

**Cooperative
Ecosystem
Studies Units
Network**

Coordinating Council

11 February 2002

Dear University Colleague:

The management of Federal natural and cultural resources increasingly requires sound scientific information and creative partnerships among Federal agencies and the nation's universities. As a result, a network of cooperative units is being established to provide research, technical assistance, and education to resource and environmental 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. Each CESU is structured as a working collaboration among Federal agencies and universities and serves a selected biogeographic area of the country.

Twelve CESUs are currently in the CESU Network or being established -- in the Chesapeake Watershed, Colorado Plateau, Desert Southwest, Great Basin, Great Plains, North Atlantic Coast, Pacific Northwest, Rocky Mountains, South Florida – Caribbean, and Southern Appalachian Mountains biogeographic areas and in the Great Lakes – Northern Forest and Gulf Coast biogeographic areas.

Enclosed are the materials seeking proposals from additional universities to participate in the CESU Network. Up to five additional CESUs are being established, one in each of the following biogeographic areas of the United States: 1) Californian, 2) Hawaii – Pacific Islands, 3) North & West Alaska, 4) Piedmont – South Atlantic Coast, and 5) Upper & Middle Mississippi Valley. The “Program Announcement/Request for Proposals” describes how interested universities can submit proposals to participate in this effort. The program brochure entitled “Cooperative Ecosystem Studies Units: An Introduction” describes in detail these partnerships between multiple Federal agencies and selected universities.

I would greatly appreciate your assistance in getting these materials to appropriate members of your university community. The due date for proposals is 22 April 2002.

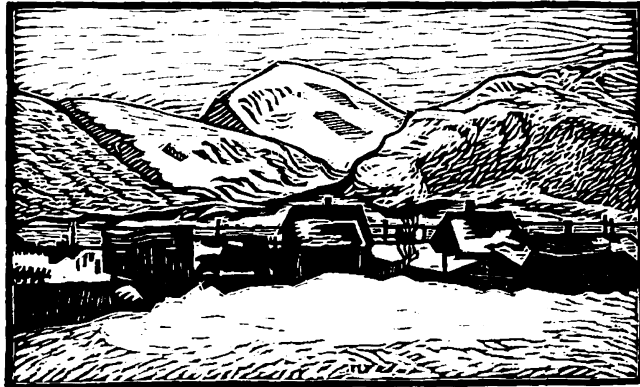
Sincerely,

[/signed]

Dr. Gary Machlis
Coordinator, CESU Council

Enclosures (2)

**Cooperative
Ecosystem
Studies Units**



Program Announcement and
Request for Proposals
for Establishing a Fifth Round of
Cooperative Ecosystem Studies Units

11 February 2002

Program Announcement and Request for Proposals for Establishing a Fifth Round of Cooperative Ecosystem Studies Units

11 February 2002

Introduction

The Federal government is establishing a network of Cooperative Ecosystem Studies Units (CESUs). The CESU Network provides research, technical assistance and education to Federal land management, environmental, and research agencies¹ and their potential partners.

Each CESU is structured as a working collaboration among Federal agencies and universities, and serves a selected biogeographic area of the country. A host university provides space, basic administrative support, and access to university faculty, students, staff and other resources. Several Federal agencies may participate in an individual CESU. At least one Federal employee is located at each host university; in some cases more Federal employees may be assigned to the CESU by participating agencies. Additional universities with special expertise or facilities participate in a CESU as partners. Other partner institutions may include state, tribal and local agencies, and other organizations. Twelve CESUs are currently in the CESU Network or being established (see Map 1).

This Request for Proposals (RFP) seeks proposals from universities to participate in the CESU Network. Up to five additional CESUs will be established in this fifth round of competition, one in each of the selected biogeographic areas (see "Eligibility" below). Proposals should 1) be targeted toward establishing a CESU in one of the selected biogeographic areas, and 2) focus on the universities' roles in the CESU and CESU Network.

