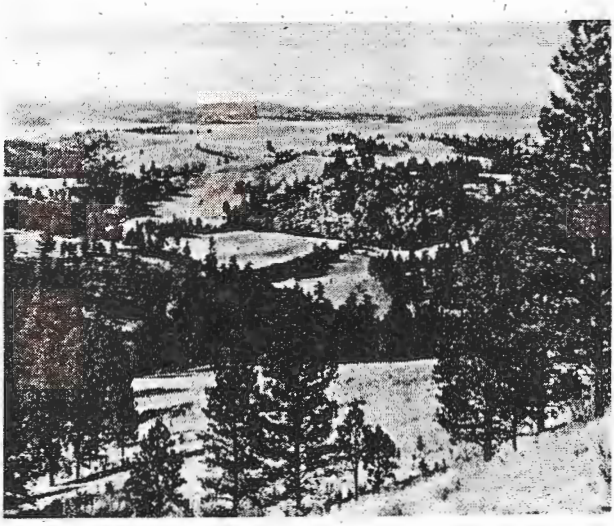
Cooperative Ecosystem Studies Units



Concept Paper

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Introduction

This is an extraordinary time for federal resource management and environmental agencies throughout the nation. There is growing demand for scientific research and expertise. Rigorous science and responsive technical assistance are increasingly necessary for sound management and policy decisions. Ecosystem-based management and the demands of long-term stewardship are extending the inventory of scientific information required to manage federal resources. Complex environmental issues that transcend boundaries make it essential for agencies to work together, and the responsibilities of federal agencies to share resources and expertise with others are expanding. New laws, such as the Government Performance and Results Act (GPRA), have emphasized the need for data collection, research and technical assistance.

At the same time, there has been significant organizational change throughout the federal government. Bureaus such as the National Park Service (NPS), Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS) are undergoing reorganization. The evolution of the National Biological Service into the Biological Resources Division (BRD) of the U.S. Geological Survey (USGS) has altered how science is delivered to Department

of the Interior (DOI) resource managers. Other agencies such as the U.S. Forest Service (USFS) and the Environmental Protection Agency (EPA) are also undergoing changes in how their research and technical assistance is conducted and delivered. Interagency and interdepartmental cooperation is a necessity and prerequisite of these new organizational approaches.

In addition, the basic relationship between the federal government and the scientific community is shifting. The fiscal limits imposed by federal deficit reduction and reduced spending are long-term, and support of science throughout the government is and will continue to be constrained. There is increased demand for usable knowledge and research applied to the national interest. Federal agencies must husband their science resources in creative ways that limit cost and magnify value—to managers, scientists, Congress and the public. Universities, private research institutions and the broader scientific community face similar pressures, and must respond and adapt to this new environment for science.

Objectives

For the reasons above and more, federal land management, environmental and research agencies, along with the nation's universities, share several science-based goals as they prepare for the 21st century: high-quality science, usable knowledge for resource managers, responsive technical assistance, continuing education, and cost-effective research programs. This concept paper describes one approach to achieving these goals—a network of cooperative units involving federal agencies, universities and others.

The objectives of this network are to:

- provide resource managers with high-quality scientific research, technical assistance and education,
- 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 federal agencies and universities to share resources and expertise,
- take full advantage of university resources while benefiting faculty and students,
- encourage professional development of federal scientists, and
- manage federal science resources efficiently.

The concept builds upon several existing and successful models of federal government and university collaboration. Hence, it is an *evolution* of such partnerships, a *complement* to existing programs, and an *innovation* in the delivery of scientific services needed by federal resource management and environmental agencies.

Basic Strategy

A network of cooperative research units will be created which provides research, technical assistance and education to resource managers. These units are named *Cooperative Ecosystem Studies Units* (CESUs), to signify their broad role as providers of research, technical assistance and education to federal land management, environmental and research agencies and their potential partners. *Cooperative* emphasizes that multiple federal agencies and universities are among the partners in this program. *Ecosystem studies* involve the biological, physical, social and cultural sciences needed to address resource issues and interdisciplinary problem-solving at multiple scales and in an ecosystem context. Resources encompass natural and cultural resources.

Each CESU will be structured as a working collaboration among federal agencies and universities. CESUs will be based at universities. Universities will provide space, basic administrative support (secretarial, accounting, equipment) and access to university faculty, students, staff and resources.

