85-8

lake county forest preserve district

2000 North Milwaukee Avenue • Libertyville, Illinois 60048 • (312) 367-6640

September 12, 1985

Mr. Carl Becker
Manager
Natural Heritage Section
524 South Second Street
Springfield, IL 62706

Dear Carl:

Please find enclosed the final reports for our two nongame grant projects.

We feel that the projects were successful and we look forward to an opportunity to work with you again to benefit our nongame resources.

Sincerely,

Dan Brouillard
Supervisor of Conservation

DB/ep
Enclosure

85-8

I. Grassland Habitat Restoration

A. Plant Community Assesments:

Baseline quantitative plant species data was obtained in July and August for two of the three grassland habitat study sites. Transects were placed within homogenous plant communties (see attached location maps) and followed a constant environmental gradient (ie. moisture, contour interval, etc.). Samples were taken with a one quarter square meter quadrat spaced twentyfive meters apart. All plant species present within the quadrat were recorded at each point sampled along the transect. Frequency data was computed for each species found within each transect and was tabulated by plant community for each of the two preserves. Subjective evaluations were also noted on the relative condition of each community.

A. Cuba Marsh Preserve

Seven transects were taken in seperate fields containing old field plant communities. These former croplands are in their ninth year of succession having been left fallow following the cessation of farming in 1976. Earlier observations of these areas indicated that smooth brome (Bromus inermis) and quack grass (Agropyron repens) were the dominant plants in all but the most ruderal of areas. These old field communities today, have for the most part, lost their grass cover, except the one in southeast which is dominated by smooth brome. They are now dominated by the more common old field forbs and have advanced to a more shrubby stage

of old field succession. The results of vegetation sampling can be seen in Table 1.

Although not showing up in the transect sampling, pockets of prairie vegetation were observed within the preserve. These pockets were on edges of the old field communities and along wetland edges were the affects of farming were reduced or nonexistent. In one instance the rare shrubby cinquefoil (Potentilla fruticosa) was found on a hilltop indicating the area may have been the former site of a hill prairie.

B. Wadsworth Prairie (DPR 2)

Within the area designated for study at the Wadsworth prairie, three seperate plant communities were recognized. All three of these communities were at one time disturbed by grazing or farming and each has recieved some form of management by the District. Frequency data for these plant communities can be found in Tables 2 - 4.

The old field community on the northwest corner of this designated study site is the most disturbed of the three plant communities. It contains a dense stand of smooth brome grass. This grassland was spring burned in 1982 and is now slowly being invaded by forb species. Tall goldenrod (Solidago altissima) and meadow anemone (Anemone canadense) are beginning to spread and are eliminating smooth brome from within their small clonal colonies.

To the south of the old field community is an area that was planted into prairie in 1983. Prior to planting the area was a

grassland dominated by quack grass and smooth brome and was beginning to succeed to a shrubby old field stage. Before planting began, the area was mowed, herbicided with Round-up and was heavily disced. It was then planted with a prairie mix containing three species of tall prairie grasses, six prairie forb species and a cover crop of winter rye (Secale cereale). The year following planting, the cover crop was harvested and the site was herbicided with 2,4 -D to control the ragweed (Ambrosia spp.) and sweet clover (Melilotus spp.).

Presently this area is responding to management activities. Indian grass (Sorgastrum nutans) is becoming the dominant plant and has started to flower its second season after planting. Big bluestem (Andropogon gerardi), switch grass (Panicum virgatum) and four of the planted prairie forbs have begun to show up within the planting though not with any great frequency. Areas that did not recieve the 2,4-D herbicide treatment do not show as high a germination rate as the areas which were treated.

The last community that was sampled was the disturbed wet prairie located within the yearly floodplain of the Des Plaines River. Historically, this area was only pastured because regular flooding preempted its cultivation. Additional disturbances such as siltation, high nutrients and the cessation of fire allowed reed-canary grass (Phalaris arundinacea) to establish itself and crowd out the native vegetation so that it appeared that the native wet prairie community had been completely replaced. This condition continued until two different management stratedgies were

implemented. Frequent burning has reduced the amount of reed-canary grass present and has resulted in an increase in native prairie plant species within the area lying east of the river. While the use of the herbicide, Round-up, in conjunction with control burning has virtually eliminated reed-canary grass and has promoted the growth of native prairie plants on the west side of the river.

