

Peace Forest District Avalanche Tract Mapping Project
Addendum to the Prince George Avalanche Tract Mapping Project report

Prepared for:

Chris Ritchie
Ministry of Water Land and Air Protection
4051 18th Avenue
Prince George, BC.
V2N 1B3

and

Dale Seip
Ministry of Forests
1011 4th Avenue
Prince George, BC.
V2L3H9

Prepared by:

Mike Wolowicz
Boreas Environmental Services
7862 Piedmont Cres.
Prince George, BC.
V2N 3H9
250-964-8930

Introduction

This report presents the results of an avalanche tract mapping project in a small area of the Rocky Mountain portion of the Peace Forest District (PFD). Work has recently been completed to classify avalanche tracts and perform habitat selection analysis using grizzly bear telemetry data on the Prince George side of the Rocky Mountains (the west side). Because funding only allowed for classification of tracts on the Prince George side, habitat selection analysis was never performed on telemetry locations falling within the Peace forest district (the east side of the Rocky Mountains).

Methods

All avalanche tracts below 1700m elevation that fell within the PFD portion of a 95% Minimum Convex Polygon (MCP) were mapped and classified. The MCP was constructed from all telemetry locations (Prince George and Peace locations). See figures 4 and 5 of the Prince George Avalanche Tract Mapping Project (Wolowicz 2004) for images of the MCP polygon and telemetry locations.

A full description of avalanche tract mapping and habitat selection analysis methodologies is described in 'Prince George Forest District Avalanche Tract Mapping Project' document prepared for Chris Ritchie at the Ministry of Water Land and Air Protection in Prince George, BC. The document is also available through Dale Seip at the Ministry of Forests Regional office in Prince George, BC and through Boreas Environmental Services in Prince George, BC.

Results

Avalanche tract classification

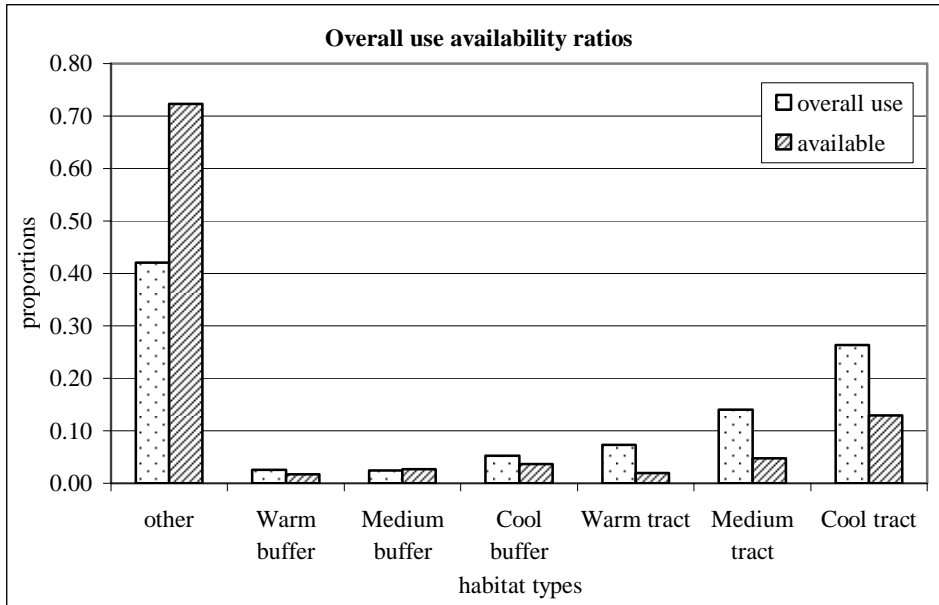
A total of 11842 hectares of warm and medium ranked avalanche tracts were buffered at 100 metres, while 22341 hectares of cool aspect tracts were buffered at 50 metres (table 1). We were able calculate the total buffer area surrounding each aspect class.

| Tract or buffer warmth class | Buffer area in hectares | Tract area in hectares |
|---------------------------------|----------------------------|---------------------------|
| Warm | 4444.27 | 4899.36 |
| Medium | 4760.54 | 6943.47 |
| cool | 7256.60 | 22341.21 |
| Total | 16461.41 | 34184.04 |

Table 1: Buffer and tract areas for each aspect class.

