THE CALIFORNIA NATURAL DIVERSITY DATA BASE AND RIPARIAN ECOSYSTEM CONSERVATION

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The California Natural Diversity Data Base (Data Base) is an ongoing project of the Department of Fish and Game's Nongame-Heritage Program. This paper presents background information on the Data Base, briefly describes the types of riparian-associated data collected and computerized in it, and explains the importance and usefulness of the Data Base for riparian ecosystem conservation.

THE NATURAL DIVERSITY DATA BASE IN A NUTSHELL

California is well known for the diversity of its natural resources and for the rapid pace at which its lands have been developed. Because of this unhesitating and extensive land development, many species of plants, animals, and some natural communities are threatened with extinction. Others, though not currently endangered, are rare and unique to California. The California Department of Fish and Game recognizes the need to identify these special species and natural communities and to develop plans for their conservation and management. To this end, the Department, in cooperation with The Nature Conservancy, established the California Natural Diversity Data Base. The Data Base was patterned after heritage inventories developed by The Nature Conservancy in the eastern United States. Currently, there are more than forty similar state and several similar international inventories.

The Data Base is an ongoing computerized inventory of the locations and condition of endangered, threatened, and rare animal and plant taxa, as well as of terrestrial and aquatic natural communities. The Data Base staff continually expands, updates, and analyzes the Data Base in order to keep the inventory current and to identify research and conservation needs for a particular site or taxon. The animals and plants included are (1) those on or proposed for governmental lists of endangered or threatened taxa, (2) taxa that are sensitive, fully protected, or of special concern, (3) taxa that are biologically rare, very restricted in distribution, declining throughout their range, or are peripheral to California, and (4) taxa closely associated with ecosystems that are declining in California at an alarming rate (e.g., wetlands, desert aquatic systems, native grasslands, and riparian ecosystems). Current lists of the plants, animals and natural communities inventoried by the Data Base are available on request to the Nongame-Heritage Program, California Department of Fish and Game.

Members of the Data Base science staff (zoologists, botanists, and vegetation ecologists) rarely do original field work. Instead, they rely on data gathered by others and made available to the Data Base. The staff encourages professional, student, and lay biologists to contribute data to the project by submitting field survey forms (available from the Data Base), theses, status reports,

articles, and environmental documents, or by communicating personally with the staff.

Currently, Data Base scientists collect information on about 50 riparian-associated animals and plants. Many are riparian obligates such as the Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*) or Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). Others, such as salmonid fishes, require microhabitats that are influenced by the quality of riparian vegetation. Surprisingly, less than one dozen rare plants are associated with riparian ecosystems in California. One example is the California Hibiscus (*Hibiscus californicus*), which grows on moist, freshwater-soaked banks along the lower Sacramento and San Joaquin rivers.

About three dozen riparian plant communities have been described in California. A draft riparian classification groups the communities into three broad types. These are riparian forests, such as the gallery forests along the lower Sacramento River, riparian woodlands, such as the sycamore alluvial woodland along Los Banos Creek in Merced County, and scrub communities, such as the southern riparian scrub along the Santa Margarita River. The riparian communities of the Sacramento and San Joaquin valleys and along the lower Colorado River are the best documented and inventoried by the Data Base at the present time. The riparian vegetation of southern California and the California deserts will be the next areas of research and data acquisition by Data Base vegetation ecologists.

THE IMPORTANCE AND USEFULNESS OF THE DATA BASE

The Data Base is unique and important for several reasons. It is a computerized synthesis of information from many unrelated sources, such as museum or herbarium collections, status reports, field surveys, environmental documents, published articles, and personal communications with researchers. Nowhere else in California is data-gathering and synthesis on sensitive species being done on a statewide scale. The information in the Data Base is provided, on a cost-reimbursement basis, to a large number of interested parties in a variety of formats, principally map overlays and computer reports. An average of 51 requests for data was filled each month during the first 6 months of 1987.

The Data Base is not simply a static, computerized inventory of data on sensitive species; it is an extremely useful conservation tool. The Data Base is used to select the best sites for land-based conservation projects such as the setting aside of ecological reserves or other natural areas. It is also used in the environmental review of land management plans and development projects. In addition, it is used to provide a statewide perspective on the distribution patterns and population trends of sensitive taxa, and to pinpoint gaps in our knowledge of these taxa and natural communities.

THE DATA BASE AND RIPARIAN ECOSYSTEM CONSERVATION

The Department of Fish and Game's Lands and Natural Areas Project and The Nature Conservancy use the Data Base as a foundation for their conservation efforts in California. For example, much of the best remaining riparian

habitat in the Central Valley of California is privately owned. If purchasing a piece of property is not desirable or financially feasible, the site could be a candidate for The Nature Conservancy's Landowner Contact Program. The Nature Conservancy may be able to educate a property owner and help the owner protect or enhance land supporting riparian forest and associated wildlife. On the other hand, many of the most diverse desert riparian areas in California are wholly or partially under the jurisdiction of the U.S. Bureau of Land Management (BLM). A new interagency committee composed of state, federal, and private agencies, the Interagency Natural Areas Coordinating Committee, has been organized by the Department of Fish and Game's Land and Natural Areas Project. The purpose of the committee is to coordinate the protection of natural areas throughout the state. As a member of the committee, the BLM can use the Data Base to help establish a priority for its riparian ecosystem conservation projects.

In the enviromental review process, the Data Base is used extensively in both the project development and document review stages. Recently, the Sacramento District of the U.S. Army Corps of Engineers requested detailed reports and map overlays showing where sensitive species and riparian communities are known to occur in the entire district. The Corps intends to use these data to evaluate the impacts of its bank stabilization projects. The Environmental Services staff of the Department of Fish and Game also has these data. The Department also uses the Data Base to fulfill its trust agency responsibilites under the California Environmental Quality Act, through review of the Corps' environmental documents for projects. The Department urges the Corps and other developers to address, assess, and mitigate adequately the impacts that their projects have on wildlife and natural diversity.

Occasionally the Department of Fish and Game uses the Data Base to fulfill its mandates under special legislation. Recently, Chapter 885 of Senate Bill 1086 appropriated $150,000 for the Wildlife Conservation Board to survey critical wildlife habitat and natural areas along the upper Sacramento River between the mouth of the Feather River and Keswick Dam near Redding. The Data Base will be one of several sources of information used by the Department to identify these important areas and rank them for possible acquisition.

These are just a few examples of how the Data Base is used as a conservation and management tool for riparian ecosystems. As human development puts more and more pressure on California's remaining natural areas, there will be an even greater need for a central, computerized, up-to-date inventory of the state's natural diversity.

FUTURE PLANS FOR THE DATA BASE

The Data Base currently has over 16,000 records—with more being added every day—and the demand for information is increasing rapidly. In the first 6 months of 1987, requests for data increased 41% over the same period in 1986. In order to accommodate more data and fulfill user needs, the Data Base will be converted to a Geographic Information System (GIS) during 1988 and 1989. The new GIS will make data input, storage, retrieval, and analysis much easier, more reliable, and much more flexible. The Data Base will become a more versatile and powerful conservation tool, better suited to serve

those people working to protect and manage California's remaining sensitive riparian ecosystems.

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