

3-5 Helping Communities Activity

Overview

Focus Question

How can you help wildlife communities?

Activity Synopsis

Students will investigate and describe what the wildlife communities are like in and around their town, and what they may have been like before people started to live there. They will design and implement an action project to help wildlife communities.

Time Frame

Continuing project

Objectives

The learner will be able to:

- Research how wildlife communities have changed in the local area.
- Design a visual project to communicate to others how the local wildlife communities have changed and what the issues are that affects them.
- Plan and conduct a project to help wildlife communities.

Student Key Terms

- biodiversity
- community
- conservation

Teacher Key Terms

- abiotic
- biodiversity
- biotic
- community
- conservation
- ecosystem

Standards

2014 Academic Standards and Performance Indicators for Science

3rd Grade: 3.S.1A.1, 3.S.1A.8, **3.S.1B.1**, **3.E.4B.3**, **3.E.4B.4**, **3.L.5A.1**, **3.L.5B.1**, 3.L.5B.2

4th Grade: 4.S.1A.1, 4.S.1A.8, **4.S.1B.1**, 4.L.5A.1, 4.L.5B.1

5th Grade: 5.S.1A.1, 5.S.1A.8, **5.S.1B.1**, **5.E.3B.3**, **5.L.4A.2**, 5.L.4B.3, 5.L.4B.4

* **Bold standards are the main standards addressed in this activity**

Third Grade Performance Indicators

3.S.1A.1 Ask questions that can be (1) answered using scientific investigations or (2) used to refine models, explanations, or designs.

3.S.1A.8 Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions, (2) understand phenomena, (3) develop models, or (4) support explanations, claims, or designs.

3.S.1B.1 Construct devices or design solutions to solve specific problems or needs: (1) ask questions to identify problems or needs, (2) ask questions about the criteria and constraints of the devices or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

3.E.4B.3 Obtain and communicate information to explain how natural events (such as fires, landslides, earthquakes, volcanic eruptions, or floods) and human activities (such as farming, mining, or building) impact the environment.

3-5 Helping Communities Activity

3.E.4B.4 Define problems caused by a natural event or human activity and design devices or solutions to reduce the impact on the environment.

3.L.5A.1 Analyze and interpret data about the characteristics of environments (including salt and fresh water, deserts, grasslands, forests, rain forests, and polar lands) to describe how the environment supports a variety of organisms.

3.L.5B.1 Obtain and communicate information to explain how changes in habitats (such as those that occur naturally or those caused by organisms) can be beneficial or harmful to the organisms that live there.

3.L.5B.2 Develop and use models to explain how changes in a habitat cause plants and animals to respond in different ways (such as hibernating, migrating, responding to light, death, or extinction).

Fourth Grade Performance Indicators

4.S.1A.1 Ask questions that can be (1) answered using scientific investigations or (2) used to refine models, explanations, or designs.

4.S.1A.8 Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions, (2) understand phenomena, (3) develop models, or (4) support explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language.

4.S.1B.1 Construct devices or design solutions to solve specific problems or needs: (1) ask questions to identify problems or needs, (2) ask questions about the criteria and constraints of the devices or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

4.L.5A.1 Obtain and communicate information about the characteristics of plants and animals to develop models which classify plants as flowering or nonflowering and animals as vertebrate or invertebrate.

4.L.5B.1 Develop and use models to compare how humans and other animals use their senses and sensory organs to detect and respond to signals from the environment

Fifth Grade Performance Indicators

5.S.1A.1 Ask questions used to (1) generate hypotheses for scientific investigations or (2) refine models, explanations, or designs.

5.S.1A.8 Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions, (2) understand phenomena, (3) develop models, or (4) support hypotheses, explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language.

5.S.1B.1 Construct devices or design solutions to solve specific problems or needs: (1) ask questions to identify problems or needs, (2) ask questions about the criteria and constraints of the devices or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

5.E.3B.3 Construct scientific arguments to support claims that human activities (such as conservation efforts or pollution) affect the land and oceans of Earth.

5.L.4A.2 Obtain and communicate information to describe and compare the biotic factors (including individual organisms, populations, and communities) of different terrestrial and aquatic ecosystems.

5.L.4B.3 Construct explanations for how organisms interact with each other in an ecosystem (including predators and prey, and parasites and hosts).

5.L.4B.4 Construct scientific arguments to explain how limiting factors (including food, water, space, and shelter) or a newly introduced organism can affect an ecosystem.

