

**Northern Pass Winter Wildlife Agency Meeting
New Hampshire Fish and Game Region 1 Office
Lancaster, NH
January 30, 2013**

Attendees

Leighlan Prout (U.S. Forest Service - White Mountain National Forest), Tony Tur (U.S. Fish and Wildlife Service), Caitlin Callaghan (U.S. Department of Energy), Jill Kilborn (New Hampshire Fish and Game), Will Staats (NHFG), Diane Timmins (NHFG), Travis Beck (SE Group), Dan Belin (Ecology and Environment, Inc.), Courtney Dohoney (E & E), and Sean Meegan (E & E).

Meeting Details

Introductions and Project Update

Following introductions, Beck provided an update on the Northern Pass application process, noting that no formal application has been submitted to DOE and no timeline has been given for when it is expected to be submitted. Without an application, the northern 40 miles of the right-of-way (ROW) is still unknown. Kilborn asked whether the same quality of data (e.g. LiDAR) would be available for the northern 40 miles as is currently available for the southern 140 miles, the concern being that a difference in the quality of data could cause inconsistencies when conducting the desktop analysis. Belin noted that the northern 40 mile route was flown in November 2012 for LiDAR imaging, however the data is currently in a RAW format so not readily usable. However, once a route is established, he does not anticipate an issue with the quality of the data.

American Marten and Canada Lynx Habitat Suitability Model

Meegan provided an update on how the habitat suitability models (HSMs) have been updated since the January 14, 2013 call when the SE Group Team presented the initial model parameters and output. Since that time, the SE Group Team updated the snowfall data set, purchasing a more refined data set from Prism at Oregon State. Unfortunately the SE Group Team has not yet received the data due to computer server problems Prism is experiencing. As soon as the snowfall data is received, it will be incorporated into the model. The occurrence data has been partially updated with information provided by New Hampshire Natural Heritage Bureau (NHNHB); data were provided for the Deerfield to Whitefield area. The SE Group Team anticipates receiving the remaining occurrence data within the next week and will confirm that the recent lynx sightings near Whitefield are included as Tur pointed out they were not currently reflected in the NHNHB data set and should be. Also updated in the marten model is the range of land cover classes that are considered suitable for marten – the model now includes alpine, hemlock-hardwood-pine forest, and northern hardwood-conifer forest in addition to high and low elevation spruce-fir forests.

Tur asked whether the SE Group Team had reviewed Carlos Carrol's model for lynx in New Hampshire. Meegan explained that after running the Northern Pass lynx model, the output was compared to Carrol's model, finding some similarity between the two although the difference in scale between the two models resulted in a comparison on the macro-scale and not micro-scale. In addition, most of the ROW was shown as a low probability of occurrence. Tur recommended using Carrol's model as a way to show that the Northern Pass model is calibrated to other studies.

Meegan also mentioned that the SE Group Team coordinated with Peter Steckler from The Nature Conservancy to obtain the connectivity data for lynx and marten that was developed in coordination

with NHFG. Steckler recommended just using the state cost surface model prepared in conjunction with Audubon, as The Nature Conservancy had modified the state data to be consistent with data in the greater region. The SE Group Team contacted Katie Callahan (NHFG- GIS), who provided spatial data for the Canada lynx and American marten cost surfaces for dispersal across the state. These data provide an indication of suitability of habitat for the dispersal of these species through the state. These data are used to create a habitat connectivity layer which was compared to the SE Group's habitat suitability model and the results were very similar.

Prout noted that the high suitability areas identified in the model correlated well with areas of quality habitat within the White Mountain National Forest (WMNF), with the model taking a conservative approach.

Overall, there was general agreement to the HSM approach and the weights and variables used to produce the model output.

LiDAR Analysis

Belin provided an overview of the process the SE Group Team used to analyze the available LiDAR data and imagery. Using point cloud data provided by Northern Pass, the SE Group Team was able to identify habitat characteristics preferred by lynx and marten (or their prey) including tree height (less than 14 feet), dense vegetation (correlating 50,000 stems/hectare, 3-10 feet in height), and tree species composition (stands of spruce, fir, and birch). Two of the layers, tree height and dense vegetation, were merged to provide a proxy for optimal foraging habitat for Snowshoe hare and lynx. Staats asked if there was a patch size discriminator that was used when determining whether an area met the habitat criteria or not. Belin said there was not a defined size when doing the analysis, but felt that it was probably on the scale of 1-2 acres and above (meaning the smaller, more isolated, patches dropped out when merging the two layers). Belin also pointed out that the LiDAR analysis and therefore the habitat characterization is limited to a corridor with a width of approximately 500 to 1,000 feet, as Northern Pass only collected LiDAR for that width.

As part of the tree species identification, Tur asked about the ability to distinguish aspen trees, as they are an important tree species for lynx and marten habitat along with birch. Belin reported that the analysis likely included aspen within the birch classification, so that information should be reflected in the analysis data. Prout also had a question regarding the ability of the analysts to identify tree species and whether those desktop observations have been ground-truthed. She further noted that softwood understories in hardwoods, especially in the southern extent of the Project, are quality habitat and should be included. The SE Group Team explained that ground-truthing would occur during the surveys and that vegetation surveys during the growing season will also be conducted, although the Work Plan outlining those methods will be worked out with the applicable agencies once the season gets closer. Belin suggested that the SE Group Team hold a follow-up conference call with the agencies mid-Winter to discuss how accurate the habitat identification was.