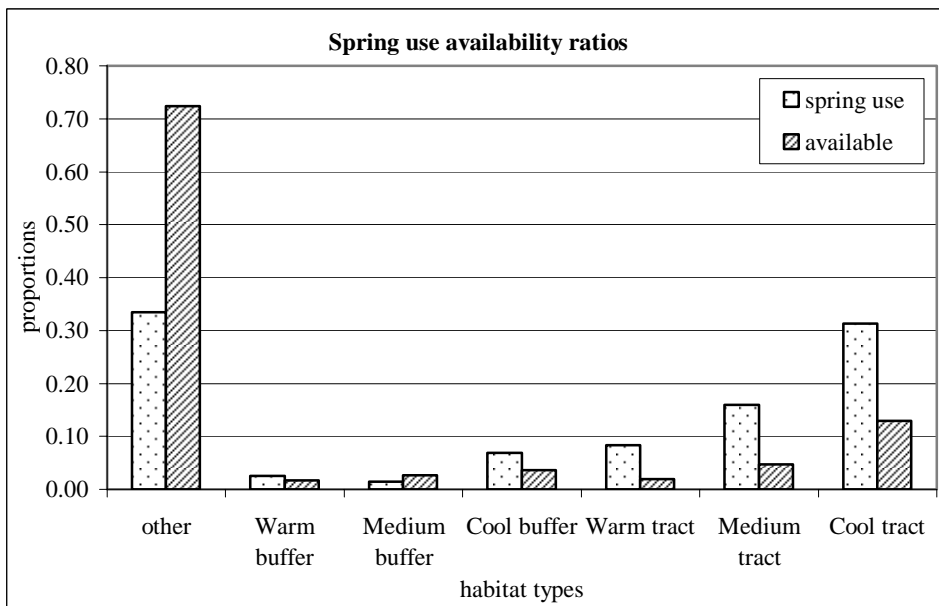
Use and availability ratios

Three hundred and ninety three (67%) of 585 points falling within the Peace forest district portion of the 95% MCP polygon were located within avalanche tract or avalanche tract buffer polygons. Avalanche tract and buffer polygons make up approximately 28% of the total 70381ha MCP polygon. The remainder of the points fell in the 'other' class or outside avalanche tract polygons. Figure 1 is the use and availability ratios for all 585 points combined. Figure 2, 3, and 4 are the use and availability ratios separated by spring, summer, and fall.



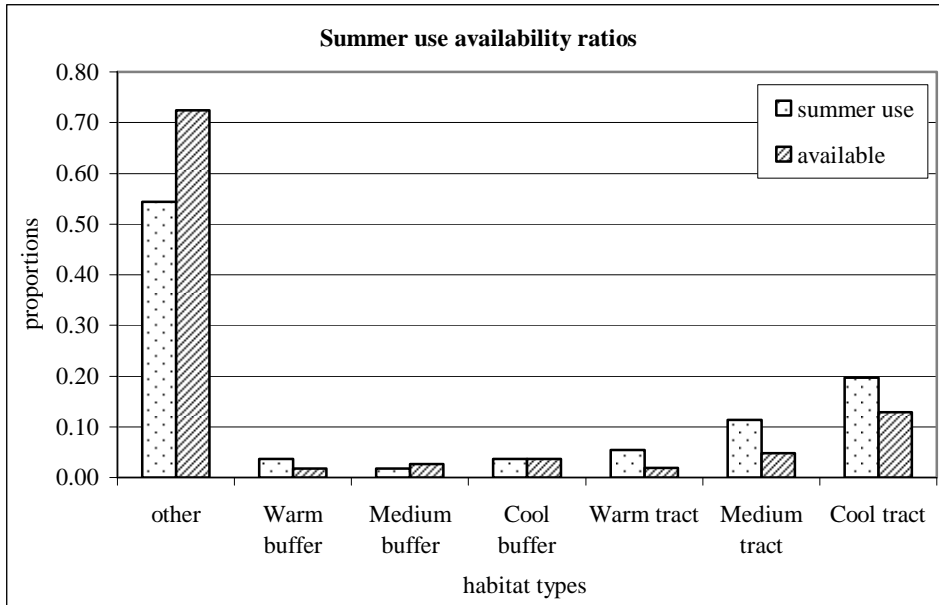
| habitat type | other | Warm buffer | Medium buffer | Cool buffer | Warm tract | Medium tract | Cool tract |
|--------------|--------|-------------|---------------|-------------|------------|--------------|------------|
| use | 42.05% | 2.56% | 2.39% | 5.30% | 7.35% | 14.02% | 26.32% |
| available | 72.37% | 1.72% | 2.65% | 3.66% | 1.92% | 4.77% | 12.91% |
| u/a | 0.58 | 1.49 | 0.90 | 1.45 | 3.83 | 2.94 | 2.04 |

Figure 1: overall use and availability.