Cross Curricular Standards

South Carolina Social Studies Standards

3-1.1, 3-1.2, 3-1.3, 5-6.6

South Carolina College and Career Standards for ELA

Inquiry (I) – 3-1.1, 3-2.1, 3-3.1, 3-3.2, 3-4.1, 3-4.2, 3-4.3, 3-5.1, 3-5.2, 3-5.3, 4-1.1, 4-2.1, 4-3.1, 4-3.2, 4-4.1, 4-4.2, 4-4.3, 4-5.1, 4-5.2, 4-5.3, 5-1.1, 5-2.1, 5-3.1, 5-3.2, 5-4.1, 5-4.2, 5-4.3, 5-5.1, 5-5.2, 5-5.3

Writing (W) – 3-1.1, 3-2.1, 4-1.1, 4-2.1, 5-1.1, 5-2.1

Reading Information (RI) – 3-5.1, 4-5.1, 5-5.1

Communication (C) – 3-1.1, 3-1.2, 3-1.4, 3-1.5, 3-3.2, 4-1.1, 4-1.2, 4-1.4, 4-1.5, 4-3.2, 5-1.1, 5-1.2, 5-1.4, 5-1.5

3-5 Helping Communities Activity

Common Core ELA Standards

Writing – 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 5.1, 5.2, 5.3

Speaking/Listening – 3.1, 4.1, 5.1

Background

Key Points

Key Points will give you the main information you should know to teach the activity.

- **Biodiversity** refers to the variety of life at genetic, species and **community** levels.
- Preserving biodiversity is important because all living things are connected and dependent on each other. By preserving communities, you preserve biodiversity.
- The amazing growth in human population in the last few centuries and the natural resources taken from the earth to support that growth have led to a major drop in biodiversity; the largest mass extinction in earth's history since the dinosaurs disappeared 65 million years ago.
- Individuals have the ability to make decisions and take action that can help to preserve our wildlife communities and the biodiversity found within them.

Detailed Information

Detailed Information gives more in-depth background to increase your own knowledge, in case you want to expand upon the activity or you are asked detailed questions by students.

We have all heard of the importance of protecting wildlife species, but only recently has there been talk about protecting wildlife communities. In South Carolina there are initiatives to protect red-cockaded woodpeckers, red wolves and loggerhead sea turtles. More and more, though, we are beginning to realize that any one species cannot survive separate from the wildlife **community** in which it is adapted to live. For this reason, **conservation** is moving slowly from endangered species to endangered communities. Most of this movement is brought together under the concept of preserving **biodiversity**.

Usually when biodiversity is discussed, it is discussed in terms of maintaining a wide variety of species, but its definition is much broader than that. Biodiversity refers to the variety of life at all levels, not just at the species level, but at the genetic level and the community level as well. By conserving communities, all of these levels can be preserved.

Biodiversity is important at the species level because all species are interdependent on each other. No species could survive by itself. Examples abound. Animals depend on plants for food and oxygen. Plants depend on animals to help them spread their pollen to other plants and to help disperse their seeds. Plants also depend on decomposers to break down dead organic matter into nutrients that the plants can use. These relationships exist across the planet.

When you start looking at specific communities you will start finding even more specific species relationships. Many birds depend on trees to build their nests in for shelter. Large fish, such as grouper, depend on cleaner fish, such as porkfish, to remove parasites from their bodies. The entire community depends on apex predators to control the populations of certain species. For example, white tail deer no longer have any natural predators left in most areas, and their populations are exploding. Deer are creating major damage in many communities. There are too many of them, and not enough food or space, so they eat everything, destroying many plants that other animals depend on for food or shelter. They are also becoming nuisances in many human developed areas. This might not be a problem if wolves or mountain lions or other large predators of deer were still common in eastern forests.

Related to species biodiversity is the importance of maintaining genetic biodiversity within a population, the collective organisms of one species that share an environment and interbreed. Genetic biodiversity refers to the variety of genes being passed from generation to generation in a species population. The different genes within a species population determine the different characteristics the individuals of that species will have. Having more varied characteristics in a population can increase a species ability to adapt to changes in the environment. For example, in one population of fish, certain individuals of that species may have genes that allow them to metabolize better in warmer temperatures, while the rest do so in cooler temperatures. If global

3-5 Helping Communities Activity

temperatures continue to rise, the fish that metabolize in cooler temperatures may die out. The fish with the gene for metabolizing in warmer temperatures would be able to do well in the climate change and eventually could replenish the population. This way the population survives even though some of the general characteristics of the population have changed. Without the gene for warm weather, the population may have gone extinct. Genetic diversity protects species from uncertain futures.