¹ "Federal land management, environmental and research agencies" are broadly defined to include those agencies with core mission responsibilities related to ecosystem management, and those agencies that have some involvement in ecosystem management or related activities. These agencies recognize that their ecosystem management responsibilities embrace biological, physical, social, and cultural components of federal ecosystems.

This Program Announcement/RFP includes:

- a description of the method of operation for CESUs,
- a map of biogeographic areas for which the additional CESUs will be established,
- a description of the information and materials that should be included in proposals,
- instructions about how to submit proposals,
- a description of the review process and criteria that will be used to select the winning proposals,
- a list of agencies that are currently participating in the CESU Network, and
- a checklist useful in preparing proposals.

Method of Operation for CESUs

Each additional Cooperative Ecosystem Studies Unit will be established by a cooperative or joint venture agreement to be signed by each participating agency with the host university and its partners. The agreement(s) will be entered into in accordance with the Federal Grant and Cooperative Agreement Act, 31 USC 6301-6308, and administered consistent with the Department of the Interior implementing regulations, 43 CFR 12, and the implementing regulations of additional participating Federal agencies. The agreements shall be between the universities and the participating Federal agencies, and will be of an expected term of five years with renewal for additional five-year terms by mutual assent. These cooperative or joint venture agreements will not replace, alter, subsume or void any existing cooperative agreements.

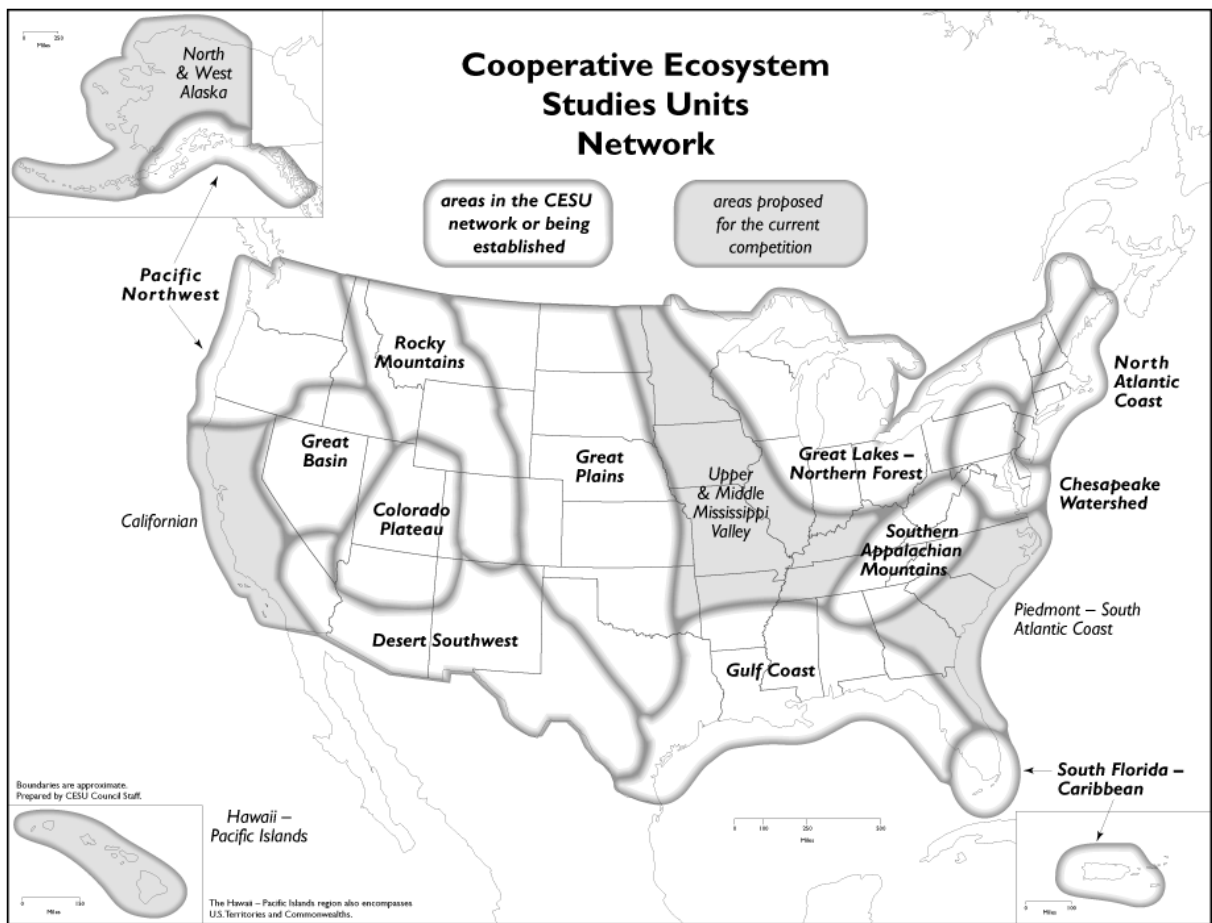
Because a CESU will function as a cooperative activity, university cooperators must include substantial involvement of the participating Federal agencies in activities of the CESU and in projects undertaken by the CESU. Projects within the scope of the cooperative or joint venture agreements will be initiated and funded through supplemental agreements, modifications or task orders, subject to project priorities and funding availability. Participating Federal agencies will, as appropriate and as funds are available:

