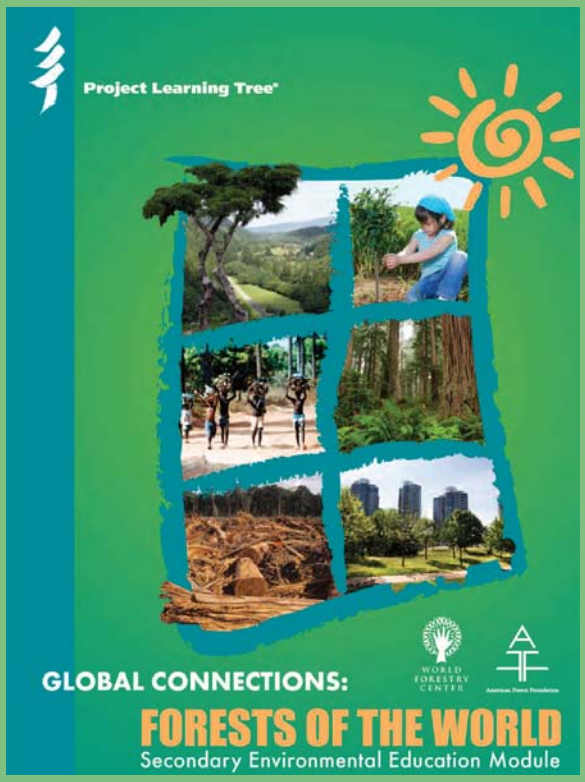
Project Learning Tree®

GLOBAL CONNECTIONS:
FORESTS OF THE WORLD
Secondary Environmental Education Module

Forests of the World:

World Forest Tour

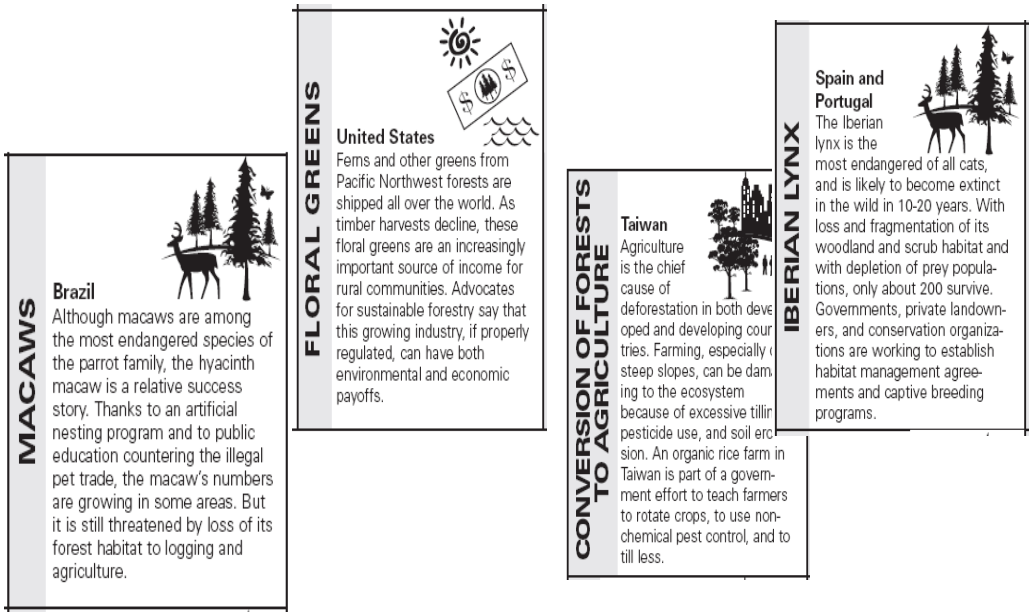


American Forest Foundation

WORLD FORESTRY CENTER

World forest tour

- ✓ 4 cards' categories about world's forests.
- ✓ Pages 23-30
- ✓ To stimulate student participation, use as ice breakers, ideas for research or investigation.
- ✓ Print, laminate, and cut the cards. To create a display or grab bag of topics and countries for student to choose. You can print them as one card per page or multiples cards in one page (if you prefer it in small size).
- ✓ Have students select, compare and discuss cards in using a variety of different groupings. What do cards have in common? How are they related?
- ✓If you have access to a world map, you can fix them on it and discuss the situations in global contexts.



