

## **THE LAKE MICHIGAN FLYWAY: CHICAGOLAND'S ROLE IN THE MIRACLE OF BIRD MIGRATION**

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### **PURPOSE OF THIS PAPER**

A miracle happens along the shore of Lake Michigan every spring and every fall — bird migration.

Few people are aware of the magnitude of the miracle. Literally millions of birds migrate through the Chicago area, guided by a north-south line: Lake Michigan's shoreline.

Many bird species have evolved over tens of thousands of years to follow a migration route — known as a flyway — that provides them with a visual north-south sightline they follow as they migrate. Along that route between points as far south as the tip of South America and as far north as the Arctic Circle, migrating birds must find food, shelter, and protection from hazards, both natural and man-made.

Lake Michigan's shoreline is acknowledged as one of the most important flyways for migrant songbirds in the United States by ornithologists and bird-watchers worldwide. Many other families of migrating birds — hawks and falcons, owls, waterfowl, gulls, terns and shorebirds — also follow Lake Michigan's shoreline or winter just offshore. In all, more than 300 species of birds have been recorded in the Chicagoland area since 1970.

Ornithologists at Chicago's Field Museum of Natural History estimate that, on average, more than five million migrating songbirds pass up and down the coast of Lake Michigan through Chicago. This veritable river of birds flowing through lakefront areas from south to north represents a noticeable fraction of the total number of migrant songbirds moving through the entire North American continent. This estimate by ornithologists is based on surveys of birds seen per hour at various lakefront parks. Many more individuals pass through the greater Chicagoland area.

Many migratory bird species are threatened by habitat destruction both at their wintering grounds in Central and South America and their breeding areas in the northern part of the U.S. and in Canada. In addition, these birds must pass twice yearly above a continent suffering huge development pressures and thus, offering birds fewer and fewer productive stopover sites.

While traveling these great distances, migrants make daily stopovers to feed and rest. Exhausted and hungry birds need to find the right kind of high calorie, high protein food such as seeds, fruit and insects, and shelter sufficient to protect them from predators and extremes of weather. Unless these provisions are readily along the flyway, the long-distance journey becomes more arduous and even fatal.

As prominent ornithologist and researcher Dr. Scott Robinson of the Illinois Natural History Survey has noted, when migratory birds cross Illinois, they encounter a monoculture of corn and soybean fields throughout most of the state which are not fertile stopovers. Lake Michigan's shore, with its comparatively rich feeding and resting opportunities, makes a huge contribution to the survival of many migratory birds that pass through Illinois, Indiana, and Wisconsin.

Indeed, the parks and open areas all along the lakeshore are "oases of green in a desert of concrete" for migrant songbirds following the Lake Michigan flyway. Habitat enhancements to public and private land all along the lakeshore that provide better food, shelter, and protection from predators are paramount to large-scale survival of many neotropical migrant bird species.

The purpose of this "green paper" is to describe briefly the importance of the biological phenomenon of bird migration and the many, often simple, habitat enhancements that public and private landowners can undertake to make the Lake Michigan shoreline a safer, more productive route for migrating birds, as well as more beautiful and pleasant for its human occupants.

## **BIRD CONSERVATION NETWORK RECOMMENDATIONS**

The Bird Conservation Network's recommendations to make Lake Michigan's shoreline more productive for migrant birds and more pleasant for people are simple.

- 1. Preserve open areas along Lake Michigan as open space for passive recreational uses. Move sites of more intensive activity inland.**
- 2. Establish and maintain "wild land" areas as functioning eco-systems.**
- 3. Wherever possible, plant naturalistically; incorporate lower maintenance, lower cost native plant species; and design layered, diverse plantings that will provide food and shelter for migrant birds.**
- 4. Take a macroview: establish and maintain a series of diverse habitats all along Lake Michigan's shoreline. Let location dictate the best possible habitat for a site.**
- 5. Three areas along the lakefront — Montrose Point, the Lincoln Park Bird Sanctuary, and**

**Jackson Park in Chicago — are well-known as bird migration hotspots and are visited by thousands of bird watchers from around the world.**

Habitat enhancements that place the needs of migratory birds as the first priority should be planned immediately for these important migration spots, although the BCN's recommendations should be incorporated along all of Lake Michigan's shore line. The changes should be planned in consultation with the birding community, should be gradual and with monitoring for the impact these alterations have on migrant bird use of these three areas.

**6. Design features of some buildings make them “death traps” for birds. The BCN recommends that any building project proposed for construction within one mile of Lake Michigan avoid these design elements.**

Building design elements dangerous for birds are huge banks of windows, circling and flashing roof top lights, and building lights which are kept on all night. Chicago's lakefront buildings should institute a “lights out” policy whenever practical after 10:00 p.m. for the months from April to June and from mid-August to mid-November.

