

# CALIFORNIAN COOPERATIVE ECOSYSTEM STUDIES UNIT

## STRATEGIC PLAN

### EXECUTIVE SUMMARY

The Californian Cooperative Ecosystem Studies Unit (CA-CESU) is part of a national network of regional CESUs whose overarching mission is *to promote, conduct, and provide research, technical assistance and education services nationwide in support of the missions of participating federal agencies and their partners concerning natural and cultural resource management on federal lands and waters.* The CA-CESU university partners and federal agencies have come together to explore the future of natural and cultural resource management in a cooperative, research, and education based model. Our focus is on improved communication and collaboration between all federal and non-federal partners across the network. It is our ultimate goal to foster integrated stewardship of federal lands and cultural resources by developing new partnerships while strengthening existing relationships. We will do this by stimulating dialogue and information exchange across the network and with our public constituencies thereby making cutting edge research and education results available to our partners. Best practices in federal resource management can be continually refined and enhanced based on the results, understanding, and outcomes generated by our research and education efforts.

### INTRODUCTION

The Californian Cooperative Ecosystem Studies Unit was established on July 2, 2003 as a partnership between the University of California, selected institutions of the California State University system, and six federal agencies. Charter members of the CA-CESU are the following: The University of California, Berkeley (administrative-host), Davis, Irvine, Los Angeles, Merced, Riverside, San Diego, Santa Barbara, and Santa Cruz; California State University at Fresno, Los Angeles, and San Francisco; and the federal partners: USDI Bureau of Land Management, Bureau of Reclamation, Geological Survey - Biological Resources Division, National Park Service; USDA Forest Service; and NASA. This plan acknowledges that additional partners, both academic and federal, are likely to join at a later date. Additional partners will be evaluated for membership with the primary objective that new members have the capacity to further the goals of the CA-CESU.

The purpose of the CA-CESU is to foster a wide variety of partnerships among universities and federal agencies to advance research, education, and technical assistance that is focused on resource and environmental issues throughout California and nationally as appropriate. An Executive Committee comprised of two federal agency representatives, one CSU representative, one UC representative, and the administrative host representative is appointed by the steering committee and manages the day-to-day operations of the CA-CESU. The Executive Committee receives technical and programmatic advice from the Steering Committee which is

comprised of one representative from each federal agency and partner campus. The managers committee, composed of federal agency representatives, is responsible for coordinating federal needs, as well as oversight and review of the CESU. A national CESU Council provides oversight for all of the CESUs in the country.

## **MISSION AND VISION**

*The mission of the Californian Cooperative Ecosystem Studies Unit is to provide research, technical assistance and education across the biological, physical, social, and cultural sciences to address natural and cultural resource management issues at multiple scales and in an ecosystem context in California and nationally as appropriate.*

## **OBJECTIVES**

The CA-CESU will strive to:

- Provide resource managers with high-quality scientific research, technical assistance, and educational opportunities.
- Deliver research and technical assistance that is timely, relevant to resource managers, and needed to develop and implement sound adaptive management approaches.
- Ensure the independence and objectivity of research.
- Create and maintain effective partnerships among the federal agencies and universities to share resources and expertise.
- Encourage professional development of federal scientists and resource professionals.
- Manage federal resources effectively and efficiently.
- Seek opportunities to broaden and expand student participation from minority and other under-represented groups, not only in the advancement of science careers, but also directly with the implementation of CESU projects.

With a rapidly growing and urbanized population, California is faced with a considerable number of complex environmental issues. Opportunities for innovative and creative research and application of the best available science in the natural, physical, social, and cultural resource management fields is paramount to conserving the state's biodiversity and our quality of life. Public lands play a vital role in the conservation of the state's natural resources and cultural heritage. The CA-CESU is visualized as a virtual institution to aid in the development and transmission of scientific information to land managers, political and industry leaders, and others who need such information. It is also visualized as an institution that can harness the best scientific talent across California's academic centers to solve natural and cultural resource problems across the social, cultural, economic, political, and environmental arenas. The CA-CESU will promote and coordinate research across large areas of mixed ownership landscapes, provide synthesis of the body of scientific inquiry through technical assistance, and expand educational opportunities to federal resource managers. A primary aim of the CA-CESU is to strengthen and champion

investigations at multiple scales that require partnerships between two or more of its members. Much of the administration for the CA-CESU will rely on web-based technology to keep all of the partner institutions and agencies informed of major issues, identified research priorities, and to serve as a clearinghouse of information.

## **STRATEGIC DIRECTIONS AND THEMES**

The CA-CESU Steering Committee has identified several regional and national themes within three areas of endeavor that reflect the research, education, and technical assistance needs and opportunities to be served by the CA-CESU. Strategic operational activities necessary for developing and administering the CA-CESU make up an additional area of endeavor for the CESU.

