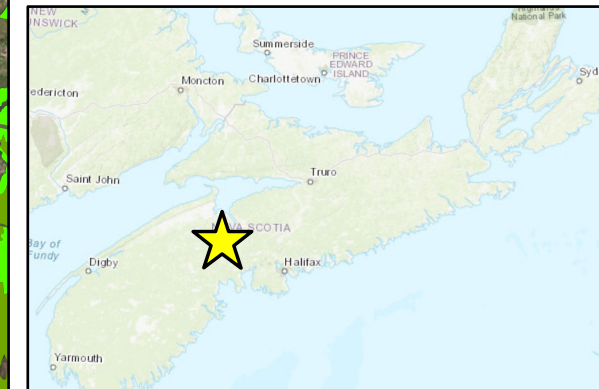
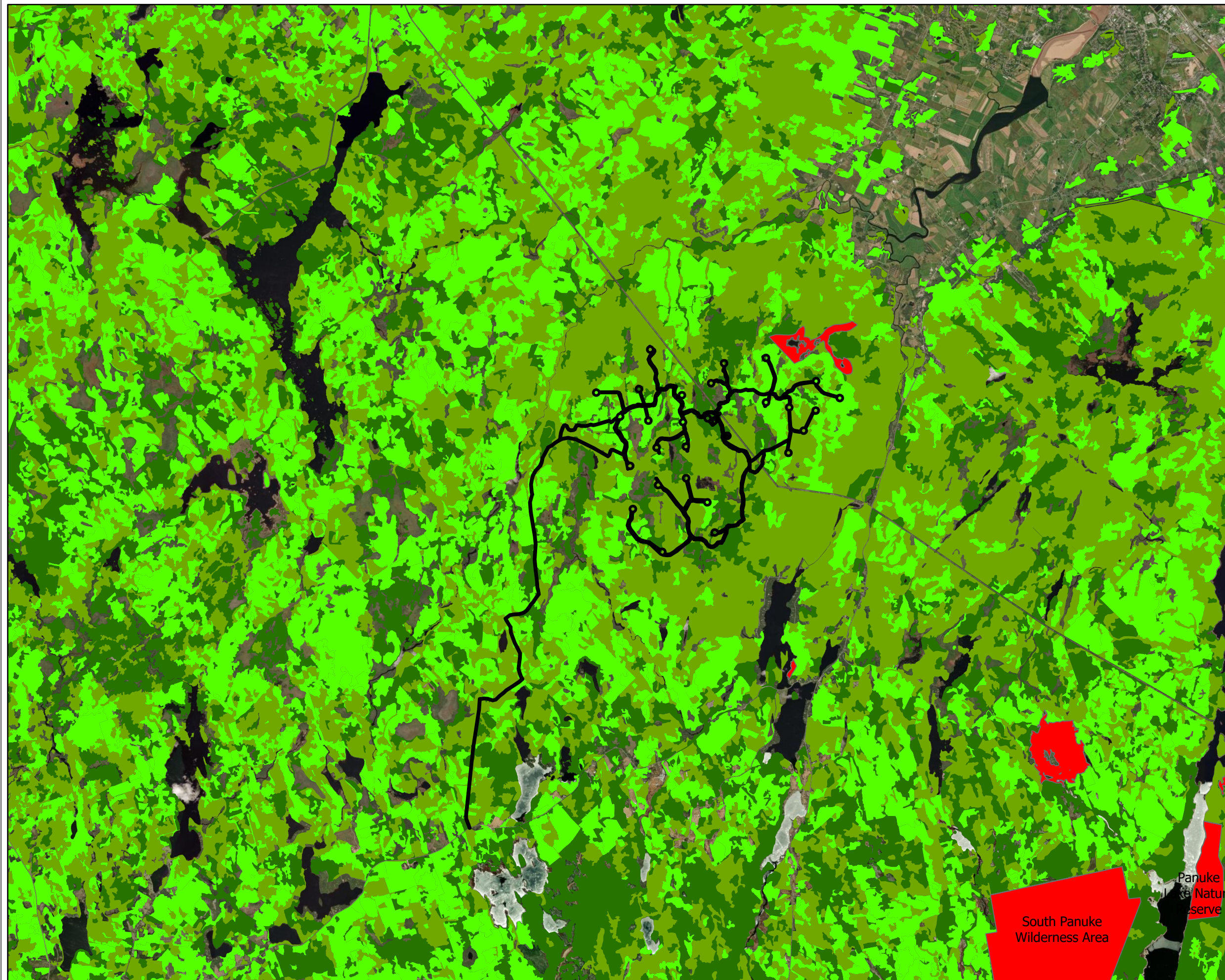