## **CHICAGOLAND: A STOP ON THE OVERLAND EXPRESS**

The Chicago area from the Indiana Dunes up into southern Wisconsin is used seasonally by an amazingly diverse group of birds.

A number of bird species stay in the Chicago area all year such as American Crows, Northern Cardinals, Downy Woodpeckers, and Black-capped Chickadees. Some species move in to breed and then leave, such as Yellow Warbler, Baltimore Oriole, and Blue-winged Teal. Chicago hosts an often enormous wintering population of diving ducks, such as Greater and Lesser Scaup, Common Goldeneye and Long-tailed Ducks, which inhabit Lake Michigan's near and offshore waters as long as the lake remains ice free. Both common and rare species of migrating gulls use Lake Michigan's empty harbors as stopover points in late winter and early spring as they await the break-up of ice on the lake further north.

Birds of many species, such as Black-crowned Night Herons, Great Blue Herons, many shorebirds, and even Common Grackles, act as living beach sweepers, benefiting greatly from Lake Michigan's annual spring wash-up of alewives and smelt. Shorebirds begin to show up on Chicago beaches again around the Fourth of July, having raised and left their precocial young to take care of themselves on the edge of the Arctic Circle.

Many bird species just come in for a day or two, fuel up, rest, and leave for points north or south. Principal spring migration months are March, April, and May. In the fall, migration lasts from mid-August to the middle of November.

Most of these species are “passerines” or land birds, which migrate at night (to avoid predators, mainly hawks and falcons, which migrate by day) and alight in any scrap of open space they find when dawn breaks. Passerines avoid flying over water if at all possible, and especially when winds are from the west, tend to crowd right up against the lakeshore while flying, a pattern that has been documented by use of Doppler radar by the Illinois Natural History Survey.

Finding an oasis of green can be a daunting task for a migrant bird in a city as large as Chicago, with its own resident population of human users who live, work, and recreate in the area within half a mile inland of Lake Michigan. The same is true in towns north and south of the city along developed stretches of the lakeshore.

The habits of birds and their migration routes evolved over tens of thousands of years, and while some species have adapted to take advantage of a man-made landscape (robins, for example, which find worm hunting much easier on mowed bluegrass lawns), most still require certain kinds of habitats in order to find sufficient food and undisturbed resting spots.

From a bird’s standpoint, the foresight of Chicago’s earlier urban planners in establishing a long and almost unbroken stretch of green open spaces along the lakeshore was the key to survival for millions of individual birds along the Lake Michigan flyway.

With the turn of the millennium, it is time for Chicago area land use planners to show similar foresight in making simple, but significant changes, along Lake Michigan’s shores. From replanting Chicago’s lakefront parks and plazas in ways that will benefit both human residents and migrant birds to selecting inland sites for new, more intensive human use areas, land managers can play an enormous role in the welfare of this living river of birds.

In fact, “Habitat enhancement in the open spaces along Lake Michigan are critical to continued success of migration in the Midwest. This is even more true today, now that lakefront parks are oases of green in a desert of concrete. I think their importance is enhanced because of the fact they are available to birds under emergency conditions [where there is] no other viable habitat close by. I really believe that for many of these birds, without the parks, they would die,” said Douglas Stotz, a conservation ecologist and ornithologist at the Field Museum of Natural History who is internationally known for his scientific studies of neotropical birds in the U.S. and Central and South America.

## PLANNING AND PLANTING FOR THE NEW MILLENNIUM

Public and private land-use planners face unprecedented opportunities for replanting and enhancing Chicago's lakefront parks and those all along Lake Michigan's north and south shores.

In Chicago, for example, Lake Michigan revetment plans for sea wall and harbor repairs are on track for completion before the end of the first decade of the new century. Many lagoons are also scheduled for maintenance and upkeep work. Construction trucks and activities will disturb extensive areas right along the lake and lagoon water edges. These areas will need to be replanted as each section of the revetment and lagoon repair is finished and represent a wonderful opportunity to design a landscape that will benefit both humans and birds.

The reconstruction of the south end of Lake Shore Drive, the planned conversion of Meigs Field to park land after its closure, and the redevelopment of the 573 acre U.S. Steel South Works and Busch Brewery projects in Chicago all offer excellent opportunities for adding open space acres that can be landscaped from the outset to benefit both migrating birds and city residents and visitors.

Additionally, the Chicago Park District has myriad opportunities to enhance and redesign several areas that are used intensively by migrant birds, such as Montrose Point, the North Pond, Burnham, Jackson, Washington, Calumet and Marquette Parks, as well as Rainbow Beach, 57th Street Beach, and the 31st Street Beach.

Since bird use of the parks during migration is often limited to a narrow band right along the lake-shore (depending on weather conditions), the Bird Conservation Network's recommendation is that those areas be kept open for low impact human use whenever possible. In designing new areas for more intensive human uses, such as baseball diamonds, soccer fields, recreation and harbor buildings or concert venues, planners in the city and suburbs can site these areas slightly inland without materially affecting people's enjoyment or the accessibility of the activity.

