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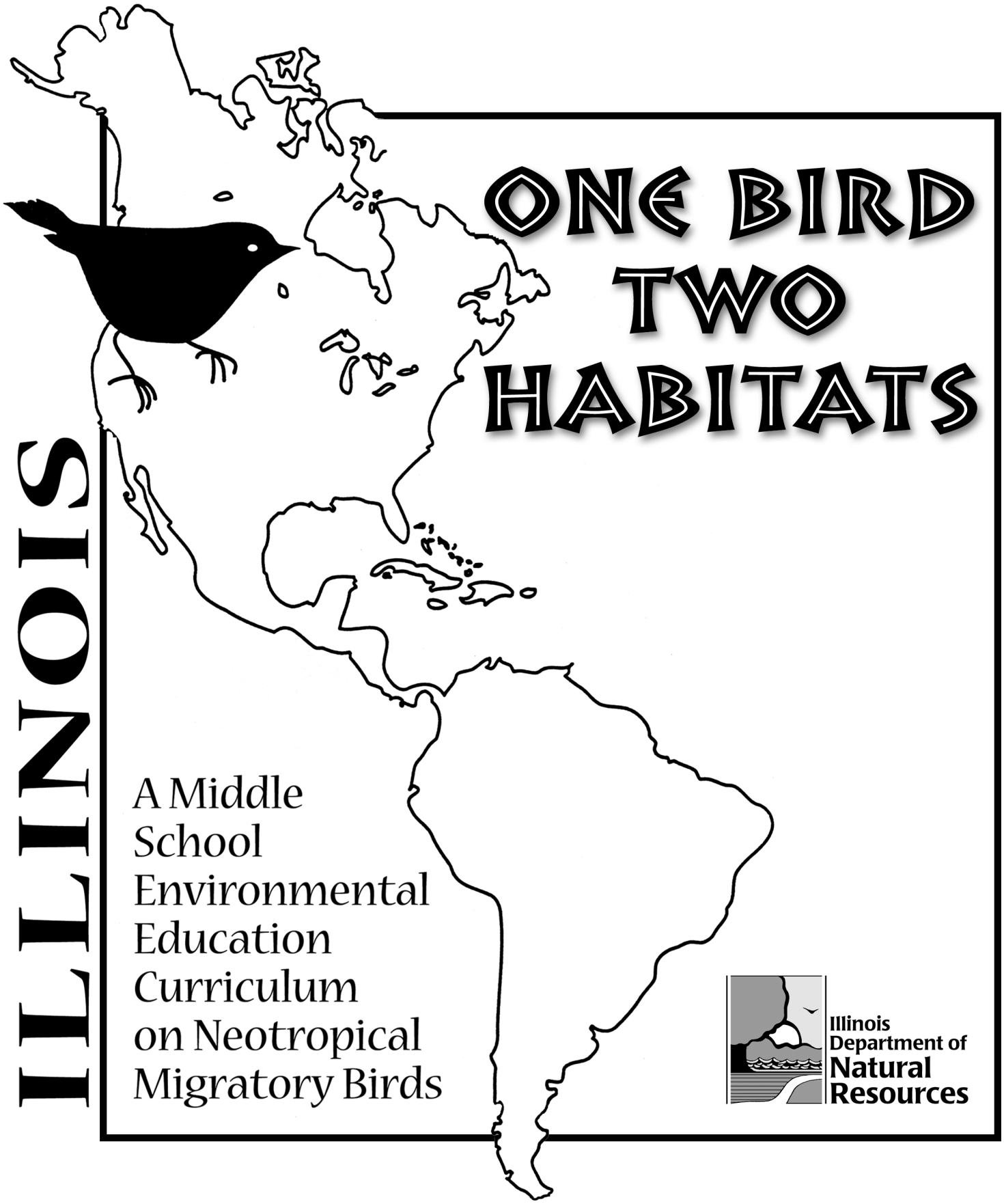
Illinois Department of Natural Resources



ONE BIRD TWO HABITATS

ILLINOIS

A Middle School Environmental Education Curriculum on Neotropical Migratory Birds

