Historical changes in forest densification and migration at the alpine-treeline ecotone in central BC

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# Introduction

Paragraph 1: introduce the alpine-ecotone as a climatically sensitive ecosystem that may be vulnerable to climate change. This ecosystem is associated with a range of socioeconomic values including recreation, tourism. Ecologically, alpine-treeline ecotones are also found in environments that provide important habitat for species at risk such as whitebark pine, mountain ecotypes of woodland Caribou, and grizzly bears.  
Snowmelt from these sites provides important water downhill. Thus, we need a greater understanding of potential impacts from climate change in these environments.

Paragraph 2: Introduce the alpine-treeline ecotone At upper elevations, forests change to non-treed ecosystems, such as alpine tundra.  
How is this transition defined? In British Columbia, a percentage cover by trees of 10% has been proposed (MacKenzie 2012)

about half of world’s high-elevation treelines have moved

Upward migration and tree densification An increase in tree establishment at the alpine-treeline ecotone can result in two phenomena; forest densification and upward migration of the treeline (Feuillet et al. 2019).

# Methods

# References

Feuillet, T., Birre, D., Milian, J., Godard, V., Clauzel, C., and Serrano-Notivoli, R. 2019. Spatial dynamics of alpine tree lines under global warming: What explains the mismatch between tree densification and elevational upward shifts at the tree line ecotone? Journal of Biogeography (January). doi:[10.1111/jbi.13779](https://doi.org/10.1111/jbi.13779).

MacKenzie, W. 2012. Biogeoclimatic ecosystem classification of non-forested ecosystems in British columbia.