An important premise of this green paper is that from the standpoint of migrant and resident bird use, "wild" or "natural" land is preferable to "landscaping" along Lake Michigan.

Ideally, wild land, populated primarily by native plants and other associated organisms is a self-perpetuating system. In practice, it can be a lengthy process to re-establish a natural area on land that has already been landscaped or otherwise developed. But this time-intensive process of re-establishment may be beneficial to landowners in the long run because maintenance of these areas is less energy-intensive and less expensive.

Therefore, it is the recommendation of the Bird Conservation Network that wherever possible and practical, wild landscapes should be re-established along Lake Michigan's shores.

Where this is not possible and “landscaping” or “gardening” is used, primary consideration should be given to utilizing native plant species that are used by birds. In particular, landscape planners could easily enhance a park adjacent to the lakeshore with native plants that provide fruits and seeds and attract insects for birds. Trees and shrubs that bear berries and nuts in the fall are also important food sources for many migrant birds.

Non-native plants such European and glossy buckthorn, hybrid honeysuckles, non-native viburnums and multiflora rose should be avoided, as their seeds are easily spread by birds further along their migration route, creating problems in many truly wild landscapes.

Landscaped and horticultural habitats, even those that are formal in design, are used regularly by many species of birds during migration. In areas of more intense human use, such as Grant Park, this type of manicured landscape may be the preferred design to insure safety of park users and to control traffic, but even these areas can be planted with a mixture of annual and perennial ground covers, grasses, trees, and shrubs that serve both human and bird purposes.

In these landscaped areas, the BCN recommends that landscape architects follow a principle of planting layers of vegetation of different heights in lakefront areas — from the tallest trees down to a shrubby layer to ground-level herbaceous plants. This layered approach, combined with a conscious intention to include a wide variety of native plant species, will maximize food and shelter for migrating birds.

## **TAKING A BIRD’S EYE VIEW**

Given the Bird Conservation Network’s recommended land planning philosophy — to preserve open space along Lake Michigan, to establish wild lands wherever possible, and to plant naturalistically elsewhere — the next logical step is for the planner to take a macro-view of the lakefront.

From this longer viewpoint — south from Kenosha County in Wisconsin around the bottom of the lake to the Indiana and Michigan Dunes — it becomes obvious that a preferred method of planning is to provide a wide variety of habitat types, rather than try to provide a little of each on every single site. Because different bird species use different habitats and with limited open space, the Bird Conservation Network recommends that a diversity of habitat types be planned all along the lakeshore.

Migrant birds would benefit greatly from the reestablishment of a variety of habitat types such as dunal, oak savanna, heavier woodland, hemi-marsh, natural beach, shrubby grassland, prairie, and cleaner aquatic habitats.

Larger tracts of habitats of different types should be incorporated into a master plan for the length of Lake Michigan's shores.

In Chicago, for example, where it makes the most sense to establish an open grassland area, such as at Montrose Point, planners should do just that. Further south on the lakefront, such as at the Addison Street Bird Sanctuary, planners should take advantage of an existing area with many trees to establish a woodland habitat. The refurbishment of Waukegan's harbor is a good example of a larger area where landscape planners could reclaim derelict industrial sites along the lake and restore several different types of dunal habitats in a series of parks that are as enjoyable for people as they are productive for migrant birds.

In stretches of park land where smaller pieces of dissimilar habitat already exist, a choice has to be made by planners, whether to continue to manage the dissimilar habitats or to follow Nature's own indications and allow the habitats to slowly change and perhaps become more homogenous over time.

While no one habitat type is ideal for all bird species, lawn areas are the predominant feature of many lakefront parks. Lawn grasses do attract a few species of birds, such as the American Robin and Killdeer, but are unused by most species. As there probably will never be a shortage of lawn in the Chicago area, Appendix I of this paper will consider in more detail other natural habitats that can be established or enhanced on lakefront properties.

## **SUMMARY**

It is the Bird Conservation Network's intention that its commendations be adopted by public and private landowners and inform and enrich any project that affects Lake Michigan's shoreline anywhere in the area covered by the Chicago Wilderness Coalition, from southern Wisconsin to northwestern Indiana.

There are two other important components to the BCN's message.

One is that community involvement in lakefront habitat management is essential. Community input to and stewardship of habitat planning and management will create strong bonds to the landscape, fostering a greater sense of responsibility, respect and appreciation for Chicago's wonderful park system, and for Lake Michigan itself.

And finally, we recommend that Chicago area park district and city planners do as much as possible to educate their citizens about the importance of bird migration along Lake Michigan lakefront and the need for habitat protection.

