Southwest Regional Gap Analysis Project

Animal Habitat Models Data

A key task was the development of seamless animal-habitat models for all terrestrial vertebrate species for the region. Through coordination from the U.S. Geological Survey's Gap Analysis Program (GAP) and the collaborative efforts of participating state institutions, 819 seamless habitat models were completed in September 2005. These data are made available to the public by the SWReGAP consortium of institutions responsible for their development.

The Southwest Regional Gap Analysis Project predicted habitat for 820 vertebrate species that reside, breed, or use habitat in the five-state region for a substantial portion of the their life history. The list of species to model was determined by identifying decision rules for taxon inclusion (These rules can be provided upon request). To create the most accurate models possible we are engaging taxa experts to provide a review of these habitat models.

These models are based on the concept of Wildlife Habitat Relationships (WHRs). We have defined WHRs as a statement describing resources and conditions present in areas where a species persists and reproduces or otherwise occurs. Relationships can be modeled to predict habitat composition, and if the relationships are represented in a cartographic plane they can predict the presence of habitat spatially. For each species, these relationships were identified by reviewing the available literature and then generating a spatial representation of habitat within the species known range.

An important factor for model implementation is understanding the objectives of the modeling effort and the assumptions of the models. The objective of the habitat models are to: 1) Provide maps that predict the distribution of terrestrial vertebrate species in the project area to support analysis of conservation status; and 2) Develop a database of geographic range, wildlife habitat relationships, and predicted distribution of each vertebrate species for the long-term utility of GAP and its cooperators (Csuti and Crist 2000). Along with these objectives are several assumptions associated with GAP vertebrate habitat models (Csuti and Crist 1998):

1. Species are assumed to occur within a polygon representing potential habitat but are not predicted to occur at any particular point within that polygon.

2. Species are assumed to be present within a polygon, but no assumptions are made about the abundance of the species in the polygon.

3. Species are assumed to be present in a polygon at least once in the last 10 years but need not be present every year in the last decade.

4. Species are assumed to be present during some portion of their life history, not necessarily during the entire year.

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Recommended citation for the animal-habitat datasets:

USGS National Gap Analysis Program. 2007. Digital Animal-Habitat Models for the Southwestern United States. Version 1.0. Center for Applied Spatial Ecology, New Mexico Cooperative Fish and Wildlife Research Unit, New Mexico State University.

For questions, comments or suggestions, please contact us here.