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North American Decision Guidelines for Mitigating Roads for Wildlife

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Abstract

Our primary purpose was to develop, to the extent that data are available, and as part of a web-based wildlife and roads resource, clearly written decision guidelines for: 1) the selection, configuration, and location of crossing types; 2) the monitoring and evaluation of crossing effectiveness; and 3) for maintenance.

Until recently, concerted and purposeful activity towards linking transportation and ecological services into a context-sensitive planning, construction, and monitoring process has not been attempted. We began a 3 year project in June 2004 funded by the National Cooperative Highway Research Program (National Academy of Sciences and Engineering, Transportation Research Board) and titled NCHRP Project 25-27, Evaluation of the Use and Effectiveness of Wildlife Crossings. We consider landscape permeability the foundation for effective wildlife-road mitigation and the guiding principle for this work. Our primary purpose was to develop, to the extent that data are available, and as part of a web-based wildlife and roads resource, clearly written decision guidelines for: 1) the selection, configuration, and location of crossing types; 2) the monitoring and evaluation of crossing effectiveness; and 3) for maintenance. The decision guidelines are based on the premise that understanding and establishing landscape permeability leads to effective landscape connectivity and the restoration of ecosystem integrity. At the same time, the guidelines must allow for efficient and cost-effective transportation infrastructure mitigation. In the decision guidelines, we describe seven steps that can be used to assist in effective wildlife mitigation, including: 1) consideration of the ecological and safety needs for mitigation early in the planning process, 2) decisions regarding the types of structures needed based on species-specific requirements, 3) the placement of those structures, and 4) their configuration on the landscape, 5) information on monitoring and evaluating crossing effectiveness, and 6) the long term maintenance of those structures. The final step (7) is the compilation of end products that are summarized in a final plan for mitigation with references, diagrams, pictures, and website addresses for the user to take from the website and use for additional consultation. The decision guidelines will be based on available data. It is clear that continued research efforts will be needed to fully develop aspects of the decision tool. The guidelines can be accessed at the URL www.wildlifeandroads.org. They are based on relevant research and effective mitigation practices from around the world, including 7 studies we conducted expressly for this project. The website includes descriptions of several methodologies that can be used to identify wildlife-vehicle collision hotspots, as well as suggestions for effective mitigation measures. The site also provides the ability to search databases for pertinent information. For example, the site includes an interactive map of wildlife passages across North America where, for example, the user can search by state and species and return a listing of pertinent references, a list of available pdf reports and papers accessible from the site, a listing of the wildlife crossings in that state, a listing of pertinent URL addresses that have wildlife-road related data, and a list of images with descriptions that can be freely downloaded. Alternatively, the user can search the entire database for a specific type of crossing and return all data across North America about that subject. The web site and decision guidelines will be continually developed and become a resource that provide practical information to help practitioners develop appropriate mitigation that will provide for effective landscape permeability for wildlife and safer roads for people.