

Mark Lockhart, General Manager
NFRM Inc./VFM Ltd.
128 Lansdowne Street East,
Callander, ON
POH 1H0

Dear Mr. Lockhart,

Re: Peer Review for Protected Area Gap Analysis for the Sudbury Forest

In reviewing this report, I considered relevant background information including the FSC® National Forest Stewardship Standard of Canada (FSC-STD-CAN-01-2018-V1-0), referred to as the FSC Standard; the “Protected Areas Gap Analysis, FSC Canada National Standard, Principle / Criterion 6.5, Summary for the Sudbury Forest” (September 2020); and for context, the 2020-2030 Forest Management Plan for the Sudbury Forest.

The FSC Standard requires forest managers to complete an outside peer review of the Protected Area Gap Analysis. The key question that framed the scope of my review was: Does the Sudbury Forest Gap Analysis meet the requirements of Criterion 6.5.2 of the FSC Standard?

Criterion 6.5.2 states: “Using best available information, an analysis is used to identify potential gaps in the completeness of the Conservation Areas Network in the Management Unit. Elements considered for inclusion in the gap analysis address enduring features, representation of native ecosystems, landscape connectivity, High Conservation Values and High Conservation Value areas. The analysis uses inputs from the entire area of ecological influence. The results of the gap analysis are mapped.

The related Intent Box in the FSC Standard states that: “The area of ecological influence (AEI) includes the entire area encompassed by ecological units (e.g. ecodistricts, biogeoclimatic zones) that occur at least partly within the Management Unit. The intent of using an area that extends beyond the Management Unit in the gap analysis is to incorporate a broader landscape perspective into consideration of the Conservation Areas Network. An analysis that takes account of a broad landscape (i.e. including the area of ecological influence) is better suited to providing an accurate assessment of conservation gaps. There may be circumstances in which there is little protected area encompassed by the Management Unit, but considerably more in the area of ecological influence. In such a circumstance, there may be fewer gaps than would be identified if only lands encompassed by Management Unit were used in the analysis”.

The Sudbury Forest is a large and diverse forest which has a total area of 1,098,356 ha, of which 768,722 ha (70%) is Crown Land. A total of 658,874 ha (86%) of the Crown land is forested. Of the total management unit area, 168,826 ha (15.4%) is within regulated parks and conservation reserves, and 3% is within eight First Nation Reserves and federal lands. An additional 13,423 ha is within Forest Reserves and Significant Ecological Areas (no-cut deferral areas). There are two Ecoregions (4E and 5E) and seven Ecodistricts (4E-3, 4E-4, 5E-3, 5E-4, 5E-5, 5E-6, and 5E-7) that comprise significant land area within the Sudbury Forest. An eighth Ecodistrict (3E-5) comprises a very small area in one township on the northern border of the Management Unit. The Sudbury Forest has a long history of expanding human settlement, the development of railways, mineral exploration and mining, and forest management that has shaped the development of the current forest.

Was the best available information used in the analysis?

The 2006 Ontario Parks analysis used several datasets to compare the distribution of combinations of enduring features (soils, Landforms, physiography) and vegetation types for each Ecodistrict. These datasets were thoroughly vetted during the Lands for Life process and represented the most complete and accurate datasets available at the time.

Further to the gap analysis work done by Ontario Parks in support of the Lands for Life initiative in 2006, a refined analysis of ecological gaps was completed in 2020 using the 2020-2030 FMP planning composite inventory layer. The planning inventory database contains layers for protected areas (land ownerships), and primary and secondary ecosites for each terrestrial polygon in the composite. For the purpose of the analysis only the dominant (primary) ecosite was used.

In my opinion, these two datasets represent the best information on enduring features and native ecosystems that are available at this time.

Were appropriate elements considered for inclusion in the gap analysis, i.e., address enduring features, representation of native ecosystems, landscape connectivity, High Conservation Values and High Conservation Value areas?

The 2020 update builds on the 2006 Ontario Parks analysis by using finer-scale datasets that are available within the 2020-2030 Planning Inventory. This inventory includes finer resolution (more detailed) information on enduring features through its interpretation of Provincial Ecosites as well as updated information regarding forest species composition and structure. Ecosites represent distinct vegetation and substrate combinations based on a standardized format and process to describe enduring features (i.e., soil / landform) and native ecosystems. The 2006 Ontario Parks analysis was combined with the 2020 analysis to provide a current assessment of the relative rarity of enduring feature/native ecosystem combinations and their ecological representation within the Sudbury Forest and the larger Ecodistricts that overlap it.