Illinois Department of Natural Resources

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Illinois Department of Natural Resources
Valerie Keener
Vern Kleen
Kathy Andrews

Illinois Department of Natural Resources
Division of Education
One Natural Resources Way
Springfield, IL 62702

217-524-4126
dnr.teachkids@illinois.gov
http://www.dnr.illinois.gov

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One Bird –Two Habitats

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Introduction

The Theme

One Bird—Two Habitats was developed by the Wisconsin Department of Natural Resources as a three- to six-week environmental education unit for middle school students, **grades six through eight**. Recognizing differences in educational philosophies and environmental education requirements, use of the material as a unit in Illinois classrooms may not be practical. Recommendations for adapting the material to the Illinois situation are included.

The theme is Neotropical migratory bird conservation: a global environmental issue that illustrates the connections between people, birds and forests in different parts of the world. The major theme addressed in the unit is interconnectedness. People and wildlife share similar needs, and it is in trying to meet these needs that we are interconnected. Environmental issues are global and only through global connections among people can we address environmental concerns.

This unit presents one issue, the decline of some Neotropical migratory bird populations and emphasizes the connections between Illinois and Central and South America, to show how people, their actions and the environment are interconnected. A Neotropical migratory bird is one that moves seasonally between temperate regions of the Americas, where it spends its breeding time, and tropical areas, where it spends the winter months. A listing of Illinois Neotropical migrants and species fact sheets on 24 of these birds can be found in Appendices A and B.

The Issue

Researchers and casual bird watchers have observed population declines among some long distance migratory birds. Although grassland and wetland migratory birds are affected by changes in the environment, this unit focuses on Neotropical migratory forest birds. These are the forest-dwelling birds that breed in North America during summer months and migrate to the new world tropics, including Central America, to spend the winter. For various reasons, including increasing human populations, the once vast forests in the Americas—temperate and tropical—have been greatly reduced. The reduction and alteration of these northern nesting grounds and southern wintering grounds are major factors contributing to the decline of some migratory forest bird populations. Other factors have contributed to their decline as well. Predatory species such as raccoons (*Procyon lotor*), blue jays (*Cyanocitta cristata*) and house cats (*Felis catus*) disrupt the nesting of many birds. Pesticides and continuing pollution affect food sources used by birds.

Not all birds migrate. Of the birds that migrate, not all are Neotropical migrants. Some birds are short-distance migrants. Of the birds that migrate from northern North America to the tropics in Latin America, some live in forests, but many live in grasslands, wetlands or along the shore. Those requiring interior forest habitat are only a portion of the birds which inhabit forests. In addition, birds that live in forests during the nesting season may not require the same habitat when they are in the tropics and vice-versa.

Birds and people both depend on forest resources. In order to conserve forest bird populations, land use decisions regarding forests must take into account the impacts of those uses on people, birds and the forest itself. Because migratory birds spend time in North, South and Central America, they are a shared international resource. Their population declines illustrate the global effects of human actions.

The Project

To ensure as much accuracy as possible, the activities and background information have been based on research. The materials were reviewed by experts in ornithology, forestry, Latin America and education. Then, 23 Wisconsin teachers field-tested the curriculum in their classes. Data collected during this pilot indicated the success of the unit: students showed a statistically significant increase in knowledge and understanding related to the unit; and teachers and students both exhibited positive attitudes about the materials. With a research base, activities that teach about research methods, and a rigorous evaluation of its effectiveness, *One Bird—Two Habitats* bridges the gap between research and education.

The Project in Illinois

Because of the curriculum's documented success in Wisconsin, the Illinois Department of Natural Resources (IDNR) sought and was granted permission to revise the materials for use in Illinois. Funding for the revision and distribution of the materials was provided by the IDNR and the Illinois State Board of Education (ISBE) through a Scientific Literacy grant. Two additional activities have been added to the Illinois version, “Interview a Bird” and “Interpreting Data.”

Connections to Central and South America

The National Association of the Partners of the Americas (NAPA) initiated the *One Bird—Two Habitats* project to further NAPA's goals in creating connections between North America and Central America. The Wisconsin Project utilized the Partners of the Americas Program to partner with their sister state, Nicaragua.