Rather than let its millions of residents walk right past the miracle of bird migration, Chicago needs to celebrate its natural history and the spot it fortunately occupies on the "overland express" of the Lake Michigan flyway.

## APPENDIX I

### HABITAT TYPES

#### AQUATIC HABITATS

The open water of Lake Michigan is important for migrating ducks, grebes and loons and a number of wintering species of diving ducks and gulls. The harbors of the lake are often also used by these species, as well as by American Coots and dabbling ducks, such as Mallards. Harbor and open lake waters must be kept pollution free to encourage thriving aquatic vegetation which supports the fish, crustaceans and other organisms these water fowl and gulls depend on. Good water quality of course also benefits Chicago's huge population of fishermen.

#### THE WATER'S EDGE

Beaches, of both sand and gravel, are important habitat for shorebirds. These long distance migrants, many of which fly from South America to the Arctic and back each year, utilize the area immediately adjacent to the water line. Leaving nutrient-rich seaweed, filled with insects and invertebrates bird's need, on the beach provides perfect feeding areas for shorebirds during migration (April and May and then from July to September) Clearance of the seaweed removes many of these creatures which are the birds' food source. Closing off parts of some beaches, particularly during the migration seasons, to dogs (and people) will allow the shorebirds to rest and feed before the next leg of their intercontinental flight.

"Open-county" birds, such as Longspurs, Snow Buntings and Horned Larks and some sparrows and Killdeer use drier areas further up the beach and on the barren gravel or short-lawn areas caused by the harsh weather conditions right along the shore . An example of this sparsely vegetated habitat occurs at Montrose Point in Chicago's Lincoln Park. The stony, somewhat bare ground near the south end of the fishing pier regularly attracts these birds.

#### LAKE FRONT HEMI-MARSHES

Hemi-marshes have become exceedingly rare along the lakefront. Shallow water at the edges of ponds and lagoons could be planted with emergent plant species. These areas, where they occur in lagoons with an outlet to the lake, could also have additional benefits as breeding habitat for amphibians and certain fish species. This habitat could also provide additional food and shelter for some ducks, herons, and other species.

In particular, development of more hemi-marsh areas should be seriously considered for new lakefront projects. This kind of habitat was historically common along Lake Michigan, but was destroyed by urban development.

The park ponds and lagoons and golf course water bodies are important areas for wintering and migrating ducks. The North and South Ponds in Lincoln Park, for example, often host rare and uncommon species and entice many paddling ducks to stay through at least part of the winter.

Although it may be difficult to accomplish within currently developed lakefront areas, other kinds of wetlands should be established, restored and enhanced. Interdunal swales were once common, but are now rare. Sedge meadows and wet prairies were once very common features in the lake plain area. Wet grassy areas are very attractive to many species of birds, including some rarer migrants, such as members of the rail family.



## UPLAND AREAS

Upland areas can be classified according to tree density. The broad categories are usually considered as follows: prairie (no trees), savanna (few trees), woodlands (many trees), and forest (mostly a continuous canopy of trees).

## PRAIRIES

Prairie communities, once common, are now exceedingly rare along the lakefront. Many different kinds of prairies exist, and soil type and degree of wetness will generally determine the mix of plant species that will thrive. Seeds of prairie plants can be an important food source for some birds, both fall migrants and winter residents. Many prairie forbs - what people generally refer to as "wildflowers" - are important both as a direct source of food and as insect attractors. Some birds will regularly feed on the insect that live on these plants.

## SHRUBBY GRASSLANDS

While true prairies generally have few shrubs, shrubby grasslands are very attractive to some species of birds. The shrubs provide perches and shelter for many species that will utilize the grassland food sources. The shrubs are often insect attractors and food sources themselves.

## SAVANNAS

Typical park landscaping in Chicago was modeled by early landscape designers on native savanna areas. Savannas are characterized by scattered trees, with or without a shrubby understory. Native savannas are dominated by oak species. While there is evidence that birds find oaks especially attractive for foraging, other mature tree species can be left in place and grassland structure established underneath. Tree species that provide very heavy shade, like some of the maples, are not appropriate, but many other species let enough sunlight through to the ground to allow the savanna grasses and forbs to flourish. There are many areas where the establishment of savanna-type habitat along the lakefront would be very beneficial to birds.

## WOODED AREAS

Woodlands and forests would be more difficult to establish than other habitat types, so conservation and enhancement of existing habitat is essential. These natural communities are very important to many species of songbirds. Where forest and woodland can be established or enhanced, planners should look to existing lake front woodlands as their models. Such areas include the Indiana Dunes National Lakeshore, the wooded ravines that occur in the North Shore suburbs of Chicago and Illinois Beach State Park.

