

Seeing the Future of the Forest for the Trees: Finding Common Ground for Managing Yellowstone's Whitebark Pine in a Time of Changing Climate

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EXECUTIVE SUMMARY:

As climate change increasingly impacts ecosystems, managing resources across jurisdictional boundaries has taken on unprecedented importance. Adapting quickly and efficiently to ecological changes on a landscape scale will require the full cooperation of involved parties and all of their combined resources. Increasing this collaboration rests largely on improving our understanding of what catalyzes its successes and setbacks. As a step towards that goal, this paper considers a case study of the social and decision-making process behind Whitebark Pine management in the greater Yellowstone ecosystem. Even though the decline of Whitebark Pine may be only one small piece of the systemic conservation puzzle, it represents many facets of the larger conversation about managing climate change and the human-nature relationship more broadly at stake.

Whitebark Pine decline serves as an illuminating case study for several reasons. First, as a proverbial canary in the coalmine for climate change, Whitebark Pine is an early landscape-level casualty for climate change and can serve as an example for changes yet to come. Second, Whitebark Pine acts as a keystone and foundational species in the greater Yellowstone, providing critical ecological services including feeding iconic grizzly bears and shading snowpack, so that it melts gradually throughout the summer and provides a steady source of water for humans and wildlife alike. Clear common values in the form of ecological services give Whitebark Pine a leg up in cultivating transboundary cooperation. Third, since Whitebark Pine grows primarily on government land in areas that are undesirable for drilling and development, it avoids some of the common contentions associated with managing wildlife species. Determining systemic capacities for managing Whitebark Pine thus has the potential to be less contentious and to set an example for how to facilitate transboundary management for other climate-change impacted species.

In this study I asked, principally: What are the obstacles to Whitebark Pine management, and how can they be overcome? To analyze the successes and setbacks of Whitebark Pine management, I utilized the Policy Sciences approach. This approach utilized by policy scientists in environmental management consists of clarification of observational standpoint, a problem orientation, and mappings of the social and decision-making processes. To generate my data, I triangulated my methods, drawing on content analysis, interviews with involved key stakeholders, and three summers of participant observation.

Based on my data, I found the policy problem to be parties' inability to reconcile and recognize their competing definitions of why Whitebark Pine decline was a problem. I define and explore three primary, though by no means exhaustive, definitions of Whitebark Pine decline: the loss of a species, loss of a grizzly food source, and loss of a suite of ecological services/ecosystem/wilderness. While these different valuations are not inherently contradictory, they do prioritize different strategies and desired outcomes for management. Failing to acknowledge these different definitions can create a potential for misunderstanding between parties who believe they are addressing the same problem, when in fact they are each focusing on separate aspects of management.

Trends underlying this divergence of definitions include narrow perspectives, pursuit of incongruous strategies, and insufficient arenas for participation from all parties. Narrow perspectives in particular can stem from a myth of scientific management, suggesting that management is simply about getting enough data to know how many of a species are necessary. Role definitions, very similarly, can narrowly define tasks of parties. Definitions with different foci can then lead parties to prioritize different outcomes and strategies. For example, agency managers defining the loss of a species may focus on concrete solutions to replenish the tree in the future such as seed-banking, prescribed fire, or chemical treatments. Environmental advocates concerned about the human-nature relationship and the paucity of status quo mechanisms to confront landscape level change may prioritize media attention and resources as solutions. To work toward their goals, agency managers often play out their strategy primarily in the agency-planning arena, where environmental advocates have little authority to shift priorities. Environmental advocates then choose the media and courts as alternative arenas to have a larger conversation about the human-nature relationship and changing the status quo of policy.

Solutions to facilitate parties engaging more effectively and efficiently in common conversation could potentially be enforced through a central authority or built up local networking. In either case solutions that address both Whitebark Pine decline and the larger human-nature relationship should be sought. Though top-down legislative reform such as an ecosystems management act or a national climate change pilot study area program could precipitate change, these behemoth efforts would not contribute to local relationship building. Creating collaborative partnerships with effective channel of communication about problem definitions enables parties to adapt and respond to the rapid and unprecedented changes in this ecosystem. Therefore, I recommend the solution of facilitated mediation in which the parties are aided in understanding each other's perspectives and interactions in a manner similar to the analytic framework of the policy sciences. Through this brand of facilitated management, parties can redefine the problem in the larger common interest, thus, growing the "solution pie," preventing efforts that work at cross-purposes, and rendering their partnerships more productive and efficient. However, mediation does require all parties' willingness to come to the table and a wider sharing of power. I suggest that when pursuing the challenging goal of constitutive change, encouraging this style of facilitated management would be a worth the investment of time and resources. This style of change will build the relationships necessary to create truly "adaptive" management rather than more targeted legislative change that can pay lip service to the idea of adaptive capacity without providing the mechanisms critical to its success.