NAPA has designated Sao Paulo, Brazil, as the Illinois partner. Many of the Illinois Neotropical migrants do not travel as far south as Sao Paulo. Most Brazilian people speak Portuguese, a language not commonly spoken in Illinois schools, according to a survey conducted by the ISBE listing the top 17 non-English languages spoken in Illinois public schools. For these reasons, less of an emphasis is placed in this document on promoting any one "sister state/country" for participating classrooms to work with.

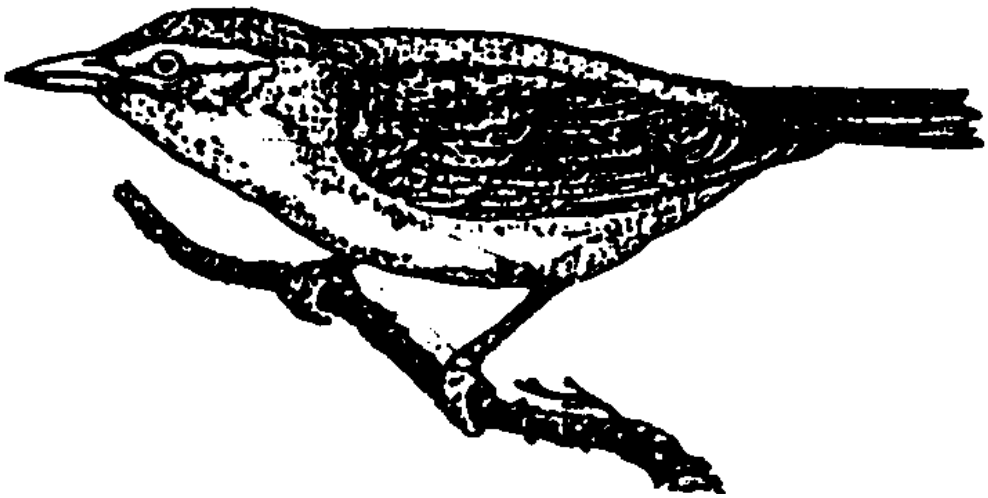
As an educator, you do have the opportunity to utilize local resources and select an alternative sister country. Working with the students and community, you may establish an alternative partnership. Partnerships with a Latin American (including Central and South America) country may already exist through the Foreign Language Department in your school or district, or there may have been foreign exchange students attending school in your area who would be willing to help facilitate a partnership. Other sources of contacts may include members of your community, former Peace Corps representatives or service organizations. Using technology to contact schools in other countries makes the process easier.

Allowing students to select the partner country will give them an opportunity to research the country and interview people in their school or community, thereby enhancing social science learning skills.

Because the original material was devised for the Wisconsin-Nicaragua partnership, many of the activities provide examples of Spanish-based literature from Nicaragua. These samples remain in the Illinois version as the concepts and translations meet the concepts and objectives of the activities.

Scientific Names

The scientific name for the Neotropical migratory birds featured in the text can be found in Appendix A. The scientific name for all other species is shown in the text immediately following the organism's common name.



How to Use This Guide

One Bird—Two Habitats is a series of interconnected activities, built on a conceptual framework. Activities cover such topics as bird appreciation, habitat, migration, forest management, research and human impact. Some activities build upon knowledge and understanding gained through previous activities. The unit introduces the issue of declining Neotropical migratory bird populations and ends with an activity that encourages students to share information about the issue beyond the classroom. Because the issues related to land use decisions, forest management and Neotropical migratory bird population declines are very complex, it is important that the activities are interrelated through discussion.

Many of the activities require more than one class period to complete. Some require set-up time over several days prior to conducting the lesson. Two sample activity schedules are included to facilitate planning to provide a balance of fun and serious, simulation and discussion, short and long and introductory and evaluatory kinds of activities. One schedule proposes use of all activities while the other is an abbreviated schedule touching on the major topic areas. The order of some activities may be switched. Please review the schedules and note the activities which require prior planning.

