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**AN ASSESSMENT OF AVIAN POPULATIONS WITHIN THE FAP 431 PROJECT
AREA, COOK, DUPAGE, AND WILL COUNTIES, ILLINOIS**

**FINAL REPORT
June 1989**

by

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For

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**Section of Faunistic Surveys and Insect Identification
Technical Report 1988 (6)**

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INTRODUCTION

In conjunction with the proposed Illinois Department of Transportation (IDOT) project FAP 431, in which a four-lane highway will be constructed north to south from I-55 to I-80 in Cook, DuPage, and Will counties, bird populations were censused within the project area during all seasons by the Illinois Natural History Survey (INHS) as requested by IDOT. Particular attention was given to federal and state endangered and threatened species, which, based upon past records and information about habitat preferences, were known or thought likely to occur within the project area. The purpose of this study is to aid in the evaluation of possible impacts that the proposed highway might have on bird populations.

OBJECTIVES: The objectives of this study were as follows: (1) to census bird populations during all seasons, (2) to generate relative abundance and relative frequency values for bird species for all seasons in all habitat types, and (3) to note all observations of endangered and threatened bird species.

DESCRIPTION OF STUDY AREA

The proposed FAP 431 project consists of the construction of a new four-lane alignment extending 12.5 miles from I-55, 0.5 miles northeast of Welco corners, south to I-80, 1.7 miles north of New Lenox. The project area consists of a 200 foot corridor around the proposed alignment, encompassing approximately 2.1 square miles. The project is located in parts of Cook, DuPage, and Will counties, Illinois (Figure 1).

This project area occurs in the Morainal Section of the Northeastern Morainal Natural Division (Schwegman *et al* 1973). The pre-settlement vegetation was approximately 60% dry, wet, and sand prairie, while forests occupied the river valleys and moraines (Mohlenbrock 1986). The majority of present habitat occurring within the project area is cultivated or developed and continually disturbed. There are, however, two areas of interest. The wetlands associated with the Des Plaines River are extensive, diverse, and structurally suitable for various marsh and waterbird species. The Black Partridge Forest Preserve and associated woodlands is the largest block of contiguous mature forest within the project area (Figure 2).

This report will discuss the bird populations that inhabit the major habitat types occurring within the project area. Censuses were conducted during breeding, autumn, and winter seasons 1987 and spring season 1988, at predetermined census (observation) points that were proportionally distributed among the major habitat types (Figures 3, 4, and 5)

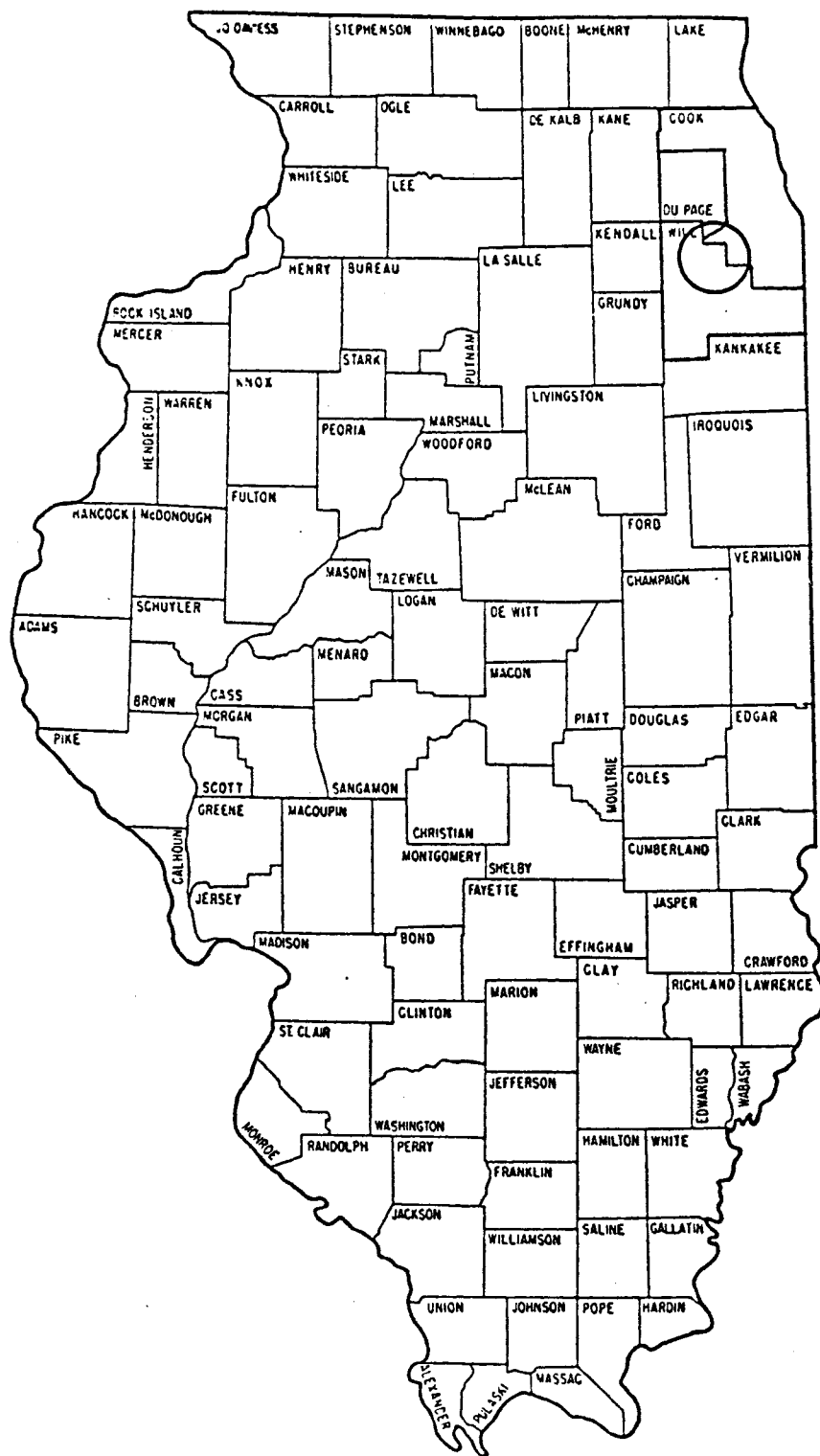


Figure 1. Location of FAP 431 project area, extending 12.5 miles from I-55 south to I-80, Cook, DuPage, and Will counties, Illinois. Birds were censused during breeding, autumn, and winter seasons 1987 and spring season 1988.

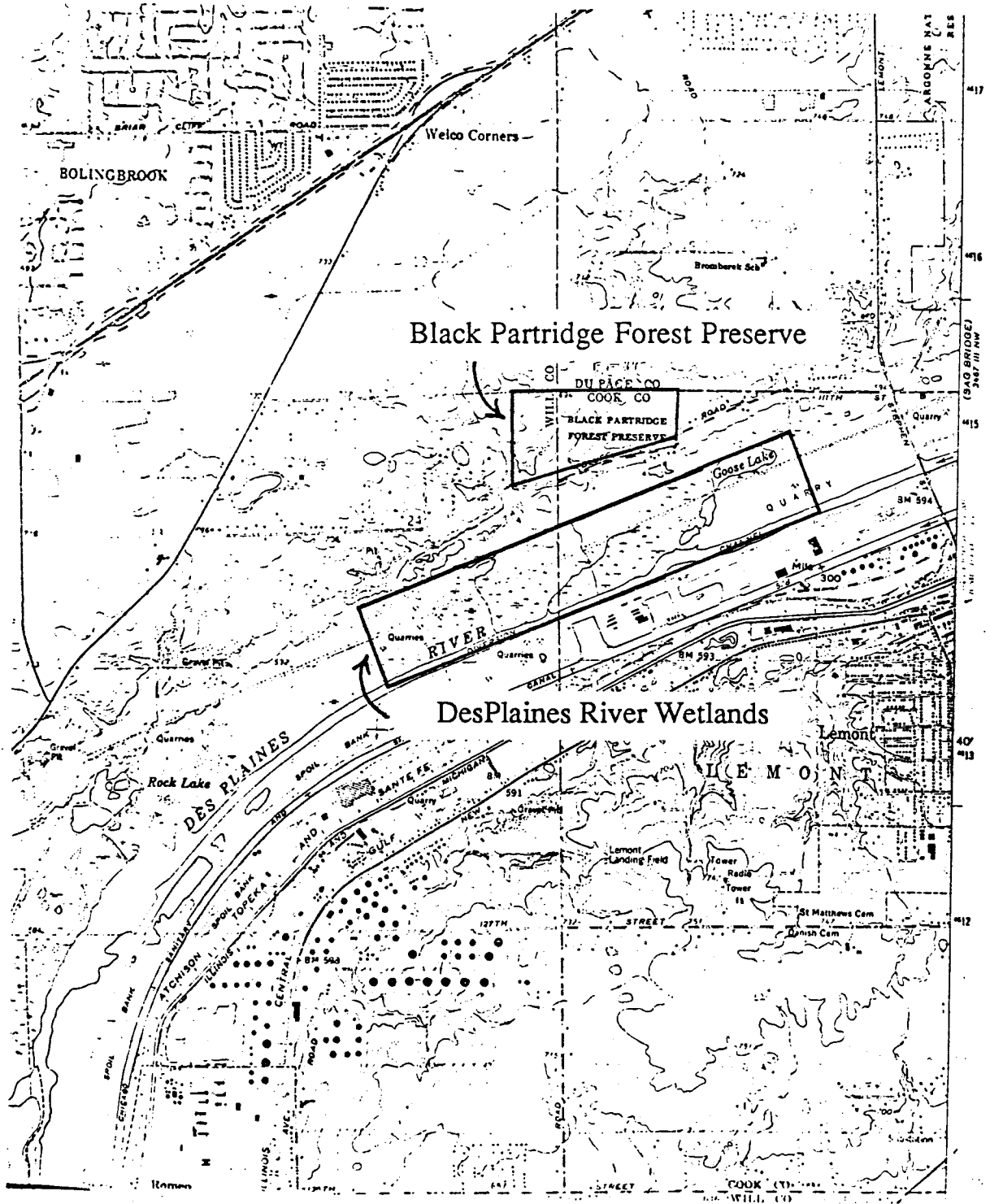


Figure 2. Location of the two important areas with respect to birds within the FAP 431 project area; the wetlands associated with the Des Plaines River and Black Partridge Forest Preserve, Cook and Will counties, Illinois. (Taken from Romeoville, Ill. [7.5' series, 1972 ed.] USGS topographic quadrangle map).

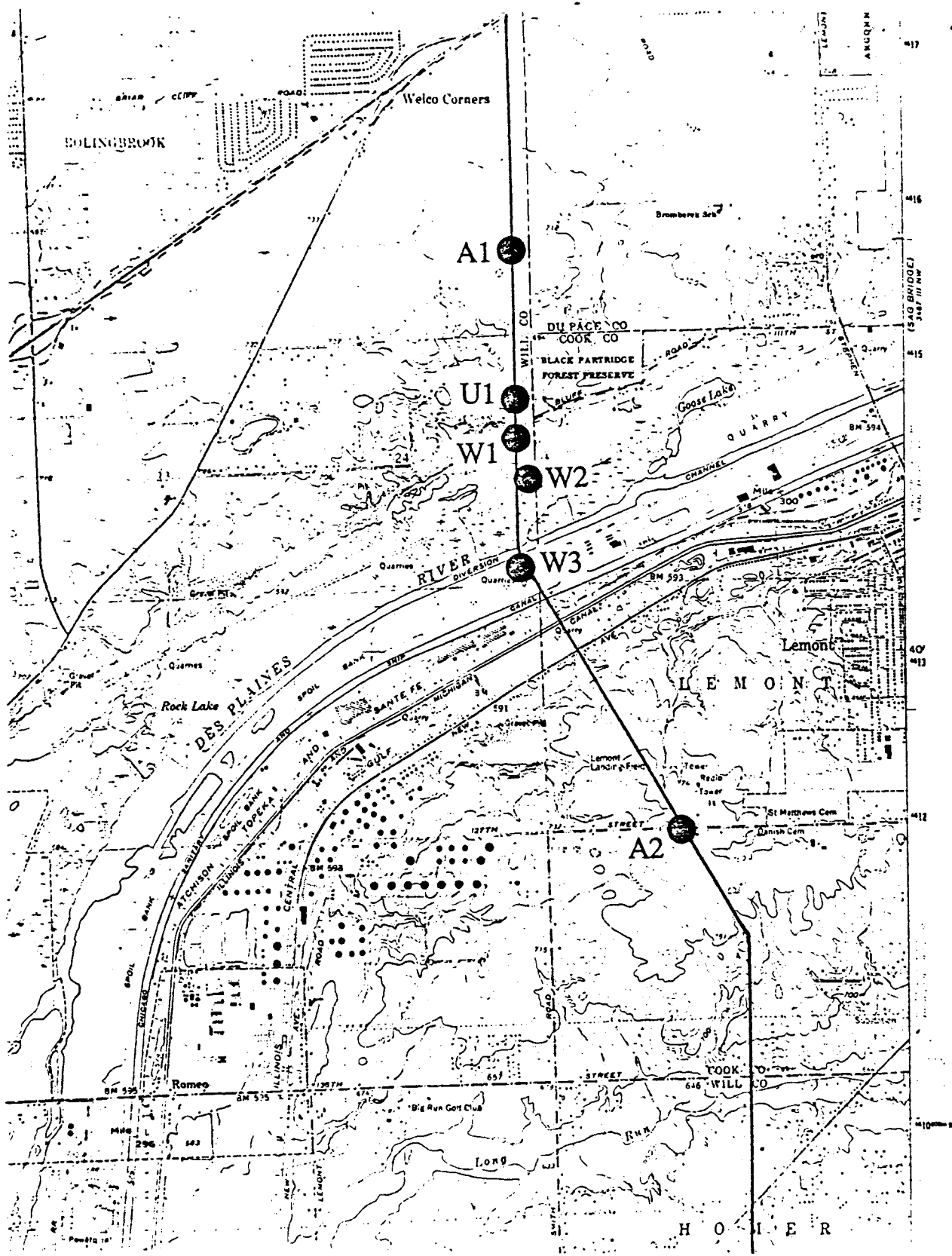


Figure 3. Location of FAP 431 agricultural census points A1 and A2, Will and Cook counties, Illinois; upland forest census point U1, Will County, Illinois; wetland census points W1 through W3, Will County, Illinois. Birds were censused during breeding, autumn, and winter seasons 1987 and spring season 1988. (Taken from Romeville, Ill. [7.5' series, 1972 ed.] USGS topographic quadrangle map).

