GIS-Based Tools to Improve Land Use Planning for Wildlife Conservation

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Conserving wildlife and habitat connectivity in the face of a growing human population is one of the greatest challenges facing wildlife managers in the 21st Century. The Northern Rocky Mountain region is experiencing some of the most rapid human population increases in the United States, and rural sprawl is now recognized as one of the most serious threats facing Montana wildlife in the near future. To address this challenge, land use planners must incorporate the best available science about wildlife requirements into planning decisions and policy. We developed a suite of GIS-based tools to simplify incorporating scientific information into landscape-level land use planning for wildlife. These tools are designed to be flexible to accommodate a range of wildlife conservation objectives. The current suite includes tools for estimating appropriate development densities likely to provide adequate habitat or movement connectivity for specified wildlife targets, as well as evaluate existing landscapes, or potential development scenarios, to estimate their potential for supporting wildlife. These tools were employed in conjunction with the development of a wildlife overlay in the Madison Valley, Montana. The Madison Valley provides an example of how these tools can assist with creating criteria for development near or within important wildlife areas.