

2018 Bonanza Creek LTER Symposium - Pikes Waterfront Lodge

Co-producing knowledge on fire, fuels, and vegetation succession in Alaskan boreal forests

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Academia >>





<< Management

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Management agencies driven by issues, often short term perspective



Researchers driven by Big Questions, often long term perspective



Management agencies mostly lack funding mechanisms and staff capacity for studies

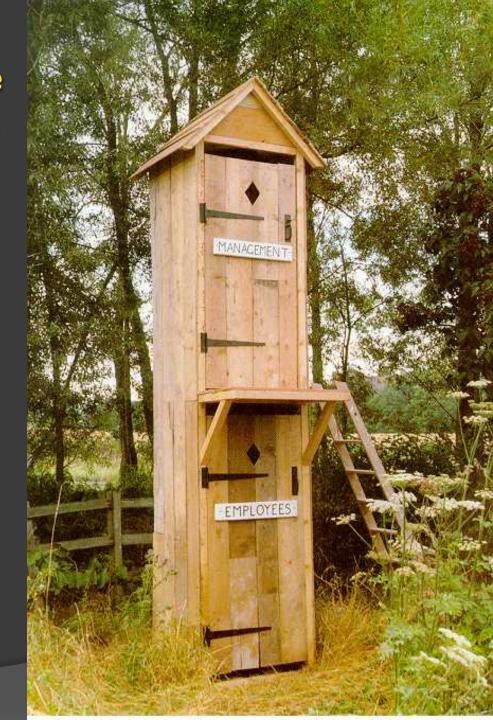




But they have lots of practical first-hand experience in their areas of expertise and often are closely connected to the stakeholder public.

Mgmt agencies have internal pressures which may limit research objectivity as well





Management agencies need guidance and science input for:



- Understanding environmental changes they have observed
- Adopting new technology and new ecological understanding
- Environmental analyses
- Long-term land management planning
- Scenarios and decision-making
- Communicating non-partisan science

Examples of knowledge co-production with LTER science

Forest Service

General Technical Report PNW-GTR-767

UAS

Melvin et al.: Effects of fuel treatments

Spellman & Mulder: Invasive plants

Johnstone et al.: Successional trajectories Ecological Impacts of Alaskan Forest Fuel Treatments Clearing and forest thinning are increasingly se strategies to protect private property and infrastructure from boreal wildfires. Property sited in natural spruce-dominated forests are often considered high risk due to the intensity of fires this fuel type when it burns. Although vegetation treatments can reduce fire potential, they may have mintended ecological effects, but there has been Alaska. So the recent publication (Melvin, et al. 2017) of a study on sites managed as fuel treatments by an addition to regional management resources. In fact, it probably represents the FIRST paper specifically on how fuel-reduction affects carbon and nutrient pool permafrost thaw, and successional trajectories. lowever, the authors also summarize some published impacts from related management action

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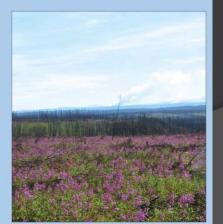
Project

Nov. 2017 A. Melvin, M. Mack & R. Jand

USDA

A Key for Predicting Postfire Successional Trajectories in Black Spruce Stands of Interior Alaska

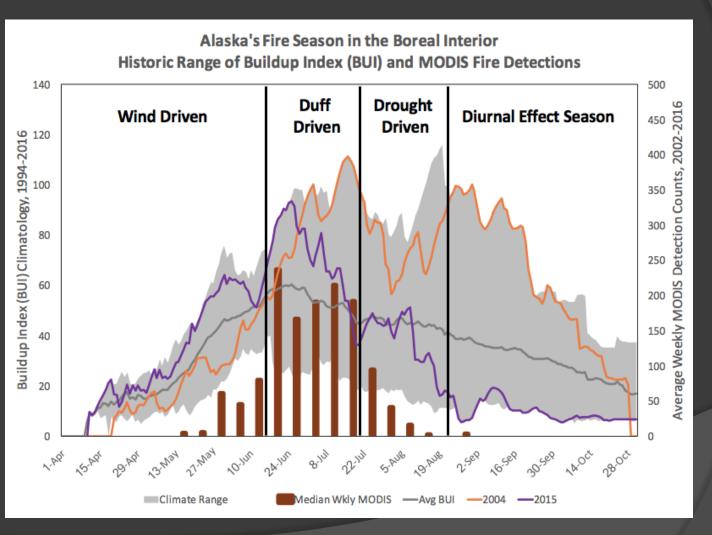
Jill F. Johnstone, Teresa N. Hollingsworth, and F. Stuart Chapin III



Examples of Challenges to Useful Co-production

- Spatial fuels layers:
 - Managers: LandFire (WFDSS)
 - Academics: Other vegetation layers
- Language disconnects:
 - English vs. metric units
 - Fire weather indices vs. temp, precip
 - Fuel types vs. vegetation composition
 - Experiential benchmarks vs. variability

Example of science communication from Chris Moore & Robert Ziel



Tools for knowledge co-production

- Attending each other's meetings
- Involving managers in development
- Working with boundary organizations and boundary individuals
- Joint field site visits (including access to public lands)
- Delivery of information directly to managers
 - No substitute for face-to-face
 - Research briefs
 - Media & press releases

BNZ LTER Initiatives

- Fire effects on
 - Vegetation succession
 - Permafrost & subsurface responses
 - Carbon pools, balance
 - Hydrology
 - Habitat for wildlife, fisheries
- Landscape feedbacks to fire
 - Vegetation effects on fuel and flammability
 - Changing drainage and fuel moisture
- Long-term datasets to extend our undestanding



Questions?