At the first Strategic Planning Meeting for the CA-CESU held during October 28-29, 2003, the group collectively reviewed and validated several themes and program areas of interest to multiple partners. The themes likely to be further developed and advanced through project selection via the CA-CESU include, but are not limited to:

- Land management planning
- Water quality/quantity
- Water cycle: integration of hydrologic processes in subsurface water regimes
- Development and application of flow and transport models at the watershed scale
- Control of agricultural drainage water and salinity
- Agriculture and urban encroachment on wilderness areas
- Threatened and endangered species management and conservation, small population dynamics/population genetics
- Establishment and stewardship of marine and terrestrial protected areas
- Environmental monitoring
- Fuels and fire
- Linkage of models incorporating surface/subsurface models with atmospheric/climatic models
- Global change

The following areas of endeavor outline the strategic framework within which we propose to meet the research, education, and technical assistance needs of our federal partners to address the emerging issues associated with the themes outlined above.

### **A. UNDERSTANDING ECOSYSTEM CHANGE**

*Enhance knowledge that contributes to better informed decisions for managing ecosystems at local and landscape scales that include the integration of the biophysical, economic, social, and cultural sciences.*

This process involves both regional and statewide programs of research that capitalize on the diversity of California's research and educational capacity through the CA-CESU member institutions.

**Theme A1. *Understanding and addressing changing resource demands.***

In the 1980s and 1990s the West, and California in particular, experienced growing public interest in public lands as places for recreation and conservation. This shift in focus created pressure on timber, mining, and ranching industries and generated concern over their role on public lands. California continues to experience significant population growth coupled with increasing diversification of impacts on public lands. As a result of these and other changes, public participation in land management planning and political contention over land policies has increased substantially. Land managers are caught between demands made by public users (both consumptive and non-consumptive), industries, non-government organizations, and policy makers. As a result, communication with diverse interest groups has become an increasingly important aspect of the job of the resource manager. The CA-CESU can provide research that will help managers better understand public interests, values and perceptions. The CA-CESU can also offer a network of specialists who can assist agency employees in developing additional skills needed to better manage lands that reflect these changing societal, resource, and environmental demands.

**Theme A2. *Understanding and addressing changing ecosystems and landscapes resulting from human impacts in a social, economic, and ecological context.***

The latter half of the 20<sup>th</sup> and the beginning of the 21<sup>st</sup> Century has seen increasing urbanization and development of rural areas throughout the western United States. California, in particular, has been affected by these changes. The basic factors influencing this landscape change include: extraction of natural resources, shrinking agricultural areas caused by urban sprawl, increasing the areas of urban-wildland interface, habitat fragmentation, impacts associated with shifting use patterns of recreation activities on public lands, far-reaching impacts and costs of non-native species management, air pollution, endangered species management and recovery, biodiversity considerations, water quantity and quality issues, fire and fuels, and global climate change. The increasing impact of these activities has led to a concern for the sustainability of the habitats and ecosystems of public lands, as well as the quality of life in the surrounding communities. Impacts range from removal of natural resources and degradation of ecosystem health to loss of jobs and agricultural lands in rural communities. The CA-CESU can play a key role in facilitating research to understand and monitor these impacts and to predict the long-term consequences of management options. Members of the CA-CESU have valuable skills in conducting research, monitoring landscape change, providing technical assistance, educating diverse constituencies, and working with the public on planning within a social and natural resource context.

**Theme A3. *Understanding changing cultural demographics.***

California continues to witness population shifts as growth not only continues in urban areas, but in many traditionally rural areas of the state as well. The social fabric of the state is in constant flux as people move into the state from all parts of the country. The state is also feeling the pulses of change associated with diverse cultures, customs, and values brought about by changing demographics associated primarily with immigration. These changes will further influence public land management as historical and traditional uses continue to shift toward new and evolving demands, uses, and services. Many of the uses of public lands by a growing urbanized population; however, have resource costs and trade-offs. At issue is the preservation of and respect for local and indigenous cultures while also addressing the concerns arising from changing demographics and associated land-use values. Federal lands are managed for the public, but developing a clear definition of “public” and an understanding of who speaks on behalf of the “public” can be difficult to achieve. Such an understanding is vital because much of a land manager’s success depends upon public participation and support. Research, training, and dialogue can be used to improve understanding between all interested parties and reveal how different cultures relate to land use and conservation of resources.

