old fields in the Chicago area.

Orchelimum vulgare Harris **Common meadow katydid**
This is a common, wide ranging upland prairie species. 7-9-86

Orchelimum nigripes Scudder **Black-legged meadow k'did**
This common, wide ranging species occurs along the margins of wetland areas. 8-11-86

subfamily **Pseudophyllinae**

Pterophylla camelliifolia (F.) 8-11-86 **True katydid**
Reported to be a somewhat common, arboreal species, this katydid was recorded singing from the savanna tree tops on several occasions.

Family **Gryllidae**
subfamily **Oecanthinae**

Oecanthus niveus (DeGeer) **Narrow-winged tree cricket**
Taken within the savanna on oaks. 8-26-86

Oecanthus argentinus Saussure **tree cricket**
Taken within the savanna on oaks. 8-26-86

Oecanthus nigricornus T. J. Walker **tree cricket**
Taken within the savanna on 9-22-86

order **NEUROPTERA: lacewings**

family **Chrysopidae**

Chrysopa spp. **green lacewing**

family **Hemerobiidae**

Hemerobius spp. **brown lacewings**

Order **HEMIPTERA: true bugs**

family **Pentatomidae**

Euschistus variolarius (P.B.) **One-spotted stink bug**
This is a very common, wide ranging species.

Holcostethus limbolarius Stal **stink bug**

Acrosternum hilare (Say) **Southern green stink bug**
This is a very common, wide ranging species.

Cosmopepla bimaculata (Thomas) **stink bug**
This species occurs with regularity on the prairie remnants of this region. Occurs in atypically small numbers on this site.

Podisus maculiventris (Say) **Spined soldier bug**

family **Podopidae**

Neurochrous brevitylus Barber & Sailer **turtle bug**
Taken in sweep samples on 5-28-86.

family **Thyreocoridae**

Corimelaena lateralis lateralis (F.) **negro bug**

family **Cydnidae**

Sehirus cinctus (Palisot de Beauvois) **burrower bug**

family **Alydidae**

Alydus eurinus (Say) **broad-headed bug**
This common prairie species occurs on *Lespedeza capitata.*

family Lygaeidae

Ishnodemus falicus (Say.) **Chord grass seed bug**
This prairie species is apparently restricted to a remnant patch of *Spartina* adjacent to plot 1. 5-28-86

Lygaeus kalmii Stal **Small milkweed bug**
This common species occurs predominantly on *A. syriaca.* 6-17-86

Oncopeltis fasciatus (Dallas) **Large milkweed bug**
This common species occurs predominantly on *A. syriaca.* 6-17-86

family Tingidae

Corythuca ciliata (Say) **lace bug**

family Phymatidae

Phymata sp. **ambush bug**
Common on goldenrods.

family Nabidae

Nabis americoferus Carayon **damsel bug**
This is a very common, wide ranging species.

family Miridae

Poecilocapsus lineatus (F.). **Four-lined Plant Bug**
Host plants include gooseberries (*Ribes spp.*).

Lygus lineolaris (P.B.) 5-28-86 **Tarnished plant bug**
This is a very common, wide ranging species.

Leptopterna dolobrata (L.) **Meadow plant bug**
This is a very common, wide ranging species.

Order **HOMOPTERA: leafhoppers & planthoppers**

family **Cicadellidae**

Idiocerus [inceptus or nervatus] **leafhopper**
6-16-86

Macropsis viridis (Fitch) 6-16-86 **leafhopper**
Reported to be a common, transcontinental species. Host plants are willows.

Agallia quadripunctata (Provancher) **leafhopper**
This common northeastern species occurs in moist open woodlands.
5-28-86

Aceratagallia sanguinolenta (Provancher) **Clover leafhopper**
A very common and widespread species. 7-9-86

Kolla bifida (Say) 7-9-86 **leafhopper**
Reported to be a common species.

Helochara communis Fitch 6-16-86 **leafhopper**
A common, transcontinental, wet prairie species.

