Mt. Verstovia, Sitka

WHAT HAPPENS FOLLOWING CLEARCUTTING?

A few years before the sale of Alaska to the United States in 1867, Russian loggers cut a hillside near Sitka for the production of charcoal and lumber for ship-building. This logging permitted heat and light to reach the ground and hastened the decay of forest litter. A mixture of spruce and hemlock began growing on the cut over areas through natural regeneration. Now, approximately 100 years later a mature second growth stand covers the hillside.

A forest meets many needs while it is growing to maturity: wildlife food and shelter, watershed cover, recreation, aesthetics, to name a few. And when the forests are mature, harvesting some of them by clearcutting will start the cycle all over again. This managed and super-vised harvest follows nature's methods of renewing a forest.

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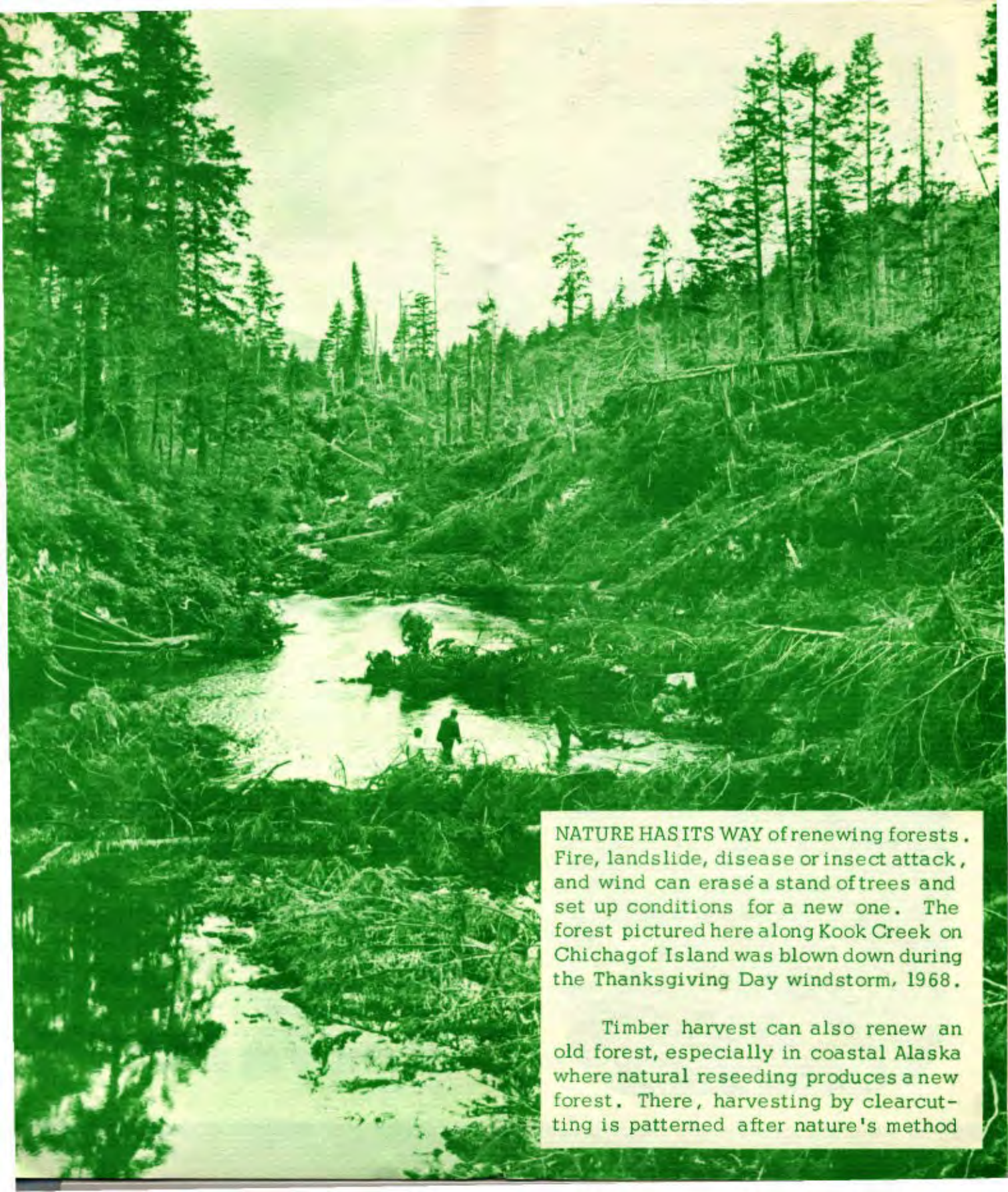
clearcutting in coastal alaska? why?

Alaska Region — Forest Service
U.S. Department of Agriculture



NATURE HAS ITS WAY of renewing forests. Fire, landslide, disease or insect attack, and wind can erase a stand of trees and set up conditions for a new one. The forest pictured here along Kook Creek on Chichagof Island was blown down during the Thanksgiving Day windstorm, 1968.

