Testimony before the Maine Department of Environmental Protection

by Dr. Erin Simons-Legaard
Serving as an expert witness for The Nature Conservancy in Maine

May 1, 2019

RE: Central Maine Power's New England Clean Energy Connect Transmission Proposal

Thank you for the opportunity to provide additional testimony on the proposed Central Maine Power New England Clean Energy Connect (NECEC) transmission corridor. My name is Erin Simons-Legaard and I have been a Research Assistant Professor of Forest Landscape Modeling in the University of Maine School of Forest Resources since 2014. I earned my Ph.D. in Wildlife Ecology from the University of Maine in 2009, and my research has focused on understanding the cumulative effects of landscape change and forest management on wildlife habitat and other natural resources.

In response to questions from the Tenth Procedural Order, I have been in discussion with University of Maine colleagues Dan Harrison and Mac Hunter and Nature Conservancy staff regarding further information on pine marten habitat requirements and habitat connectivity. Based on those discussions, I will address five questions from the Procedural Order below. I have also presented an option for a short-term landscape-scale study that could (a) provide further useful information on priority areas of connectivity, and (b) attempt to quantify landscape scale impacts to pine marten habitat.

13. Whether taller poles and travel corridors could provide enough of a link between the habitat on both sides of the corridor for species like the pine marten.

Based on research at the University of Maine and other sources, optimal habitat for pine marten consists of large patches of mature that are greater than 370 acres in area, contain a minimum basal area if 80 ft^2/acre, and are comprised of trees at least 30 feet tall (preferably >40 feet tall) with at least 30% canopy closure in all seasons and frequent snags (dead trees). Because many other wildlife species prefer mature forests with similar characteristics, pine marten are often considered an 'umbrella species', and planning for pine marten habitat often serves the purpose of planning for a wide range of other wildlife. Martens can den in hollow logs, but they prefer to house their young in tree hollows high off the ground. The use of mature forests by martens enables tree-to-tree movement and offers protection from predators including coyotes, foxes, and raptors. Although martens will cross openings and habitat edges including utility corridors, they are typically absent from areas where home ranges would need to comprise >30% unsuitable habitat, such as large forest openings, regenerating forest, roads and road edges, and utility corridors. As a result, taller poles and travel corridors that would allow mature forest conditions to persist would be more favorable to marten and other species that prefer mature, closed-canopy forests.

It is important to note, however, that the dominant influence on pine marten populations in Maine is the condition of the larger forested landscape. In Maine, martens occupy large home ranges, averaging about 650 acres for females and 1150 acres for males. Individuals occupying intensively harvested landscapes experience an elevated risk of mortality due to increased energetic costs of long-distance movement among suitable habitat patches, and in some parts of Maine and the northeast region martens have experienced dramatic population declines over the last few decades because of the cumulative impacts of intensive forest management.

Because the NECEC line represents a long, linear, fragmenting feature that adds considerably to the cumulative impacts of forest harvesting and roads in the region, it is important to emphasize that the optimal siting would involve alignment along existing roads (i.e. Spencer Road and Route 201) to the maximum extent possible. Such alignment along roads could be coupled with burial, raised pole heights, or tapering to further minimize impacts. Absent co-location with existing roads, the next best alternative is raising pole heights to maintain mature forest canopy in the proposed right-of-way.

14. In TNC's nine areas of concern, whether travel corridors must be located within a certain distance of the structures (poles), and what the minimum width would be of the travel corridors in order for species like the pine marten to use them.

Regarding the width of travel corridors, there is no set minimum width threshold for the variety of species that use mature forests. In general, wider is always better for wildlife. However, for species sensitive to edge effects, such as amphibians, a narrow travel corridor would be less likely to be used because much of this forest would essentially be 'edge'. The research literature is clear that pine marten avoid using narrow strips of forest generally, and the most relevant study suggests that marten would avoid habitat corridors less than ~400 feet wide (assuming the corridor otherwise contains appropriate marten habitat conditions). Moreover, narrow strips of conifer forest are more likely to experience wind damage than wider strips.