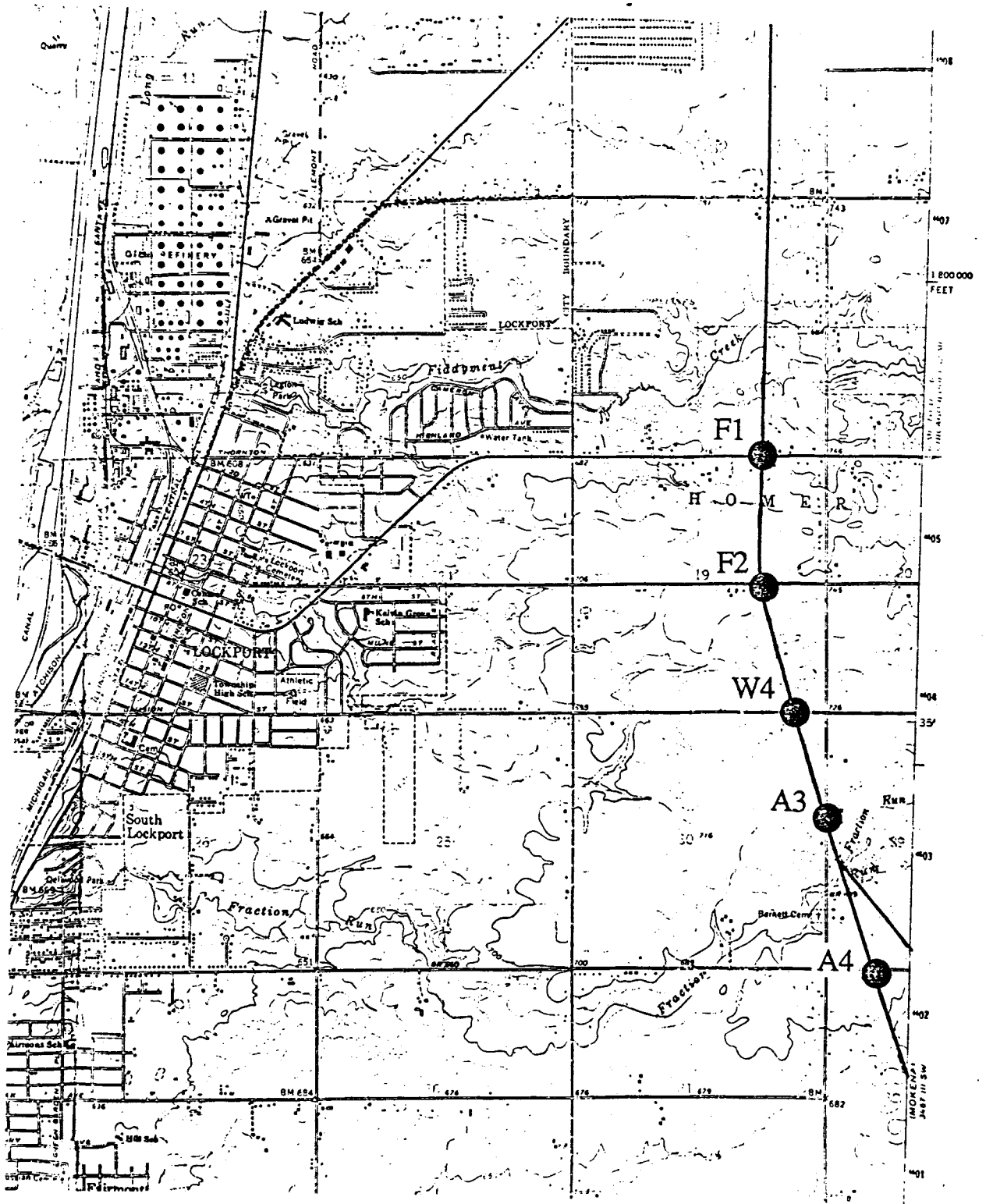


Figure 4. Location of FAP 431 agricultural census points A3 and A4, Will County, Illinois; forbland census points F1 and F2, Will County, Illinois; wetland census point W4, Will County, Illinois. Birds were censused during breeding, autumn, and winter seasons 1987 and spring season 1988. (Taken from Joliet, Ill. [7.5' series, 1972 ed.] USGS topographic quadrangle map).

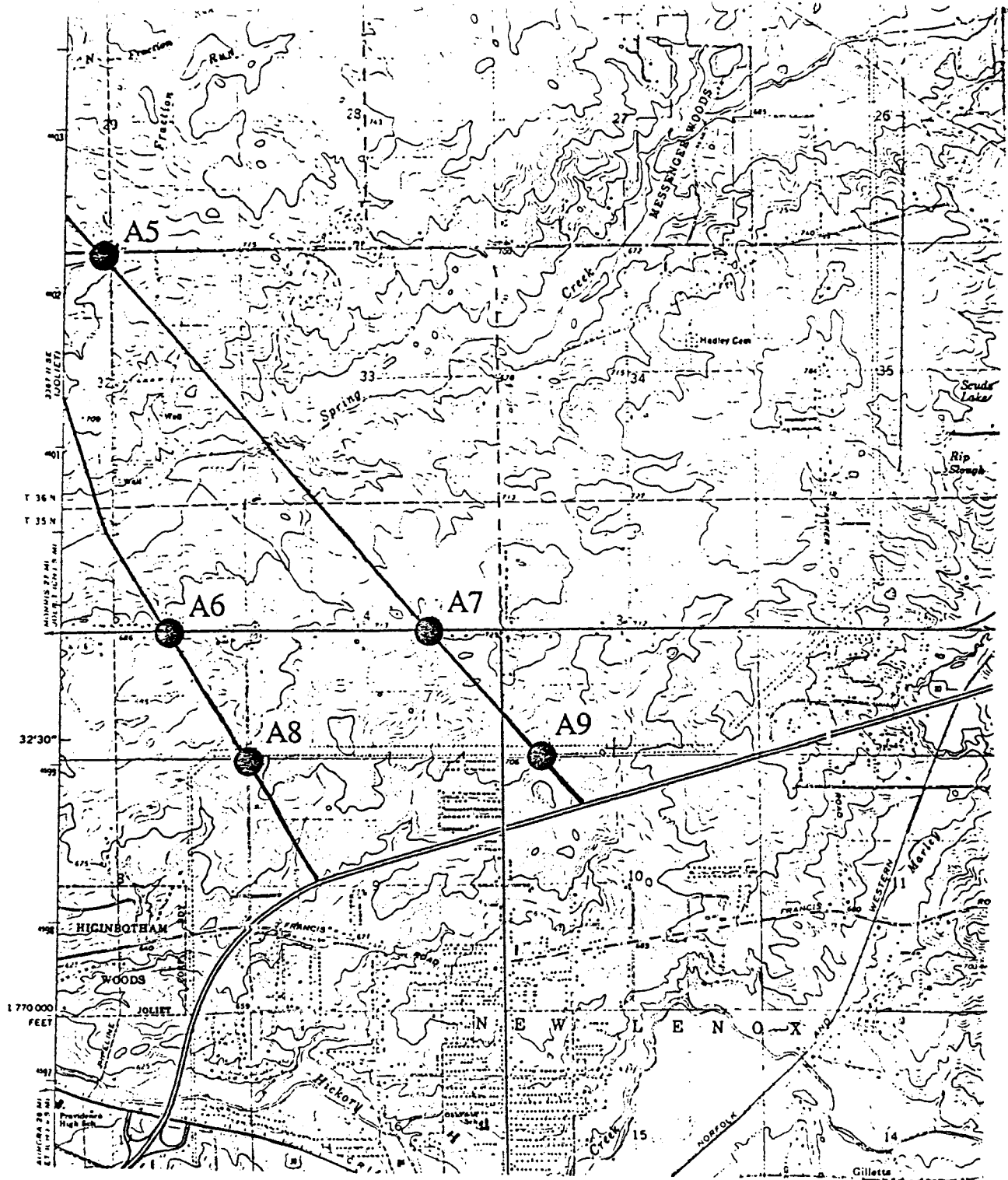


Figure 5. Location of FAP 431 agricultural census points A5 through A9, Will County, Illinois. Birds were censused during breeding, autumn, and winter seasons 1987 and spring season 1988. (Taken from Joliet, Ill. [7.5' series, 1972 ed.] USGS topographic quadrangle map).

LEGAL LOCATIONS AND HABITAT DESCRIPTIONS

AGRICULTURAL CENSUS POINTS

CENSUS POINT A1

Legal location - (Figure 3)

IL, Will Co., 1.0 km SE Welco Corners. 3rd P. M.: T. 37N, R. 11E, NW/4, SW/4, NW/4, Sec. 18. U. T. M.: 4616320mN, 414320mE, Zone 16. elev.: 222 m. Romeoville, Ill. (7.5' series, 1962 ed., 1973 and 1980 PR.) USGS topographic quadrangle map.

Habitat description -

Census point A1 is located in an area primarily composed of row crops with occasional forbs such as *Abutilon theophrasti*, *Ambrosia*, *Amaranthus*, *Setaria faberi*, *Xanthium strumarium*, and *Hibiscus trionum* and shrubs such as grey dogwood, hawthorn, black-raspberry, smooth sumac, and crab apple introduced at the Atchison, Topeka and Santa Fe railroad right-of-way.

CENSUS POINT U1

Legal location - (Figure 3)

IL, Will Co., 2.5 km NW Lemont. 3rd P. M.: T. 37N, R. 11E, NE/4, SE/4, NE/4, Sec. 24. U. T. M.: 4614740mN, 414300mE, Zone 16. elev.: 197 m. Romeoville, Ill. (7.5' series, 1962 ed., 1973 and 1980 PR.) USGS topographic quadrangle map.

Habitat description -

Census point U1 is located in a dry-mesic and mesic upland forest dominated by white oak and bur oak in the canopy with occasional white ash, shagbark hickory, black oak, red oak, basswood, bitternut hickory, black walnut and black locust. The subcanopy is dominated by downy hawthorn, white ash, black cherry, slippery elm, with occasional white mulberry, blue ash, young oaks and hickories. Shrubs include Amur honeysuckle, European buckthorn, grey dogwood, blackhaw viburnum, nannyberry, arrowwood, European highbush cranberry, choke cherry, Missouri gooseberry, yellow honeysuckle, hazelnut, and wayfaring-tree. Vines include riverbank grape, Virginia creeper, poison ivy, bittersweet nightshade, and *Dioscorea villosa*. The herbaceous layer is composed of predominantly disturbance-tolerant exotic and native herbs with a few species of savannah/forest herbs present (see Ulaszek 1987).

CENSUS POINT W1

Legal location - (Figure 3)

IL, Will Co., 2.3 km NW Lemont. 3rd P.M.: T. 37N, R. 11E, SE/4, SE/4, NE/4, Sec. 24.
U. T. M.: 4614500mN, 414300mE, Zone 16. elev.: 187.5 m. Romeoville, Ill. (7.5' series,
1962 ed., 1973 and 1980 PR.) USGS topographic quadrangle map.

Habitat description -

Census point W1 is located in an excavated palustrine wetland (borrow pit) that has filled with water and has been colonized by native wetland plants. Herbaceous emergents include *Typha augustifolia* (OBL), *Leersia oryzoides* (OBL), *Polygonum hydropiperoides* (FACW, OBL), *Ludwigia palustris*, *Phalaris arundinacea*, *Rorripa islandica fernaldiana*, *Impatiens capensis*, and *Ranunculus cf. flabellaris*. Floating vegetation includes *Spirodela polyrhiza* (OBL), *Lemna cf. minor*, *Potamogeton nodosus*, and algae. Numerous dead trees also are present.

CENSUS POINT W2

Legal location - (Figure 3)

IL, Will Co., 2.0 km NW Lemont. 3rd P. M.: T. 37N, R. 11E, SW/4, SW/4, NW/4, Sec. 19.
U. T. M.: 4614360mN, 414400mE, Zone 16. elev.: 184 m. Romeoville, Ill. (7.5' series,
1962 ed., 1973 and 1980 PR.) USGS topographic quadrangle map.

Habitat description -

Census point W2 is located in a natural wetland degraded by grazing, siltation, fire suppression and invasion of exotic plants. Open areas are dominated by *Phalaris arundinacea* (FAWC) with occasional *Leersia oryzoides*, *Typha*, *Impatiens capensis* and *Lythrum salicaria*; thickets predominantly are composed of young (<30 yrs) box elder (FAC), black willow (OBL, DRA), with occasional cottonwood. Numerous dead trees are present.

CENSUS POINT W3

Legal location - (Figure 3)

IL, Will Co., 1.5 km WNW Lemont. 3rd P. M.: T. 37N, R. 11E, NW/4, SW/4, SW/4,
Sec. 19. U. T. M.: 4613740mN, 414500mE, Zone 16. elev.: 184 m. Romeoville, Ill.
(7.5' series, 1962 ed., 1973 and 1980 PR.) USGS topographic quadrangle map.

Habitat description -

Census point W3 is a lower perennial riverine wetland that is channelized within the project area; riparian vegetation is young to submature (40 yrs) successional floodplain forest; dominant canopy includes box elder (FACW) cottonwood (FAC), black willow (OBL, DRA), with occasional silver maple, white poplar, bur oak, green ash, American elm, hackberry, sycamore, and honey locust; subcanopy includes box elder and hawthorn. Shrubs are occasional elderberry, sandbar willow, glossy buckthorn, and blue dogwood. Vines include riverbank grape and *Polygonum scandens*. The herbaceous layer is comprised of coarse, disturbance tolerant species, e.g., *Ambrosia trifida*, *Rudbeckia laciniata*, *Urtica dioica*, *Helianthus grosserratus*, and *Eupatorium rugosum*.

CENSUS POINT A2

Legal location - (Figure 3)

IL, Cook Co., 1.5 km SW Lemont. 3rd P. M.: T. 37N, R. 11E, SW/4, SW/4, SE/4, Sec. 30 and NW/4, NW/4, NE/4, Sec. 31. U. T. M.: 46m11960mN, 412260E, Zone 16. elev.: 231 m. Romeoville, Ill. (7.5' series, 1962 ed., 1973 and 1980 PR.) USGS topographic quadrangle map.

Habitat description -

Census point A2 is located in an area predominantly composed of row crops with two farms (residential) nearby.

CENSUS POINT F1

Legal location - (Figure 4)

IL, Will Co., 4.0 km NE Lockport. 3rd P. M.: T. 36N, R. 11E, SW/4, SE/4, SE/4, Sec. 7, and NW/4, NE/4, NE/4, Sec. 18. U. T. M.: 4607980N, 415680E, Zone 16. elev.: 228 m. Joliet, Ill. (7.5' series, 1962 ed., 1973PR.) USGS topographic quadrangle map.

Habitat description -

Census point F1 is located in an early successional old field. Coarse annuals dominate, including *Abutilon theophrasti*, *Ambrosia*, *Amaranthus*, *Setaria faberi*, *Xanthium strumarium*, and *Hibiscus trionum*. Occasional perennial and biennial forbs include *Eupatorium altissimum*, *Daucus carota*, *Melilotus alba*, *Asclepias syriaca*, *Solidago altissima*, *S. rigida*, *Ratibida pinnata*, *Fragaria virginiana*, *Aster pilosus*, *A. ericoides*, *Bidens aristosa*, and *Apocynum cannabinum*.

CENSUS POINT F2

Legal location - (Figure 4)

IL, Will Co., 4.0 km NE Lockport. 3rd P. M.: T. 36N, R. 11E, SW/4, SE/4, NE/4, and NW/4, SW/4, SE/4, Sec. 19. U. T. M.: 4604640mN, 415620mE, Zone 16. elev.: 231 m. Joliet, Ill. (7.5' series, 1962 ed., 1973 PR.) USGS topographic quadrangle map.