4.2.5 Seral Stage

The seral stage of a landscape classifies the successional progress of forests following a disturbance (reference). Classifications of seral stage for communities range from early seral stage (i.e., recently disturbed forests) to late seral stage communities (i.e., forests with long-lived “climax” species present). The majority of the PDA is located in mid seral stage land (45% of PDA) or early seral stage land (35% of PDA). This is consistent with the forestry activities that have occurred in the area. Non-disturbed areas within the Project are mostly classified as late seral stage. When looking at the broader region, most of the ecodistrict is characterized as early or mid seral stage. To support the findings from the land cover analysis, the area to the north and east of the Project shows a potential corridor or mid seral stage forests that the PDA does not fragment. There is also a notable patch of late seral stage forest within the South Panuke Wilderness Area. **Figure 22** shows the distribution of seral stages across the region of the Project.

Figure 22
Seral Stages within Project Region



Legend

-  Project PDA
-  Protected Areas/Old Growth Forest
- Seral Stage**
 -  Early
 -  Mid
 -  Late

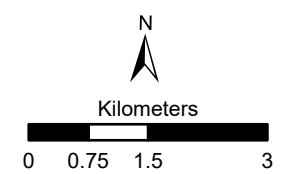
Notes

The percentage of seral stages for the project PDA is as follows:

- Early: 35.02 %
- Mid: 45.18 %
- Late: 19.09 %

Sources

- Basedata provided by the Province of Nova Scotia
- Basemap: ESRI World Topo Map



Scale: 1:95,000
Spatial Reference: NAD 1983 UTM Zone 20N
Page Size: 11" x 17"

Production Date: Dec 19, 2022



4.2.6 Road Index and Linear Infrastructure

Roads and linear infrastructure can have adverse environmental effects related to habitat fragmentation, mortality, and dispersal barriers. As such, they are another factor to take into consideration when analyzing the landscape. Overlaying the ecological landscape with transportation networks and other linear infrastructure can help provide an understanding of how to integrate these systems into the ecological landscape analysis and design process. Nova Scotia's Procedural Guide for Ecological Landscape Analysis includes a GIS based Road Index program to assess and map road distributions across ecodistricts, serving as a monitoring tool and helping describe existing conditions. This index weights the type of transportation feature, the density of linear infrastructure in a given area, and the distance of an area from transportation features to determine their relative influence on ecosystem function. Interpretation of the road index score was facilitated by correlating index values to patterns of land use:

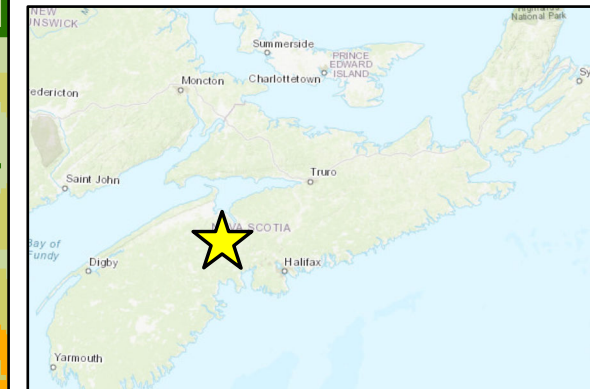
- Urban (40-100): high building densities and road access, few tracts of undeveloped land;
- Suburban-Agricultural (25-39): dominated by suburban settlement and/or open agricultural field;
- Mixed rural (16-24): mixed land use encompassing rural settlements, forest resource and some agriculture;
- Forest resource (7-15): areas without significant settlement, where forest resource access roads are the primary linear infrastructure; and
- Remote landscape (0-6): unpopulated areas with very few roads, trails, or other linear features.

