Concepts of Conservation Biology Applied to Wildlife in Old-Forest Ecosystems, With Special Reference to Southeast Alaska

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ABSTRACT

This paper provides a review and critique of concepts in conservation biology that may be useful for conservation of old-forest wildlife and ecosystems in southeast Alaska. Approaches to old-forest conservation could include: development of species-habitat relationships databases and models, including delineation of species' key environmental correlates and key ecological functional roles; mapping distribution and concentration centers of rare, little-known, endemic, and peripheral species; mapping and spatially evaluation of functional patterns of wildlife communities, including areas of high functional diversity, redundancy, and richness; further development of species-area relationships in the Alexander Archipelago and mapping locations of island endemics and key population isolates; incorporating potential effects of climate change in species and community modeling, including identifying early warning signals of impending adverse effects of changing climates on old-forest communities; and addressing transboundary issues of linkages of old-forest protected area networks and coordinating planning policy and activities across the international border. Most or all of the native biodiversity of old forests is still present in southeast Alaska, making conservation planning feasible. Silvicultural solutions may provide old-forest elements outside old-forest reserved areas but likely cannot substitute for conserving forest areas per se. Conservation planning could address the set of ecosystem services provided by old forests, in a risk analysis and decision support modeling framework.