C. Mc Donald Woods

Quantitative vegetation sampling was not preformed at Mc Donald Woods because half of the study site was recently removed from cultivation and planted into prairie while the other half remained as a managed hayfield. An early August field assesment of the area revealed little germination of any of the species planted, but did find an abundant crop of ragweed, quack grass, yellow foxtail (Setaria glauca), flower-of-an-hour (Hibiscus trionum), and velvetleaf (Abutilon theophrasti). A herbicide treatment with 2, 4-D was then applied to control the spread of the unwanted forb species.

II. Prairie Seed Collecting Program

A seed collecting intern has been emloyed by the District since May 13 of this year. As of August 25 this intern has either collected or supervised the collection of seeds from 72 species of prairie plants. In addition, the intern has kept track of the flowering phenology, the amount of seed collected, the date of collection, and the area of collection. This data has been

summarized in Tables 5 and 6.

This year flowering and collecting dates have been running about two weeks ahead of those of the previous two years. Amounts of seed collected has varied from that of previous years due to the ability of the intern, the amount of volunteer help available and perhaps more importantly due to the variabliltly of yearly flowering of the indivdual plant species. Volunteer programs were made available each Saturday and on a special basis during the weekdays. The District's summer Youth Conservation Corps provided a four man crew to collect seeds for one day each week. Both of these collecting programs were supervised by the seed collecting intern.

In terms of species collected, the seed collecting program is now only one half over for this growing season. The District will continue to employ the intern on a part-time basis until December 22. Based on past experience the seed collecting will continue through mid November, after which the emphasis of the program will switch to seed cleaning and storage.

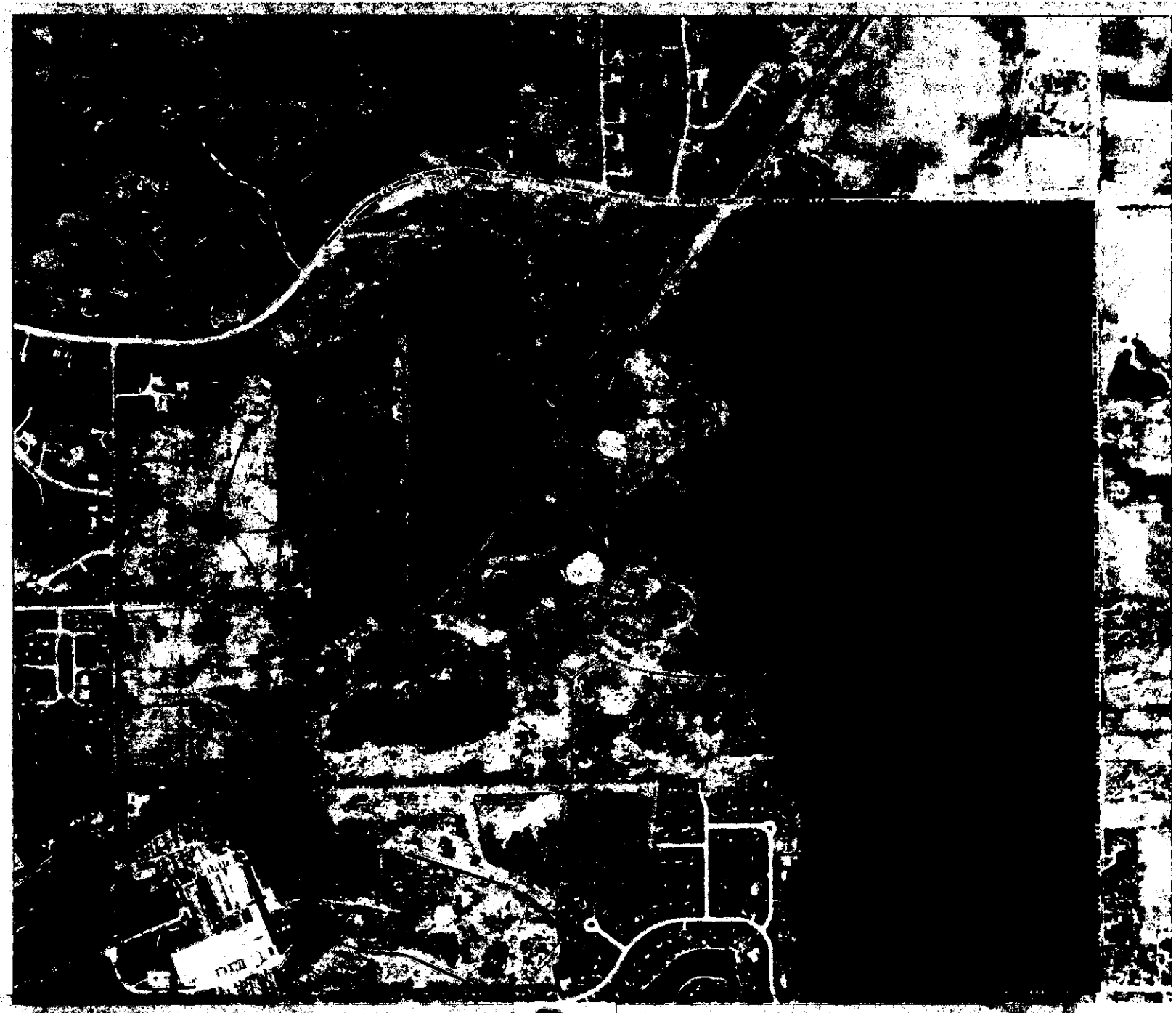
III. Artificial Bat Roosting Structure Feasibility Study

