

NATURAL INQUIRER

THE WORLD'S FORESTS EDITION - VOLUME XI / NUMBER 1



What kind of forests grow on Earth and how do they differ?



How well are we managing our forests worldwide?



How much carbon is being held by the world's forests?



How much of Earth's land is covered by forests?



**Welcome to the
World's Forests edition
of the *Natural Inquirer!***

Winter 2008

© Food and Agriculture Organization (FAO)
of the United Nations

United States Forest Service

Jan Heino
**Assistant Director-General
Forestry Department, FAO**

Abigail Kimbell
Chief
US Forest Service, Washington, DC

Ann Bartuska
Deputy Chief for Research

Jim Hubbard
**Deputy Chief for State and
Private Forestry**

With thanks to:

Safiya Samman
**Staff Director
Conservation Education
US Forest Service**

John Sebelius
**Staff Director
Science Quality Services
US Forest Service**

Alex Comfort
**Executive Director
Cradle of Forestry In America
Interpretive Association**

Andrea Perlis, Laura Russo, Mette Wilkie
Forestry Department, FAO

Editor:
Babs McDonald
US Forest Service

Layout:
Giulio Tiberi

The *Natural Inquirer* is an integrated science education journal for students aged 11-14. In the United States where the journal was first published, the *Natural Inquirer* presents research from scientists working in the United States Department of Agriculture's Forest Service.

This edition of the *Natural Inquirer* presents the results of a worldwide effort to understand the world's forests, organized by the United Nations Food and Agriculture Organization, or FAO. The report from which this *Natural Inquirer* is written is the Global Forest Resources Assessment 2005. It contains information from 229 countries and territories around the world.

You can access the FAO report at
<http://www.fao.org/forestry/fra2005/>

Visit:

<http://www.naturalinquirer.usda.gov>
<http://www.fao.org/forestry/site/fra>
<http://www.fao.org/kids/en/forestry.html>

for more information and
to find this journal online!

TABLE OF CONTENTS

EDUCATORS! Go first to the educator resources section on page 27.

4	.....	WELCOME TO THE WORLD'S FORESTS EDITION OF THE NATURAL INQUIRER!
5	.....	THINKING ABOUT THE ENVIRONMENT
6	.....	THINKING ABOUT SCIENCE
7	.....	INTRODUCTION TO THE INQUIRIES
8	.....	INQUIRY 1: WHAT KIND OF FORESTS GROW ON EARTH AND HOW DO THEY DIFFER?
14	.....	INQUIRY 2: HOW MUCH OF EARTH'S LAND IS COVERED BY FORESTS?
18	.....	INQUIRY 3: HOW MUCH CARBON IS BEING HELD BY THE WORLD'S FORESTS?
21	.....	INQUIRY 4: HOW WELL ARE WE MANAGING OUR FORESTS WORLDWIDE?
27	.....	EDUCATOR RESOURCES
28	.....	NOTE TO TEACHERS
29	.....	LESSON PLAN FOR WELCOME TO THE WORLD'S FORESTS EDITION
29	.....	LESSON PLAN FOR THINKING ABOUT THE ENVIRONMENT
29	.....	LESSON PLAN FOR THINKING ABOUT SCIENCE
29	.....	LESSON PLAN FOR INTRODUCTION TO THE INQUIRIES
30	.....	LESSON PLAN FOR INQUIRY 1
32	.....	LESSON PLAN FOR INQUIRY 2
34	.....	LESSON PLAN FOR INQUIRY 3
35	.....	LESSON PLAN FOR INQUIRY 4
37	.....	REFLECTION ANSWER GUIDE
39	.....	EDUCATIONAL CONCEPTS ADDRESSED BY THE INQUIRIES

WELCOME TO THE WORLD'S FORESTS EDITION OF THE *NATURAL INQUIRER*!

Have you heard of the United Nations? The United Nations (UN) is a world organization that was established in 1945. Today, nearly every nation in the world belongs to the UN. In total, 192 countries are members of the UN. These nations are working together for peace, human rights, freedom, and social progress.

