



Adapting Wildfire Management to Climate Change in Alaska

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We are conducting research on the future of wildfire management in Alaska. We used interviews, models of fire and vegetation dynamics under future climate and management scenarios, and cost projections to iteratively explore with fire managers their current and anticipated management challenges and opportunities. In this briefing paper, we highlight the primary findings from our modeling, 41 interviews, and workshops with the fire management community.

Key Findings

Alaska has experienced several extraordinarily large wildfire years in recent decades; our model predicts sustained, higher levels of both annual fire activity and inter-annual variability through about 2040. The model also predicts changes in the composition of Alaska's forests, with a transition to less coniferous (i.e. spruce) and more deciduous (i.e. aspen) forests. By the middle of the century, because of the transition to a less flammable landscape, our findings suggest the annual extent of fire will decline from its maximum then stabilize, with higher annual burn area and lower inter-annual variability than the historical average.

Increases in fire activity may require greater funding and capacity and a reevaluation of fire management expectations. In recent large fire years, managers have not had enough resources to meet all fire management obligations. If resources continue to decline relative to fire activity, fire managers say they will not always be able to protect remote values, such as cabins, Native allotments, and areas protected for subsistence use or ecological benefit. In addition, as populations grow and the road network expands, firefighting costs will likely increase significantly for the State, which has responsibility for fire management in the more populated regions of Alaska. In light of anticipated capacity limitations, continual communication among members of the fire management community

about agency limitations and stakeholder priorities will be critical. To address capacity limitations, study participants recommended:

- Increasing base funding;
- Increasing the duration of appointments for seasonal firefighters;
- Reviewing training requirements to ensure use of available human resources, including the Emergency Firefighter Program; and
- Considering fire risk prior to permitting suburban development or remote structures.

Managers suggest a need to implement more extensive fuel breaks to reduce the risk of fire to communities and maintain the ability to allow fires to burn where possible, because they play an important ecological role in Alaska. Creating fuel breaks near communities is a way to meet the dual challenge of an expanding population and increased fire activity. Fuel treatments augment decision space for managers and increase the safety and success of firefighters on the ground. Communities can consider the model of the Kenai Peninsula, where state and federal agencies, the Kenai Borough, Native organizations, and local communities have successfully collaborated since the early 2000s to implement community education and outreach, forest health projects, and multiple cross-jurisdictional fuel breaks, several of which have helped firefighters to save homes.



Fire managers consistently discussed a need for reevaluation of Native allotment protection policy.

Federal law guarantees fire protection for all allotments. Remote allotments can be expensive and dangerous to protect. The State often incurs significant costs fighting fires to protect allotments in areas where they otherwise would not fight fire. Allotments receive default “full” protection under current policy, but managers said some allotment owners would prefer to let fires burn across their land to enhance wildlife habitat. Interviewees offered three potential approaches to addressing allotment protection:

- Revisiting allotment protection levels and strategies in a systematic and deliberative process by engaging key federal agencies;
- Creating venues for direct communication during fire events between allotment owners and fire management agencies, or through organizations such as the Tanana Chiefs Conference and Chugachmiut; and
- Addressing management costs incurred for allotments separately from costs for other types of management.

Fire managers anticipate challenges associated with managing for climate change.

Fire increasingly is burning in novel ways and locations, suggesting a need for ongoing research regarding fire effects and close interaction between fire and land managers. Managers also expressed trepidation about protecting Native Corporation land sold as carbon offset credits in the California carbon market, especially during the inventory period when losses are not insured. Protection responsibility for these lands could shift to the State if carbon credits begin to yield revenue.

Key Recommendations

- Federal and state managers would benefit from a **structured decision-making exercise to identify priorities, capacity needs, and consequences of declining resources across the state.**
- To address specific priorities and capacity needs, **the agencies would benefit from higher levels of funding and staffing.**
- **Improved interagency communication and the sharing of planning responsibilities among agency administrators and fire managers** would help integrate land and fire management considerations for more effective management approaches.
- To augment capacity, it would be beneficial to **streamline training and certification requirements to support seasonal hiring, interagency resource sharing, and use of the Emergency Firefighting Program.**
- Alaska would benefit from **community-based capacity building, seed grants, and fuels treatment funding** to increase capacity for hazardous fuels reduction.
- A relatively small investment to **create a venue or convene a team to address key issues**, including protection of Native allotments and other remote sites, would be valuable.

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Photos (Randi Jandt): Prescribed burn, Fort Richardson Army Base

