

Rivers of Rock: The Ecology of Logging Roads in Southeast Alaska

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Over the last half century, a system of forest roads was built in Southeast Alaska to facilitate logging old-growth forests on state, private, and federal lands. Those roads provided pathways of human access to previously remote areas resulting in ecological, economic, and social changes. Logging roads alter natural patterns of sedimentation and water flow, creating conditions that can be particularly damaging to karst landscapes. Roads also contribute to increasing risk of landslides that can damage fish habitat. However, in Southeast Alaska, low volumes of traffic, the nature of road construction, and frequent rainfall tend to reduce some of those effects as long as the roadbed prism remains intact. Many culverts and bridges installed along forest roads have impaired passage of fish owing to improper installation and poor maintenance, potentially placing at risk some populations that must migrate seasonally throughout watersheds. Roads provide access to interior portions of islands and the mainland enabling hunters to shift from hunting along beaches using boats to hunting along roads using vehicles. In some areas, wildlife populations are at risk of being harvested at unsustainable rates because of road access. Indeed, in Southeast Alaska, density of roads is a significant predictor of harvest rates for deer, black bears, brown bears, and wolves. Although roads may benefit subsistence harvesters by providing convenient access to wildlife and other resources, road construction and maintenance are contingent on funds to support harvesting timber, an industry that has declined rapidly over the last decade. Therefore, the availability of roads depends on factors outside the control of rural residents and those dependent on subsistence lifestyles. The early successional habitat along roads allows many species of invasive plants to become established and vehicles spread the seeds to uninfested areas. Southeast Alaska contains many unroaded and intact watersheds that help buffer the effects of development and roads. The density of logging roads has not yet reached levels in most watersheds comparable to other areas of the Pacific Northwest where severe ecological effects have been observed. Nonetheless, hydrological and ecological studies of forest roads in Southeast Alaska need to be conducted over a much broader range of topographic and ecological conditions, and over longer periods of time than has been done previously. Furthermore, funding from sources other than those contingent on harvesting timber are needed to support long-term monitoring and research programs focusing on the ecological consequences of roads.