

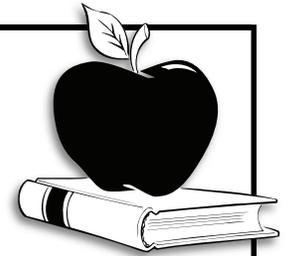
**SUGGESTED GRADE LEVELS:** 3 - 4

**NEXT GENERATION SCIENCE STANDARDS:**  
3-LS4-3, 4-LS1-1, 4-LS1-2

**SKILLS/PROCESSES:** observation, classification, inference, prediction

**OBJECTIVE:** Students will be able to identify the four major **habitats** of Illinois and generalize how habitats provide for the specific needs of birds. Students will also recognize that birds may live in many different areas.

# TEACHER'S GUIDE



## UNIT 1 ■ LESSON 2

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## BACKGROUND

Habitat consists of food, **cover**, water and **space**. These components are necessary for all living things to survive. Food is the material a species consumes, allowing it to perform life functions. Cover provides protection for animals, enabling them to nest, hide, sleep and travel. All wildlife needs water. Some drink water; others obtain it from food they eat. The area required by an animal to survive is called space.

At the time of pioneer settlement, Illinois consisted largely of three habitat types: **wetland**; **prairie**; and **forest**. Today, Illinois has four basic habitat types: wetland; forest; **agricultural**; and **urban**/suburban. The plants and animals typical of each habitat type are unique. Additional variation is possible based on geographic distribution and, for birds, the season.

Wetlands, which are low-lying areas filled with water at least part of the year, support water-loving plants. The basic categories of wetlands in Illinois are ponds, marshes, lakes, reservoirs, swamps, fens, peatlands, rivers and streams.

Wetlands provide a variety of feeding and nesting opportunities for birds. Herons, egrets and kingfishers feed mostly on fishes, with an occasional frog, mussel or crayfish eaten. Ducks feed primarily on aquatic plants but may also eat aquatic insects, clams, snails, frogs, small fishes and worms. Migrating shorebirds use shallow wetlands and mudflats for feeding areas. **Shelter** for birds residing in wetlands may include natural or human-made features. Natural features include trees in swamps and along rivers and streams and cattails around ponds and marshes. Humanmade structures enhance nesting habitats for birds and vary from nest platforms for cormorants, egrets and herons to nest boxes for wood ducks and nest cones for Canada geese.

Forests covered almost 14 million acres of Illinois prior to settlement. Now, only slightly more than four million

acres remain. Forest communities are classified by the dominant tree species. Oak-hickory, elm-ash-cottonwood, maple-beech-birch, oak-gum-cypress, white-red-jack pine, oak-pine and loblolly-shortleaf pine are the major forest communities in Illinois.

Forests provide a diversity of food sources for resident and visiting birds. Many species (thrushes, wild turkey, ruffed grouse) prefer fruits, berries and nuts produced by woodland trees and shrubs. Woodpeckers, nuthatches, warblers, vireos and many other birds feed on insects found on trees. Some woodland birds eat other animals: the American woodcock feeds primarily on worms; and owls feed on mice and small birds. Birds find a variety of shelter in woodlands, from high in the trees to leaf litter on the ground, as well as cavities in trees.

Prairies once covered 22 million acres of Illinois. Grasses and **forbs** (flowering plants) were the primary plants in these fire-dependent communities. Fire not only removed dead leaves and stems, but also kept trees and shrubs from taking over the prairies.

In the early 1830s farmers found that prairie soils were more fertile than forest soils and began to convert prairie to agricultural land. This change, followed by conversions for industrial and urban needs, has left fewer than 2,300 acres of prairie in Illinois. Today, many of our remaining prairies are in small, isolated areas, such as along cemeteries, roadsides, railroad tracks, hilltops and areas too wet or sandy to cultivate.

Many birds typical of prairie and agricultural habitats are insect-eaters or seed-eaters (meadowlarks, horned lark). Populations of some grassland-dependent species, such as the upland sandpiper, greater prairie-chicken and Henslow's sparrow, have declined due to the loss of prairie, pasture and old **field** habitats and are now uncommon. Grassland birds find nesting shelter within the dense grasses and forbs.

Urban and suburban areas also are plant and animal habitat types. Cities have changed dramatically over time. What were once small communities have become large metropolitan areas. The forests, wetlands and prairies that once surrounded cities have been replaced by businesses and residential areas. Trees, shrubs and other plants have been removed and replaced with buildings, concrete or asphalt.

Even though natural habitats are lost or altered due to urbanization, new habitats are created and some wildlife species adapt and move into the area. Parks, cemeteries, golf courses, ponds and backyards all provide habitat for urban birds. Animals that are common to urban areas tolerate humans and are able to adapt to urban foods and home sites. House sparrows, rock pigeons and European starlings have adapted to feeding on insects, seeds and garbage found even in concrete canyons. Northern cardinals, blue jays, mourning doves and American robins nest in suburban yards. Juncos, goldfinches, tree sparrows and chickadees are winter visitors to bird feeders. Peregrine falcons have been introduced to the Chicago and St. Louis areas where they feed on rock pigeons and live on ledges of tall buildings. It is important to note, though, that some species do not tolerate the change in habitat. Conserved areas just for habitat preservation are vital to the survival of these species.