A. Bat Census

The Illinois Natural History Survey was hired to provide a survey to determine the species occurrence and abundance of bats along a three kilometer stretch of the Des Plaines River in northern Libertyville Township. The results of this study can be found in the final report that has been enclosed along with a copy of the

District's contract with the Illinois Natural History Survey.

Since the study has found species of cave dwelling bats inhabiting the area, the District will continue to investigate the feasibility of constructing an artificial winter roosting structure. However, considering the nature of some of the species of bats captured, the District will shift its emphasis to the construction of summer roosting structures and will also look to provide the other elements that are essential habitat components in order to maintain a healthy Lake County bat population.



CUBA MARSH

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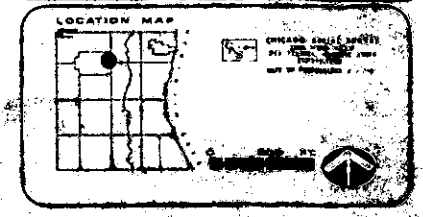
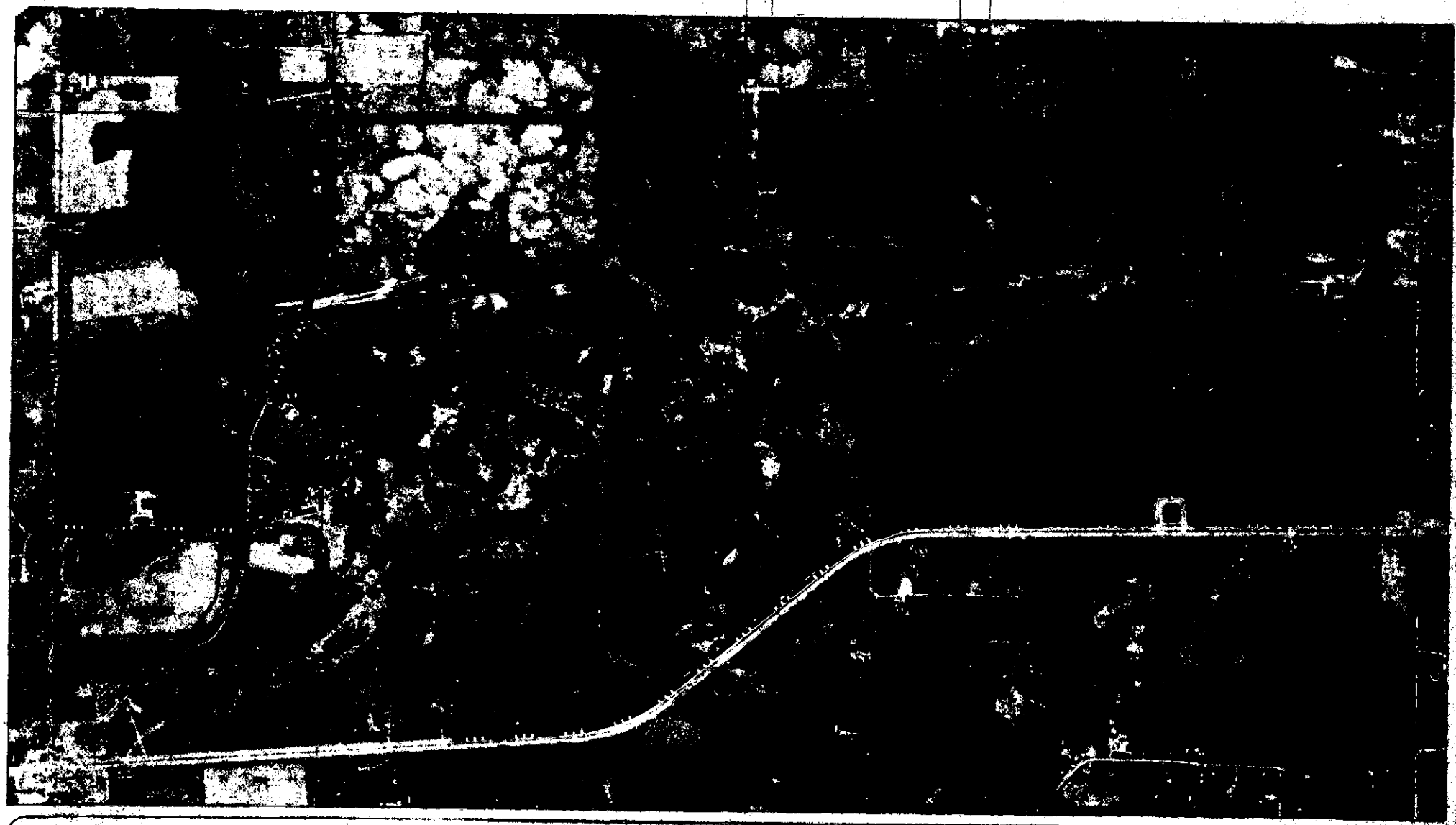
MCDONALD GRASSLAND HABITAT STUDY AREA





lake county forest preserve district
LIBERTYVILLE, ILLINOIS

DPR 2

GRASSLAND HABITAT STUDY AREA

Vegetation transect locations

LOCATION MAP

Table 1: Frequency Data of Plant Species Observed in 1/4 meter square Quadrats from Transects Taken in Old Field Communities at the Cuba Marsh Preserve Lake County, Illinois. (July 2 - 9, 1985)

