
California is known for many things, among them its spectacular landscapes, its extensive and productive agriculture, and its biodiversity. It is also a state in which the population is expected to grow by another 12 million people during the next 20 years. How the state preserves its quality of life in light of such pressures presents some challenges, especially for land use planners and natural resource managers.

Helping meet these challenges is the California Legacy Project, whose mission is “to restore, protect, and manage the state’s natural, historical, and cultural resources for current and future generations using creative approaches and solutions based on science, collaboration, and respect for all the communities and interests involved.”

The Resources Agency has developed a unique, Web-based tool to help fulfill that mission. It is one component of the agency’s California Legacy Project, a six-year conservation effort focused on some key questions related to land conservation and planning issues:

- How can we identify and protect enough open land and how and where will we set aside the land for urban green spaces to make neighborhoods attractive and provide recreation and refreshment?
- How can we create or restore crucial habitat and the linkages that biologists tell us are needed for all kinds of plant and animal species to survive?
- How can we keep farms, forests, and range-lands working and provide landowners with the tools to improve their stewardship practices?

To help land use planners and natural resource managers as they seek the answers to these and other questions, the California Legacy Project and ESRI Professional Services have collaborated on the design and implementation of the digital atlas. The agency selected ESRI Professional Services for this project because of ESRI’s background in natural resource management and Web site design. The result, the California Digital Conservation Atlas (www.legacy.ca.gov/new_atlas), is an ArcIMS 4 implementation that allows users to easily view, explore, and download natural resource and conservation data.

The data in the atlas is from a variety of sources—some public, some private; and some, such as the 20- and 50-year growth projections, the result of research done specifically for the atlas (metadata is provided for each data set). Some data categories—Conservation Related, Hydrology, Transportation, Land Ownership and Use, Political Boundaries, and Imagery Map Grids—serve as reference data and appear consistently in the table of contents. Other data categories—Terrestrial Biodiversity, Urban Open Space and Rural Recreation, Working Landscapes, and Stressors—are intended for particular types of analysis and, when selected, are mutually exclusive.

Each data category has subcategories; the more detailed the data, the better the support for decision makers. For example, the subcategories under Land Ownership and Use include:

- Public and Conservation Lands (Bureau of Land Management, Department of Defense, etc.)
- State and Federal Easements (Easement, Easement, etc.)
- California Easement Areas
- County Generalized Plans (Agriculture and Grown, Public Commercial, etc.)
- Urbanized Areas
- Growth Projections 20 Year
- Growth Projections 50 Year

The 50-year growth projection for the coast of Southern California shows a solid mass of urban development from Los Angeles to San Diego except for a block of natural vegetation on the coast of northern San Diego County where the Camp Pendleton Marine Corps base is located. This population projection, and the population projections for the rest of the state, shows both the importance of the atlas and the urgency of better planning and natural resource conservation. As Madelyn Glickfeld, the California Legacy Project’s director, notes, “Now is a crucial time for conservation decisions and investments. In 20 years, if we haven’t done a good job of addressing the challenges of growth, the windows of opportunity will have slammed shut and we will be left with simply mitigating and reacting to resource impacts.”

More broadly, the California Legacy Project and the California Digital Conservation Atlas demonstrate what can be achieved through the marriage of science and technology and the cooperation of individuals, private firms such as ESRI, and public agencies. As Mary Nichols, California’s secretary for resources, says, “The Digital Atlas is a treasure trove of tools and information for planners and the general public. Here, on a Web site open to all, are the facts and maps we need to chart a course for the future of California’s magnificent natural legacy.”

For further information about the California Legacy Project or the California Digital Conservation Atlas, contact Michael Byrne, California Department of General Services Publication Unit. Purchases must be by check or money order. Information terms and an excellent index add to the volume’s value as a teaching tool.

The atlas is available for $20 (U.S.), which includes shipping and handling, from the California Department of Fish and Game (www.legacy.ca.gov/new_atlas).

From the State of California, Resources Agency, Department of Fish and Game

The Atlas of the Biodiversity of California

California’s biodiversity stretches across an incredible variety of ecosystems and encompasses many rare and endemic species. An engaging new atlas from the State of California, Resources Agency, Department of Fish and Game, summarizes the best available information on statewide biodiversity and regional habitats. The Atlas of the Biodiversity of California has been designed as an educational and informational tool and will appeal to anyone with an interest in California’s singularly diverse environment. The analysis, well presented in maps, shows the richness, rarity, and endemism of species, vegetation types, and habitats.

A subject expert authored each section of the Atlas of the Biodiversity of California, but the language throughout is consistent and at an appropriate level of understanding for students and others interested in the subject. Each section has at least one map made using ESRI GIS software. The mapping is analytical and won a Poster Session award at the 2002 ESRI User Conference for best use of cartography in publication.

After a brief definition of biodiversity, a chapter on the analytical maps delineates the measures and data sources used for each type. An introduction to California’s geography and biodiversity sets the tone for the rest of the volume. Next, a number of units comprise “Measures of Biodiversity: Richness, Rarity, and Endemism.” Two-page units show the statewide status of major taxonomic groups such as vegetation types, special status plants, amphibians, reptiles, mammals, and birds.

Following the statewide information are illustrative case studies in “Samples of Biodiversity: Habitats and Species From Throughout California.” Organized by region, this section presents the distribution of specific habitats or species across various regions of the state. Readers will enjoy glimpses into the worlds of kelp forests, coast redwoods, trout, Central Valley vernal pools, and desert pupfish. A short section, “Pressures on Biodiversity,” shows examples of the invasive weeds and human impacts with which native species have to contend.

Lastly, the section “Sustaining Biodiversity” shows efforts by the Department of Fish and Game to guard and nurture the rich environment of California. Projects include the maintenance of Department of Fish and Game lands, regional conservation planning, joint ventures, and Coastal Fisheries Restoration Grants. A glossary of biological, geographical, and management terms and an excellent index add to the volume’s value as a teaching tool.

As well as providing good technical information, the Atlas of the Biodiversity of California is thoughtfully designed and attractive. Photographs, many by amateurs, illustrate each unit. The work of well-known wildlife artist Dugald Stermer graces the cover, title page, and section dividers.

As Ann Johnson, ESRI education program manager, observes, “This atlas combines art and science in a way that is pleasing and informative to both fields. The visualization of data makes this book one that educators, students in biology and earth science, and the general public will want to own and use. The California Department of Fish and Game should be commended for the dedication to excellence that this work represents and should be assured that it will not be just a book for the few but a required text for anyone interested in biodiversity and the environment.”

The atlas is available for $20 (U.S.), which includes shipping and handling, from the California Department of General Services Publication Unit. Purchases must be by check or money order. More information, an order form, and the mailing address are posted on atlas.dfg.ca.gov/purchase.htm on the Web.

A lesson plan, including data from the data sets used in the atlas, is available on the ESRI ArcLessons Web site (gis.esri.com/industries/education/arclessons/arclessons.cfm).