

**OUR  
VANISHING  
FORESTS**

**Study Guide**

by Nina Luttinger

## OUR VANISHING FORESTS

27 minutes      Grades 7 - Adult

58 minutes      Grades 9 - Adult

Produced by  
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Forests  
Environment  
Values  
Social Studies  
Biodiversity

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## Introduction

Throughout its cultural history, much of our nation's forests have been cleared to meet the demands of expanding populations and urban development. The wealth of our forest resources was in fact one of the critical elements that allowed our country to grow and prosper as quickly as it did. As cities grew and civilization spread west, ever increasing amounts of timber were needed. Enormous tracts of forested lands, both private and public, were cut with little regard to sustainability or environmentally damaging consequences. Eventually, the government established a government office, the U.S. Forest Service, to oversee the management of the remaining public forests.

The priorities and policies of the Forest Service have changed over time. Today, a major controversy is brewing over the management of our public forests in the Pacific Northwest. This region holds our nation's oldest and most biologically diverse forests. In addition, this region holds many timber companies that claim they are economically dependent on cutting these forests.

*Our Vanishing Forests* brings its viewers into the heart of the Pacific Northwest, where the heated conflict between the timber industry and the envi-

ronment has gathered national attention. Spokespeople from both sides of the conflict are interviewed, and important issues are raised concerning economic and environmental impacts of logging. Through their voices, we hear about the ecological value of forests as living ecosystems, and about the region's economic ties to the timber industry. We also learn about the historical development of the timber industry in the United States, and the establishment of the U.S. Forest Service as our manager of public forests. This study guide is designed to complement the content of the video program and will delve deeper into some of the important issues raised therein.

## **Before Viewing**

- What is meant by the term "deforestation"? What are some causes?

- How is a living, unaltered forest valuable to our lives?

- How might the removal of trees in a forest affect the smaller plants and animals that live there? the soil? nearby streams?

- It is said that 90-95% of America's original forests have been cut. How and why did this happen?

- Name items in the household or classroom made of wood. How might this list look 100 years from now? Or 100 years ago? How have our uses for wood changed?

- Are there national forests near you? How are they being managed? How could you find out how your nearby public forests are being used?

## After Viewing

- What are the central arguments used by each side in the debate between the timber industry and the environment?
- Why does the Forest Service cut down “old growth”, instead of managing and cutting from tree farms?
- Why is “old growth” worth preserving?
- What are some of the employment alternatives the timber industry could consider as timber and timber sales decline?
- What does “below cost sales” refer to, and how is this term used in the industry vs. the environment issue?
- As citizens of the United States and owners of the public forests, how are we affected by this controversy? How can we involve ourselves, or express our reactions to this conflict?
- Counter the argument that many jobs will be lost if the Forest Service reduces or stops the logging of old growth forests.

## The Origin of the U.S. Forest Service

In 1891, Congress authorized forest reserves to be set aside on the public domain. Because there was no provision made regarding their management, in 1897 Congress appropriated funds to regulate and manage these federal forests. The year of 1897 also saw passage of The Organic Act, which authorized the sale of timber on these forests reserves. The reserves were under the jurisdiction of the General Lands Office, in the Department of the Interior, and the Secretary of the Interior had the responsibility of selling and supervising timber harvests. Additionally, local residents could have free use of timber in National Forests.

The chief aim in setting aside reserves was to avert the very real and dangerous prospects of a "timber famine." As such, reserves were established "to improve and protect the forest within the boundaries, or for the purpose of securing a continuous supply of timber for the use and necessities of the citizens of the United States."

In 1897, these reserves totaled little more than 30 million acres, most of which was high elevation in the Pacific Coast states and in the central and northern Rocky Mountains. By 1905, Theodore Roosevelt had expanded the nation's total reserves to about 85.7 million acres. By 1921, the reserves were about 182 million acres.

In 1905, the U.S. Forest Service grew out of what was then called the Bureau of Forestry, within the Department of Agriculture. The Bureau's leaders; Bernhard Eduard Fernow and his successor Gifford Pinchot, believed in the importance of technically

correct management of woodlands as an example for the rest of America. In 1907, Pinchot renamed the reserves "national forests" to suggest that these were resources to be used, not locked away as "reserves." Pinchot believed in careful, well-planned use of forest resources, but was also an avid proponent of conservation of forests for future generations, and became disillusioned with the changing priorities of the Forest Service as they became increasingly tied to the timber interests.