Graphocephala coccinea (Forster) 9-21-86 **leafhopper**
This common eastern species can be found on ornamentals as well as on Rubus.

Draeculacephala [constricta or mollipes] **leafhopper**
6-16-86

Draeculacephala producta (Walker) **leafhopper**
Reported to be a common, wide ranging species. 6-19-86

Draeculacephala antica Walker 7-12-86 **leafhopper**
Common in eastern U.S.

Gyponana ortha DeLong 7-14-86 **leafhopper**
A widely distributed species in eastern and midwestern U.S.

Ponana rubida DeLong 6-19-86 **leafhopper**
A midwestern species taken at black light.

Borycephalus platyrhynchus Osborn. **Duck-billed leafhopper**
This western grass feeding prairie species is rare in the Chicago region. It is apparently restricted in distribution to plot 6, west of the savanna. 5-28-86

Parabolocratus major Osborn 7-12-86 **leafhopper**
This is a somewhat uncommon, wet prairie species.

Parabolcratus rotundus DeLong 9-21-86 **leafhopper**
Reported to be an uncommon wetland species; known only from Illinois and Ohio (DeLong 1948).

Aphrodes costata (Panzer) **subterranean leafhopper**
This common species is apparently introduced from Europe.

Xestocephalus superbus (Provancher) **leafhopper**
Reported to be common on herbaceous growth in open woodlands. 8-12-86

Scaphoideus ochraceous Osborn 8-31-86 **leafhopper**
This is an unusual eastern woodland species.

Scaphoideus sp. 7-9-86 **leafhopper**

Prescottia lobata (VanDuzee) 8-31-86 **leafhopper**
Occurs on *Solidago caesia* in open woodlands or edges.

Cloanthanus cuprescens (Osborn) **Copper leafhopper**
Reported to be a common, widespread species. 7-9-86

Cloanthanus frontalis (VanDuzee) **leafhopper**
Reported to be a common, widespread species. 6-16-86

Cloanthanus acutus (Say) 6-19-86 **leafhopper**
Reported to be a common transcontinental species.

Flexamia inflata (Osborn and Ball) 6-16-86 **leafhopper**
DeLong described this as the most common *Flexamia* in Illinois, found on pastures and prairies. Only one specimen was swept. We have yet to encounter this species on other sites.

Latulus missellus (Ball) 7-9-86 **leafhopper**
A northern species found in meadows and open woodlands.

Latulus sayi (Fitch) 5-28-86 **leafhopper**
A common pasture species on bluegrass and other grasses; swept from *Festuca.*

Polyamia imimica (Say) 6-16-86 **leafhopper**
A common transcontinental grass-feeder.

Deltocephalus sonorus Ball 8-12-86 **leafhopper**
A common widely distributed grass-feeder.

Laevicephalus sp. 5-28-86 **leafhopper**

Psammotettix striatus (L.) 5-28-86 **leafhopper**
A transcontinental grass-feeder.

Amplicephalus osborni (Van Duzee) 6-19-86 **leafhopper**
A northern marsh species, caught at black light on 6-19-86.

Graminella fitchii (Van Duzee) 6-19-86 **leafhopper**
A wet prairie species, attracted to black light.

Ambigsellus curtisii (Fitch) 9-21-86 **leafhopper**
A northeastern species on *Calamagrostis.*

Stirellus bicolor (VanDuzee) **leafhopper**
Reported to be a common species in meadows and on crops. 7-9-86

Doratura stylata (Boheman) **Short-winged European leafhopper**
This exotic species would appear to be very common locally. 6-16-86

Paraaesus nervosus (Fall) 6-19-86 **leafhopper**
This exotic species was abundantly attracted to black light.

Athysanus argentarius Metcalf **leafhopper**
A ubiquitous introduction from Europe.

Lisotettix striolus (Fallen) 5-28-86 **leafhopper**
A sedge meadow species.

