Coping with Change in the North Woods: Minnesota’s Boreal Forest and Community Resilience Project

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The boreal biome represents one-third of the world’s forests and provides important ecosystem services, such as timber production, climate regulation, watershed protection, wildlife habitat, and recreational opportunities. Maintaining the health, diversity and resilience of these forest ecosystems is critical to human well being, yet boreal forests are at risk from a variety of threats, including invasive species, climate and land use change. Boreal forests face a variety of socio-economic pressures as well, including global competition in forest industries, new opportunities for jobs and cleaner energy from forest biomass, shifting demographic trends, and exurban development. Northeastern Minnesota, in the upper Midwest of the United States, lies at the transition zone between boreal and temperate forests, where species are expected to be particularly vulnerable to climate change. Additionally, this area includes a complex mix of federal, state, local, and private land ownership, a high concentration of tribal entities, a diversity of forest-based industries and interest groups. In this context, we launched the Boreal Forest and Community Resilience Project to enhance the resilience of coupled human-natural systems in the northeastern region of Minnesota. Our objectives are to 1) improve understanding of the complex social-ecological system and 2) support adaptive capacity to manage across ownership boundaries in the context of change. We are developing an innovative interdisciplinary and engaged research approach, integrating a suite of tools from both the social and biophysical sciences and working closely with a wide array of stakeholders from state and local governments, industry, academia, resource management, and environmental organizations. We will present our project plan and discuss the proposed application of participatory scenario processes, systems mapping, and mediated system dynamics modeling in this multi-year collaborative research effort.