Freq.	Plant Species*	Freq.	Plant Species*
2	Acer negundo	3	Achillea millefolium
8	Agrimonia gryosepela	8	Agropyron repens
2	Ambrosia artemissiifolia elatior	5	Apocynum cannabinum
2	Asclepias verticillata	6	Asclepias syriaca
3	Barbarea vulgaris	19	Aster ericoides
2	Carex vulpinoidea	18	Bromus inermis
20	Chrysanthemum leucanthemum pinnatifida	4	Cerastium vulgatum
3	Cirsium vulgare	2	Cichorium intybus
10	Cornus racemosa	10	Cirsium arvensis
70	Daucus carota	21	Convolvulus sepium
48	Fragaria virginiana	3	Crataegus mollis
24	Geum aleppicum strictum	48	Erigeron strigosus
5	Geum lanciniatum tricho-carpum	2	Fraxinus pennslyvanica subintegerrima
2	Juniperus virginiana	24	Hieracium pratense
14	Melilotus officinalis	8	Juncus tenuis
2	Panicum meridionale	13	Melilotus alba
8	Phalaris arundinacea	2	Oxalis stricta
50	Poa compressa	2	Parthenocissus quinquefolium
5	Potentilla simplex	30	Phleum pratense
3	Prunus serotina	19	Poa pratensis
2	Quercus alba	3	Prunella vulgaris lanceolata
4	Rosa multiflora	13	Pycnanthemum virginiana
2	Rumex crispus	11	Rhamnus cathartica
14	Solidago graminifolia meadia	11	Rubus occidentalis
8	Solidago rigida	58	Solidago altissima
14	Taraxacum officinale	13	Solidago nemoralis
24	Trifolium hybridum	8	Sonchus arvensis
2	Ulmus americana	2	Tragopogon pratensis
		22	Trifolium pratense
		5	Vitis riparia

* Nomenclature follows Swink and Wilhelm 1979.