Mesamia nigridorsum Ball **Helianthus leafhopper**
This prairie species would appear to be very uncommon in this region. 7-9-86

Paraphlepsius irroratus (Say) **leafhopper**
This is a very common transcontinental species. 6-19-86

Paraphlepsius eburneolus (Osborn & Lathrop) **leafhopper**
This apparently uncommon species reportedly feeds on grasses in woodlands. 8-31-86

Paraphlepsius collitus (Ball) *6-19-86* **leafhopper**
A common grass-feedeing species in meadows and savannas.

Paraphlepsius lobatus (Osborn) *8-31-86* **leafhopper**
An uncommon wet prairie species.

Chloratettix unicolor (Fitch) 7-9-86 **leafhopper**
This wet prairie species may be uncommon in this region.

Elymana acrita DeLong 9-21-86 **leafhopper**
Described from Illinois as found on *Elymus* in shaded areas.

Cicadula melanogaster (Provancher) 6-19-86 **leafhopper**
This would appear to be a somewhat uncommon, wet prairie species.

Colladonus clitellarius (Say) **leafhopper**
Reported to be a widespread northeastern and midwestern species.

Macrosteles divisa (Uhler) **leafhopper**
A common species on crops. 6-16-86

Jassus olitorius Say 8-21-86 **leafhopper**
Common on oaks from mid July onward.

Mesosteles neglecta (DeLong and Davidson) **leafhopper**
A common widespread species.

Empoasca spp. 7-12-86 **leafhopper**

Dikraneura sp. 6-16-86 **leafhopper**

Typhlocyba sp. 6-19-86 **leafhopper**
These leafhoppers were swept from oaks in the degraded savanna on numerous occasions.

Erythroneura sp. 6-16-86 **leafhopper**

family Cicadidae

Tibicen linnei (Smith and Grossbeck) **dog-day cicada**
This species was heard singing from the tops of the trees in the oak savanna on 7-9-86.

Tibicen sp. 8-11-86 **dog-day cicada**

family Membracidae

Microcentrus perditus (Amyot and Serville) **treehopper**
Host plant is bur oak.

Publica concava (Say) 8-29-86 **treehopper**
A common, wide ranging species that feeds on a wide variety of herbaceous plants.

Stictocephala taurina (Fitch) **treehopper**
A common, wide ranging species that feeds on a wide variety of woody and herbaceous plants.

Stictocephala bubalus (F.) 7-9-86 **Buffalo treehopper**
This common, wide ranging species feeds on a wide variety of woody and herbaceous plants.

Stictocephala diceros (Say) 7-9-86 **treehopper**
Another common, wide ranging species that feeds on a wide variety of woody and herbaceous plants.

Acutalis tartarea (Say) 7-3-86 **treehopper**
Host plants for this common species include *Ambrosia, Solidago,* and *Helianthus*

Micrutalis calva Say 8-11-86 **minute treehopper**
Host plants for this common species include *Ambrosia* and *Helianthus spp.*

Telamona decorata Ball 8-11-86 **treehopper**
Host plants are oaks (*Quercus spp.*)

Telamona westcotti Goding 8-11-86 **treehopper**
Host plants are various oaks and Basswood.

Telamona sp. **treehopper**

family **Dictyopharidae**

Scolopes sulcipes (Say) **Candle-headed planthopper**
This is a common upland prairie species.

family **Acanaloniidae**

Acanalonia bivittata Say 8-11-86 **planthopper**
A very common, wide ranging species.

family **Derbidae**

Ceresa sp. 8-11-86 **planthopper**
Swept commonly from herbaceous vegetation.

family **Flatidae**

Metcalva pruinosa (Say) 8-11-86 **planthopper**
This common, wide ranging species was swept from trees and shrubs.