**Theme A4. *Understanding and addressing changing economic systems.***

Public lands have played a key role in the economic systems of the West throughout the 20<sup>th</sup> Century. Changing the management of lands with a shift in focus from commodity to non-commodity resources impacts existing and future economics of the region. Understanding social and economic repercussions of these changes will be increasingly important for managers. The CA-CESU can provide access to a network of specialists in socio-economic systems and related research areas. Additionally, CA-CESU partners could facilitate related training with the desired outcome to improve communication between land managers and local communities.

**Theme A5. *The research and educational value of wilderness and other protected natural areas.***

California has millions of acres of land designated as state or federal wilderness and other protected areas. Wilderness has a variety of functions, including providing opportunities for solitude and primitive and unconfined forms of recreation, preservation of biological diversity, and opportunities for research and teaching in relatively undisturbed ecosystems. However, management of wilderness often is controversial and conflicts can arise between many different user groups who utilize public lands for a wide variety of recreational endeavors. The management of wildlands and wilderness areas in particular requires ongoing research in numerous fields of study such as carrying capacity to address the complex of multiple uses across the landscape. The CA-CESU can provide both

the science necessary for wilderness management and the education and training for its continued stewardship.

## **B. UNIVERSITY AND AGENCY INTERACTION AND COLLABORATION**

To facilitate and enhance university and agency interaction and collaboration, this strategic direction focuses on developing a seamless and integrated research, education, and technical assistance program. This will be accomplished through the identification, formulation, execution, delivery, and evaluation of research, education, and technical assistance activities. A focus will be directed toward developing the collaboration and understanding between scientists and managers to increase the relevance of research and technical assistance necessary to provide a strong science foundation to further support land management decisions.

### ***Theme B1. Facilitating effective dialogue and common understanding between researchers and managers.***

One of the main obstacles to facilitating science-informed management is clear communication between researchers and managers. Traditionally, managers are expected to apply research, but often without working directly with researchers. Most managers lack the skills to synthesize the outcomes of existing and ongoing research and place their findings in a managerial context. Researchers may not have a clear understanding of managers' decision-making processes and how science and research findings are part of that process. Managers may not have a clear understanding of the challenges and limitations imposed on researchers, nor may they find the presentation of research findings to be in a useful format. Additionally, researchers have skills and technical expertise that could be very useful to managers. Managers may benefit by including researchers in phases of their planning processes. Efforts could be more efficient and successful with improved communication and collaboration between researchers and managers. One strength of the CA-CESU will be in bringing researchers and managers together to help bridge the gap in communications and to better incorporate science and research into decision-making. Another benefit of this collaboration will be the development and design of more applied research opportunities, as a component of management decision-making.

### ***Theme B2. Effectively dealing with increasing pressure on cooperative relations and working relationships between scientists and managers.***

Increasingly scientists have been asked to participate in planning and management processes. This takes them out of their normal roles of questioning and discovery and places them in advocacy and decision making contexts. Managers often are asked to participate in research processes that also are out of their normal area of expertise. The CA-CESU can help both groups of professionals understand their roles, processes, and concerns and thus increase possibilities for clear communication, mutual learning, empathy, and efficient collaboration.

**Theme B3. *Addressing emerging needs for development and training relative to the systems and tools of today's changing management environment.***

Advancements in technology have enhanced opportunities for land management. GIS, the Internet, advances in biological and social sciences, changing research tools, and technologies all come into play. Managers are expected to stay abreast of cutting-edge technology and ongoing research and put it to use in managing public lands. This process is generally referred to as utilizing the “best available science”. These technologies have also come into play in the way that the public uses public lands (e.g. GPS, various internet resources). The result of access to greater levels of information is also translating into increased visitor use of public lands, because the information stream makes readily accessible the expanded recreational opportunities desired by a growing urbanized population. Through the web and other electronic media the public increasingly have access to the same information as the resource manager. Thus, technology is altering how we study ecosystems and how information is stored, used, and disseminated. The CA-CESU can help land managers stay abreast of new technology and its applications.

**C. ENHANCING DIALOGUE**

Another important focus for the CA-CESU is to facilitate and enhance dialogue that can benefit how decisions are made about managing ecosystems amid changing times and scientific uncertainties. With the rapid dissemination of information through electronic media it is possible to enhance the participation of more segments of our highly pluralistic society in natural and cultural resources and environmental decision making. This ability comes at a time when the need for enhanced dialogue about managing ecosystems amid other changes is greater than ever before. The CA-CESU can assist both managers and the public in their shared discourse about appropriate and long-term uses of land. Technical assistance is also a vital component of the CA-CESU since this component strives to assess the status of scientific knowledge that is available, both in its breadth and depth, and articulate how it could be used in the context of a management decision. Technical assistance can also be a useful process in determining what additional research questions should be further investigated.

