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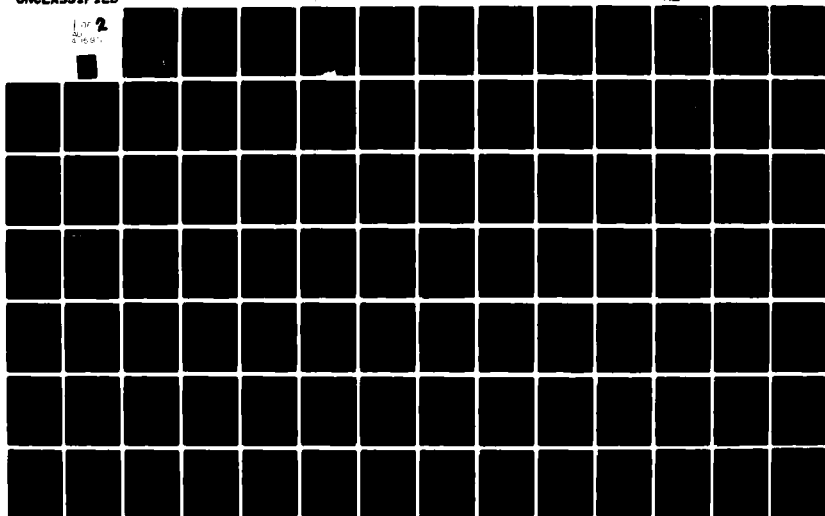
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**TERRESTRIAL BIOLOGICAL INVENTORY,
HILLVIEW DRAINAGE AND LEVEE DISTRICT,
GREENE AND SCOTT COUNTIES, ILLINOIS**

DACW43-81-M-3145

Submitted to:

**St. Louis District
Corps of Engineers
210 Tucker Blvd., North
St. Louis, MO 63101**

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A qualitative evaluation of the terrestrial biological resources within the Hillview Drainage and Levee District, Greene and Scott Counties, Illinois was performed. Field reconnaissance, habitat mapping, and consultation with recognized authorities were combined to present an overview of the existing plant and animal communities within the District. The various habitats were analyzed with regard to their abilities to support wildlife.		

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A total of 222 plant species and 40 vertebrate species were observed in the Hillview Drainage and Levee District. Of the vertebrates, 33 were avian, 5 were mammalian, and 2 were amphibian species.

The habitats most capable of supporting wildlife are the bottomland forest and the border vegetation adjacent to the ditches and creeks. Local residents use both of these habitats for hunting. The bottomland forest provides habitat for deer, squirrels, and other game species. The slough areas within the unprotected floodplain attract waterfowl and duck hunting is considered successful within the Hillview Drainage and Levee District. The border vegetation along the ditches and creeks provides cover for bobwhite quail and eastern cottontail rabbit. The Bobwhite quail is considered the most valuable game species within the District.

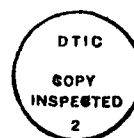
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1.0 INTRODUCTION

The Flood Control Act of 23 October 1962, Public Law 87-874 authorized a comprehensive plan of improvement for flood protection and other purposes in the Illinois River and Tributaries Basin. This plan of improvement was in accordance with the recommendations of the Chief of Engineers in House Document Number 472, Eighty-Seventh Congress, 2nd session. The Hillview Drainage and Levee District is one of 16 local flood protection projects recommended for improvements. The proposed plan of improvement will provide increased flood protection to 13,070 acres of primarily agricultural lands and to the village of Hillview, Illinois.

A General Design Memorandum-Phase 1, Plan Formulation, for the Hillview Drainage and Levee District, Greene and Scott Counties, Illinois is in preparation. Included in Phase 1 is a planning document, providing environmental information to be considered in the identification of alternative solutions to water resource problems and opportunities associated with the District. This report provides a qualitative evaluation of the wetland and terrestrial habitats located in the District and will be used as part of the Phase 1, Environmental Planning Document.

2.0 MATERIALS AND METHODS

2.1 Study Area

The Hillview Drainage and Levee District, Greene and Scott Counties, Illinois, is located on the east bank of the Illinois River between River Mile 43.2 (the mouth of Hurricane Creek) and River Mile 50.0 (the mouth of Little Sandy Creek) (Figure 1).

The Hillview Drainage and Levee District encompasses 13,070 acres of primarily agricultural land, protected by a total of 7.1 miles of flank levees on the northern and southern boundaries and 7.2 miles of riverfront levee. A tract of bottomland forest extends along the western boundary of the District, between the Illinois River and the riverfront levee. Narrow stretches of shrub communities border the drainage ditches and flanking creeks, and small areas of highly disturbed riparian forest are scattered within the District.

Hurricane Creek (southern boundary) and Little Sandy Creek (northern boundary) make up the major flowing waters (lotic habitats) within the Hillview Drainage and Levee District. Both creeks have been channelized. Several interconnecting drainage ditches flow into the creeks through three pumping stations (Figure 2). There are no lakes or ponds (lentic habitats) within the District, although a series of sloughs is present riverward of the riverfront levee. The population center in the area is the village of Hillview.

2.2 Field Reconnaissance

A field survey of the Hillview Drainage and Levee District was conducted on 9 and 10 October 1981 to qualitatively evaluate the stream corridor habitats and areas bordering the riverfront levee. Twenty-one survey sites were examined (Figure 2). These included: one site in an upper, middle, and lower reach of each of four major drainage ditches (12 sites) and the two bordering creeks (6 sites); one site riverward of each flanking levee at the bordering streams (2 sites); and 1 site along the Illinois River, midway between the flanking levees.

At each survey site within the Hillview Drainage and Levee District information regarding habitat type and quality were recorded. Where riparian vegetation was present, the following factors were identified:

1. Woody vegetation present and dominant plant species (or generic groupings);
2. Canopy and/or understory cover;
3. Age class of community;
4. Significant or unique habitat qualities, including suitability for wildlife;
5. Presence of terrestrial and semi-aquatic vertebrates (as identified by sight, call, tracks, scats, or other signs).

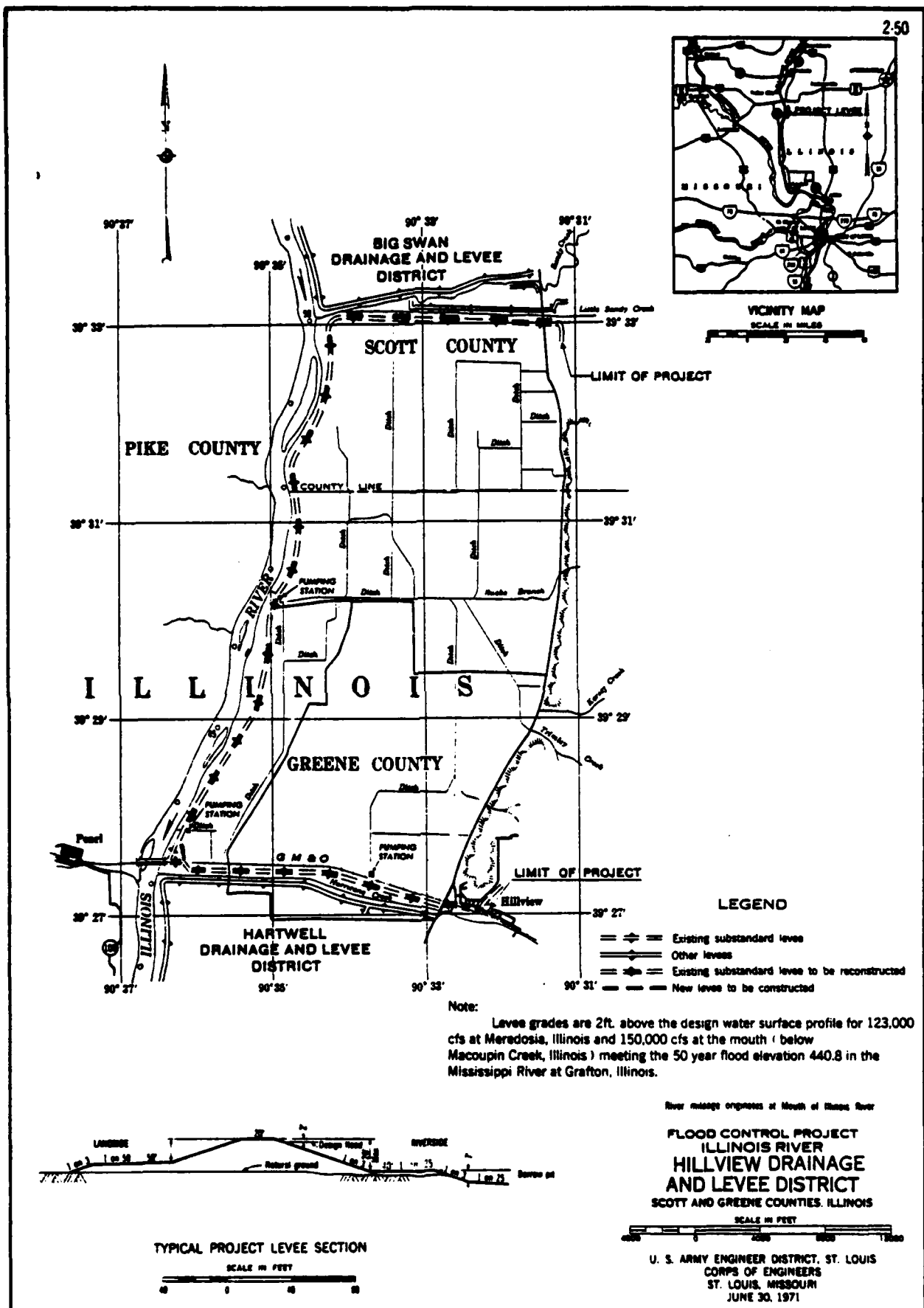
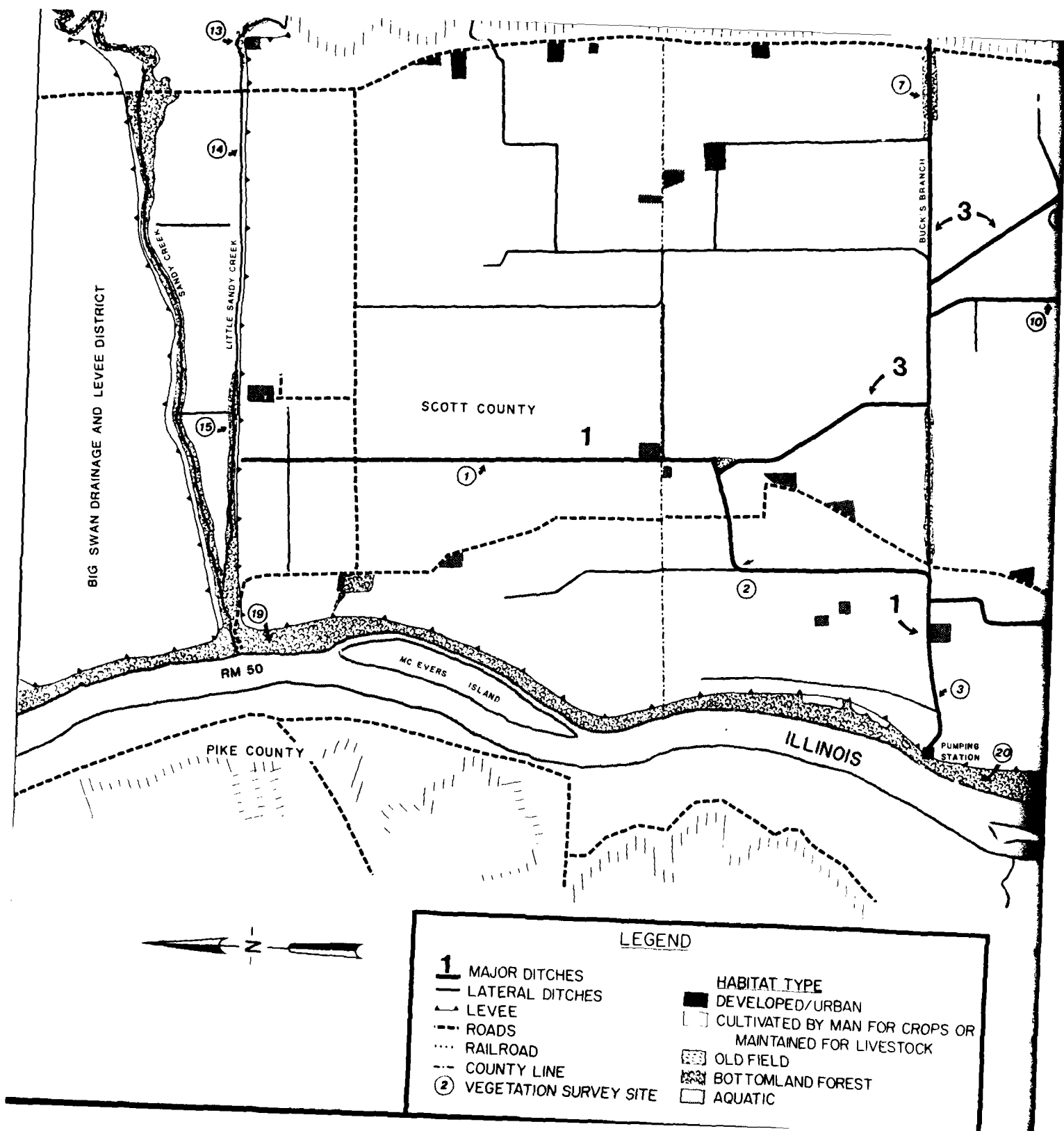
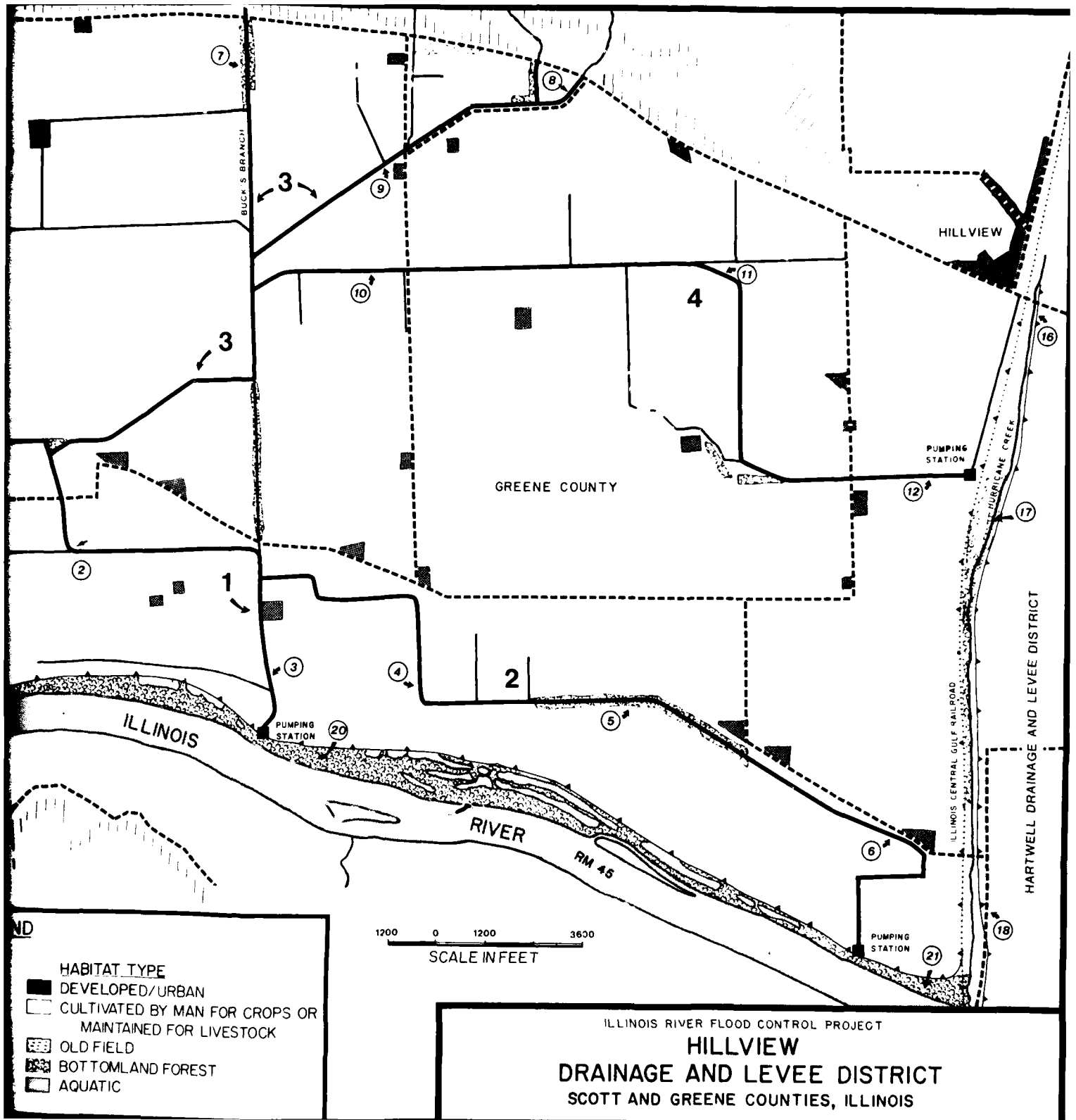


Figure 1. General map of the Hillview Drainage and Levee District. Greene and Scott Counties, Illinois.





This information was used to present an overview of the existing wetland and terrestrial habitats within the District with regard to aesthetic quality and suitability to support animal life.

Composite lists of all plant species (Appendix A) and terrestrial and semi-aquatic vertebrates (Appendix B) observed within the study area were prepared. Voucher specimens for most plants were collected and deposited in the Stover Herbarium of Eastern Illinois University, Charleston, IL.

2.3 Photo-interpretation and Habitat Mapping

A series of 1979 color aerial photographs of the Hillview Drainage and Levee District was reviewed to identify the agricultural, aquatic, wetland, and terrestrial habitats present within the area. Acreage values of each of the habitats were estimated using a Keuffel and Esser model 620000 planimeter and Alvin model map meter. A base map of the area indicating the major habitats and survey site locations was prepared using a photo-composite (mylar copy) of the area. The habitat types identified on the map (Figure 2) include:

1. Developed
2. Land cultivated by man for crops or maintained for livestock
3. Old field
4. Border vegetation
5. Bottomland forest
6. Aquatic.

2.4 Literature Review and Consultation

All readily available reports and documents related to the wetland and terrestrial biological resources within the Hillview Drainage and Levee District and nearby areas were obtained and reviewed. In addition, the following selected individuals with extensive knowledge of the study area were contacted and interviewed:

<u>Person</u>	<u>Location</u>	<u>Phone</u>
Dr. Frank Bellrose	Illinois Natural History Survey	(309) 543-3950
Mr. Joe Janeczek	U.S. Fish & Wildlife Service	(618) 457-3662
Dr. Frank Kulfinski	Southern Illinois University- Edwardsville	(618) 642-3368
Mr. Dick Lutz	Illinois Dept. of Conservation	(217) 782-3884

Each individual was asked of his knowledge and professional interests related to the wetland and terrestrial habitats within the Hillview Drainage and Levee District and nearby Drainage and Levee Districts. Results of pertinent literature findings and interviews with local authorities were then summarized.

3.0. RESULTS AND DISCUSSION

3.1. Literature Review

The terrestrial floral and faunal resources of Illinois have been well documented by investigators. Extensive literature search and consultation revealed no scientific investigations from within the Hillview Drainage and Levee District, but information can be drawn from surveys in Scott and Greene counties, along the Illinois River Valley, and from within representative regions into which several authors have divided the State of Illinois. Information regarding biotic features in these regional and county-specific studies are assumed to apply generally to the District.

Flora

The distributions of vascular plants, on a county by county basis, are provided by Jones and Fuller (1955), Winterringer and Evers (1960) and Mohlenbrock and Ladd (1978). The distribution of vascular hydrophytes in the state was compiled by Dolveare and Ebinger (1974); Winterringer and Lopinot (1966) described the aquatic plants and their general distributions. Mohlenbrock (1967; 1970a, 1970b; 1972; 1973; 1975) has also described and provided distributions of selected groups.

Anderson (1970) indicated (by map) that the area encompassing the confluence of Scott and Greene Counties and the Illinois River (the location of the Hillview Drainage and Levee District) was prairie as late as 1820. Since then, settlements and accompanying agricultural usage have brought great changes in vegetation. Turner (1934) identified grasslands in the floodplains of Illinois and described two such areas, one at the mouth of Apple Creek in Greene County (River Mile 38.2, 5 miles south of the District) and the other in the floodplain of the Mississippi River near Hillview, in Pike County. He listed the results of floral analyses in these prairies.

Biotic Regions

Based upon the climate, soil, topography, and geographic history, Vestal (1931) classified 8 ecological zones within Illinois, and from these features determined the likely vegetational features of each division. The Hillview Drainage and Levee District is located within the Mississippi Border Division according to this scheme and Vestal reported this zone to be rich in tree species as it has been occupied by forests longer than other areas in Illinois once occupied by prairie. Schwegman (1973) further delineated the divisions, and based upon physiography, flora, and fauna, determined 14 Natural Divisions in Illinois. The District falls within the Illinois River Section of the Upper Mississippi River and Illinois River Bottomlands Division. Floral and topographic characteristics are given in Section 3.3 of this report.

Amphibians and Reptiles

In his comprehensive survey of the amphibians and reptiles of Illinois, Smith (1961) reported a combined total of 109 species. Of these, 53 have ranges that include the Hillview Drainage and Levee District (Appendix Table C-1). The District falls within the Upper Mississippi Border division. Smith (1961) characterized this habitat as follows: "the extensive rock habitat and

the continuity of forest along the Mississippi, which serves as an avenue for the northward dispersal of southern animals, probably accounts for the large number of species in this area."