Anormenis septentrionalis (Spinola) **planthopper**
This common, wide ranging species was swept from shrubs.

family **Cercopidae**

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

Order **COLEOPTERA: beetles**

family **Cicindelidae**

Cicindela sexgutata (F.) **6-spotted tiger beetle**
This is a common denizen of bare soils and pathways. 5-28-86

Cicindela sp. 7-9-86 **tiger beetle**
This species was found to be common on the bare ground between bunch grasses (plot 6) on this date.

family **Carabidae**

Lebia ornata Say **Ornate ground beetle**
This common species was swept from vegetation in plot 1.

family **Silphidae**

Nicrophorus sp. **carrion beetle**
Taken at a blacklight on 8-31-86.

family **Cantharidae**

Chauliognathus pennsylvanica (DeGeer) **soldier beetle**
This is a very common, wide ranging species. 7-9-86

family **Coccinellidae**

Coleomegilla fuscilabris (Mulsant) **ladybird beetle**
This somewhat common species occurs with regularity on irises.

Coccinella transversoguttata Faldermann **ladybird beetle**
A common, wide ranging species. 6-14-86

Hippodamia parenthesis (Say) **ladybird beetle**
This species was taken both in sweep samples and at black lights. 6-18-86

Brachyacantha ursina (F) 6-14-86 **Small ladybird**
This species occurs with regularity on *A. syriaca.*

Cycloneda sanguinea (L.) **Unmarked ladybird**
Occurs with regularity on *A. syriaca.*

family **Cerambycidae**

Tetraopes tetraophthalmus (Forester) **Red milkweed beetle**
The host plant for this common species is *A. syriaca.* 6-14-86

Oberea tripunctata (Swederus) 6-16-86 **Dogwood longhorn**
Host plants for this common species are reported to include cottonwoods, elms, dogwoods, and viburnum.

Typocerus sinuatus (Newman) 7-9-86 **Rudbeckia longhorn**
This common species visits composite flowers with regularity.

family **Chrysomelidae**

Systena sp. **leaf beetle**
This ubiquitous species was found to occur in very large numbers on a wide variety of herbaceous plants.

Trirhabda canadensis (Kirby) **Goldenrod beetle**
This ubiquitous species was found to occur in large numbers where ever its foodplant, *Solidago altissima,* was present.

Microrhopala vittata (F.) **leaf beetle**
Host plants for this somewhat uncommon species include *Silphium spp.*

Diabrotica undecimpunctata howardi Barber **Cucumber Beetle**
This is a very common, wide ranging species.

Chrysochus auratus (F.) **Dogbane Beetle**
This common species feeds on Apocynum spp.

Labidomera clivicolis (Kirby) **Swamp Milkweed Beetle**
This common species was found to feed primarily on *A. syriaca* on this site.

Zygogramma suturalis (F.) **leaf beetle**
One individual was taken in plot 1.

Order **LEPIDOPTERA: butterflies & moths**

family **Nymphalidae**

Polygonia interrogationis (F.) **Question mark**
This common ecotonal species was seen visiting dogbane and canada thistles on this date. 7-9-86

Polygonia comma Harris **Comma**
One specimen of this somewhat uncommon woodland species was taken in a bait trap on 9-31-86.

Junonia coenia Hubner 6-17-86 **Buckeye**
This common, migratory species was recorded 'puddling' along the gravel road.

Nymphalis antiopa (L.) 5-28-86 **Mourning cloak**
This common, willow-feeding species was found to be common on this site.

Vanessa atalanta (L.) **Red admiral**
This is a common, wide ranging species

Vanessa cardui (L.) 5-28-86 **Painted lady**
This is a very common, wide ranging species. Host plants are thistles (*Circium spp.*).

Vanessa virginiensis (Drury) 7-9-86 **American painted lady**
This somewhat common species feeds on pussytoes (*Antennaria spp.*).

Speyeria cybele (F.) **Great spangled fritillary**
This somewhat uncommon species was seen flying through and adjacent to the oak savanna on 7-9-86 (only 3 sightings).

Basilarchia archippus (Cramer) **Viceroy**
This common, willow-feeding species was found to be somewhat uncommon on this site.

Phyciodes tharos (Drury) 7-9-86 **Pearl crescent**
This very common, wide ranging species feeds on asters.