- pay all costs of CESU-affiliated Federal employees stationed at the university, including the employees' salaries and benefits,
- pay all travel and transportation expenses for CESU-affiliated Federal employees, including relocation costs,
- contribute project support funds, and
- contribute Federal employee time to teaching appropriate courses and advising graduate students.

The CESU will not rely solely upon Federal funding; it is expected that the university cooperators will augment the CESU with services and funding as appropriate.

Eligibility

Additional CESUs are being established in the following biogeographic areas of the United States: 1) Californian, 2) Hawaii – Pacific Islands, 3) North & West Alaska, 4) Piedmont – South Atlantic Coast, and 5) Upper & Middle Mississippi Valley. Map 1 identifies the CESUs that currently exist or are being established, and the five additional biogeographic areas included in this RFP. All universities located in the relevant biogeographic area *and* granting Ph.D. degrees are eligible to submit proposals as a host university. Partner universities and other partner organizations need not be located in the biogeographic area, but should provide significant service and/or have the capacity to contribute to the CESU for that biogeographic area.



Map 1. Current and Planned CESUs

The accompanying CESU Introduction should be read carefully prior to developing a proposal. Information essential for understanding the CESU concept and preparing a competitive proposal is included in that document.

Key Elements of a CESU Proposal

A CESU proposal must be concise, follow the outline below, and include all the requested information needed to review and evaluate the proposal. The proposal must be prepared in ten point type or larger. Proposals that do not include all necessary information cannot be evaluated and will be returned. **Proposals must stay within length guidelines and not include unnecessary materials.** (Material submitted in excess of the page length guidelines will be removed from the proposal and not evaluated.) Proposals must be submitted by the proposed host university.

Proposals should focus on the universities' roles and contributions. While a description of current, existing relationships with Federal agencies is helpful, **contacting Federal agencies to establish new partnerships or commitments before the CESUs are selected is unnecessary and discouraged.**

1. Executive Summary *(1 page)*

The summary should identify the biogeographic area to be served and key resources that the host, partner universities, and other partner organizations will contribute to the proposed CESU. A contact person from the host university submitting the proposal should also be identified.

2. Introduction *(1-2 pages)*

The introduction should briefly describe the overall proposal, and identify the specific strengths of the proposed host, partner universities, and partner organizations that are relevant to Federal land management, environmental and research agencies.

3. University Role and Mission Statement *(1-2 pages)*

The role and mission statement(s) of the proposed host university and participating academic departments of the host and partner universities should be presented. The relevance of these role and mission statement(s) to Federal land management, environmental and research agencies should briefly be explained.

4. *Description of Partner Institutions*
(7-10 pages)

CESUs will link a number of Federal land management, environmental and research agencies together with universities and other partner institutions. An understanding of the *non-Federal* partners involved in a CESU is critical to a careful review of each proposal.

