

Protecting Climate Refugia Areas: The case of the Gaviota coast in southern California



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Abstract

The designation of “climate refuge areas” should be an important part of a more integrated, ecosystem-based approach to protect endangered species. Identifying “climate refugia” areas should be a priority as resource managers begin to develop adaptive policies. This article describes policy innovation in California that includes important strategic elements and goals that can support the identification and protection of climate refugia for special status species, and offers a case study of the Gaviota coast in southern California. The essay concludes with general recommendations for planning and policy development to support better protection of endangered species, and emphasizes the importance of better local land-use planning.

The Importance of Climate Refugia

This article describes recent policy innovation in California to develop an ecosystem-based approach to endangered species protection, with particular emphasis on the importance of identifying and protecting climate refugia in areas that are known as hot spots for threatened biodiversity. Climate refugia is a term that has emerged in the conservation biology literature that refers to an area that is inhabited by plants and animals during a period of continental climatic change (as a glaciation), and remains as an important area from which a new dispersion and speciation may take place after climatic disturbance (Klausmeyer and Shaw 2009). Scientists have begun to describe the cumulative impacts of the multiple-use of resources, and show that these impacts will likely exacerbate an ecosystem’s ability to adapt to climate disturbance (Worm et al. 2006; Halpern et al. 2009). Large-scale climate disturbance will interact with and accelerate the existing anthropogenic pressures to endangered species. Indeed, scientists show that there are synergies among extinction drivers under global climate change that reflect the cumulative impacts of the multiple-use of resources and climate disturbance (Brook et al. 2008). Policy innovation is needed to begin to foster large-scale, ecosystem-based adaptive conservation strategies to better protect endangered species in an era of climate change.

Scholarly literature has expressed concern over the lack of region- or ecosystem-specific adaptation policy that can enable ecological resilience of threatened biodiversity with respect to climate disturbance. Current strategies include prescriptions at the state and federal government levels that support principles of ecosystem-based planning, and the establishment of