Birds

Because of its location in the Mississippi flyway, the State of Illinois is an area where a large number of bird species occurs as spring and/or fall migrants. The numbers of breeding, resident, and wintering species are also high. Bohlen (1978) reported that 383 species have occurred in the State (Appendix Table C-2). Graber and Graber (1976) reported that 180 breeding species occur regularly in Illinois. None of these investigators have compiled data from or conducted censuses in Greene or Scott Counties, but Graber and Graber (1963) have surveyed the birds of Illinois intensively. The vegetational communities within the Hillview Drainage and Levee District have been represented in these surveys, and the bird communities are most likely very close to those that would be found within the District. In their earlier publication, Graber and Graber (1963) included Scott and Greene Counties in the Southern zone, but later (1976) considered them as part of the Central zone of the state, as based on agricultural districts defined by the Illinois Cooperative Crop Reporting Service. The latter classification is used here in further discussion (Appendix Table C-2).

Graber *et al.* (1970, 1971, 1972, 1973, 1974, 1977) have compiled statewide distributional data on several avian families (mimic thrushes, thrushes, swallows, shrikes, tyrant flycatchers, woodpeckers, herons, and gnatcatchers and kinglets). These include censuses in Greene and Scott Counties and give distributions within the State of Illinois. Other compilations of bird counts were made by Musselman (1921) and Smith and Parmalee (1955).

Data concerning the breeding birds of Scott and Greene Counties are available from Breeding Bird Surveys which have been conducted in these counties since 1967. Survey Route 037 is located in the central part of Greene County and Route 038 in Morgan, Scott, and Greene Counties; both are north-south routes. Ninety-five breeding bird species have been reported along these two routes (Appendix Table C-3).

Mammals

Hoffmeister and Mohr (1972) report a mammal fauna numbering 56 native species in Illinois. Of these, 33 occur statewide, and a total of 38 have ranges that include Greene and Scott Counties (Appendix Table C-4). Other statewide descriptions and distributions of mammals were given by Necker and Mohr (1941) and Necker and Hatfield (1941).

Game Animals

The most important group of wildlife in the Illinois River Valley is waterfowl (Bellrose *et al.* 1977). While there are no private duck-hunting clubs within the Hillview Drainage and Levee District, its location along the Illinois River in the Mississippi Flyway (Bellrose 1968) and the presence of adjacent sloughs probably contribute to successful waterfowl hunting in the immediate area. Investigations of duck food plants (Bellrose 1941; Bellrose and Anderson 1940, 1943; Anderson 1959) have disclosed that many of the plants present in the District are taken by ducks as food (Appendix A).

Upland birds and game mammals are also expected to be found in or near the study area, and regional and county-wide compilations of harvests indicate successful hunting of mourning doves, bobwhite, squirrels, cottontail, deer, and limited numbers of pheasant (Greeley et al 1962; Labisky 1969, 1975; Preno and Labisky 1971; and Appendix C)

Habitat Evaluation

Floodplain or bottomland forests represent a unique plant community capable of supporting diverse forms of wildlife. The concern for the decline and importance of riparian habitats to terrestrial wildlife has prompted much investigation particular to the State of Illinois. Much of the natural floodplain forests have been removed in Illinois primarily as a result of lumbering and drainage of bottomland areas for cultivation. Crites and Ebinger (1969) and Phillippe and Ebinger (1973) have surveyed floodplain forests in Illinois; Hosner and Minckler (1960, 1963) discussed the bottomland hardwood forests of southern Illinois in particular; and Turner (1934) reported on the distribution of grasslands in the floodplains of the state. Investigations have included those of disturbed bottomland vegetation: Turner (1931) discussed plant succession in relation to levee construction, and Ives (1965) analyzed the effects of tree regrowth following cut-over of a west-central Illinois floodplain forest.

The importance of floodplain forests in the provision of wildlife habitat is well-documented, and investigators in the State of Illinois have contributed to this subject. Fawver (1947a, b) and Fleig (1972) have inventoried the bird populations of Illinois bottomlands. Fawver (1947a) included mammal populations in his surveys. Graber and Graber (1976) listed habitat specialties of the birds of the 3 regions of Illinois; bottomland forest is a specialty of many species listed.

In recent years, efforts have been made to describe and conserve natural areas in the State of Illinois that are unique or valuable with regards to their plant or animal communities. Descriptions and inventories of these areas are given by Evers (1961), Schwegman (1973), and White and Madany (1978). In 1963, the Illinois Nature Preserves Commission was established as a formal committee to aid in the preservation of natural areas within the state. Recent information on the number and locations of Illinois designated natural areas is available (Illinois Nature Preserves Commission 1980). Among others, wetland inventories (Spletstärzer and Manke 1955) have been useful in identifying potential conservation areas. The importance of preservation of these and other areas as wildlife habitat has not been ignored by the State of Illinois. Consumptive and non-consumptive uses of wildlife by humans have been major factors in some investigations and management decisions that have been made. Bellrose (1954) discussed the importance of maintaining waterfowl refuges in the state. Graber and Graber (1976) described a method of habitat evaluation based on bird populations and their gross habitats. They computed a "faunal index" as an indicator of habitat quality. The index takes acreage and bird species present into account. Further descriptions of habitat values and associated fauna are discussed in Section 3.3.3 of this report.

3.2. Consultation

Individuals with extensive knowledge of the terrestrial biological resources within the study area were contacted and interviewed.

Dr. Frank Bellrose, Illinois Natural History Survey, was contacted on 5 November 1981. Dr. Bellrose is concerned primarily with waterfowl, and the information he was able to provide concentrated on these birds. In the past he included the Hillview Drainage and Levee District in his waterfowl surveys, the sloughs along the Illinois River attract migrating ducks and geese. This area was excluded from his route during the 1950's because he was not encountering substantial numbers of waterfowl there. He attributes this in part to the plowing of cornfields after harvest. Waterfowl are no longer using the agricultural land because there is no exposed grain residue left in the fields. Dr. Bellrose stated that, due to low counts of waterfowl, the hunting value for these game species is low. He also informed WAPORA that there are no nearby Natural Areas and did not know of any biological surveys in the District or adjacent Drainage and Levee Districts.

Mr. Joe Janecek of the U.S. Fish and Wildlife Service was contacted on 3 November 1981. Mr. Janecek mentioned that they did not have much information on the terrestrial and wetland habitats within the Hillview Drainage and Levee District. He did suggest that we check the new wetland classification system to see if the bottomland forested areas of the District between the levee and the Illinois River could be classified as wetland. In regard to Illinois threatened and endangered plant and animal species, Mr. Janecek said that they could not respond to state issues. He suggested a call to Mike Sweete of the Illinois Department of Conservation for information on State classified endangered and rare species. Mr. Janecek stated that there are no State Fish and Wildlife areas in the study area.

Dr. Frank Kulfinski, Southern Illinois University - Edwardsville, was contacted on 12 November 1981. He had conducted a quantitative vegetation survey in the Eldred and Spanky Drainage and Levee District, Illinois (Kulfinski 1978) but had not concerned himself with the habitat quality of the area. He could not inform WAPORA of any biological work within the Hillview Drainage and Levee District, and stated that he knows of no Illinois Natural Areas nearby.

Mr. Dick Lutz, of the Illinois Department of Conservation was contacted on 3 November 1981. Mr. Lutz mentioned that they have not done previous work in the Hillview Drainage and Levee District. He provided WAPORA with a list of Illinois classified threatened and endangered faunal species. He mentioned that there were no State Refuges in the immediate area and the nearest Illinois Natural Areas were located across the Illinois River in Pike County. Mr. Lutz provided WAPORA with locations and descriptions of these Natural Areas. He stated that no statistical information regarding harvest of faunal species within the District was available and the most recent available data was published in 1971 on harvest of selected faunal species of several game regions within Illinois. He provided WAPORA with a copy of this document. He also informed WAPORA that Mr. Vernon Kleen of the Illinois Department of Conservation is the state data compiler for the US Fish and Wildlife Service's Breeding Bird Survey.

Mr. Jim Powell, Commissioner of the Hartwell Drainage and Levee District was contacted on 10 November 1981. Mr. Powell mentioned that certain areas in the Hillview Drainage and Levee District provide excellent habitat for game species and that hunting success is generally good and hunting pressure high. Areas most often used in the District are the bottomland forest area between the main levee and the Illinois River and the shrubby vegetated areas adjacent to the drainage ditches and bordering creeks. The bottomland habitat supports deer, squirrel, and some coyote. Several sloughs near the river also support waterfowl. Mr. Powell stated that duck hunting is popular in these slough areas. He mentioned that quail hunting is very common in the District. The ditch-side vegetation provides excellent habitat for quail and also cottontail rabbit. Although successful harvest of pheasant in the District has rapidly declined since the early 1940's due to hunting pressure and habitat removal, Mr. Powell feels that recently this species has become slightly more abundant and is hunted with limited success. Mr. Powell mentioned that hunting is generally not restricted to the public by private landowners.

3.3. Terrestrial Biological Resources

The Hillview Drainage and Levee District is located in the Illinois River Section of the Upper Mississippi River and Illinois River Bottomlands Natural Division (Schwegman 1973). This section is characterized by broad floodplains and gravel terraces that were formed by glacial flood waters during Wisconsin glaciation. For the most part, the soils result from recent alluvium and are poorly drained, alkaline to slightly acid, and vary from sandy to clayey.

3.3.1. Past Vegetation

Originally, various plant community types occurred in the Illinois River Section. Listed below are these community types and some of the associated plant species.

Bottomland Forests

This was the most common community type present. These forests were dominated by Acer saccharinum L. (Silver Maple), Ulmus americana L. (American Elm), Populus deltoides Marsh. (Cottonwood), and Fraxinus pensylvanica Marsh. var. subintegerrima (Vahl.) Fern. (Green Ash). Other associated species include Quercus palustris Muenchh. (Pin Oak), Carya illinoensis (Wang.) K. Koch. (Pecan), Platanus occidentalis L. (Sycamore), Gleditsia triacanthos L. (Honey Locust), and Juglans nigra L. (Black Walnut).

Prairies

Mesic and wet-mesic prairies were occasionally found in the broad bottomlands of this section. On the mesic prairie Andropogon gerardii Vitman. (Big Bluestem), Sorghastrum nutans (L.) Nash. (Indian Grass), Sporobolus heterolepis (Gray) Gray. (Prairie Dropseed), and Panicum virgatum L. (Switch Grass) dominated, while in the wet-mesic prairie Spartina pectinata Lind. (Cord Grass), Calamagrostis canadensis (Michx.) Beauv. (Bluejoint Grass), various sedges (Carex spp.), and rushes (Juncus sp.) were the dominant species.

Marshes

Marshes were a common feature throughout this section. These areas were dominated by bulrushes (Scirpus spp.), (Carex spp.), bur-reeds (Sparganium spp.), cattails (Typha spp.), along with many other aquatic and semi-aquatic species.

Spring Bogs

Spring fed bogs with peat deposits are occasionally found on terraces of the Illinois River. Many rare and uncommon plant species occur in this community type. Distinctive species include Fraxinus nigra Marsh. (Black Ash), Toxicodendron vernix L. (Poison sumac), Symplocarpus foetidus (L.) Nutt. (skunk cabbage), and Caltha palustris L. (Marsh Marigold).

3.3.2. Existing Vegetation

Presently about 98% of the Hillview Drainage and Levee District is under cultivation, and except for a narrow band along the Illinois River, none of the original community types of the Illinois River Section remain. Total estimated acreages and relative percent composition of each major habitat classification are listed in Table 1.

A total of 222 plant species were observed during the field reconnaissance. A composite species list is presented as Appendix A. Voucher specimens of most of these taxa were collected and are deposited in the Stover Herbarium of Eastern Illinois University. The most common assemblages of plants for each of the three general survey areas (e.g. drainage ditches, bordering creeks, Illinois River floodplain outside of the levees) are discussed below.

3.3.2.1. Vegetation along the Drainage Ditches

Along most of the drainage ditches shrubs are the dominant vegetation, and in many areas form a continuous cover. The common species of this habitat type are Cornus drummondii C. A. Mey. (Rough-leaved Dogwood) and Salix interior Rowlee. (Sandbar Willow). Other shrubs found include Amorpha fruticosa L. (False Indigo), Rhus glabra L. (Smooth Sumac), Sambucus canadensis L. (Elderberry), and various blackberries (Rubus spp.). Usually various herbaceous species are found scattered under the shrub layer. Also, numerous tree species of various ages and sizes are scattered along the bank. The common tree species encountered were Acer saccharinum L. (Silver Maple), Acer negundo L. (Box Elder), Ulmus rubra Muhl. (Slippery Elm), Populus deltoides Marsh. (Cottonwood), Prunus serotina Ehrh. (Wild Black Cherry), Gleditsia triacanthos L. (Honey Locust), and Celtis laevigata Willd. (Sugarberry). (Sites 1, 2, 4, 6, 9, 10, 11, 12.)

In areas where recent disturbances have taken place (e.g. placement of dredge spoil over ditch-side banks), herbaceous communities exist. For example, at Site 8, Ambrosia trifida L. (Giant ragweed) grows in solid stands. These plants commonly reach a height of 3-4 meters and few other herbaceous plants occur under them.

Table 1. Land Use within the Hillview Drainage and Levee District, Greene and Scott Counties, Illinois.

Table 1a. Land within the protection of the Levee.

<u>Habitat</u>	<u>Area (acres)</u>	<u>Percent of Total Area</u>
Developed or Urban	135	1.0
Cultivated	12,788	97.8
Old Field	9	0.01
Border Vegetation	34	2.6
Floodplain Forest	24	0.2
Aquatic (lotic)	<u>80</u>	0.6
Total	13,070	

Table 1b. Land located outside the protection of the Levee.

<u>Habitat</u>	<u>Area (acres)</u>
Border Vegetation	5
Floodplain Forest	243
Aquatic (lotic)	22
(lentic)	<u>80</u>
Total	350

At a few localities along the drainage ditches, disturbed riparian forests of varying ages occur. These small forests vary greatly in species composition. This is probably the result of variation in soil, drainage, flooding, and succession. The most immature forest area (Site 3) is dominated by Celtis laevigata Willd. (Sugarberry) and Diospyros virginiana L. (Persimmon), while the most mature forest areas (Sites 5 and 7) are dominated by Quercus palustris Muenchh. (Pin Oak), Populus deltoides Marsh. (Cottonwood), and Celtis occidentalis L. (Hackberry). Numerous other trees are also found in these forests along with many species of shrubs and woody vines.

3.3.2.2. Vegetation along the Bordering Creeks

The vegetation along Hurricane Creek and Little Sandy Creek is similar to that reported for the drainage ditches. In some areas, herbaceous communities exist with various species of grass dominating (Site 18). Shrub communities are also common along much of Hurricane Creek (Site 16) and the middle part of Little Sandy Creek (Site 14) with the dominant shrub being Salix interior Rowlee. (Sandbar Willow). Small parts of Hurricane Creek (Site 17) and most of Little Sandy Creek (Sites 13 and 15) have disturbed bottomland forests along their margins. The dominant species are Salix nigra Marsh. (Black Willow), Populus deltoides Marsh. (Cottonwood), Acer saccharinum L. (Silver Maple), and Acer negundo L. (Box Elder).

3.3.2.3. Vegetation between the Illinois River and Riverfront Levee

This area is dominated by bottomland forest and is the only habitat that has remained in a natural state. The species composition is relatively uniform throughout the study area with Acer saccharinum L. (Silver Maple) being the most important species. Other common components include Populus deltoides Marsh (Cottonwood), Ulmus rubra Muhl. (Slippery Elm), Ulmus americana L. (American Elm), and Celtis occidentalis L. (Hackberry). In most areas a few shrubs occur, and the herbaceous layer is relatively open. Several sloughs occur between the levee and the river and the area is seasonally and/or periodically inundated. This habitat is considered a wetland under the recent Fish and Wildlife Wetlands Classification system (Cowardin et al. 1979) and is classified as a Palustrine Forested Wetland.

3.3.3. Existing Vertebrates and Associated Habitats

The occurrence of terrestrial and semi-aquatic vertebrates at each of the 21 field reconnaissance sites within the Hillview Drainage and Levee District is summarized in Appendix D. Habitat type, woody vegetation, terrestrial and semi-aquatic species present, and vegetational parameters such as cover, age of stand, and habitat quality are given. Mast and fruit producing plant species are indicated by "*". A total of 33 avian, 5 mammalian, and 2 amphibian species were present in the District (Appendix Table B). These include those individuals which were sighted or otherwise noted in the study area at locations other than the 21 field sites. An animal was noted as present if identified by sight, call, tracks, scats, or other identifiable signs (e.g. deer browse).

Comprehensive inventories of terrestrial and semiaquatic vertebrates were not conducted during the field reconnaissance of the Hillview Drainage and Levee District. Information concerning the presence of these groups in Greene and Scott Counties is available through literature and unpublished survey data. Appendix C presents lists of the amphibians and reptiles, birds, and mammals whose ranges include Scott and Greene Counties or representative regions, as determined from range maps in various literature sources.

Within the Hillview Drainage and Levee District the major habitat types capable of supporting wildlife are:

1. Cultivated lands
2. Shrubby (successional) vegetation adjacent to drainage ditches and creeks, and
3. Bottomland forest between the levee and Illinois River and scattered within the District.

3.3.3.1 Cultivated Lands

The lands modified by man for cultivation or grazing of livestock comprise approximately 98% of the Hillview Drainage and Levee District, or 12,800 acres in total area. The fields probably attract small mammals and some amphibians and reptiles, but this was not verified by field reconnaissance. The presence of hunting raptors indicated that prey species do occur here. Raptors observed were turkey vulture, red-tailed hawk, marsh hawk (classified as endangered by the State of Illinois), and American kestrel. Other birds observed were killdeer, mourning dove, horned lark, rock dove, European starling, and house sparrow. All of these species are commonly found among cultivated fields or farmsteads.

These fields may have in the past attracted migrating waterfowl for feeding purposes, but most likely no longer do so because the corn fields are now plowed in the fall and there is no exposed grain residue stubble remaining as food supply (pers. comm., Frank Bellrose).

Wildlife Potential

In spite of the disturbance of this land, there exists some potential for the support of wildlife here. Several species are attracted to cultivated lands and pastures for feeding and nesting purposes; many of these are historically grassland or bare field inhabitants. The crops provide food to granivorous species and small vertebrates which are attractive as prey items for raptors and predatory mammals.

Vertebrates most likely to be found in cultivated fields are the following (Appendix C). Amphibians: small-mouthed and tiger salamanders, American toad, chorus frog, eastern yellow-bellied racer. Birds (Figure 3): horned lark, killdeer, savannah sparrow, eastern and western meadowlarks, bobwhite, barn swallow, grasshopper sparrow, bobolink, dickcissel, vesper sparrow, mourning dove, swamp sparrow, red-winged blackbird, eastern bluebird, mockingbird, american goldfinch, common flicker, and American kestrel. Mammals include: least shrew, eastern mole, thirteen-lined ground squirrel, pocket gopher, prairie vole, meadow jumping mouse, striped skunk, and coyote.

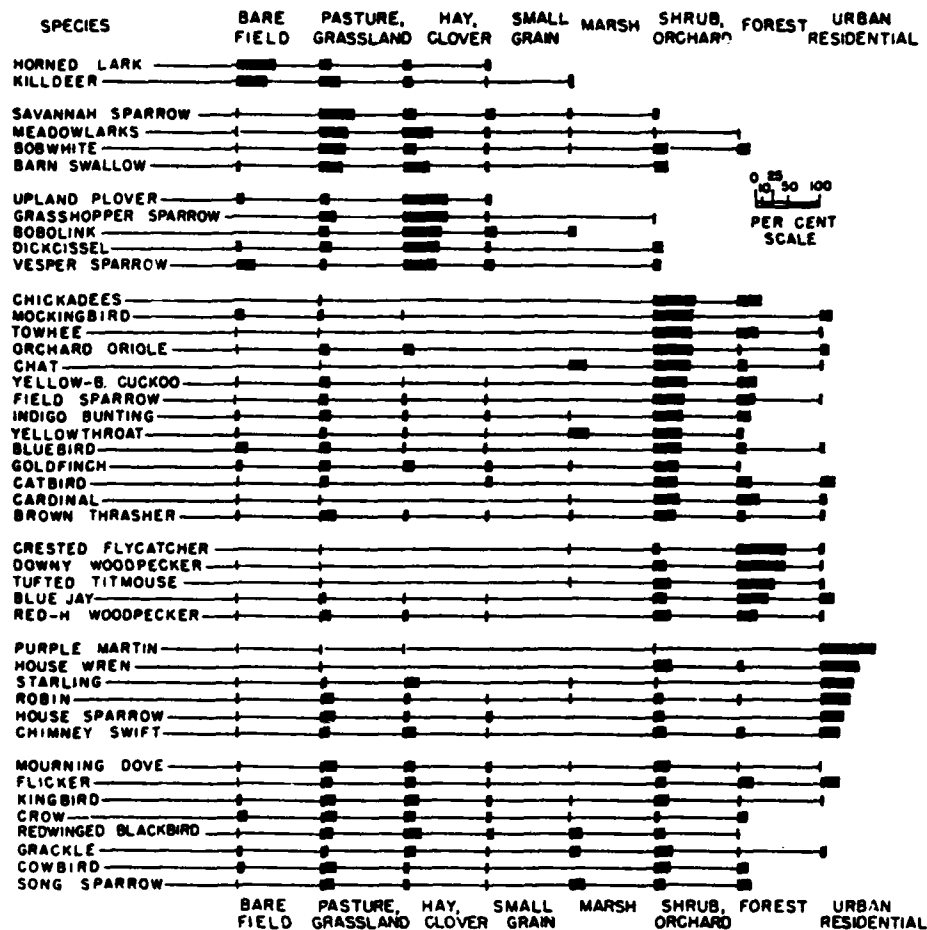


Figure 3a. Habitat preferences of common species of Illinois birds in summer as indicated by the population density of each species in each habitat. Each black bar represents the relative density of a given species in a given habitat; the sum of the relative densities for each species is 100 per cent. Data are from all zones of the state and from all summer censuses (Graber and Graber 1963).