Table 2: Frequency Data of Plant Species Observed in 1/4 meter square Quadrats from Transects Taken in an Old Field Community at the Wadsworth Prairie Lake County, Illinois. (August 15, 1985)

Freq.	Plant Species*	Freq.	Plant Species*
1	Achillea millefolium	18	Agropyron repens
1	Anemone canadensis	6	Asclepias syriaca
91	Bromus inermis	6	Carex tenera
6	Chrysanthemum leucanthemum pinnatifida	6	Convolvulus sepium
		39	Daucus carota
9	Erigeron strigosus	1	Lychnis alba
4	Melilotus alba	3	Phleum pratense
85	Poa compressa	6	Poa pratensis
4	Polygonum penslyvancum laevigatum	1	Potentilla recta
		6	Rosa blanda
1	Solanum dolcamara	27	Solidago altissima
4	Solidago nemoralis	1	Stachys tenuifolia hispida
13	Taraxacum officinale	1	Trifolium procumbens
1	Vernonia fasiculata	3	Viola papilionacea

* Nomenclature follows Swink and Wilhelm 1979.

Table 3: Frequency Data of Plant Species Observed in 1/4 meter square Quadrats from Transects Taken in Disturbed Wet Mesic Prairie Communities at the Wadsworth Prairie Lake County, Illinois. (August 2 & 13, 1985)

Freq.	Plant Species*	Freq.	Plant Species*
15	Ambrosia artemissiifolia elatior	25	Anemone canadensis
4	Bidens frondosa	2	Apocynum cannabinum
10	Calamagrostis canadensis	10	Bromus inermis
11	Carex stricta	21	Carex spp.
8	Chenopodium alba	13	Carex tenera
15	Convolvulus sepium	2	Cirsium arvense
2	Crataegus mollis	2	Cornus racemosa
4	Daucus carota	2	Cuscuta gronovii
2	Elymus virginicus	2	Eleocharis sp.
4	Erigeron annuus	2	Epilobium glandulosum adenocaulon
4	Erigeron strigosus	2	Eupatorium altissimum
2	Eupatorium perfoliatum	2	Fragaria virginiana
10	Galium boreale	15	Geum aleppicum strictum
4	Graminae sp.	2	Helenium autumnale
2	Juncus sp.	2	Lathyrus palustris
6	Leersia oryzoides	19	Lycopus americanus
6	Lysimachia ciliata	2	Lythrum alatum
2	Melilotus officinalis	13	Mentha arvensis villosa
6	Mimulus rigens	2	Nasturtium officinale
2	Oenothera biennis	6	Panicum capillare
4	Panicum virgatum	2	Pedicularis lanceolata
2	Penthorum sedoides	87	Phalaris arundinacea
15	Physostegia virginiana	11	Pilea fontana
13	Poa compressa	11	Poa palustris
6	Poa pratensis	17	Polygonum penslyvanicum
4	Polygonum sp.	8	Potentilla norvegica
2	Pyrus ioensis	2	Rosa blanda
13	Rosa palustris	4	Rubus occidentalis
2	Rumex crispus	2	Salix discolor
2	Scirpus atrovirens	2	Scutellaria epilobiifolia
2	Sium suave	4	Solanum dulcamara
8	Solidago altissima	23	Solidago juncea
2	Solidago nemoralis	4	Sonchus arvensis
2	Sorghastrum nutans	42	Spartina pectinata
8	Spirea alba	6	Stachys tenuifolia hispida
2	Thalictrum dasycarpum	4	Trifolium pratense
2	Trifolium procumbens	8	Verbena hastata
4	Vernonia fasiculata	4	Veronicastrum viginicum
2	Vitis riparia		

* Nomenclature follows Swink and Wilhelm 1979.