World Forest Tour (p.23):

World Forest Tour

STUDENT PAGE

The following cards will lead you on a whirlwind tour of the world's forests. You will discover these forests' incredible bounty, the challenges they're facing, and what people are doing to ensure their future. The cards are presented in four categories: Making a Living, The Forest Provides, Wildlife, and the People of the Forest.

Making a Living

Millions of people around the world rely on forests for everything from food, to heating, to homes, but balancing their needs with the health of the forests is no easy task. These initial cards are about people who struggle to make their living from forests.

The Forest Provides

Forests provide material, income, food, fuel, spiritual and cultural values, and a multitude of environmental benefits to people around the world. How to balance these demands and ensure these benefits for the long-term are vital questions. The next set of cards will give some examples of the countless good things that people get from forests.

Wildlife

Wildlife species are under threat worldwide, largely from habitat degradation or loss. Causes include expansion of human settlements, farming, hunting, conversion of forest to nonforest, and competition from introduced species. Animals and plants live in complex webs of dependency within their environment, and each endangered species may represent an entire ecosystem at risk. Some of the threatened wildlife species are described on this set of cards.

People and the Forest

In many ways our fate is linked to the health of forests. Population pressure and growing consumption place unprecedented demands on forest ecosystems worldwide. The things we do for economic gain, or for basic survival, often have unintended consequences. This set of cards contains examples of the complex interactions between human populations and forests.

Source: Text of cards -reprinted from the *People and Forests* exhibit at the World Forestry Center's Discovery Museum, Portland, Oregon, 2007.

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Making a living

WOMEN'S VOICES

Papua New Guinea

In many communities, women provide for their families by gathering food, water, wood, and other materials from the forest. Despite their interest in the health of the forests, women are often left out of forest management decisions. Programs in many countries are exploring ways to give women a greater voice in forestry issues.

Making a living

GOING TO MARKET

Mali

Visit western Africa and you'll see local markets filled with women selling fruits, nuts, plants, and spices gathered from the forest. Many families depend on the money earned from selling these and other non-timber products. Economic development projects are helping women improve access to market information and other resources to increase family income.

MORE LOCAL CONTROL

Bolivia

Many countries have tried to improve forest management by giving local people more control over the forests they depend on. The results have been mixed. In Bolivia, some communities began patrols to prevent illegal farming, logging, and ranching. But other communities sold their timber to logging companies for short-term profit, with little concern for the future.

Making a living

COMMUNITY FORESTRY

Tanzania

In Tanzania, some communities have succeeded in forest conservation where the government has failed. With their new authority over local forests, several villages have replanted degraded lands, rehabilitated springs, repaired forest roads, closed off cattle tracks, and increased income generated from the forests.

Making a living

LIVING WITH BUTTERFLIES

Mexico

Thirty eight communities live alongside millions of migrating monarch butterflies at the Monarch Butterfly Reserve in central Mexico. Logging, farming, and tourism are damaging this habitat. Nongovernmental organizations and local people are learning to build houses and cook with less wood, to improve farming methods, and to reduce the effect of tourists.