Biodiversity also refers to preserving the variety of different communities. Communities, like species, are also dependent on each other. For example, the wildlife communities in the ocean are dependent on the wildlife communities in the salt marsh. The plants in the salt marsh release nutrients in the water that are used for food by ocean organisms, to help catch pollutants in the rivers before they contaminate the ocean and to provide nursery grounds where the young of many ocean animals grow and develop. The wildlife community in the salt marsh, in turn, is dependent on the wildlife communities in riparian forests along rivers in the Piedmont and Coastal Plain to prevent sediment from eroding into the rivers and then smothering the salt marsh. The loss of the saltmarsh community could have devastating effects on the ocean communities, and the loss of the Piedmont riparian forest could greatly affect both of the other communities.

Why is biodiversity such an urgent issue now? The great success of humans as a species often comes at the expense of other species. Almost everything we do that increases the convenience and comfort of our lives often occurs because something was taken away from other living things. It is estimated that currently, approximately 27,000 species go extinct every year, about one species every twenty seconds. This places us in the largest mass extinction since the dinosaurs died off 65 million years ago. All other mass extinctions in earth's history were caused by natural, **abiotic** causes such as changes in climate or strikes from large meteorites. Our current mass extinction is the only one caused by living things (man).

These numbers are staggering and may seem hard to believe. How does this happen? Don't we have endangered species programs to protect these animals? Because of limited funding, only a limited number of organisms can be funded for protection as endangered species. These tend to be large animals with popular appeal that can get a lot of public support for funding. Most of the organisms going extinct are plants, insects and other small animals that live in remote areas and are not widely known about. It would be difficult to name all of these organisms on an endangered list, not only because of lack of money, but because some of them do not even have names yet. New species are being discovered all the time and some scientists fear that many are going extinct before we have a chance to know anything about them. This is another reason why preserving communities is important, because it may also preserve overlooked species.

Nature is resilient, though, and there is still hope for our remaining wildlife communities, if we all take a share of the responsibility. The environmental impacts of each individual person may seem small, but with over six billion people on the planet, the cumulative impact can be massive. Every piece of land that is developed is the loss of habitat for numerous species. Every time fuel is burned, the contaminants released by it can influence the air and water quality hundreds of miles away. Spilled oil or antifreeze, litter, herbicides or pesticides can all be picked up by rain to infiltrate watersheds and affect all of the organisms that depend on them. Animals or plants accidentally or purposefully introduced into foreign environments, can wipe out native species that are not adapted to the introduced species' presence. The everyday needs of people for food, for fuel, for lumber, for minerals and metals can decimate entire **ecosystems** on land and in the ocean when those resources are taken from that environment.

Because each individual contributes to the loss of wildlife communities, each individual also has the opportunity to help preserve wildlife communities. A group of students working on a project can make a major contribution to the preservation of local wildlife communities. All it requires is a little thought and a little action.

One way we can help wildlife is through recycling and thinking about what we purchase. When we buy products, we are taking something from the natural world. Each product we purchase is made from materials that were either taken from the ground, such as oil or iron, or taken from living things, such as wood or food. The use of that product encourages more of the resources to be taken. When we throw out these products, they may not be biodegradable and can spend centuries in landfills waiting to decompose. Even easily biodegradable objects such as food can spend decades in landfills if they are buried where no oxygen can reach them. Even in perfect conditions, biodegrading can take a long time:

Paper	30 days
Cotton Rags	6 months
Wood	4 years

3-5 Helping Communities Activity

Painted Wood	15 years
Steel cans	100 years
Plastic	450 years
Aluminum cans	500 years
Glass	Undetermined
Styrofoam	Undetermined

Because little in the landfill is decomposing, these fill up quickly, and new land has to be claimed for more landfills, taking away from wildlife communities.

Obviously, we cannot stop eating food or wearing clothes and, as a society, we are too acclimated to driving cars or buying cleaning products, but we can be more careful of what or how much we buy or what we do with the products once we are finished with them. Buying recycled or recyclable products helps cut back on the amount of these products taken from the environment. Being conscientious of recycling products whenever possible also keeps new resources from being taken from the environment. Staying away from products with excessive packaging, or with non-biodegradable packaging, such as Styrofoam keeps these remains from filling up landfills. Composting food items keeps these from filling up landfills and also will produce nutrient rich soil that can be returned to the earth. Certain products should be avoided, because the demand for them is affecting wildlife populations. We are all probably familiar with how ivory from elephant tusks is affecting elephant populations, but there are many animals that are also being affected that are not as well known. Shark, swordfish, grouper and snapper are all fish that recent research shows we may be overfishing to dangerous levels. By stopping the purchase of these fish, average people can cut down the demand for them and thus reduce the fishing pressure on these species.