The majority of the Project (84.5%) is located within remote area, with the remainder being on forest resource lands (14.3%), and only the access point being on mixed rural or agricultural land (1.2%). The following list describes the road index scores in areas surrounding the PDA as shown in **Figure 23**:

- North: In the areas a few kilometres north of the Project, there is a wide network of mixed rural and agriculture/suburban lands. These values represent the nearby towns of Windsor, Wolfville and Kentville, along with the infrastructure that connects them (highway 101). The Project is not likely to add to the impacts to terrestrial wildlife by these areas of higher road stress.
- South and east: Adjacent to the Project site is highway 14, running north to south. This highway is considered to be an existing fragmenting feature of the landscape, bisecting an area with 0-15 road index values. By creating a barrier of higher road index (24-39), the highway impedes movement across the region. Adjacent to the Project in the south are New Russell Road and New Ross Road, which play a similar road to highway 14 but running east to west. As the Project is located adjacent to these potential barriers, the landscape is already fragmented and there is not expected to be a great deal of traversal within and around the Project.

- West: To the west of the Project, the land is mostly remote and forest resource for about 16 km where it reaches highway 12. This area does contain a network of resource roads but it is generally forested and could offer suitable habitat. As the project is not situated in the centre of this area, and it does not cut off access to a large portion of habitat, it is expected to have little impact on traversal therein.

Figure 23
Road Index Within Project Region



Legend

Project PDA

Road Index

- 0-6 Remote
- 7-15 Forest Resource
- 16-24 Mixed Rural
- 24-39 Agriculture/Suburban
- 39-100 Urban

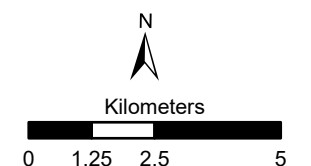
Notes

The road index density within the project PDA is as follows:

- Agriculture/Suburban: 0.35 %
- Forest Resource: 16.09 %
- Mixed Rural: 1.24 %
- Remote: 82.32 %

Sources

- Basemap provided by the Province of Nova Scotia
- Basemap: ESRI World Topo Map



Scale: 1:150,000

Spatial Reference: NAD 1983 UTM Zone 20N

Page Size: 11" x 17"

Production Date: Dec 19, 2022

4.2.7 Ecological Emphasis Classification

The Ecological Emphasis Classification assesses an area based on NSDNRR's GIS forestry database layer and assigns one of the four classes. The proportion of land in each of the classes can be used to calculate an "ecological emphasis index" as an indicator of overall land use intensity. The following classes are included:

- Reserve class - Reserved lands which meet biodiversity conservation goals through preservation of natural conditions and processes. Resource management activities are usually not permitted;
- Extensive management class - Lands that conserve biodiversity and sustain natural structure and functions. These areas could support a moderate level of resource production.
- Intensive management class - Lands with more optimized resource production, practices may produce unnatural conditions. Despite the potential for a reduction of biodiversity on these lands, intensive management areas contribute substantially to landscape function, structure, and composition.
- Converted class - Areas converted to an unnatural state for human use (e.g., agriculture, power lines, roads, mines).

No area of the PDA is located on reserve class land. Almost all of the PDA is located on extensive management class lands (98%), while 1% is intensive management class and the remaining 1% is converted industrial class. The extensive management class areas still support some anthropogenic activities such as forestry, ATV use, and hunting. This class is also the most common in the region surrounding the Project (**Figure 24**). Natural regeneration in extensive management areas is favoured once activities are completed, which will occur after Project decommissioning in consultation with the landowner.

There are several areas of land classified as reserve class within the region surrounding the PDA. These areas include protected areas and old growth forests that would be preferred by terrestrial wildlife such as Mainland moose in comparison to more disturbed areas (NSDNRR 2021). The Project was sited in this location specifically to avoid fragmentation of highly undisturbed sites that could serve as part of a major corridor for species travelling throughout the province. Notably, the areas north and northeast of the Project have been highly converted, with a large presence of intensive management areas as well.