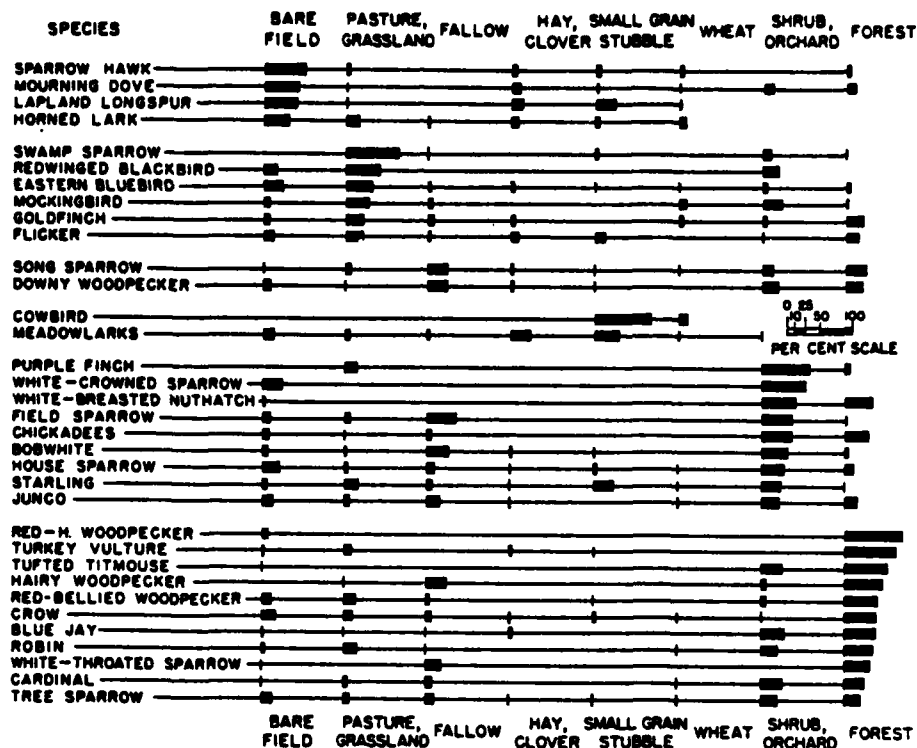


Figure 3b. Habitat preferences of common species of Illinois birds in winter as indicated by the population density of each species in each habitat. Each black bar represents the relative density of a given species in a given habitat; the sum of the relative densities for each species is 100 per cent. Data are from all zones of the state and from all winter censuses (Graber and Graber 1963).

3.3.3.2. Successional Vegetation

Drainage Ditches

Vertebrates present along the ditches were primarily birds. Seven species were observed among shrubby ditch-side sites (Sites 1-4, 6, and 8-12): common flicker, blue jay, black-capped chickadee, American robin, cardinal, American goldfinch, and song sparrow. Most are commonly associated with in shrubby vegetation (Figure 3). Two birds, pied-billed grebe and barn swallow, were in or over the water. Only one amphibian, green frog, was observed in the ditches (Sites 8,9); muskrat (2,3,8) and skunk tracks (8) were noted at a few sites. No small mammals or reptiles were observed.

Growing at all sites along the ditches are mast- and fruit-producing woody vegetation, and this varies from a single species, rough-leaved dogwood at Site 8, to a majority of the species at Site 3, including trumpet creeper, sugarberry, rough-leaved dogwood, perimmon, white and red mulberry, wild black cherry, smooth sumac, elderberry, poison ivy, and frost grape.

Most ditch banks are steep, usually vertical, and numerous dens were observed in the walls of the banks. Only at Sites 7 and 9 are the banks not steep, but slope gradually. At these two sites a rocky stream bottom was visible, indicating possible nest sites for both semi-aquatic and aquatic vertebrates.

Notice was made during the field survey of one site (9) in the process of being bulldozed along the bank and another (1) along which herbicide had been sprayed along the west bank. Cover was very low along the recently disturbed banks at these sites. The presence of one terrestrial vertebrate, the common flicker at Site 9 and barn swallow at Site 1, both species associated with pastures or croplands, was noted at each.

The drainage ditches are considered good hunting grounds for bobwhite quail and eastern cottontail. Also, ring-necked pheasant is hunted with limited success by local residents (Greeley, et. al. 1962; Labisky 1975).

Bordering Creeks

Four sites along the creeks (13, 14, 16, 18) have shrubby vegetation similar to the ditch-side vegetation. Seven bird species and one amphibian were observed at these 6 sites: belted kingfisher, red-winged blackbird, song sparrow, rock dove, mourning dove, American goldfinch, blue jay, and green frog.

Forest Fragments

Forest fragments occur at ditch side Site 5 and creek side Site 15 and potentially attract wildlife of forest habitat. Edge habitat is also more extensive at these sites. In these forest fragments occur standing snags, which are not present along any of the drainage ditches, further increasing nest potential for hole-nesting and dwelling species.

Eight bird species were in these two second growth areas: common flicker, red-bellied woodpecker, black-capped chickadee (all hole nesters), mourning dove, blue jay, American robin, American goldfinch, and an unidentified warbler. No other vertebrates were noted.

The highest numbers of mast-and fruit-producing plants are at these sites. Among the 19 species are: pecan, sugarberry, rough-leaved dogwood, persimmon, pin oak, red mulberry, eastern red cedar, elderberry, climbing bittersweet, smooth sumac, mountain blackberry, black raspberry poison ivy, frost grape, and trumpet creeper.

Wildlife Potential

The vegetation bordering the creeks and ditches whether shrubby or disturbed bottomland forest fragments, is extensively used by a large number of vertebrate species. The major reasons for this are the high degree of cover, the presence of food items, and the proximity to water. In addition to those species mentioned, the vertebrates expected to use these shrubby and edge habitats are the following birds and mammals. Birds (Figure 3): mockingbird, rufous-sided towhee, orchard oriole, yellow-breasted chat, yellow-billed cuckoo, field sparrow, indigo bunting, common yellowthroat, eastern bluebird, gray catbird, brown thrasher, purple finch, white-crowned sparrow, white-breasted nuthatch, and junco; the last 4 in winter only. Graber and Graber (1976) give a more complete list of breeding species of shrub habitats. Mammals expected to use this habitat are: eastern cottontail, eastern chipmunk, woodchuck, white-footed mouse, coyote, red fox, striped shunk, and white-tailed deer.

3.3.3.3 Illinois River Floodplain

Between the levee and the Illinois River the habitat is predominantly bottomland forest. While woody understory is less dense within this area, canopy cover is on the average about 75%. The number of snags is increased over the forest fragments along the creeks and consequently the numbers of woodpeckers and other hole-nesting species were greater here. Steep banks do not occur along the river, nor is there a high percentage of herbaceous ground cover over most of the bottomland forest. Bottomland forest occurred at two other sites, along ditch 3 (Site 7) and Hurricane Creek (Site 17). The discussion that follows includes these sites unless noted.

An outstanding feature of the riverfront forest is the presence of several small sloughs along the forest's edge just riverward of the levee. This wetland area, presumably a permanent water source, can be an attraction for migrating waterfowl, shorebirds, semiaquatic mammals, and amphibians. Three species observed within these sites, great blue heron, muskrat, and leopard frog were probably present for this reason. Two of these, the great blue heron and leopard frog, were observed at these sites only. Vertebrates observed within the forest that were not at other sites were: eastern wood pewee, white-breasted nuthatch, tufted titmouse, and downy woodpecker, all forest dwellers; eastern cottontail rabbit and whitetail deer, both mammals of value to hunters; and beaver. Other vertebrates were: Common Flicker, red-bellied woodpecker, red-headed woodpecker, black-capped chickadee, blue jay, common crow, cardinal, American goldfinch, and green frog.

The bottomland forest provides excellent hunting for squirrels, rabbit, and deer. In recent years, it has been noted that coyotes have increased in number (Pers. comm., Jim Powell) within this area. Duck hunting is also considered successful in this habitat. Presently, there are several duck blinds near the small sloughs adjacent to the District that are used by local residents.

Wildlife Potential

The bottomland forest, or riparian habitat, probably provides for a more diverse fauna than any other habitat type in the Hillview Drainage and Levee District. The presence of snags, sloughs, shrubs, forest edge, and greater area contribute to the habitability of this area. A number of forest-dwelling, aquatic and semi-aquatic amphibians and reptiles (Appendix Table C-1) are probably inhabitants. Smith (1961) lists the common amphibians and reptiles of the Upper Mississippi Border Division as: northern water snake, ringneck snake (forest species), black rat snake, eastern garter snake, and green frog. Common forest species are: american toad, box turtle, five-lined skink; aquatic and semi-aquatic species are leopard frog, bullfrog, painted turtles.

The number of birds found in bottomland habitats are greater than that of any other vertebrate class. Breeding species of central Illinois whose habitat speciality is bottomland forest are (Graber and Graber 1976): great blue heron, little green heron, red-shouldered hawk, warbling vireo, prothonotary warbler, parula warbler, cerulean warbler, yellow-throated warbler, and American redstart. Other forest-dwelling species in addition to those sighted during the field survey include (Figure 3) great crested flycatcher, turkey vulture, white-throated sparrow, and tree sparrow (the latter three are winter residents).

A greater number of Illinois mammals are also forest-dwelling and riparian species (Appendix Table C-4). Virginia opossum, short-tailed shrew, least shrew, eastern chipmunk, gray squirrel, fox squirrel, southern flying squirrel, deer mouse, white-footed mouse, pine vole, striped skunk, and bobcat are all forest dwellers. Those classified as riparian species are raccoon, short-tailed weasel, badger, and river otter. A number of bats are also found in forests, including silver-haired, big brown, red, evening, and eastern pipistrel bats. Two cave nesting species, the little brown and Keen's myotis, forage over rivers among bottomland forests.

3.4. Endangered and Threatened Plant and Animal Species

3.4.1. Plants

Only four endangered and threatened plant species have been reported from Greene and Scott Counties. These include Dodecantheon amethystinum, Hydrastis canadensis, Panax quinquefolius, and Tradescantia bracteata. None of these taxa were observed in the study area during the field reconnaissance. Also, none of the other endangered and threatened plant species listed for Illinois (Sheviak and Thom 1981) were observed.

It is very unlikely that endangered and threatened plant species occur in the study area since the habitats in which they usually occur are not present.

Listed below are the endangered and threatened plant species reported from Greene and Scott Counties with their habitat requirements and information about where the taxa have been collected in the two counties.

Dodecatheon amethystinum Fasset. is confined to limestone bluffs and wooded slopes. This taxon has not been reported from Scott County, but is known from one site in Greene County. Here it occurs on a wooded bluff and ravine 2 miles north of Eldred (Evers #22924, 22926, 56565).

Hydrastis canadensis L. is a species of mesic and wet-mesic upland forests. This taxon was reported from Reisch Woods in Greene County during the Illinois Natural Areas Inventory, and from woods in the southwest part of Scott County (Rexroat #6890).

Panax quinquefolius L. usually grows in rich, mesic, upland woods. It is known from one locality in Greene County where it was collected in a woods 4 miles south of Eldred (Winterringer #2241), and from one locality in Scott County where it was found in a woods near Exeter (Rexroat #3599).

Tradescantia bracteata Small. is confined to dry prairies, sand areas, and rarely disturbed sites. This taxon has been collected from two localities in Greene County. One site is along a railroad right-of-way near Roodhouse (Rexroat #9127), while the other is from a roadside in Woodville Twp. (Evers #3799). It has not been reported from Scott County. A composite list of Illinois listed endangered and threatened plant species is presented in Appendix E.

3.4.2. Animals

The State of Illinois lists just one endangered or threatened vertebrate species from Greene or Scott County. The criteria to determine the presence of listed species in a county are: for amphibians and reptiles, the species has been collected and is still likely to occur; birds, the species is known to have nested since 1975 and is still likely to occur, unsuccessful nesting attempts have been noted, or permanent summer residents are known; and for mammals, a species is definitely known to occur and is still likely to occur. A list of terrestrial and semi-aquatic vertebrates considered as threatened or endangered by the State of Illinois is given in Appendix E. The only species meeting the criteria in Greene or Scott County is the upland sandpiper (Bartramia longicauda) in Greene County. One endangered species, the bald eagle (Haliaeetus leucocephalus), has a wintering range which includes both counties, and Smith (1961) reported the eastern ribbon snake (Thamnophis sauritus) from the area.

One Illinois endangered species, the Marsh Hawk (Circus cyaneus), was observed within the Hillview Drainage and Levee District during the field reconnaissance. The individual observed was circling over the cultivated field bordering a drainage ditch. The shrubby vegetation along the ditch and stream banks are probably of little value to this particular raptor, a bird of open areas, and any further disturbance of the ditch banks would have little direct effect on the presence of the marsh hawk. Indirectly, it could affect nesting success of prey species which later move into the agricultural fields. The marsh hawk has never been reported along Breeding Bird Survey Routes 037 and 038 and the only nesting records are from Grundy and LaSalle Counties.

The upland sandpiper is a ground nesting species of dry grassland whose decrease in numbers is largely due to the disappearance of pastures and hayfields, usually replaced by row crops. It has not been reported along Breeding Bird Survey Routes 037 and 038 (1967-1980) nor in Greene and Scott Counties during the Spring Bird Counts (1975-1981). It is unlikely that this species occurs in the Hillview Drainage and Levee District.

More bald eagles winter in Illinois than in any other State (Ill. Dept. of Conservation 1980), roosting in trees in the Mississippi and Illinois river valleys. They are not known to nest in Greene or Scott County, but are likely winter residents as long as the water remains unfrozen. Increased flood protection would not likely affect this species unless riverfront trees were removed or if construction activities were concurrent with the presence of any wintering bald eagles.

No recent records of eastern ribbon snake have been reported for the State of Illinois, thus it is unlikely that this species occurs in the study area. Smith (1961) reported this species as common along the Mississippi River, and reported no records from Green and Scott Counties. The study area is on the edge of the known range.

3.5. State/Federal Managed Areas and Natural Areas

There are no State Refuges or Fish and Wildlife Management areas in the immediate vicinity of the Hillview Drainage and Levee District (pers. comm., Richard Lutz).

There are no identified Illinois Natural areas within the District. The closest Natural Areas lie immediately across the Illinois River in Pike County. These Natural areas are listed in Appendix F, and a brief description of each follows:

- o Twin Culvert Cave is a Nature Conservancy Natural Area. It is probably most valuable as a migration rest stop for the Federal and State endangered gray myotis (Myotis grisescens). A diverse invertebrate fauna also inhabits this cave which supports a terrestrial and aquatic cave community.
- o Pearl Limestone Quarry's significant feature is an abandoned mine within the quarry which serves as a migration rest stop for the gray myotis. The quarry also contains a significant limestone cliff.
- o Pearl Prairie Geological Area contains an outstanding exposure of an Illinoian Delta.
- o Pirate Knob Hill Prairie contains a significant limestone bluff and is inhabited by limestone cliff floral and faunal communities, including a population of timber rattlesnake. It is also the site of excavated Indian mounds.

4.0. SUMMARY AND RECOMMENDATIONS

Land in the Hillview Drainage and Levee District is used primarily for agricultural purposes. The major terrestrial habitats in the District are cultivated fields, shrubby vegetated areas adjacent to drainage ditches and bordering creeks, and a bottomland forest between the riverfront levee and the Illinois River. The bottomland forest is classified as a Palustrine Forested Wetland.

A total of 222 plant species and 40 vertebrate species were observed in the district. Of the vertebrates, 33 were avian, 5 were mammalian, and 2 were amphibian species.

The habitats most capable of supporting wildlife are the bottomland forest and the border vegetation adjacent to the ditches and creeks. Local residents use both of these habitats for hunting. The bottomland forest provides habitat for deer, squirrels, and other game species. The slough areas within the floodplain attract waterfowl and duck hunting is considered successful within the Hillview Drainage and Levee District. The border vegetation along the ditches and creeks provides cover for quail and rabbit. Quail is considered the most valuable game species within the District.

The aesthetic and wildlife habitat values of the ditches can be improved by maintaining the vegetation along the ditches by not plowing over with dredge spoil and by limiting the use of herbicides in these areas.

The bottomland forest and associated sloughs between the riverfront levee and the Illinois River should be left in their natural states. This is the only habitat in the Hillview Drainage and Levee District that has not been altered. Measures should be taken to preserve the integrity of this habitat during any future construction or improvement practices regarding the riverfront levee.

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6.0 RESUMES OF PRINCIPAL INVESTIGATORS

RESUME: John E. Ebinger

Current Position: Professor of Botany, Eastern Illinois University
Charleston, Illinois 61920

Home Address: 45 Heather Drive, Charleston, Illinois 61920

Date and Place
of Birth: 2 June 1933, Cincinnati, Ohio

Education: Undergraduate: Miami University, Oxford, Ohio
Sept. 1951 - June 1955. B.A. degree with major
in Botany.

Graduate: Yale University, New Haven, Connecticut.
M.S. Feb. 1958 - June 1959: Ph.D. June 1959 -
June 1961. Botany with a concentration in Plant
Taxonomy. Thesis: Taxonomy of the subgenus Pterodes,
genus Luzula (Juncaceae). Advisor: Dr. John Reeder.

Teaching Experience: Assistant Professor of Biology, Roanoke College
1962 - 1963.
Assistant Professor of Botany, Eastern Illinois
University 1963 - 1968.
Associate Professor of Botany, Eastern Illinois
University 1969 - 1972.
Professor of Botany, Eastern Illinois University
1973 - present.

Marital Status: Married - 4 children.

Military Service: United States Air Force, 1st Lieutenant,
Sept. 1955 - Jan. 1958.

Honors: Society of Sigma Xi
Phi Sigma
Beta Beta Beta
Bruce Fink Scholarship in Botany - Miami University
Sheffield Fellowship - Yale University

Memberships and
Other Activities: New England Botanical Club
American Society of Plant Taxonomists
Southern Appalachian Botanical Club
International Association for Plant Taxonomists
Illinois State Academy of Science
Association for Tropical Biology
Indiana State Academy of Science
Nature Conservancy
Association for Systematic Collections
Illinois Nature Preserves Commission

Research Experience: Herbarium Assistant, Yale University 1958 -1961

Expeditions to Panama:
 Summer 1959 -- Darien Region of Panama with Drs. William Stern, Kenton Chambers, and John Dwyer.
 Summer 1960 -- Barro Colorado Biological Station.

Connecticut Agricultural Experiment Station, New Haven, Connecticut. NSF grant under the direction of S. W. Gould. The study concerned the possible use of computers in plant taxonomy and bibliography. June 1961 - Aug. 1962.

Extensive field work in plant taxonomy and ecology in east-central Illinois. 1963 - present.

Grants and Research Contracts Received: Eastern Illinois University Research Council:
 1965-1974 Vegetation surveys of various forest areas in east-central Illinois. \$3200.00
 1969-1973 Vascular hydrophytes of Illinois \$3800.00
 1975-1976 Lycopodium communities in Illinois \$700.00

Illinois Academy of Science:
 1978-1979 Vegetation Surveys \$300.00

Consulting Activities: WAPORA, Inc. Washington D.C. -- Taxonomy of vascular plants of North America and analysis of terrestrial systems.

University of Illinois, Urbana, Ill. -- Consultant for the Illinois Natural Areas Inventory.

Dairyland Power Cooperative, LaCrosse, Wisc. -- endangered and threatened species along powerline corridor.

Direction of Master's Degree Thesis: More than 20 completed, all in the area of plant taxonomy and vegetation analysis.

Publications in the following areas (also see attached list): Vegetation surveys of Illinois forests.
 Floristics of Illinois.
 Grass anatomy and its relationship to phylogeny.
 Systematics of Kalmia (Ericaceae).
 Vascular hydrophytes of Illinois.

Present Responsibilities: Teach general Botany, Plant Systematics, Local Flora, and Economic Botany.

Advisor to graduate students.

Curator of the Stover Herbarium (40,000 specimens of vascular plants, mostly Illinois material).