Habitat description -

Census point F2 is located in a forbland with occasional shrubs, a residential structure, and some row crops nearby. The forbland is dominated by perennial and biennial forbs such as *Eupatorium altissimum*, *Daucus carota*, *melilotus alba*, *asclepias syriaca*, *Solidago altissima*, *S. rigida*, *Ratibida pinnata*, *Fragaria virginiana*, *Aster pilosus*, *A. ericoides*, *Bidens aristosa*, and *Apocynum cannabinum*. Grasses such as *Bromus inermis*, *Poa pratensis*, *P. compressa*, and *Tridens flavus* also are present. Occasional shrubs include grey dogwood, hawthorn, black raspberry, smooth sumac, and crabapple.

CENSUS POINT W4

Legal location - (Figure 4)

IL, Will Co., 3.0 km E Lockport. 3rd P. M.: T. 36N, R. 11E, SE/2, SE/4, SE/4, Sec. 19 and NE/2, NE/4, NE/4, Sec. 30. U. T. M.: 46m03860mN, 415820mE, Zone 16. elev.: 222 m. Joliet, Ill. (7.5' series, 1962 ed., 1973PR.) USGS topographic quadrangle map.

Habitat description -

Census point W4 is in a natural marsh undergoing invasion by woody species. Dominant woody species include black willow (OBL, DRA), sandbar willow (OBL, DRA), and white poplar, with occasional cottonwood, glossy buckthorn, blue dogwood, and silver maple. Predominant herbs include *Polygonum amphibium* (OBL), *Sparganium eurycarpum* (OBL), with occasional *Iris shrevei*, *Asclepias incarnata*, *Helianthus grosserrarus*, *Boehmeria cylindrica*, *Typha latifolia*, *Carex lupulina*, and *Phalaris arundinacea*.

CENSUS POINT A3

Legal location - (Figure 4)

IL, Will Co., 3.5 km ESE Lockport. 3rd P. M.: T. 36N, R. 11E, NE/4, NE/4, SE/4, Sec. 30, and NW/4, NW/4, SW/4, Sec. 29. U. T. M.: 46m02960mN, 416060mE, Zone 16. elev.: 225 m. Joliet, Ill. (7.5' series, 1962 ed., 1973PR.) USGS topographic quadrangle map.

Habitat description -

Census point A3 is in a predominantly row cropped area with an adjacent residence.

CENSUS POINT A4

Legal location - (Figure 4)

IL, Will Co., 5.0 km SE Lockport. 3rd P. M.: T. 36N, R. 11E, SE/4, SW/4, SW/4, Sec. 29, and NE/4, NW/4, NW/4, Sec. 32. U. T. M.: 46m02240mN, 416440mE, Zone 16. elev.: 231 m. Joliet, Ill. (7.5' series, 1962 ed., 1973PR.) USGS topographic quadrangle map.

Habitat description -

Census point A4 is in a predominantly row cropped area with a farm (residential) nearby.

CENSUS POINT A5

Legal location - (Figure 5)

IL, Will Co., 5.0 km NNW New Lenox. 3rd P. M.: T. 36N, R. 11E, NW/4, NW/4, NE/4, Sec. 32, and SW/4, SW/4, SE/4, Sec. 29. U. T. M.: 46m02220mN, 416800mE, Zone 16. elev.: 222 m. Joliet, Ill. (7.5' series, 1962 ed., 1973PR.) USGS topographic quadrangle map.

Habitat description -

Census point A5 is in a predominantly row cropped area.

CENSUS POINT A6

Legal Location - (Figure 5)

IL, Will Co., 3.0 km NW New Lenox. 3rd P. M.: T. 35N, R. 11E, SE/4, SW/4, NE/4, and NE/4, NW/4, SE/4, Sec. 5. U. T. M.: 4599820mN, 417280mE, Zone 16. elev.: 222 m. Mokena, Ill. (7.5' series, 1963 ed., 1973 PR.) USGS topographic quadrangle map.

Habitat description -

Census point A6 is in a predominantly row cropped area with an adjacent farm (residential).

CENSUS POINT A7

Legal location - (Figure 5)

IL, Will Co., 2.5 km N New Lenox. 3rd P. M.: T. 35N, R. 11E, SE/4, SW/4, NE/4, and NE/4, NW/4, SE/4, Sec. 4. U. T. M.: 4599820mN, 418880mE, Zone 16. elev.: 227 m. Mokena, Ill. (7.5' series, 1963 ed., 1973 PR.) USGS topographic quadrangle map.

Habitat description -

Census point A7 is in a predominantly row cropped area with an adjacent residence.

CENSUS POINT A8

Legal location - (Figure 5)

IL, Will Co., 2.5 km N New Lenox. 3rd P. M.: T. 35N, R. 11E, SE/4, SE/4, SE/4, Sec. 5 and SW/4, SW/4, SW/4, Sec. 4. U. T. M.: 4599100mN, 417740mE, Zone 16. elev.: 219 m. Mokena, Ill. (7.5' series, 1963 ed., 1973 PR.) USGS topographic quadrangle map.

Habitat description -

Census point A8 is in a predominantly row cropped with a residential subdivision nearby.

CENSUS POINT A9

Legal location (Figure 5)

IL, Will Co., 2.0 km NW New Lenox. 3rd P. M.: T. 35N, R. 11E, SE/4, SE/4, SE/4, Sec. 5, and SW/4, SW/4, SW/4, Sec. 4. U. T. M.: 4599100mN, 417740mE, Zone 16. elev.: 216 m. Mokena, Ill. (7.5' series, 1963 ed., 1973 PR.) USGS topographic quadrangle map.

Habitat description -

Census point A9 is in a predominantly row cropped area.

METHODS

A 200 foot corridor extending from I-55 south to I-80 was characterized objectively using avian communities. All seasons were evaluated and special attention was given to federal and state listed endangered and threatened species. Censuses were completed for breeding, autumn, and winter seasons 1987 and spring season 1988. The census procedures were designed to generate quantitative data on bird abundance and frequency and their utilization of habitats present within the project area corridor.

Reconnaissance established the distribution and frequency of habitat types within the FAP 431 project area. Homogeneous areas, at least with respect to main habitat features, were considered to be a 'habitat type'. Habitat types were sampled with differing intensity depending on their extent.

Agricultural land is the major habitat type occurring within the FAP 431 project area. Other habitat types included in this study were wetland, forbland, and upland forest. Relative proportions of these habitat types were determined through examination of aerial photographs, topographic maps, and field observation. Agricultural areas formed approximately 80 percent of the FAP 431 project corridor, with wetlands, forblands, and upland forested areas accounting for approximately 5 percent, 1 percent, and 1 percent, respectively. Heavily industrialized and residential areas were not censused during this investigation.

A point-count method was chosen as the most appropriate sampling technique (Reynolds *et al.* 1980; Blondel *et al.* 1981). The methodology dictates that data be taken at fixed points or stations. This method provides reliable and comparable variables of abundance and frequency at the species level and most importantly, the ability to census birds in patchy habitats.

Census points were located proportionately among the different habitat types within the FAP 431 project area (Figures 3, 4, and 5). Point-counts lasted 10 minutes in both forest and wetland habitats and 5 minutes in forbland and agricultural habitat types. Census points were relocated for additional census runs. Four census runs were performed in the autumn and spring seasons, and five census runs were conducted in the winter and breeding seasons. All birds identified by sight and/or sound were recorded by two biologists using binoculars. In order to maximize the observation period while minimizing the bias of including the early morning peak of activity (Robbins 1981), birds were observed between approximately one hour after sunrise, and at 1600 hrs (when bird activity is most consistent).

RESULTS

Results are organized by major habitat types. Data generated from agricultural land, wetland, forbland, and upland forest habitats are presented in Tables 1, 2, 3, and 4, respectively. Endangered and threatened bird species observed during this investigation are discussed in a separate section. Total numbers for bird species observed in each season in each habitat type are presented in Appendix I. A taxonomic order of bird species observed is presented in Appendix III.

Breeding census

The breeding season census was conducted from June 8 through July 7, 1987. A total of 1,444 individuals representing 28 families, 61 genera, and 67 species was observed during this census period (Appendix D). Sixty-six percent of all bird species and 21% of all individuals observed during this investigation were recorded in this census period.

Agricultural habitat -- Thirty-seven bird species and 580 individuals were observed during the breeding census period in agricultural habitats. The most abundant bird species were the European starling and the common grackle, followed by the American robin and red-winged blackbird (Table 1). The American robin and common grackle also have large relative frequency values which indicates these species not only showed higher population numbers than other bird species at this time, but also were distributed more widely throughout the agricultural habitat type. Although the starling had the highest population numbers, its distribution was more restricted than the robin and grackle, probably because of a stronger association with human activity.

Bird species with the lowest relative abundance value were the great egret (state endangered species), blue jay, cedar waxwing, and yellow warbler (Table 1). This group also had low relative frequency values which means that their distribution also was very limited at this time.

Wetland habitat -- Fifty-three bird species and 649 individuals were observed during the breeding census period in wetland habitat. Seventy-nine percent of the bird species and 45% of the individuals observed during the breeding census were recorded in wetland habitat. The most abundant bird species was the rock dove followed by the red-winged blackbird, common grackle, and song sparrow (Table 2). The rock dove, however, showed a small relative frequency value which indicates its distribution was limited within the wetland habitat. This was the case, in fact, because most of the rock doves were associated with a fleeting operation along the much industrialized Des Plaines River Shipping Channel. Ten bird species shared the lowest population number (Table 2).

Bird species with large relative frequency values, and wide distributions, were the song sparrow followed by the red-winged blackbird, American robin, common grackle, common yellowthroat, indigo bunting, and American goldfinch. The lowest relative frequency value was shared by twelve species (Table 2).

Forbland habitat -- Twenty-three bird species and 144 individuals were observed within forbland habitat during this census period. The red-winged blackbird had the highest population numbers followed by the European starling, song sparrow, cedar waxwing, American robin, indigo bunting and dickcissel (Table 3). The red-winged blackbird and song sparrow also showed the highest relative frequency values. The cedar waxwing was limited in its distribution within forbland habitat, despite its high population numbers. This pattern is not unusual for waxwings due to their nomadic behavior. Eight species shared the lowest relative abundance value (Table 3).

Bird species with narrow distributions within forbland habitats included the red-tailed hawk, killdeer, American crow, gray catbird, brown-headed cowbird and four other species (Table 3).

Upland forest habitat -- Twenty bird species and 71 individuals were observed within upland forest habitat during this census period. The blue jay was the most abundant bird species, followed by the black-capped chickadee and American robin (Table 4). The least abundant bird species included the broad-winged hawk, yellow-billed cuckoo, chimney swift, belted kingfisher, American crow, Eastern bluebird, and brown-headed cowbird. The blue jay and white-breasted nuthatch shared the widest distribution, while the black-capped chickadee, American robin, and red-eyed vireo also were distributed widely. The scarlet tanager had relatively large abundance and frequency values (Table 4). The nesting of this neotropical migrant species is an indicator of high quality woodlands.

Table 1. Agricultural habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abun.	Rel. freq.	Rel. abun.	Rel. freq.	Rel. abun.	Rel. freq.	Rel. abun.	Rel. freq.
Great egret **	0.002	0.004	-	-	-	-	-	-
Canada goose	-	-	-	-	0.043	0.023	-	-
Mallard	0.005	0.004	-	-	0.003	0.017	0.002	0.005
Cooper's hawk **	-	-	-	-	0.001	0.017	-	-
Red-tailed hawk	-	-	0.005	0.065	0.011	0.094	0.004	0.009
Rough-legged hawk	-	-	-	-	0.004	0.035	-	-
American kestrel	0.009	0.013	0.005	0.056	0.008	0.059	0.002	0.005
Ring-necked pheasant	0.003	0.008	0.001	0.009	-	-	-	-
Killdeer	0.003	0.008	0.014	0.028	-	-	0.028	0.041
Ring-billed gull	-	-	-	-	-	-	0.002	0.005
Rock dove	0.009	0.013	0.021	0.037	0.085	0.094	0.026	0.023
Mourning dove	0.047	0.047	0.034	0.094	0.005	0.023	0.018	0.031
Yellow-billed cuckoo	-	-	-	-	-	-	0.004	0.009
Common nighthawk	0.002	0.004	-	-	-	-	-	-
Chimney swift	0.033	0.025	0.023	0.047	-	-	0.004	0.009
Red-headed woodpecker	-	-	0.001	0.009	-	-	-	-
Downy woodpecker	0.002	0.004	-	-	-	-	-	-
Northern flicker	0.003	0.008	-	-	-	-	0.012	0.018
Eastern kingbird	0.005	0.008	-	-	-	-	-	-
Horned lark	0.024	0.038	0.031	0.019	0.095	0.129	0.048	0.041
Barn swallow	0.040	0.038	-	-	-	-	0.012	0.018
Blue jay	0.002	0.004	0.002	0.028	-	-	0.014	0.013
American crow	0.015	0.030	0.090	0.131	0.274	0.247	0.038	0.054
Black-capped chickadee	-	-	0.004	0.028	-	-	0.002	0.005
House wren	0.003	0.004	-	-	-	-	-	-
Ruby-crowned kinglet	-	-	0.001	0.009	-	-	-	-
American robin	0.083	0.128	0.023	0.047	-	-	0.109	0.104
Gray catbird	0.007	0.013	-	-	-	-	0.014	0.009
Brown thrasher	0.003	0.008	-	-	-	-	-	-
Cedar waxwing	0.002	0.004	0.007	0.019	-	-	-	-
European starling	0.222	0.081	0.209	0.168	0.328	0.129	0.103	0.063
Warbling vireo	-	-	-	-	-	-	0.004	0.009
Yellow warbler	0.002	0.004	-	-	-	-	0.002	0.005
Yellow-rumped warbler	-	-	0.001	0.009	-	-	-	-
Common yellowthroat	0.009	0.021	-	-	-	-	0.016	0.018
Northern cardinal	0.003	0.008	0.001	0.009	0.001	0.017	0.004	0.009

Table 1 concluded on following page

Table 1. Agricultural habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.
Indigo bunting	0.034	0.047	-	-	-	-	0.018	0.018
Rufous-sided towhee	-	-	-	-	-	-	0.002	0.005
American tree sparrow	-	-	-	-	0.038	0.035	-	-
Chipping sparrow	0.019	0.043	-	-	-	-	0.012	0.023
Field sparrow	0.003	0.008	0.002	0.019	-	-	0.002	0.005
Vesper sparrow	0.003	0.008	-	-	-	-	0.020	0.027
Fox sparrow	-	-	0.003	0.019	-	-	-	-
Song sparrow	0.045	0.081	-	-	-	-	0.056	0.081
White-crowned sparrow	-	-	-	-	-	-	0.010	0.009
Dark-eyed junco	-	-	0.002	0.009	0.004	0.023	-	-
Bobolink	0.005	0.008	-	-	-	-	-	-
Red-winged blackbird	0.060	0.064	0.130	0.037	0.061	0.035	0.167	0.099
Eastern meadowlark	0.015	0.021	-	-	-	-	0.010	0.018
Common grackle	0.222	0.119	0.381	0.037	-	-	0.129	0.104
Brown-headed cowbird	0.009	0.008	-	-	-	-	0.024	0.031
Northern oriole	-	-	-	-	-	-	0.002	0.005
American goldfinch	0.034	0.043	0.006	0.037	-	-	0.036	0.036
House sparrow	0.017	0.017	0.005	0.028	0.037	0.035	0.040	0.041