Limenitis arthemis astyanax (Boisduval & LeConte) **Red-spotted purple**
This common ecotonal species is reported to feed on a wide variety of woody plant species. 8-11-86

family **Danaidae**

Danaus plexippus (L.) 5-28-86 **Monarch**
This is a common, migratory species.

family **Satyridae**

Satyrodes eurydice (Johannsson) **Eyed brown**
This is an uncommon wet prairie species. Host plants are sedges [*Carex spp.*]

Cercyonis pegala (F.) **Blue-eyed grayling**
This is a somewhat uncommon inhabitant of the prairie/forest ecotone. Host plants are grasses.

family **Pieridae**

Colias eurytheme Boisduval **Orange sulphur**
This ubiquitous species was found to occur in large numers. Host plants include cultivated legumes.

Colias philodice Godart **Common sulphur**
This ubiquitous species was found to occur in large numers. Host plants include cultivated legumes.

Pieris rapae (L.) **Cabbage butterfly**
This ubiquitous exotic was found to occur in large numers. Host plants are crucifers.

family **Papilionidae**

Papilio polyxenes asterius Stoll. **Black swallowtail**
This very common species feeds on both native and exotic members of the family Umbelliferae.

family **Lycaenidae**

Everes comyntas (Godart) **Eastern-tailed blue**
This very common species feeds on a wide variety of native and exotic legumes.

Celastrina ladon (Cramer) **Spring azure**
The host plants for this common species include willows.

Satyrium edwardsii (Saunders) 7-9-86 **Edward's hairstreak**
Two very worn specimens of this uncommon, oak feeding species were captured while visiting *A. syriaca* directly south of the savanna.

family **Hesperiidae**

Thymelicus lineola (Ochsenheimer) **European skipper**
Found to occur in numbers within patches of *Phleum pratense*, its favored host plant. 6-17-86

Polites themistocles (Latreille) **Tawny-edged skipper**
This very common species was found to occur in uncharacteristically small numbers.

Ancyloxypha numitor (F.) **Least skipper**
This somewhat common species was sighted on many occassions in the marsh and sedge meadows areas adjacent to the central pond.

Erynnis baptisiae (Forbes) 8-11-86 **duskywing**
This very uncommon species was recorded nectaring at *Ratibida pinnata.* Only one individual was seen.

family **Noctuidae**

Catocala ultronia (Hbn) 7-14-86 **Ultronia underwing**
Host plants are members of the family Rosaceae.

Catocala ilia (Cramer) 7-14-86 **Ilia underwing**
This oak-feeding species is reported to be common.

Catocala amica (Hbn.) 7-14-86 **Girlfriend underwing**
This oak-feeding species is reported to be common.

Catocala amatrix (Hbn.) **The Sweetheart**
This is reported to be an uncommon, willow-feeding species.

Zale lunata (Drury) 7-14-86 **Lunar moth**
Host plants include willows and maples. Taken at blacklight.

Papaipema arctivorens Hampson 9-21-86 **moth**
This somewhat common species reportedly feeds on burdock.

Papaipema nebris (Guenee) **moth**
This somewhat common species reportedly feeds on a variety of weedy plants.

Sunira bicolorago (Guenee) **Bicolored sallow**
This reportedly common species feeds on a variety of weedy plants.

Lithacodia synochitis (Grote & Robinson) **Black-dotted lithacodia**
This species is reported to feed on smartweeds (*Polygonum spp.*).

Lithacodia carneola (Gn.) **Pink-bordered lithacodia**
Host plants include *Solidago* and *Polygonum spp.*; taken at blacklight 7-14-86

Caenurgina erechtea Cramer **Clover moth**
This is an exceedingly common and wide ranging species. Host plants incude several exotics.

Leuconycta diphteroides (Gn.) 6-18-86 **Green leuconycta**
This reportedly common (?) species feeds on goldenrods (*Solidago spp.*).

Scoliopteryx libatrix (L.) 8-29-86 **The Herald**
Host plants are reported to be poplars and willows.

Plusia falcifera Kirby 6-14-86 **Celery looper**
This is a very common and wideranging species. Host plants incude several exotics.

