

## Temperate Forest Foundation - Facts from Their Web Site

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

### Forests

About one-third of the United States - 737 million acres - is forested.

There is 30% more timber volume per acre in the U.S. than in 1952.

To grow a pound of wood, a typical healthy tree uses nearly a pound and a half of carbon dioxide and gives off more than a pound of oxygen. The process reverses itself in an old forest with more wood decaying than growing: for every pound of wood decaying, a pound of oxygen is used and nearly one-and-one-half pounds of carbon dioxide is released into the air.

In 1920, Timber harvest rates nationally were double the rate of forest growth; by 1986 net annual growth was 3.5 times what it was in 1920. 1986 net growth exceeded harvest by 37%.

In 1995, some 1.6 billion seedlings were planted in the U.S. - more than 5 new trees a year for every American. Millions of additional trees were naturally reforested.

43% of those seedlings were planted by the forest industry; 42% were planted by private landowners; and 15% by government.

Annual growth exceeds harvests and losses to insects and disease by 33% each year in the commercial forests.

More than 10 million acres of old growth forest can be found in Oregon, Washington, and California.

Private owners account for 59% of the nation's 490 million acres of commercial forestland; government owns 27%; and the forest industry owns 14%.

More than 270 million acres of federal land are set aside by various government agencies for use as wildlife refuges, parks, and wilderness areas.

### Paper

The United States has 5% of the world's population, but 30% of the world's paper and paperboard capacity and 34% of the world's wood pulp capacity.

In 1810, 3,300 short tons of paper were made in the United States. Today, we use more than 90 million short tons of paper and paperboard every year.

1993 was the first year in history in which more paper was recycled than was buried in landfills.

Paper can be recycled only 5 to 8 times before the fibers in the paper become too short and weak to be reused.

Old newspapers are commonly used to make tissue and cardboard, while magazines are often recycled into newsprint.

Each person in the United States consumes approximately 675 pounds of paper a year.

We read over 350 million magazines, 2 billion books, and 24 billion newspapers a year

Corrugated boxes are used to ship 95% of all manufactured goods in the United States.

### Wildlife

Over the past decade, forest products companies have spent more than \$100 million on wildlife and environmental research. They employ more than 90 wildlife biologists.

As a result of careful forest management, the white-tailed deer population has grown from 4.5 million to over 16 million in the past 30 years; pronghorn antelope have gone from near extinction to more than 1 million today.

In the 1970's, scientists knew of only 200 pairs of spotted owls. By early 1992, they had found over 3,510 owl pairs. By 1994, researchers found over 600 pairs of spotted owls in a single small section of private forestland in Northern California, suggesting that California alone could be home to as many as 8,000 pairs of spotted owls

## **Wood**

On the average, everyone uses the equivalent of a tree, 18 inches in diameter - 100 foot tall, every year. That's 80 cubic feet!

Inch to inch, wood is 16 times more efficient as an insulator than concrete, 415 times as efficient as steel, and 2,000 times as efficient as aluminum.

We use more wood by weight than all other raw materials combined (i.e. Plastics, Steel, Aluminum, Concrete).

The American market for household furniture was an estimated 50 billion dollars in 1996. California, Texas, Florida, Illinois, and New York accounted for 37% of the total. About 80% of the furniture was wooden or wood framed.

Wood products make up 47% of all industrial raw materials manufactured in the U.S., yet uses only 4% of the energy needed to manufacture these industrial materials.

Aluminum siding requires four times more energy and brick veneer 22 times more energy to produce and transport to the building site than do equivalent wood sidings.

Concrete floors need 21 times more energy to produce than do wood floors.

94% of all new homes are built with wood frames.

The average single-family home (2,000 square feet) can contain 16,900 board feet of lumber and up to 10,000 square feet of panel products.

Trees are a renewable resource. Actually, it's the only building material that is a renewable resource. Most other building materials come from non-renewable resources: the petro-chemicals used in plastics and the ores used for aluminum, iron, etc. Forest products are also recyclable and biodegradable - in 1993, 13.6 million tons of wood were recovered for recycling and reuse in products ranging from particleboard and paper to garden mulch. More than 95% of the bark and wood residues generated from producing lumber and plywood are used for energy and in other products.

The 5 products of wood... Paper, Panels, Lumber, Engineered Wood, By-Products

## **Fire**

The word fire is from the Greek 'pyra' meaning glowing embers.

Currently an estimated average of 30-32 million acres burn out of control each year worldwide.

Wildfires have devastated millions of acres of forest land, however, together with Smokey Bear, we've achieved a great deal of success in fire prevention.

Native peoples saw fire as an ally and were proactive in its use as a management tool. They used fire to drive game, eliminate pests, communicate, and to clear land for settlements, travel, and agriculture.