15. In TNC's nine areas of concern, whether tapering would adequately reduce the forest fragmentation of any clearing.

From a habitat standpoint, taller poles that would allow mature forest would be preferable to tapering in almost all locations. In fact, tapering that resulted in 15' tall forest under the wires (a width of ~70 feet across the corridor) could potentially result in an 'ecological trap' for pine marten, attracting them into sub-optimal habitat and exposing them to predators as noted above. Tapering, combined with wildlife travel corridors, could be somewhat beneficial for interior forest nesting birds—especially if applied in areas that are primarily coniferous—as well as for some amphibians. However, raising pole heights to allow for full forest canopy would be even more beneficial for these species. Tapering may be a reasonable alternative in areas with existing young forest coupled with scenic/visibility concerns. Standard pole heights and vegetation management may be appropriate in areas where the transmission line crosses open wetlands.

16. Locations where tapering vs. taller overhead poles would be preferred

As noted above, from an ecological standpoint, taller poles would be preferable to tapering in almost all locations. Tapering may be preferable in areas with strong visual concerns. It is important to note that because of the need for multiple large patches of mature forest, the condition of the forest adjacent to the transmission lines is critical for species such as pine marten. This condition of the adjacent forest has two implications:

- First, mitigation aimed at maintaining mature forest within the corridor should be targeted to locations more likely to retain mature forest on either side of the corridor. These locations include (a) areas adjacent to conserved lands, and (b) areas that cross stream/riparian zones with statutory restrictions on harvest intensity. These considerations align with most of the nine priority areas for connectivity identified by TNC as well as priority streams and crossing areas identified by Group 4.

- Second, the landscape-scale impacts of the project provide further support for the fact that the cumulative impacts of the transmission line cannot be entirely mitigated by on-site actions. Regardless of the avoidance and minimization measures utilized, there will be unavoidable impacts that should be compensated through a fund for land conservation in the region, and that compensation should include considerations for retaining large patches of mature forestland.

26. *Whether an underground route co-located with Route 201 would be technically feasible, economically viable, and/or a satisfactory option to mitigate concerns raised during the hearing.*

As noted above, my colleagues and I believe that an underground route co-located with Route 201 would be a preferable alternative to mitigate habitat fragmentation concerns. Similarly, an underground route adjacent to the Spencer Road would be preferable to the proposed route.

An Option for Additional Study

In the last several years, my University of Maine colleagues and I have developed sophisticated procedures of using remote imagery (e.g., LANDSAT) to map wildlife habitats and track changes over time[1], and forest landscape models to project habitat changes in the future. We would be interested in discussing ways to incorporate this type of landscape-scale analysis into the overall assessment of NECEC project impacts. Such an analysis could both further inform the mapping of high priority areas for connectivity as well as quantify the impacts on habitat specialists like the pine marten.

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[1] Simons-Legaard, E.M., D.J. Harrison & K. Legaard. 2016. Habitat monitoring and projections for Canada lynx: linking the Landsat archive with carnivore occurrence and prey density. Journal of Applied Ecology 53: 1260-1269. Simons-Legaard, E.M., D.J. Harrison & K. Legaard. 2018. Ineffectiveness of local zoning to reduce regional loss and fragmentation of wintering habitat for white-tailed deer. Forest Ecology and Management 427: 78-85.

By: _____
Erin Simons-Legaard, Ph.D.

Date: 5/1/19

The above-named Erin Simons-Legaard did personally appear before me and made oath as to the truth of the foregoing pre-filed testimony.

Althea Tibbetts
Notary Public/~~Attorney at Law~~

Date: May 1, 2019

Althea Tibbetts
Notary Public, State of Maine
My Commission Expires August 12, 2025

My Commission Expires: _____