We can also help in our local community by reducing litter, reducing the use of chemicals such as pesticides and herbicides and planting native plants. Not littering is an easy thing for any conscientious person to do, but we can also help by picking up the litter that we find left behind by others. Most chemical herbicides and pesticides can be detrimental to wildlife communities, because they do not stay where they were sprayed. They are usually picked up by rainwater and then carried to local streams, rivers and wetlands where they can be ingested by wildlife and have detrimental effects. Herbicides are usually planted to prevent weeds from growing, but the weeds are usually the native plants of the land while the grass or other plant that is trying to be grown is the exotic species. Natural pesticides, such as ladybugs, are now replacing chemical pesticides. Ladybugs, a natural part of most North American ecosystems can be purchased to help remove aphids and other pests from gardens. Also, being careful to plant only native plants whenever possible can help return some of the original ecosystem to the community.

One of the best ways to preserve wildlife communities is to preserve the environments in which they live. Writing letters to local, state and national politicians expressing concern for the preservation of wild life and wild spaces can help to pass legislation that slows development and preserves natural areas. There are also many non-profit conservation organizations that are working to buy land for wildlife or have other programs that are helping to preserve biodiversity. Joining one of these organizations can help them to reach their goals.

One of the main problems facing wildlife is that most people are unaware that there is a problem. By educating others, we can help to reduce the problem by getting more people involved in solutions. Everything previously mentioned can be passed to others in the school through the creation of posters or other forms of information.

Preserving wildlife communities is important because, even though we have isolated ourselves from them, we are still dependent upon them. We are but one species among millions, but we are the only species with the ability to consciously destroy our environment. We are also the only species with the ability to learn from the past and think about the future. As such, we have a responsibility to do what we can to preserve the wildlife communities across the planet, so that all species have an equal chance to thrive on a beautiful planet.

Procedures

Materials

3-5 Helping Communities Activity

Whatever your students decide to use

Procedures

1. Have students think about a habitat in the local area (depending on where you live in South Carolina, this could be a mountain forest, a swamp, the ocean, etc.). Have students list some of the plants and animals that are common in the wildlife community found in this habitat.
2. Have the students think about and discuss whether the same wildlife community would have existed in the area before people moved in. Have them think about how people have changed the environment in and around their area and how this has affected local wildlife communities.
3. Ask students to research (see Resources list for reference materials) what the wildlife community is like around their area and how it has changed since people have moved there.
4. As a class, have students develop a visual project (a poster, a website, a book, a diorama, etc.) to illustrate the changes that have occurred in the wildlife communities. If changes have occurred in the wildlife community, have students discuss the what, why and how of these changes.
5. Have students consider everything that they have learned about communities, both in the classroom and at their visit to the South Carolina Aquarium, to determine what they can do to help local wildlife communities.
6. Have them discuss and develop an action plan for a project that they can do (let them come up with their own ideas, but if they have trouble suggest some from below). Have them implement this plan to get involved in conserving local wildlife.

Project Ideas

- Start a recycling program in the school.
- Start a composting program with cafeteria leftovers.
- Do a litter pick-up somewhere in the community.
- Write letters to politicians about conservation issues.
- Start an education campaign in school to educate others about conservation issues (create posters, website, etc.).
- Plant native plants in schoolyard or build bird and bat houses to create habitat.
- Donate a local nonprofit organization:
 - South Carolina Aquarium
<http://www.scaquarium.org/>
- Participate in one of these national conservation agencies:
 - National Wildlife Federation Schoolyard Habitats Program
<http://www.nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife.aspx>
 - Click on Schoolyard Habitats
 - World Wildlife Fund
<http://www.worldwildlife.org>
 - National Audubon Society
<http://www.audubon.org/>

Follow-up Questions

- Are there any wildlife communities left in the area that have not been affected by man? In the state? In the country? In the world?
- If we don't do our part and protect communities, what could happen to the world over time? Would you personally be affected? Your kids? Your grandkids?

3-5 Helping Communities Activity

- What other organisms can change their environment? (All of them in some ways. See "Living vs. Non-Living" Activity background info in the K-2 curriculum.)