## LANDSCAPING OF OTHER AREAS

In those areas where enhancing or establishing wild land is not possible, often the existing landscaping can be enhanced. Plantings of shrubs and small, flowering and fruiting trees will provide more songbird habitat in the many existing areas of the lakefront that are primarily lawn. Such plantings can provide good "background" for more formal flower beds. Large trees, preferable planted in groups, would also benefit birds.

The evergreen shrubs such as common juniper and the rarer trailing juniper are natives that would do well even in exposed conditions very near Lake Michigan. They provide shelter year-round and some birds will feed on the juniper berries. Deciduous shrubs that flower during May, like the Amelanchier species (shadbush), will attract insects during the spring for migrant birds.

The structure of these kinds of plantings plays a role also. Denser, layered stands of shrubs and trees in these smaller areas are often preferable to individual or widely-spaced plantings, as they provide more cover and a more concentrated food source. There are opportunities in otherwise open landscapes to add plantings to create borders, such as using hawthorns and crabapples around the edges of sports fields. The ground under these trees can be planted in native wildflowers and grasses, providing more food and shelter to a wider range of species. The regular use by birds of smaller areas, like the “Magic Hedge” at Montrose Point, proves that these kinds of plantings don’t have to be enormous to be important.

## APPENDIX II

### LIST OF NATIVE PLANT SPECIES SUGGESTED FOR LANDSCAPING FOR BIRDS

#### TREES

##### Evergreen:

Red Cedar (*Juniperus virginiana* var. *crebra*)  
Common Juniper (*Juniperus communis*)  
Jack Pine (*Pinus banksiana*)  
White Pine (*Pinus strobus*)  
Eastern White Cedar (*Thuja occidentalis*)

##### Deciduous:

Ohio buckeye (*Aesculus glabra*)  
Paw Paw (*Asimina triloba*)  
Paper birch (*Betula papyrifera*)  
Bitternut hickory (*Carya cordiformis*)  
Kingnut hickory (*Carya laciniosa*)  
Shagbark hickory (*Carya ovata*)  
Hackberry (*Celtis occidentalis*)  
Witch hazel (*Hamamelis virginiana*)  
Black walnut (*Juglans nigra*)  
Butternut (*Juglans cinerea*)  
Red Mulberry (*Morus rubra*)  
Wild black cherry (*Prunus serotina*)  
White oak (*Quercus alba*)

Swamp white oak (*Quercus bicolor*)  
Scarlet oak (*Quercus coccinea*)  
Shingle oak (*Quercus imbricaria*)  
Bur oak (*Quercus macrocarpa*)  
Chinquapin oak (*Quercus muhlenbergii*)  
Pin oak (*Quercus palustris*)  
Red oak (*Quercus rubra*)  
Black oak (*Quercus velutina*)  
American elm (*Ulmus americana*)  
Slippery elm (*Ulmus rubra*)

#### SMALL TREES / SHRUBS

##### Evergreen:

Trailing juniper (*Juniperus horizontalis*)

##### Deciduous:

Speckled alder (*Alnus rugosa*)  
Juneberry (*Amelanchier arborea*)  
Low shadblow (*Amelanchier humilis*)  
Inland shadblow (*Amelanchier interior*)  
Allegheny shadblow (*Amelanchier laevis*)  
Round-leaved Serviceberry (*Amelanchier sanguinea*)

Chokeberry (*Aronia prunifolia*)  
 Buttonbush (*Cephalanthus occidentalis*)  
 Alternate-leaved dogwood (*Cornus alternifolia*)  
 Blue-fruited dogwood (*Cornus obliqua*)  
 Red-osier dogwood (*Cornus stolonifera*)  
 American hazelnut (*Corylus americana*)  
 Sugar hawthorn (*Crataegus calpodendron*)  
 Fireberry hawthorn (*Crataegus chrysocarpa*)  
 Scarlet hawthorn (*Crataegus coccinea*)  
 Cockspur hawthorn (*Crataegus crus-galli*)  
 Large-seeded hawthorn (*Crataegus flabellata*)  
 Downy hawthorn (*Crataegus mollis*)  
 Frosted hawthorn (*Crataegus pruinosa*)  
 Dotted hawthorn (*Crataegus punctata*)  
 Fleshy hawthorn (*Crataegus succulenta*)  
 Winterberry (*Ilex verticillata*)  
 Spicebush (*Lindera benzoin*)  
 Wild sweet crab (*Malus coronaria*)  
 Iowa crab (*Malus ioensis*)  
 Wild plum (*Prunus americana*)  
 Canada plum (*Prunus nigra*)  
 Pin cherry (*Prunus pensylvanica*)  
 Sand cherry (*Prunus pumila*)  
 Choke cherry (*Prunus virginiana*)  
 Shining sumac (*Rhus copallina*)  
 Smooth sumac (*Rhus glabra*)  
 Staghorn sumac (*Rhus typhina*)  
 Wild black currant (*Ribes americanum*)  
 Prickly wild gooseberry (*Ribes cynosbati*)  
 Wild gooseberry (*Ribes missouriensis*)  
 Early wild rose (*Rosa blanda*)  
 Pasture rose (*Rosa carolina*)  
 Swamp rose (*Rosa palustris*)  
 Illinois rose (*Rosa setigera*)  
 Common blackberry (*Rubus allegheniensis*)  
 Common dewberry (*Rubus flagellaris*)  
 Swamp dewberry (*Rubus hispidus*)  
 Red Raspberry (*Rubus idaeus* var. *Strigosus*)  
 Black raspberry (*Rubus occidentalis*)  
 Purple flowering raspberry (*Rubus odoratus*)  
 Yankee blackberry (*Rubus pensylvanicus*)  
 Elderberry (*Sambucus canadensis*)  
 Showy mountain-ash (*Sorbus decora*)  
 Early low blueberry (*Vaccinium angustifolium*)  
 Highbush blueberry (*Vaccinium corymbosum*)  
 Late low blueberry (*Vaccinium pallidum*)  
 Maple-leaved arrow-wood (*Viburnum acerifolium*)  
 Nannyberry (*Viburnum lentago*)