Many forest ecosystems are fire dependent. Fire is needed to control competitive species, prevent overstocking, open cones, and to prepare the soil for natural seeding. Fire dependent species have developed thick bark to withstand the periodic low intensity burns common to these ecosystems.

Sustained combustion from an ignition source requires three elements, often referred to as the fire triangle: fuel, heat and oxygen. Fire behavior can be understood through the fire behavior triangle: weather, topography, and fuels.

## **Soil**

The dynamic interaction between vegetation and soil is so strong that it's unclear which is dominant. Soil helps secure and renew the forest; forests help secure and renew the soil. The forest covers and protects the soil from extreme heat and cold while slowing the natural forces of erosion like water, wind, and gravity. Soil sustains the forest and provides raw materials for its life: fallen leaves, woody debris, and dead animals recycle through the soil. Time, weather and soil-borne organisms break these decaying plants and animals down into nutrients that rebuild the soil, and again become available for plant growth.

Healthy soil is a living body made up of inorganic material, decaying organic matter, water, air and billions of living organisms. Productive forests require healthy, living soil, clean air, and water.

Soil erosion caused by unsustainable practices is a global problem. Water courses carry sediment and deposit it in stream beds, deltas and oceans. The resulting siltation of stream beds causes increased flooding.

Wind is estimated to cause about 30% of annual soil erosion, on agricultural cropland. Wind erosion is primarily due to tilled fields lying exposed for long periods between growing seasons. Forest crops are rotated over decades rather than annually, so wind is not a major erosive factor for forests.

Soil is arranged in layers or horizons. The surface horizon of forest soil is a layer of organic leaf litter. Beneath this is the uppermost layer of non-organic material called topsoil. Typically this layer is mixed with large amounts of decaying organic matter known as humus. Topsoil provides the best environment for growing plant roots, microorganisms and other life. The two horizons that underlay topsoil are mineral soil and bedrock.

## **Recycling**

About one-third more paper was recovered for recycling in 1995 than went to landfills.

Americans now recover 45% of all paper used in the United States, and the nation's paper industry has set a goal to recover - for recycling and reuse - half of all paper Americans use in the year 2000.

Each day, Americans recycle enough used paper to fill 15 miles of boxcars. In 1995, that totaled more than 43 million tons of paper and paperboard, an average of 329 pounds per person.

More than a quarter (27%) of the stationery and other fine paper recovered in America is recycled into tissue products.

In 1995, 208,000,000 tons of municipal waste, including paper & paperboard, was generated in the USA. This works out to 4.3 lbs. of solid waste per day per person.

Recycling involves putting used paper into the correct bins (recovery), but also involves using recycled paper to close the loop.

Every ton of paper that is recycled saves 17 trees, 7,000 gallons of water, and 4,100 kilowatts of electricity.

Every ton of paper recycled leaves 3.3 cubic yards of free space in landfills.

Producing paper from recycled fibers reduces air pollutants by as much as 74% and water pollutants by as much as 35%.

A wood fiber can only be recycled 5 - 7 times before it loses its usefulness for papermaking. Virgin fiber must continuously be added.

There are two types of 'waste' that can be used to make paper products. Pre-consumer 'waste' is the residues from milling forest products. Post-consumer waste is the material we put in the bins.

More than 50% of the fiber for paper and paperboard comes from pre- and post-consumer waste.

Some papers such as newsprint and corrugated (paperboard) can be made from 100% recycled paper.

Americans use more than 90 million short-tons of paper and paperboard every year.

Paper that is not recycled has only two other places to go; it can be incinerated to create energy or sent to a landfill. Adding to municipal waste is the least desirable option.

Recycling the water used in papermaking is an important priority. The goal is to have closed-loop systems.

Sources of wood fiber for papermaking are: Home produced pulp, Imported pulp, Recovered paper

Before recovered paper can be used to manufacture new "white" grades of paper, the printing inks must be removed. A chemical process using alkali and detergents is used to 'wash' the pulp. After the ink is removed the fiber may be bleached, usually with hydrogen peroxide. When recycled material is de-inked, energy requirements can be high.

Recycled Content: HIGH for Packaging, MODERATE for Newsprint, LOW for Printing & Writing

It is possible to make printing or writing paper from recycled fibers, not from newspaper or corrugated boxes.

The weakest fiber is found in newsprint, and a newspaper has a short life. Recycled newspapers are used, together with magazine waste to make more newsprint.

As paper products are recycled again and again they must go into papers requiring little strength. Recycled material must be blended with primary (virgin) filler to add strength.

It is possible to increase the usefulness of certain grades of waste paper by a process called fractionation to separate the longer and stronger fibers within a mix of papers.

In 1995, 63% of newspapers and 70% of corrugated cardboard were collected for recycling.