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OLSON, LUCRETIA and M. Schwartz. US Forest Service Rocky Mountain Research Station, Missoula, Montana 59801. **MODELING THE EFFECTS OF DISPERSAL ON PREDICTED CONTEMPORARY AND FUTURE FISHER (*MARTES PENNANTI*) DISTRIBUTION IN THE U.S. ROCKY MOUNTAINS.**

Many species at high trophic levels are predicted to be impacted by shifts in habitat associated with climate change. While temperate coniferous forests are predicted to be one of the least affected ecosystems, the impact of shifting habitat on terrestrial carnivores that live within these ecosystems may depend on the dispersal rates of the species and the patchiness of the environment. Much of the Northern U.S. Rocky Mountains is comprised of high to moderate elevation mountain ranges separated by large river valleys, extensively used for agriculture. Connectivity among patches is dependent on patch configuration and an animal's ability to disperse. We aim to understand how dispersal affects projected future available habitat for a threatened, endemic carnivore, the fisher (*Martes pennanti*). We designed a survey to detect fisher using non-invasive genetic sampling across their historical distribution in Montana and Idaho. We subsequently modeled the distribution of fisher across western Montana and northern Idaho using a suite of vegetative, topographic, and climatic variables. To model future distribution under a changing climate, we used only topographic and climatic variables found to be important in the current distribution model, since vegetative variables could not readily be projected into the future. We considered a global climate model with two climate change scenarios (high emissions [A2] or reduced emissions [B2]) and three time steps (2030, 2060, and 2090). We incorporated the effect of dispersal ability into our species distribution model by varying the distance at which newly created patches of habitat could be colonized. We found that the probability of current fisher occurrence was highest given the presence of mesic forest types with tall trees, high annual precipitation, and mid-range winter temperatures. Future predictions of fisher habitat show an increase in area of high-probability habitat under most dispersal assumptions.

RACHLOW, JANET^a, Meghan J. Camp^b, Bonnie A. Woods^a, Lisa A. Shipley^b, Jennifer S. Forbey^c, Timothy R. Johnson^a. ^aUniversity of Idaho, Moscow, ID 83844-1136; ^bWashington State University, Pullman, WA 99164; ^cBoise State University, Boise, ID 83725-1515. **EVALUATING HABITAT IN A FUNCTIONAL FRAMEWORK: WHAT IS "COVER"?**

Cover is broadly considered one of the primary resource needs of wildlife, and it serves many potential functions. Cover can provide refuge from climatic conditions (thermal cover), protection from predators or conspecifics (security cover), opportunities to evade predators (escape cover), or the ability to avoid detection by potential prey (ambush cover). We conducted a review of the concept of cover in wildlife studies to assess how biologists have defined cover, what habitat features were assessed, and how they were quantified. The most common type of cover considered in the studies we reviewed was security cover, usually measured as the function of concealment (i.e., the ability of the habitat to hide an individual). Most often, these measures were conducted using profile poles or cover boards. We suggest that such an approach simplifies this important concept in several ways that might obscure underlying habitat relationships. First, concealment provided by habitat structure has an opposing functional property (i.e., visibility or availability of sightlines that allow prey animals to detect predators). Second, assessments of security cover should consider the diversity of potential predators and their sensory and motor capabilities, as well as different antipredator strategies used by prey species. Third, in addition to visual security cover, many animals also likely use habitat features that provide olfactory or auditory cover. We use examples from our field studies to illustrate these concepts. We suggest that our understanding of wildlife-habitat relationships would be advanced by a more functional characterization of cover focused on evaluating how habitat features interact with animal behavior to influence survival and reproduction.