Autographa bilobe Stephens 7-9-86 **Bilobed looper**
This is reported to be a very common, wide ranging species.

Simyra henrici (Grote) 6-17-86 **Henry's marsh moth**
The host plants of this common species include cattails, grasses, and sedges.

Tarachidia erastrioides (Gn.) **Small bird-dropping moth.**
The host plant for this common species is *Ambrosia trifida.*
6-16-86

Apamea amputatrix (Fitch) 7-14-86 **Yellow-headed cutworm**
This common species apparently feeds on a wide variety of native and cultivated plants. Taken at bait.

Amphipoea americana (Speyer) 7-14-86 **American ear moth**
Host plants are grasses and sedges. Common at bait.

Nephelodes minians Gn. 8-21-86 **Bronzed cutworm**
Hosts are grasses including corn.

Idia aemula (Hubner) 8-21-86 **Common idia**
Larvae feed on dead leaves on the forest floor.

Idia americalis (Guenee) 7-14-86 **American idia**
This reportedly common lichen-feeder was taken at bait.

Idia lubricalis (Geyer) 8-14-86 **Glossy black idia**
Host plants include grasses and rotten woods. Taken at baits.

Pseudaletia unipuncta (Haworth) **Armyworm moth**
This very common broad spectrum feeder was taken on numerous occasions at black lights and baits. 7-9-86

Leucania multilineata Walker **Many-lined wainscot**
This is reportedly a common, grass-feeding species. 6-19-86

Leucania scirpicola Guenee **Scirpus wainscot**
This somewhat uncommon species was taken at baits. 8-31-86

Spodoptera frugiperda (J.E. Smith) **Fall armyworm**
This very common species feeds on a wide variety of plants. 8-26-86

Bleptina caradrinalis Guenee **Bent-winged owlet**
Reported to be a common, wide ranging species. 7-10-86

Agrotis ipsilon (Hofnagel) **Ipsilon dart**
Reported to be a very common wide ranging species. Host plants include several cultivated plants. 7-14-86

Xestia dolosa Franclemont **Black-lettered dart**
Reported to be a very common wide ranging species. Host plants include cultivated plants. 8-31-86

Pyrophila tragoponis L. **Three-dotted wing**
Taken at a black light on 7-14-86.

Amphipyra pyramidoides Guenee **Copper underwing**
This common woodland species reportedly feeds on a wide variety of woody plants. 8-31-86

Heliothis zea (Boddie) 9-21-86 **Corn earworm**
This common agricultural pest was taken at black light.

family **Arctiidae**

Ctenucha virginiensis (Esper) **Virginia ctenucha**
A common, grass and sedge-feeding species. 5-28-86

Scepsis fulvicollis (Hubner) **Yellow-collared scape moth**
A common, wide ranging species.

Haploa reversa Stretch 6-18-86 **Reversed haploa**
Captured at black lights. This common ecotonal species feeds on a wide variety of forbs and woody species.

Hypoprepia fucosa Hubner 7-14-86 **Painted lichen moth**
This reportedly common, lichen-feeding species was taken at lights.

Phragmatobia fuliginosa (L.) **Ruby Tiger moth**
Taken at a black light. 7-14-86

Cycnia tenera Hubner. 7-14-86 **Dogbane moth**
Taken at a black light.

Halysidota tessellaris (J.E. Smith) **Banded tussock moth**
This reportedly common species feeds on a wide variety of woody plant species. 7-14-86

family **Lasiocampidae**

Malacosoma americana (F). **Eastern tent caterpillar**
Fresh specimens captured at blacklights on this date. 6-18-86

family **Notodontidae**

Datana integerrima Grote & Robinson **Walnut caterpillar moth**
Host plants of this reportedly common species include walnut and hickories. 7-14-86

Nadata gibbosa (J.E. Smith). **White-dotted prominent**
This reportedly common species feeds on a variety of hardwood species. Taken at a black light. 6-19-86

family **Pyralidae**

Desmia funeralis (Hubner) 8-31-86
Host plants include *Oenothera.*

Crambus spp. **grass moths**

Pyrausta orphisalis Walker 7-14-86 **moth**
Host plants include *Monarda fistulosa.*

Callima argenticinctella Clemens **moth**
Taken on 7-14-86 at lights. Associated with elms.

