

Setting up ROaDS Partners with Customized Surveys

Final Report

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16. Abstract The Roadkill Observation and Data System (ROaDS) project, developed through a partnership between the U.S. Fish and Wildlife Service, National Park Service, and the Western Transportation Institute at Montana State University, provides a user-friendly data collection system to monitor wildlife-vehicle collisions (WVCs) and identify safe crossing locations on roads managed by federal land management agencies (FLMAs). This report outlines recent outreach efforts and successful implementation of the ROaDS system with external partners, including the Nevada Department of Transportation (NDOT) and the Indiana Department of Natural Resources (IDNR). Custom surveys were developed for these agencies to address specific data collection and conservation goals, resulting in improved capacity to monitor WVCs and identify high-risk areas for targeted mitigation. The project has garnered interest from several other state transportation agencies, showcasing the adaptability of the ROaDS system for diverse road and wildlife management applications. The successful deployment in Nevada and Indiana demonstrates the system's potential to support data-driven decision-making and enhance wildlife connectivity across the country.			
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About the Western Transportation Institute

The Western Transportation Institute (WTI) was founded in 1994 by the Montana and California Departments of Transportation, in cooperation with Montana State University. WTI concentrates on rural transportation research; as stewards and champions of rural America, WTI also has a strong interest in sustainability. WTI research groups create solutions that work for clients, sponsors, and rural transportation research partners. WTI Research Centers include the Montana Local Technical Assistance Program, the National Center for Rural Road Safety, the Small Urban, Rural and Tribal Center on Mobility, the Federal-Public Lands Transportation Institute, and the West Region Transportation Workforce Center.

About the Small Urban, Rural and Tribal Center on Mobility

The mission of the Small Urban, Rural and Tribal Center on Mobility (SURTCOM) is to conduct research and provide leadership, education, workforce development and technology transfer in all transportation-related aspects of mobility for people and goods, focusing specifically on small urban, rural and tribal areas. Member institutions include the Western Transportation Institute at Montana State University, the Upper Great Plains Transportation Institute at North Dakota State University, and the Urban and Regional Planning program at Eastern Washington University.

Disclaimer

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1 Introduction

The U.S. Fish and Wildlife Service and the National Park Service have partnered with the Western Transportation Institute at Montana State University to develop a wildlife-vehicle collision (WVC) data collection system for federal land management agencies (FLMAs) and their partners. This system, built using the ESRI ArcGIS Survey123 application, efficiently collects information on large animal-vehicle collisions to address motorist safety concerns on FLMA roads. Additionally, it gathers carcass data on medium- and small-sized fauna, supporting FLMAs' conservation missions. The system also has the capability to identify highway locations where animals safely cross roads.

The Roadkill Observation and Data System (ROaDS) project is currently in Phase 4, where the survey is being integrated within the Department of Interior's (DOI) ArcGIS-based GeoPlatform, behind the DOI security firewall. This phase focuses on transferring the survey and its code to the GeoPlatform, developing supporting materials, and conducting outreach to DOI parks and departments. Phase 4 does not include partnerships outside of the DOI. However, the ROaDS system was designed to be easily transferable to other partners that already have an ArcGIS account. Setting up additional partners is straightforward and does not require any changes to the coding or post-data collection processing, as the system can be customized without modifying locational information.

1.1 Background

ROaDS provides user-friendly tools to collect, manage, and evaluate data relevant to identifying road segments where countermeasures can be implemented to reduce WVCs. The system is simple and flexible, allowing use by both expert and non-expert staff along any road. It is designed to be adapted for use by any state, tribal, county, or metropolitan transportation agency, non-governmental organization, or any other entity with access to an ESRI ArcGIS account. The WVC Data Collection System can be used for:

- Collecting basic, standardized WVC data along roads.
- Customizing WVC data collection to include large animals for motorist safety and smaller mammals, reptiles, birds, and amphibians for conservation purposes.
- Integrating WVC data into transportation planning to identify and address WVC "hot spots" in transportation projects.
- Analyzing data to identify hotspots of high WVC occurrence and applying targeted measures to improve motorist safety.
- Detecting road segments of conservation concern for small and medium-sized animals, as well as identifying wildlife corridors for migration, dispersal, and movement.
- Coordinating WVC data early in transportation project planning, programming, and budgeting.
- Conducting research and monitoring, including detecting changes in WVC occurrences and evaluating the effectiveness of mitigation strategies and investments.
- Developing site-specific education and outreach initiatives to alert motorists to WVC risks and influence driving behaviors to reduce collisions.