Timber harvest can also renew an old forest, especially in coastal Alaska where natural reseeding produces a new forest. There, harvesting by clearcutting is patterned after nature's method

CLEARCUTS ON THE slopes in the distance are "rigid" patterns of right angles. New timber sale layouts will resemble the irregular size and shape of natural openings like the muskeg in the foreground on Mitkof Island.

of renewing the forest. Still, this logging technique must be systematically well planned and as compatible as possible with other benefits that come directly or indirectly from the forests. Clearcutting is not aesthetically pleasing to many people who are becoming interested in how forests are managed.

However, Forest Service landscape architects in the Alaska Region and elsewhere are working to minimize the visual impact of clearcutting. They do this by designing smaller, irregular-shaped cuts to fit existing topography and dispersing them so they will not be too close to one another. Wildlife, watershed and soil specialists also have a part in preparing a timber sale to protect these other resource values.

The important fact is that forests in coastal Alaska grow best on a site that has been opened through clearcutting. Here are some of the reasons why this technique is used instead of other methods of timber harvest.

GOOD DISTRIBUTION

NOT SO GOOD

This timber (below dotted line) along Whitewater Bay on Admiralty Island grew back on a 1927 clearcut. The fresh cut in the foreground will eventually be reforested in similar manner.

GROWTH OF SEEDLINGS IN CLEARCUTS IS INCREASED BY NUTRIENT RELEASE

Beneath overmature timber stands, the cool temperature and insulation of a thick, mossy carpet retard the release of nutrients bound up in the organic material. Clearcutting opens the stand and permits light and additional heat to reach the ground, stimulating biotic activity in soil and the decomposition of forest litter. In this way nutrients are made more readily available to the new forest that begins growing after the old forest is cut. These new forests will grow better due to the increased soil fertility resulting from this nutrient cycling.

