Using species monitoring and map-based data in a coarse-filter approach to sustaining biodiversity

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Abstract

The coarse-filter approach to sustaining biological diversity attempts to address as many species as possible through representation of ecosystems and habitats of multiple species. Ideally, the approach uses information that is simple to acquire or readily available. We describe a coarse filter approach that combines bird monitoring data with forest inventory and biogeoclimatic data to develop species-habitat relationships that can be readily added to existing GIS databases. Implementation of this approach to conservation planning would consider all terrestrial vertebrates and other organism groups within a management area. We demonstrate the approach for TFL 48 in northeastern British Columbia using birds, the richness vertebrate group. We first develop statistical relationships between species occurrence and habitat type and then use the models to scale up habitat suitability estimates to the regional (tenure) level. We found that forest cover/age class is a better predictor of habitat suitability than biogeoclimatic classes for most species, but together the two classification systems provide more information for predicting species occurrences. Forest cover/age class also provides managers with specific attributes of the landscape that can be manipulated thru management actions. The ability to treat space explicitly using habitat-based models is necessary because relationships developed for individual species indicate that no management strategy will accommodate all species in all planning units. For this reason, the ability to link the models to existing databases should greatly facilitate conservation planning.

Keywords: Forest songbirds, biodiversity, monitoring, biogeoclimatic variant, forest cover, age class, habitat suitability, coarse filter.

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