Federal agencies will contribute research scientists and/or other professionals located and working at CESUs under cooperative agreements between their respective bureaus and universities. Federal personnel will be supervised and supported by their respective agencies, through existing administrative systems. Participating agencies will provide scientific staff, administrative support funds (for assistance beyond the basic support provided by the universities, such as travel), and project funds for specific research projects and technical assistance.

CESUs will function as "virtual" organizations, linking several institutions to increase access to expertise and facilities. Individual CESUs will be administered and managed at the field/regional level. The overall CESU network will be coordinated and provided support by a Joint Coordinating Group. This leadership group will include representatives of participating federal agencies, and a description of the Joint Coordinating Group's responsibilities will be prepared. Such responsibilities may include:

- preparation of guidelines for participating in the CESU network,
- assistance to individual CESUs in developing agreements,
- maintenance of an electronic network for communication and data-sharing among CESUs, and
- development of additional funding sources for the CESU network.

The CESU network will undergo an independent peer-review after three years.

Key elements of each CESU include:

1) a host university,

2) partner institutions and agencies,

3) a role and mission statement,

4) a managers committee, and

5) an annual work plan.

These elements are described below.

Key Elements of Cooperative Ecosystem Studies Units

1. *Host university*

The host university will provide space and basic administrative support as part of its cooperative agreement. At least one federal research scientist and/or other professional will be located at each host university. Federal agencies can add personnel where appropriate to their mission, needs and available resources.

The kind and background of agency employees located at a host university will vary depending on the agency's responsibilities and requirements. Some individuals may be research scientists, others may be science administrators or resource management professionals. All would need to meet university requirements for a courtesy faculty appointment at the university; all would contribute to the role of the university as a research and teaching institution; most would have a scientific background. (Hence, this concept paper uses the term "scientists" in a broad sense to describe these individuals.)

These federal scientists will conduct research, act as facilitators in delivering research, technical assistance and education to federal resource managers and partners, engage the faculty and

resources of the host universities in collaborative activities, teach advanced courses and serve on graduate student committees.. The resident CESU staff will be augmented by university faculty, graduate students, and post-doctoral fellows. The host university will offer educational opportunities for federal resource managers to improve or renew their skills through continuing education, short courses, workshops, degree programs, distance learning and other activities.

2. *Partner institutions and agencies*

CESUs will develop partnership arrangements to increase CESU research and technical assistance capabilities. Several federal agencies may participate in a CESU as partners. Additional universities with special expertise or facilities may participate in CESUs as partners to the host university described above. Other partner institutions may include tribes, state agencies and other research organizations. Field-based scientists (such as those located in a national park or forest) may be affiliated with the CESU through the host university or a partner institution. Flexibility, local option (defined as opportunities to adapt the CESU concept to local needs) and regional-level agency decision-making will be encouraged.

Partner institutions will be linked to the CESU through formal agreements that address overhead, cost-sharing, and other initial elements of cooperative ventures. These partnership arrangements will make the faculty, graduate students and facilities of more universities available to participating federal agencies, reduce administrative costs, minimize overhead charges. They will encourage cost-sharing among agencies, and expand the constituency for federal agency science by increasing the number of partners involved in research activities. The "virtual" organization and research teams created through these linkages will increase the availability and quality of federal research, technical assistance and education programs. Collaborative projects among agencies will be encouraged.

3. *Role and mission statement*

Each CESU will prepare a role and mission statement that identifies research, technical assistance, education and other services that it is especially qualified to provide. A regional approach to ecosystem science and adaptive management will be encouraged, with particular emphasis on the landscape scale. The statement could include a regional area of concentration (such as the Pacific Northwest or South Florida), a focus on particular ecosystem types (such as high deserts or urban areas), an emphasis on particular management regimes (such as wilderness and/or multiple use), or an emphasis on management issues (such as the impacts of climate change or species protection). The role and mission statement will reflect the mission and needs of the participating agencies and universities. Breadth, flexibility and local option will be encouraged.

The role and mission statement will be used to guide research and service activities of the CESU, avoid unnecessary duplication of effort, provide accountability, evaluate performance of the CESU, and coordinate the CESUs into a comprehensive network. Each CESU's role and mission statement will evolve as additional agencies become partners, the CESU develops expertise and experience, and new issues and research opportunities emerge.

4. *Managers committee*

The attention of a CESU toward particular research projects or technical assistance/education activities will be driven by its role and mission statement and local resource managers' needs for scientific information, technical assistance and education. CESUs will create a mechanism for managers of the participating agencies to provide advice and guidance on science priorities and CESU activities, while maintaining the independence and objectivity of research projects. Each CESU will organize a managers committee composed of field managers and additional representatives from

participating partners. The committee will provide advice and guidance to the CESU, review annual work plans, and assist in evaluating CESU performance.