Partner Institutions should be identified in the following order:

- proposed host university,
- proposed partner universities,
- other proposed partner organizations (if included in the proposal), and
- other current, existing partnerships with Federal, state, and local agencies as well as tribes and non-governmental organizations (if included in the proposal).

The academic host and partners must participate in CESUs at the level of the entire institution; individual departments and colleges within universities are *not* appropriate as host or partner institutions. However, a host or partner university can designate a department or college with administrative responsibilities for the CESU.

For the *host university* and each *university partner*, the following information should be provided:

- a contact person, along with his or her title, address, phone and fax numbers, and email address,
- a list of programs relevant to Federal land management, environmental and research agencies, including the degrees offered and the number of graduate students in each program,
- a list and brief description of faculty with expertise in disciplines and interdisciplinary work relevant to Federal land management, environmental and research agencies (do not submit vitae),
- a list and brief description of relevant facilities and equipment,
- a brief description of relevant experience in research, technical assistance and education linked to CESU Network objectives (such as previous grants, special projects, awards and so forth),
- a list and description of current formal and informal relationships with Federal land management, environmental and research agencies,
- a description of services to be provided to the participating Federal agency(s) and Federal employee(s) by the university,

- a description of the university's willingness to accept a limited overhead rate of 15% and cost items to which the rate is applicable for activities conducted through the CESU, including research, technical assistance and educational services (this overhead rate must apply to the entire university for CESU activities),
- a description of administrative support, including the ability (and administrative charges, if any) to transfer, subcontract and receive funds between CESU partners and through the national CESU Network, and
- staff, faculty time, educational services and other commitments the university wishes to offer the CESU, including the amount, kind, dollar value and duration of assistantships, work-study funds, clerical support, and so forth.

For each *non-university partner*, the following information should be provided:

- a contact person, along with his or her title, address, phone and fax numbers, and email address,
- a brief description of research, technical assistance and educational services to be offered to Federal land management, environmental and research agencies,
- a description of the institution's willingness to accept a limited overhead rate of 15% and cost items to which the rate is applicable for activities conducted through the CESU, including research, technical assistance and educational services (this overhead rate must apply to the entire institution for CESU activities),
- a description of administrative support, including the ability (and administrative charges, if any) to transfer, subcontract and receive funds between CESU partners and through the national CESU Network, and
- other information relevant to CESU Network objectives.

5. *Specific Benefits of the Proposed CESU* (1-2 pages)

The proposal should identify the specific benefits to Federal land management, environmental and research agencies of establishing a CESU with the host and partners described in the proposal. These benefits should be presented briefly, and organized into the following categories:

- breadth of available services, including research, technical assistance and education,
- record of involvement with and responsiveness to Federal agency and interagency needs, especially as they relate to Federal land management, environmental and research agencies,
- potential contribution to fostering multi-disciplinary/multi-agency research related to ecosystem management,

- potential contribution to fostering interdisciplinary research related to cultural resource management, including historic preservation and heritage education, and
- potential contribution to increasing the diversity of the scientific workforce.

6. Documentation and Letters of Interest/Commitment

The proposal should include all necessary documentation required from participating universities. Letters of interest from administrative representatives of the host and partner universities **at the level of the entire institution**, and additional partner organizations should be attached. These letters should identify all commitments with regard to the proposal (including agreement to accept the limited overhead rate of 15%) and not exceed two pages. As stated earlier, letters of interest and/or commitment from Federal agencies should *not* be included in the proposal.

Submitting Proposals

Proposals must be signed by administrative representatives of the host university, all partner universities, and all other partner organizations. One unbound original of the proposal and 15 bound copies must be submitted. All proposals must be mailed to the following address using either express mail, registered mail or other express shipping service:

Dr. Gary E. Machlis
CESU Council Coordinator
Department of the Interior
Main Interior Building
1849 C Street, NW (3127)
Washington, DC 20240

All proposals must be received no later than 22 April 2002. Incomplete or late proposals cannot be considered or evaluated and will be returned (see page 12 for a checklist of necessary information and materials).