Some of these activities require active participation and are interdisciplinary. It is important that a discussion follow each activity to emphasize connections between the activity and the issue and to ensure that learning occurs. To support such discussions, teacher background information accompanies each lesson. Additional background information can be found in the appendices.

This material lends itself very well to interdisciplinary team teaching. There are activities suited to social science and science, as well as foreign languages, physical development and health, mathematics and English language arts (see Appendix H). In team teaching communication is critical to ensure that all the concepts and key points are covered and that the activities are interconnected.

Just as interconnectedness is a major theme in the content of this material, so it has been incorporated in the teaching methods through the use of cooperative learning strategies in some of the activities. Cooperative learning creates interdependence among students in order to reach a learning goal. Each student must be responsible for the understanding of the whole group.

Methods of evaluating student learning are incorporated in each activity. The activities "Town Meeting" and "Tell the World" are designed to serve as indicators of student understanding of the issues. Appendix I offers suggestions for action projects.

The goals of this material are to increase awareness of the need for conservation of Neotropical migratory forest birds and their habitats and to increase understanding of the global aspects of environmental issues. We hope that increased awareness and understanding will lead to conservation action.

SAMPLE #1 SCHEDULE OF ACTIVITIES

Day	Activities
1	Introduce cooperative groups—Interview a Bird
2	Cultural Exchange (begin)
3	Cultural Exchange (complete)
4	Avian Olympics
5	If There Were No Birds... (begin and assign homework)
	Migrateering (begin)
	Defining a Forest (hang first trees)
6	Migrateering (complete)
	Defining a Forest (hang more trees)
7	The Balancing Act
	Defining a Forest (hang more trees)
8	Defining a Forest (hang more trees and discuss)
9	Habitat Squeeze (begin the squeeze)
10	Habitat Squeeze (continue the squeeze)
11	Habitat Squeeze (discuss)
	If There Were No Birds... (discuss)
12	A Round Trip Ticket
13	Migration Migraines
14	Designing Researchers (begin)
15	Designing Researchers (complete)
	Interpreting Data
16	Buddy Banding (introduce)
17	Buddy Banding (discuss)
	Town Meeting (introduce and assign roles)
18	Intelligent Tinkering
19	Territory Tango
20	Cowbird Capers
	Town Meeting (begin)
21	Town Meeting (continue)
22	Town Meeting (complete)
23	Tell the World

SAMPLE #2 SCHEDULE OF ACTIVITIES

Day	Activities
H1	Introductory homework reading assignment: articles in Appendices C and D
1	If There Were No Birds
H2	Balancing Act (make mobile)
2	Balancing Act (discuss)
H3	Read species fact sheets
3	Habitat Squeeze
4	Town Meeting (start)
5	Town Meeting (finish)
H6	Research Latin American country
6	Cultural Exchange (start)
7	Cultural Exchange (finish)