5. *Annual work plan*

Each CESU will prepare, with advice from the managers committee, an annual work plan for its research and service activities. The plan will describe the CESU's ongoing research, anticipated projects and products. These annual work plans will be brief and provide for flexibility in meeting managers' needs and addressing critical research issues. The plans will be used to ensure the timely delivery of useful research to managers, coordinate research activities, meet GPRA requirements and evaluate CESU performance. The process for developing work plans will be created by the CESU partners. Relevant program activities will be approved by the corresponding agency and its appropriate field units. In addition, CESUs will be encouraged (but not required) to develop multi-year strategic plans, so that participating agencies can effectively allocate resources to meet emerging needs.

While these five key elements are central to each CESU, there is significant flexibility as to how they are to be implemented for each unit. CESUs can build upon existing organizations and arrangements, create new agreements and relationships, adapt key elements to local and regional conditions and needs, and innovate in the delivery of science.

Benefits of the CESU Network

1. *A broadened scope of scientific services for federal agencies*

The CESU network will deliver a broad scope of scientific research, technical assistance and education to participating federal agencies. In a real sense, a CESU expands the staff of a national park superintendent, forest supervisor, national wildlife refuge

manager, or fish and wildlife manager to include the entire complement of faculty, students and others involved in the CESU network.

Research will be conducted at several scales appropriate to the participating agencies. CESUs can engage the full range of disciplines used by natural and cultural resource managers, from archeology to zoology. The biological, physical, social and cultural sciences will be better integrated to provide interdisciplinary problem-solving skills.

Interagency cooperation will be increased. Collaboration across federal departments and agencies will be facilitated. With federal and university scientists working together within a university environment, the generation, synthesis, and use of scientific information will be enhanced.

2. *Increased technical assistance to resource managers*

Resource managers of participating agencies will have a local CESU to draw on for basic technical assistance, education and training, planning support and other needed services. They will have expanded, efficient, timely and cost-effective access to universities (either a CESU host or partner institution). In addition, the CESU network will provide managers with specialized skills and assistance available from other CESUs across the country. Sharing of CESU expertise to meet managers' needs will be encouraged, through comprehensive cooperative agreements, an active electronic network of communication, and the Joint Coordinating Group.

3. *Additional scientific resources and opportunities for universities*

Universities that become hosts or partners in a CESU will benefit in several specific ways. The faculty will be augmented by federal scientists that can facilitate, direct or cooperate on research

projects, serve on graduate student committees and as faculty advisors, contribute to scholarly activities and teach in their areas of expertise. University faculty will also benefit by close professional collaboration with federal employees, and increased opportunities for interdisciplinary, multi-agency research projects related to federal resource management issues.

Graduate students will benefit from increased research, fieldwork and employment opportunities, exposure to contemporary federal resource management issues, and additional faculty, courses and seminars.

University research programs will benefit from consistent and comprehensive cooperative agreements that provide for overhead costs, maximize opportunities for research, create a broadened scope of contacts with federal agencies, and offer a voice in establishing research agendas. Universities will also benefit from the overall CESU network as it makes their unique skills and expertise easily accessible by land managers throughout the country.

4. *Increased diversity of research scientists and institutions*

The science capability of federal resource management agencies must be improved, and the cadre of federal scientists needs to diversify. CESUs will be established with host and partner universities including Historically Black Colleges and Universities (HBCU), Predominantly Hispanic Serving Institutions (PHSI), and Native American Tribal Colleges (NATC) as appropriate. Students at these institutions will be exposed to federal resource management issues, and have increased access to research, fieldwork and employment opportunities.

Throughout the CESU network, rotating assignments for federal scientists, post-doctoral positions at host or partner universities, and sabbatical assignments for university faculty will be encouraged. The diversity of scientists and institutions involved in

the CESU network will strengthen the federal government's ability to conduct creative, innovative and significant science needed for federal resource management.

Implementing the CESU Network

To implement the CESU network, several actions are being taken. A small interagency working group has been created to establish the CESU network. The group includes representatives of federal agencies that have committed resources to participating in the CESU network. Additional agencies may participate in individual CESUs and join the CESU network in the future. The group meets often in Washington, D.C. A list of members is available from the working group chair.