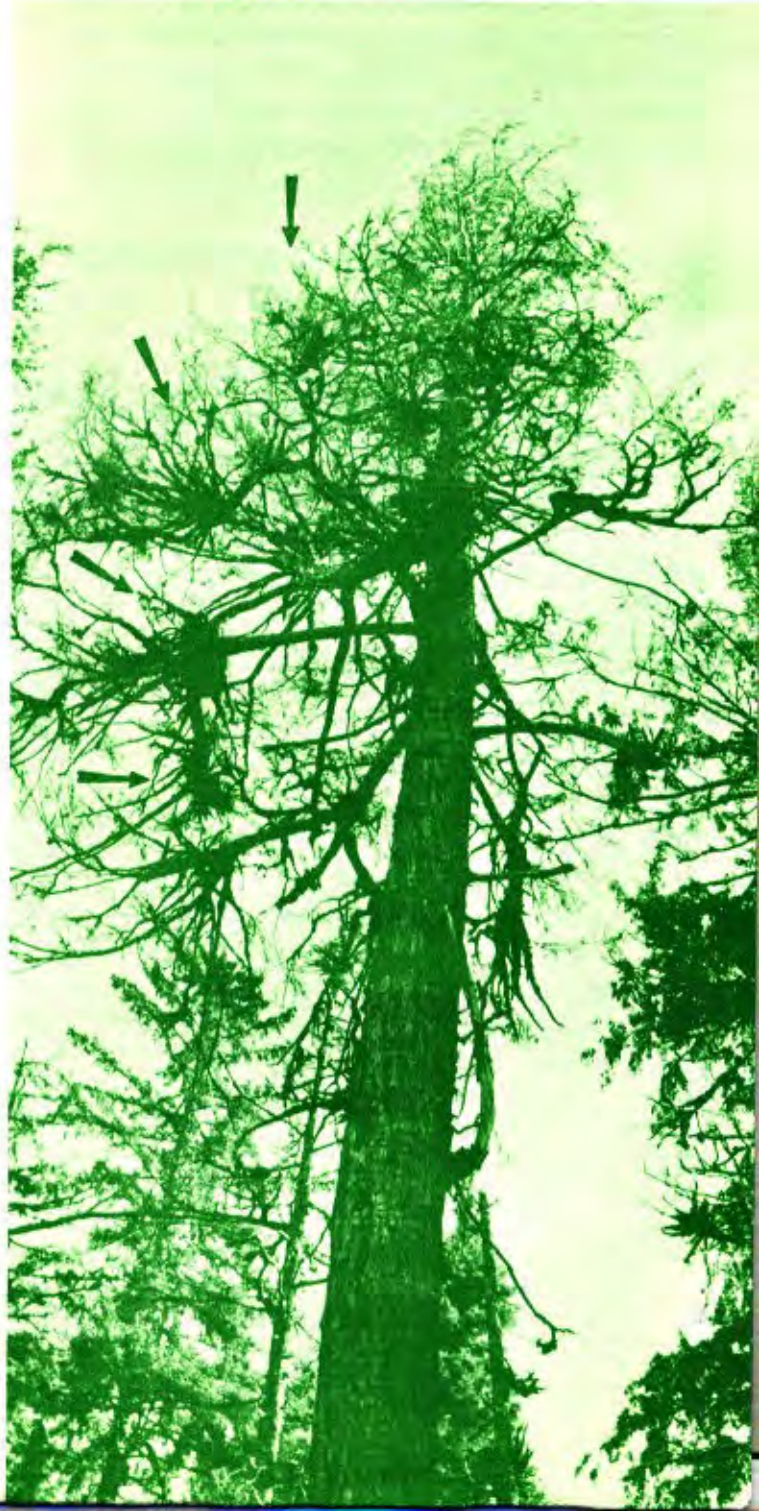
A CLEARCUT FAVORS THE NEW GROWTH OF BOTH SPRUCE AND HEMLOCK

Natural reseeding that follows clearcutting in the Chugach and Tongass National Forests almost always guarantees more than adequate regrowth of Sitka spruce and western hemlock. These two key species of coastal Alaska will grow in the same area if the mature crop is removed all at once. Generally, the percentage of spruce and hemlock is determined by soil and site characteristics. New stands will have a higher percentage of spruce than the old forest which was removed. But spruce will not grow as well as hemlock in shade. Spruce needs more sunlight and the additional nutrients released by the warming of soil in a clearcut. Even hemlock grows slower in partial shade of a forest where only some trees are removed, as in a selectively cut area or where individual trees have been blown by strong winds.

The seedlings on a clearcut are not apparent in the tangel of lush deer browse that comes in after clearcutting. But under the browse, the new forest is evident. In a few years this new forest will emerge through the brush as a strong, vigorous stand of second growth trees.... a new forest started by clearcutting.

Spruce (A) and hemlock (B) grow back on former clearcut area by Thumb Bay.

Arrows point out mistletoe growths on hemlock along Whitewater Bay on Admiralty Island.



TIMBER STANDS THAT GROW BACK ON CLEARCUT SITES ARE HEALTHIER

Old growth forests have their place in the biome of nature and Alaska will always have its share. But there is a point in the life of an overmature stand when there is more wood fiber loss through insect and disease attack and other natural causes than there is growth of new wood. Bark beetles heavily damage overmature forests. Large areas of old growth hemlock are defoliated by hemlock sawfly and black-headed budworm. Even in second growth stands, disease and insects that affect one species can run rampant, but second growth forests containing fairly equal amounts of spruce and hemlock have fewer insect and disease problems.

A serious tree disease in coastal Alaska is dwarf mistletoe, a parasitic plant that infests hemlock. The fruit bursts when mature and showers seed down on neighboring trees. Removal of all infested trees during or after clearcutting prevents the spread of this disease to yound hemlocks. As a logging technique, therefore, clearcutting reduces the incidence potential of insect and disease problems that could affect the new forest on that site, and the new forest will be more vigorous.

CLEARCUTTING PRECLUDES DAMAGE TO FOREST THAT ALTERNATE HARVEST SYSTEM CAN CAUSE

A. Both Sitka spruce and western hemlock are shallow-rooted, so the heavy rains and strong winds so prevalent in coastal Alaska make these trees vulnerable to blowdown. Even though a closed stand of trees usually serves as its own windbreak against storms, blowdown of these natural stands still occurs frequently in coastal Alaska. When a stand is thinned, the trees that remain sometimes lose this mutual support and are more subject to being blown over by the wind. Therefore, the trees left after selective cutting in an old stand are not likely to stand long enough to be harvested at a later date. However, the Forest Service in Alaska is preparing to experiment with selective thinning in young stands in an effort to develop wind firmness.

Falling spruce knocks over smaller trees illustrating effects of selective cutting along Edna Bay, Kosciusko Island.

B. Because spruce and hemlock are shallow-rooted, their roots are easily damaged during logging. Both species are also thinbarked. Trees left after selective cutting are often damaged by falling trees during logging and by equipment used to pull out the logs. It is practically impossible to log selectively in a stand of old growth timber without harming some of the remaining trees. The steep, rocky land so prevalent in coastal Alaska precludes the use of most types of equipment and methods necessary to selectively harvest timber. Simply put, with southeast Alaska's soils and topography, it is better to cut all the trees within a well planned and relatively small area rather than to leave some individual trees standing in that area.

C. Under selective cutting, approximately four times as much area would have to be cut each year to get the same amount of wood from the forest as clearcutting would yield. Therefore, clearcutting reduces logging traffic in the overall forest and this means less road construction at any one time.

These photos, taken from the same point over a 13-year period, show how second growth stands naturally regenerate clearcut areas in coastal Alaska. The site is Plot 113 on Maybeso Experimental Forest, Prince of Wales Island.