PUBLICATIONS: (since 1974) John E. Ebinger

- Culm morphology and grass systematics. Trans. Ill. St. Acad. Sci. 68:87-101. 1975. (with J. Carlen).
- Laurels in the wild. Chapter 2, in Jaynes, R. A., The Laurel Book, Rediscovery of the North American Laurels. Hafner Press, New York. pages 7-34. 1975.
- Toxicity of Laurel Foliage. Chapter 9, in Jaynes, R. A., The Laurel Book, Rediscovery of the North American Laurels. Hafner Press, New York. pages 113-121. 1975.
- Eleocharis parvula (R. & S.) Link. new to Illinois. Rhodora 78:160-161. 1976. (with R. Nyboer).
- Herbaceous Spring Flora of East-Central Illinois. Eastern Illinois University, Charleston, Illinois. ii+146pp. (with Susan J. Barlow).
- Woody vegetation survey of a terrace forest in East-Central Illinois. Castanea 41:348-356. 1976. (with R. Nyboer).
- Flowering plants new to Illinois. Trans. Ill. St. Acad. Sci. 69:194-195. 1976. (with R. Nyboer and J. Reeves).
- Woody vegetation of an upland forest in Douglas County, Illinois. Castanea 42:285-293. 1977. (with P. Phillippe and L. Phillippe).
- Vascular plants in Walnut Point State Park, Douglas County, Illinois. Trans. Ill. St. Acad. Sci. 69:437-445. 1977. (with L. Phillippe).
- Distribution of Chara species in Illinois. Trans. Ill. St. Acad. Sci. 70:96-100. 1977. (with R. Vogel).
- Laboratory Exercises in Botany. Eastern Illinois University, Charleston, Illinois. 1978. (with S. Becker, C. Lackey, and W. Weiler).
- Vascular flora of hillside seeps in east-central Illinois. Trans. Ill. St. Acad. Sci. 71:109-114. 1978.
- Microclimatic and soil differences between hill prairies and adjacent forests in East-Central Illinois. Trans. Ill. St. Acad. Sci. 71:156-164. 1978. (with J. Reeves and D. Zimmerman).
- Vascular flora of sandstone outcrops in Clark County, Illinois. Castanea 44:38-44. 1979.
- Lycopodium flabelliforme in central Indiana and Illinois. Proc. Ind. Acad. Sci. (in press).
- Notes on some Illinois plants. Trans. Ill. St. Acad. Sci. (in press).
- Maclura pomifera (Raf.) Schneid. in Coles County, Illinois. Trans. Ill. St. Acad. Sci. (in press).
- Frequency of aquatic macrophytes in East-Central Illinois. Trans. Ill. St. Acad. Sci. (in Press).
- Vegetation of glacial drift hill prairies in East-Central Illinois. Castanea (in press).

WAPORA, Inc.

ENVIRONMENTAL/ECONOMIC/ENERGY STUDIES

résumé

Rosetta Arrigo
Biologist
Chicago Regional Office

EDUCATION

B.A., Biology, Washington University, St. Louis, MO, 1976
M.A., Biology (Systematics & Ecology), emphasis in ornithology,
Kansas University, Lawrence, KS, 1980

EXPERIENCE:

Ms. Arrigo has a background in terrestrial biology and in the application of computer techniques for compilation and statistical analysis of biological data. With WAPORA, she is responsible for technical input on the biological and ecological facets of impact studies. She is currently involved in a study of impacts of wastewater applications to wetlands.

She was previously employed in WAPORA's St. Louis office, where she was involved in all phases of biological studies. These projects included terrestrial inventories along the Illinois and Ohio Rivers, 316(b) studies at a fossil fueled power generating station, and an environmental inventory of section 10 and 404 permitted structures at Lake of the Ozarks, MO. Her duties included inventories and field identification of terrestrial vertebrates and quantitative description of plant communities; field collections of aquatic organisms; and laboratory identification of larval fish. She was co-manager of computer operations, which services several WAPORA offices. This entailed programming designed for data compilation, statistical data analysis, and production of report quality summary tables. She is proficient at programming in the BASIC and FORTRAN languages and has a strong background in biostatistics and multivariate data analysis.

During summer of 1981 she participated in field studies of communal breeding of the Acorn Woodpecker in the mountains of central New Mexico. This involved continuous observations and censusing of woodpecker breeding groups, tagging and banding individuals captured by various mist-netting techniques, and designing a data management computer program. She is familiar with the fauna and flora of the southwestern montane/desert regions as well as those of the Midwest and Great Plains.

Individual research efforts have included a study of the effects of parkland management and urbanization on avian habitat selection and population structure in parks of St. Louis, Missouri; this study was the basis for her masters' thesis. She has also participated in a study of avian foraging behavior and population in relation to vegetational composition in an eastern deciduous woodland.

Rosetta Arrigo

WAPORA, Inc. ENVIRONMENTAL/ECONOMIC/ENERGY STUDIES

résumé

Prior to joining WAPORA, Ms. Arrigo was employed at Kansas University's Museum of Natural History. She assisted in general museum curation and management of the ornithological collection. One of her responsibilities was input and maintenance of specimen records on computer tape, whereby the entire collection catalog could be sorted and accessed by various programs.

PROFESSIONAL AFFILIATIONS:

American Ornithologists' Union
Kansas Ornithological Society
Wilson Ornithological Society

PAPERS PRESENTED

Habitat partitioning by birds in urban parks. Kansas Ornithological Society meeting, 1979.

Parkland management, habitat diversity, and bird communities of urban parks of St. Louis, Missouri. American Ornithologists' Union Meeting, 1980.

PUBLICATIONS

Stacey, P. B., R. D. Arrigo, T. C. Edwards, and N. Joste. Northeastern extension of the breeding range of the Elf Owl in New Mexico. In press.

Richard N. Kubb
Associate Biologist

EDUCATION

B.S. in Marine Biology, 1976, University of North Carolina-Wilmington
M.A. in Biology, 1979, State University College, Buffalo, New York

EXPERIENCE

Mr. Kubb is an experienced aquatic biologist. He has expertise in the taxonomy and ecology of adult and larval fish and benthic macroinvertebrates and has participated in numerous aquatic ecological programs on major lakes and rivers in the Midwest. These include Lake of the Ozarks, MO., and the Ohio, Wabash, Illinois, Kaskaskia, Mississippi, and Missouri Rivers and their tributaries.

Mr. Kubb has conducted 316(a) and (b) investigations of the effects of electric generating systems on fish populations. He has applied mathematical and empirical modeling techniques to aid in assessment of power plant impacts on ichthyoplankton populations.

Mr. Kubb is responsible for the coordination of computerized data processing for the Biological Sciences of WAPORA, Inc. He has experience in systems modeling and in the application of computers to ecological data. He has a firm background in bio-statistics and is adept in statistical and overall experimental design.

Prior to joining WAPORA, Mr. Kubb held the position of Research Associate in the laboratory of Dr. James R. Spotila at State University College at Buffalo. His responsibilities included participation in the writing and review of research proposals and technical reports, maintenance of research instrumentation, and direction of laboratory computer modeling on an IBM 370/158 computer, Cromenco Z2D microprocessor, and Hewlett Packard 9810 desktop calculator.

While at the State College at Buffalo, Mr. Kubb participated in the following research activities: modeling of heat exchange and body temperature change in largemouth bass; field survey of the fishes of Genesee County, New York; evaporative water loss in the American alligator; effects of heating and cooling on localized blood flow in American alligator; seasonal study of the near-shore micro-climate of a thermally altered habitat.

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science
American Fisheries Society
American Society of Ichthyologists and Herpetologists
American Society of Zoologists
Sigma Xi

TECHNICAL REPORTS

Principal Authorship

Kubb, R.N. and J.R. Spotila. 1979. Mechanisms of heat exchange and time-dependent modeling of body temperature in the largemouth bass, Micropterus salmoides. Physiological Zoology. 53(2):222-239

TECHNICAL ASSISTANCE

WAPORA, Inc. 1981. Aquatic Biological Inventory, Hartwell Drainage and Levee District, Greene County, Illinois. Report Prepared for St Louis District Corps of Engineers.

_____. 1981. Terrestrial Biological Inventory, Hillview District, Green and Scott Counties, Illinois. Report prepared for St. Louis District Corps of Engineers.

WAPORA, Inc. 1981. Thermal and Biological Investigations of Duck Creek Reservoir. Report prepared for Central Illinois Light Company, Peoria IL.

_____. 1981. 316(b) Studies at E. D. Edwards Station. Report prepared for Central Illinois Light Company, Peoria IL.

_____. 1981. Environmental Inventory and Assessment of Sections 10 and 404 Permitted Structures, and Fish Reproduction at Lake of the Ozarks, Missouri. Prepared for the Kansas City District Corps of Engineers.

Appendix A. Composite taxa list of all plants observed in the Hillview
Drainage and Levee District, Scott and Green Counties,
Illinois, 9-10 October 1981. Nomenclature follows Mohlenbrock
(1975).

ACERACEAE

- Acer negundo L. (Box Elder)
Acer saccharinum L. (Silver Maple)
Acer saccharum Marsh. (Sugar Maple)

AIZOACEAE

- Mollugo verticillatus L. (Carpet Weed)

AMARANTHACEAE

- Amaranthus albus L. (Tumbleweed)
Amaranthus hybridus L. (Green Amaranth)
Amaranthus retroflexus L. (Rough Pigweed)
Amaranthus spinosus L. (Spiny Pigweed)
Amaranthus tamariscinus Nutt.

ACANTHACEAE

- *Rhus glabra L. (Smooth Sumac)
*Toxicodendron radicans (L.) Kuntze. (Poison Ivy)

ANNONACEAE

- *Asimina triloba (L.) Dunal. (Pawpaw)

APOCYNACEAE

- Apocynum cannabinum L. (Indian Hemp, Dogbane)

AQUIFOLIACEAE

- Ilex decidua Walt. (Swamp Holly)

BALSAMINACEAE

- Impatiens biflora Walt. (Spotted Touch-me-not)

BIGNONIACEAE

- *Campsis radicans (L.) Seem. (Trumpet-creeper)
Catalpa speciosa Warder.

CAMPANULACEAE

- Lobelia inflata L. (Indian Tobacco)
Lobelia siphilitica L. (Great Blue Lobelia)

CAPRIFOLIACEAE

- *Lonicera maackii Maxim. (Amur Honeysuckle)
*Sambucus canadensis L. (Common Elder)
*Symphoricarpos orbiculatus Moench. (Coral Berry, Buckbrush)

CARYOPHYLLACEAE

- Lychnis alba Mill. (Evening Campion)

- * Mast-or fruit-producer
+ Common duck food plant (Anderson 1959)

CELASTRACEAE

*Celastrus scandens L. (Climbing Bittersweet)

CERATOPHYLLACEAE

+ Ceratophyllum demersum L. (Hornwort)

CHENOPODIACEAE

Chenopodium album L. (Lamb's Quarters)

Chenopodium ambrosioides L. (Mexican Tea)

COMMELINACEAE

Commelina communis L. (Dayflower)

Tradescantia ohimensis Raf.

COMPOSITAE

Achillea millefolium L. (Yarrow, Milfoil)

Ambrosia artemisiifolia L. (Common Ragweed)

Ambrosia trifida L. (Giant Ragweed)

Aster lateriflorus (L.) Britt. (Starved Aster)

Aster ontarionis Wieg. (Ontario Aster)

Aster sagittifolius Wedem. ex Willd. var. drummondii (Lindl.) Shinn. (Arrow-leaved Aster)

Aster simplex Willd. (Painted Aster)

Bidens aristosa L. (Western Tickseed-sunflower)

Bidens cernua L. (Smaller Bur-marigold)

Bidens comosa (Gray) Wieg. (Leafy-bracted Tickseed)

Bidens frondosa L. (Stick-tight)

Cichorium intybus L. (Chicory)

Eclipta alba (L.) Hassk. (Yerba de tajo)

Erigeron annuus (L.) Pers. (Whitetop)

Erigeron canadensis L. (Horseweed)

Eupatorium rugosum Houtt. (White Snakeroot)

Eupatorium serotinum Michx. (Late Boneset)

Helianthus annuus L. (Garden Sunflower)

Helianthus tuberosus L. (Jerusalem artichoke)

Lactuca floridana (L.) Gaertn. (Woodland Lettuce)

Pyrrhopappus carolinianus (Walt.) DC. (Leafy-stemmed False Dandelion)

Rudbeckia hirta L. (Black-eyed Susan)

Rudbeckia laciniata L. (Goldenglow)

Solidago canadensis L. (Goldenrod)

Taraxacum officinale Weber. (Dandelion, common)

Xanthium strumarium L. (Cocklebur)

CONVOLVULACEAE

Calystegia sepium (L.) R. Br.

Convolvulus arvensis L. (Field Bindweed)

Ipomoea hederacea (L.) Jacq. (Ivy-leaved Morning-glory)

Ipomoea lacunosa L. (Small-flowered Morning-glory)

Ipomoea pandurata (L.) G. F. W. Mey. (Wild Sweet-potato)

CORNACEAE

*Cornus drummondii C. A. Mey. (Rough-leaved dogwood)

CRUCIFERAE

Barbarea vulgaris R. Br. (Common Wintercress)

Capsella bursa-pastoris (L.) Medic. (Shepherd's Purse)

Cardamine parviflora L. var. arenicola (Britt.) O.E. Schulz. (Small-flowered
Cardamine pennsylvanica Muhl. (Pennsylvania Bitter-cress) Bittercress)
Lepidium virginicum L.
Rorippa sessiliflora (Nutt.) Hitchc. (Sessile-flowered Cress)
Thlaspi arvense L. (Field Pennycress)

CUCURBITACEAE

Sicyos angulatus L. (Bur-cucumber)

CUPRESSACEAE

*Juniperus virginiana L. (Eastern Red Cedar)

CYPERACEAE

+ Cyperus esculentus L. (Yellow Nut-Grass)
Cyperus flavescens L.
+ Cyperus strigosus L. (Straw-colored Cyperus)

EBENACEAE

*Diospyros virginiana L. (Persimmon)

EQUISETACEAE

Equisetum arvense L. (Field Horsetail)

EUPHORBACEAE

Acalypha gracilens Gray. (Slender Three-seeded Mercury)
Acalypha ostryaefolia Riddell.
Acalypha rhomboidea Raf. (Three-seeded Mercury)
Acalypha virginica L. (Virginia Three-seeded Mercury)
Chamaesyce maculata (L.) Small. (Nodding Spurge)
Chamaesyce supina (Raf.) Moldenke. (Milk Spurge)
Poinsettia dentata (Michx.) Kl. & Garcke. (Toothed Spurge)

FAGACEAE

*Quercus palustris Muenchh. (Pin Oak)

GERANIACEAE

Geranium carolinianum L. (Craneshill)
Geranium maculatum L. (Wild Geranium)

HYDROCHARITACEAE

Elodea nuttallii (Planch.) St. John. (Slender Waterweed)

JUGLANDACEAE

*Carya cordiformis (Wang.) K. Koch. (Bitternut Hickory)
*Carya illinoensis (Wang.) K. Koch. (Pecan)
*Juglans nigra L. (Black Walnut)

LABIATAE

Agastache nepetoides (L.) Ktze. (Giant Hyssop)
Leonurus cardiaca L. (Motherwort)
Lycopus uniflorus Michx. (N. Bugle Weed)
Perrilla frutescens L. (Beef-steak Plant)
Physostegia speciosa (Sweet) Sweet. (Dragon-head)
Prunella vulgaris L. (Self-heal)

Stachys tenuifolia Willd. (Smooth Hedge Nettle)
Teucrium canadense L. (American Germander)

LEGUMINOSAE

*Amorpha fruticosa L. (Indigo Bush)
Cassia fasciculata Michx. (Partridge-Pea)
Cassia marilandica L. (Wild Senna)
*Gleditsia triacanthos L. (Honey Locust)
Medicago lupulina L. (Black Medick)
Medicago sativa L. (Alfalfa)
Melilotus alba Desr. (White Sweet Clover)
Trifolium hybridum L. (Alsike Clover)
Trifolium pratense L. (Red Clover)
Trifolium repens L. (White Clover)

LEMNACEAE

Lemna minor L. (Lesser Duckweed)

MALVACEAE

Abutilon theophrastii Medic. (Velvet-leaf)
Hibiscus militaris Cav. (Halberd-leaved Rose Mallow)
Sida spinosa L. (Prickly Sida)

MENISPERMACEAE

*Menispermum canadense L. (Moonseed)

MORACEAE

Humulus japonicus Sieb. & Zucc. (Japanese Hop)
*Maclura pomifera (Raf.) Schneider. (Osage Orange)
*Morus alba L. (White Mulberry)
*Morus rubra L. (Red Mulberry)

NYCTAGINACEAE

Mirabilis nyctaginea (Michx.) MacM. (Umbrella-wort)

OLEACEAE

*Forestiera acuminata (Michx.) Poir.
Fraxinus pensylvanica Marsh. var. subintegerrima (Vahl.) Fern. (Green Ash)

ONAGRACEAE

Oenothera biennis L. (Common Evening-primrose)
Oenothera laciniata Hill. (Cut-leaved Evening-primrose)

OPHIOGLOSSACEAE

Botrychium virginianum (L.) Sw. (Rattlesnake fern)

OXALIDACEAE

Oxalis dillenii Jacq.
Oxalis stricta L. (Common Wood Sorrel)

PHYTOLACCACEAE

Phytolacca americana L. (Pokeweed)

PLANTAGINACEAE

- Plantago aristata Michx. (Bracted Plantain)
- Plantago lanceolata L. (Buckthorn Plantain)
- Plantago rugelii Dcne. (Common Plantain)

PLATANACEAE

- Platanus occidentalis L. (Sycamore)

POACEAE

- Agrostis alba L. (Redtop)
- Andropogon virginicus L. (Broom-sedge)
- Bromus inermis Leyss. (Smooth Brome)
- Bromus tectorum L. (Downy Cheat)
- Digitaria ischaemum (Schreb.) Muhl. (Smooth Crabgrass)
- Digitaria sanguinalis (L.) Scop. (Common Crabgrass)
- + Echinochloa crus-galli (L.) Beauv. (millet)
- Echinochloa pungens (Poir.) Rydb.
- Eleusine indica (L.) Gaertn. (Goose Grass)
- Elymus virginicus L. (Terrell-grass)
- Eragrostis ciliaris (All.) Mosher. (Stink Grass)
- Eragrostis frankii C. A. Meyer. (Frank's Lovegrass)
- Eragrostis pectinacea (Michx.) Nees. (Purple Lovegrass)
- Eragrostis spectabilis (Pursh) Steud. (Tumble Grass)
- Festuca pratensis Huds.
- Hordeum jubatum L. (Squirrel-tail Grass)
- + Leersia oryzoides (L.) Swartz. (White Grass)
- Leersia virginica Willd. (Cut Grass)
- Muhlenbergia frondosa (Poir.) Fern. (Common Satin Grass)
- Muhlenbergia schreberi J. F. Gmel. (Nimble Will)
- Panicum capillare L. (Witch Grass)
- Panicum dichotomiflorum Michx. (Fall Panicum)
- Panicum lanuginosa Ell. (Hairy Panic Grass)
- Paspalum ciliatifolium Michx. (Hairy Lens Grass)
- Phalaris arundinacea L. (Reed Canary Grass)
- Poa annua L. (Annual Blue Grass)
- Poa pratensis L. (Timothy)
- Setaria faberi Herrm. (Giant Foxtail)
- Setaria lutescens (Weigel) Hubb. (Yellow Foxtail)
- Setaria viridis (L.) Beauv. (Green Foxtail)
- Spartina pectinata Lind. (Cord Grass)
- Sporobolus aspera (Michx.) Kunth. (Long-leaved Rush Grass)
- Tridens flavus (L.) Hitchcock. (Purpletop)

POLYGONACEAE

- Polygonum aviculare L. (Common Knotweed)
- + Polygonum coccineum Muhl. (Black Bindweed)
- Polygonum hydropiperoides Michx. (Mild Water Pepper)
- + Polygonum lapathifolium L. (Pale Smartweed)
- + Polygonum pensylvanicum L. (Pennsylvania Knotweed)
- Polygonum persicaria L. (Lady's Thumb)
- Polygonum punctatum Ell. (Dotted Smartweed)
- Polygonum scandens L. (Climbing False Buckwheat)
- Polygonum virginianum L. (Virginia Knotweed)

Rumex acetosella L. (Field Sorrel)
Rumex crispus L. (Curly Dock)

PORTULACACEAE

Portulaca oleracea L. (Purslane)

POTAMOGETONACEAE

Potamogeton foliosus Raf. (Leafy Pondweed)
+ Potamogeton nodosus Poir. (Long-leaved Pondweed)

PRIMULACEAE

Lysimachia nummularia L. (Moneywort)

ROSACEAE

*Crataegus viridis L. (Southern Thorn)
Fragaria virginiana Duchesne. (Cultivated Strawberry)
Potentilla simplex Michx. (Common Cinquefoil)
*Prunus americana Marsh. (Wild Plum)
*Prunus serotina Ehrh. (Wild Black Cherry)
Rosa carolina L. (Pasture Rose)
*Rosa multiflora Thunb. (Multiflora Rose)
*Rubus allegheniensis Porter. (Mountain Blackberry)
*Rubus flagellaris Willd. (Dewberry)
*Rubus occidentalis L. (Black Raspberry)

RUBIACEAE

+ Cephalanthus occidentalis L. (Buttonbush)
Galium aparine L. (Cleavers)
Spermacoce glabra Michx. (Smooth Buttonweed)

RUTACEAE

Ptelea trifoliata L. (Wafer-ash)

SALICACEAE

Populus deltoides Marsh. (Eastern Cottonwood)
Salix amygdaloides Andress. (Peach-leaved Willow)
Salix interior Rowlee. (Sandbar Willow)
Salix nigra Marsh. (Black Willow)

SCROPHULARIACEAE

Conoclinium multifidum (Michx.) Benth.
Lindernia dubia (L.) Pennell. (Pimpernel)
Scrophularia marilandica L. (Figwort)
Verbascum blattaria L. (Moth Mullen)
Verbascum thapsus L. (Great Mullen)

SMILACACEAE

*Similax hispida Muhl.

SOLANACEAE

Datura stramonium L. (Jimson Weed)
Physalis subglabrata Mack. & Bush. (Tall Ground Cherry)
Solanum americanum Mill. (Black Nightshade)

Solanum carolinense L. (Horse Nettle)
Solanum rostratum Dunal. (Buffalo Bur)

ULMACEAE

*Celtis laevigata Willd. (Sugarberry)
*Celtis occidentalis L. (Hackberry)
Ulmus americana L. (White Elm)
Ulmus rubra Muhl. (Slippery Elm)

UMBELLIFERAE

Conium maculatum L. (Poison-hemlock)
Daucus carota L. (Carrot)
Pastinaca sativa L. (Wild Parsnip)
Sanicula canadensis L. (Short-styled Snakeroot)

URTICACEAE

Laportea canadensis (L.) Wedd. (Wood Nettle)
Pilea pumila (L.) Gray. (Clearweed)
Urtica dioica L. (Stinging Nettle)

VERBENACEAE

Lippia lanceolata Michx. (Fog Fruit)
Verbena urticifolia L. (White Vervain)

VIOLACEAE

Viola pratincola Greene.