Making a living

PROTECTING A WAY OF LIFE

Russia

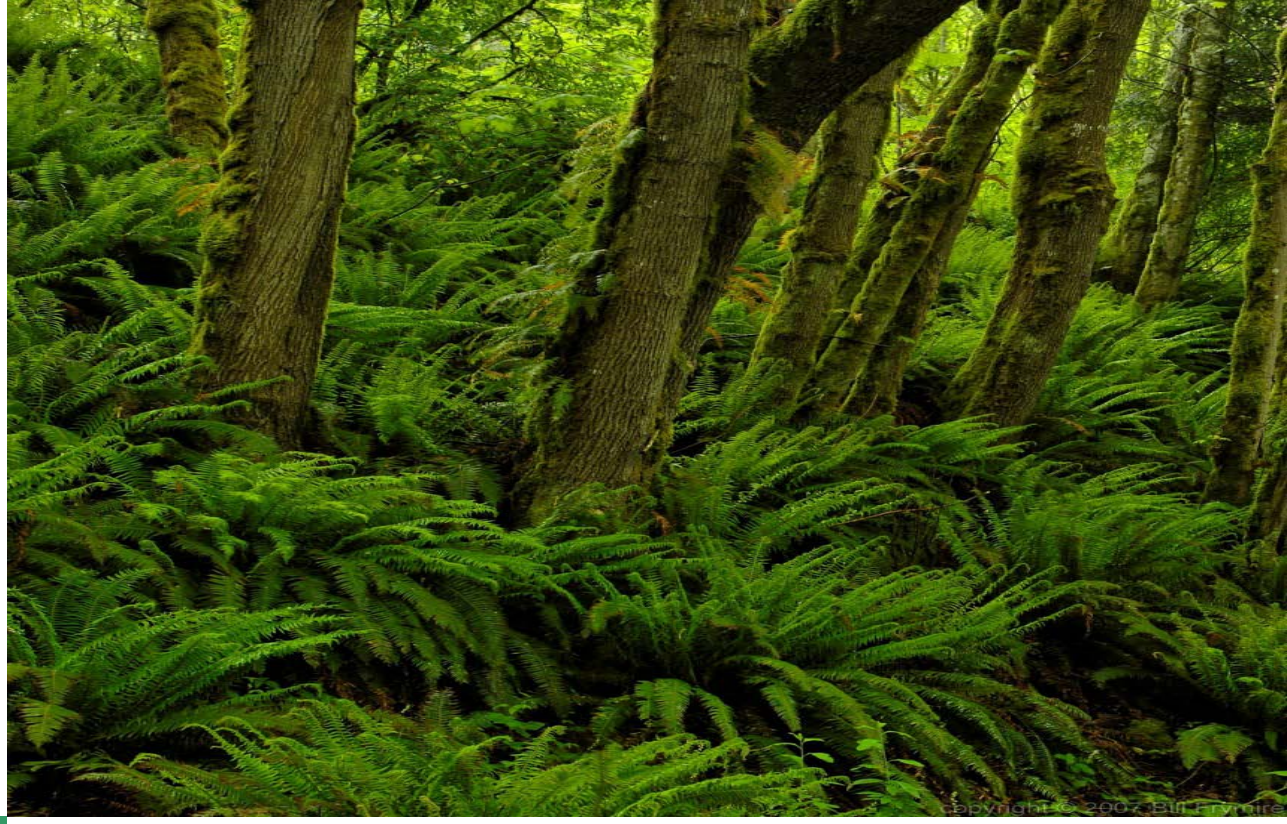
Hundreds of native groups live by herding animals, hunting, and gathering. In the forest and tundra of Siberia, their traditional ways of life are threatened by logging, mining, and pollution. Native peoples are joining forces to protect their cultures and rights to natural resources.

Making a living

INVESTING IN FOREST

New Zealand

About 14 percent of New Zealand's planted forests are owned by the country's native people, Maoris. They hope that plantations and commercial forestry will play an important role in their economic future, by providing jobs and other benefits.



The Forest Provides

FLORAL GREENS

United States

Ferns and other greens from Pacific Northwest forests are shipped all over the world. As timber harvests decline, these floral greens are an increasingly important source of income for rural communities. Advocates for sustainable forestry say that this growing industry, if properly regulated, can have both environmental and economic payoffs.

GUMS

Mexico

Ancient Mayans chewed chicle, the sap of the sapodilla tree (*Manilkara zapota)*. In the 19th century, a New Yorker added sugar and flavoring to this natural latex and created an instant commercial success. Although most chewing gum is now made with synthetic bases, chicle is still harvested on a small scale.

ART

New Zealand

According to oral tradition, the sacred art of wood carving was given to the Maori people by the sea god, Tangaroa. Artists today still carve indigenous wood with decorative, spiritual designs.

UTILITY POLES

United States

Douglas-fir (*Pseudotsuga menziesii)* is one of the woods commonly used for the poles that carry electricity and telephone lines to homes and businesses throughout North America. There are 88 million utility poles along American highways.

RAILWAY TIES

United States

The world's great railroads were literally built on wood. Durable wooden crossties, or "sleepers," under the rails easily bear hundreds of thousands of pounds. Wood is still the material of choice by more than 90 percent of the market.

PURE WATER

United States

New York City's famously good drinking water is filtered naturally through the forested Catskill Mountains watershed. In 1997, the city opted to spend US$1 billion to restore the watershed, rather than the US$6-8 billion it would have cost to build an artificial filtration plant.

