

Assisting Ecosystem Management on the Channel Islands



The Challenge: The Channel Islands, sometimes called “The Galapagos of North America,” consist of 8 islands off the coast of southern California. The islands are managed by a variety of agencies, including the National Park Service, the Nature Conservancy, and the US Navy, as well as private owners, and they have had a wide variety of uses through time, from occupancy by Native American hunter-gatherers, to ranching and a consequent severe loss of vegetation, to use as a bombing range. Numerous complex issues confront ecosystem managers of these islands, including:

- what should be the baseline when setting ecosystem restoration goals?
- what are the appropriate units of protection for rare and endemic taxa?
- how can risks from climate change be reduced?



The Science: Issues on the Channel Islands are being addressed by a multidisciplinary team of biologists, geologists, anthropologists, and land managers representing the Smithsonian, USGS, National Park Service, NGOs, and universities. The team is providing information to land managers on the islands’ historical vegetation at various times in the past; patterns of endemism of birds, mammals, and other fauna and flora on the islands; and the effects of past climate change on the islands. One of these projects is a collaboration between the USGS and the Smithsonian that is using genetic data to document the historical and modern patterns of endemism of Hutton’s Vireo *Vireo huttoni* and Bewick’s Wren *Thryomanes bewickii*, two bird species proposed to have forms endemic to particular islands.



Bewick’s Wren *Thryomanes bewickii*

The Future: These studies will provide information to managers who must decide on appropriate vegetation restoration targets, determine which fauna and flora are most in need of protection and management, and seek to minimize the likely effects of future sea-level rise. From the avian genetic studies, information will be provided on islands-wide genetic variation in Hutton’s Vireo and Bewick’s Wren and on the genetic distinctiveness of *V. huttoni unitti*, *T. bewickii catalinae*, and *T. bewickii nesophilus*. If possible, it will also be determined whether there were genetic bottlenecks in these species associated with widespread habitat loss and fragmentation in the late 19th and early 20th centuries.