Black haw (*Viburnum prunifolium*)  
 Downy arrow-wood (*Viburnum rafinesquianum*)  
 Highbush cranberry (*Viburnum trilobum*)

## VINES

Red honeysuckle (*Lonicera dioica*)  
 Yellow honeysuckle (*Lonicera prolifera*)  
 Virginia creeper (*Parthenocissus quinquefolia*)  
 Thicket creeper (*Parthenocissus inserta*)  
 Summer grape (*Vitis aestivalis*)  
 Fox grape (*Vitis labrusca*)  
 Riverbank grape (*Vitis riparia*)

## WILDFLOWERS

White baneberry (*Actaea pachypoda*)  
 Red baneberry (*Actaea rubra*)  
 Yellow Giant Hyssop (*Agastache nepetoides*)  
 Purple Giant Hyssop (*Agastache scrophulariaefolia*)  
 Sand Milkweed (*Asclepias amplexicaulis*)  
 Poke Milkweed (*Asclepias exaltata*)  
 Tall Green Milkweed (*Asclepias hirtella*)  
 Swamp Milkweed (*Asclepias incarnata*)  
 Purple Milkweed (*Asclepias purpurascens*)  
 Prairie Milkweed (*Asclepias sullivantii*)  
 Common Milkweed (*Asclepias syriaca*)  
 Butterfly Weed (*Asclepias tuberosa*)  
 Whorled Milkweed (*Asclepias verticillata*)  
 Short Green Milkweed (*Asclepias viridiflora*)  
 Blue cohosh (*Caulophyllum thalictroides*)  
 New Jersey Tea (*Ceanothus americanus*)  
 Tall Thistle (*Cirsium altissimum*)  
 Pasture Thistle (*Cirsium discolor*)  
 Prairie Thistle (*Cirsium hillii*)  
 Swamp Thistle (*Cirsium muticum*)  
 Sand Coreopsis (*Coreopsis lanceolata*)  
 Prairie Coreopsis (*Coreopsis palmata*)  
 Tall Coreopsis (*Coreopsis tripteris*)  
 Pale Sunflower (*Helianthus decapetalus*)  
 Tall Sunflower (*Helianthus giganteus*)  
 Sawtooth Sunflower (*Helianthus grosseserratus*)  
 Hispid Sunflower (*Helianthus hirsutus*)  
 Downy Sunflower (*Helianthus mollis*)  
 Western Sunflower (*Helianthus occidentalis*)  
 Prairie Sunflower (*Helianthus rigidus*)

Pale-leaved Sunflower (*Helianthus strumosus*)  
 Jerusalem Artichoke (*Helianthus tuberosus*)  
 Spotted Touch-me-not (*Impatiens capensis*)  
 Pale Touch-me-not (*Impatiens pallida*)  
 Horse Mint (*Monarda punctata*)  
 Wild Bergamot (*Monarda fistulosa*)  
 Black-eyed Susan (*Rudbeckia hirta*)  
 Green-headed Coneflower (*Rudbeckia laciniata*)  
 Sweet Black-eyed Susan (*Rudbeckia subtomentosa*)  
 Brown-eyed Susan (*Rudbeckia triloba*)  
 Rosin Weed (*Silphium integrifolium deamii*)  
 Compass Plant (*Silphium laciniatum*)  
 Cup Plant (*Silphium perfoliatum*)  
 Prairie Dock (*Silphium terebinthinaceum*)  
 Blue-stemmed Goldenrod (*Solidago caesia*)  
 Canada Goldenrod (*Solidago canadensis*)  
 Broad-leaved Goldenrod (*Solidago flexicaulis*)  
 Late Goldenrod (*Solidago gigantea*)  
 Common Grass-leaved Goldenrod (*Solidago graminifolia*)  
 Early Goldenrod (*Solidago juncea*)  
 Old-field Goldenrod (*Solidago nemoralis*)  
 Swamp Goldenrod (*Solidago patula*)

Riddel's Goldenrod (*Solidago riddellii*)  
 Elm-leaved Goldenrod (*Solidago ulmifolia*)

## GRASSES AND SEDGES

Grasses and sedges are an important source of food and cover. The list below is certainly not complete, but illustrates some of the possibilities, and are species observed being used as food by birds.