VITACEAE

*Ampelopsis cordata Michx. (Raccoon-grape)
*Vitis vulpina L. (Frost Grape)

Appendix B. Composite taxa list of all terrestrial and semi-aquatic vertebrates observed in the Hillview Drainage and Levee District, Greene and Scott Counties, Illinois, 9-10 October 1981.

CLASS

Order

Family

AMPHIBIA

Salientia

Rana clamitans melanota

Green frog

Rana pipiens pipiens

Northern leopard frog

AVES

Podicipediformes

Podicipedidae

Podilymbus podiceps

Pied-billed grebe

Ciconiiformes

Ardeidae

Ardea herodias

Great blue heron

Falconiformes

Cathartidae

Cathartes aura

Turkey vulture

Accipitridae

Buteo jamaicensis

Red-tailed hawk

Circus cyaneus

Marsh hawk

Falconidae

Falco sparverius

American kestrel

Charadriiformes

Charadriidae

Charadrius vociferus

Killdeer

Columbiformes

Columbidae

Columba livia

Rock dove

Zenaida macroura

Mourning dove

Coraciiformes

Alcedinidae

Megasceryle alcyon

Belted kingfisher

Piciformes

Picidae

Colaptes auratus

Common flicker

Melanerpes carolinus

Red-bellied woodpecker

Melanerpes erythrocephalus

Red-headed woodpecker

Picoides villosus

Hairy woodpecker

Picoides pubescens

Downy woodpecker

Passeriformes	
Tyrannidae	
<u>Contopus virens</u>	Eastern wood pewee
Alaudidae	
<u>Eremophila alpestris</u>	Horned lark
Hirundinidae	
<u>Hirundo rustica</u>	Barn swallow
Corvidae	
<u>Cyanocitta cristata</u>	Blue jay
<u>Corvus brachyrhynchos</u>	Common crow
Paridae	
<u>Parus atricapillus</u>	Black-capped chickadee
<u>Parus bicolor</u>	Tufted titmouse
Sittidae	
<u>Sitta carolinensis</u>	White-breasted nuthatch
Troglodytidae	
<u>Troglodytes aedon</u>	House wren
Turdidae	
<u>Turdus migratorius</u>	American robin
Sturnidae	
<u>Sturnus vulgaris</u>	European starling
Ploceidae	
<u>Passer domesticus</u>	House Sparrow
Icteridae	
<u>Agelaius phoeniceus</u>	Red-winged blackbird
Fringillidae	
<u>Cardinalis cardinalis</u>	Cardinal
<u>Carduelis tristis</u>	American goldfinch
<u>Junco hyemalis</u>	Dark-eyed junco
<u>Zonotrichia albicollis</u>	White-throated sparrow
<u>Melospiza melodia</u>	Song sparrow
MAMMALIA	
Rodentia	
Sciuridae	
<u>Sciurus carolinensis</u>	Eastern gray squirrel
Castoridae	
<u>Castor canadensis</u>	Beaver
Cricetidae	
<u>Ondatra zibethicus</u>	Muskrat

Lagomorpha

Leporidae

Sylvilagus floridanus

Eastern cottontail

Artiodactyla

Cervidae

Odocoileus virginianus

Whitetail deer

Appendix C. Composite taxa lists of terrestrial and semi-aquatic vertebrates whose ranges include Greene and Scott Counties, Illinois or geographical regions within the State of Illinois which include Greene and Scott Counties.

Appendix Table C-1. Composite taxa list of amphibians and reptiles that have been collected from or whose ranges include Greene and Scott Counties, Illinois, and key to their preferred habitat types (from Smith 1961; nomenclature follows Collins et al. 1978).

<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u> ¹
Order Caudata (Salamanders)		
<u>Ambystoma texanum</u>	Small-mouthed salamander	WPC
<u>Ambystoma tigrinum tigrinum</u>	Tiger salamander	C
<u>Siren intermedia nettingi</u>	Western lesser siren	A
Order Salientia (Frogs and Toads)		
<u>Bufo americanus americanus</u>	Eastern american toad	WPC
<u>Bufo americanus charlesmithi</u>	Dwarf american toad	W
<u>Bufo woodhousei fowleri</u>	Fowler's toad	PR
<u>Acris crepitans blanchardi</u>	Blanchards' cricket frog	MAP
<u>Pseudacris triseriata triseriata</u>	Western chorus frog	CPM
<u>Hyla versicolor versicolor</u>	Eastern gray treefrog	W
<u>Rana areolata circulosa</u>	Northern crawfish frog	P
<u>Rana catesbeiana</u>	Bullfrog	A
<u>Rana clamitans melanota</u>	Green frog	A
<u>Rana palustris</u>	Pickrel frog	A
<u>Rana pipiens pipiens</u>	Northern leopard frog	ACM
<u>Rana sphenocephala</u>	Southern leopard frog	AC
Order Testudines (Turtles)		
<u>Chelydra serpentina</u>	Common snapping turtle	A
<u>Macrochelys temminicki</u>	Alligator snapping turtle	A
<u>Sternotherus odoratus</u>	Stinkpot	A
<u>Terrapene carolina carolina</u>	Eastern box turtle	WM
<u>Terrapene ornata ornata</u>	Ornate box turtle	P
<u>Chrysemys picta marginata</u>	Midland painted turtle	A
<u>Chrysemys picta belli</u>	Western painted turtle	A
<u>Chrysemys scripta elegans</u>	Red-eared turtle	A
<u>Graptemys pseudogeographica</u>	False map turtle	A
<u>Graptemys geographica</u>	Map turtle	A
<u>Trionyx spiniferus spiniferus</u>	Eastern spiny soft shell	A
<u>Trionyx muticus muticus</u>	Smooth softshell	A
Suborder Sauria (Lizards)		
<u>Ophisaurus attenuatus</u>	Western slender glass lizard	P
<u>Cnemidophorus s. sexlineatus</u>	Six-lined racerunner	P
<u>Eumeces fasciatus</u>	Five-lined skink	W
<u>Eumeces laticeps</u>	Broad-headed skink	W
Suborder Serpentes (Snakes)		
<u>Carphophis amoenus helenae</u>	Midwest worm snake	F
<u>Diadophis punctatus edwardsi</u>	Northern ringneck snake	PW
<u>Heterodon platyrhinos</u>	Eastern hognose snake	PE
<u>Opheodrys aestivus</u>	Rough green snake	E
<u>Coluber constrictor flaviventris</u>	Eastern yellow-bellied racer	EPC

Appendix Table C-1 (concluded).

<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
<u>Elaphe obsoleta obsoleta</u>	Black rat snake	PW
<u>Pituophis melanoleucus sayi</u>	Bullsnake	PW
<u>Lampropeltis c. calligaster</u>	Prairie kingsnake	P
<u>Lampropeltis getulis holbrooki</u>	Speckled kingsnake	W
<u>Lampropeltis t. triangulum</u>	Eastern milksnake	W
<u>Lampropeltis triangulum sypila</u>	Red milksnake	W
(E) <u>Thamnophis sauritus</u>	Eastern ribbon snake	M
<u>Thamnophis sirtalis sirtalis</u>	Eastern garter snake	SE
<u>Storeria dekayi wrightorum</u>	Midland brown snake	WPE
<u>Nerodia erythrogaster flavigaster</u>	Yellow-bellied water snake	A
<u>Nerodia grahami</u>	Graham's water snake	A
<u>Nerodia rhombifera rhombifera</u>	Diamondback water snake	A
<u>Nerodia sipedon sipedon</u>	Northern water snake	A
<u>Nerodia sipedon pleuralis</u>	Midland water snake	A
<u>Agkistrodon contortrix</u>	Northern copperhead	W
<u>Sistrurus catenatus</u>	Eastern massasauga	M
<u>Crotalis horridus</u>	Timber rattlesnake	W

(E) Illinois State Endangered Species

- ¹ Preferred habitat is given as follows: A = Aquatic habitat; C = Cultivated; E = Edge; F = Fossorial; M = Marsh or Swamp; P = Prairie, Field, or Grassland; R = Riparian S = Shrub; W = Woodland.

Appendix Table C-2. Composite taxa list of all breeding birds noted along Breeding Bird Survey Route 037, Greene County, Illinois and Route 038, Morgan, Scott, and Greene Counties, Illinois, 1967 - 1980. (Nomenclature follows American Ornithologists' Union 1967; 1973; 1976.)

Order	Family	Species	
Podicipediformes			
		<u>Ardea herodias</u>	Great Blue Heron
		<u>Butorides striatus</u>	Green Heron
Anseriformes			
		<u>Anas platyrhynchos</u>	Mallard
		<u>Aix sponsa</u>	Wood Duck
Falconiformes			
		<u>Cathartes aura</u>	Turkey Vulture
		<u>Buteo jamaicensis</u>	Red-tailed Hawk
		<u>Falco sparverius</u>	American Kestrel
Galliformes			
		<u>Colinus virginianus</u>	Bobwhite
		<u>Phasianus colchicus</u>	Ring-necked Pheasant
Charadriiformes			
		<u>Charadrius vociferus</u>	Killdeer
Columbiformes			
		<u>Columba livia</u>	Rock Dove
		<u>Zenaidura macroura</u>	Mourning Dove
Cuculiformes			
		<u>Coccyzus americanus</u>	Yellow-billed Cuckoo
		<u>Coccyzus erythrophthalmus</u>	Black-billed Cuckoo
Strigiformes			
		<u>Bubo virginianus</u>	Great Horned Owl
		<u>Strix varia</u>	Barred Owl
Caprimulgiformes			
		<u>Caprimulgus vociferus</u>	Whip-poor-will
		<u>Chordeiles minor</u>	Common Nighthawk
Apodiformes			
		<u>Chaetura pelagica</u>	Chimney Swift
		<u>Archilochus colubris</u>	Ruby-throated Hummingbird
Coraciiformes			
		<u>Megascops alcyon</u>	Belted Kingfisher

Appendix Table C-2 (continued).

Piciformes

Colaptes auratus
Dryocopus pileatus
Melanerpes carolinus
Melanerpes erythrocephalus
Picoides pubescens
Picoides villosus

Common Flicker
Pileated Woodpecker
Red-bellied Woodpecker
Red-headed Woodpecker
Downy Woodpecker
Hairy Woodpecker

Passeriformes

Tyrannidae

Tyrannus tyrannus
Myiarchus crinitus
Sayornis phoebe
Empidonax virescens
Empidonax traillii
Contopus virens

Eastern Kingbird
Great Crested Flycatcher
Eastern Phoebe
Acadian Flycatcher
Willow Flycatcher
Eastern Wood Pewee

Alaudidae

Eremophila alpestris

Horned Lark

Hirundinidae

Riparia riparia
Stelgidopteryx ruficollis
Hirundo rustica
Progne subis

Bank Swallow
Rough-winged Swallow
Barn Swallow
Purple Martin

Corvidae

Corvus brachyrhynchos
Cyanocitta cristata

Common Crow
Blue Jay

Paridae

Parus atricapillus
Parus bicolor

Black-capped Chickadee
Tufted Titmouse

Sittidae

Sitta carolinensis

White-breasted Nuthatch

Troglodytidae

Troglodytes aedon
Thryothorus ludovicianus
Cistothorus platensis

House Wren
Carolina Wren
Short-billed Marsh Wren

Mimidae

Mimus polyglottos
Dumetella carolinensis
Toxostoma rufum

Mockingbird
Gray Catbird
Brown Thrasher

Turdidae

Turdus migratorius
Sialia sialis
Hylocichla ustulata

American Robin
Eastern Bluebird
Wood Thrush

Appendix Table C-2 (continued).

Sylviidae	
<u>Polioptila caerulea</u>	Blue-gray Gnatcatcher
Bambycillidae	
<u>Bombycilla cedrorum</u>	Cedar Waxwing
Laniidae	
<u>Lanius ludovicianus</u>	Loggerhead Shrike
Sturnidae	
<u>Sturnus vulgaris</u>	European Starling
Vireonidae	
<u>Vireo griseus</u>	White-eyed Vireo
<u>Vireo belli</u>	Bell's Vireo
<u>Vireo flavifrons</u>	Yellow-throated Vireo
<u>Vireo olivaceus</u>	Red-eyed Vireo
<u>Vireo gilvus</u>	Warbling Vireo
Parulidae	
<u>Protonotaria citrea</u>	Prothonotary Warbler
<u>Parula americana</u>	Parula Warbler
<u>Dendroica petechia</u>	Yellow Warbler
<u>Dendroica cerulea</u>	Cerulean Warbler
<u>Oporornis formosus</u>	Kentucky Warbler
<u>Geothlypis trichas</u>	Common Yellowthroat
<u>Icteria virens</u>	Yellow-breasted Chat
<u>Setophaga ruticilla</u>	American Redstart
Ploceidae	
<u>Passer domesticus</u>	House Sparrow
<u>Passer montanus</u>	European Tree Sparrow
Icteridae	
<u>Sturnella magna</u>	Eastern Meadowlark
<u>Sturnella neglecta</u>	Western Meadowlark
<u>Agelaius phoeniceus</u>	Red-winged Blackbird
<u>Icterus spurius</u>	Orchard Oriole
<u>Icterus galbula</u>	Northern Oriole
<u>Quiscalus quiscula</u>	Common Grackle
<u>Molothrus ater</u>	Brown-headed Cowbird
Thraupidae	
<u>Piranga olivacea</u>	Scarlet Tanager
<u>Piranga rubra</u>	Summer Tanager
Fringillidae	
<u>Cardinalis cardinalis</u>	Cardinal
<u>Pheucticus ludovicianus</u>	Rose-breasted Grosbeak
<u>Passerina caerulea</u>	Blue Grosbeak
<u>Passerina cyanea</u>	Indigo Bunting

Appendix Table C-2 (concluded).

Spiza americana
Carduelis tristis
Pipilo erythrophthalmus
Passerculus sandwichensis
Ammodramus savannarum
Passerherbulus caudacutus
Chondestes grammacus
Poocetes gramineus
Spizella passerina
Spizella pusilla
Melospiza melodia

Dickcissel
American Goldfinch
Rufous-sided Towhee
Savannah Sparrow
Grasshopper Sparrow
LeConte's Sparrow
Lark Sparrow
Vesper Sparrow
Chipping Sparrow
Field Sparrow
Song Sparrow

Appendix Table C-3. Avian species indigenous to Illinois (Bohlen 1978). * indicates breeding and wintering species in the central region of Illinois (Graber and Graber 1963; 1976).

Seasonal status and abundance of avifauna that may occur in the study area:

NSR - Non breeding summer resident	E - Extirpated	FE - Federally Endangered	a - abundant
PW - Postbreeding wanderers	Ex - Extinct	FT - Federally Threatened	c - common
V - Vagrant	M - Migrant	SE - State Endangered	fc - fairly common
S - Straggler	PR - Permanent Resident	ST - State Threatened	u - uncommon
E - Escapes	SR - Summer Resident		o - occasional
I - Introduced	WR - Winter Resident		r - rare
II - Hypothetical	* - Observed in central region of Illinois		vr - very rare

Species	Status	Abundance
GAVIFORMES: Loons		
Common Loon (<i>Gavia immer</i>)	M	u
Arctic Loon (<i>Gavia arctica</i>)	V	vr
Red-throated Loon (<i>Gavia stellata</i>)	M	r
PODICIPEDIFORMES: Grebes		
Red-necked Grebe (<i>Podiceps grisegena</i>)	M	r
Horned Grebe (<i>Podiceps auritus</i>)	M	c
Eared Grebe (<i>Podiceps nigricollis</i>)	M	r
Western Grebe (<i>Aechmophorus occidentalis</i>)	M	r
*Pied-billed Grebe (<i>Podilymbus podiceps</i>)	M	c
PELICANIFORMES: Pelicans, Cormorants and allies		
White Pelican (<i>Pelecanus erythrorhynchos</i>)	M	r
Brown Pelican (<i>Pelecanus occidentalis</i>)	M	vr
Double-crested Cormorant (<i>Phalacrocorax auritus</i>)	M, SE	d
Olivaceous Cormorant (<i>Phalacrocorax olivaceus</i>)	M	vr
Anhinga (<i>Anhinga anhinga</i>)	M	vr
Magnificent Frigate-bird (<i>Fregata magnificens</i>)	H	-

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
CICONIIFORMES: Herons, Bitterns, Ibises and allies		
*Great Blue Heron (<i>Ardea herodias</i>)	SR	c
*Green Heron (<i>Butorides striatus</i>)	SR	c
Little Blue Heron (<i>Florida caerules</i>)	M, SE	o
*Cattle Egret (<i>Bubulcus ibis</i>)	M	fc
Reddish Egret (<i>Dichromanassa rufescens</i>)	H	-
*Great Egret (<i>Casmerodius albus</i>)	M, SE	u
Snowy Egret (<i>Egretta thula</i>)	M, SE	r
Louisiana Heron (<i>Hydromanassa tricolor</i>)	V	vt
*Black-crowned Night Heron (<i>Nycticorax nycticorax</i>)	M, SE	fc
*Yellow-crowned Night Heron (<i>Nyctanassa violacea</i>)	M	o
*Least Bittern (<i>Ixobrychus exilis</i>)	M	u
*American Bittern (<i>Botaurus lentiginosus</i>)	M, SE	u
Wood Stork (<i>Mycteria americana</i>)	V	vt
Glossy Ibis (<i>Plegadis falcinellus</i>)	V	r
White-faced Ibis (<i>Plegadis chihi</i>)	V	vt
White Ibis (<i>Eudocimus albus</i>)	V	vt
Roseate Spoonbill (<i>Ajaia ajaja</i>)	E	-
American Flamingo (<i>Phoenicopterus ruber</i>)	H	-
ANSERIFORMES: Swans, Geese and Ducks		
White Swan (<i>Cygnus olor</i>)	M	vt
Whistling Swan (<i>Olor columbianus</i>)	M	r
Trumpeter Swan (<i>Olor buccinator</i>)	E	-
*Canada Goose (<i>Branta canadensis</i>)	M	c
White-fronted Goose (<i>Anser albifrons</i>)	M	r
Bar-headed Goose (<i>Anser indicus</i>)	H	-
Snow Goose (<i>Chen caerulescens</i>)	M	c
Ross' Goose (<i>Chen rossii</i>)	V	vt
Black-bellied Whistling Duck (<i>Pendrocygna autumnalis</i>)	H	-
Fulvous Whistling Duck (<i>Pendrocygna bicolor</i>)	V	vt
*Mallard (<i>Anas platyrhynchos</i>)	M, SR	a
Black Duck (<i>Anas rubripes</i>)	M	fc
Gadwall (<i>Anas strepera</i>)	M	fc
Pintail (<i>Anas acuta</i>)	M	c
Bahama Duck (<i>Anas bahamensis</i>)	H	-

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
ANSERIFORMES: (continued)		
Green-winged Teal (<i>Anas crecca</i>)	M	fc
* Blue-winged Teal (<i>Anas discors</i>)	M, SR	c
Cinnamon Teal (<i>Anas cyanoptera</i>)	V	r
European Wigeon (<i>Anas penelope</i>)	V	vr
American Wigeon (<i>Anas americana</i>)	M	c
Northern Shoveler (<i>Anas clypeata</i>)	M	c
* Wood Duck (<i>Aix sponsa</i>)	M, SR	c
Redhead (<i>Aythya americana</i>)	M	c
Ring-necked Duck (<i>Aythya collaris</i>)	M	u
Canvasback (<i>Aythya valisineria</i>)	M	fc
Greater Scaup (<i>Aythya marila</i>)	M	r
Lesser Scaup (<i>Aythya affinis</i>)	M	a
Tufted Duck (<i>Aythya fuligula</i>)	V	vr
Common Goldeneye (<i>Bucephala clangula</i>)	M	c
Barrow's Goldeneye (<i>Bucephala islandica</i>)	M	r
Bufflehead (<i>Bucephala albeola</i>)	M	fc
Oldsquaw (<i>Clangula hyemalis</i>)	M	r
Harlequin Duck (<i>Histrionicus histrionicus</i>)	M	r
Common Eider (<i>Somateria mollissima</i>)	V	vr
King Eider (<i>Somateria spectabilis</i>)	VR	vr
White-winged Scoter (<i>Melanitta deglandi</i>)	M, WR	r
Surf Scoter (<i>Melanitta perspicillata</i>)	M	r
Black Scoter (<i>Melanitta nigra</i>)	M	r
Ruddy Duck (<i>Oxyura jamaicensis</i>)	M	c
* Hooded Merganser (<i>Lophodytes cucullatus</i>)	M	u
Common Merganser (<i>Mergus merganser</i>)	M, WR	c
Red-breasted Merganser (<i>Mergus serrator</i>)	M	c
FALCONIFORMES: Vultures, Eagles and Hawks		
* Turkey Vulture (<i>Cathartes aura</i>)	M, SR	u
Black Vulture (<i>Coragyps atratus</i>)	V	vr
White-tailed Kite (<i>Elanus leucurus</i>)	H	-
Swallow-tailed Kite (<i>Elanoides forficatus</i>)	E	-
Mississippi Kite (<i>Ictinia mississippiensis</i>)	V, SE	vr
Goshawk (<i>Accipiter gentilis</i>)	WR	o

