**Background on Fisher Equivalent Territory Area (FETA)**

Fishers are territorial animals that require specific forest structures within those territories to meet their life history needs. While each individual fisher will have a unique territory shape and location (i.e., home range), we cannot identify the location of each fisher territory across BC. Therefore, we used a spatial grid of hexagons with an area of 30 km2 to represent a fisher equivalent territory area (FETA). We used a 30 km2 size because that is the measured average home range size of fisher in BC (Rich Weir, pers. comm.). These hexagons represent a territory area required by fisher, within which we can estimate habitat characteristics and assess whether they meet fisher needs.

**Abundance**

To estimate fisher abundance at a landscape scale, we did a simple summation of FETA level abundance estimates within the landscape. Two sources of information were used to estimate fisher abundance within a FETA: the relative probability of territory occupancy using the model developed by Weir and Corbould (2010) and the fisher habitat capability rating (a 2004 spatial file provided by Rich Weir).

The relative probability of occupancy model (Weir and Corbould 2010) was estimated using:

[1]

Where, openness is the percentage of a FETA that is open, which includes permanently open areas (i.e., wetlands, lakes, non-vegetated, etc) and forest less than or equal to 12 years old (cutblocks and fire origin stands). Permanently open areas and forest age were queried from the Vegetation Resource Inventory projected to the year 2020.

The fisher capability rating was used to adjust a maximum fisher density estimate of 16.3 fisher per 1000 km2 (taken from the Williston area of the B.C). We calculated fisher density by habitat capability rating based on the capability rating adjustment provided in Table 1. The proportion of area of a FETA within each fisher capability rating was then multiplied by the respective fisher density estimate found in Table 1 and then summed across the number of fisher capability ratings to estimate fisher density within a FETA.

Table 1 Fisher capability ratings and their respective density estimates.

|  |  |  |
| --- | --- | --- |
| Fisher capability rating\* | Percentage (mid point) applied to 16.3 fisher per 1000 km2 | Fisher density per 1000 km2 |
| Very High | 88.0 | 14.344 |
| High | 63.0 | 10.2690 |
| Medium | 38.0 | 6.1640 |
| Low | 15.5 | 2.5265 |

\*rare was not included

The estimate of fisher abundance in a FETA then follows as:

[2]

Where, N is the abundance of fisher in a FETA, *rel.prob.occupancy* is the relative probability of occupancy (Weir and Corbould 2010) , *AreaFisherCapability* is the area (in 1000 km2) of the rth fisher capability rating and Density is the density estimate for the rth fisher capability rating (R is the number of fisher capability ratings in a FETA).