

Mapping Tool Showcases State's diversity

California is known worldwide not just for its scenic beauty, but also for its great biological diversity. With habitats ranging from alpine to desert to coastal, California is home to a wide variety of plant and animal species. Conservation planning is the science of determining which habitat areas must be protected to ensure the survival of these species; that is, to maintain biodiversity and functioning ecosystems. Setting conservation priorities requires detailed information on the distribution of species and habitats in the landscape.

A team of Department of

Fish and Game scientists—with participation from several regions and branches—has developed a new interactive mapping tool that will allow scientists, conservation planners and the public to view information on biological diversity throughout California along with other dataset important for conservation planning. The project, Areas of Conservation Emphasis (ACE-II), combines the best available scientific data on native species diversity, rare species and sensitive habitats to identify areas of high biological richness across the state. The biological richness maps developed for the project show the number

of species and sensitive habitats present in different areas and geographic zones of the state, and the relative biological diversity between areas. These maps are based mainly on datasets compiled and maintained by DFG over many years, including species range maps from the Wildlife Habitat Relationships Program and rare species occurrences from the California Natural Diversity Database.

A second component of the project was to compile and map information on recreational opportunities available for the public. The ACE-II recreational maps show level of demand and available opportunities for fishing, hunting and wildlife-viewing across the state. Information collected by DFG, such as returned hunting tag and fishing locations, was used as the information base for the recreational maps.

Other vital elements that complete the conservation value of a particular area—such as threats to native habitats, land ownership, habitat connectivity and corridors—will be available with the ACE-II maps in an on-line map viewer. The ACE-II application will help DFG identify areas that best conserve fish, wildlife and biodiversity throughout the state. It will give planners and decision-makers a tool to view the distribution of biodiversity across the state and give insight into the need for recreational opportunities at different locations.

One main objective of ACE-II was to develop a biological index to summarize the best available information about biodiversity and sensitive habitats in a hexagon grid across the state. Metrics of biodiversity were calculated for six taxonomic groups (am-

phibians, birds, fish, mammals, plants and reptiles):

- *Native species richness* measured the number of native species per hexagon
- *Rare species richness* measured the number of rare species per hexagon
- *Rarity-weighted richness* measured the uniqueness of a hexagon based on the presence of rare endemic species.

An additional metric of biological richness, the sensitive habitat score, was based on the presence of four habitat types of high conservation concern: wetlands, riparian, rare natural communities and high value salmonid habitat per hexagon.

The biological richness indices were combined in a model to obtain the biological index, which can be used to view relative biological richness on a statewide or ecoregional basis. Areas with the highest biological index ranking represent those that support high biodiversity, sensitive habitats and rare or endemic species.

All of the data compiled and synthesized in ACE-II, as well as a detailed report outlining the methods used will soon be available on DFG's Biogeographic Information and Observation System viewer website. A number of maps including the ACE-II biological richness maps, ACE-II recreational demand and opportunities, threats, protected status of lands, and connectivity and corridors can be overlaid in the viewer. Together, these layers provide a tool to view and contrast the arrangement and relative value of California's unique biological resources while providing users a first step toward setting conservation priorities statewide.