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
FALCONIFORMES (continued)		
Sharp-shinned Hawk (<i>Accipiter striatus</i>)	M	fc
*Cooper's Hawk (<i>Accipiter cooperii</i>)	M, WR, SE	u
*Red-tailed Hawk (<i>Buteo jamaicensis</i>)	M, WR	c
*Red-shouldered Hawk (<i>Buteo lineatus</i>)	M, WR, SE	c
*Broad-winged Hawk (<i>Buteo platypterus</i>)	M	c
Swinson's Hawk (<i>Buteo swainsoni</i>)	M, SE	r
*Rough-legged Hawk (<i>Buteo lagopus</i>)	M, WR	c
Ferruginous Hawk (<i>Buteo regalis</i>)	M, WR	r
Gray Hawk (<i>Buteo nitidus</i>)	H	-
Golden Eagle (<i>Aquila chrysaetos</i>)	M, WR	c
*Bald Eagle (<i>Haliaeetus leucocephalus</i>)	N, WR, FE	fc
*Marsh Hawk (<i>Circus cyaneus</i>)	M, WR, SE	c
Osprey (<i>Pandion haliaetus</i>)	M, SE	u
Gyr Falcon (<i>Falco rusticolus</i>)	M, WR	vt
Prairie Falcon (<i>Falco mexicanus</i>)	V	vt
Peregrine Falcon (<i>Falco peregrinus</i>)	M, FE	r
Nerlin (<i>Falco columbarius</i>)	M	r
*American Kestrel (<i>Falco sparverius</i>)	Pr	c
GALLIFORMES: Grouse, Quail, Pheasants and allies		
Ruffed Grouse (<i>Bonasa umbellus</i>)	I	-
Willow Ptarmigan (<i>Lagopus lagopus</i>)	H	-
*Greater Prairie Chicken (<i>Tympanuchus cupido</i>)	PR	r
Sharp-tailed Grouse (<i>Pedioecetes phasianellus</i>)	E	-
*Bobwhite (<i>Colinus virginianus</i>)	PR	c
*Ring-necked Pheasant (<i>Phasianus colchicus</i>)	I, PR	c
Gray Partridge (<i>Perdix perdix</i>)	I, PR	u
*Turkey (<i>Meleagris gallopavo</i>)	I, PR	u
GRUIFORMES: Cranes, Rails, Gallinules and allies		
Whooping Crane (<i>Grus americana</i>)	M	vt
Sandhill Crane (<i>Grus canadensis</i>)	M	u
Limpkin (<i>Aramus guarana</i>)	H	-
*King Rail (<i>Rallus elegans</i>)	M	u
Clapper Rail (<i>Rallus longirostris</i>)	H	-

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
GRUIFORMES (continued)		
*Virginia Rail (<i>Rallus limicola</i>)	M, SR	fc
*Sora (<i>Porzana carolina</i>)	M, SR	fc
Yellow Rail (<i>Coturnicops noveboracensis</i>)	M, SE	r
Black Rail (<i>Lateralus jamaicensis</i>)	M, SR, SE	r
Purple Gallinule (<i>Porphyrula martinica</i>)	V, SE	vr
*Common Gallinule (<i>Gallinula chloropus</i>)	M, SR, ST	u
*American Coot (<i>Fulica americana</i>)	M	a
CHARADRIIFORMES: Plovers, Sandpipers, Gulls, Terns and allies		
American Avocet (<i>Recurvirostra americana</i>)	M	r
Black-necked Stilt (<i>Himantopus mexicanus</i>)	M	vr
American Golden Plover (<i>Pluvialis dominica</i>)	M	c
Black-bellied Plover (<i>Pluvialis squatarola</i>)	M	u
Piping Plover (<i>Charadrius melodus</i>)	M, SE	r
Semipalmated Plover (<i>Charadrius semipalmatus</i>)	M	fc
Wilson's Plover (<i>Charadrius wilsonia</i>)	H	
*Killdeer (<i>Charadrius vociferus</i>)	M, SR	c
*American Woodcock (<i>Philohela minor</i>)	M, SR, WR	c, u
Common Snipe (<i>Capella gallinago</i>)	M	c
Long-billed Curlew (<i>Numenius americanus</i>)	M	vr
Whimbrel (<i>Numenius phaeopus</i>)	M	r
Eskimo Curlew (<i>Numenius borealis</i>)	Ex, SE	-
Marbled Godwit (<i>Limosa fedoa</i>)	M	r
Hudsonian Godwit (<i>Limosa haemastica</i>)	M	r
Short-billed Dowitcher (<i>Limnodromus griseus</i>)	M	u, fc
Long-billed Dowitcher (<i>Limnodromus scolopaceus</i>)	M	u
Stilt Sandpiper (<i>Macropalama himantopus</i>)	M	c, o
Greater Yellowlegs (<i>Tringa melanoleucus</i>)	M	fc
Lesser Yellowlegs (<i>Tringa flavipes</i>)	M	c
Solitary Sandpiper (<i>Tringa solitaria</i>)	M	c
*Spotted Sandpiper (<i>Actitis macularia</i>)	M, SR	c
Willet (<i>Catoptrophorus semipalmatus</i>)	M	o
*Upland Sandpiper (<i>Bartramia longicauda</i>)	M, SR, SE	u
Buff-breasted Sandpiper (<i>Thyngites subruficollis</i>)	M	o, vr
Ruff (<i>Phiccomachus pugnax</i>)	M	vr

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
CHARADRIIFORMES (continued)		
Curlew Sandpiper (<i>Calidris ferruginea</i>)	V	VR
Dunlin (<i>Calidris alpina</i>)	M	C, u
Red Knot (<i>Calidris canutus</i>)	M	r, VR
Sanderling (<i>Calidris alba</i>)	M	u
Purple Sandpiper (<i>Calidris maritima</i>)	M	VR
Sharp-tailed Sandpiper (<i>Calidris acuminata</i>)	V	VR
Pectoral Sandpiper (<i>Calidris melanotos</i>)	M	a
White-rumped Sandpiper (<i>Calidris fuscicollis</i>)	M	u, r
Baird's Sandpiper (<i>Calidris bairdii</i>)	M	o, u
Least Sandpiper (<i>Calidris minutilla</i>)	M	C
Semipalmated Sandpiper (<i>Calidris pusillus</i>)	M	C
Western Sandpiper (<i>Calidris mauri</i>)	M	o, u
Ruddy Turnstone (<i>Arenaria interpres</i>)	M	o
Red Phalarope (<i>Phalaropus fulicarius</i>)	M	VR
Northern Phalarope (<i>Lobipes lobatus</i>)	M	o, r
Wilson's Phalarope (<i>Steganopus tricolor</i>)	M, SE	u
Pomarine Jaeger (<i>Stercorarius pomarinus</i>)	M	VR
Parasitic Jaeger (<i>Stercorarius parasiticus</i>)	M	VR
Long-tailed Jaeger (<i>Stercorarius longicaudus</i>)	M	VR
Skua (<i>Catantacta skua</i>)	H	-
Glaucous Gull (<i>Larus hyperboreus</i>)	WR	o
Iceland Gull (<i>Larus glaucoides</i>)	WR	r
Great Black-backed Gull (<i>Larus marinus</i>)	M, WR	VR
Western Gull (<i>Larus occidentalis</i>)	V	VR
Herring Gull (<i>Larus argentatus</i>)	M, WR	C
Thayer's Gull (<i>Larus thayeri</i>)	M, WR	VR
California Gull (<i>Larus californicus</i>)	V	VR
Ring-billed Gull (<i>Larus delawarensis</i>)	M, WR	C, u
Black-headed Gull (<i>Larus ridibundus</i>)	V	VR
Laughing Gull (<i>Larus atricilla</i>)	V	r
Franklin's Gull (<i>Larus pipixcan</i>)	M	r, o
Bonaparte's Gull (<i>Larus philadelphia</i>)	M	fc
Little Gull (<i>Larus minutus</i>)	M	VR
Ivory Gull (<i>Pegophila eburnea</i>)	II	-

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
CHARADRIIFORMES (continued)		
Black-legged Kittiwake (<i>Rissa tridactyla</i>)	M, WR	r
Sabine's Gull (<i>Xema sabini</i>)	M	VR
Gull-billed Tern (<i>Gelochelidon nilotica</i>)	H	-
Forster's Tern (<i>Sterna forsteri</i>)	M, SE	c
Common Tern (<i>Sterna hirundo</i>)	M, SE	fc
Roscate Tern (<i>Sterna dougalli</i>)	H	-
Least Tern (<i>Sterna albifrons</i>)	M, SE	r
Royal Tern (<i>Sterna maxima</i>)	H	-
Caspian Tern (<i>Sterna caspia</i>)	SR	o
Large-billed Tern (<i>Phaetusa simplex</i>)	V	VR
*Black Tern (<i>Chlidonias niger</i>)	M, SR, SE	c
Ancient Murrelet (<i>Synthliboramphus antiquus</i>)	V	VR
COLUMBIFORMES: Doves and Pigeons		
*Rock Dove (<i>Columba livia</i>)	I, PR	a
*Mourning Dove (<i>Zenaida macroura</i>)	M, SR, WR	a, c
Passenger Pigeon (<i>Ectopistes migratorius</i>)	Ex	-
Ringed Turtle Dove (<i>Streptopelia risoria</i>)	H	-
Ground Dove (<i>Columbina passerina</i>)	V	VR
PSITTACIFORMES: Parrots and allies		
Carolina Parakeet (<i>Conuropsis carolinensis</i>)	Ex	-
Monk Parakeet (<i>Myiopsitta monachus</i>)	H	-
CUCULIFORMES: Cuckoos and allies		
*Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	M, SR	c
*Black-billed Cuckoo (<i>Coccyzus erythrophthalmus</i>)	M, SR	c, u
STRIGIFORMES: Owls		
Barn Owl (<i>Tyto alba</i>)	PR, SE	r
*Screech Owl (<i>Otus asio</i>)	PR	c
*Great Horned Owl (<i>Bubo virginianus</i>)	PR	fc
Snowy Owl (<i>Nyctea scandiaca</i>)	WR	o
Hawk-Owl (<i>Surnia ulula</i>)	V	VR
Burrowing Owl (<i>Athene cunicularia</i>)	V	VR

Appendix Table C-3 (continued).

Species	Status	Abundance
STRIGIFORMES (continued)		
*Barred Owl (<i>Strix varia</i>)	PR	u
Great Gray Owl (<i>Strix nebulosa</i>)	H	-
*Long-eared Owl (<i>Asio otus</i>)	WR, SR, SE	u, r
*Short-eared Owl (<i>Asio flammeus</i>)	M, WR, SR, SE	u, r
Boreal Owl (<i>Aegolius funereus</i>)	V	VI
*Saw-whet Owl (<i>Aegolius acadicus</i>)	WR, SR	u, VI
CAPRIMULGIFORMES: Goatsuckers		
*Chuck-will's-widow (<i>Caprimulgus carolinensis</i>)	V	r
*Whip-poor-will (<i>Caprimulgus vociferus</i>)	M, SR	c, fc
*Common Nighthawk (<i>Chordeiles minor</i>)	M, SR	c
APODIFORMES: Swifts and Hummingbirds		
Black Swift (<i>Cypseloides niger</i>)	V	VI
*Chimney Swift (<i>Chaetura pelagica</i>)	M, SR	c
*Ruby-throated Hummingbird (<i>Archilochus colubris</i>)	M, SR	c, fc
Black-chinned Hummingbird (<i>Archilochus alexandri</i>)	H	-
CORACIIFORMES: Kingfishers		
*Belted Kingfisher (<i>Megasceryle alcyon</i>)	M, SR, WR	c, u,
PICIFORMES: Woodpeckers		
*Common Flicker (<i>Colaptes auratus</i>)	M, SR, WR	c, u
*Pileated Woodpecker (<i>Dryocopus pileatus</i>)	PR	r
*Red-bellied Woodpecker (<i>Melanerpes carolinus</i>)	PR	u
*Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	M, SR, WR	c, u
Lewis' Woodpecker (<i>Melanerpes lewis</i>)	H	-
Yellow-bellied Sapsucker (<i>Sphyrapicus varius</i>)	M, SR, WR	c, o, r
*Hairy Woodpecker (<i>Picoides villosus</i>)	PR	fc
*Downy Woodpecker (<i>Picoides pubescens</i>)	PR	c
White-headed Woodpecker (<i>Picoides albolarvatus</i>)	H	-
Black-backed Three-toed Woodpecker (<i>Picoides arcticus</i>)	WR	r
Ivory-billed Woodpecker (<i>Campephilus principalis</i>)	Ex	-

Appendix Table C-3 (continued).

Species	Status	Abundance
PASSERIFORMES: Flycatchers, Larks, Swallows and allies		
*Eastern Wood Pewee (<i>Contopus virens</i>)	SR	c
Yellow-bellied Flycatcher (<i>Empidonax flaviventris</i>)	M	fc
*Least Flycatcher (<i>Empidonax minimus</i>)	M, SR	c, u
*Willow Flycatcher (<i>Empidonax traillii</i>)	M, SR	c
Alder's or Traill's Flycatcher (<i>Empidonax alnorum</i>)	M	c
*Acadian Flycatcher (<i>Empidonax virens</i>)	M, SR	u
*Great-crested Flycatcher (<i>Myiarchus cinerascens</i>)	M, SR	c
Olive-sided Flycatcher (<i>Nuttallornis borealis</i>)	M	u
*Eastern Phoebe (<i>Sayornis phoebe</i>)	M, SR, WR	c
*Eastern Kingbird (<i>Tyrannus tyrannus</i>)	M, SR	c
*Western Kingbird (<i>Tyrannus verticalis</i>)	M, SR	f, VI
Scissor-tailed Flycatcher (<i>Muscivora forficata</i>)	V	f
Ash-throated Flycatcher (<i>Myiarchus cinerascens</i>)	V	VI
Says Phoebe (<i>Sayornis saya</i>)	V	VI
Vermillion Flycatcher (<i>Pyrocephalus rubinus</i>)	V	VI
*Horned Lark (<i>Eremophila alpestris</i>)	PR	c
*Barn Swallow (<i>Hirundo rustica</i>)	SR	c
*Tree Swallow (<i>Iridoprocne bicolor</i>)	SR	c
*Cliff Swallow (<i>Petrochelidon pyrrhonota</i>)	TV	u
*Purple Martin (<i>Progne subis</i>)	SR	c
*Bank Swallow (<i>Riparia riparia</i>)	SR	c
*Rough-winged Swallow (<i>Stelgidopteryx ruficollis</i>)	SR	c
Violet-green Swallow (<i>Tachycineta thalassina</i>)	V	VI
Gray Jay (<i>Perisoreus canadensis</i>)	H	-
Stellers Jay (<i>Cyanocitta stelleri</i>)	V	VI
Black-billed Magpie (<i>Pica pica</i>)	V	VI
*Common Raven (<i>Corvus corax</i>)	E	-
Fish Crow (<i>Corvus ossifragus</i>)	SR	u
Clark's Nutcracker (<i>Nucifraga columbiana</i>)	H	-
Common Crow (<i>Corvus brachyrhynchos</i>)	PR	c
*Blue Jay (<i>Cyanocitta cristata</i>)	PR	c
Boreal Chickadee (<i>Parus hudsonicus</i>)	WR	VI
*Black-capped Chickadee (<i>Parus atricapillus</i>)	PR	c

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
PASSERIFORMES (continued)		
Bohemian Waxwing (<i>Bombycilla garrulus</i>)	WR	r
* Northern Shrike (<i>Lanius excubitor</i>)	WR	u
* Loggerhead Shrike (<i>Lanius ludovicianus</i>)	M, SR, WR	u, r
* Starling (European) (<i>Sturnus vulgaris</i>)	PR	a
* Bell's Vireo (<i>Vireo bellii</i>)	M, SR	u
* Yellow-throated Vireo (<i>Vireo flavifrons</i>)	M, SR	u
* Warbling Vireo (<i>Vireo gilvus</i>)	M, SR	c
* White-eyed Vireo (<i>Vireo griseus</i>)	M, SR	o
* Red-eyed Vireo (<i>Vireo olivaceus</i>)	M, SR	a, c
Philadelphia Vireo (<i>Vireo philadelphicus</i>)	M	fc
Solitary Vireo (<i>Vireo solitarius</i>)	M	u
Swainson's Warbler (<i>Limothlypis swainsonii</i>)	V	vr
Bachman's Warbler (<i>Vermivora bachmani</i>)	H	-
Black-throated Gray Warbler (<i>Dendroica nigrescens</i>)	V	vr
Kirtland's Warbler (<i>Dendroica kirtlandii</i>)	E	-
Black-throated Blue Warbler (<i>Dendroica caerulescens</i>)	M	fc
Bay-breasted Warbler (<i>Dendroica castanea</i>)	M	fc, c
* Cerulean Warbler (<i>Dendroica cerulea</i>)	M, SR	u
Myrtle Warbler (<i>Dendroica coronata</i>)	M, WR	a, o
* Prairie Warbler (<i>Dendroica discolor</i>)	M, Sr	r
Yellow-throated Warbler (<i>Dendroica dominica</i>)	V	r
Blackburnian Warbler (<i>Dendroica fusca</i>)	M	c
Magnolia Warbler (<i>Dendroica magnolia</i>)	M	c
* Palm Warbler (<i>Dendroica palmarum</i>)	M, WR	a, r
Chestnut-sided Warbler (<i>Dendroica pensylvanica</i>)	M, SR	c, r
* Yellow Warbler (<i>Dendroica petechia</i>)	M, SR	c, fc
Pine Warbler (<i>Dendroica pinus</i>)	M, WR	u, r
Blackpoll Warbler (<i>Dendroica striata</i>)	M	c
Cape May Warbler (<i>Dendroica tigrina</i>)	M	u, o
Black-throated Green Warbler (<i>Dendroica virens</i>)	M	c
* Common Yellowthroat (<i>Geothlypis trichas</i>)	M, SR, WR	c, r
* Worm-eating Warbler (<i>Helminthos vermivorus</i>)	M	o
* Yellow-breasted Chat (<i>Icteria virens</i>)	M, WR, SR	u, vr

Appendix Table C-3 (continued).

Species	Status	Abundance
PASSERIFORMES (continued)		
* Black-and-white Warbler (<i>Mniotilta varia</i>)	M, SR	c, r
Connecticut Warbler (<i>Oporornis agilis</i>)	M	u
* Kentucky Warbler (<i>Oporornis formosus</i>)	M, SR	r
* Mourning Warbler (<i>Oporornis philadelphia</i>)	M, SR	u, o
* Parula Warbler (<i>Parula americana</i>)	M	u
* Prothonotary Warbler (<i>Protonotaria citrea</i>)	M, SR	u
* Ovenbird (<i>Seiurus aurocapillus</i>)	M, SR	a, u
* Louisiana Waterthrush (<i>Seiurus motacilla</i>)	M, SR	u, r
Northern Waterthrush (<i>Seiurus noveboracensis</i>)	M	c
* American Redstart (<i>Setophaga ruticilla</i>)	M, Sr	c
Orange-crowned Warbler (<i>Vermivora celata</i>)	M, WR	u, r
* Golden-winged Warbler (<i>Vermivora chrysoptera</i>)	M, SR	fc, vr
Tennessee Warbler (<i>Vermivora peregrina</i>)	M	a
Blue-winged Warbler (<i>Vermivora pinus</i>)	M, SR	u
Nashville Warbler (<i>Vermivora ruficapilla</i>)	M, SR	c, vr
Canada Warbler (<i>Wilsonia canadensis</i>)	M, SR	fc, r
* Hooded Warbler (<i>Wilsonia citrina</i>)	M	o, vr
Wilson's Warbler (<i>Wilsonia pusilla</i>)	M	fc
* House Sparrow (<i>Passer domesticus</i>)	PR	a
European Tree Sparrow (<i>Passer montanus</i>)	PR	u
* Red-winged Blackbird (<i>Agelaius phoeniceus</i>)	M, SR, WR	a, u
* Bobolink (<i>Dolichonyx oryzivorus</i>)	M, SR	c
Rusty Blackbird (<i>Euphagus carolinus</i>)	M, WR	c, o
* Brewer's Blackbird (<i>Euphagus cyanocephalus</i>)	M, SR, WR, ST	u, r
* Baltimore Oriole (<i>Icterus galbula</i>)	M, SR, WR	c, vr
* Orchard Oriole (<i>Icterus spurius</i>)	M, SR	o
* Northern Oriole (<i>Icterus galbula</i>)	M, SR, WR	c, vr
* Brown-headed Cowbird (<i>Molothrus ater</i>)	M, SR, WR	c, u
* Common Grackle (<i>Quiscalus quiscula</i>)	M, SR, WR	c, u
* Eastern Meadowlark (<i>Sturnella magna</i>)	M, SR, WR	c, u
* Western Meadowlark (<i>Sturnella neglecta</i>)	SR, WR	fc, u
Yellow-headed Blackbird (<i>Xanthocephalus xanthocephalus</i>)	M, SR, SE	u
Great-tailed Grackle (<i>Quiscalus mexicanus</i>)	V	vr

Appendix Table C-3 (continued).