The Selection Process

This RFP was prepared by the CESU Council, a Federal interagency group operating under a Memorandum of Understanding, and responsible for managing the CESU Network. The selection process for each additional CESU will adhere to the following steps:

- I. All complete proposals received no later than 22 April 2002 will be reviewed by the Council and additional representatives of the participating Federal agencies.

2. Authors of proposals may be contacted by Council staff and asked for information if clarification is required.
3. Each proposal will be formally evaluated, using a set of criteria established by the Council (see below).
4. For each of the five biogeographic areas identified in this RFP, proposals will be ranked by their relative scores. A minimum required score will be established by the Council; if no proposal meets or exceeds the minimum score, a CESU will not be selected from the submitted proposals.
5. The highest ranking proposal in each biogeographic area (that also meets or exceeds the minimum required score) will be tentatively selected as a recommended CESU.
6. A site visit by members of the Council and additional representatives of the participating Federal agencies will be conducted for the tentatively selected proposal in each area.
7. After the site visits, the Council will make a final decision on each recommended CESU.
8. The selected host universities will be notified and work begun to formalize agreements as stated in the proposal.

Criteria for Selecting CESUs

The CESU Council will use general criteria to evaluate proposals that are submitted. These criteria are outlined below, with the allotted points that will be used in ranking the proposals.

1. Capacity of host and partner universities (30 of 100 points)

Such characteristics as:

- Research Extensive/Intensive university status of host university according to the current Carnegie Classification (i.e., research focus, Ph.D. and M.S. students),
- involvement of faculty and graduate students in state-of-the-art research in disciplines relevant to ecosystem management, including biological, physical, social and cultural sciences,
- ability to fully integrate Federal employee(s) into university activities (e.g., appropriate faculty appointments and equivalent support facilities, graduate committee memberships, opportunities for teaching advanced courses and seminars),
- ability to deliver research, technical assistance, and educational services to managers in multiple Federal land management, environmental and research agencies,

- access to critical resources (computing, GIS/remote sensing, library services, research laboratories, office space, etc.),
- additional services to the CESU and participating Federal agencies (remote library services, field stations, etc.), and
- other characteristics relevant to the capacity of host and partner universities to participate in a CESU.

2. *Regional and national ecosystem science capabilities of CESU*
(35 of 100 points)

Such characteristics as:

- potential of the proposed CESU to address significant ecosystem management issues and concerns of regional and national importance,
- focus on ecosystem-level issues and multi-disciplinary collaboration,
- potential of the proposed CESU to provide complementary and needed research, technical assistance, and educational service to participating Federal agencies, and
- other characteristics relevant to regional and national science needs.

3. *Ability to partner with at least one minority-serving institution*
(15 of 100 points)

Such characteristics as:

- inclusion as host or partner in the CESU of a Historically Black College and University, Predominantly Hispanic Serving Institution, Native American Tribal College, or similar university,
- ability to attract minority students in graduate programs relevant to the CESU,
- current programs to involve minority students in graduate programs relevant to the CESU, and
- other characteristics relevant to the ability to partner with universities and colleges that provide significant service to minority students.

4. *Cost of establishing and maintaining CESU*
(20 of 100 points)

Such characteristics as:

- agreements with Federal land management, environmental or research agencies already in place,
- Federal scientists and/or professionals already located at the host university,
- willingness to accept the limited overhead (not to exceed 15%) by host, partner universities, and other partner institutions,

- ability and willingness to transfer funds within the CESU and across the CESU Network at low or no cost, and
- other characteristics relevant to the cost of establishing and maintaining the proposed CESU.

For More Information

For more information about this RFP, contact the CESU Council Coordinator, Dr. Gary E. Machlis, by email or fax only. All responses to email or faxed inquiries will be distributed to an electronic mailing list of prospective host CESU universities. To be on this electronic mailing list, send an email request to the CESU Council Coordinator at:

email: gmachlis@uidaho.edu

fax: 208.885.4261

Current Federal Participants in the CESU Network

Bureau of Land Management

U.S. Bureau of Reclamation

U.S. Fish and Wildlife Service

U.S. Geological Survey

National Park Service

U.S.D.A. Forest Service

Department of Defense
(Installations and Environment)

Department of Energy

Environmental Protection Agency

National Aeronautics and Space Administration

Additional agencies will likely join the CESU Network.