Little Bluestem (*Andropogon scoparius*)  
 Side-Oats Gramma (*Bouteloua curtipendula*)  
 Long-awned Wood Grass (*Brachyelytrum erectum*)  
 Common Wood Reed (*Cinna arundinacea*)  
 Canada Wild Rye (*Elymus canadensis*)  
 Silky Wild Rye (*Elymus villosus*)  
 Virginia Wild Rye (*Elymus virginicus*)  
 Nodding Fescue (*Festuca obtusa*)  
 Fowl Manna Grass (*Glyceria striata*)  
 Bottlebrush Grass (*Hystrix patula*)  
 Switch grass (*Panicum virgatum*)  
 Indian Grass (*Sorghastrum nutans*)

## APPENDIX III

### BIRDS WHICH MIGRATE THROUGH, WINTER AND NEST IN THE GREATER CHICAGO AREA

This appendix contains a list of bird families and common representatives within those families that utilize the Chicagoland metropolitan area at some part of the year. The list is based on *Birds of the Greater Chicago Area: A Season Checklist* (1982, revised 1998), compiled by the Chicago Audubon Society. The full checklist includes 313 species seen in the greater Chicago area since 1970. The checklist does not include species reported less than 10 times since 1970 and which are not normally expected to be present in the area.

**Loons:** Red-throated Loon, Common Loon

**Grebes:** Pied-billed Grebe, Horned Grebe, Red-necked Grebe, Eared Grebe, Western Grebe

**Pelicans:** American White Pelican

**Cormorants:** Double-crested Cormorant

**Bitterns and Herons:** American Bittern, Least Bittern, Great Blue Heron, Great Egret, Snowy Egret, Little Blue Heron, Green Heron, Black-crowned Night-Heron, Yellow-crowned Night-Heron

**American Vultures:** Turkey Vulture

**Swans, Geese and Ducks:** Greater White-fronted Goose, Snow Goose, Canada Goose, Mute Swan, Tundra Swan, Wood Duck, Gadwall, American Wigeon, Mallard, Blue-winged Teal, Northern Shoveler, Northern Pintail, Green-winged Teal, Canvasback, Redhead, Ring-necked Duck, Greater Scaup, Lesser Scaup, Harlequin Duck, Surf Scoter, White-winged Scoter, Black Scoter, Long-tailed Duck, Bufflehead, Common Goldeneye, Hooded Merganser, Common Merganser, Red-breasted Merganser, Ruddy Duck

**Kites, Hawks and Eagles:** Osprey, Bald Eagle, Northern Harrier, Sharp-shinned Hawk, Cooper's Hawk, Red-shouldered Hawk, Broad-winged Hawk, Red-tailed Hawk, Rough-legged Hawk

**Falcons:** American Kestrel, Merlin, Peregrine Falcon

**Partridges and Grouse:** Ring-necked Pheasant, Wild Turkey

**Quail:** Northern Bobwhite

**Rails, Gallinules and Coots:** Yellow Rail, King Rail, Virginia Rail, Sora, Common Moorhen, American Coot

**Cranes:** Sandhill Crane

**Plovers:** Black-bellied Plover, American Golden-Plover, Semipalmated Plover, Piping Plover, Killdeer

**Sandpipers:** Greater Yellowlegs, Lesser Yellowlegs, Solitary Sandpiper, Willet, Spotted Sandpiper, Upland Sandpiper, Whimbrel, Hudsonian Godwit, Marbled Godwit, Ruddy Turnstone, Red Knot, Sanderling, Semipalmated Sandpiper, Western Sandpiper, Least Sandpiper, White-rumped Sandpiper, Baird's Sandpiper, Pectoral Sandpiper, Dunlin, Stilt Sandpiper, Buff-breasted Sandpiper, Short-billed Dowitcher, Long-billed Dowitcher, Wilson's Snipe, American Woodcock, Wilson's Phalarope, Red-necked Phalarope

**Skuas, Gulls and Terns:** Pomarine Jaeger, Parasitic Jaeger, Long-tailed Jaeger, Franklin's Gull, Bonaparte's Gull, Ring-billed Gull, Herring Gull, Thayer's Gull, Iceland Gull, Lesser Black-backed Gull, Glaucous Gull, Great Black-backed Gull, Caspian Tern, Common Tern, Forster's Tern, Black Tern