** = state endangered species

Total number species: 54
genera: 51
families: 26

Table 2. Wetland habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, DuPage, and Cook counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.
Great blue heron	0.011	0.022	0.003	0.021	-	-	0.020	0.027
Great egret **	0.012	0.013	-	-	-	-	0.007	0.005
Green-backed heron	0.003	0.009	0.001	0.011	-	-	0.005	0.014
Black-cr. night-heron **	0.003	0.009	-	-	-	-	-	-
Canada goose	-	-	-	-	0.009	0.015	0.044	0.018
Wood duck	0.025	0.013	0.009	0.011	-	-	0.033	0.018
Mallard	0.008	0.013	-	-	0.176	0.089	0.033	0.023
Blue-winged teal	-	-	-	-	-	-	0.007	0.005
Common goldeneye	-	-	-	-	0.072	0.045	-	-
Common merganser	-	-	-	-	0.006	0.015	-	-
Bufflehead	-	-	-	-	0.033	0.015	-	-
Red-tailed hawk	0.008	0.013	0.003	0.021	0.009	0.030	0.009	0.018
Rough-legged hawk	-	-	-	-	0.033	0.015	-	-
American kestrel	-	-	0.003	0.021	0.012	0.060	-	-
Killdeer	0.001	0.004	0.001	0.011	-	-	0.007	0.014
Solitary sandpiper	-	-	-	-	-	-	0.015	0.014
Spotted sandpiper	-	-	0.001	0.011	-	-	0.004	0.005
Ring-billed gull	0.005	0.009	0.011	0.021	-	-	0.017	0.005
Rock dove	0.322	0.022	0.044	0.032	0.385	0.089	-	-
Mourning dove	0.018	0.022	0.046	0.032	0.012	0.030	0.005	0.009
Yellow-billed cuckoo	-	-	-	-	-	-	0.002	0.005
Chimney swift	0.005	0.004	0.008	0.021	-	-	0.007	0.005
Belted kingfisher	0.008	0.022	-	-	0.003	0.015	0.002	0.005
Red-head. woodpecker	0.003	0.009	0.003	0.021	-	-	0.002	0.005
Red-bell. woodpecker	0.001	0.004	0.003	0.021	0.006	0.030	0.004	0.009
Yellow-bell. sapsucker	-	-	0.001	0.011	-	-	-	-
Downy woodpecker	0.009	0.022	0.014	0.085	0.024	0.089	0.009	0.018
Hairy woodpecker	-	-	-	-	0.003	0.015	-	-
Northern flicker	0.006	0.018	-	-	-	-	0.024	0.041
Eastern wood-pewee	0.003	0.009	-	-	-	-	-	-
Eastern phoebe	0.001	0.004	0.001	0.011	-	-	0.004	0.009
Great crested flycatcher	0.005	0.009	-	-	-	-	0.009	0.018
Eastern kingbird	0.001	0.004	-	-	-	-	0.007	0.014
Purple martin	0.012	0.022	-	-	-	-	0.002	0.005
Tree swallow	0.001	0.004	-	-	-	-	0.044	0.027
N. rough-winged swallow	0.005	0.013	-	-	-	-	-	-

Table 2 continued on following page

Table 2. Wetland habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.
Barn swallow	0.003	0.009	-	-	-	-	-	-
Blue jay	0.003	0.009	0.003	0.021	-	-	0.017	0.014
American crow	0.006	0.013	0.131	0.032	0.101	0.149	0.011	0.027
Black-cap. chickadee	0.011	0.018	0.036	0.064	0.081	0.104	0.024	0.037
White-br. nuthatch	0.003	0.004	0.001	0.011	0.033	0.015	0.004	0.009
House wren	0.035	0.049	-	-	-	-	0.026	0.027
Golden-crown. kinglet	-	-	0.003	0.011	-	-	-	-
Blue-gray gnatcatcher	0.003	0.009	-	-	-	-	0.004	0.009
Eastern bluebird	0.003	0.009	-	-	-	-	0.002	0.005
Gray-cheeked thrush	-	-	0.001	0.011	-	-	-	-
Wood thrush	0.001	0.004	-	-	-	-	-	-
American robin	0.034	0.058	0.082	0.074	0.033	0.015	0.033	0.041
Gray catbird	0.003	0.009	-	-	-	-	0.002	0.005
Cedar waxwing	0.028	0.031	0.071	0.032	-	-	-	-
European starling	-	-	0.001	0.011	0.033	0.030	0.037	0.027
Yellow-throated vireo	0.005	0.013	-	-	-	-	0.005	0.009
Warbling vireo	0.001	0.004	-	-	-	-	0.007	0.018
Red-eyed vireo	0.011	0.027	-	-	-	-	0.002	0.005
Tennessee warbler	-	-	0.005	0.021	-	-	-	-
Yellow warbler	0.001	0.004	-	-	-	-	0.007	0.014
Yellow-rumped warbler	-	-	0.033	0.053	-	-	0.007	0.009
Bay-breasted warbler	-	-	0.001	0.011	-	-	-	-
Prothonotary warbler	0.003	0.009	-	-	-	-	0.004	0.009
Ovenbird	-	-	0.003	0.021	-	-	-	-
Northern waterthrush	-	-	-	-	-	-	0.005	0.005
Common yellowthroat	0.025	0.049	-	-	-	-	0.015	0.018
Wilson's warbler	-	-	0.001	0.011	-	-	-	-
Northern cardinal	0.009	0.022	-	-	0.003	0.015	0.018	0.039
Indigo bunting	0.017	0.049	-	-	-	-	0.017	0.018
Rufous-sided towhee	-	-	-	-	-	-	0.005	0.009
Field sparrow	0.001	0.004	-	-	-	-	0.002	0.005
Song sparrow	0.065	0.076	0.030	0.043	0.039	0.060	0.064	0.064
Swamp sparrow	0.005	0.009	-	-	0.033	0.015	0.015	0.018
White-throated sparrow	-	-	0.028	0.053	-	-	-	-
Dark-eyed junco	-	-	0.033	0.032	0.009	0.030	0.002	0.005

Table 2 concluded on following page

Table 2. Wetland habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.
Red-winged blackbird	0.115	0.067	0.248	0.021	0.033	0.015	0.171	0.073
Rusty blackbird	-	-	0.016	0.011	-	-	-	-
Common grackle	0.092	0.054	0.082	0.043	-	-	0.084	0.059
Brown-headed cowbird	0.005	0.013	-	-	-	-	0.022	0.027
Northern oriole	0.012	0.022	-	-	-	-	0.015	0.023
Purple finch	-	-	0.003	0.011	-	-	-	-
American goldfinch	0.018	0.045	0.027	0.043	-	-	0.046	0.037
House sparrow	0.001	0.004	-	-	-	-	0.007	0.009

** = state endangered species

Total number species: 79
genera: 69
families: 28

Table 3. Forbland habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.
Mallard	-	-	-	-	-	-	0.022	0.016
Northern harrier **	-	-	0.003	0.036	-	-	0.007	0.016
Red-tailed hawk	0.007	0.015	0.023	0.143	0.016	0.083	-	-
Rough-legged hawk	-	-	0.003	0.036	0.111	0.167	-	-
American kestrel	0.014	0.029	0.003	0.036	0.016	0.083	0.007	0.016
Ring-necked pheasant	-	-	-	-	-	-	0.022	0.016
Sora	-	-	-	-	-	-	0.007	0.016
Killdeer	0.007	0.015	-	-	-	-	0.007	0.016
Rock dove	0.007	0.015	0.017	0.036	0.032	0.083	-	-
Mourning dove	0.049	0.088	0.003	0.036	-	-	0.015	0.033
Chimney swift	-	-	0.017	0.036	-	-	-	-
Red-bellied woodpecker	-	-	-	-	0.016	0.083	-	-
Downy woodpecker	-	-	0.006	0.036	-	-	-	-
Northern flicker	-	-	-	-	-	-	0.007	0.016
Great crested flycatcher	-	-	-	-	-	-	0.007	0.016
Eastern kingbird	-	-	-	-	-	-	0.007	0.016
Horned lark	-	-	-	-	-	-	0.007	0.016
Barn swallow	0.028	0.029	-	-	-	-	0.015	0.016
Blue jay	-	-	0.003	0.036	-	-	0.015	0.016
American crow	0.042	0.015	0.031	0.143	0.460	0.417	0.015	0.016
House wren	-	-	-	-	-	-	0.007	0.016
Eastern bluebird	-	-	-	-	-	-	0.007	0.016
American robin	0.076	0.073	0.003	0.036	-	-	0.052	0.033
Gray catbird	0.007	0.015	-	-	-	-	0.007	0.016
Brown thrasher	0.007	0.015	-	-	-	-	-	-
Cedar waxwing	0.083	0.029	-	-	-	-	-	-
European starling	0.146	0.088	0.654	0.107	0.349	0.083	0.059	0.082
Warbling vireo	-	-	-	-	-	-	0.007	0.016
Tennessee warbler	-	-	-	-	-	-	0.007	0.016
Yellow warbler	-	-	-	-	-	-	0.007	0.016
Common yellowthroat	0.021	0.044	-	-	-	-	0.007	0.016
Northern cardinal	0.007	0.015	0.014	0.107	-	-	0.022	0.049
Indigo bunting	0.069	0.088	-	-	-	-	0.007	0.016
Dickcissel	0.063	0.073	-	-	-	-	-	-
Chipping sparrow	-	-	-	-	-	-	0.015	0.033
Field sparrow	0.014	0.029	-	-	-	-	-	-

Table 3 conluded on following page

Table 3. Forbland habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.
Song sparrow	0.083	0.118	-	-	-	-	0.096	0.115
Dark-eyed junco	-	-	0.006	0.036	-	-	-	-
Red-winged blackbird	0.229	0.118	-	-	-	-	0.385	0.115
Eastern meadowlark	-	-	-	-	-	-	0.022	0.033
Common grackle	0.014	0.029	0.109	0.071	-	-	0.059	0.065
Brown-headed cowbird	0.007	0.015	-	-	-	-	0.007	0.016
Northern oriole	-	-	-	-	-	-	0.007	0.016
American goldfinch	0.014	0.029	0.003	0.036	-	-	0.007	0.016
House sparrow	0.007	0.015	0.003	0.036	-	-	0.044	0.049

** = state endangered species

Total number species: 45
genera: 42
families: 22

Table 4. Upland forest habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.	Rel. abund.	Rel. freq.
Wood duck	-	-	-	-	-	-	0.031	0.013
Broad-winged hawk	0.014	0.022	-	-	-	-	-	-
Red-tailed hawk	0.028	0.022	-	-	-	-	0.006	0.013
Yellow-billed cuckoo	0.014	0.022	0.012	0.037	-	-	-	-
Chimney swift	0.014	0.022	-	-	-	-	-	-
Belted kingfisher	0.014	0.022	-	-	-	-	0.006	0.013
Red-headed woodpecker	0.028	0.022	0.006	0.037	-	-	-	-
Red-bellied woodpecker	-	-	0.031	0.115	-	-	0.031	0.039
Downy woodpecker	0.042	0.065	0.012	0.075	0.308	0.333	0.031	0.053
Northern flicker	0.056	0.065	-	-	-	-	0.049	0.053
Eastern wood-pewee	0.028	0.043	-	-	-	-	0.006	0.013
Great crested flycatcher	-	-	-	-	-	-	0.018	0.026
Blue jay	0.155	0.109	0.006	0.037	-	-	0.123	0.053
American crow	0.014	0.022	-	-	0.231	0.222	0.012	0.026
Black-capped chickadee	0.127	0.087	0.067	0.115	0.231	0.111	0.080	0.053
White-breasted nuthatch	0.070	0.109	0.018	0.074	0.154	0.222	0.031	0.026
Brown creeper *	-	-	0.012	0.037	0.077	0.111	-	-
House wren	-	-	-	-	-	-	0.012	0.013
Golden-crowned kinglet	-	-	-	-	-	-	0.006	0.013
Blue-gray gnatcatcher	-	-	-	-	-	-	0.031	0.039
Eastern bluebird	0.014	0.022	-	-	-	-	-	-
Gray-cheeked thrush	-	-	0.037	0.037	-	-	-	-
Swainson's thrush	-	-	0.037	0.037	-	-	-	-
Hermit thrush	-	-	-	-	-	-	0.006	0.013
Wood thrush	0.070	0.043	-	-	-	-	0.025	0.026
American robin	0.127	0.087	0.454	0.115	-	-	0.153	0.053
Cedar waxwing	-	-	0.006	0.037	-	-	-	-
European starling	-	-	-	-	-	-	0.018	0.025
Yellow-throated vireo	-	-	-	-	-	-	0.037	0.039
Red-eyed vireo	0.070	0.087	-	-	-	-	0.012	0.026
Tennessee warbler	-	-	-	-	-	-	0.012	0.026
Nashville warbler	-	-	-	-	-	-	0.006	0.013
Chestnut-sided warbler	-	-	-	-	-	-	0.012	0.013
Yellow-rumped warbler	-	-	0.018	0.037	-	-	0.006	0.013
Bay-breasted warbler	-	-	-	-	-	-	0.006	0.013
Black and white warbler	-	-	-	-	-	-	0.018	0.013

Table 4 concluded on following page

Table 4. Upland forest habitat: relative abundance and relative frequency values for bird species recorded in all seasons, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season							
	Breeding		Autumn		Winter		Spring	
	Rel. abun.	Rel. freq.	Rel. abun.	Rel. freq.	Rel. abun.	Rel. freq.	Rel. abun.	Rel. freq.
Ovenbird	-	-	-	-	-	-	0.025	0.026
Northern waterthrush	-	-	-	-	-	-	0.006	0.013
Scarlet tanager	0.056	0.043	0.006	0.037	-	-	0.012	0.026
Northern cardinal	0.042	0.065	-	-	-	-	0.037	0.026
Rose-breasted grosbeak	-	-	-	-	-	-	0.025	0.026
Indigo bunting	-	-	-	-	-	-	0.012	0.026
Rufous-sided towhee	-	-	-	-	-	-	0.012	0.013
White-throated sparrow	-	-	0.012	0.037	-	-	0.006	0.013
Red-winged blackbird	-	-	-	-	-	-	0.012	0.013
Common grackle	-	-	0.251	0.074	-	-	0.006	0.013
Brown-headed cowbird	0.014	0.022	-	-	-	-	0.037	0.053
Northern oriole	-	-	-	-	-	-	0.012	0.013
American goldfinch	-	-	0.012	0.075	-	-	0.012	0.013

** = state endangered species

* = state threatened species

Total number species: 49
genera: 39
families: 18

Autumn census

The autumn census was conducted from September 10 through November 27, 1987. A total of 2,812 individuals representing 25 families, 45 genera, and 50 species was observed during this census period (Appendix I). These figures represent a 25% decrease in the number of bird species from those observed within the breeding census period. Typically, an increase both in species and in individuals is observed in a migration season. Forty-nine percent of all bird species and 42% of all individuals observed during this investigation were recorded within the autumn census period.

Agricultural habitat -- Twenty-five bird species and 1,666 individuals were observed in agricultural habitat during this census period. Fifty-nine percent of the individuals observed within the autumn census period were recorded in agricultural habitat. These figures represent a 32% decrease in the number of bird species and a 187% increase in the number of individuals observed within the breeding census period. The most abundant bird species was the common grackle followed by the European starling and the red-winged blackbird (Table 1). The common grackle and red-winged blackbird, however, showed relatively small frequency values. This can be explained by the flocking behavior that is exhibited by these species during autumn migration. Therefore, these species were distributed in large localized flocks. The starling had the highest relative frequency value followed by the American crow.