Species	Status	Abundance
PASSERIFORMES (continued)		
*Tufted Titmouse (<i>Parus bicolor</i>)	PR	u
*Carolina Chickadee (<i>Parus carolinensis</i>)	V	VI
Red-breasted Nuthatch (<i>Sitta canadensis</i>)	M, WR, SR	u, v, VI
*White-breasted Nuthatch (<i>Sitta carolinensis</i>)	PR	c
Brown-headed Nuthatch (<i>Sitta pusilla</i>)	H	-
*Brown Creeper (<i>Certhia familiaris</i>)	V, SE	c
Rock Wren (<i>Salpinctes obsoletus</i>)	V	VI
*Short-billed Marsh Wren (<i>Cistothorus platensis</i>)	M, SR	u
*Long-billed Marsh Wren (<i>Cistothorus palustris</i>)	M, SR	fc, c
*Bewick's Wren (<i>Thryomanes bewickii</i>)	M, SR, ST	r
*Carolina Wren (<i>Thryothorus ludovicianus</i>)	M, SR, WR	I, u, o
*House Wren (<i>Troglodytes aedon</i>)	M, SR	c
Winter Wren (<i>Troglodytes troglodytes</i>)	M, WR	fc, o
*Gray Catbird (<i>Dumetella carolinensis</i>)	M, SR, WR	c, r
*Mockingbird (<i>Mimus polyglottos</i>)	PR	o
*Brown Thrasher (<i>Toxostoma rufum</i>)	M, SR, WR	c, r
Sage Thrasher (<i>Oreoscoptes montanus</i>)	V	VI
*Veery (<i>Catharus fuscescens</i>)	M, SR, ST	c, o
Hermit Thrush (<i>Catharus guttatus</i>)	M, WR	c, o
Gray-cheeked Thrush (<i>Catharus minimus</i>)	M	c, u
*Wood Thrush (<i>Hylocichla ustulata</i>)	M, SR	c
Swainson's Thrush (<i>Catharus ustulatus</i>)	M	c
*Eastern Bluebird (<i>Sialia sialis</i>)	M, SR, WR	c, r
*American Robin (<i>Turdus migratorius</i>)	M, SR, WR	a, u
Varied Thrush (<i>Ixoreus naevius</i>)	WR	r
Mountain Bluebird (<i>Sialia currucoides</i>)	H	-
Townsend's Solitaire (<i>Myadestes townsendi</i>)	V	VI
*Blue-gray Gnatcatcher (<i>Polioptila caerulea</i>)	M, SR	u
Ruby-crowned Kinglet (<i>Regulus calendula</i>)	M, WR	a, o
*Golden-crowned Kinglet (<i>Regulus satrapa</i>)	M, WR	c, fc
Water Pipit (<i>Anthus spinoletta</i>)	M	u
Sprague's Pipit (<i>Anthus spragueii</i>)	M	r
*Cedar Waxwing (<i>Bombycilla cedrorum</i>)	M, SR, WR	c, u

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
PASSERIFORMES (continued)		
*Scarlet Tanager (<i>Piranga olivacea</i>)	M, SR	C, U
*Summer Tanager (<i>Piranga rubra</i>)	M	O
Western Tanager (<i>Piranga ludoviciana</i>)	V	VI
Blackheaded Grosbeak (<i>Pheucticus melanocephalus</i>)	V	VI
*Blue Grosbeak (<i>Guiraca caerulea</i>)	M	I
Lazuli Bunting (<i>Passerina amoena</i>)	V	VI
Painted Bunting (<i>Passerina ciris</i>)	H	-
House Finch (<i>Carpodacus mexicanus</i>)	V	VI
European Goldfinch (<i>Carduelis carduelis</i>)	H	-
Hoary Redpoll (<i>Carduelis hornemanni</i>)	WR	VI
Green-tailed Towhee (<i>Pipilo chlorurus</i>)	V	VI
Lark Bunting (<i>Calamospiza melanocorys</i>)	V	I
Baird's Sparrow (<i>Ammodramus bairdi</i>)	H	-
Black-throated Sparrow (<i>Amphispiza bilineata</i>)	V	VI
Gray-headed Junco (<i>Junco caniceps</i>)	V	VI
Golden-crowned Sparrow (<i>Zonotrichia atricapilla</i>)	V	VI
McCown's Longspur (<i>Calcarius mccownii</i>)	H	-
Common Redpoll (<i>Carduelis flamea</i>)	M, WR	U
Bachman's Sparrow (<i>Aimophila aestivalis</i>)	V, SE	V, I
*Grasshopper Sparrow (<i>Ammodramus savannarum</i>)	M, SR	C
Sharp-tailed Sparrow (<i>Ammodramus caudatus</i>)	M	U
*Lapland Longspur (<i>Calcarius lapponicus</i>)	M, WV, WR	C, U
Smith's Longspur (<i>Calcarius pictus</i>)	M	C
*Purple Finch (<i>Carpodacus purpureus</i>)	M, WR	U, C
Lark Sparrow (<i>Chondestes grammacus</i>)	M, SR	U, C
Evening Grosbeak (<i>Hesperiphona vespertina</i>)	M, WR	U
*Slate-colored Junco (<i>Junco hyemalis</i>)	M, WR	A
Oregon Junco (<i>Junco oregonus</i>)	WR, SR	A
Red Crossbill (<i>Loxia curvirostra</i>)	WR	C, I
White-winged Crossbill (<i>Loxia leucoptera</i>)	WR	U
*Swamp Sparrow (<i>Melospiza georgiana</i>)	M, SR, WR	C, U
*Song Sparrow (<i>Melospiza melodia</i>)	M, SR, WR	C, FC
Lincoln's Sparrow (<i>Melospiza lincolni</i>)	M, WR	FC, I

Appendix Table C-3 (continued).

<u>Species</u>	<u>Status</u>	<u>Abundance</u>
*Fox Sparrow (<i>Passerella iliaca</i>)	M, WR	C, O
*Savannah Sparrow (<i>Passerculus sandwichensis</i>)	M, SR, WR	C, fc, r
LeConte's Sparrow (<i>Ammodramus leconteii</i>)	M, WR	u, r
*Henslow's Sparrow (<i>Ammodramus henslowii</i>)	M, SR, ST	O
*Indigo Bunting (<i>Passerina cyanea</i>)	M, SR	C
*Rose-breasted Grosbeak (<i>Pheucticus ludovicianus</i>)	M, SR	a
Pine Grosbeak (<i>Pinicola enucleator</i>)	WR	r
*Rufous-sided Towhee (<i>Pipilo erythrophthalmus</i>)	M, SR, WR	C, u
Snow Bunting (<i>Plectrophenax nivalis</i>)	M, WR	fc
*Vesper Sparrow (<i>Poocetes gramineus</i>)	M, SR, WR	C, r
McCown's Longspur (<i>Calcarius mccownii</i>)	H	-
*Cardinal (Northern) (<i>Cardinalis cardinalis</i>)	PR	a
Pine Siskin (<i>Spinus pinus</i>)	M, WR	fc
*American Goldfinch (<i>Carduelis tristis</i>)	M, SR, Wr	C
*Dickcissel (<i>Spiza americana</i>)	M, SR, WR	fc, vr
*Tree Sparrow (<i>Spizella arborea</i>)	M, WR	C
*Chipping Sparrow (<i>Spizella passerina</i>)	N, SR, WR	C, vr
Clay-colored Sparrow (<i>Spizella pallida</i>)	M, SR	O, r
*Field Sparrow (<i>Spizella pusilla</i>)	M, SR, WR	C, O
White-throated Sparrow (<i>Zonotrichia albicollis</i>)	M, WR	a, u
White-crested Sparrow (<i>Zonotrichia leucophrys</i>)	M, WR	fc, O
*Harris's Sparrow (<i>Zonotrichia querula</i>)	M, WR	u, r

Appendix Table C-4. Composite taxa list of all mammals taken from or whose ranges include Greene and Scott Counties, Illinois, in the vicinity of the Hillview Drainage and Levee District. (Nomenclature follows Jones, et al. 1975.)

<u>Scientific Nomenclature</u>	<u>Common Name</u>	<u>Habitat</u> ¹
Order		
<u>Species</u>		
Marsupialia		
<u>Didelphis virginiana</u>	Virginia Opossum	WCR
Insectivora		
<u>Blarina brevicauda</u>	Short-tailed Shrew	MW
<u>Cryptotis parva</u>	Least Shrew	MP
<u>Scalopus aquaticus</u>	Eastern Mole	CPF
Chiroptera		
<u>Myotis lucifugus</u>	Little Brown Myotis	CaR
<u>Myotis grisescens</u> (E)	Gray Myotis	Ca
<u>Myotis keenii</u>	Keen's Myotis	CaR
<u>Myotis leibii</u>	Small-footed Myotis	Ca
<u>Lasionycteris noctivagans</u>	Silver-haired Bat	W
<u>Pipistrellus subflavus</u>	Eastern Pipistrel	W
<u>Eptesicus fuscus</u>	Big Brown Bat	W
<u>Lasiurus borealis</u>	Red Bat	W
<u>Nycticeius humeralis</u>	Evening Bat	UW
Lagomorpha		
<u>Sylvilagus floridanus</u>	Eastern Cottontail	SO
Rodentia		
<u>Tamias striatus</u>	Eastern Chipmunk	WS
<u>Marmota monax</u>	Woodchuck	WEP
<u>Spermophilus tridecemlineatus</u>	Thirteen-lined Ground Squirrel	P
<u>Sciurus carolinensis</u>	Gray Squirrel	WR
<u>Sciurus niger</u>	Fox Squirrel	W
<u>Glaucomys volans</u>	Southern Flying Squirrel	W
<u>Geomys bursarius</u>	Plains Pocket Gopher	PO
<u>Castor canadensis</u>	Beaver	A
<u>Peromyscus maniculatus</u>	Deer Mouse	OW
<u>Peromyscus leucopus</u>	White-footed Mouse	WS
<u>Microtus ochrogaster</u>	Prairie Vole	P (dry)

¹ Preferred habitat is given as follows: A = Aquatic habitat; C = Cultivated; Ca = Caves; E = Edge; M = Marsh or Swamp; O = Open country; P = Prairie, Field, or Grassland; R = Riparian; S = Shrub; U = Urban or Developed; W = Woodland.

Appendix Table C-4 (continued).

<u>Microtus pinetorum</u>	Pine Vole	W
<u>Ondatra zibethicus</u>	Muskrat	AM
<u>Synaptomys cooperi</u>	Southern bog lemming	MP
<u>Zapus hudsonicus</u>	Meadow Jumping Mouse	P
 Carnivora		
<u>Canis latrans</u>	Coyote	POS
<u>Vulpes vulpes</u>	Red Fox	SEO
<u>Urocyon cinereoargenteus</u>	Gray Fox	
<u>Procyon lotor</u>	Raccoon	R
<u>Mustela frenata</u>	Long-tailed Weasel	R
<u>Mustela vison</u>	Mink	R
<u>Mephitis mephitis</u>	Striped Skunk	WPS
 Artiodactyla		
<u>Odocoileus virginianus</u>	White-tailed Deer	SE

Appendix D. Site specific data collected at 21 survey locations during a field reconnaissance of the Hillview Drainage and Levee District, Greene and Scott Counties, Illinois, 9-10 October 1981.

Site 1: Ditch 1, Upper Reach

HABITAT TYPE: Disturbed ditch bank

WOODY VEGETATION

East Bank

Acer negundo
Acer saccharinum
* Amorpha fruticosa
* Cornus drummondii
* Gleditsia triacanthos
* Symphoricarpos orbiculatus
Ulmus rubra
* Vitis vulpina

West Bank

* Rhus glabra
* Rubus allegheniensis
* Rubus flagellaris

Dominant Species: Cornus drummondii on east bank, no dominance on west bank.

Cover: 100% woody understory on east bank, with scattered trees. No tree cover on west bank.

Age Class: Less than 15 years.

WILDLIFE HABITAT

Walls of bank on either side of ditch are potential sites for dens. Along west bank is 100% herbaceous cover, mostly grasses, which provides potential cover for small mammals and reptiles. Along the east bank, 100% woody cover can provide nest sites for low nesting bird species as well as cover for birds and arboreal vertebrates. Notice should be taken that the west bank had probably been sprayed with herbicide.

VERTEBRATES PRESENT

Birds

Barn swallow

Site 2: Ditch 1, Middle Reach

HABITAT TYPE: Disturbed ditch bank

WOODY VEGETATION

<u>Acer negundo</u>	<u>Populus deltoides</u>
<u>Acer saccharinum</u>	* <u>Prunus serotina</u>
* <u>Amorpha fruticosa</u>	<u>Salix interior</u>
* <u>Carya illinoensis</u>	<u>Sambucus canadensis</u>
* <u>Cornus drummondii</u>	* <u>Toxicodendron radicans</u>
* <u>Diospyros virginiana</u>	<u>Ulmus rubra</u>
<u>Fraxinus pensylvanica</u> var. <u>subintegerrima</u>	

Dominant Species: Cornus drummondii

Cover: A few scattered trees provide little canopy cover, however shrub cover is approximately 60%.

Age Class: Less than 15 years.

WILDLIFE HABITAT

Potential for dens in walls of ditch along either side. 25 to 45% herbaceous cover provides some potential for ground nesting species and runways. The shrub layer (60% cover) can be a good site for low nesting species.

VERTEBRATES PRESENT

Mammals

Muskrat (tracks)

Birds

Marsh hawk (over adjacent field)
American goldfinch

Site 3: Ditch 1, Lower Reach

HABITAT TYPE: Disturbed ditch bank

WOODY VEGETATION

<u>Acer saccharinum</u>	* <u>Morus alba</u>
* <u>Amorpha fruticosa</u>	* <u>Morus rubra</u>
* <u>Ampelopsis cordata</u>	* <u>Prunus serotina</u>
* <u>Campsis radicans</u>	<u>Ptelia trifoliata</u>
<u>Celastrus scandens</u>	* <u>Rhus glabra</u>
* <u>Celtis laevigata</u>	* <u>Rosa multiflora</u>
<u>Cephalanthus occidentalis</u>	* <u>Rubus occidentalis</u>
* <u>Cornus drummondii</u>	* <u>Sambucus canadensis</u>
* <u>Diospyros virginiana</u>	* <u>Smilax hispida</u>
<u>Fraxinus pensylvanica var. subinterrima</u>	* <u>Toxicodendron radicans</u>
<u>Ilex decidua</u>	* <u>Ulmus rubra</u>
* <u>Menispermum canadense</u>	* <u>Vitis vulpina</u>

Dominant Species: Celtis occidentalis dominates understory
Cover: 50-75% canopy cover; 40% understory cover
Age: Approximately 15 years (Celtis occidentalis)

WILDLIFE HABITAT

Banks of ditch on either side provide den potential; dense understory provides cover and nesting sites. Herbaceous ground cover is 25% under the trees, thus, does not provide a good site for ground nesting vertebrates or cover.

VERTEBRATES PRESENT

Mammals

Muskrat (tracks)

Birds

Common Flicker
Barn swallow
Blue jay
Black-capped chickadee
American robin
Song sparrow

Site 4: Ditch 2, Upper Reach

HABITAT TYPE: Disturbed ditch bank

WOODY VEGETATION

- Acer saccharinum
* Celtis laevigata
* Celtis occidentalis
Fraxinus pensylvanica var. subinterrima
* Morus alba
Populus deltoides
* Rosa multiflora
* Sambucus canadensis
* Toxicodendron radicans
Ulmus rubra
* Vitis vulpina

Dominant Species: Acer saccharinum in tree layer; Toxicodendron radicans in shrub layer.

Cover: Less than 10% canopy cover. Both trees and shrubs are scattered.

Age: 3-5 year trees. Nothing is more than 10 ft. tall.

WILDLIFE HABITAT

Steep sides of bank can provide den habitat. Some shrubs for low nesting species or cover are present, but not to any great extent. Herbaceous ground cover is 100%, and would provide good cover for ground nesting and inhabiting species.

VERTEBRATES PRESENT

Birds

American goldfinch

Site 5: Ditch 2, Middle Reach

HABITAT TYPE: Successional shrub field and forest border along stream

WOODY VEGETATION

<u>Acer saccharinum</u>	* <u>Rhus glabra</u>
<u>Acer saccharum</u>	* <u>Rosa multiflora</u>
* <u>Amorpha fruticosa</u>	* <u>Rubus allegheniensis</u>
* <u>Carya illinoensis</u>	* <u>Rubus occidentalis</u>
* <u>Celastris scandens</u>	<u>Salix interior</u>
* <u>Celtis laevigata</u>	<u>Salix nigra</u>
* <u>Cornus drummondii</u>	* <u>Smilax hispida</u>
* <u>Diospyros virginiana</u>	* <u>Toxicodendron radicans</u>
* <u>Juniperus virginiana</u>	<u>Ulmus americana</u>
* <u>Populus deltoides</u>	<u>Ulmus rubra</u>
<u>Prunus serotina</u>	* <u>Vitis vulpina</u>
* <u>Quercus palustris</u>	

Dominant Species: Trees - Quercus palustris and Populus deltoides; Shrub - Cornus drummondii

Cover: 60% overstory where it occurs; nearly 100% shrub cover.

Age Class: 40-50 years. Trees are 4-6 dm DBH

WILDLIFE HABITAT

Potential for dens exists along walls of bank. Herbaceous layer consists of 75-100% cover, mostly grasses; potentially provides nest and cover along the edge of the forest border. The extensive shrub layer and edge habitat can supply same for a diverse fauna. Snags among the forest contain nest holes, presumably for a number of species.

VERTEBRATES PRESENT

Birds

Mourning dove
Common flicker
Red-bellied woodpecker
Blue jay
Black-capped chickadee
Unid. warbler
American robin
American goldfinch

Site 6: Ditch 2, Lower Reach

HABITAT TYPE: Disturbed ditch bank

WOODY VEGETATION

- * Amorpha fruticosa
- * Campsis radicans
- * Carya illinoensis
- * Cornus drummondii
- * Diospyros virginiana
- * Gleditsia triacanthos

- * Juniperus virginiana
- * Quercus palustris
- * Rubus allegheniensis
- Ulmus rubra

Dominant Species: No dominance.

Cover: Few scattered trees, no significant canopy. Shrub layer is 50-75%.

Age Class: Trees approximately 30 years (3-5 dm DBH).

WILDLIFE HABITAT

Stream banks steep, and have a potential for dens. Herbaceous cover is 100%; provides good habitat for ground-nesters and dwellers. Shrub layer, while not excessively dense, is present and provides nest and cover sites.

VERTEBRATES PRESENT

Birds

Pied-billed grebe

Site 7: Ditch 3, Upper Reach; Upstream

HABITAT TYPE: Riparian floodplain and terrace type forest

WOODY VEGETATION

<u>Acer negundo</u>	<u>Populus deltoides</u>
<u>Acer saccharinum</u>	* <u>Rhus glabra</u>
* <u>Asimina triloba</u>	<u>Salix interior</u>
* <u>Campsis radicans</u>	<u>Salix nigra</u>
<u>Catalpa speciosa</u>	* <u>Smilax hispida</u>
* <u>Celtis occidentalis</u>	* <u>Symphoricarpos orbiculatus</u>
* <u>Gleditsia triacanthos</u>	* <u>Toxicodendron radicans</u>
* <u>Lonicera maackii</u>	<u>Ulmus rubra</u>
	* <u>Vitis vulpina</u>

Dominant Species: Celtis occidentalis tree; Lonicera maackii, shrub

Cover: 75% canopy and 75% understory cover

Age Class: 30-40 years (2-4 dm DBH)

WILDLIFE HABITAT

A heavy understory of honeysuckle provides an abundance of food, and overall, the shrub layer creates nest and cover potential. Herbaceous layer is scattered, less than a 20% cover in the forest, and so is of little value for cover. The banks are not steep, but the low water reveals a rocky bottom, providing nesting habitat and cover for semi-aquatic and aquatic species. A few snags in forest with potential for nest holes.

VERTEBRATES PRESENT

Birds

Turkey vulture (overhead)
Common flicker
Tufted titmouse
Black-capped chickadee
American goldfinch

Amphibians

Unid. (prob Green) frog

Site 8: Ditch 3, Middle Reach

HABITAT TYPE: dense herbaceous cover**

WOODY VEGETATION

Acer saccharinum
* Cornus drummondii

Dominant Species: No dominance

Cover: Less than 5%

Age Class: 3-5 years

** Area along the ditch consists primarily of a tall herbaceous layer of Ambrosia trifida.

WILDLIFE HABITAT

Steep banks have potential for dens. The only herbaceous cover is along the ditch in a narrow row, but plants are spaced so that they provide essentially no cover. No woody layer of any consequence is present.

VERTEBRATES PRESENT

Mammals

Muskrat (tracks)
Skunk (tracks)

Birds

tracks of shorebird, probably Killdeer

Amphibians

Green frog

Site 9: Ditch 3, Upper Reach; Downstream

HABITAT TYPE: extremely disturbed ditch bank**

WOODY VEGETATION

- * Celtis occidentalis
- Plantanus occidentalis
- Populus deltoides
- Salix interior
- * Sambucus canadensis
- Ulmus americana
- * Vitis vulpina

Dominant Species: Salix interior

Cover: 5% canopy, scattered

Age Class: Less than 5 years

** Site contains a dense layer of Salix interior along the bank in a single row; the rest has been bulldozed.

WILDLIFE HABITAT

The bank does not provide for dens; water is shallow, and the rocky bottom may be important for nest and cover sites. Some shrub cover exists at the edge of the ditch, none beyond that. Herbaceous cover is 100% under the row of willows, but the area this encompasses is small. Overall, not a particularly good site to attract nesting vertebrates.

VERTEBRATES PRESENT

Birds

Common flicker

Amphibians

Green frog

Site 10: Ditch 4, Upper Reach

HABITAT TYPE: disturbed stream bank

WOODY VEGETATION

	<u>Acer negundo</u>	* <u>Rhus glabra</u>
*	<u>Campsis radicans</u>	* <u>Rubus flagellaris</u>
	<u>Carya illinoensis</u>	* <u>Rubus occidentalis</u>
*	<u>Celtis occidentalis</u>	<u>Salix interior</u>
*	<u>Cornus drummondii</u>	* <u>Sambucus canadensis</u>
*	<u>Maclura pomifera</u>	<u>Ulmus americana</u>
*	<u>Morus alba</u>	<u>Ulmus rubra</u>
	<u>Populus deltoides</u>	* <u>Vitis vulpina</u>

Dominant Species: Salix interior

Cover: 100% woody understory (S. interior); 15% canopy

Age Class: Approximately 5 years

WILDLIFE HABITAT

A dense herbaceous cover (70%) and dense woody understory (100%) provide sites for nesting, and cover. A few trees provide scattered nesting sites.