The Forest Provides

CLEAN AIR

United States

Trees filter the air we breathe, thus absorbing carbon dioxide and pollutants and releasing oxygen. In Washington, D.C. alone, urban trees and forests absorb 395,100 kg (878,000 pounds) of pollutants a year.

MAPLE SYRUP

Canada

Native Americans taught settlers to make sugar from maple sap in the early 1600s. Now Canada exports 28,000 tonnes (31,000 tons) of maple syrup to more than 30 countries – 85 percent of the world's supply. A single sugar maple tree (*Acer saccharum)* produces enough sap to make about one liter of syrup a year.

BRAZIL NUTS

Peru

Natural stands of Brazil nut trees (*Bertholletia excelsa)* in Amazonian tropical forests produce valuable commercial nuts. The Brazil nut market supports forest conservation, as well as creating revenue for local people. In Peru, the Brazil nut concessions are managed primarily by local families.

The Forest Provides

WEATHER

Brazil

In addition to mitigating global climate change, forests can affect local weather. In the Amazon, they retain moisture and regulate temperature. Trees recycle half of the Amazon's rainfall - water that evaporates from trees in the morning comes back in the afternoon thunderstorms.

SHEA NUTS

Burkina Faso

The nut of the shea tree (*Vitellaria paradoxa)* contains about 50 percent fat, which has long been used locally in cooking, cosmetics, ointments, and soap. It has also become a source of income for the women who harvest it, thanks to growing demands from cosmetic, international food, and pharmaceutical industries.

PAPER

Finland

Finland supplies 25 percent of the world's printing paper, although it has only 0.5 percent of the world's forests. Paper, and the wood pulp used to make it, account for more than half the global trade in forest products.