Survey Objectives

Tur brought up the point that from an impact perspective, the Fish & Wildlife Service will primarily be concerned with assessing the disturbance to lynx foraging habitat as direct impacts to their denning habitat are unlikely due to the presumed lack of denning habitat in the ROW (for the existing ROW). Staats pointed out that the Project could impact denning habitat outside of the ROW due to additional clearing outside of the currently maintained ROW, therefore surveys outside of the cleared areas should be conducted where possible. Tur felt that a good strategy would be to note suitable denning habitat

off the cleared ROW (e.g. tip up, coarse woody material, etc. per Organ paper). Meegan felt that this would be feasible for the surveyors to collect that data, despite limited off-ROW access in some areas, provided a qualitative assessment is sufficient. Belin also pointed out that from the Organ et al 2008 (Within-Stand Selection of Canada Lynx Natal Dens in Northwest Maine, USA) paper, it reported that denning habitat is generally not the limiting factor for lynx populations – prey availability is a far more significant indicator in lynx presence. As a result of the importance of snow-shoe hare populations, Staats requested that when surveyors collect data for lynx, that they also record the relative abundance of snowshoe hare activity nearby. When asked by the SE Group Team whether NHFG had a method for defining snowshoe hare activity, Staats acknowledged that it would need to largely be qualitative, but he could provide what has been used by NHFG.

Kilborn noted that for marten, food sources are not quite as restrictive as lynx, therefore documenting habitat areas with coarse-woody structure is important. She also noted that marten use riparian areas for connectivity purposes and that they will use streams of all classes. Tur agreed that lynx will also use riparian corridors. The SE Group agreed to survey and inventory these habitats where they cross the ROW.

Kilborn explained that she is considering the value of surveying priority areas where they already know lynx/marten are present, or whether the focus should be surveying areas where less information is known.

Staats stated that NHFG rarely is able to conduct three rounds of surveys. It was determined that the survey effort should focus on covering a greater geographic extent, if time is limited, instead of multiple survey passes.

Game Cameras

Tur asked the SE Group Team how they intend to use game cameras to supplement the tracking surveys. Dohoney explained that one strategy the SE Group Team was thinking about was setting up game cameras in areas where lynx and marten were identified during the surveys. By setting up game cameras in areas confirmed for lynx or marten presence, the area would not need to be resurveyed since presence was already determined and data are still being collected with the game cameras. This will also allow the SE Group Team's survey efforts to focus on surveys in other high priority areas where lynx or marten have not previously been identified and more than one visit could be beneficial. In addition, the game cameras would provide a potential greater survey coverage area, during the limited survey window.

Prout also pointed out that if survey crews are concerned about safety issues in the winter that game cameras could be set up during the summer season to capture lynx or marten activity.

Tur also recommended that the cameras be installed on the ROW edge, instead of the middle of the corridor as it's more likely to capture marten activity, without sacrificing lynx activity. A brief discussion regarding the use of baiting techniques to optimize the success of cameras ensued. Tur, Kilborn, and Staats indicated that lynx are typically baited with sardines and a scent lure. In addition, a visual attractant, such as CD's or a colorful object are also used. It was explained that this technique should work for lynx, as well as marten.

Deer Yards and Moose Concentration Area Surveys

Dohoney asked whether the NHFG data for deer yards had been updated since the 2011 data set that the SE Group Team already has. Staats replied that the 2011 data are the most recent and should be used for the surveys.

Priority Survey Areas

After discussing the HSM and LiDAR analysis, as well as survey objectives, the group used the SE Group Team's online mapping tool to evaluate portions of the ROW where the various models and output identified high quality habitat where field surveys should occur. The group went through each of the segments of ROW and provided comments as well as a general sense of the priority of the segment to help the SE Group team prioritize their survey efforts. Tur brought up the point that there is little known about lynx occurrences in high elevation areas - while occurrence of lynx in high elevation habitats are common in the western U.S., it has not been demonstrated in the northeast. Belin pointed out that the surveys around Bog Pond in the WMNF, will be a good test case for that, as it is one of the more high elevation areas where surveys are currently planned.

Next Steps

Belin outlined the next steps the SE Group Team intends to follow. The SE Group Team will take the information from this meeting, incorporate it into the Work Plan and provide the updated version to the agencies by February 4, 2013. Assuming a two week review period for USFWS, USFS, and NHFG, the SE Group Team intends to begin surveys on February 18, 2013. Prout suggested that the surveys start at the southern end moving north, since the northern end will likely have snow later into the winter than the southern extent. Tur provided his comments on the Work Plan verbally, recommending a more extensive discussion of the history of lynx in New Hampshire, starting with the bounties that were placed on the species in the early 1900's, through their near extirpation in the 1980's/90's, up to the current situation where their presence is known and USFWS is attempting to determine what the breeding populations are in the state. In addition, he pointed out that the tracking survey methodology was a USFS technique and not a USFWS method.

Dohoney asked the agencies whether they would prefer another face to face meeting, similar to the one today, to go through the HSM for the northern 40 miles, should that information become available. Everyone agreed that if possible, it would be most beneficial for everyone to meet again, although if schedules preclude it, a webinar could be set-up so that at least everyone can view the online mapping tool and interact as part of the process for identifying priority survey areas.

Action Items

- SE Group Team to include snowshoe hare relative abundance on the field data sheets.
- Kilborn to provide marten BMPs, based on Maine data.
- SE Group Team to update Work Plan and re-distribute to the agencies for final approval.