VERTEBRATES PRESENT

Birds

Black-capped chickadee
American goldfinch

Site 11: Ditch 4, Middle Reach

HABITAT TYPE: disturbed ditch bank - open scattered trees and shrubs, mainly herbaceous

WOODY VEGETATION

- | | |
|--|---------------------------------|
| <u>Acer negundo</u> | * <u>Rhus glabra</u> |
| * <u>Amorpha fruticosa</u> | * <u>Toxicodendron radicans</u> |
| * <u>Carya illinoensis</u> | <u>Ulmus americana</u> |
| * <u>Celtis occidentalis</u> | <u>Ulmus rubra</u> |
| <u>Cornus drummondii</u> | * <u>Vitis vulpina</u> |
| <u>Fraxinus pensylvanica var. subintegrifolium</u> | |
| * <u>Morus alba</u> | |

Dominant Species: No Dominance

Cover: 10% canopy

Age Class: Greater than 20 years

WILDLIFE HABITAT

Dens are present in bank of ditch at water level. Woody vegetation provides little cover, poor habitat. Herbaceous layer (75%) sufficient to provide for nesting and cover.

VERTEBRATES PRESENT

Birds

Red-tailed hawk (over adjacent field)

Site 12: Ditch 4, Lower Reach

HABITAT TYPE: Disturbed ditch bank

WOODY VEGETATION

* Amorpha fruticosa
* Ampelopsis cordata
* Campsis radicans
* Carya illinoensis
* Celtis laevigata
* Celtis occidentalis
* Cornus drummondii
* Morus rubra
Plantanus occidentalis

Populus deltoides
* Prunus americana
* Prunus serotina
* Rhus glabra
Salix interior
Ulmus rubra
* Vitis vulpina

Dominant Species: Cornus drummondii

Cover: Dense shrub layer dominated by C. drummondii with a few scattered trees; 100% shrub cover

Age Class: 20 - 30 years

WILDLIFE HABITAT

Basically one single row of shrubbery along South side of ditch. Little on N. side, mostly cultivated. Shrubby vegetation provides very good cover, but there is very little herbaceous understory (15-20%). The walls of the bank offer den site potential.

VERTEBRATES PRESENT

Birds
Cardinal

Site 13: Little Sandy Creek, Upper Reach (East of Highway)

HABITAT TYPE: disturbed stream bank.

WOODY VEGETATION

Acer negundo
Acer saccharinum
* Campsis radicans
* Celtis occidentalis
* Maclura pomifera
* Morus alba
* Morus rubra
Plantanus occidentalis

Populus deltoides
Salix interior
Salix nigra
* Sambucus canadensis
* Toxicodendron radicans
Ulmus americana
Ulmus rubra
* Vitis vulpina

Dominant Species: Salix nigra and Populus deltoides

Cover: 50%

Age Class: 20 years (trees 2-4 dm DBH)

WILDLIFE HABITAT

Banks of stream have potential for dens. 95% herbaceous cover (mostly grasses) provides cover for ground-nesting and dwelling species. A few snags among trees are possible sites for hole-nesters.

VERTEBRATES PRESENT

Birds

Rock dove
Mourning dove
Common flicker
Hairy woodpecker

American robin
European starling
American goldfinch

Site 14: Little Sandy Creek, Upper Reach (West of Highway)

HABITAT TYPE: Disturbed stream bank**

WOODY VEGETATION

- * Morus rubra
- Salix interior
- Salix nigra
- * Sambucus canadensis
- * Vitis vulpina

Dominant Species: Salix interior

Cover: 75% shrub layer; no tree layer

Age: 3-5 years.

WILDLIFE HABITAT

Stream bank suitable for dens. A single row of willows along stream and woody understory close to ground provide little cover. Herbaceous layer, mostly comprised of grass, is 30% cover, and provides some nest and runway potential.

VERTEBRATES PRESENT

Birds

Belted kingfisher
Red-winged blackbird
Song sparrow

Amphibians

Unid (Prob Green) frog

Site 15: Little Sandy Creek, Middle Reach

HABITAT TYPE: Disturbed second growth bottomland forest.

WOODY VEGETATION

<u>Acer negundo</u>	<u>Salix interior</u>
<u>Acer saccharinum</u>	<u>Salix nigra</u>
* <u>Amorpha fruticosa</u>	* <u>Sambucus canadensis</u>
* <u>Campsis radicans</u>	* <u>Toxicodendron radicans</u>
* <u>Cornus drummondii</u>	<u>Ulmus americana</u>
* <u>Morus rubra</u>	* <u>Vitis vulpina</u>
<u>Populus deltoides</u>	

Dominant Species: Salix nigra and Populus deltoides

Cover: 65% canopy cover

Age Class: 40-50 years (trees 3-6 dm DBH)

WILDLIFE HABITAT

Stream banks provide potential den sites. Woody understory vegetation is suitable cover and nest habitat, and higher canopy provides same. Herbaceous cover of 30% offers less potential.

VERTEBRATES PRESENT

Birds

Killdeer (in adjacent field south of levee)
Blue jay

Site 16: Hurricane Creek, Upper Reach

HABITAT TYPE: Disturbed ditch bank

WOODY VEGETATION

Acer saccharinum
* Gleditsia triacanthos
Salix interior

Dominant Species: Salix interior

Cover: 85% canopy where trees occur (just along bank), 0% otherwise

Age Class: 3-5 years

WILDLIFE HABITAT

Low dense willows along bank provide good cover. Bank walls can be den sites. Some sand flats with slow moving water occur in creek; these allow for macroinvertebrate feeders such as shorebirds to feed. Herbaceous ground cover is 15-50% under willows, but 100% otherwise. Bordering streamside vegetation is an old cultivated sunflower field with good seed crop.

VERTEBRATES PRESENT

Birds

Shorebird (Poss Green heron) tracks
Rock dove
Mourning dove
Red-winged blackbird
American goldfinch

Site 17: Hurricane Creek, Middle Reach

HABITAT TYPE: Open woods - riparian

WOODY VEGETATION

Acer saccharinum
* Morus alba
* Morus rubra
Populus deltoides
Salix interior
Salix nigra

Dominant Species: Salix interior, followed by Populus deltoides

Cover: Canopy 65%; no shrub layer

Age Class: 10-30 yrs.

WILDLIFE HABITAT

Stream banks are potential den sites; beaver den is present in the stream. Lack of shrub layer eliminates the possibility of the presence of many species. Dense (100%) herbaceous cover does occur. The adjacent field is dominated by cultivated sunflowers with a good seed crop.

VERTEBRATES PRESENT

Mammals
Beaver

Birds
Black-capped chickadee

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Site 18: Hurricane Creek, Lower Reach

HABITAT TYPE: Disturbed stream bank

WOODY VEGETATION

Acer saccharinum

Salix interior

Salix nigra

Dominant Species: Acer saccharinum

Cover: 20% (scattered trees)

Age Class: 10 years (0-2 dm DBH)

WILDLIFE HABITAT

Banks of stream are potential den sites. No shrub layer or mast/fruit producers are present. Herbaceous ground cover is 80%. The open habitat does not appear to be attractive to a great diversity of species.

VERTEBRATES PRESENT

Birds

Blue jay

Red-winged blackbird

Site 19: Little Sandy Creek, Lower Reach, Riverward of Levee

HABITAT TYPE: Mature bottomland forest.

WOODY VEGETATION

- Acer saccharinum
- * Campsis radicans
- * Morus rubra
- Populus deltoides
- Ulmus rubra
- * Vitis vulpina

Dominant Species: Acer saccharinum

Cover: 65% canopy

Age Class: 40-60 years (trees 3-9 dm DBH)

WILDLIFE HABITAT

Potential for dens not present on frontal flats. Some dense woody under-story occurs, and herbaceous cover is 75%, comprised primarily of grasses. Snags occur within forest and are sites for nest holes, evidenced by the presence of hole nesters. Some standing water is present. This is a habitat of diverse structure, including forest edge, wetlands, and mature forest of relatively considerable area for this drainage district.

VERTEBRATES PRESENT

Birds

Great blue heron
Common flicker
Red-bellied woodpecker
Red-headed woodpecker
Blue jay

Amphibians

Leopard frog

Site 20: Illinois River, Riverward of Middle of Levee

HABITAT TYPE: Heavily disturbed bottomland forest.

WOODY VEGETATION

Acer saccharum
* Campsis radicans
* Celtis occidentalis
Cephalanthus occidentalis
* Forestiera acuminata
* Ilex decidua
* Maclura pomifera
* Menispermum canadense
* Morus rubra

Plantanus occidentalis
Populus deltoides
Salix nigra
Ulmus rubra
* Vitis vulpina

Dominant Species: Populus deltoides (4-6 dm dbh) and Acer saccharum (1-3 dm DBH and many saplings less than 1 dm DBH)

Cover: 85% canopy cover

Age Class: 25 years

WILDLIFE HABITAT

No dens or den potential noted along frontal flats. Low woody vegetation occurs throughout forest. Scattered snags occurring. 5% ground cover offers little cover.

VERTEBRATES PRESENT

Birds

Common flicker
Red-bellied woodpecker
Red-headed woodpecker
Blue jay
Common crow
Cardinal

Site 21: Hurricane Creek; Lower Reach, Riverward of Levee

HABITAT TYPE: Immature, disturbed bottomland forest.

WOODY VEGETATION

Acer saccharinum
* Campsis radicans
* Carya illinoensis
* Crataegus sp.
* Diospyros virginiana
* Forestiera acuminata
Gleditsia triacanthos

Populus deltoides
* Quercus palustris
Salix nigra
Ulmus americana
Ulmus rubra
* Vitis vulpina

Dominant Species: Acer saccharinum

Cover: 70 - 80% canopy

Age Class: 25 years

WILDLIFE HABITAT

Wetland habitat is present on riverward side of levee, extending along forest edge. Appears to be permanent, and so when not covered by flooding river can provide nesting sites for amphibians, shorebirds on migration. Snags scattered throughout forest. Some litter on ground (5% cover) provides a little cover.

VERTEBRATES PRESENT

Mammals

Muskrat
Eastern cottontail
Whitetail deer

Birds

Great blue heron
Common flicker
Red-bellied woodpecker
Red-headed woodpecker
Downy woodpecker
Eastern wood pewee
Common crow
Black-capped chickadee
Tufted titmouse
White-breasted nuthatch

APPENDIX E. Composite list of Illinois classified endangered and threatened
plant and animal species (from Illinois Department of Conservation
1980).

MAMMALS - ENDANGERED

Gray Bat
Indiana Bat
Eastern Wood Rat
White-tailed Jackrabbit

MAMMALS - THREATENED

River Otter
Bobcat
Golden Mouse
Rice Rat

BIRDS - ENDANGERED

Double-crested Cormorant
Snowy Egret
Great Egret
Little Blue Heron
American Bittern
Black-crowned Night Heron
Mississippi Kite
Cooper's Hawk
Red-shouldered Hawk
Swainson's Hawk
Bald Eagle
Osprey
Marsh Hawk
Peregrine Falcon
Greater Prairie Chicken
Yellow Rail
Black Rail
Purple Gallinule
Piping Plover
Eskimo Curlew
Upland Sandpiper
Wilson's Phalarope
Forster's Tern
Common Tern
Least Tern
Black Tern
Barn Owl
Long-eared Owl
Short-eared Owl
Brown Creeper
Bachman's Warbler
Yellow-headed Blackbird
Bachman's Sparrow

BIRDS - THREATENED

Common Gallinule
Bewick's Wren
Veery
Loggerhead Shrike
Swainson's Warbler
Brewer's Blackbird
Henslow's Sparrow

AMPHIBIANS, REPTILES - ENDANGERED

Dusky Salamander
Silvery Salamander
Spotted Turtle
Slider
Illinois Mud Turtle
Broad-banded Watersnake
Eastern Ribbon Snake

AMPHIBIANS, REPTILES - THREATENED

Illinois Chorus Frog
Western Hog-nosed Snake
Whip Snake
Great Plains Rat Snake

FISH - ENDANGERED

Bigeye Chub
Bluebreast Darter
Bluehead Shiner
Harlequin Darter
Longjaw Cisco

FISH - THREATENED

Cisco
Longnose Sucker
Alligator Gar
Pugnose Shiner
Blacknose Shiner
Bantam Sunfish
Lake Whitefish
Lake Sturgeon

MUSSELS - ENDANGERED

Higgin's Eye Pearly
Orange-footed Pimpleback
Pink Mucket Pearly
Rough Pigtoe Pearly
Sampson's Pearly
Tubercled-blossom Pearly
White Cat's Paw Pearly
White Wartyback Pearly

PLANTS - ENDANGERED

Marsh Horsetail
Meadow Horsetail
Running Pine
Ground Pine
Bog Clubmoss
Southern Grape Fern
Daisyleaf Grape Fern
Dwarf Grape Fern
Log Fern
Oak Fern
New York Fern
Long Beech Fern
Rusty Woodsia
Virginia Chain Fern
Trailing Juniper
Jack Pine
Shortleaf Pine
Red Pine
Small Burhead
Arrowhead
Water Arum
Thlasia
Prairie Spiderwort
Winged Sedge
Golden Sedge
Swollen Sedge
Plantain-leaved Sedge
Sedge (24 species)
Galinsoga
Knotted Spikerush
Spikerush (3 species)
Rusty Cotton Grass
Tall Cotton Grass
Baldwin's Frimbristylis
Vahl's Frimbristylis
Umbrella Grass
Mottled Lipocarpa
Grass Beak Rush
Beak Rush (2 species)

Tufted Bulrush
Alkali Bulrush
Weak Bulrush
Bulrush (7 species)
Netted Nut Rush
Bearded Wheat Grass
Marum Grass
Three-awn
American Slough Grass
Drooping Wood Reed
Manna Grass
Northern Manna Grass
Rattlesnake Grass
Beard Grass
Salt Meadow Grass
Northern Panic Grass
Hemlock Panic Grass
Long-leaved Panic Grass
Panic Grass (7 species)
Hairy Bead Grass
Bead Grass (2 species)
Grove Bluegrass
Bluegrass
Weak Bluegrass
Wolf's Bluegrass
False Melic Grass
Eastern Blue-eyed Grass
Mountain Blue-eyed Grass
Richardson's Rush
Vasey's Rush
Hairy Woodrush
Arrow Grass
Common Bog Arrow Grass
Slender Bog Arrow Grass
Wild Hyacinth
Turk's Cap Lily
Indian Cucumber Root
Downy Solomon's Seal
Nodding Trillium
Trillium
Ill-scented Trillium
White Camass
Powdery Thalia
Moccasin Flower
Small Yellow Lady's Slipper
White Lady's Slipper
Showy Lady's Slipper
Orange Fringed Orchid
Wood Orchid
Tubercled Orchid
Hooker's Orchid
Prairie White Fringed Orchid
Purple Fringed Orchid
Crested Corakoot Orchid
Small Whorled Pogonia
Whorled Pogonia
Snake-mouth
Yellow-tipped Ladies' Tresses
Hooded Ladies' Tresses
Spring Ladies' Tresses
Mud Plantain
Grass-leaved Pondweed
White-stemmed Pondweed
Spotted Pondweed
Fern Pondweed
Stiff Pondweed
Vasey's Pondweed
American Burreed
Green-fruited Burreed

Water Willow
 Moschatel
 Bloodleaf
 Bristly Samaparilla
 Virginia Snakeroot
 Woolly Milkweed
 Mead's Milkweed
 Oval Milkweed
 Climbing Milkweed
 Allegheny Barberry
 Speckled Alder
 Yellow Birch
 Gray Birch
 Stickseed
 Slender Heliotrope
 Marblesseed
 Arrowwood
 Royal Catchfly
 Great Chickweed
 False Heather
 Pinweed
 Water Marigold
 Carolina Thistle
 Thoroughwort
 Clammy Cudweed
 Tall Sunflower
 Lakeside Daisy
 Wild Lettuce
 Western Wild Lettuce
 White Melanthera
 Prairie Dandelion
 Missouri Orange Coneflower
 Goldenrod (2 species)
 Bunchberry
 Cuckoo Flower
 Whitlow Grass
 Silvery Bladderpod
 Hairy Marsh Yellow Cress
 Yellow Cress
 Squinting Cucumber
 Round-leaved Sundew
 Buffaloberry
 Bearberry
 Wintergreen
 Highbush Blueberry
 Large Cranberry
 Deerberry
 Spurge
 Seaside Spurge
 American Chestnut
 Nuttall's Oak
 Screwstem
 Prairie Rose Gentian
 Northern Cranesbill
 Shore St. John's Wort
 Northern St. John's Wort
 St. John's Wort
 Kalm's St. John's Wort
 Marsh St. John's Wort
 One-flowered Hydrocotyle
 Phacelia
 Pale Hickory
 Sessile Water Horehound
 False Dragonhead
 White Mountain Mint
 Mountain Mint
 Hedge Nettle
 Hairy Synandra
 Smooth False Indigo
 Price's Groundnut
 Tennessee Milk Vetch
 Yellow Wild Indigo

Yellowwood
 Boykin's Dioclea
 Beach Pea
 Prairie Clover
 Leafy Prairie Clover
 Buffalo Clover
 Horned Bladderwort
 Flat-leaved Bladderwort
 Small Bladderwort
 Kankakee Mallow
 Globe Mallow
 Sweetfern
 Small Enchanter's Nightshade
 Small Dumdrops
 Broomrape
 Clustered Broomrape
 Large Wood Sorrel
 Golden Corydalis
 Hale's Corydalis
 Pink Corydalis
 Heart-leaved Plantain
 Small Plantain
 Silverbell Tree
 Bigleaf Snowbell Bush
 White Basswood
 Rock Elm
 Hemlock Parsley
 Small Wild Carrot
 Eryngo
 Water-pennywort
 Mock Bishop's Weed (2 species)
 Nettle
 Corn Salad (2 species)
 Marsh Valerian
 Canada Violet
 Hairy White Violet
 Primrose Violet
 Plains Violet
 Phlox
 Sangamon Phlox
 Pink Milkwort
 Halfbred-leaved Tearthumb
 Carey's Heartsease
 Smartweed
 Sour Dock
 Fameflower
 Jeweled Shooting Star
 Loosestrife
 Creeping Loosestrife
 Bird's-eye Primrose
 Spotted Wintergreen
 Pipsissewa
 Round-leaved Shinleaf
 One-sided Pyrola
 False Bugbone
 Blue Jasmine
 Leatherflower
 Spearwort
 Seaside Crowfoot
 Supple-jack
 Redroot
 Alder Buckthorn
 Shadbush
 Purple Avena
 Narrow-leaved Crabapple
 Cinquefoil
 Arching Dewberry
 Purple-flowering Raspberry
 Rubus Odoratus
 Dwarf Raspberry
 Bristly Blackberry

American Burnet
 American Mountain Ash
 Barren Strawberry
 Dwarf Bedstraw
 Balsam Poplar
 Autumn Willow
 Dune Willow
 Woolly Buckthorn
 Pitcher Plant
 Mock Orange
 Northern Gooseberry
 Early Saxifrage
 Water Hyacinth
 Downy Yellow Painted Cup
 Cow Wheat
 Yellow Monkey Flower
 Large-flowered Beard Tongue
 American Brooklime
PLANTS - THREATENED
 Northern Grape Fern
 Bradley's Spleenwort
 Black Spleenwort
 Hay-scented Fern
 Ground Juniper
 Arbor Vitae
 Tamarack
 Twig Rush
 Spike Rush
 Beaked Rush
 Buhrush
 Rice Grass
 Swamp Red Iris
 Grass-leaved Lily
 False Asphodel
 Green Trillium
 False Hellebore
 Grass Pink
 Spotted Corral-root Orchid
 Tubercled Orchid
 Ginseng
 Narrow-leaved Green Milkweed
 Climbing Milkweed
 Jame's Clammyweed
 Yellow Honeysuckle
 Red-berried Elder
 Slender Sandwort
 Strawberry Bush
 False Tarragon
 Aster
 Schreber's Aster
 Narrow-leaved Sunflower
 Cliff Goldenrod
 Patterson Bindweed
 Sea Rocket
 Narrow-leaved Sundew
 Leatherleaf
 Willow Oak
 Rock Chestnut Oak
 Blue Sage
 Pale Vetchling
 Downy Willow Herb
 Star-flower
 Golden Seal
 Prairie Buttercup
 Queen-of-the-Prairie
 Bog Bedstraw
 Sullivantia
 Marsh Speedwell
 Storax
 Water Elm
 Dog Violet

**APPENDIX F. Locations of Illinois designated Natural Areas in the vicinity
of the Hillview Drainage and Levee District, Greenu and Scott
Counties, Illinois.**

ILLINOIS NATURAL AREAS

<u>Area Name</u>	<u>County</u>	<u>Legal Location</u>	<u>Ownership</u>	<u>Area (acres)</u>
Twin Culvert Cave	Pike	SWQ SEC17 TS7 R2W 4PM	Private 3 Owners	10
Pearl Limestone Quarry	Pike	SH SEC10 TS7 R2W 4PM	Private	17
Pearl Prairie Geological Area	Pike	EH SEC16	Private 2 owners	10
Pirate Knob Hill Prairie	Pike	NEW SEC 26 NWQ SEC 25 T6S R2W 4PM	Private 1 owner	4.2