The Forest Provides

RECREATION

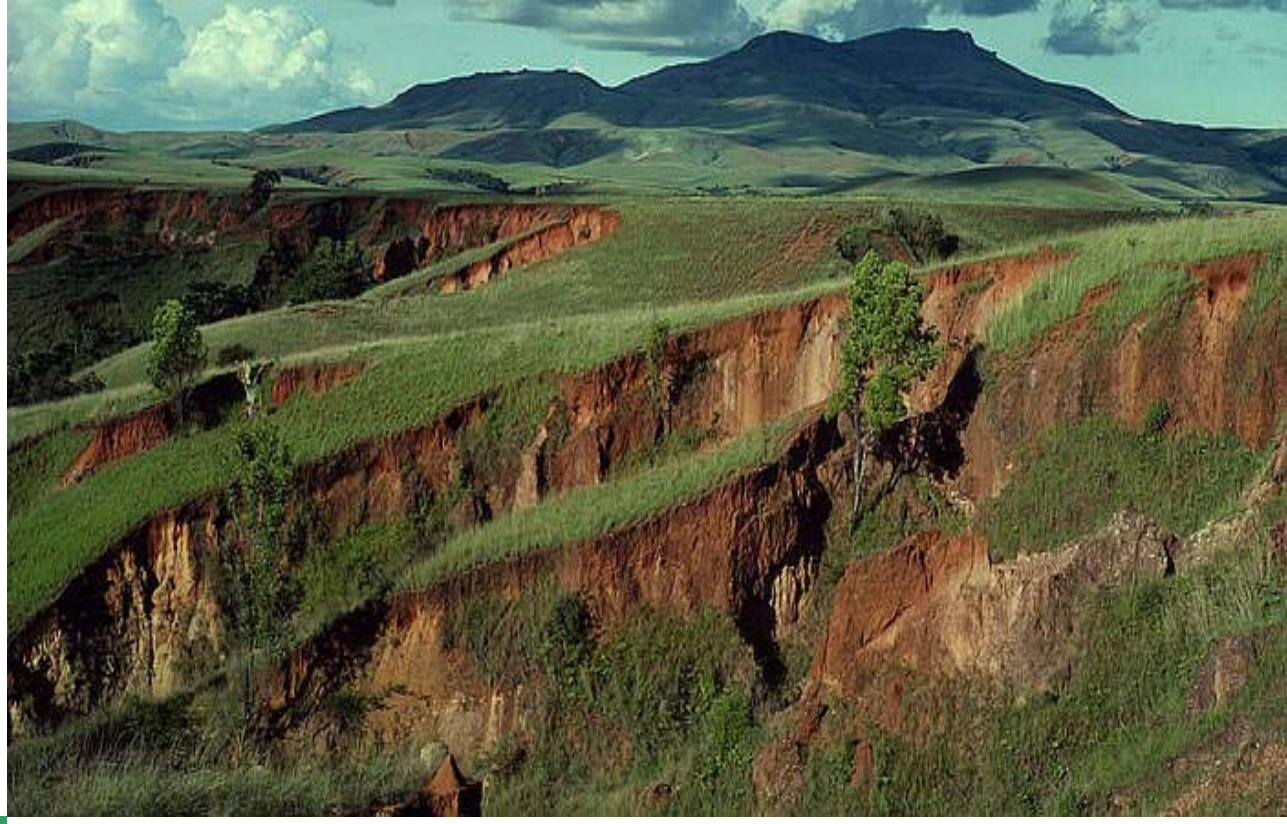
Finland

People like to camp, fish, hike, hunt, pick berries, ride, walk, and watch birds in forests the world over. In some parts of Europe, even private lands must allow access for public recreational use. Finnish citizens enjoy an extensive public right of access to all forests.

FURNITURE

Russia

In our global economy, Swedish designed furniture sold in the U.S. might be made in China from wood grown in Russia. Producers take advantage of the lowest labor and raw material costs around the world. In Russia, where forests cover 70 percent of the land and span nine time zones, logs can sell for a fraction of the prices charged in other parts of the world.



The Forest Provides

SOIL

Madagascar

Trees and other vegetation hold soil in place. With severe soil erosion - caused by slash-and-burn agriculture, heavy logging, and overgrazing - the native forests of Madagascar are unable to regenerate. Most of the animals and plants that depend on this habitat exist nowhere else on Earth.

EUCALYPTUS OIL

China

First introduced to the Western world about 150 years ago, this distilled oil is used to treat a variety of ailments, including coughs and muscle aches. It's also a flavoring, cleanser, and insect repellant. Although eucalyptus trees (*Eucalyptus globulus)* are native to Australia, China now produces about half the world's supply of the oil.

BAMBOO

China

Often called the "poor man's timber," bamboo (*Bambusoideae)* is actually a grass. It plays a crucial role in rural economies throughout Asia. It grows up to three feet a day, a third faster than the fastest-growing trees. Bamboo is used for everything from food to building materials, furniture, and utensils.

JUJUBES

China

Fruit can be an important source of food and income from forests. Jujubes, or Chinese dates (*Ziziphusjujuba),* are high in vitamin C and have been used medicinally for centuries. Today, because the trees grow well in degraded soil, they are being planted to combat desertification and to supplement rural incomes.

BOATS

Thailand

Sampans are common on the rivers, lakes, canals, and protected bays of Southeast Asia. Those flat-bottomed, paddle-powered wooden boats are used for transportation, fishing, and even housing.

MUSHROOMS

Taiwan

One cancer-fighting fungus, *Antrodia camphorate,* is found only in Taiwan and is inside endangered camphor trees. Because of its medicinal properties and rarity, this fungus sells for thousands of dollars a pound. Biotechnology companies are working to develop cultured forms of the fungus that are as potent as the natural form.

MEDICAL HERBS

Nepal

Local people harvest thousands of tons of medicinal and aromatic herbs annually from Himalayan forests and meadows. Much of the harvest is for export. This trade generates opportunities for economic development, as well as concerns about over harvesting.

SACRED TREES

India

Trees figure in spiritual and religious life around the world. According to Buddhist tradition, the Buddha was sitting under a tree, meditating, when he achieved enlightenment (bodhi). The bodhi tree (*Ficus religiosa),* sacred to Hindus as well as Buddhists, is a species of fig.

SAL LEAVES

India

Many women earn income collecting the leaves of sal trees (*Shorea robusta)* and stitching them together to make plates. The disposable and biodegradable dishes are finding a growing international market. In the state of Orissa, non-timber forest products such as these contribute as much as 40 percent of rural household income.

TEA

Thailand

In the mountain forests of northern Thailand, one village community harvests and sells green tea from natural stands of tea trees (*Thea sinensis)* that they enrich with new plantings. The 'miang" (green) tea gardens support the whole village community.

