

**NHDOT SPR2 PROGRAM  
RESEARCH PROGRESS REPORT**

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<b>Project #</b> 42372P	<b>Report Period</b> Year 2023 <input type="checkbox"/> Q1 (Jan-Mar) <input type="checkbox"/> Q2 (Apr-Jun) <input type="checkbox"/> Q3 (Jul-Sep) <input checked="" type="checkbox"/> Q4 (Oct-Dec)	
<b>Project Title:</b> Wildlife Vehicle Collisions Data Gathering and Best Management Practices Part 2		
<b>Project Investigator:</b> Remington Moll, University of New Hampshire <b>Phone:</b> 603-862-3054 <b>E-mail:</b> <a href="mailto:remington.moll@unh.edu">remington.moll@unh.edu</a>		
<b>Project Start Date:</b> 6/14/2023	<b>Project End Date:</b> 6/30/2025	<b>Project schedule status:</b> <input checked="" type="checkbox"/> On schedule <input type="checkbox"/> Ahead of schedule <input type="checkbox"/> Behind schedule

**Brief Project Description:**

Wildlife vehicular collisions (WVCs) pose inherent threats to wildlife populations and human safety throughout the State. Roads create barriers that reduce free movements of wildlife species. Plymouth State University Wildlife Vehicle Collisions Data Gathering and Best Management Practices Study (Part 1) has synthesized the available data about WVCs in NH and developed a statistical model to analyze road, temporal, and wildlife specific factors that contribute to areas with more collisions. The study found positive relationships between WVCs and local road density, which corresponds to population centers within the state. However, it also revealed that there is more variability and less predictability in the data than was expected.

This research will refine the model and complete on-the-ground research to identify some hot spots where mitigation should be considered in New Hampshire. The proposed research includes:

- Continuing data analysis from Part 1 of the project,
- Using cameras, wildlife tracking, or roadkill surveys to evaluate the presence of wildlife and analyze the data to identify locations for WVC mitigation projects,
- Investigate the 23 USC 171: Wildlife crossings pilot program and make recommendations to the Technical Advisory Group,
- Develop a guidance document for Wildlife Crossing Best Management Practices (BMPs)
- Facilitate a meeting to include NHDOT personnel from Operations, Project Development and NH F&G to workshop a crossing project proposal.

The project could result in design features to mitigate WVCs in the vicinity of WVC hot spots and future stand-alone projects to reduce WVCs. The BMP manual could lead to reduced WVCs throughout New Hampshire, providing a safer travelling environment for drivers and for wildlife.

**Progress this Quarter (include meetings, installations, equipment purchases, significant progress, etc.):**

- The UNH graduate student leading field aspects of the project, Clara Dawson, completed her first semester in the M.S. degree program in Wildlife and Conservation Biology at the University of New Hampshire (UNH) under the supervision of project PI Remington Moll. Clara formed her thesis committee and held her first committee meeting. Committee members are Dr. Amy Villamagna of Plymouth State University and Dr. Fikirte Erda of UNH.
- Clara Dawson, working with two undergraduate students, one at UNH and one at Plymouth State University, completed the first season of field work. This work entailed deploying camera traps at 12 hotspot wildlife-vehicle collision sites identified previously. Each hotspot received 5-12 cameras, with an experimental design consistent with project goals to quantify wildlife use of roads and culverts/crossings. 74 total cameras were deployed. These cameras were subsequently checked to download data and perform maintenance. Image data from these cameras are currently being processed.
- Remington Moll, Amy Villamagna, and Rebecca Martin met with Arin Mills, Jason Abdulla, and Philip Beaulieu of DOT to discuss the use of the ROaDS mobile application to monitor roadkill at the 12 hotspot sites. Initial plans are for select members of this group and the DOT to use the application to record data on weekly routes.
- PI Remington Moll attended the Wildlife and Transportation Working Group meeting on December 12<sup>th</sup> held NHDOT SPR2 Quarterly Reporting

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virtually and provided a project update. At this meeting, Kirk Mudgett (DOT) and Pete Steckler (Northeast Conservation Services) provided an update of lessons learned from their application to the 23 USC 171: Wildlife crossings pilot program. This insight will be used to inform this project's plans to apply to that program in the future.

- Continued preparing ancillary data (wildlife habitat maps) for future analysis to inform mitigation planning. Clara obtained species-specific rasters of wildlife connectivity throughout New Hampshire and performed an initial analysis of their relationship to wildlife-vehicle collision hotspots.
- Remington Moll and Clara Dawson, along with other UNH graduate students and collaborators at the University of British Columbia, are working on an invited chapter in an upcoming book on large carnivores to be published by Oxford University Press. The book chapter is a global review of road effects on large carnivores, and the results of this literature review will help inform the Best Practices document and related products from this project.

**Items needed from NHDOT (i.e., Concurrence, Sub-contract, Assignments, Samples, Testing, etc...):**

None at this time.

**Anticipated research next three(3) months:**

- Complete initial camera trap image analysis to identify all wildlife species at each camera location.
- Continue analysis of land connectivity maps to evaluate their relevancy for predicting wildlife-vehicle collisions or wildlife distributions. These efforts will inform the Best Practices document as well as help guide applications to the Wildlife Pilot Program.
- Make plans to use the Survey123 application ROaDS Roadkill Survey to collect data on statewide road wildlife mortalities.
- Explore optimal timing of future NHDOT and NHFG meetings with project liaison Rebecca Martin.
- Continue literature review for Best Management Practices document.

**Circumstances affecting project:**

No challenges encountered since project start are expected to significantly affect project completion timelines.

<b>Tasks (from Work Plan)</b>	<b>Planned % Complete</b>	<b>Actual % Complete</b>
<i>Continue data analysis from Part 1 of the project (hotspot mapping) (2023 Q3)</i>	100	100
<i>Field monitoring of hotspot locations (2023 Q3 - 2025 Q1)</i>	100	100
<i>Investigate the 23 USC 171: Wildlife crossings pilot program and make recommendations (2024 Q1 – 2024 Q4)</i>	10	10
<i>Analyze ancillary data (wildlife habitat maps) to inform mitigation analysis (2023 Q4 – 2025 Q1)</i>	25	15
<i>Analyze field data to inform mitigation analysis (2023 Q2 – 2025 Q1)</i>	0	5
<i>Develop Best Management Practices document (2024 Q1 – 2024 Q3)</i>	0	0
<i>Facilitate a meeting to include NHDOT personnel from Operations, Project Development and NH F&amp;G to inform crossing project proposal (2023 Q4, 2024 Q4)</i>	25	0
<i>Update StoryMap from Phase 1 (2023 Q4 – 2025 Q2)</i>	0	0
<i>Write technical report (2025 Q2)</i>	0	0
<i>Present results and prepare manuscript for publication (2024 Q3 – 2025 Q2)</i>	0	0

**Barriers or constraints to implementing research results**

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A meeting between the TAG and UNH team did not occur in the previous quarter due to scheduling difficulties. Because of this, it is recorded that we are slightly behind schedule with respect to facilitating meetings between NHDOT and NHFG, as a meeting between the TAG and UNH is a first step to clarify the objectives and timeline for that meeting. We anticipate meeting in the next quarter.