Table 4: Frequency Data of Plant Species Observed in 1/4 meter square Quadrats from Transects Taken in an 2nd Year Prairie Planting at the Wadsworth Prairie Lake County, Illinois. (August 15, 1985)

Freq.	Plant Species*	Freq.	Plant Species*
4	Acer negundo	20	Achillea millefolium
44	Agropyron repens	11	Ambrosia artemissifolia elatior
11	Andropogon gerardii	4	Barbarea vulgaris
22	Anemone canadensis	13	Bromus inermis
2	Bidens frondosa	7	Cerastium vulgatum
4	Carex sp.	13	Cirsium arvense
20	Chrysanthemum leucanthemum pinnatifida	7	Cornus racemosa
68	Daucus carota	4	Erigeron annuus
20	Erigeron strigosus	7	Fragaria virginiana
44	Geum aleppicum strictum	2	Graminae sp.
4	Lychnis alba	9	Lycopus americanus
9	Melilotus alba	11	Melilotus officinalis
24	Melilotus sp.	2	Monarda fistulosa
11	Oxalis stricta	2	Panicum sp.
4	Phalaris arundinacea	15	Plantago major
20	Poa compressa	15	Poa pratense
2	Potentilla norvegica	9	Potentilla recta
7	Potentilla simplex	2	Pyrus ioensis
2	Rosa carolina	4	Rubus occidentalis
4	Rudbeckia hirta	2	Rumex crispus
20	Secale cereale	2	Setaria glauca
18	Solidago altissima	22	Solidago nemoralis
7	Sonchus arvensis	2	Sonchus asper
40	Sorghastrum nutans	2	Stachys tenuifolia hispida
4	Taraxacum officinale	2	Thalictrum dasycarpum
2	Trifolium procumbens	2	Trifolium repens
46	Trifolium spp.	7	Verbascum thapsus
2	Verbena urticifolia	13	Viola papilionacea

* Nomenclature follows Swink and Wilhelm 1979.

Table 5: Partial List of Plant Seed Collected During the 1985 Growing Season
8/27/85

Plant Name	Observed Blooming Date	Collection Date	Amount Collected	Location
twinleaf		May 20	4 oz.	Camp St. Francis
bloodroot		May 20	6 oz.	McDonald
white trout lilly		May 20	2 oz.	Camp St. Francis
pussy toes		May 22	2 oz.	Lyons
marsh marigold		May 23	10 oz.	Spring Bluff
skunk cabbage		May 23	3 oz.	Spring Bluff
yellow water buttercup	May 15	May 30	*5 oz.	Spring Bluff
green dragon head	May 14		*1 oz.	McDonald St. Francis
woodland phlox	May 14	June 3	4 oz.	Camp St. Francis
golden ragwort	May 16	June 4	*4 oz.	
wild columbine	May 15	June 5	4 oz.	Wadsworth

yellow star grass	May 15	June 6	4 oz.	Wadsworth
tussock sedge		June 8	*8 oz.	Wadsworth
Carex Sartwelli		June 8	4 oz.	Wadsworth
blue-eyed grass	May 16	June 8	* 3 oz.	Wadsworth
violet wood sorrel	May 17	June 14	oz.	Spring Bluff
bird's foot violet	May 17	June 14	oz.	Spring Bluff
hoary puccoon	May 16	June 18	3 oz.	Spring Bluff
wild geranium	May 14	June 25	4 oz.	Berkley
annual bedstraw		June 25	2 oz.	Greenbelt
smooth Solomon seal			5 oz.	
yellow pimpernell		May 16	54 oz.	
yellow star grass	May 16	June 8	2 oz.	Wadsworth
meadow anenome	June 6	June 26	*20 oz.	Wadsworth
black snakeroot	June 3	June 26	6 oz.	
feathery solomon's plume	May 14	June 27	4 oz.	Berkley
sand coreopsis		June 28	14 oz.	Spring Bluff
needle and thread grass		June 28	7 oz.	Spring Bluff