Checklist for Proposal Submissions

Does the proposal:

- ✓ identify the biogeographic area for which the CESU is being proposed?
- ✓ include an executive summary?
- ✓ include an introduction?
- ✓ include the universities' role and mission statements?
- ✓ include specific benefits of the proposed CESU?
- ✓ include a description of each partner institution?
- ✓ include all necessary documentation required by the universities?
- ✓ include letters of commitment from partner universities and other partner organizations at the appropriate institutional level, and NOT include letters of commitment or endorsement from potential Federal partners?
- ✓ include signatures of representatives from the host and partner universities?
- ✓ strictly meet the type size and page length requirements of each section, for the proposal as a whole, and for the letters of commitment?

Does the proposal submission:

- ✓ include an unbound original of the proposal?
- ✓ include 15 additional bound copies of the proposal?

Has the proposal submission been mailed:

- ✓ using either express mail, registered mail or other express shipping service?
- ✓ to be received no later than 22 April 2002?

**Cooperative
Ecosystem
Studies Units**



An Introduction

(Third printing, June 2001)

Cooperative Ecosystem Studies Units

An Introduction

Background

This is an extraordinary time for federal land management, environmental and research agencies. 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 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) and Bureau of Land Management (BLM) have recently undergone 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. Department of Agriculture Forest Service (USDA FS) 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 essential to these new organizational approaches.

In addition, the basic relationship between the federal government and the scientific community is shifting. The fiscal limits imposed by the federal budget are long-term, and support of science throughout the government

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 in the 21st century: high-quality science, usable knowledge for resource managers, responsive technical assistance, continuing education, and cost-effective research programs. This booklet 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 land management, environmental and research agencies.



Basic Strategy

A network of cooperative units is being established to provide research, technical assistance, and education to resource and environmental 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 is structured as a working collaboration among federal agencies and universities. CESUs are based at universities and focused on a biogeographic region of the country. Universities provide space, basic administrative support (secretarial, accounting, equipment), and access to university faculty, students, staff, and resources.

Federal agencies contribute research scientists and/or other professionals. In many cases, these federal personnel are located and working at CESUs under formal agreements between their respective bureaus and universities. Federal personnel are supervised and supported by their respective agencies, through existing administrative systems. Participating agencies provide scientific staff, administrative support funds (for assistance beyond the basic support provided by the universities), and project funds for specific research projects and technical assistance. Federal agency participation in a CESU does not alter previous arrangements or cooperative agreements. CESUs will create additional opportunities for interdisciplinary and multi-agency research, technical assistance, and education.

CESUs function as “virtual” organizations, linking several institutions to increase access to expertise and facilities. Individual CESUs are administered and managed at the field/regional level. The overall CESU Network is coordinated and provided support by the CESU Coordinating Council. The Council includes representatives of participating federal agencies operating under a Memorandum of Understanding (MOU) for the CESU Network. The Council will:

- prepare guidelines for participating in the CESU Network,
- assist individual CESUs in developing agreements and subsequent modifications,
- maintain networks for communication and data sharing among CESUs,
- pursue additional funding sources for the CESU Network,
- develop a comprehensive strategic plan for the growth and development of the CESU Network, and
- produce annual reports summarizing CESU Network activities.

The CESU Network will undergo an independent peer review in 2004.

Key elements of each CESU include:

- 1) multiple federal agencies,
- 2) a host university,
- 3) partner institutions,
- 4) a role and mission statement,
- 5) a managers committee, and
- 6) strategic and annual work plans.

These elements are described below.



Key Elements of CESUs

1. Multiple federal agencies

Federal agencies participate in CESUs within the scope of their respective missions. Federal agencies are substantially involved in CESU activities, working closely with host universities and/or partner institutions on research, technical assistance, and education. With multiple federal agencies working together with university faculty, the potential for cost sharing, improved efficiency, and cooperative activities is significantly increased. Collaborative projects among agencies are encouraged and are facilitated through the CESU agreements.