Many birds use more than one habitat. For instance, the American robin feeds on worms and berries from yards but may visit wetlands to gather nest materials. Sandhill cranes roost in wetlands and marshy areas but move to upland areas in search of food. Many birds require different foods at different ages. For example, pheasant and duck chicks require large numbers of insects during the growing stage, but these foods may be unimportant to the birds as adults.

The habitat picture is not all gloom and doom. Efforts to preserve and manage habitats occur at various levels throughout the state and nation. Habitat programs range from national programs such as the agricultural land Conservation Reserve Program and the North American Waterfowl Management Plan to state efforts involving land acquisition, wetland restoration, prairie burns and landowner assistance programs. At the local level, county forest preserves and park districts are actively managing and preserving habitats. Private organizations, such as Ducks Unlimited, Quail Unlimited, the Wild Turkey Federation and Pheasants Forever, undertake a variety of habitat projects.

## PROJECTS AND ACTIVITIES

1. Find photographs that represent the four basic Illinois habitats. Name one example of a bird species typical of each area. Is it present as a nesting or year-round resident? What does it eat?
2. Develop a wildlife habitat area on the school grounds. Use it to attract birds.
3. Make a habitat diorama, 3-D drawing or sculpture using arts and crafts materials to represent plants and animals typical of a select habitat type.

## EVALUATION

1. Discuss the impact of **urban sprawl** and habitat loss on birds. Discuss bird species that have adapted well to human (urban) habitat and why it is important for some to adapt. Are there species that do not adapt? What happens to those birds?
2. Have students identify their habitat needs. What are their daily requirements for food, cover, space and water? Do those needs ever change? How are their habitat needs similar and different from those of birds?
3. Have students name the four habitat types in Illinois, describe them and give two examples of birds that inhabit each.

## EXTENSION

- Have students develop a variation of the game featured on the activity page by adding hazard cards such as predators, pesticides and habitat destruction or modification.

### VOCABULARY

agricultural	prairie
cover	shelter
field	space
forb	urban
forest	urban sprawl
habitat	wetlands

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# STUDENT'S GUIDE

Habitat consists of cover, shelter, water and space. These are all components necessary for all living things to survive. Food is the material a species takes in allowing it to perform life functions. Cover provides protection for animals, such as places they use to nest, hide, sleep and travel. All wildlife needs water. The area required by an animal to survive is called space.

Illinois has four basic habitat types: wetland; forest; grassland; and urban (cities and towns).



**Wetlands**, which are low-lying areas filled with water at least part of the year, support water-loving plants. A variety of foods are available in wetlands including fishes, frogs and aquatic plants. Shelter for birds living in wetlands may include natural vegetation or humanmade structures.



**Prairies** are fire-dependent communities of grasses and flowering plants. Prairie soils are very rich and have been almost entirely changed to agricultural land. Today, many of our remaining prairies are in small areas, such as along cemeteries, roadsides and railroad tracks. Many of the birds found in these areas are insect-eaters or seed-eaters. Grassland birds find nesting shelter within the thick grasses.

**Forests** are classified by the main species of tree in the community. They provide a variety of foods for resident and visiting birds. Fruits, berries, nuts, insects, worms, mice and small birds are all common foods for woodland birds. Birds live in the branches of trees and on the ground. Some birds live in tree holes.



**Cities and towns** are also homes for birds. Parks, cemeteries, golf courses, ponds and backyard habitat areas all provide habitats for birds. Animals common to city areas tolerate humans. They even change to find foods and home sites in the city.



# ACTIVITY PAGE

## Be a Bird! Be a Bird!

Cut out the cards below. Keep the "BIRD" cards separate and shuffle the other cards together. Have the students form two lines and pass out the food, shelter and space cards. Give "BIRD" cards to five students. Each "bird" walks down the lines and tries to match the "FOOD," "SHELTER" and "SPACE" cards appropriate for their bird. Determine which "birds" would survive and which would not. This game board is designed with correct answers found in horizontal rows as printed.

<b>BIRD</b>	<b>FOOD</b>	<b>SHELTER</b>	<b>SPACE</b>
<b>CHICKADEE</b>	<b>SUNFLOWER SEEDS</b>	<b>TREE CAVITIES AND NEST BOXES</b>	<b>2 ACRES</b>
<b>BIRD</b>	<b>FOOD</b>	<b>SHELTER</b>	<b>SPACE</b>
<b>CANADA GOOSE</b>	<b>GRAINS AND AQUATIC PLANTS</b>	<b>WATER AND ISLANDS</b>	<b>30-40 ACRES</b>
<b>BIRD</b>	<b>FOOD</b>	<b>SHELTER</b>	<b>SPACE</b>
<b>MEADOWLARK</b>	<b>INSECTS</b>	<b>GRASSLANDS AND PRAIRIES</b>	<b>3-4 ACRES</b>
<b>BIRD</b>	<b>FOOD</b>	<b>SHELTER</b>	<b>SPACE</b>
<b>BELTED KINGFISHER</b>	<b>FISHES</b>	<b>STREAMS AND RIVER BANKS</b>	<b>1/2 MILE LINEAR SPACE</b>
<b>BIRD</b>	<b>FOOD</b>	<b>SHELTER</b>	<b>SPACE</b>
<b>RED-TAILED HAWK</b>	<b>SMALL MAMMALS AND BIRDS</b>	<b>FOREST-PRAIRIE EDGES</b>	<b>MORE THAN 300 ACRES</b>