The Gem

Volume 7, Number 7 | The Student Voice of University of Prince Edward Island | Thursday, September , 1989

ANCIENT FORESTS

A VANISHING HERITAGE

By Brian Egan

The Essence, March 23, 1989

The temperate rainforests of the Pacific coast of North America, stretching from northern California to the southeast of Alaska, are unique among temperate rainforests of the world. The climate, topography, geology and other environmental factors specific to this region have shaped a tremendously diverse and complex forest ecosystem. These forests, in their pristene state, are unrivaled for their size, longevity and accumulated biomass. Overwhelmingly dominated by conifers they were ready established in the area some 1.5 million years ago. Since the last major period of glaciation, some ten thousand years ago, temperate rainforests have dominated the Pacific coast of North America.

Today however, these great temperate rainforests are undergoing rapid and profound changes. Less than 150 years of industrial logging has left this once unbroken primeval forest splintered and fragmented. In Washington and Oregon perhaps as little as 10 percent of the ancient forest remains. In B.C., at present rates of cutting, all of the accessible coastal old-growth, not presently protected in parks will be gone in less than 20 years.

As logging continues unabated and the remaining tracts of pristine forest shrink, we are seeing increasing conflict among various 'user groups', government agencies and an awakening public over the future of these forests. At the root of these conflicts is a concern about the conversion of old-growth forests to intensively managed tree plantations. To industrial foresters the conversion of 'decadent' old-growth forests to managed plantations of fast growing trees, to be harvested and replanted every 75 years, is logical and necessary. Others view this conversion with dismay, mistrust and sorrow.

Old-growth forests are made up of trees of a variety of species and age classes. The uneven aged nature of these stands allows for a greater diversity of plant and animal species. Understory herbs and shrubs, of great importance to many wildlife species, can grow throughout these uneven aged forests. Uneven aged stands are only possible in forests which have been undisturbed for hundreds of years. As old trees die and fall over they are replaced by younger individuals growing beneath the canopy.

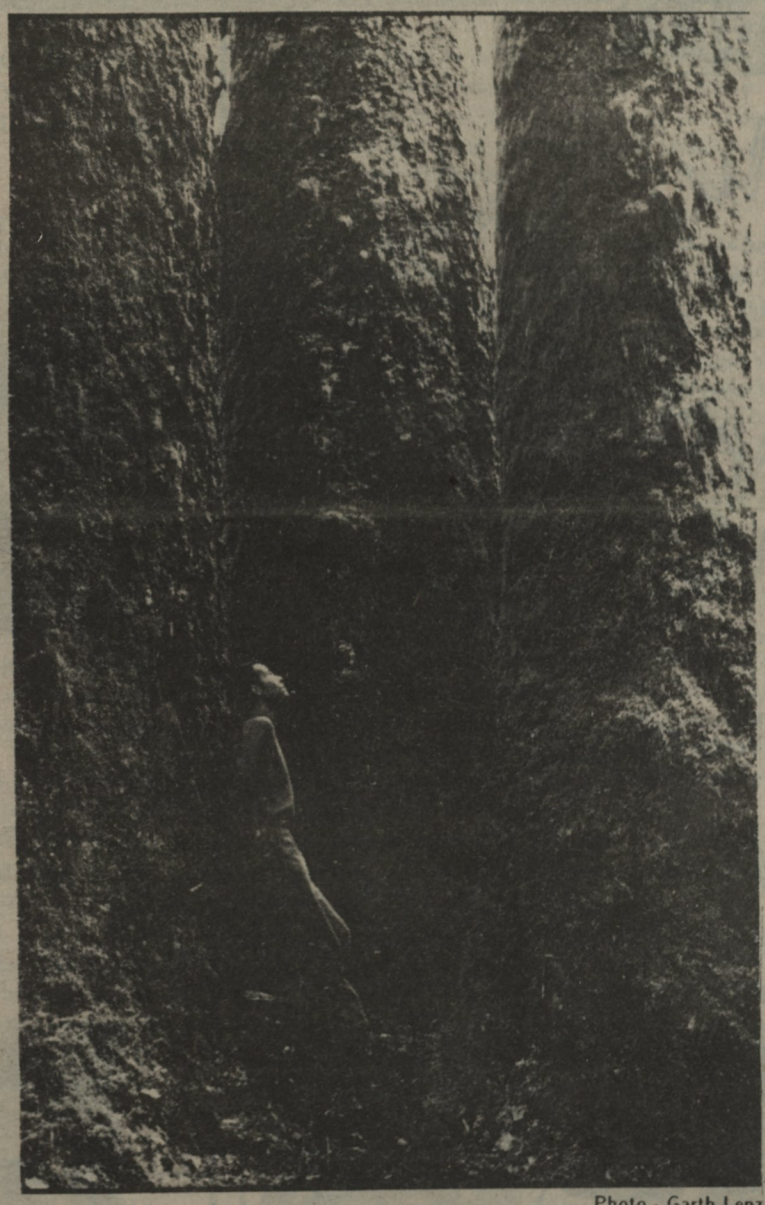

Photo - Garth Lenz

Dead and dying trees are very important in old–growth systems, increasing systems productivity and diversity. Standing dead trees (snags) create openings in the canopy, allowing sunlight to penetrate into the forest and stimulate understory growth. Snags are also an important source of habitat for insect and bird species. Some species, such as the northern spotted owl appear to be so dependant on snags that their very survival as a species is threatened by the absence of such standing dead trees. Fallen trees also play an important role in old–growth systems.

Besides the spotted owl a wide range of other animals have been identified as requiring or preferring old-growth habitat for at least some part of their life cycle. These include, the California red-backed vole, the marten, the pileated woodpecker, Roosevelt elk and black tailed deer. For Roosevelt elk and black tailed deer, old-growth forests provide cover and fodder under extreme winter conditions. The red tree vole of western Oregon and northern California is the most arboreal mammal in North America, spending its entire life in the canopy of mature Douglas fir forests.

Just as animals are dependent on forest vegetation, so vegetation is also dependent on forest animals. In **The Redesigned Forest** forestry consultant Chris Maser describes how mammalian mycophagists (literally 'fungus eaters') play a role in maintaining the health and productivity of forests by providing a vital link between forest trees and mycorrhizal fungi.

Mycorrhizae are symbiotic, root inhabiting fungi which play an important role in plant growth. They grow in and around plant roots and transfer essential minerals and moisture from the soil to the plant. The plants in turn, supply the fungi with carbohydrate-rich photosynthate. This symbiotic relationship is important in most higher plants - in many cases neither the fungi nor the plant can successfully complete their life cycle without the other.

Recent research in coastal old-growth forests has shown that as many as several hundred different mycorrhizal species may be associated with one individual tree. Many of these mycorrhizae produce fruiting bodies below ground (truffles). These species are dependent on animals for the dispersal of their reproductive spores. There are a number of small mammals who depend to some extent on these truffles as a food source. The California red-backed vole, for example, spends most of its time in burrows under the forest floor and obtains about 90 percent of its diet from truffles. As these animals consume truffles the mycorrhizae reproductive spores pass intact through their digestive system and are excreted. As the mycophagists move about over or under the forest floor and defecate, the mycorrhizae spores are spread throughout the soil and innoculate tree roots with different mycorrhizae species.

page 8.