

Project Summary and Preliminary Findings

OBJECTIVES: This project, implemented during the summer of 2019, focuses on assessing overall biodiversity in different habitats resulting from timber harvesting. The study is intended to improve the understanding of the effects of cutblock design and harvesting retention on biodiversity and wildlife use within post-harvest areas.

METHODS: To clarify wildlife response and occupancy among harvested landscapes, this project examines biodiversity indices and wildlife use, according to differing habitat strata (vertical vegetation complexity), at various distances to mature forest edge. Twenty sites were randomly selected and established in CNC Research Forest Unit B (Tacheeda Lakes) and Unit D (Caine Creek). Five habitat strata are classified and examined as either clearcut, light partial retention (10-40%), high partial retention (40-70%) areas, or mature old growth forest with either light mortality (<30%) or high mortality (>60%). Site selected for assessment also occupied one of the following distance classes from forest edge: 0-20m, 20-40m, 40-60m, 60-80m, 80-100m, 100m+. Fixed-area plots, coarse woody debris (CWD) transects, vegetation/browse transects, fecal pellet surveys, and bird counts (spring, fall) are conducted at each site. Passive wildlife monitoring using remote cameras is also implemented at each site to monitor wildlife activity continuously. Expansion plots were conducted in the summer of 2020 to further quantify wildlife use, vegetation distribution and CWD abundance in the given areas.

RESULTS: Preliminary results obtained indicate:

- Vegetation/browse transects recorded 77 species, with highest species diversity recorded the high retention sites (Unit B, Unit D) (average of 21.16 species found). On average, low retention sites had the lowest species diversity (17.45 species recorded); No incidences of browse were detected
- Baseline establishment (mature, old forest) of big CWD accumulations ($\geq 20\text{cm}$ diameter and $\geq 10\text{m}$ in length) concluded unsatisfactory retention in most of Unit B compared to baseline mature forest conditions damaged by spruce beetle. Insufficient big CWD accumulation was noted throughout Unit D, below Chief Forester's guidelines suggesting 30% retention of baseline conditions.
- Fecal pellet surveys conducted suggest high use of moose in mature, old forest sites in both Unit B/D. Moose scat was also noted during the spring survey in a high retention site (Unit B); Snowshoe hare, grouse and deer pellets were also found in mature forest conditions. Elk scat was also recorded at a low retention site (Unit B)
- Bird counts conducted (spring/fall) recorded 27 species in Unit B; 6 early seral, 4 open woodland and 17 interior species. In Unit D, 30 species were recorded; 7 early seral, 4 open woodland and 19 interior species. Data obtained in both 2019, 2020 and 2021 suggests interior forest species were recorded at varying distances from forest edge, within the cutblock habitat, with species recorded exceeding 100m+. Early seral and open woodland species increased at sites greater than 100m. Within interior forest habitat, open woodland species were frequently observed at distances between 0-20m and 20-40m. Interior habitat species were frequently observed 0-20m and 20-40m within the mature forest habitat
- 48 species were recorded on remote cameras installed at each site, including moose, marten, black bear, coyote, elk and wolf. No more than 5 predator or prey species were recorded on any given camera in Unit B or D.



From left to right: Grizzly bear recorded in B-1, varied thrush recorded in D-43, cow elk recorded in B-9, wolf pack recorded in D-6, porcupine recorded in D-1