From the very start, the Forest Service's main objective was to ensure a continuous flow of timber in ways that would permit ongoing extraction of timber at rates that would not exceed the growth of young timber. This is what became known as "sustained yield." They aimed to have all forests, public and private, managed on a sustained yield basis. But because the Forest Service lacked regulatory power at the time (its main responsibility was public information) their method of encouraging correct forest management was through persuasion or propaganda. By making a demonstration forest of the national forests, they hoped to show the public that, in the words of Gifford Pinchot, "practical forestry means both the use and the preservation of the forest." In these early days of the Forest Service there was a genuine effort to maintain or preserve the forests, while also extracting timber from them.

Throughout the twentieth century, old growth ("overmature") timber was viewed as unproductive because it did not grow quickly. By replacing old growth with faster growing, younger trees, it would be possible to increase the total volume of wood in the forests at a faster rate. In other words, quantity (volume), not quality was the main concern. The timber industry was primarily concerned with safe-

guarding their own industry, without explicit regard to the long term impacts of their activities. Today, *all but 2-3%* of the commercially suitable old growth forests have been cut at least once.

Timber revenues did not meet the expectations of the Forest Service. The government had expected the national forests to become self-supporting. Instead, the Forest Service had to continually ask the government for funding beyond that raised by timber and grazing fees. Due to insufficient demand for national forest timber, timber sales began slumping and the Forest Service began to change its views on the volume of timber that could be sold in a single sale. Offering larger volumes of timber over longer periods of time seemed like a good answer to the budget problem.

The result was a dramatic reduction of our national forests. An original forest extent of 822 million acres declined to 138 million acres of virgin stands and 250 million acres of culled or second growth timber. Timber became recognized as another form of agriculture, characterized by intensive harvesting to maximize immediate financial gain. In order to allow the timber companies to gain access to prime stands in remote regions, the Forest Service used our taxpayer funds to build a network of service roads across our public forests.

Recreation gradually became another major use of national forests. By 1935, recreational visits on national forests were estimated at 13 million per year. At this time, timber, grazing, recreation and watershed protection were the principal uses of the forests, and the term, "multiple use" finally became an official part of the Forest Service's management language.

However, it was not until 1960 that the term became law with the passage of the Multiple Use - Sustained Yield Act. This Act stated that our national forests were to *equally* serve five interests: timber, wildlife, range, water and outdoor recreation. Each of these interests were to be managed using the principles of sustained yield- at the maximum rate of extraction that could be sustained without depletion of the resource. That timber interests still held the top priority to the Forest Service became a point of much contention and to this day, it is still often argued that multiple use is only truly instituted where it could not interfere with timber harvests.

Clearcutting became the preferred system of timber harvesting in the Pacific Northwest by the 1950s. In the eyes of the foresters, this method promoted regeneration, the orderly management of specific tree species, the removal of old growth, and maximized yields per cut acre. Ira Mason, head of the Forest Service's timber program in the 1950s, typified the Service's bias towards clearcutting:

"There may be exceptional situations, particularly where scenic considerations are involved, where partial cutting should be used. But with present utilization possibilities there is seldom an advantage to be gained from the partial cutting system on stands of about 250 years or older. It is delaying the time when cutting results in regeneration and new growth."

As the amount of visible clearcut patches increased, so did the public complaints. Throughout the 1960s, complaints on clearcutting grew steadily, and eventually the Forest Service was publicly pressured into evaluating its methods. Besides the public relations errors of their blatant disregard for

aesthetic sensibilities (in clearcutting near sightseeing roads, or in scenic tracts), the Forest Service also began realizing the technical errors involved in clearcutting on inappropriate terrain and the subsequent erosion and silting up of streams.

By the 1970s, the Forest Service instituted more careful controls on harvesting methods, and increased their sensitivity to the aesthetics of our national forests. In addition, programs like, "Inform and Involve", various advisory committees and a reformed planning process attempted to involve the public in some of the decision making. Although the aesthetics of some of the regions may have improved somewhat, these attempts were seen by many as empty-hearted public relations strategies.