false dandelion	June 6	June 28	1 oz.	Spring Bluff
sensitive fern		June 28	2 oz.	Spring Bluff
prairie alum root	June 13	July 2	*10 oz.	Lyons
prairie phlox	May 16	July 3	*6 oz.	Greenbelt Grant
false toadflax	May 16	July 3	*7 oz.	Greenbelt
common spiderwort	June 6	July 5	*9 oz.	Wadsworth
white wild indigo	June 6	July 7	67 oz.	Wadsworth
yellow pond lilly		July 7	8 oz.	Wadsworth
wild garlic	June 18	July 9	*28 oz.	Grant
pale-spiked lobelia	June 6	July 9	27 oz.	Greenbelt Wadsworth
purple meadow rue	June 6	July 13	16 oz.	Wadsworth
New Jersey tea	June 17	July 17	24 oz.	Berkley
fireweed	June 29	July 18	8 oz.	Spring Bluff
thimbleweed		July 18	10 oz.	Spring Bluff
cream wild indigo		July 22	1 oz.	soo line track
shooting star	May 14	July 23	25 oz.	Grant

dark green rush		July 24	17 oz.	Spring Bluff
soft stem bullrush		July 24	20 oz.	Spring Bluff
yarrow	June 6	July 24	24 oz.	Spring Bluff
silverweed	June 17	July 24	oz.	Spring Bluff
northern bedstraw	June 16	July 24	*3 oz.	Spring Bluff
black-eyed Susan	June 6	July 29	*14 oz.	Spring Bluff
foxglove beard tongue	June 6	Aug. 1	13 oz.	Spring Bluff
late horse gentian		Aug. 1	4 oz.	Lyons
red bulrush		Aug. 1	26 oz.	Lyons
rough hedge nettle		Aug. 1	2 oz.	Lyons
smooth rose	June 6	Aug. 3	4 oz.	Greenbelt
bottlebrush grass		Aug. 6	*8 oz.	Berkley
cup plant	July 22	Aug. 6	2 oz.	Berkley
blue flag	June 6	Aug. 8	4 oz.	Wadsworth
iron weed	July 23	Aug. 8	12 oz.	Spring Bluff
sweet flag		Aug. 8	44 oz.	Spring Bluff
purple prairie clover	June 23	Aug. 8	28 oz.	Spring Bluff

ragged-fringed orchid		Aug. 8	oz.	Spring Bluff
prairie plantain	July 9	Aug. 13	oz.	Grant
queen of the prairie	June 29	July 22	oz.	Berkley
marsh phlox	June 17	July 26	*6 oz.	Greenbelt
green twayblade	June 29	July 18	oz.	Spring Bluff
prairie drop seed	Aug. 1	Aug. 20		Berkley
lead plant	July 18		12 oz.	
yellow coneflower	July 2	Aug 21	32 oz.	
wild bergamont	July 2	Aug. 22	4 oz.	
winged loosestrife	July 2	Aug. 22	3 oz.	
common mountain mint	July 18	Aug. 22	3 oz.	
narrow-leaved loosetrife	July 5	Aug. 22	8 oz.	

1 By weight of uncleaned seed unless otherwise noted.
***Weight of clean seed.**
Nomenclature follows Swink and Wilhelm 1979

Table 6: Blooming Dates of Plants Not Collected as of August 22, 1985

Common Plant Name	Blooming Date
common bur reed	May 31
flowering spurge	June 6
Culver's root	June 17
wild quinine	June 27
butterfly weed	June 27
Michigan lilly	June 29
prairie dock	July 5
compass plant	July 9
marsh milkweed	July 9
sawtooth sunflower	July 9
woodland sunflower	July 17
old field goldenrod	July 22
early goldenrod	July 11
rosin weed	July 18
showy tick trefoil	July 18
ironweed	July 22
sweet black-eyed Susan	July 23
common arrowhead	July 23
rattlesnake master	July 18
compass plant	July 25
marsh blazing star	July 25
tall coreopsis	Aug. 6
New England aster	Aug. 6
bog lobelia	Aug. 9
Cardinal flower	Aug. 9
big blue stem	Aug. 12
little blue stem	Aug. 12
Indian grass	Aug. 12
panic grass	Aug. 12

Nomenclature follows Swink and Wilhelm 1979.