YOU DO THE MATH:
How old is the UN today?

The Food and Agriculture Organization, or FAO, is a part of the United Nations. FAO helps developing countries and countries in *transition* modernize and improve agriculture, forestry, and fisheries practices. FAO also helps these countries provide good nutrition for all.

For many years, FAO has been collecting information about the world's forests. It may seem unusual for an organization concerned with food and agriculture to

be studying forests. Trees, however, can be important for the nutrition of people. Trees have many links to agriculture. They help protect soil and water necessary for food crops. People use forests and plant trees for the many benefits trees provide, including food, energy, wood products, construction materials, and medicines. Trees also help protect the environment.

Trees are often planted in a manner similar to food crops, except that it takes many years for trees or their products to be ready for harvesting (Figure 1). The more knowledge FAO can collect about trees and forests, the more successfully it can help countries like yours grow and manage healthy forests. More information also helps

your country take better advantage of forest benefits. These benefits improve the lives of all people.

In this edition of the *Natural Inquirer*, you will learn about the world's forests. Take a moment to think about the size of the planet. Because it is so large, you will learn about large areas of forests. FAO divided the world into regions and subregions (Figure 2). Most of the information in this journal is presented according to these regions or subregions. For example, Africa is considered one region. The three subregions of Africa include: Eastern and Southern Africa, Northern Africa, and Western and Central Africa. Take a moment to find the region and subregion where you live.

GLOSSARY:

transition: The act or process of passing from one condition, form, or place to another.

modernize: To make or become modern; to bring up to date.



Figure 1. A young forest plantation in the United States. Photo by Dave Powell, USDA Forest Service



Figure 2. Regions and subregions of the world

THINKING ABOUT THE ENVIRONMENT



Forests are important to the lives of all people everywhere. Worldwide, people benefit from the world's forests, even if those forests are not found in their own community. Forests provide materials such as wood for building or for energy. Forests provide food for people and for animals. They provide *habitat* for

many different kinds of plants and animals, which helps to maintain the *diversity* of life on Earth (Figure 3). Forests protect the quality of water and help keep the soil from *eroding*. Forests help keep the air clean and they provide places for people to live and play. In many places, forests provide jobs which help people and their families have a better life.

GLOSSARY:

habitat: Environment where a plant or animal naturally grows and lives.

diversity: A measure of the differences between the types and numbers of living things in a natural area.

erode: To wear away.

average: The usual kind or amount. The number gotten by dividing the sum of two or more quantities by the number of quantities added.

unit of measurement: A standard quantity of a physical property, such as meters, degrees Celsius, or grams.

Northern Hemisphere: The half of Earth that is north of the equator.

correspondent: In the context of FRA 2005, a correspondent is a representative from each country who gathered and sent information to FAO.

