

# SONGBIRDS AT THE CROSSROADS OF MIGRATION – A CURRICULUM GUIDE FOR MIDDLE AND HIGH SCHOOL EDUCATORS

## INTRODUCTION

New Jersey is the fifth smallest state in the country with a population of 8,414,350. This makes it the most densely populated state in the nation with approximately 1,134.5 residents/sq. mile (New Jersey Department of Environmental Protection [NJDEP], 2000). In 1998, New Jersey residents voted to dedicate 98 million dollars a year to accomplish the goal of preserving one million acres of open space by 2010 (NJDEP, 2000). Identification of just which one million acres to preserve is a challenging endeavor for the public to undertake – especially without a full understanding of the intrinsic value of the land and its value in preserving wildlife biodiversity. These monumental decisions could be made solely on the value of the land and its resources to humans.

As of 1999, New Jersey has a total of 443 bird species on its state list (Walsh, Elia, Kane, and Halliwell, 1999). In 2002 this number stands at 445. This number represents about half of the 931 bird species that occur in North America (Shawneen Finnegan, personal communication, March 12, 2002) and about 4.5% of the approximately 9,800 species that occur worldwide (Clements, 2000). Many of the birds on our state list represent resident species that carry out their entire lives in the state. Others are migratory birds that use New Jersey's forests, wetlands, salt marshes, tidal mudflats, beaches, grasslands, suburban neighborhoods, and urban parks as they move through the state. It is at these sites that birds find food and shelter to help them sustain the energy level needed to complete their migration – either to breeding areas or to wintering sites. To most New Jerseyans, there is an abundance of bird life in New Jersey. But on closer investigation, “the problem is that the birds that are most commonly seen are also the species that are increasing - birds like robins, house sparrows, cardinals, mockingbirds, crows, starlings. They're increasing because as we change the habitat to suit us, we also change it to suit them” (Dunne, Ed., 1989). Dunne continues to say, “most birds cannot survive in a suburban environment.”

Among the species that do not do well in suburban neighborhoods is a group called Neotropical songbirds. These species leave Central and South America to migrate thousands of miles to temperate latitudes in order to breed. Amazingly, they return to the same sites, sometimes the same tree or bush, year after year. They include such species as Black-throated Blue Warbler, Warbling Vireo, Gray-cheeked Thrush, and Bobolink. Most people do not even know that these species exist, let alone that they need protection. “Bird conservation is not an objective that is ever truly realized. It is, like nature, an ongoing process, and its scope is global” (Walsh, et al., 1999). Legislation and land acquisition are two reasonably successful methods to address bird conservation. But, before people can take the aforementioned steps they must have had a strong foundation in ecological concepts and environmental awareness. Volk (1993) says, “ecological literacy is important to sound environmental decision making.” Many people, including Walsh (1999), conclude, “Environmental education should be made a part of the state's school curriculum so that all residents can be made aware of the environmental riches of their state.”

*Songbirds at the Crossroads of Migration* will be a step toward introducing teachers and students to those riches by concentrating on the amazing phenomenon of songbird migration.

## HOW TO USE THIS GUIDE

### INTEGRATION INTO THE CURRICULUM

The suggested activities in *Songbirds at the Crossroads of Migration* challenge students to be involved in their own learning. These activities engage the students in critical thinking while involving them in real issues and solving real problems. According to a national study done by the State Education and Environment Roundtable, integrating the environment (built and natural) increases student involvement in their own learning; therefore, student-driven projects that focus on action-oriented challenges are more effective than passive learning (Lieberman and Hoody 1998). Educators can define “the environment” as that which combines the natural systems with the socioeconomic and cultural systems of the community. This involves students in their communities, which gives their studies relevance to their lives.

### TEAM TEACHING

Although the study of birds can easily be relegated to the biology teacher, the broader study of migration includes not only bird identification and habitat study, but it also includes systems analysis of local, regional and hemispheric communities – both natural and human. Traditional departmentalization teaching does not reflect the real world and as content areas are synthesized, student learning is enhanced by working with a team of teachers. Teachers who work in teams do not have to be experts in everything, but get to share that challenge with others, as well as having the opportunity to learn with their students.

### ALIGNMENT WITH THE NEW JERSEY CORE CURRICULUM CONTENT STANDARDS

The Core Curriculum Content Standards are general guidelines that help educators guarantee that all students receive a “thorough and efficient” education. Each content area has standards that outline the major concepts that students should know at various stages of their education. Within each standard are knowledge and process strands and additional progress indicators that delineate what the students should know at various levels.

Each lesson included in this guide has a listing of the applicable content areas and standards. Copies of the Core Curriculum Content Standards can be downloaded at [www.nj.gov/njded/cccs](http://www.nj.gov/njded/cccs) or ordered from the New Jersey State Department of Education, Office of Publications, 2225 W. State Street, PO Box 500, Trenton, NJ 08625.

### BACKGROUND INFORMATION ON MIGRATION

General background information is provided in Section One – Putting Songbird Migration in Perspective. Additionally, *Wild Journeys: Migration in New Jersey*, a separate publication by New Jersey Audubon Society, lays the groundwork for understanding migration and how New Jersey’s habitats support this ancient phenomenon. *Wild Journeys* is the ideal accompaniment to the lessons in this module as it gives teachers more in-depth background concerning migration and how New Jersey’s habitats support the needs of these migratory animals.

## CHAPTER AND LESSON FORMAT

This guide was designed with the middle school and high school student in mind. Each chapter focuses on an aspect of songbird migration and how habitats support the needs of these animals. Additionally, different methods of teaching are used to accommodate student and teacher learning and teaching styles. There are a combination of outdoor and indoor activities; opportunities for research and for individual and small group projects; class discussion, and simulations based on real data. Taken in sequence, the lessons in each chapter create a well-rounded, interdisciplinary unit and taken singly, each lesson gives as much information as possible to the educator for implementing the lesson along with their already established curriculum. Each lesson includes:

- general background information on the major concepts of the lesson
- pedagogical information including: student objectives, process skills, core curriculum content standards and instructional methods
- preparation information including: time involved, vocabulary, prior knowledge, instructional methods, materials, lesson preparation
- lesson procedure including setting the stage (motivational activity) and the action (procedure)
- pulling it together - methods for assessing student understanding including discussion questions and alternative forms of assessment
- a list of appropriate resources that refer to the lesson content
- associated worksheets

Although each lesson stands on its own as a complete lesson (or series of lessons), the chapters also build upon each other taking the learner from a relationship with a habitat within their local community to experiencing more of the complexities involved in avian lifestyles, migratory challenges, and methodologies on how these issues are not isolated, but part of the greater system.

## ASSESSMENT

There are countless ways to assess student performance; several methods are applied in this guide:

- Imbedded assessment questions can be found throughout the lessons – they are key questions that enable the teacher to determine if the students understand the concepts. Suggested answers to these have been italicized.
- Further discussion questions draw upon the new content the students have learned and upon prior knowledge they bring to the discussion. These questions allow the students to bring classroom concepts and activities into solving problems in the real world.
- Suggestions for rubric development are given where appropriate.

## APPENDICES

- New Jersey's Songbirds – A reference list of the songbirds in New Jersey
- Field Trip Sites and Tips – Suggestions for finding sites throughout the state to take students to witness songbird migration.
- Take Action – What you can do within your community to be involved in songbird conservation
- Songbird Conservation Organizations – A listing of organizations that are involved in habitat and songbird conservation.