Assessment

This activity is an assessment of the entire 3-5 curriculum. The completion of a project that shows changes in the local community as well as the design and implementation of a conservation project are the assessments of this activity.

Cross-Curricular Extensions

STEM Extension

Have students put their project idea into a presentation to give at the next PTA meeting. The presentation should include their project plus the budget, materials and manpower to complete the project.

Social Studies Extension

Have students think about items they use every day. Have them divide these items into lists of necessities and luxuries. Have the students think about where the items come from, both where the natural resources are taken from and how the items are produced. How does the production of these items affect wildlife communities? How would it affect human communities if these products were not available?

Language Arts Extension

Tell students a forest on the outside of town is going to be knocked over to put up a new shopping center. Have them write two letters to a member of the town legislature to practice persuasive writing. One letter should persuade the legislator why the new shopping center should be built. The other letter should persuade the legislator why the new shopping center should not be built. Ask them to pick the letter they personally feel should be sent.

Math Extension

Have students look at the lists of organisms they compiled for the local community at the beginning of the Helping Communities Activity, both in recent years and in the past. Have the students make bar graphs to compare how many of the animals in each community were fish, birds, mammals, reptile, amphibians, invertebrates and plants. For example, if they listed dogwood trees, live oaks trees and poison ivy in the community, then the bar graph would show there are three plants in the community.

Art Extension

Have the students work together to paint a mural that shows how the various organisms in a specific local wildlife community interact.

Resources

Teacher Reference Books

Baskin, Yvonne. *The Work of Nature: How the Diversity of Life Sustains Us*, Island Press, Washington, D.C., 1997.

This book looks at how human existence is dependent on preserving wildlife communities and biodiversity.

Carson, Rachel. *Silent Spring*, Houghton Mifflin Co., 1993.

This book, first published in 1962, was a powerful look at how pesticides have affected the natural world. It led to the banning of DDT and helped start the environmental movement.

DiSilvestro, Roger L. *Audubon Perspectives: Fight for Survival*, John Wiley & Sons, Inc., New York, 1990.

This book is a series of essays using text and photographs to discuss a variety of wildlife issues affecting our planet today.

Leopold, Aldo. *A Sand County Almanac*, Oxford University Press, New York, 1949.

This classic of nature writing was one of the first texts to examine the ethical reasons of why humans need to preserve wild places.

3-5 Helping Communities Activity

Morgan, Sally. *Ecology and Environment: The Cycles of Life*, Oxford University Press, New York, 1995.

This book is formatted for easy reference, and uses text, photographs and illustrations to show how biotic and abiotic factors are interconnected across the planet.

National Geographic Magazine, Vol. 195, No. 2, February, 1999. "Biodiversity: The Fragile Web".

This special issue is a great introduction to the concepts and problems associated with biodiversity.

Ricklefs, Robert E. and Gary L. Miller. *Ecology*, W.H. Freeman Company, 1999.

Though, admittedly, college textbooks are often a little dry and complex, they are often the best resources for finding information on a particular subject. This textbook introduces the reader to the science of and problems associated with ecology.

Tudge, Colin. *The Variety of Life*, Oxford University Press, New York, 2000.

This reference book looks at the diversity of life by showing the taxonomic relationships between all of the living things that are currently known.

Wallace, David Rains. *Life in the Balance*, Harcourt Brace Jovanovich, Publishers, New York, 1987.

This text looks at ecological interdependence in a variety of ecosystems and of the human efforts to preserve these ecosystems.

Wilson, Edward O. *The Diversity of Life*, Harvard University Press, Cambridge, 1992.

This Pulitzer Prize winning book by one of the world's foremost scientists looks at what happens to biodiversity when mass extinctions occur such as the one we are in today.

Teacher Reference Websites

National Audubon Society

<http://www.audubon.org/>

This website includes information on this conservation organization as well as on education ideas, conservation issues and species profiles.

National Wildlife Federation

<http://www.nwf.org/>

This website includes information on this conservation organization as well as on education ideas, conservation issues and Ranger Rick's Kid Zone.

The Nature Conservancy

<http://nature.org/>

This website includes information on this conservation organization that preserves wildlife communities by buying and protecting the land they inhabit.

Sierra Club

<http://www.sierraclub.org/>

This website includes information on this conservation organization as well as on conservation issues and how to take action.

South Carolina Coastal Conservation League

<http://coastalconservationsleague.org/>

This website includes information on this local conservation organization for the preservation of South Carolina's coast, as well as on conservation issues and how to take action.

