Keeping up with Climate Change

Identifying the Range of Acceptable Human Interventions in Forested Ecosystems

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INTRODUCTION

Trees are adapted to the local climates in which they grow, but as the climate shifts, tree populations are expected to become maladapted to their local environment[1]. With the intent of anticipating and mitigating this effect, forest management is presently undergoing major changes.

OBJECTIVE

to examine variation in perceived acceptability of potential forest management interventions that can mitigate the risks of climate change among rural forest-based communities in BC and Alberta

QUESTION

How does **perceived acceptability** of potential **forest management** interventions ***vary*** amongst different **social groups** and amongst different **regions**?

METHODS

Multiple Case-Study

3 focus groups per case composed of:

- Registered Professional Foresters
- Environmentalists
- Local Business Owners

Mixed Method Data Collection

Focus group interviews

- Collected **qualitative data** in the form of **values**, **attitudes**, and **opinions** toward **climate change** and **adaptive forest management**
- Elicited perceptions on 3 management scenarios:

1. Status quo
2. Assisted population migration
3. Genetically engineered plantations

Q-sorting

Collected **quantitative data** in the form of a **trade-off** exercise[2] in which the participants are given **9 statements** (printed individually on notecards) that represent a diverse range of **forest adaptation scenarios** that the participants then arrange into a normal distribution in order of least acceptable to most acceptable *(Figure 1)*

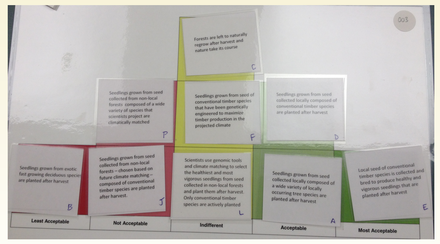


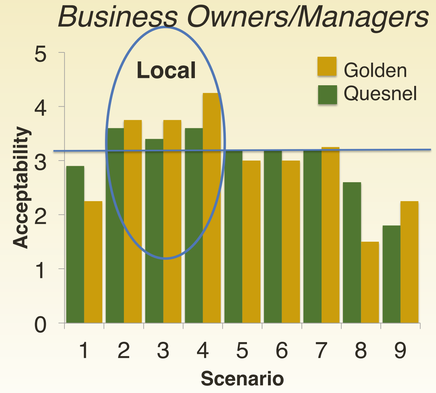
Figure 1: a completed Q-sort

PRELIMINARY RESULTS

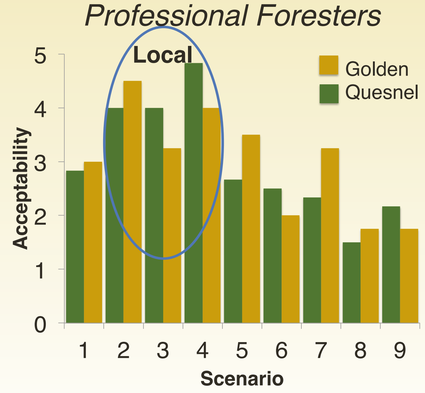
Q-sort scenarios

1	2	3	4	5	6	7	8	9
Natural regeneration	Local-based strategies			Assisted migration-based strategies			Exotic spp.	GMO

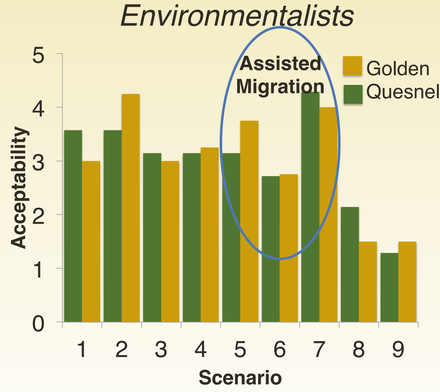
Business Owners/Managers



Professional Foresters



Environmentalists



1) No replanting after harvest; 2) Local, no breeding, mix spp.; 3) Local, no breeding, conventional timber spp.; 4) Local, selectively bred, conventional timber spp.; 5) AM, selection based on climate model, conventional timber spp.; 6) AM, selection based on genomics and climate, conventional timber spp.; 7) AM, selection based on climate model, mixed spp.; 8) Exotic fast-growing spp.; 9) Genetically engineer to max timber production

PRELIMINARY CONCLUSIONS

Professional Foresters

- Mixed attitudes regarding climate change existence and causes in Quesnel and were largely distrustful about the ability of AM stands to establish
- Golden participants supported existence of climate change; however, preferred local management strategies on the premise that there was enough existing species and genetic diversity to facilitate adaptation

Environmentalists

- Quesnel participants supported the need to adapt forest management but were insistent on trying multiple strategies

Business owners

- Receptive to discussing adaptation (AM, incorporating mixed species) in both BC communities

The theme of perceived limits to scientific knowledge[3] was reinforced regarding the utilization of genomic knowledge to enhance seed selection for assisted migration management

References: [1]Aitken, S. N., Yeaman, S., Holliday, J. a., Wang, T., & Curtis-McLane, S. (2008). Adaptation, migration or extirpation: climate change outcomes for tree populations. *Evolutionary Applications*, *1*, 95-111.; [2]Webler, T., Danielson, S., & Tuler, S. (2009). Using Q Method to Reveal Social Perspectives in Environmental Research. *Environmental Research*, *01301*. [3]Sjöberg, L. (2001). Limits of knowledge and the limited importance of trust. Risk Analysis, 21(1), 189-198.