

QuickNotes

Science summaries from fRI Research

Caribou in the Cross-fire

Cam McClelland

Mountain Pine Beetle (MPB) has invaded the forests of Western Alberta. Forest companies have implemented various forms of MPB management, including single tree cut and burn, harvesting pine beetle forests, or prescribed burns. However, there is a lack of information on how MPB and MPB treatments are affecting understory food resources, like terrestrial lichens, for threatened species like woodland caribou. To provide information that could be used to better manage MPB and limit impacts on threatened caribou, our goal was to determine how MPB and MPB treatments are affecting terrestrial lichens in west-central and north-western Alberta.

Key Findings

- Leaving MPB killed trees or using single-tree cut and burn control had little impact on lichen cover
- Harvested and burned forest have less lichen cover than undisturbed forest, but only for 10 to 20 years post-disturbance
- Single-tree cut and burn best balances the need to reduce MPB spread while maintaining important caribou habitat and food.



Example of single tree cut and burn control used in MPB management.

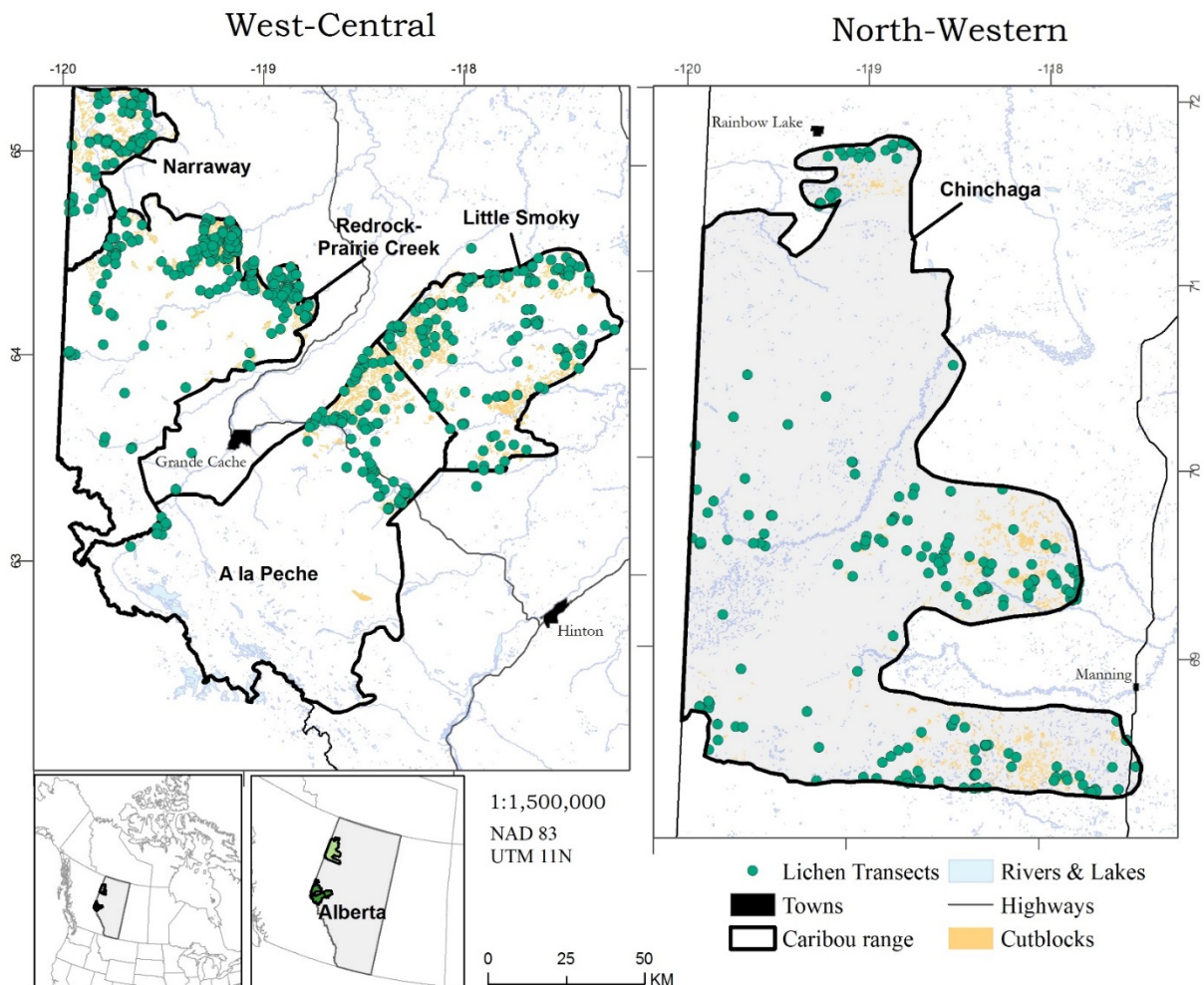
Methods

In order to assess how MPB and MPB management affect terrestrial lichens, field crews collected data on forest stand characteristics and the percent cover of terrestrial lichens along transects in five sampling strata: timber harvest, wildfire, leaving MPB-killed trees as is, single-tree cut and burn control, and intact forest. In total, crews visited 776 transects in west-central and north-western Alberta in the summers of 2014 and 2015.

Conclusions

Our models indicated that leaving MPB-killed trees as is or using single tree cut and burn to control MPB had little effect on terrestrial lichen cover, but that lichen cover was lower 10-20 years after timber harvest or wildfires. Although these results suggest that using timber harvest or prescribed burns to manage MPB may increase lichen cover over time, these management actions may also negatively impact caribou by increasing primary prey (deer, moose, elk) and their predators in caribou population ranges. Therefore, to manage MPB in caribou population ranges, single-tree cut and burn likely best balances the need to control MPB and the habitat requirements of caribou.

The full paper, "Caribou in the cross-fire? Considering terrestrial lichen forage in the face of mountain pine beetle expansion" is available from PLoS ONE here: <https://doi.org/10.1371/journal.pone.0232248>.



Study areas and transect locations where lichen cover was assessed in regards to different MPB treatments.