Five bird species shared both the lowest relative abundance and relative frequency values (Table 1). The red-tailed hawk and American kestrel were not observed commonly during this census period, but were well distributed throughout the habitat type.

Wetland habitat -- Thirty-eight bird species and 633 individuals were observed during the autumn census period within wetland habitat. Seventy-six percent of the bird species observed during the autumn census period were recorded within wetland habitat. However, the number of bird species decreased by 28% and individuals decreased just 2% when compared with the breeding census period. The bird species showing the largest population numbers was the red-winged blackbird, followed by the American crow (Table 2). As a result of the flocking behavior exhibited by these species, large relative frequency values were not generated. The downy woodpecker was the most widely distributed of the bird species in the wetland habitat, followed by the American robin.

Ten bird species shared both the lowest population numbers and the most narrow distribution in the wetland habitat (Table 2).

Forbland habitat -- Seventeen bird species and 350 individuals were observed in the forbland habitat during this census period. Numbers of bird species decreased by 26% from the breeding census period, but numbers of individuals increased by 143%. The most abundant bird species was the European starling followed by the common grackle. The red-tailed hawk and American crow exhibited the widest distribution of all bird species observed in forbland habitat, followed by the European starling and common grackle.

Eight bird species shared both the lowest relative abundance and frequency values including the Northern harrier (state endangered species), the rough-legged hawk, and the American kestrel (Table 3).

Upland forest habitat -- Seventeen bird species and 163 individuals were observed in upland forest habitat during this census period. This represents a 19% decrease in the number of bird species observed and a 129% increase in individuals from the breeding census period. The most abundant species was the American robin followed by the common grackle and the black-capped chickadee (Table 4). Bird species with the widest distributions were the red-bellied woodpecker, the black-capped chickadee, and the American robin.

The red-headed woodpecker, bluejay, cedar waxwing, and scarlet tanager had the smallest relative abundance values (Table 4). These species also shared the lowest relative frequency values with the yellow-billed cuckoo, brown creeper (state endangered species), gray-cheeked thrush, Swainson's thrush, yellow-rumped warbler, and white-throated sparrow.

Winter census

The winter census was conducted from January 12 through February 29, 1988. A total of 1,148 individuals representing 15 families, 26 genera, and 29 species was observed during this census period (Appendix I). These figures represent a 42% decrease from the number of bird species observed during the autumn census period and a 57% decrease in bird species from the breeding census period. Numbers of individuals decreased 59% and 20% respectively. A decrease in bird species and number of individuals is expected during the winter season. Occasionally an influx of winter residents or residents may inflate numbers of individuals especially in agricultural habitats.

Agricultural habitat -- Sixteen bird species and 737 individuals were observed in agricultural habitat during this census period. The number of bird species observed decreased 36% from the autumn census period and 57% from the breeding census period. Numbers of individuals, however, decreased 56% from autumn, but increased 21% from the breeding season. These phenomena may be due to the influx of European starlings, American crows, and horned larks that typically form large localized flocks during the winter season. The most abundant species was the European starling, followed in abundance by the American crow (Table 1). The least abundant species were the Cooper's hawk (state endangered species) and the Northern cardinal. Bird species with the widest distributions in the agricultural habitat type were the American crow, followed in abundance by the European starling and the horned lark. Bird species with the most limited distributions were the mallard, Cooper's hawk, and the Northern cardinal.

Wetland habitat -- Twenty-four bird species and 335 individuals were observed in wetland habitat during this census period. Eighty-three percent of the bird species observed during the winter census period were recorded in the wetland habitat type. The number of bird species decreased by 37% from the autumn census period and 55% from the breeding census period. Individuals decreased by 47% and 48%, respectively. The most abundant species was the rock dove followed by the mallard and blue jay (Table 2). Again, rock doves primarily were associated with the industrialized area along the Des Plaines Sanitary and Ship Canal, but did exhibit a wider distribution than during the breeding census period. The least abundant species were the belted kingfisher and the northern cardinal.

Bird species with the highest relative frequency values were the American crow and the black-capped chickadee. Eleven bird species shared the lowest relative frequency value (Table 2).

Forbland habitat -- Seven bird species and 63 individuals were observed in forbland habitat during this census period. These figures represent a 59% decrease in the number of bird species observed when compared to the autumn census period and a 70% decrease from the breeding census period. Number of individuals also decreased by 82% and 56% respectively. The American crow was the most abundant species followed by the European starling and the rough-legged hawk (Table 3). The crow also showed the widest distribution within this habitat type during the winter season. The rough-legged hawk had the second widest distribution.

The red-tailed hawk, American kestrel, and red-bellied woodpecker were the least abundant species in forbland habitat during the winter census period (Table 3). These species also shared the lowest relative frequency value with the rock dove and European starling.

Upland forest habitat -- Five bird species and 13 individuals were observed in upland forest habitat during this census period. Bird species decreased by 71% from the winter census period and 75% from the breeding census period. Individuals decreased by 92% and 82%, respectively. The most abundant and most widely distributed species was the downy woodpecker (Table 4). The least abundant species with the most narrow distribution was the brown creeper (state endangered species).

Spring census

The spring census was conducted from April 14 through May 20, 1988. A total of 1,339 individuals representing 27 families, 66 genera, and 77 species was observed during this census period (Appendix I). These figures represent a 165% increase from the number of bird species observed during the winter census period, but only a 17% increase in the number of individuals. The spring migration census period produced 54% more bird species but 52% less individuals than did the autumn migration census period. Seventy-six percent of all bird species observed during this investigation were recorded within the spring census period.

Agricultural habitat -- Thirty-six bird species and 496 individuals were observed in agricultural habitat during this census period. Agricultural totals show a 125% increase in the number of bird species and a 33% decrease in the number of individuals observed from the winter census period. The red-winged blackbird was the most abundant bird species on this census followed by the common grackle, American robin, and European starling. The robin and the grackle shared the highest relative frequency value. Eight bird species shared the lowest relative abundance and relative frequency values (Table 1).

Wetland habitat -- Fifty-six bird species and 545 individuals were observed in wetland habitat during the spring census period. Seventy-three percent of the bird species observed during the spring census were recorded in wetland habitat. The number of bird species and individuals increased 133% and 63%, respectively, from the winter census period. The most abundant species was the red-winged blackbird followed by the common grackle and the song sparrow (Table 2). The red-winged blackbird was the most widely distributed in this habitat type at this time. The song sparrow and common grackle also displayed moderately high relative frequency values. Seven bird species shared the lowest relative abundance value, while fourteen species shared the lowest relative frequency value (Table 2).

Forbland habitat -- Thirty-four bird species and 135 individuals were observed in forbland habitat during the spring census period. Bird species observed increased nearly four-fold, and individuals 114% from the winter census. The red-winged blackbird was by far the most abundant species, but it shared the widest distribution value with the song sparrow. Nineteen bird species had the lowest relative abundance value in common, and twenty-four species shared the lowest relative frequency value (Table 3). This is an indication of the transitory nature of bird species in this habitat type during spring migration.

Upland forest -- Forty bird species and 163 individuals were observed in upland forest habitat during the spring census period. Fifty-two percent of the bird species observed during the spring census period were recorded in upland forest habitat. Bird species increased nearly eight times and individuals increased nearly thirteen times the totals recorded for the winter census period. The American robin was the most abundant species followed by the blue jay (Table 4). Bird species sharing the highest relative frequency values include the downy woodpecker, Northern flicker, blue jay, black-capped chickadee, American robin, and the brown-headed cowbird. The wide distribution of the brown-headed cowbird within this habitat is alarming and will be addressed in the discussion. Eleven bird species shared the lowest relative abundance value and nineteen species shared the most narrow distribution (Table 4).

Bird species diversity

Bird species diversity (H') (Shannon and Weaver 1949) was consistently higher in the wetland habitat when compared to the other habitat types within the project area (Table 5). The upland forest habitat produced the second highest overall species diversity indices and was second only to the wetland habitat in all seasons except autumn. This is not surprising since a greater diversity of microhabitats is present within wetland and upland forest as compared to agricultural and formland habitat types.

ENDANGERED AND THREATENED BIRD SPECIES

The U. S. Department of the Interior, Fish and Wildlife Service (USDI, FWS) (1982) identified vertebrate animal taxa, native to the United States, which are being considered for addition to the List of Endangered and Threatened Wildlife. In responding to the Endangered Species Act of 1973 (16th U. S. Congress, docket 1531), which requires the determination of whether species of wildlife and plants are endangered or threatened based upon the best available scientific and commercial data, the FWS has assigned many of these taxa to one of three categories.

Category 1 comprises taxa for which the FWS currently has substantial information on hand to support the biological appropriateness of proposing to the list of species as Endangered or Threatened. Currently data are being gathered concerning the environmental impacts of listings and the economic effects of Critical Habitat designations. Development and publication of proposed rules on such species is anticipated.

Category 2 comprises taxa for which information now in possession of the FWS indicates that proposing to list the species as Endangered or Threatened is possibly appropriate, but for which substantial data are not currently available to biologically support a proposed rule. Further biological research and field study will usually be necessary to ascertain the status of the taxa in this category, and it is likely that some of the taxa will not warrant listing.

Category 3 comprises taxa that are no longer being considered for listing as Endangered or Threatened. Such taxa are included in one of three subcategories, depending on the reasons for removal from consideration: a) substantial evidence exists supporting the designation of a species as extinct; b) present taxonomic and/or systematic status of a taxon does not meet the Act's definition of a 'species'; c) a taxa has been proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat; further information could lead to the elevation of these taxa to categories 1 or 2.

Four federal and 43 state endangered or threatened bird species have been identified in Illinois (Illinois Administrative Code, Title 17, Chapter I, subchapter c, part 1010.30, as amended March 17, 1989). Of these, one federally endangered species, 22 state endangered species, and six state threatened species have been recorded in Cook, DuPage, and Will counties during the breeding season (*Illinois Audubon Bulletin* and *Illinois Birds and Birding*, Kleen, Field Notes 1975 through 1987). Swainson's hawk and the loggerhead shrike, known from adjacent counties but thought unlikely to occur within the FAP 431 project area, are being proposed as federally endangered under Category 2.

Table 5. Diversity indices (H') for agricultural, wetland, forbland, and upland forest habitats; from avian census data collected June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Habitat	Diversity Indices				All Seasons
	Breeding	Autumn	Season Winter	Spring	
Agricultural	1.156	0.847	0.826	1.247	1.501
Wetland	1.204	1.164	0.895	1.475	1.788
Forbland	1.112	0.557	0.554	1.117	1.310
Upland forest	1.166	0.716	0.662	1.386	1.572

During this investigation five state endangered bird species were observed within the FAP 431 project corridor. (Table 6). Life history accounts for those species observed are included in Appendix II.

Bird species that have the potential to occur within the FAP 431 project area ultimately are dependent upon habitat suitability and availability. The project area is especially important to wetland bird species that may use the extensive palustrine and lacustrine wetlands that are associated with the Des Plaines River.

The following section summarizes habitat requirements and local county records for the endangered and threatened species observed during this census and/or having potential to occur in the FAP 431 project area.

Great egret, snowy egret, little blue heron, black-crowned night-heron - Suitable breeding habitat, bottomland forest trees and thickets adjacent to wetland foraging sites, is present in the project area within the wetlands associated with the Des Plaines River. Great egrets, sometimes in fairly large numbers, have been observed foraging in these wetlands on many occasions. Both great egrets and black-crowned night-herons were observed in these wetlands during the breeding census period; great egrets also were observed during the spring census period. In 1988, as a consequence of further studies being conducted at this site as requested by IDOT, a heron colony was discovered in these wetlands. Great-blue herons were the only nesting species at this time, however, these wetlands provide potential nesting habitat for great egrets, snowy egrets, little blue herons, and black-crowned night-herons. These species all have been recorded during the breeding season at the nearby Lake Renwick heron colony; all four species also have recent breeding season occurrence records, in addition to many spring and autumn sightings, in one or more of the project area counties (Kleen 1985a, b, d; 1986a, b, d; 1987a).

American bittern - Suitable nesting habitat- wetlands with emergent vegetation- commonly occurs within the project area wetlands. It is surprising that this species was not observed during this investigation. The American bittern was last recorded locally during the breeding season in Cook County in 1985 (Kleen 1986a). It also was observed in Cook County during the 1985 autumn season and the 1986 spring season (Kleen 1986b, d). There are no recent records of its occurrence in DuPage or Will counties.

Cooper's hawk - Marginally suitable nesting habitat- stands of mature deciduous or mixed trees adjacent to open field areas, is present in the project area near the Des Plaines River, in Black Partridge Forest Preserve, and sporadically in agricultural areas. A Cooper's hawk was observed during the winter census period in a young woodlot surrounded by agricultural land. Records indicate Cooper's hawk was present in Will County in both the 1984 and 1985 breeding seasons (Kleen 1985a; 1986a). It also has been observed in recent years in spring, autumn, and winter in DuPage and Will counties (Kleen 1985d; 1986b, c, d).

Table 6. Endangered and threatened bird species observed or known to occur within or adjacent to Cook, DuPage, Will counties, Illinois during breeding season within the past 10 years, and their likelihood of occurrence within the FAP 431 project area.

Species	E/T	Target counties	Adjacent counties	Observed	Likelihood of occurrence
Double-crested cormorant	E	X	X		N
Great egret	E	X	X	X(b,s)	Y
Snowy egret	E	X	X	--	P
Little blue heron	E	X	X	--	P
Black-crowned night-heron	E	X	X	X(b)	Y
American Bittern	E	X	X	--	P
Mississippi Kite	E	X	X	--	P
Northern harrier	E	X	X	X(a)	Y
Cooper's hawk	E	X	X	X(w)	Y
Swainson's hawk	E	--	X	--	N
Red-shouldered hawk	E	X	X	--	P
Bald eagle *	E	X	X	--	N
Osprey	E	X	X	--	N
Piping plover	E	--	X	--	N
Upland sandpiper	E	X	X	--	P
Wilson's phalarope	E	X	X	--	N
Forster's tern	E	X	X	--	P
Common tern	E	X	X	--	N
Least tern	E	--	X	--	N
Black tern	E	X	X	--	P
Yellow rail	E	--	--	--	P
Short-eared owl	E	X	X	--	P
Yellow-headed blackbird	E	X	X	--	N
Bewick's wren	E	--	X	--	P
Common moorhen	T	X	X	--	P
Brown creeper	T	--	X	X(a,w)	P
Loggerhead shrike	T	--	X	--	N
Veery	T	X	X	--	N
Brewer's blackbird	T	X	X	--	P
Henslow's sparrow	T	X	X	--	P

E = state endangered

T = state threatened

* = federal endangered

N = species is not likely to occur

Y = species is likely to occur

P = species has potential to occur due to the presence of suitable habitat

observed (X) = species was observed during this study; letters in parentheses indicate season species was observed, *i. e.* b = breeding, a = autumn, w = winter, s = spring

Data taken from Kleen, Field notes: Breeding Season, *Illinois Audubon Bulletin* and *Illinois Birds and Birding* 1975 through 1987.

