Habitat and Subdivision Growth Models for Predicting Past and Future Habitat Loss from Rural Subdivision Development

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Rural subdivision development is perhaps the greatest current threat to wildlife habitat in MT and throughout the west. In order to plan for these changes, it is important to identify existing significant habitat, determine where subdivision development will most likely occur, and determine how future development will reduce living habitat and connectivity for wildlife. Using Gallatin County, Montana, as an example, I used a suite of focal species models to categorize current wildlife habitat and coupled the output with a subdivision growth model developed by the Sonoran Institute to estimate changes from 1975 to current and to predict future losses from now until 2015 and 2025. The strength of the habitat models I developed for grizzly bears, elk, and antelope lies in their use as focal species to identify specific habitat assemblages and the scale of output. They are sensitive to placements of roads and structures and can predict how different configurations within subdivisions can influence habitat quality and permeability. This ability has been enhanced by vegetation classification of color orthophotos to produce more accurate and finer-scaled model output. Predictive changes using the growth model are at a quarter-section scale, summing up cumulative change and trends over larger areas. Tools such as these may be helpful for guiding the amount, specific configuration, and placement of growth, thus maintaining important areas and reducing wildlife-human conflicts.