H = homework assignment

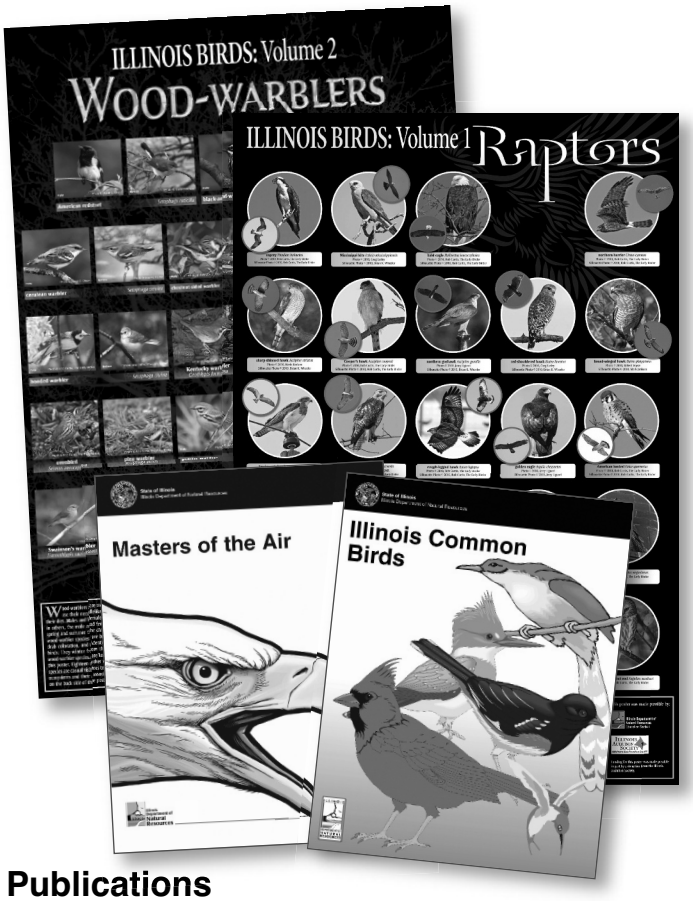
LIST OF MATERIALS NEEDED BY ACTIVITY

Activity	Materials
Interview a Bird	fact sheets
Cultural Exchange	mailing materials; international money order; funds to cover cost of reply from partner country
Avian Olympics	triple-beam balance; clock with second hand; world map with scale in miles
Migrateering	five compasses; ribbon; index cards; map of the stars
The Balancing Act	string or fishing line; sticks; objects gathered by students
Defining a Forest	paper cut-outs of trees
Habitat Squeeze	rope; off-limits sign
A Round Trip Ticket	copies of map enclosed with activity; colored pencils
Migration Migraines	construction paper; buttons or bottle caps; copies of data sheet enclosed with activity
Buddy Banding	construction paper; masking tape; banding permits
Intelligent Tinkering	old machines; tools
Territory Tango	craft dough; jar lids; jars; waxed paper; table knife
Cowbird Capers	blindfold; paper cups; plastic bowl; string; popcorn
Town Meeting	copies of research article summaries in appendix; copies of role- playing cards enclosed with activity
Tell the World	whatever students require to carry out their projects

No materials needed for activities not listed.

IDNR Division of Education

The Illinois Department of Natural Resources' (IDNR) Division of Education developed this unit on *Illinois Birds* for use in Illinois classrooms. Additional supplemental resources to help you teach about birds in Illinois are also available from the IDNR.



Publications

Posters, activity books, books and other items can be ordered or downloaded through the IDNR Publications page at http://www.dnr.illinois.gov/Publications.

Illinois Birds Resources Trunk

Posters, field guides, lessons, replica skulls, replica eggs, rubber feet replicas, books and bird songs and calls on DVD are just some of the items contained in this "trunk." The trunk is a large plastic container filled with hands-on resources that will help make bird lessons more meaningful for students. *Illlinois Birds Resources Trunks* are available for loan from locations throughout Illinois. Visit http://www.dnr.illinois.gov/education/Pages/birdtrunk.aspx to access the list of lending sites and the trunk content list.

Illinois' Natural Resources Trading Cards

The cards provide images and information to be used in a variety of ways in the classroom. Each card contains an image, habitat association, common name and scientific name (where applicable) on the front side with additional relevant information on the back side. Teachers in Illinois schools may request one pack of each of the available sets of cards. Send your request on school letterhead to the address shown on the next page.

Videos

Videos from the Illinois Department of Natural Resources about Illinois birds can be accessed through the Podcast page at http://www.dnr.illinois.gov/education/Pages/podcasts.aspx or through YouTube.

Field Trip Tips Web Page

Let the IDNR help you plan your field trip with this interactive site. Field trip destinations are correlated with topics that can be studied, lesson plans and supplemental resources. Go to http://www.dnr.illinois.gov/education/Pages/fieldtrip.aspx to access the Web page.

Illinois Biodiversity Field Trip Grant

Take your students to visit Illinois' natural or cultural heritage with an *Illinois Biodiversity Field Trip Grant*. Visit http://www.dnr.illinois.gov/education for details and an application form.

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Division of Education
One Natural Resources Way
Springfield, IL 62702-1271
dnr.teachkids@illinois.gov
217-524-4126