Northern harrier and short-eared owl - Suitable nesting habitat includes moist rank vegetation, emergent vegetation, or mat vegetation at marsh edges; all of these habitat characteristics commonly occur in the project area wetlands. A Northern harrier was observed foraging over a forbland during the autumn census of the FAP 431 project area. Northern harriers were recorded during the breeding season in 1984 in DuPage and Will County, and again in 1985 in DuPage County (Kleen 1985a; 1986a). The species has been observed in spring, autumn, and winter in one or more of the project area counties during the last five years (Kleen 1985b, d; 1986d; 1987a, b). The short-eared owl has not been observed during the breeding season in a project area county in the last five years. However, this species has been sighted consistently during the autumn and winter seasons in Cook County in recent years (Kleen 1985b, c; 1986c; 1987b). It also was sighted in DuPage County as recently as the spring of 1985 (Kleen 1985d).

Mississippi kite and red-shouldered hawk - Marginally suitable breeding habitat for these species is present within the floodplain forest along the south bank of the Des Plaines River. Several stands of large tall trees are present and the area is isolated from human disturbance. There are no records of the Mississippi kite occurring in Cook, DuPage, or Will County in the last five years. In the 1984 and 1985 breeding seasons the red-shouldered hawk was present in both Cook and Will counties (Kleen 1985a; 1986a). It has been sighted consistently in autumn, winter, and spring in all three project area counties during the last five years (Kleen 1985b, c, d; 1986b, c, d; 1987a, b).

Yellow rail - Nesting habitat for this species typically is found in areas of emergent vegetation (sedges, rushes), with meandering rivulets of water occurring locally within the wetlands associated with the Des Plaines River. These wetlands may be important to this species during migration seasons. There are no records of the yellow rail occurring in Cook, DuPage, or Will County in the last five years.

Upland sandpiper and Henslow's sparrow - Nesting habitat for these species largely depends on crop rotation in the area. If hay is planted on extensive tracts of land, suitable habitat will be available. Habitat also is present in several permanent pastures associated with horse farms in the area. The upland sandpiper was present during the breeding season in 1984 and 1985 in Will County, and in 1985 in DuPage County (Kleen 1985a; 1986a). It has been observed during the 1985 autumn and spring seasons in Cook County and in the 1985 and 1986 autumn and spring seasons in Will County (Kleen 1985d; 1986b, d; 1987a). Henslow's sparrow was present during the 1985 breeding season in Cook, DuPage, and Will County; it also was recorded in the 1984 breeding season from both Cook and DuPage counties (Kleen 1985a; 1986a). The most recent sightings of this species from project area counties during migration seasons were in Cook County in the 1985 spring and autumn (Kleen 1985d; 1986b).

Forster's tern, black tern, and common moorhen - Marginal nesting habitat is available for these species at small localized sites within the wetlands where an interspersion of open water and cattails occurs. In addition, the common moorhen prefers water depths from 3 to 5 feet. When water levels are elevated, more open and deeper water areas may be present. Forster's tern last was recorded during the breeding season from a project area county in Cook county in 1984 (Kleen 1985a). However, this species has been observed quite consistently in recent spring and autumn seasons in both Cook and Will counties (Kleen 1985b, d; 1986b, d; 1987a). The black tern was present during the 1984 breeding season in Cook and Will Counties, and in the 1985 breeding season in DuPage and Will counties (Kleen 1985a; 1986a). It has been observed in recent spring and autumn seasons in both Cook and Will counties (Kleen 1985d; 1987a). The common moorhen was present during

the 1984 breeding season in all three project area counties, and during the 1985 breeding season in Cook and DuPage counties (Kleen 1985a; 1986a). It has been observed consistently in Cook County in recent spring and autumn seasons (Kleen 1985b, d; 1986b, d).

Brown creeper - Suitable nesting habitat- floodplain forest containing dead or dying trees with exfoliating bark- is present in the project area in the floodplain forest along the south bank of the Des Plaines River. Brown creepers were observed in the project area during the autumn and winter censuses in the upland forest habitat in Black Partridge Forest Preserve. This woodland is located just north (across the road) of the wetlands that provide potential nesting habitat for the species. In the last five years the only breeding season occurrence of brown creepers in one of the project area counties was recorded in Will County in 1984 (Kleen 1985a).

Brewer's blackbird - Suitable nesting habitat is scattered throughout the wetland habitat and also throughout the agricultural habitat on land adjacent to streams. Brewer's blackbird was last recorded during the breeding season from a project area county in Cook County in 1985 (Kleen 1986a). One additional record from the area in the last five years is from Will County in the spring of 1985 (Kleen 1985d).

ECONOMICALLY IMPORTANT BIRD SPECIES

Bird species considered to be economically important for consumptive purposes that were observed within the FAP 431 project area during this study are listed in Table 7. The most abundant gamebird species observed was the mourning dove, followed by the mallard and Canada goose. The majority of observations were recorded in the wetland habitat type followed by the agricultural habitat type.

The agricultural habitat type was used mainly as a migration stop-over area where birds fed on waste grain. Any other intensive use of this habitat type by gamebirds is precluded by the lack of cover and structure. The wetland habitat type was used as a migration stop-over area (especially by waterfowl), however, it also provided suitable breeding habitat for many gamebird species, *i. e.*, Canada goose, mallard, blue-winged teal, wood duck, and mourning dove. Therefore, the wetland habitat within the FAP 431 project area is important to regional resident and non-resident gamebirds as well as non-game birds largely due to its structural diversity.

DISCUSSION

Bird populations that inhabit the majority of the FAP 431 project corridor are typical representatives of avian communities that are associated with the respective habitat types present. Due to the extensive clean-farming practices, urbanization, and industrialization that have occurred or are occurring within Cook, DuPage, and Will counties, very little habitat diversity or suitable habitat remains available for use by native avifauna. The aggregate wetland associated with the Des Plaines River is by far the most interesting and important area with respect to bird species that occurs within the FAP 431 project corridor. These wetlands are being studied further and will be discussed in detail in a separate technical report.

Table 7. Summary of economically important bird species observed during breeding, autumn, winter, and spring census periods, June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Agricultural	Wetland	Forbland	Upland Forest	Total
Canada goose	32	27	--	--	59
Blue-winged teal	--	4	--	--	4
Mallard	6	82	3	--	91
Wood duck	--	40	--	5	45
Common goldeneye	--	24	--	--	24
Common merganser	--	2	--	--	2
Bufflehead	--	1	--	--	1
Ring-necked pheasant	3	0	3	--	6
Mourning dove	96	48	10	--	154
Sora rail	--	--	1	--	1
Total	137	228	17	5	386

Seasonal dynamics of the project area were fairly typical with respect to numbers of species and numbers of individuals observed during each census period. The winter census period produced the lowest number of bird species observed in all habitat types and the spring migration census period produced the highest number of bird species (except in the agricultural habitat during the breeding census period).

Typically, the greatest numbers of bird species are recorded during the migration seasons. An interesting result, however, was that the number of bird species observed during the autumn census period was consistently lower for all habitat types than the number of bird species observed during the breeding census period (Figure 6).

The low results for the autumn census period may have been due partly to the weather patterns experienced during the autumn season. Temperatures fell quickly and stayed low; major frontal systems that are responsible for moving birds southward in waves were absent. Therefore, the progression of species through Illinois was irregular and sporadic. These results also may be an artifact of sampling due to the patchiness of the habitat types within the project area. The results suggest that the FAP 431 project corridor or surrounding area was not used as an important migration corridor during the autumn of 1987.

The habitat type richest in number of species in a particular season was the wetland habitat during the spring census period (Figure 7). The wetland habitat type within the project area consistently supported the greatest number of bird species (highest species richness) of any major habitat type in any season. The wetland habitat type also supported the greatest numbers of individuals during the breeding and spring census periods. Agricultural habitat attracted greater numbers of individuals during autumn and winter census periods, typically expected due to large flocks of blackbirds, crows, and rock doves associated with this habitat type during these seasons.

No reason can be given for the low number of species and individuals recorded in the upland forest habitat. However, the fragmented condition of the woodlands, and lack of extensive woodlands within this region, and presence of brown-headed cowbirds are suggested as contributing factors to this phenomenon. During the spring census period the brown-headed cowbird was one of the most widely distributed bird species in this habitat type. Brown-headed cowbirds seek out nests of other bird species and lay one or more eggs in each. Brown-headed cowbird young have evolved to grow quickly and overpower the young of the host species. Therefore, numbers of many native bird species, especially neotropical migrants, are declining. Brown-headed cowbirds are common along forest edges, in fragmented forests, and in forests with open canopies. Preservation of extensive forested tracts is a practice which ultimately reduces nest parasitism and maintains non-game woodland bird species numbers and diversity.

Four state endangered and one state threatened bird species were recorded within the FAP 431 project corridor during this study. These species were the state endangered great egret, black-crowned night-heron, Northern harrier, Cooper's hawk, and state threatened brown creeper. Habitat types that were used by these species were wetland, agricultural, and upland forest. Proportionally, the greatest number of endangered species and individuals were recorded in the wetland habitat type within the project area. Equal numbers of species were observed during the breeding, autumn, and winter seasons. The greatest number of individuals were observed during breeding season (great egret, black-crowned night-heron); however, no nests were located.

Endangered and threatened species observed in this study appeared to use the habitats within the project area mainly for foraging. The wetlands were extremely important to great egrets and black-crowned night-herons, and may also be used by the Northern harrier, Cooper's hawk, and brown creeper. These habitats also are used, to a lesser extent, as migration stop-over areas. The FAP 431 project area did not appear to be a highly-used migration corridor during this study.

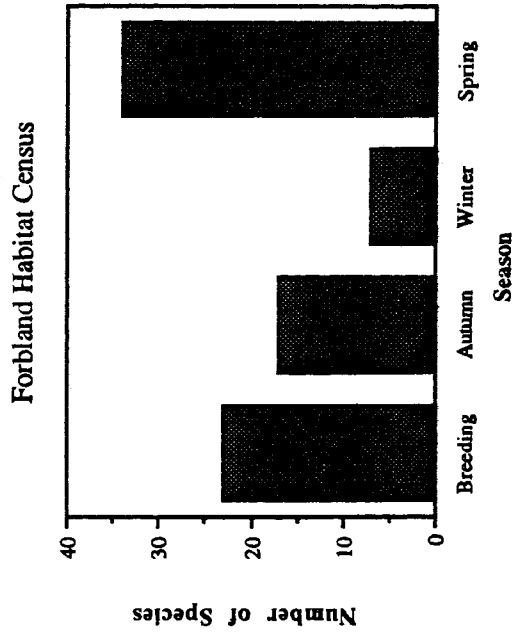
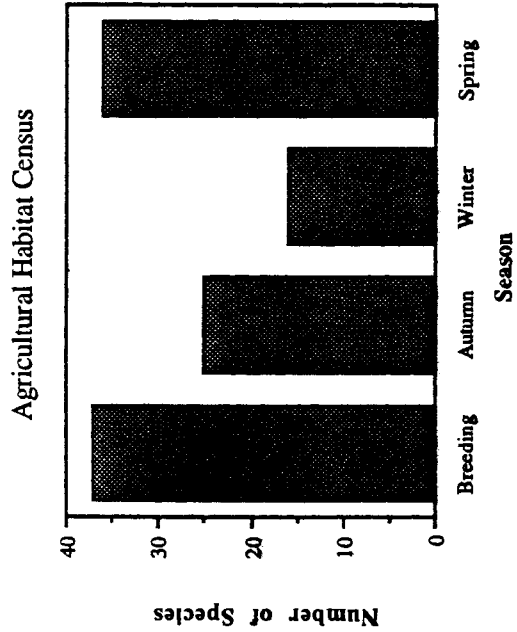
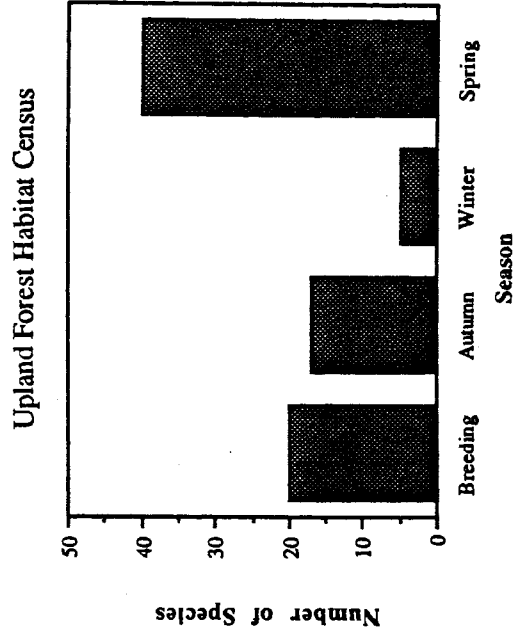
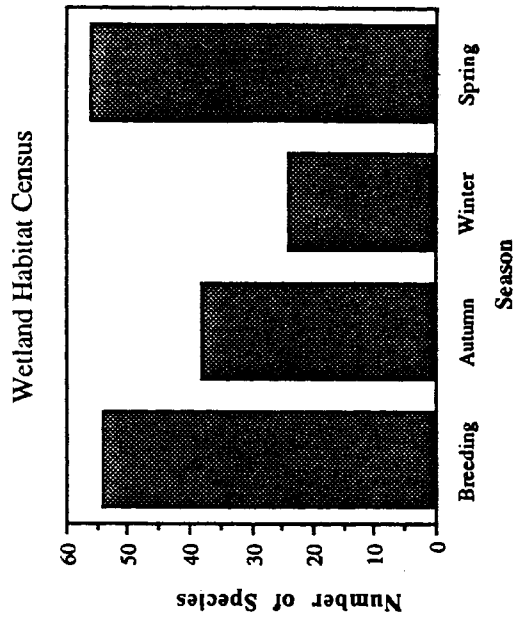


Figure 6. Numbers of species observed in the four habitat types during breeding, autumn, winter, and spring censuses performed June 1987 through June 1988 at the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