Today, the Forest Service's mission is still the same as it ever was: to ensure the country a continuous supply of timber. Their aim was to convert the forests to the condition of maximum sustained yield. It was their adherence and rigidity in approach to this aim that created difficulties. In short, their tragic flaw seems to be their inability to accommodate changing values.

And although their approach may have worked in the earlier era of their beginnings, the changing winds of cultural attitudes have caused increasingly heated conflicts and controversies. If the Forest Service is to survive and prosper in its public image as well as its timber sales, it will have to better accommodate new ecological perspectives and a change from a short-term economic gain view to a long-term economic and environmental impact view.

## **Forest Ecology**

The best way to understand a forest ecosystem is to consider the many different ecological interactions

occurring within it. Beginning underneath the trees, extensive rooting systems prevent the runoff of mineral-rich topsoil in times of heavy rainfall. Also in the soil, associated with the roots of most trees, are organisms known as mycorrhizae. Mycorrhizae are a kind of fungi that form symbiotic ("living together") relationships with plant roots. The fungi are thought to convert minerals in the soil into an available, usable form, and transport it to the roots of the plant. In exchange, the roots secrete sugars and amino acids that are used by the fungi.

Within the tree itself is a myriad of different habitats for countless types of living organisms such as small plants, fungi, lichen, birds, insects and small animals. Within the forest as a whole, are a whole host of other different organisms that may not live directly on the trees, but depend, in one way or another, on those trees.

All of these different levels of life are interacting with one another, and depend on one another. In other words, each of the different lives in the ecosystem have a function to other lives in that ecosystem. Consequently, damage to any one of the elements in this dynamic system, such as removing the trees, will have catastrophic effects on the whole system.

Even when a tree dies, it remains a critical component of the ecosystem. It becomes a place to live and a source of food to many organisms. Squirrels may live in it, woodpeckers may peck holes in it searching for insects, insects will begin the process of decomposing the wood. As the wood decays, more insects are attracted to it, thereby attracting more wildlife. With the help of bacteria, the decomposing wood eventually melts into the earth, releasing nutrients back into the ecosystem. Finally, all evidence of the tree has disappeared and in the process it has nourished the whole living forest.

## Jobs vs the Environment

Simply put, jobs are the main argument used against environmentalists who are working to reduce or stop logging operations in the Pacific Northwest. Loggers claim this region is economically dependent on the timber industry for jobs. In actuality, automation of the industry has been a major source of job declines in recent decades. Furthermore, the industry is presently exporting a vast amount of the harvested wood *as raw logs* to Japan, where they will hire their own industries to process the logs into usable forms. Sadly, much of this imported wood is destined to become disposable pallets or chopsticks that will be used once, then discarded.

In addition, "below-cost timber sales" provide a strong economic argument in favor of conserving what is left of our vanishing public forests. The rising expenses involved in developing service roads, transporting logs, increasing legal costs and competition with timber from privately owned land has often led to timber sales that fall below the total cost incurred in producing the timber.

The forests, at their present rate of destruction, are not a renewable resource. The timber industry, as it works now, has a limited lifespan anyway. The environment that is being ravaged by its short-sighted practices may never truly regenerate. Old growth forests, which have taken literally centuries to mature, will be lost forever, for the sake of short-term profits. True, even without planned reforestation projects, trees will grow back eventually. But the combination of topsoil erosion (from the initial cut) and the various characteristics of second growth will create a vastly different ecosystem than the original.

In reforestation projects, replanting single-species tree plantations can never ecologically regenerate a real forest. But reforestation projects are an important consideration for a number of reasons. First, replanting trees will reduce erosion of topsoil that typically follows deforestation. This will also minimize microclimatic changes that occur following deforestation, reduce siltation of streams and maintain water quality of the nearby watershed. Because plants use atmospheric carbon dioxide to synthesize their own simple sugars, revegetating any bare land will also help reduce global carbon dioxide levels, thereby lessening the greenhouse effect. Second, reforestation will provide timber resources for future generations. And finally, large scale reforestation projects may be the most viable solution to the question of jobs versus the environment. Reforestation projects on a large scale have the potential of employing thousands of people in the Pacific Northwest, and at the same time it would be renewing our damaged environment instead of destroying it.

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