The working group will work with participating agencies and universities to establish several pilot CESUs in FY98. The objectives are to demonstrate the full potential of the CESU concept and build a sound foundation for the CESU network. Criteria for selecting the pilot CESUs have been developed by the working group. At least one of the pilot CESUs will include an HBCU, PHSI or NATC as a host or partner university.

Conclusion

Currently, management of the nation's lands and waters requires skillful public service supported by sound science. The challenges of the 21st century—and the environmental choices they will shape for the American people—demand even more skill and science. Cooperative Ecosystem Studies Units are an important innovation in how federal agencies can work together and with the nation's universities. They promise to play a useful role in the delivery of scientific information to federal resource managers. CESUs, and the network of science partnerships that they will create, are critically important. Both will serve the federal government and its partners in responding to the new century's demands.

Frequently Asked Questions About Cooperative Ecosystem Studies Units

1. *Is the CESU network a Department of the Interior effort?*

The Cooperative Ecosystem Studies Unit (CESU) concept was initiated in discussions between the Biological Resources Division of the USGS and the National Park Service. The potential of CESUs to serve resource management and environmental agencies throughout the federal government quickly became apparent. The DOI Science Board took an active interest in the CESU concept soon after, and in late 1996, encouraged DOI agencies to consider participating. Additional agencies outside the DOI are now involved, and the CESU network is a multi-agency and interdepartmental effort.

2. *How many CESUs are envisioned in the network?*

Up to four pilot CESUs will be established in FY98. Based on that experience, additional CESUs will be established in FY99 and in following years. The number of CESUs that ultimately are created will depend upon agencies' needs and resources.

3. *Must an agency decide to be involved at this time?*

No. Agencies can decide to join the CESU network at any time. However, decisions on implementing the CESU network and establishing individual CESUs are being made by those agencies that commit resources (funds and/or staff) to the network.

4. *Must an agency be involved in each CESU that is established?*

No. Agencies can elect to be involved in only those CESUs that meet their needs and available resources.

5. *If an agency joins a CESU and the CESU network, does it relinquish control of positions or funds?*

No. Personnel duty-stationed at a CESU report to their agency, and funds are administered by the agency. Agencies may collaborate and share resources on activities that meet mutual needs.

6. *How are partner universities involved?*

Partner universities significantly expand the capability and resources of a CESU. A partner university may provide unique facilities, expertise or access to research materials. Through cooperative agreements, projects at partner institutions can be efficiently contracted and conducted.

7. *How are CESUs selected and located?*

The CESU Implementation Working Group has developed criteria for selection of the pilot CESUs. A Request for Proposals is being distributed, and interested universities will submit brief proposals. Participating agencies and the selected universities will work together to establish a CESU.

8. *Will CESUs be located at established research units, or competed out to new institutions? How long will cooperative agreements last?*

The decision to use existing arrangements or compete out new research agreements will be made by the participating agencies, and carried out by the CESU Implementation Working Group. CESU agreements will be for a minimum of five years, with renewal options.

9. *Must all CESUs involve all disciplines of research needed by resource managers?*

No, but broad interdisciplinary skills will be highly valued in selecting CESU host and partner universities. Across the network, host and partner universities will make accessible to managers the full range of expertise, skills and disciplines needed for sound management of natural resources.

10. *How will CESUs affect existing cooperative programs between federal resource management agencies and universities?*

Establishing a CESU at a host or partner university does not alter existing arrangements or cooperative agreements. By augmenting those programs and relationships, a CESU will create additional opportunities for interdisciplinary and multi-agency research and technical assistance.

11. *Will the CESU network result in more bureaucracy?*

No. Each agency's personnel and budgets will be controlled by that agency and managed within its existing administrative structures. The CESU Joint Coordinating Group, which will provide coordination and technical support to the CESU network, will be composed of current staff of the participating agencies.

12. *Why is the CESU network necessary?*

Many of the elements of a CESU and the CESU network currently exist in other organizations. However, there is no multi-agency, university-based, broadly interdisciplinary, and ecosystem-oriented system currently providing scientific research, technical assistance, and education to federal resource managers. The CESU network will be a complement to existing federal research programs, and an innovation in the delivery of federal science. Such an innovation is

necessary to increase agency coordination, share scarce resources and valuable expertise, and deal with the broad and complex problems associated with resource management in the 21st century.

13. *How can I learn more about the CESU network?*

For more information, contact the CESU Implementation Working Group Chair:

Dr. Gary Machlis, Chair
CESU Implementation Working Group
fax: 202-208-4620
email: gmachlis@uidaho.edu

Notes