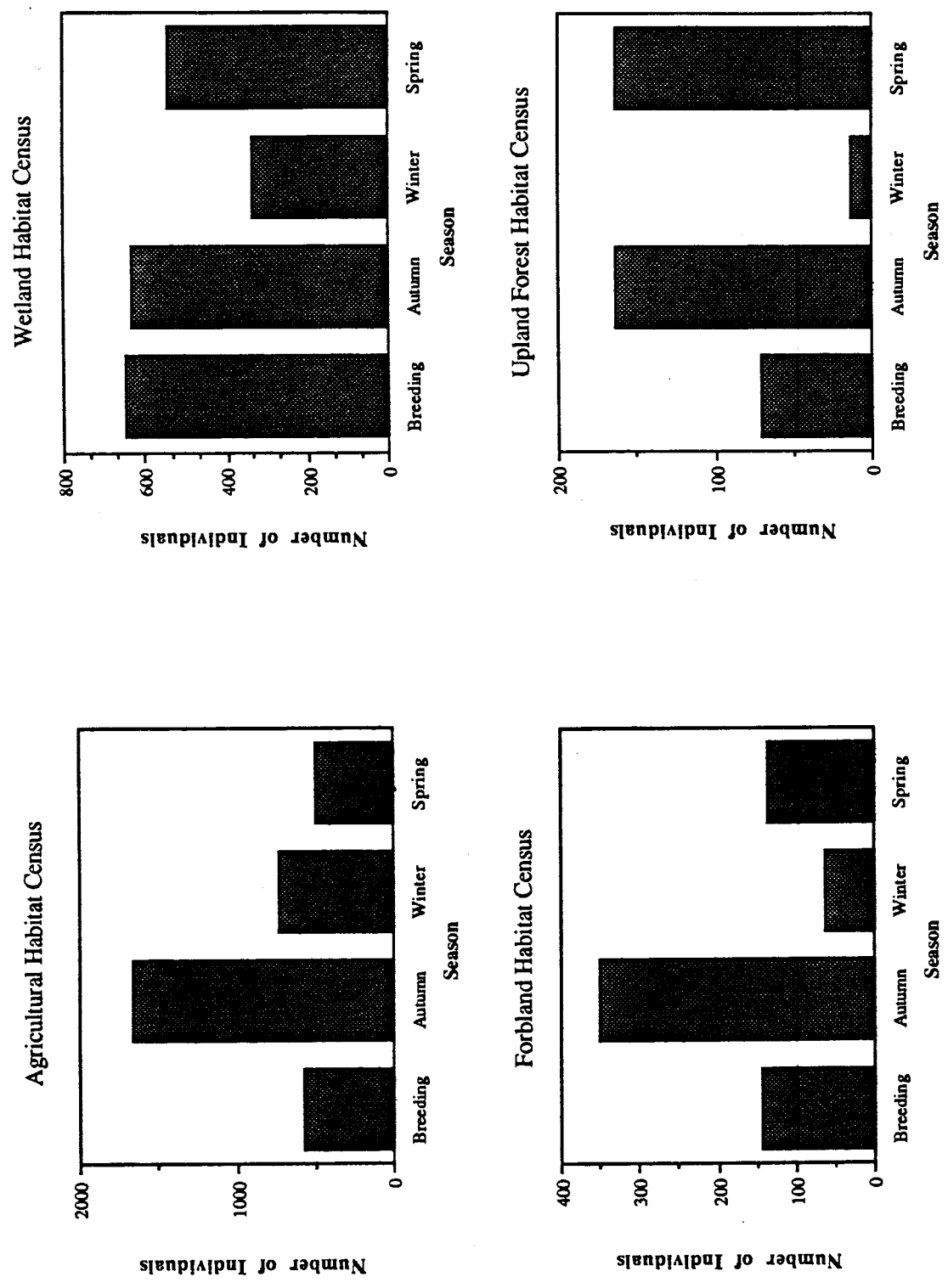


Figure 7. Numbers of individuals observed in the four habitat types during breeding, autumn, winter, and spring censuses performed June 1987 through June 1988 at the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

In summary, the most important habitat type within the FAP 431 project area is the wetland habitat, particularly the aggregate wetland associated with the Des Plaines River. This habitat consistently supported greatest numbers of bird species, economically important bird species, and endangered and threatened bird species. The area contains some of the most extensive wetlands in the region and therefore provides extremely important foraging, breeding, and migration stop-over habitat for birds.

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APPENDIX 1.

Table A. Agricultural habitat: Total numbers of each bird species recorded in each season, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season			
	Breeding	Autumn	Winter	Spring
Great egret **	1	0	0	0
Canada goose	0	0	32	0
Mallard	3	0	2	1
Cooper's hawk **	0	0	1	0
Red-tailed hawk	0	8	8	2
Rough-legged hawk	0	0	3	0
American kestrel	5	8	6	1
Ring-necked pheasant	2	1	0	0
Killdeer	2	23	0	14
Ring-billed gull	0	0	0	1
Rock dove	5	35	63	13
Mourning dove	27	56	4	9
Yellow-billed cuckoo	0	0	0	2
Common nighthawk	1	0	0	0
Chimney swift	19	38	0	2
Red-headed woodpecker	0	1	0	0
Downy woodpecker	1	0	0	0
Northern flicker	2	0	0	6
Eastern kingbird	3	0	0	0
Horned lark	14	51	70	24
Barn swallow	23	0	0	6
Blue jay	1	3	0	7
American crow	9	150	202	19
Black-capped chickadee	0	7	0	1
House wren	2	0	0	0
Ruby-crowned kinglet	0	1	0	0
American robin	48	39	0	54
Gray catbird	4	0	0	7
Brown thrasher	2	0	0	0
Cedar waxwing	1	12	0	0
European starling	125	349	242	51
Warbling vireo	0	0	0	2
Yellow warbler	1	0	0	1
Yellow-rumped warbler	0	2	0	0
Common yellowthroat	5	0	0	8
Northern cardinal	2	1	1	2
Indigo bunting	20	0	0	9
Rufous-sided towhee	0	0	0	1

Table A concluded on following page

Table A. Agricultural habitat: Total numbers of each bird species recorded in each season, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season			
	Breeding	Autumn	Winter	Spring
American tree sparrow	0	0	28	0
Chipping sparrow	11	0	0	6
Field sparrow	2	3	0	1
Vesper sparrow	2	0	0	10
Fox sparrow	0	5	0	0
Song sparrow	26	0	0	28
White-crowned sparrow	0	0	0	5
Dark-eyed junco	0	4	3	0
Bobolink	3	0	0	0
Red-winged blackbird	35	217	45	83
Eastern meadowlark	9	0	0	5
Common grackle	129	634	0	64
Brown-headed cowbird	5	0	0	12
Northern oriole	0	0	0	1
American goldfinch	20	10	0	18
House sparrow	10	8	27	20

** = state endangered species

Table B. Wetland habitat: Total numbers of each bird species recorded in each season, from June 1987 through June 1988, within the FAP 431 project area, and Cook, DuPage, and Will counties, Illinois.

Species	Season			
	Breeding	Autumn	Winter	Spring
Great blue heron	7	2	0	11
Great egret **	8	0	0	4
Green-backed heron	2	1	0	3
Black-crowned night-heron **	2	0	0	0
Canada goose	0	0	3	24
Wood duck	16	6	0	18
Mallard	5	0	59	18
Blue-winged teal	0	0	0	4
Common goldeneye	0	0	24	0
Common merganser	0	0	2	0
Bufflehead	0	0	1	0
Red-tailed hawk	5	2	3	5
Rough-legged hawk	0	0	1	0
American kestrel	0	2	4	0
Killdeer	1	1	0	4
Solitary sandpiper	0	0	0	8
Spotted sandpiper	0	1	0	2
Ring-billed gull	3	7	0	8
Rock dove	209	28	129	0
Mourning dove	12	29	4	3
Yellow-billed cuckoo	0	0	0	1
Chimney swift	3	5	0	4
Belted kingfisher	5	0	1	1
Red-headed woodpecker	2	2	0	1
Red-bellied woodpecker	1	2	2	2
Yellow-bellied sapsucker	0	1	0	0
Downy woodpecker	6	9	8	5
Hairy woodpecker	0	0	1	0
Northern flicker	4	0	0	13
Eastern wood-pewee	2	0	0	0
Eastern phoebe	1	1	0	2
Great crested flycatcher	3	0	0	5
Eastern kingbird	1	0	0	4
Purple martin	8	0	0	1
Tree swallow	1	0	0	24
N. rough-winged swallow	3	0	0	0
Barn swallow	2	0	0	0
Blue jay	1	2	0	9
American crow	4	83	34	6
Black-capped chickadee	7	23	27	13

Table B concluded on following page

Table B. Wetland habitat: Total numbers of each bird species recorded in each season, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season			
	Breeding	Autumn	Winter	Spring
White-breasted nuthatch	2	1	1	2
House wren	23	0	0	14
Golden-crowned kinglet	0	2	0	0
Blue-gray gnatcatcher	2	0	0	2
Eastern bluebird	2	0	0	1
Gray-cheeked thrush	0	1	0	0
Wood thrush	1	0	0	0
American robin	22	52	1	18
Gray catbird	2	0	0	1
Cedar waxwing	18	45	0	0
European starling	0	1	11	20
Yellow-throated vireo	3	0	0	3
Warbling vireo	1	0	0	4
Red-eyed vireo	7	0	0	1
Tennessee warbler	0	3	0	0
Yellow Warbler	1	0	0	4
Yellow-rumped warbler	0	21	0	4
Bay-breasted warbler	0	1	0	0
Prothonotary warbler	2	0	0	2
Ovenbird	0	2	0	0
Northern waterthrush	0	0	0	3
Common yellowthroat	16	0	0	8
Wilson's warbler	0	1	0	0
Northern cardinal	6	0	1	10
Indigo bunting	11	0	0	9
Rufous-sided towhee	0	0	0	3
Field sparrow	1	0	0	1
Song sparrow	42	19	13	35
Swamp sparrow	3	0	1	8
White-throated sparrow	0	18	0	0
Dark-eyed junco	0	21	3	1
Red-winged blackbird	75	157	1	93
Rusty blackbird	0	10	0	0
Common grackle	60	52	0	46
Brown-headed cowbird	3	0	0	12
Northern oriole	8	0	0	8
Purple finch	0	2	0	0
American goldfinch	12	17	0	25
House sparrow	1	0	0	4

** = state endangered species

Table C. Forbland habitat: Total numbers of each bird species recorded in each season, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season			
	Breeding	Autumn	Winter	Spring
Mallard	0	0	0	3
Northern harrier **	0	1	0	1
Red-tailed hawk	1	8	1	0
Rough-legged hawk	0	1	7	0
American kestrel	2	1	1	1
Ring-necked pheasant	0	0	0	3
Sora rail	0	0	0	1
Killdeer	1	0	0	1
Rock dove	1	6	2	0
Mourning dove	7	1	0	2
Chimney swift	0	41	0	0
Red-bellied woodpecker	0	0	1	0
Downy woodpecker	0	2	0	0
Northern flicker	0	0	0	1
Great crested flycatcher	0	0	0	1
Eastern kingbird	0	0	0	1
Horned lark	0	0	0	1
Barn swallow	4	0	0	2
Blue jay	0	1	0	2
American crow	6	11	29	2
House wren	0	0	0	1
Eastern bluebird	0	0	0	1
American robin	11	1	0	7
Gray catbird	1	0	0	1
Brown thrasher	1	0	0	0
Cedar waxwing	12	0	0	0
European starling	21	229	22	8
Warbling vireo	0	0	0	1
Tennessee warbler	0	0	0	1
Yellow warbler	0	0	0	1
Common yellowthroat	3	0	0	1
Northern cardinal	1	5	0	3
Indigo bunting	10	0	0	1
Dickcissel	9	0	0	0
Chipping sparrow	0	0	0	2
Field sparrow	2	0	0	0
Song sparrow	12	0	0	13

Table C concluded on following page

Table C. Forbland habitat: Total numbers of each bird species recorded in each season, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season			
	Breeding	Autumn	Winter	Spring
Dark-eyed junco	0	2	0	0
Red-winged blackbird	33	0	0	52
Eastern meadowlark	0	0	0	3
Common grackle	2	38	0	8
Brown-headed cowbird	1	0	0	1
Northern oriole	0	0	0	1
American goldfinch	2	1	0	1
House sparrow	1	1	0	6

** = state endangered species

Table D. Upland forest habitat: Total numbers of each bird species recorded in each season, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season			
	Breeding	Autumn	Winter	Spring
Wood duck	0	0	0	5
Broad-winged hawk	1	0	0	0
Red-tailed hawk	2	0	0	1
Yellow-billed cuckoo	1	2	0	0
Chimney swift	1	0	0	0
Belted kingfisher	1	0	0	1
Red-headed woodpecker	2	1	0	0
Red-bellied woodpecker	0	5	0	5
Downy woodpecker	3	2	4	5
Northern flicker	4	0	0	8
Eastern wood-pewee	2	0	0	1
Great crested flycatcher	0	0	0	3
Blue jay	11	1	0	20
American crow	1	0	3	2
Black-capped chickadee	9	11	3	13
White-breasted nuthatch	5	3	2	5
Brown creeper *	0	2	1	0
House wren	0	0	0	2
Golden-crowned kinglet	0	0	0	1
Blue-gray gnatcatcher	0	0	0	5
Eastern bluebird	1	0	0	0
Gray-cheeked thrush	0	6	0	0
Swainson's thrush	0	6	0	0
Hermit thrush	0	0	0	1
Wood thrush	5	0	0	4
American robin	9	74	0	25
Cedar waxwing	0	1	0	0
European starling	0	0	0	3
Yellow-throated vireo	0	0	0	6
Red-eyed vireo	5	0	0	2
Tennessee warbler	0	0	0	2
Nashville warbler	0	0	0	1
Chestnut-sided warbler	0	0	0	2
Yellow-rumped warbler	0	3	0	1
Bay-breasted warbler	0	0	0	1
Black and white warbler	0	0	0	3
Ovenbird	0	0	0	4
Northern waterthrush	0	0	0	1
Scarlet tanager	4	1	0	2

Table D concluded on following page

Table D. Upland forest habitat: Total numbers of each bird species recorded in each season, from June 1987 through June 1988, within the FAP 431 project area, Cook, DuPage, and Will counties, Illinois.

Species	Season			
	Breeding	Autumn	Winter	Spring
Northern cardinal	3	0	0	6
Rose-breasted grosbeak	0	0	0	4
Indigo bunting	0	0	0	2
Rufous-sided towhee	0	0	0	2
White-throated sparrow	0	2	0	1
Red-winged blackbird	0	0	0	2
Common grackle	0	41	0	1
Brown-headed cowbird	1	0	0	6
Northern oriole	0	0	0	2
American goldfinch	0	2	0	2

* = state threatened species

APPENDIX II

LIFE HISTORY ACCOUNTS

State endangered species

Casmerodius albus (Linnaeus) - Great egret

The great egret is worldwide in distribution, ranging from southeastern Europe and central Asia south to southern Africa, south and southeastern Asia, Australia, and New Zealand. In the Western Hemisphere, it breeds in the Ohio and Mississippi River valleys, the mid-Atlantic and Pacific coasts south through Mexico, and from Central America to southern Chile and Argentina. Birds winter on the south Atlantic, Gulf, and Pacific coasts south into Mexico, Central, and South America. Post-breeding dispersal takes it farther north into the United States and southeastern Canada (Palmer 1962).

Great egrets nesting in the Mississippi River drainage or wandering north during late summer move downstream to winter quarters along the Gulf Coast, with a few individuals wintering further north at scattered inland points. (Graber *et al.* 1978).

According to Bent (1926) the great egret was never as abundant as the snowy egret, although it is more numerous than snowy egrets in Illinois. In the early 1900's, great egret populations reached their lowest point as a result of plume hunting. Legal protection resulted in a recovery, which peaked in the mid-1930's. The gradual decline since then has been attributed to the drainage and destruction of preferred nesting habitat and drought.

In Illinois there are two summer populations of great egrets: the breeding population which arrives in spring, and a population which arrives in summer from the south where nesting starts and finishes much earlier than in Illinois (Graber *et al.* 1978). The breeding distribution in Illinois is mainly along the larger rivers. Transient great egrets appear to prefer the Illinois River over the Mississippi River, and western over eastern Illinois. Most great egrets have migrated south of Illinois by the end of October, though individuals have been reported in Illinois as late as December.

Within historic times, great egret populations in Illinois have undergone at least one major decline (late 19th and early 20th century) and a major expansion (1927 through the 1950's). The breeding population is declining again. There is great annual variation in the dispersal population, not only in numbers seen, but in arrival and departure dates. This has been attributed to variation in weather conditions. The factors that affect heron populations include all the factors that affect fish populations and subsequently, their availability (Graber *et al.* 1978).