South Carolina Heritage Trust

<https://www.dnr.sc.gov/mlands/heritage>

This website includes information on this program of the South Carolina Department of Natural Resources that preserves land of natural and cultural significance in South Carolina.

3-5 Helping Communities Activity

South Carolina Native Plants Society

<http://www.scnps.org/>

This website includes information on the society, on the native plants of South Carolina and on the issues related to native and exotic species. It also contains links to related websites.

The Wilderness Society

<http://www.wilderness.org/>

This website includes information on this conservation organization as well as on conservation issues, how to take action and a kid's page.

World Wildlife Fund

<http://www.worldwildlife.org/>

This website includes information on this conservation organization as well as on conservation issues, how to take action, education ideas, animal profiles and biodiversity topics.

Student Reference Books

Cone, Molly. *Come Back, Salmon*, Sierra Club Books for Children, San Francisco, 1992.

Learn how the students of Jackson Elementary School in Everett, Washington, cleaned a nearby stream, stocked it with salmon and protected it from pollution.

Herda, D.J. *Environmental America: The Southeastern States*, The Millbrook Press, Brookfield, CT, 1991.

A student's look at the environmental issues affecting the Southeastern United States.

Hoff, Mary and Mary M. Rodgers. *Our Endangered Planet: Life on Land*, Lerner Publications Company, Minneapolis, 1995.

This book discusses different wildlife communities and some of the issues affecting them.

Hoff, Mary and Mary M. Rodgers. *Our Endangered Planet: Population Growth*, Lerner Publications Company, Minneapolis, 1995.

This book explains population growth, how this affects wildlife communities and what can be done about it.

Hoffman, Nancy. *Celebrate the States: South Carolina*, Benchmark Books, New York, 2001.

A children's book on the history and culture of South Carolina as well as sections on the geography and wildlife of the region of the state.

Kent, Deborah. *America the Beautiful: South Carolina*, Children's Press, Danbury, CT, 1990.

A children's book on the history and culture of South Carolina as well as sections on the geography and wildlife of the region of the state.

Liptak, Karen. *Saving Our Wetlands and Their Wildlife*, Franklin Watts, New York, 1991.

This book describes the different types of wetlands and the wildlife found there. It also includes ideas for protecting the wetland habitats.

Mattson, Mark. *Scholastic Environmental Atlas of the United States*, Scholastic Inc., 1993.

This excellent reference book is filled with maps and charts that help kids to understand different aspects of environmental issues such as overpopulation and waste disposal.

McVey, Vicki. *The Sierra Club Kid's Guide to Planet Care & Repair*, Sierra Club Books for Children, San Francisco, 1993.

Learn how activities we do every day affect the environment. Includes tips for improving our environment as well as classroom activities for students.

Pantent, Dorothy Hinshaw. *Biodiversity*, Clarion Books, New York, 1996.

A students' look at biodiversity around the world and the issues pertaining to it.

3-5 Helping Communities Activity

Student Fiction Books

Cherry, Lynne. *The Great Kapok Tree*, Harcourt Brace Jovanovich, Publishers, New York, 1990.

A man getting ready to chop down a tree in the Amazon rainforest falls asleep and is visited by many different members of the rainforest wildlife community who tell him why they do not want the tree to be cut down.

Cherry, Lynne. *A River Ran Wild*, Harcourt Brace Jovanovich, Publishers, New York, 1992.

A beautifully illustrated story of how a river in New England has changed during the last 400 years as more people moved to live on its banks.

George, Jean Craighead. *My Side of the Mountain*, Puffin Books, New York, 1959.

A boy runs away from the urban sprawl of New York City to live by himself in the Catskill Mountains and must learn to survive in this environment.

Jeffers, Susan. *Brother Eagle, Sister Sky: A Message From Chief Seattle*, Dial Books, New York, 1991.

A beautifully illustrated book of the ecological message of Chief Seattle, an Indian chief who lived in the Pacific Northwest from 1790 to 1866.

Seuss, Dr. *The Lorax*, Random House, New York, 1971. |

The story of what happens to a community when the Once-ler cuts down all of the Truffula Trees.

Curricula

Aquatic Project WILD

Aquatic Project WILD is an interdisciplinary curriculum for K-12 teachers on aquatic wildlife and ecosystems. The activities cover a broad range of environmental and conservation topics.

For more information click on <http://www.projectwild.org/ProjectWILDK-12AquaticcurriculumandActivityGuide.htm>

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