Logging down the value chain raises future forest sustainability concerns
5 October 2022

Over a 50-year period, logging on British Columbia's Central Coast preferentially targeted the highest value locations on the landscape, according to new research from Simon Fraser University. The systematic depletion of high-value components of the environment raises concerns about future sustainability and intergenerational access to natural resources.

Led by SFU Ph.D. graduate Jordan Benner and professor emeritus Ken Lertzman and published this week in the journal *Proceedings of the National Academy of Sciences*, the research shows that, over time, harvesting operations moved to forest stands of increasingly lower productivity and accessibility, which they refer to as "harvesting down the value chain."

"While the approach, sometimes known as 'high grading,' is economically efficient, it is contrary to many ideas about the stewardship ethics that are part of forest management," says Benner. However, the cumulative effects of this historical pattern, combined with policy changes starting in the mid 1990s, led to shifts in the pattern of logging that reflect a more stewardship-oriented approach.

The research highlights the contrasting economic- and stewardship-oriented paradigms that are present in forest management—and how policy interventions to influence management play out on the landscape, and their importance for long-term sustainability.

"In forestry planning, it is important to understand and consider the unique attributes of residual high value old growth that represent increasingly rare ecological, economic, and cultural values," says Benner. "We should be working to empower and support communities seeking equity and benefits from their landscapes, especially Indigenous communities that historically did not receive an equitable share of the value extracted from their territories."

The patterns of forest management shown by Benner and Lertzman are similar to observations of serial depletion seen in fisheries and other natural resources, where lower-valued species replace those of higher value as they are used up.

"Humans have dramatically altered natural resources around the world through very specific patterns of consumption: we don't harvest randomly, we tend to take first what is best or most economically efficient, leaving an ecosystem which is depleted in those components," says Lertzman.

This has long-term consequences for landscapes and the people who depend on them. Benner notes that, "Indigenous communities are starting to gain a more meaningful role in forestry and natural resource decision making—a situation that is long overdue.

"But the long history of logging down the value chain has, in many areas, eliminated options for those decisions, for instance through the depletion of culturally important large cedar trees. If given a
choice, I'm guessing that many of these communities would rather have the option to be making decisions about the higher value and more diverse cultural landscapes that existed in their territories before industrial exploitation."

Productive, valley-bottom old growth forest plays special ecological and cultural roles in the landscape, Lertzman adds. "But in many areas, we lost most of this type of forest early on. One consequence is that our perception of what is the expected state has shifted—we tend to normalize this depleted condition in what is called a 'shifting baseline' phenomenon. However, we can't understand the ecological context of our decisions today if we don't recognize the history that led us here."


Provided by Simon Fraser University

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