Great egrets often nest with other herons, particularly great blue herons and black-crowned night-herons in bottomland forest habitat, usually within extensive tracts and not usually near the forest-edge. Most colonies are over water during part or all of the nesting season. Great egrets often place their nests in trees that have great blue heron nests, but usually place their nests lower than great blue heron nests (Hammerslough and Bjorklund 1968). Bjorklund (1975) reported that great egrets preferred silver maples and that great blue herons preferred cottonwoods at a heronry near Pekin, Illinois. Great egrets show more flexibility than do great blue herons, nesting in areas without extensive forests or large trees and with smaller herons. In Illinois, however, they are found more commonly with great blue herons than with smaller herons.

Aquatic foraging areas in or near the nesting area are essential. Although the foraging of the great egret has not been defined precisely, Graber *et al.* (1978) considered this behavior to be similar to that of great blue herons, as they often are seen fishing the same lagoon. Great blue herons are associated with the natural floodplain sequence in which lagoons are filled by spring floods along major streams. As summer progresses and food requirements of the herons peak, the lagoons dry and concentrate fishes in shallow pools making them easier to catch. It is not known if this association applies to great egrets as well, which nest about one month later than great blue herons.

Great egrets are very social and form communal roosts from the time of their arrival in spring. Late-summer migrants increase the size of these roosting groups, often found in bottomland forests, near the nesting colonies of great blue herons and night herons.

Nycticorax nycticorax (Linnaeus) - Black-crowned night-heron

The black-crowned night-heron ranges over both the eastern and western hemispheres. In the Old World, it breeds in southern Europe, central and southern Asia, and scattered areas in Africa. In the New World, it breeds from Oregon, central Washington, southern Idaho, southeastern Wyoming, southern Saskatchewan, southwestern Manitoba, central Minnesota, central Wisconsin, southern Michigan, southern Ontario, and northeastern New Brunswick southward locally through Mexico, central America, the West Indies, and most of South America, except Brazil (Reilly 1968).

Black-crowned night-herons wander from their breeding areas during summer, generally moving northward, but also filling the gaps between their breeding and wintering ranges. They winter throughout their breeding range in South America and in North America from Oregon south to Baja California east to Utah, central Arizona, and New Mexico. Their winter range extends along the Atlantic and Gulf coasts of the United States from Massachusetts to southern Texas, along the Mississippi and Ohio River valleys to southern Illinois, and from eastern and central Mexico southward through Central America, with the possible exception of the Yucatan Peninsula. The actual distribution of breeding colonies within the breeding range of the black-crowned night-heron is not well-known (Palmer 1962).

The population of the black-crowned night-heron in many areas has been reduced by drainage, land clearing, and development, although colonies often persist even when surrounded by human activity (Palmer 1962).

Black-crowned night-herons have been recorded from most areas in Illinois. There are few records from the northern part of the state, although this may reflect a lack of observers as suitable habitat appears to be present. Graber *et al.* (1978) listed the locations and dates of black-crowned night-heron nesting colonies reported from Illinois. All but four of these (located in Waukegan, Plainfield, Clear Lake, and East St. Louis) now are gone, indicating a serious decline in the black-crowned night-heron population of the state. The actual extent of this decline, however, is hard to determine as small colonies and individual nests often are well-concealed and easily overlooked (Graber *et al.* 1978).

Black-crowned night-herons usually nest in trees, either singly or in colonies. They may nest in mixed colonies with other species of herons and egrets. When black-crowned night-herons nest with great egrets or great blue herons, the black-crowned night-herons always build their nests beneath the canopy and lower than those of the larger birds (Graber *et al.* 1978). Black-crowned night-herons seem to use a greater variety of habitats for nesting than do other herons. They have been known to nest in such situations as upland orchards, extensive bottomland forests, second-growth timber, pasture, and even in towns and cities. Nesting has been reported in treeless open

marshland in herbaceous vegetation, but not since the last century (Nelson 1877; Murchison 1892).

Black-crowned night-heron nests have been found in a variety of deciduous trees including ash, willow, silver maple, oak, elm, hackberry, catalpa, boxelder, and European larch. The variety of plant species in which it nests suggests that nest sites are chosen on the basis of some factor, probably food availability, other than the structure of the nest tree.

Little is known about the foraging habits of the black-crowned night-heron, primarily because of its nocturnal habits. Most of these birds are inactive from 0800 hours to 1700 hours (McCarty 1928). Stomach contents have included fishes, frogs, large aquatic insects, and occasionally small reptiles and mammals.

Circus cyaneus (Linnaeus) - Northern harrier (Marsh hawk)

The northern harrier breeds in the southern boreal and northern temperate climatic zones of the Holarctic region. In winter it withdraws to the southern half of its breeding range and south to northwestern South America, northern Africa, India, and southern China (Reilly 1968).

Reilly (1968) stated that the northern harrier was not a rare bird, but that hunting pressure and habitat destruction were causing its numbers to decline. Hamerstrom (1969) reported a "pronounced and continuous" decline of northern harriers in central Wisconsin since 1960. He reported a 70% decrease in the number of migrants through the area from 1960 through 1965 and a similar decrease in the number of nests, eggs, and young fledged. The presence of an adequate potential breeding population indicated that the reproductive rate had been reduced, possibly due to pesticides acting through the avian component of the northern harrier's diet (Hamerstrom 1969).

The northern harrier inhabits a wide variety of open areas but shows a preference for marshes, wet fields, and prairies. It nests on the ground or in low vegetation. Usually it is seen cruising a few meters above the ground and beats the bush systematically to flush its prey (*i. e.*, small mammals, birds, and insects) (Grossman and Hamlet 1964; Brown and Amadon 1968; Reilly 1968). In Illinois the northern harrier is described as a common migrant and winter resident and an occasional permanent resident (Bohlen 1978).

Accipiter cooperii (Bonaparte) - Cooper's hawk

Cooper's hawk breeds from Baja California to southern Canada east to the Atlantic coast. They winter from the northern United States to Central America (Reilly 1968).

Bent (1937) reported that the Cooper's hawk had been declining steadily for 30 years, which he attributed primarily to a lack of prey species. He also considered the possibility of persecution by man as a cause for this decline. The pre-World War II decline has been attributed to heavy hunting pressure. Though hunting pressure decreased after World War II, the population has continued to decline. Continuation of the population decline is believed to be the result of pesticide poisoning (Henny and Wight 1972). In the northeastern United States (including Illinois) and southeastern Canada, Henny and Wight (1972) estimated that the Cooper's hawk population was declining at an annual rate of 25%. In Illinois, Bohlen (1978) described the Cooper's hawk as an uncommon migrant and winter resident, a rare summer resident in north and central Illinois, and an occasional resident in the south.

Cooper's hawks prefer mature deciduous and mixed forests and stay near cover except when hunting. They hunt from a perch, usually for medium-sized birds (*i. e.*, starlings, robins,

blackbirds, meadowlarks, flickers), but will capture chipmunks and squirrels (Brown and Amadon 1968). The prey items indicate that Cooper's hawks will hunt in open areas.

State threatened species

Certhia americana (Bonaparte) - Brown creeper

Certhia americana breeds in Manitoba, Ontario, Quebec, and Newfoundland south to Nebraska, Iowa, Wisconsin, Michigan, Ohio to New York, and Massachusetts. It winters in much of its breeding range south to Texas, the Gulf Coast, and Florida (American Ornithologists' Union 1957). The American Ornithologists' Union (1957) does not list Illinois to be within the species' breeding range; however, evidence indicates that it does breed here (Kleen 1980, 1981). George (1971) suggested that the Illinois population of brown creepers might represent an undescribed form different from that known to inhabit more northern coniferous forests.

The brown creeper occurs in Illinois as a common migrant and winter resident, and an occasional summer resident (Bohlen 1978). The Cache, Kankakee, Mississippi, Sangamon, and Sugar rivers appeared to be the center of distribution for breeding populations in Illinois as recently as 1981 (Bowles and Thom 1981).

The brown creeper is a diminutive bird with a relatively long decurved bill. This species frequents deciduous and mixed woodlands, with floodplain forest and cypress swamps being its primary habitat in Illinois (Bowles and Thom 1981). Humid atmosphere, dense tree growth, low sun penetration, and a considerable extent of undisturbed woodland dictated the brown creeper's breeding distribution in Massachusetts (Bent 1948).

Brown creepers are bark foragers and feed primarily upon insects and spiders that are taken from crevices in the bark or the bark surface. Brown creepers also are known to take a small amount of mast, seeds, and nuts (Davis 1978). This species usually is seen spiraling upward on tree trunks probing the bark with its bill.

The brown creeper builds a hammock shaped nest under loose tree bark (Bent 1948; Davis 1978). Tree species does not appear to influence the nest site, but dead trees with peeling bark are preferred. Dutch Elm disease may have allowed the extension of the species' breeding range in Illinois, but this phenomenon seems to have been only temporary (Davis 1978). Brown creepers occasionally nest in hollow trunks or branches and will roost in groups (Bent 1948). It appears that the availability of nest sites may be a principal factor in attracting creepers as a breeding species. The brown creepers will winter wherever relatively mature forests occur (Mengel 1965).

Little information describing the nesting ecology of the brown creeper in Illinois is available. Nesting may be sporadic, but general knowledge of its distribution in Illinois needs further study. Overall, preservation of floodplain forest is critical to the brown creeper as a breeding bird in Illinois (Bowles and Thom 1981).

APPENDIX III.

TAXONOMIC ORDER OF OBSERVED BIRD SPECIES

FAMILY Ardeidae

Great Blue Heron	<i>Ardea herodias</i>
Great Egret	<i>Casmerodius albus</i>
Green-backed Heron	<i>Butorides striatus</i>
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>

FAMILY Anatidae

Subfamily Anserinae

Tribe Anserini

Canada Goose	<i>Branta canadensis</i>
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Subfamily Anatinae

Tribe Cairinini

Wood Duck	<i>Aix sponsa</i>
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Tribe Anatini

Mallard	<i>Anas platyrhynchos</i>
Blue-winged Teal	<i>Anas discors</i>

Tribe Mergini

Common Goldeneye	<i>Bucephala clangula</i>
Bufflehead	<i>Bucephala albeola</i>
Common Merganser	<i>Mergus merganser</i>

FAMILY Accipitridae

Subfamily Accipitrinae

Northern Harrier	<i>Circus cyaneus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Broad-winged Hawk	<i>Buteo platypterus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Rough-legged Hawk	<i>Buteo lagopus</i>

FAMILY Falconidae

American Kestrel	<i>Falco sparverius</i>
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FAMILY Phasianidae

Subfamily Phasianinae

Ring-necked Pheasant

Phasianus colchicus

FAMILY Rallidae

Sora

Porzana carolina

FAMILY Charadriidae

Killdeer

Charadrius vociferus

FAMILY Scolopacidae

Solitary Sandpiper
Spotted Sandpiper*Tringa solitaria*
Actitis macularia

FAMILY Laridae

Ring-billed Gull

Larus delawarensis

FAMILY Columbidae

Rock Dove
Mourning Dove*Columba livia*
Zenaida macroura

FAMILY Cuculidae

Yellow-billed Cuckoo

Coccyzus americanus

FAMILY Apodidae

Chimney Swift

Chaetura pelagica

FAMILY Alcedinidae

Belted Kingfisher

Ceryle alcyon

FAMILY Picidae

Red-headed Woodpecker
Red-bellied Woodpecker
Downy Woodpecker
Hairy Woodpecker
Northern Flicker*Melanerpes erythrocephalus*
Melanerpes carolinus
Picoides pubescens
Picoides villosus
Colaptes auratus

FAMILY Tyrannidae

Eastern Wood-Pewee
Eastern Phoebe
Great Crested Flycatcher
Eastern Kingbird*Contopus virens*
Sayornis phoebe
Myiarchus crinitus
Tyrannus tyrannus

FAMILY Alaudidae

Horned Lark	<i>Eremophila alpestris</i>
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FAMILY Hirundinidae

Purple Martin	<i>Progne subis</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Barn Swallow	<i>Hirundo rustica</i>

FAMILY Corvidae

Blue Jay	<i>Cyanocitta cristata</i>
American Crow	<i>Corvus brachyrhynchos</i>

FAMILY Paridae

Black-capped Chickadee	<i>Parus atricapillus</i>
Tufted Titmouse	<i>Parus bicolor</i>

FAMILY Sittidae

White-breasted Nuthatch	<i>Sitta carolinensis</i>
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FAMILY Certhiidae

Brown Creeper	<i>Certhia americana</i>
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FAMILY Troglodytidae

House Wren	<i>Troglodytes aedon</i>
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FAMILY Muscicapidae

Subfamily Sylviinae

Tribe Sylviini

Golden-crowned Kinglet	<i>Regulus satrapa</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>

Tribe Polioptilini

Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
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Subfamily Turdinae

Eastern Bluebird	<i>Sialia sialis</i>
Gray-cheeked Thrush	<i>Catharus minimus</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Hermit Thrush	<i>Catharus guttatus</i>
Wood Thrush	<i>Hylocichla mustelina</i>
American Robin	<i>Turdus migratorius</i>

FAMILY Mimidae

Gray Catbird
Brown Thrasher

Dumetella carolinensis
Toxostoma rufum

FAMILY Bombycillidae

Cedar Waxwing

Bombycilla cedrorum

FAMILY Sturnidae

European Starling

Sturnus vulgaris

FAMILY Vireonidae

Yellow-throated Vireo
Warbling Vireo
Red-eyed Vireo

Vireo flavifrons
Vireo gilvus
Vireo olivaceus

FAMILY Emberizidae

Subfamily Parulinae

Tennessee Warbler
Nashville Warbler
Yellow Warbler
Chestnut-sided Warbler
Yellow-rumped Warbler
Black and White Warbler
Ovenbird
Northern Waterthrush
Common Yellowthroat
Wilson's Warbler

Vermivora peregrina
Vermivora ruficapilla
Dendroica petechia
Dendroica pensylvanica
Dendroica coronata
Mniotilta varia
Seiurus aurocapillus
Seiurus noveboracensis
Geothlypis trichas
Wilsonia pusilla

Subfamily Thraupinae

Scarlet Tanager

Piranga olivacea

Subfamily Cardinalinae

Northern Cardinal
Rose-breasted Grosbeak
Indigo Bunting
Dickcissel

Cardinalis cardinalis
Pheucticus ludovicianus
Passerina cyanea
Spiza americana

Subfamily Emberizinae

Rufous-sided Towhee
 American Tree Sparrow
 Chipping Sparrow
 Field Sparrow
 Vesper Sparrow
 Fox Sparrow
 Song Sparrow
 Swamp Sparrow
 White-throated Sparrow
 White-crowned Sparrow

Pipilo erythrophthalmus
Spizella arborea
Spizella passerina
Spizella pusilla
Poocetes gramineus
Passerella iliaca
Melospiza melodia
Melospiza georgiana
Zonotrichia albicollis
Zonotrichia leucophrys

Subfamily Icterinae

Tribe Dolichonychini

Bobolink

Dolichonyx oryzivorus

Tribe Agelaiini

Red-winged Blackbird
 Eastern Meadowlark
 Rusty Blackbird
 Common Grackle
 Brown-headed Cowbird

Agelaius phoeniceus
Sturnella magna
Euphagus carolinus
Quiscalus quiscula
Molothrus ater

Tribe Icterini

Northern Oriole

Icterus galbula

FAMILY Fringillidae

Purple Finch
 American Goldfinch

Carpodacus purpureus
Carduelis tristis

FAMILY Passeridae

House Sparrow

Passer domesticus