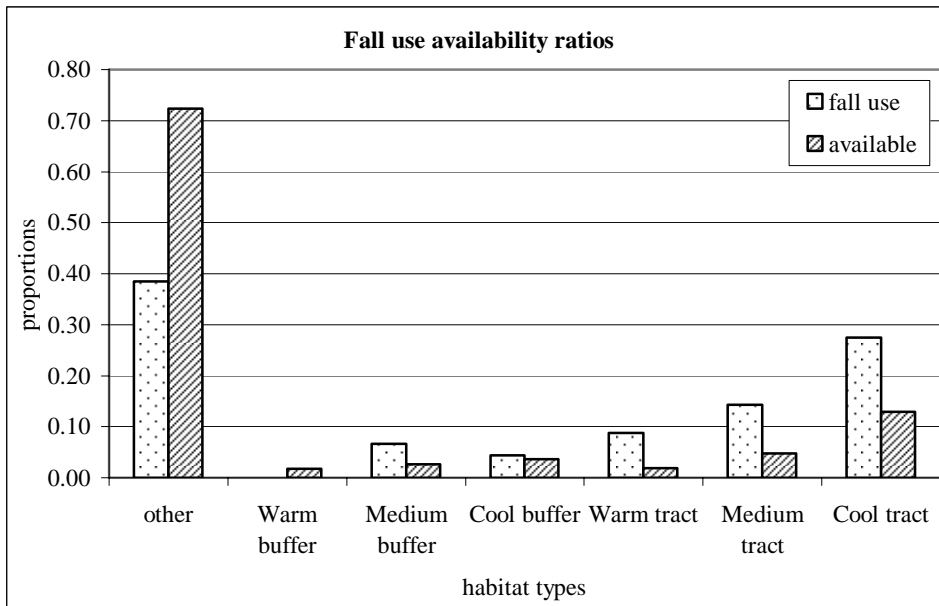
| habitat type | other | Warm buffer | Medium buffer | Cool buffer | Warm tract | Medium tract | Cool tract |
|--------------|--------|-------------|---------------|-------------|------------|--------------|------------|
| use | 33.45% | 2.55% | 1.45% | 6.91% | 8.36% | 16.00% | 31.27% |
| available | 72.37% | 1.72% | 2.65% | 3.66% | 1.92% | 4.77% | 12.91% |
| u/a | 0.46 | 1.48 | 0.55 | 1.89 | 4.35 | 3.35 | 2.42 |

Figure 2: spring use and availability.



| habitat type | other | Warm buffer | Medium buffer | Cool buffer | Warm tract | Medium tract | Cool tract |
|--------------|--------|-------------|---------------|-------------|------------|--------------|------------|
| use | 54.34% | 3.65% | 1.83% | 3.65% | 5.48% | 11.42% | 19.63% |
| available | 72.37% | 1.72% | 2.65% | 3.66% | 1.92% | 4.77% | 12.91% |
| u/a | 0.75 | 2.13 | 0.69 | 1.00 | 2.85 | 2.39 | 1.52 |

Figure 3: summer use and availability.



| habitat type | other | Warm buffer | Medium buffer | Cool buffer | Warm tract | Medium tract | Cool tract |
|--------------|--------|-------------|---------------|-------------|------------|--------------|------------|
| use | 38.46% | 0.00% | 6.59% | 4.40% | 8.79% | 14.29% | 27.47% |
| available | 72.37% | 1.72% | 2.65% | 3.66% | 1.92% | 4.77% | 12.91% |
| u/a | 0.53 | 0.00 | 2.49 | 1.20 | 4.58 | 3.00 | 2.13 |

Figure 4: spring use and availability.

Discussion

In general, grizzly bears appear to be selecting warm tracts over medium tracts, and medium tracts over cool tracts in much the same way they did on the west side of the Rockies (Wolowicz 2004). Grizzly bears also select avalanche tract or avalanche tract buffer habitats over non tract and buffer habitats. They are not, however, moving off warm tracts into cool tracts as the summer progresses as they did on the west side. There are a myriad of different explanations as to why this might be happening, none of which could be examined with the depth of analysis presented here. Some factors that may contribute to different habitat selection patterns between bears on the west and east side throughout the season include:

1. Topography – the Rocky Mountains run south east to north west through the province. Many of the valleys on the east side of the Rockies face north east, where as many of the valleys on the Prince George side face south west.
2. - Climate – the prevailing weather systems move from west to east across the Rockies resulting in a rain shadow on the east slopes.
3. Natural disturbance – there are several very large burns on the east side of the Rockies.

Further analysis is required before any conclusions can be made on why selection patterns might differ between the two areas.