HABITAT CONNECTIVITY IN ARIZONA: A TOOL FOR PLANNERS

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ABSTRACT

Habitat fragmentation arising from the development which accompanies human population growth is, arguably, the largest challenge facing wildlife managers today. To address this challenge, the Arizona Game and Fish Department (AGFD) has developed a conceptual vision to guide development while ensuring permeability of the landscape. That vision includes delineating large blocks of natural land and defining important connectivity zones between blocks to achieve a "network" to enable wildlife movement across the landscape. Using a wide array of spatial data incorporating as many anthropocentric impacts to the landscape as possible, AGFD collaborated with researchers at the University of Arizona to develop a statewide landscape integrity (LI) index. Those areas having the highest LI score and a predetermined minimum threshold size became the natural area blocks. The LI was also used as the cost surface for an analysis using the Connectivity Analysis Toolkit to determine the most important pathways for landscape connectivity. Those pathways were further refined to connect the natural blocks, resulting in representation of important connectivity zones. The end result is meant to depict general zones where actions may be needed to ensure or restore a connected landscape. The methods, products, and reports for both the LI and connectivity datasets have been reviewed by independent experts and have been introduced to AGFD's partners and stakeholders through an extensive outreach process. The delineation of important connectivity zones will allow us and our partners to address connectivity issues early in the planning process. Through this proactive planning, we strengthen the ability of wildlife and habitats to adapt to future changes, such as climate change, wildfires, and the pressures of increasing human population. These datasets may be particularly valuable for transportation planners and biologists who would benefit from knowing where the areas of particular concern for wildlife permeability, both to prevent restricting wildlife movement and to lessen the possibilities of negative wildlife/vehicle interactions.

BIOGRAPHICAL SKETCH

Julie Mikolajczyk is a GIS Specialist with the Arizona Game and Fish Department. She has served as lead on several multi-agency and multi-disciplinary habitat and wildlife connectivity projects, including those aimed at compiling stakeholder and expert knowledge as well as several using GIS methods to model the most ideal locations for wildlife linkages. Julie's interest focuses on enabling planners and developers to make informed decisions on land use planning in a way that minimizes effects on wildlife species by making data, information, and recommendations readily accessible.