RUBBER

Malaysia

Natural rubber, or latex, is tapped from the *Hevea brasiliensis* tree. Although rubber trees are native to Brazil, 85% of the world's production now comes from Asia, where large-scale plantations were introduced in the 1800s. Synthetics are now available, but natural rubber supplies a third of the market.

SPICES

Indonesia

Many spices are derived from the bark, sap, fruit, stems, leaves, roots, flowers, or seeds of tropical forest trees. Nutmeg (*Myristica fragrans)* is the seed of an evergreen tree native to the East Indian 'Spice Islands." Another spice, mace, is the seed's bright red coating. The spice trade generally flows from the tropics to the rest of the world.

RESIN

Philippines

Almaciga resin, or Manila copal (*Agathis philippensis),* which is linoleum, paint, plastics, printing ink, soap, and varnish, is a major source of export income. New sustainable tapping methods are replacing traditional methods that can damage and ultimately kill the trees.

The Forest Provides

WEAPONS

Japan

Medieval weapons were often made of wood, and modern martial arts practitioners still use a variety of wooden swords, sticks, and spears. In Kendo, the art of Japanese fencing, the bokken, or bokuto, is a solid wood sword made of oak or other hardwoods.

The Forest Provides

BIODIVERSITY

Australia

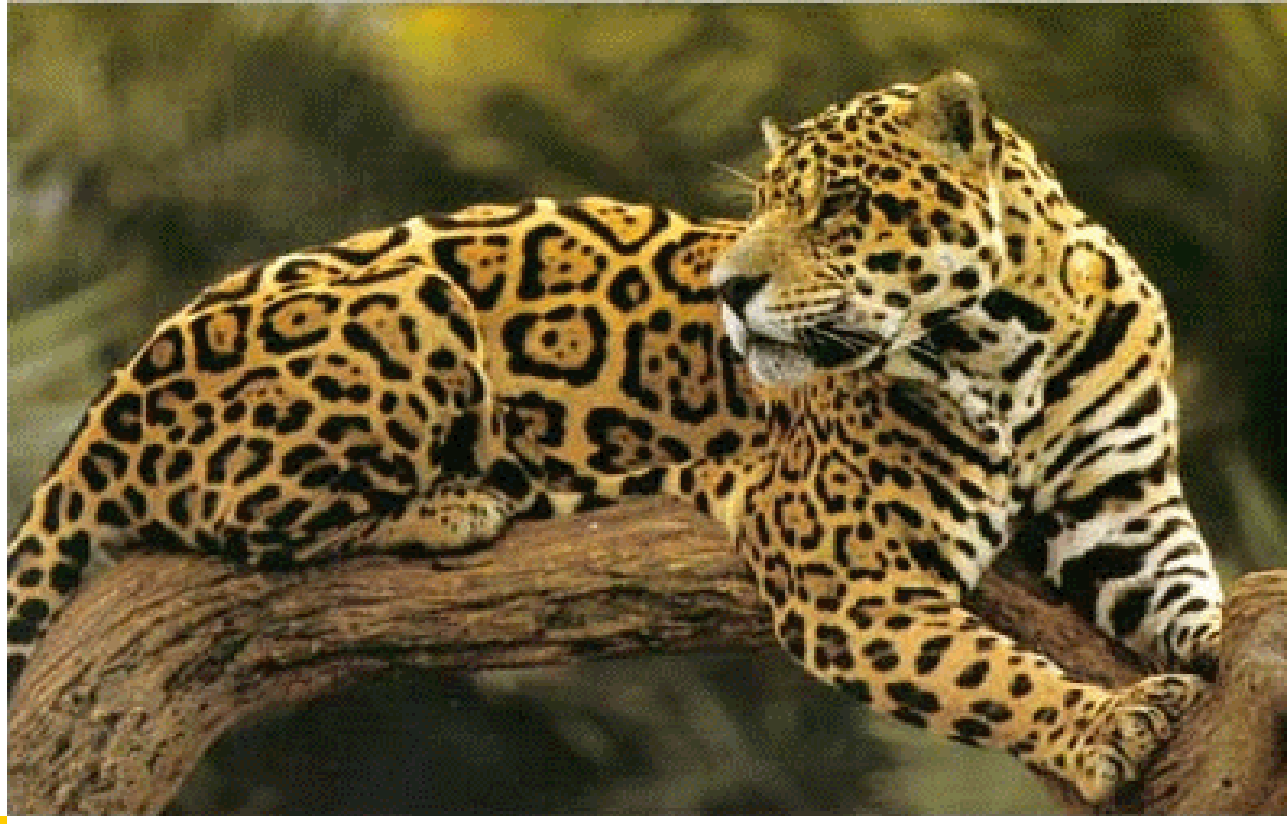
Many of Australia's plants and animals are found nowhere else on Earth. Over half of Australia's astounding biodiversity is in its forests and woodlands. Biodiversity is important for ensuring the health of the natural environment, cleaning the air and water, and maintaining fer-tile soils.