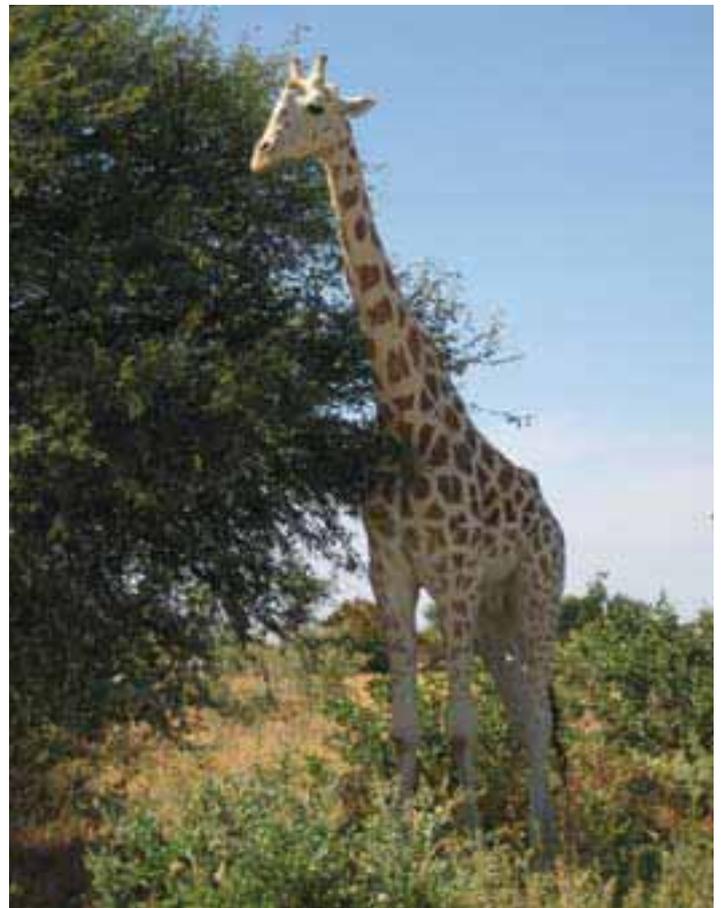


Figure 3. Forests provide habitat for wildlife



THINKING ABOUT SCIENCE

When scientists want to learn something, they must collect information. Although you might not

realize it, you do the same thing when you want to learn something. This information is called data, and it is often collected in the form of numbers. If scientists collect data in the form of numbers, they can add, subtract, multiply, or divide the numbers, and they can calculate new numbers like *averages*. Numbers help scientists compare information collected from different places or times. This is more complicated than it first appears. The numbers coming from different places or times must have the same *unit of measurement*. Otherwise, the calculations will be meaningless.

For example, let's say a scientist wants to calculate an average temperature for one month across the entire *Northern Hemisphere*. Some temperatures are reported

in Celsius and some in Fahrenheit. Would an average of those measurements allow a meaningful conclusion? Of course not! The scientist would have to change each number to the same unit of measurement. Only then could an average temperature be calculated.

This same scientist has found that some countries, when reporting a daily temperature, used the highest temperature measured each day. Other countries used an average temperature, calculated over a 24-hour period. Would an average of these measurements allow a meaningful conclusion? Again, the answer is no. When numbers are intended to be combined in some way, they must represent the same thing or calculations done with them are meaningless.

The scientists in this study wanted to learn about forests across the globe. To collect accurate data, they worked with an individual

in each country, called a *correspondent* (Figure 4). The correspondent provided his or her country's data to FAO. Each correspondent worked with FAO to ensure the numbers being collected represented the same thing. This enabled the scientists to add the numbers from different countries. In this way, the scientists were able to create a report about the world's forests.

REFLECTION SECTION

What are some of the benefits forests provide to your community?



Mr. Brad Smith is the National Correspondent from the United States. We asked Mr. Smith what he likes best

about this important job and he said: *“working closely with scientists from all over the world. I like discussing environmental issues and discovering new ways of thinking and solving problems. By working together, we improve our data gathering and reporting both at home and across the globe. I also liked discovering that some of the smallest countries have some of the most creative ideas.”*



Figure 4. The country correspondents met to discuss their work

INTRODUCTION TO THE INQUIRIES

This journal contains four Inquiries. Each Inquiry represents a study done by FAO scientists and country correspondents to answer a specific question about the world's forests. By the time you complete all four Inquiries, you will know several new facts about forests across the world.

Each Inquiry builds on the previous Inquiry. It is best, therefore, to read the Inquiries in the order presented. As you read about FAO's work to collect data about the world's forests, think about the forests you have seen, visited, or read about. Although there are differences between forests around the world, many

of the challenges and opportunities are the same wherever forests are found.

For each of the four Inquiries presented in this journal, FAO and the correspondents followed the same process to collect data. When the data were added together, it provided information about forests subregionally, regionally, and globally.

Next, we will take a look at the information collected by country correspondents and provided to FAO in these four Inquiries. If you want to learn more about the entire report about the world's forests, visit:

<http://www.fao.org/forestry/fra2005>