Argyrotaenia quercifoliana (Fitch) **leafroller moth**
Host plants for this reportedly common species include Oaks.
6-18-86

family **Lymantriidae**

Orgyia leucostigma (J. E. Smith) **White marked tussock moth**
Over 140 known hosts. Taken at black light on 9-21-86.

family **Geometrididae**

Orthonama centrostrigaria (Wallaston) **Bent line carpet**
Host plants include smartweeds (*Polygonum spp.*).

Eulithis diversilineata (Hubner) **Lesser grape vine looper**
Common

Scopula limboundata (Haw.) 6-18-86 **Large lace-border**
This common woodland species feeds on a wide variety of plants.

Euchloena serrata (Drury) 6-18-86 **The Saw-wing**
Host plants include maples (*Acer spp.*).

Xanthotype urticaria Swett 7-14-86 **False crocus geometer**
This species is somewhat common in this region. Host plants include a wide variety of woody and herbaceous species.

Haematopis grateria (F.). **Chickweed geometer**
This very common species feeds on a wide variety of weedy plant species. 7-7-86

family **Gelechiidae**

Trichotaphe flavocostella (Clemens)**Cream costal trichotaphe**
Host plants are sunflowers (Helianthus) and goldenrods (Solidago). Taken at a black light.

family **Tortricidae**

Eucosma dorsisignata (Clemens) 9-21-86
Larvae feed on roots of *Solidago spp.* Taken at black light.

Choristoneura rosaceana (Harr.) **Oblique-banded leafroller**
Larvae feed on oaks, roses, and other woody species. Taken at black lights. 6-18-86

Sparganothis reticulatana (Clemens) 9-21-86 **moth**
Larvae feed on a variety of trees and shrubs. Taken at black light.

Order **DIPTERA: flies**

family **Tachinidae**

Archytas apicifer (Walker) **Caterpillar tachinid**
This common species preys on caterpillars.

family **Tabanidae**

Tabanus quinquivittatus Weidemann **horse fly**
This is a very common, wide ranging species. Larvae have been found in soils with a variety of moisture conditions.

Tabanus subsimilis Bellardi **horse fly**
This is a very common, wide ranging species. Larvae prefer moist conditions.

Tabanus sirillis Macquart 8-86 **horse fly**
This is a very common, wide ranging species. Larvae have been found in soils with a variety of moisture conditions.

Chrysops pikei Whitney 7-9-86 **deer fly**
This is a very common, wide ranging species. Larvae found in moist conditions.

Chrysops univittatus 7-9-86 **deer fly**
This is a very common, wide ranging species. Larvae found in wet conditions.

Chrysops flavidus Wiedemann 7-14-86 **deer fly**
This is a very common, wide ranging species. Larvae found in moist conditions.

Order **HYMENOPTERA: bees & wasps**

family **Sphecidae**

Sphex ichneumoneus (L.) **Thread-waisted wasp**

family **Vespidae**

Vespula maculifrons (L.) 9-20-86 **Eastern yellow jacket**
A very common, wide ranging species.

Vespula maculata (L.) **Baldfaced hornet**
A very common, wide ranging species.

Polistes sp. **paper wasp**

Ammophila pennsylvanica (L.) **thread-waisted wasp**
A common, wide ranging species

family **Apidae**

Apis mellifera (L.) **Honey Bee**
This is an exceedingly common exotic species.

Bombus fervidus (F.) **bumble bee**
A common, wide ranging species.

Bombus affinus Cresson **bumble bee**
A common, wide ranging species.

Bombus pennsylvanicus (DeGeer) **bumble bee**
A common, wide ranging species.

Note: The dates listed for each species generally refer to the earliest date of capture.

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