**Theme C1. *Addressing an increasing need for science informed management decision making.***

As land managers face heightened scrutiny over planning, rigorous science can validate their decisions. The scientific method also plays a critical role in achieving a better understanding of human impacts on environmental systems. Thus, a focused research program can be a significant management tool in preventing and correcting environmental degradation. Efficiency in bridging the gap between science and management depends on mutual cooperation between researchers and managers. Success will depend on improved communication,

training, information transmission, and financial support of mutually desired research endeavors. The CA-CESU will help facilitate this communication, sharing of information, and training.

**Theme C2. *Addressing the need for understanding and communication among culturally diverse segments of society.***

Communities surrounding public lands continue to evolve culturally and economically. The relationship between these communities and managers is critical. Additionally, diverse groups of the American public have become increasingly involved in planning for public lands. The country as a whole is composed of a wide variety of cultures, each of which has a valid stake in how agencies administer public lands for the American people. Land managers are expected to manage all public lands for the country as a whole, which requires communication among all interested parties. Successful communication depends on common understanding between parties, however diverse they may be. Managers are faced with the challenge of establishing an effective dialogue between diverse segments of society on a wide range of issues concerning public land stewardship and management. The CA-CESU aims to aid in improving communication between various segments of the public and land managers. Additionally, institution and agency specialists may help in bridging the gap in understanding between managers and the culturally diverse segments of society. Educational activities such as symposia, workshops, and focused training modules can all contribute to this ongoing public dialogue.

## **GOALS**

The following goals are articulated to guide the actions of the CA-CESU through the first 5 years of its operation in order to achieve the outcomes outlined in the themes and areas of endeavor described above.

- Identify research, education, and technical assistance needs of the federal land management partners.
- Cooperate in the development and implementation of research, education, and technical assistance projects that meet the mutual objectives of federal land managers and university collaborators.
- Coordinate research, education, and technical assistance projects among member agencies and academic institutions that meet the needs of both federal land managers and university investigators.
- Facilitate opportunities for student research, internships, and education pertinent to the needs of management agencies and the objectives of their university advisors.



- Make the CA-CESU an operationally effective and publicly visible organization.

## **ACTIONS**

The CA-CESU anticipates taking the following actions over the five year period of operation to meet the spirit of the directions, themes, objectives, and goals described above.

### **A. RESEARCH, EDUCATION, AND TECHNICAL ASSISTANCE**

Many of the thematic areas to be assessed through the CA-CESU include changing resource demands, collaboration and public participation, human disturbances and the environment, changing economic conditions, use and impacts of information technology, and management issues affecting wilderness and conservation of public lands.

- Refine and update the list of priority thematic issues identified for research, education, and technical assistance needs.
- Accept relevant projects dealing with environmental disturbances and their biologic, physical, and social consequences.
- Seek opportunities for projects that extend beyond single agency boundaries at multiple landscape scales.
- Develop opportunities through project design and selection to encourage a culturally and ethnically diverse pool of graduate students to be active participants in the implementation of projects, thereby offering valuable hands-on experience, training, and insights into possible future careers with land management agencies.

### **B. OPERATIONAL EFFECTIVENESS**

- Hold annual Executive Committee meetings and annual Managers' Committee meetings. Additional meetings will be accomplished as necessary through video conferencing and/or conference calls.
- Develop communication tools for enhancing internal effectiveness and external visibility of the CA-CESU. This will be accomplished primarily through the interactive website.
- Each agency will submit an annual accomplishment report that will identify the number of projects implemented, name and number of institutional partners, and dollars obligated each fiscal year.

- Work in partnership with the national CESU Council and adjacent CESU networks to ensure that the CA-CESU is contributing to the national system.

### **C. EXPANDING THE NETWORK**

- Foster the goals of the CESU by giving due consideration to the addition of new partners to the agreement.

### **MONITORING OF THE STRATEGIC PLAN**

Each year at its annual meeting the Steering Committee will assess how well general operating procedures are working and evaluate the effectiveness of this plan toward the goals and objectives desired for the CA-CESU. Changes in operations or priorities in the plan will be made as needed through consensus of its members. Such changes will take into account performance of the CA-CESU relative to the plan and will be responsive to the needs that may arise from member institutions and from managers, especially via the Managers' Committee. Each member of the CA-CESU is encouraged to the extent practicable, to champion and advance as many components of this plan as possible. The success of the CA-CESU is dependent on the shared commitment of all of its institutional and agency members to develop new partnerships while strengthening existing relationships.

#### **Members of the Strategic Planning Group**

Babs Lane, UCB

Gretchen LeBuhn, SFSU

Craig Moritz, UCB

Jim Shevock, NPS

Sam Traina, UCM, Chair