1.2 Objective

This project focused on customizing the ROaDS Survey Template to meet the specific needs of our non-DOI partners, including tribal agencies, state agencies, local governments, non-governmental

organizations, and citizen scientists. Customizations include updating the species list and adapting survey questions to meet each partner’s research goals. The WTI team will also provide training to partners on how to modify their survey questions in the future.

2 Outreach

The outreach efforts for the ROaDS project have included attending and presenting a poster at the International Conference on Ecology and Transportation (ICOET) 2023, as well as engaging with partners through various other projects. At ICOET, the project was showcased to a diverse audience, generating significant interest in the app's capabilities and potential applications. In addition to ICOET, ongoing outreach has been conducted during collaboration with partner organizations, further promoting the use of the ROaDS system. As a result of these efforts, several agencies, including the North Carolina Department of Transportation (DOT), Nevada DOT, New Mexico DOT, North Dakota DOT, Montana DOT, and the Indiana Department of Natural Resources, have expressed interest in exploring the app's implementation to support their wildlife-vehicle collision mitigation and conservation initiatives. These interactions have been instrumental in building new partnerships and expanding the reach of the ROaDS project beyond the Department of Interior.

2.1 Custom Surveys

Custom ROaDS surveys were successfully developed and implemented for the Nevada Department of Transportation (NDOT) and the Indiana Department of Natural Resources (IDNR). For NDOT, the survey was tailored to address large mammal collisions and high-risk road segments for both motorist safety and conservation purposes. Similarly, the IDNR survey was customized to monitor wildlife crossings and WVCs for species of concern, providing critical data to support their conservation efforts. These tailored surveys ensure that each agency can efficiently collect and analyze data relevant to their specific needs and objectives.

2.1.1 Nevada Department of Transportation ROaDS Survey

The Nevada Department of Transportation (NDOT) has successfully launched their customized ROaDS survey, thanks to close collaboration and multiple meetings to determine the best approach for their specific needs. According to Nova Simpson, NDOT's Wildlife Crossing Program Manager, the survey recently went live and is currently being used by a select group of staff members and the Nevada Department of Wildlife to ensure smooth operation and address any initial issues. Both the mobile and desktop versions are functioning well, and NDOT is optimistic about expanding the survey's use to more personnel in the near future. Nova highlighted the potential of this tool to significantly improve NDOT's ability to collect high-quality data on wildlife-vehicle collisions, aiding in more informed decision-making for mitigation efforts.

2.1.2 Indiana Department of Natural Resources ROaDS Survey

The Indiana Department of Natural Resources (IDNR), Division of Fish and Wildlife, began using the customized ROaDS survey in June 2024 after several collaborative meetings to fine-tune the tool for their needs. Initially, the app was tested by two members of IDNR's Environmental Unit, leading to minor adjustments in wording and layout. Following this pilot phase, the app was rolled out to additional staff within the Environmental Unit and one of the division's assistant directors.

According to Matt Buffington, Environmental Unit Supervisor for IDNR, the app has already helped highlight the extent of roadkill in Indiana and has been instrumental in conversations about wildlife passage options during floodway project reviews. IDNR hopes to use the app to identify roadkill hotspots beyond stream crossings and collaborate with the Indiana Department of Transportation (INDOT) to develop mitigation measures in these areas. Although expanding the app's use to the public

is still under consideration, the app has already recorded over 900 roadkill observations in just three months, showcasing its effectiveness in gathering valuable data for future conservation efforts.

3 Conclusion

The successful customization and implementation of the ROaDS survey for both the Nevada Department of Transportation (NDOT) and the Indiana Department of Natural Resources (IDNR) highlight the adaptability and value of the tool in supporting diverse wildlife-vehicle collision (WVC) mitigation and conservation goals. Close collaboration with these agencies facilitated the development of tailored solutions that addressed their unique data collection needs, ultimately enhancing their capacity to identify WVC hotspots and improve motorist safety. NDOT has launched the app to select staff members and is preparing for broader deployment, while IDNR has already recorded over 900 roadkill observations, helping guide discussions on future wildlife passage projects. This outreach and implementation have generated interest from other agencies, such as the North Carolina DOT, New Mexico DOT, North Dakota DOT, and Montana DOT, demonstrating the ROaDS survey's potential to become a valuable resource for transportation and natural resource agencies nationwide. The ROaDS project's success to date positions it as a crucial tool for collecting high-quality data, supporting informed decision-making, and fostering partnerships to reduce wildlife-vehicle conflicts and enhance habitat connectivity.