

# QuickNotes

Science summaries from fRI Research

## The Effect of Mountain Pine Beetle and Treatments on Grizzly Bear and Caribou Shrub and Forb Plant-Foods

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In Western Alberta, Mountain Pine Beetle (MPB) infestations overlap with the ranges of threatened caribou and grizzly bear populations. While MPB is a natural part of the boreal ecosystem, infestations have become more severe due to fire suppression and a changing climate; requiring action to control the spread. Treatments for managing MPB include accelerated forest harvesting, prescribed burns, and single-tree cut and burn. But little is known about the impact of these treatments on caribou and grizzly bear forage.

With the goal of providing information to inform management of MPB affected forests while considering impacts on caribou and grizzly bears, we looked at how MPB and different MPB management treatments affected the abundance of 25 forb and shrubs plant food species.

### Key Findings

- Caribou and grizzly bear foods generally had more positive responses to natural disturbances like MPB kill and burned forest.
- Less-intensive MPB treatments like single-tree cut and burn may balance the threat of MPB against maintaining food resources and habitat for threatened species.



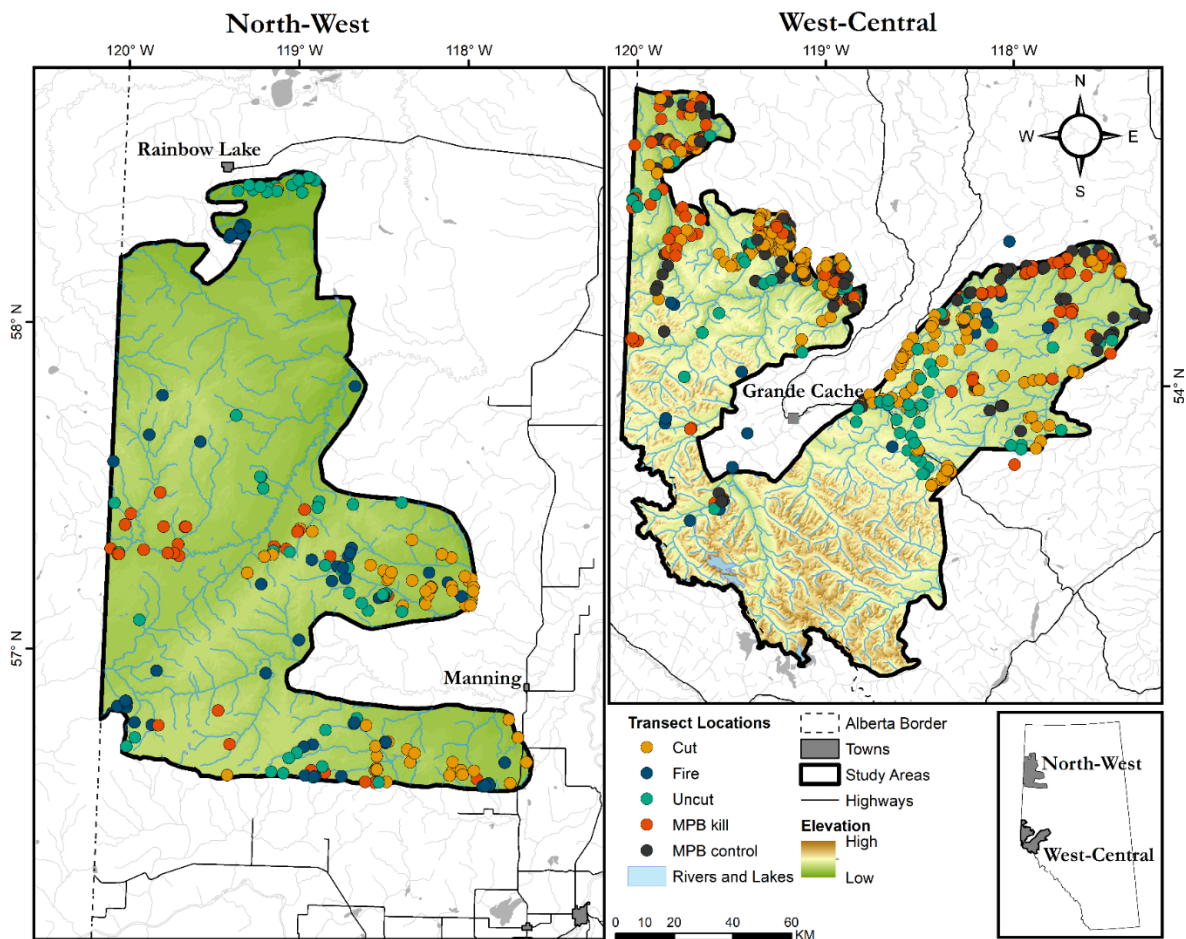
*Example of single tree cut and burn control used in MPB management.*

## Methods

We compared how the abundance of 25 shrub and forb species differed across five MPB treatment strata: MPB-kill, single-tree cut and burn control, timber harvest, wildfire, and intact forest. During the summers of 2014 and 2015, field crews collected data on the percent cover of target shrub and forb species as well as information on the surrounding forest stand characteristics across 774 transects (MPB kill - 176 transects, single-tree cut and burn - 133 transects, wildfire - 85 transects, timber harvest - 258 transects, and intact forest - 122 transects) in west-central and north-west Alberta.

## Conclusions

Overall, our results indicate that less-intensive management treatments like MPB single-tree cut and burn, and prescribed fires might balance the threat of MPB against maintaining food resources for threatened species. In-line with these results, it is also possible that less-intensive harvesting like canopy thinning could also be used to address the needs of forest sector and as well as caribou and grizzly bears in the face of MPB spread. Future research could focus on determining exactly how these alternative harvesting options effect important plant-food species.



*Study area and transect locations where shrub and forb species were assessed in regard to different MPB treatment strata (cut = timber harvest, fire = wildfire, uncut = intact forest, MPB control = single-tree cut and burn).*