Wildlife

MOUNTAIN FORESTS

Armenia and Georgia

Isolated by steep terrain, mountain forest ecosystems often contain species found nowhere else. Forests in mountainous areas play an important role in protecting water resources and preventing soil erosion and flooding. Yet some of the most densely populated forests of the world are in mountain zones, where demands for cropland, fuelwood, and construction materials exert high pressure on the forest. Georgia and Armenia have developed national action plans to conserve those habitats.



JAGUAR

United States

The jaguar is endangered in much of its natural range, which extends through North, Central, and South America. North of the Mexican border, it is particularly rare. Loss of forest habitat, human encroachment, and illegal hunting are primary factors in its decline. Jaguars are killed for their prized fur and to prevent their preying on livestock.

MACAWS

Brazil

Although macaws are among the most endangered species of the parrot family, the hyacinth macaw is a relative success story. Thanks to an artificial nesting program and to public education countering the illegal pet trade, the macaw's numbers are growing in some areas. But it is still threatened by loss of its forest habitat to logging and agriculture.

Wildlife

IBERIAN LYNX

Spain and Portugal

The Iberian lynx is the most endangered of all cats, and is likely to become extinct in the wild in 10-20 years. With loss and fragmentation of its woodland and scrub habitat and with depletion of prey populations, only about 200 survive. Governments, private landowners, and conservation organizations are working to establish habitat management agreements and captive breeding programs.

BUSHMEAT

Democratic Republic of the Congo

Hunting wild animals - particularly duikers, pigs, porcupines, and primates - for bushmeat is a long-established tradition and source of income. But the growing demand, increasing forest access, and growing sales of bushmeat threaten biodiversity. Wildlife conservationists are working to improve protection of species and habitats and to create economic alternatives for local communities.

Wildlife

ORANGUTAN

Indonesia and Malaysia

Orangutan means "person of the forest." This great ape's 90 percent population decline is largely the result of destruction of its forest habitat. Logging, agriculture, and plantations are major threats, along with hunting. Protecting the orangutan from extinction will require creating and expanding protected areas and restricting the trade in meat and wild animals.

WOODLAND CARIBOU

Canada

These "grey ghosts" of the boreal forest need large tracts of mature forest for protection from predators and for the slow-growing lichens they eat. Once widely distributed across Canada - from the Yukon to Newfoundland - populations are dwindling as development, roads, agriculture, logging, mining, and oil and gas exploration encroach on their habitat. In Alberta, where woodland caribou are on the endangered wildlife list, fewer than 7,000 remain.

RISING SEA LEVEL

Tuvalu

By some estimates, Tuvalu and other low-lying island countries could disappear within 50 years, as global warming contributes to sea level rise. Deforestation is part of the cause. Clearing forests decreases the absorption of carbon through photosynthesis. Burning fossil fuels increases emissions of carbon gases that trap heat in the atmosphere.

MANGROVES AND COSTAL COMMUNITIES

Indonesia

Indonesia has nearly a quarter of the world's mangrove forests. Those trees and shrubs, growing along tropical and sub-tropical coastlines, support some of the world's most productive ecosystems. Thousands of coastal communities rely on mangrove forests for fuelwood, fish, and other products. But mangrove forests worldwide are shrinking as rivers are dammed and large tracts are converted to rice fields and to fish and shrimp ponds.