Based on these analyses, several areas were identified as candidates for further examination through conservation planning efforts. In my opinion, these areas are worthy of consideration because they contribute to landscape connectivity by building on existing regulated and unregulated protected areas. This approach of building on core areas also contributes to efficiency of the proposed areas by including multiple overlapping values, which may include High Conservation Values and High Conservation Value areas. The 2020 gap analysis report acknowledges that more work remains to be done to fully assess connectivity and the inclusion of HCVs and HCV areas:

“These analyses do not account for connectivity, individual patch size, or proximity which also need to be considered before identifying potential conservation areas. Due to the scale and resolution of map products any further consideration of candidate areas would also require ground verification. Other priority areas may also take precedence based on consultation and previous initiatives to identify high conservation values (HCV) and HCV areas as identified in the HCV report ... Further designations of conservation areas should consider the spatial analyses completed to date, and periodic updates using new or updated information as well as past planning and consultation initiatives. Analysis and planning from adjacent management units will also need to be considered as each Ecodistrict overlaps one or more other management units and MNR Districts.”

Does the analysis use inputs from the entire area of ecological influence?

The answer is yes - the 2006 Ontario Parks analysis compared the distribution of combinations of enduring features/vegetation types for each Ecodistrict, both within the Sudbury Forest, and within the entire of each Ecodistrict across all management units.

The 2020 gap analysis update refined the 2006 analysis using the 2020 planning inventory, and compared the relative abundance of each ecosite within regulated protected areas, and within unregulated Crown land on the Sudbury Forest. These results were then compared against the original 2006 analysis. This approach addressed issues of scale within the datasets used in the 2006 analysis. Within any ecological inventory, individual polygons contain inclusions, i.e., elements that occur within the polygon but are not individually mapped nor reflected in the polygon label because of the scale of the map, and the source imagery used to produce it. Since the 2020 planning inventory was produced at a finer scale, it more accurately reflects the content of the larger polygons in the 2006 datasets in terms of individual ecosite – substrate combinations. This allows areas within these larger polygons that match the precise enduring feature – ecosystem combination in question to be more accurately delineated, and helps to screen out areas that do not contain the enduring feature – ecosystem combination in question (inclusions) due to scale issues. In that sense it provides a more geographically accurate picture of the landscape which is the basis for better conservation planning.

Have the results of the gap analysis been appropriately mapped?

The updated 2020 gap analysis report contains a series of maps showing the achievement and rarity of landform / vegetation combinations for each Ecodistrict that overlaps the Sudbury Forest. Two maps are provided for each Ecodistrict: percent of minimum representation requirements achieved, and representation gaps by enduring feature-ecosystem combinations. These maps would benefit from showing the boundary of the Sudbury Forest to provide context as to what is located within versus outside of the Forest.

The results of the 2020 analyses using the Planning Inventory was presented in tabular format, but was not shown on maps. The report would benefit from a summary map of the Sudbury Forest showing the geographic distribution of identified gaps in representation of Ecosite-Substrate combinations in relation to existing protected areas to provide visual context. Similarly, the areas identified in the Discussion section as potential candidates for further examination through conservation planning efforts are not shown on a map, and it would benefit a reader's understanding to have this visual context. The datasets, GIS layers and attributes to produce these maps do exist within the Sudbury Forest planning inventory, so this suggestion is meant to improve the report's accessibility to the average reader.

Conclusion

Overall, it is my opinion that the information presented in "Protected Areas Gap Analysis, FSC Canada National Standard, Principle / Criterion 6.5, Summary for the Sudbury Forest" (September 2020) meets the requirements of Criterion 6.5.2 of the FSC National Forest Stewardship Standard of Canada, with the exception that more work is required to fully address the requirement to consider connectivity and the inclusion of HCVs and HCV areas in future conservation planning for the Sudbury Forest.

In terms of the report itself, it is well-written and is largely free of typos and grammatical issues. I did find it a bit technical, and it might benefit the average reader to have a brief, plain-language summary included.

Thank you for the opportunity to review this gap analysis update. Please get in touch with me at your convenience should you have questions or require clarification of any points.

Sincerely,

Robert W. Arnup

Senior Forest Ecologist,
Rob Arnup Consulting