**Doves:** Rock Pigeon, Mourning Dove

**Cuckoos:** Black-billed Cuckoo, Yellow-billed Cuckoo

**Typical Owls:** Eastern Screech-Owl, Great Horned Owl, Snowy Owl, Barred Owl, Long-eared Owl, Short-eared Owl, Northern Saw-whet Owl

**Goatsuckers:** Common Nighthawk, Eastern Whip-poor-will

**Swifts:** Chimney Swift

**Hummingbirds:** Ruby-throated Hummingbird

**Kingfishers:** Belted Kingfisher

**Woodpeckers:** Red-headed Woodpecker, Red-bellied Woodpecker, Yellow-bellied Sapsucker, Downy Woodpecker,

Hairy Woodpecker, Northern Flicker, Pileated Woodpecker

**Tyrant Flycatchers:** Olive-sided Flycatcher, Eastern Wood-Pewee, Yellow-bellied Flycatcher, Acadian Flycatcher, Alder Flycatcher, Willow Flycatcher, Least Flycatcher, Eastern Phoebe, Great Crested Flycatcher, Eastern Kingbird

**Shrikes:** Loggerhead Shrike, Northern Shrike

**Vireos:** White-eyed Vireo, Bell's Vireo, Yellow-throated Vireo, Blue-headed Vireo, Warbling Vireo, Philadelphia Vireo, Red-eyed Vireo

**Jays, Magpies and Crows:** Blue Jay, American Crow

**Larks:** Horned Lark

**Swallows:** Purple Martin, Tree Swallow, Northern Rough-winged Swallow, Bank Swallow, Cliff Swallow, Barn Swallow

**Chickadees and Titmice:** Black-capped Chickadee, Tufted Titmouse

**Nuthatches:** Red-breasted Nuthatch, White-breasted Nuthatch

**Creepers:** Brown Creeper

**Wrens:** Carolina Wren, House Wren, Winter Wren, Sedge Wren, Marsh Wren

**Kinglets:** Golden-crowned Kinglet, Ruby-crowned Kinglet

**Gnatcatchers:** Blue-gray Gnatcatcher

**Thrushes:** Eastern Bluebird, Veery, Gray-cheeked Thrush, Swainson's Thrush, Hermit Thrush, Wood Thrush, American Robin

**Mimic Thrushes:** Gray Catbird, Northern Mockingbird, Brown Thrasher

**Starlings:** European Starling

**Pipits:** American Pipit

**Waxwings:** Cedar Waxwing

**Wood-Warblers:** Blue-winged Warbler, Golden-winged Warbler, Tennessee Warbler, Orange-crowned Warbler, Nashville Warbler, Northern Parula, Yellow Warbler, Chestnut-sided Warbler, Magnolia Warbler, Cape May Warbler, Black-throated Blue Warbler, Yellow-rumped Warbler, Black-throated Green Warbler, Blackburnian Warbler, Yellow-throated Warbler, Pine Warbler, Prairie Warbler, Palm Warbler, Bay-breasted Warbler, Blackpoll Warbler, Cerulean Warbler, Black-and-White Warbler, American Redstart, Prothonotary Warbler, Ovenbird, Northern Waterthrush, Louisiana Waterthrush, Kentucky Warbler, Connecticut Warbler, Mourning Warbler, Common Yellowthroat, Hooded Warbler, Wilson's Warbler, Canada Warbler, Yellow-breasted Chat

**Tanagers:** Summer Tanager, Scarlet Tanager

**Sparrows:** Eastern Towhee, American Tree Sparrow, Chipping Sparrow, Clay-colored Sparrow, Field Sparrow, Vesper Sparrow, Savannah Sparrow, Grasshopper Sparrow, Henslow's Sparrow, Le Conte's Sparrow, Nelson's Sparrow, Fox Sparrow, Song Sparrow, Lincoln's Sparrow, Swamp Sparrow, White-throated Sparrow, White-crowned Sparrow, Dark-eyed Junco, Lapland Longspur, Snow Bunting

**Grosbeaks and Buntings:** Northern Cardinal, Rose-breasted Grosbeak, Blue Grosbeak, Indigo Bunting, Dicksissel

**Blackbirds:** Bobolink, Red-winged Blackbird, Eastern Meadowlark, Yellow-headed Blackbird, Rusty Blackbird, Brewer's Blackbird, Common Grackle, Brown-headed Cowbird, Orchard Oriole, Baltimore Oriole

**Finches:** Purple Finch, House Finch, Red Crossbill, White-winged Crossbill, Common Redpoll, Pine Siskin, American Goldfinch, Evening Grosbeak

**Old World Sparrows:** House Sparrow

## **BIRD CONSERVATION NETWORK**

Working Together for Birds and Their Habitats

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