CONVERSION OF FORESTS TO AGRICULTURE

Taiwan

Agriculture is the chief cause of deforestation in both developed and developing countries. Farming, especially on steep slopes, can be damaging to the ecosystem because of excessive tilling, pesticide use, and soil erosion. An organic rice farm in Taiwan is part of a government effort to teach farmers to rotate crops, to use non-chemical pest control, and to till less.

CLIMATE CHANGE

Global

Rising global temperatures and sea levels are blamed on an increase in carbon dioxide, methane, and other "green-house" gases that trap heat in the atmosphere. Clearing forests and burning fossil fuels are part of the problem.

People and the Forest

POVERTY & DEFORESTATION

Brazil

Each year, thousands of square kilometers of Amazonian forests are burned for farming and ranching, often by poor and landless farmers. Forced to relocate to the forest frontier, they practice destructive slash-and-burn agriculture. Facing complex poverty and land rights issues, the Brazilian government is working with local communities and nongovernmental organizations to encourage sustainable farming practices.

PLANTATION

New Zealand

Plantations - mainly in Asia, Oceania, and South America - supply about a fifth of the global demand for wood. In New Zealand, plantations of fast-growing softwoods provide 99 percent of the annual forest harvest, with most remaining natural forests set aside as preserves.

FUELWOOD

Mali

Nearly two and half billion people - usually the rural poor - rely on wood for cooking and heating. Fuelwood accounts for more than half of the world's wood consumption. In places where supplies are dwindling, fuelwood gathering can deplete the forest, leading to soil loss, landslides, and flooding. Reducing poverty, establishing property rights, and introducing alternative fuels can promote sustainable use of this important resource.

MONOCULTURE FORESTRY

Denmark

One of the most important species in Danish forestry is the Norway spruce (*Picea abies*). When it was introduced to Denmark 200 years ago, Norway spruce was often planted in single-species stands. Those forests proved to be vulnerable to insect attacks and to blowing over in the wind. Today, Denmark is planting Norway spruce with a mix of other tree species to minimize damage from wind, insects, and diseases.

ENDANGERED PLANTS

India

India boasts 1,800 medicinal plants. The Ashoka tree (*Saraca asoca)* is one of hundreds that are threatened by over-harvesting, wasteful processing, and increasing human encroachment into forest habitats. Some cultivation programs have begun on degraded lands. A proposed nationwide biodiversity information network would inventory those plant species, which are a major source of export income.

FLOODING

Bangladesh

In the natural flood plain of Bangladesh, forest loss, urbanization, and rising sea levels are a devastating combination. Natural river channels - silted up with topsoil eroded from deforested slopes or filled in to develop housing and roads - cannot contain the annual monsoon deluges. Government-built river embankments and drainage systems provide some relief, but improved forest management practices and flood warning systems are critically needed.

DESERTIFICATION

China

Blowing sand chokes agricultural land, and Beijing is often pounded with sandstorms. Stripped of vegetation and topsoil, 2,500 square kilometers a year turn to desert. This change is the result of clearing forests, grazing, and collecting firewood. To stem the encroaching desert, China has launched the world's largest tree replanting effort.

FIRES

Indonesia

Massive forest fires in 1997-98 captured the world's attention. The fires were intended to clear land for subsistence farming and commercial tree plantations. Severe environmental conditions and a lack of monitoring allowed the fires to burn out of control, thereby polluting the air for months and destroying the wildlife habitat.

LAND SLIDES

Taiwan

In this mountainous landscape, deforestation multiplies the effects of frequent earthquakes and storms. Massive mudslides can bury a village in minutes. To better manage water drainage, the Taiwanese government is establishing a major forest planting initiative, a flood warning system, and a program for stabilizing hillsides.

SALINITY

Australia

Millions of hectares of farmland have turned to patches of salt desert as the water table rises, bringing with it salt that has been stored deep in the ground for thousands of years. The problem stems from clearing native vegetation for agriculture. To combat the problem, Australians are looking to replant native tree and shrub species, which have deeper root systems.

LAND TENURE

Poland

Eastern European countries are returning forests to private ownership - with mixed results. Although private ownership can improve local income and control and can encourage forest planting, small and fragmented landholdings may not be economically viable. In Poland, 1.4 million forest owners average less than five hectares per household. Hopes for better forest conservation are challenged by a lack of environmental awareness and financial resources and by a weak institutional framework.