The kind and background of agency employees located at a host university vary, depending on the agency's responsibilities and requirements. Some individuals may be research scientists, others may be science administrators or resource/environmental management professionals. Hence, the term "scientists" is used in a broad sense to describe these individuals. All must meet university requirements for a courtesy faculty appointment at the university, contribute to the role of the university as a research and teaching institution, and have a scientific background.

These federal scientists may conduct research; act as facilitators in delivering research, technical assistance, and education to federal resource/environmental managers and partners; engage the faculty and skills of the host universities in collaborative activities; teach advanced courses; and serve on graduate student committees.

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 are encouraged.

2. Host university

A key element of each CESU is the host university. The host university provides space and basic administrative support as part of its responsibilities within the CESU agreement. At least one federal research scientist and/or other professional is located at the host university. Federal agencies can add personnel where appropriate to their mission, needs, and available resources.

The resident CESU staff is augmented by host university faculty, graduate students, and post-doctoral fellows. The host university will offer educational opportunities for federal resource/environmental managers to improve or renew their skills through continuing education, short courses, workshops, degree programs, distance learning, and other activities.

3. Partner institutions

CESUs include partnership arrangements with universities, state agencies, tribes, and other organizations to increase CESU research, technical assistance, and education capabilities. Additional universities with special expertise or facilities participate in CESUs as partners to the host university described above. Partner universities significantly expand the capabilities and skills of a CESU. A partner university may provide unique facilities, expertise, or access to research materials.

Partner institutions are linked to the CESU through the CESU agreements that address overhead, cost-sharing, and other initial elements of cooperative ventures. This allows projects with partner institutions to be efficiently conducted. These partnership arrangements make the faculty, graduate students, and facilities of more universities available to participating federal agencies; reduce administrative costs; and minimize overhead charges. The constituency for federal agency science is increased by the number of partners involved in research activities. The “virtual” organization and research teams created through these linkages increase the availability and quality of research, technical assistance, and education programs delivered to federal managers.

4. 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 is encouraged, with particular emphasis on the landscape scale. The role and mission statement includes the biogeographic area of concentration (such as the Colorado Plateau or the Southern Appalachian Mountains), 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 a combination of these themes. Hence, the role and mission statement reflects the mission and needs of the

participating agencies and input from the host university and partner institutions. Breadth, flexibility, and local option are encouraged. In addition, CESU role and mission statements include mention of special expertise useful to the broader CESU Network.

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 as new issues and research opportunities emerge.

5. Managers committee

The attention of a CESU toward particular research projects or technical assistance/education activities is driven by its role and mission statement and the participating federal agencies' needs for scientific information, technical assistance, and education. CESUs include 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 federal agencies. The committee will provide advice and guidance to the CESU, review strategic and annual work plans, and assist in evaluating CESU performance.

6. Strategic and annual work plans

Science planning leads to improved research, more usable knowledge for resource/environmental managers, and reduced costs. Working together, CESU partners at an individual CESU will develop multi-year strategic plans so that participating agencies can effectively allocate resources to meet both immediate and long-term needs. Sharing of resources, collaborative projects, and flexibility to meet emerging needs will be encouraged.

In addition, each CESU will prepare a brief annual work plan for its research and service activities. The plan will describe the CESU's ongoing research, anticipated projects, and products. 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.

While these 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, public lands manager, field scientist, or environmental administrator to include the entire complement of faculty, students, and others involved in a CESU and in the national 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 is increased. Collaboration across federal departments and agencies is facilitated. With federal and university scientists working together within a university environment, the generation, synthesis, and use of scientific information is 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 provides managers with

specialized skills and assistance available from other CESUs across the country. Sharing of CESU expertise to meet managers' needs is encouraged through the CESU agreements, an active electronic network of communication, and the CESU Coordinating Council.

3. Additional scientific resources and opportunities for universities

Universities that become hosts or partners in a CESU benefit in several specific ways. The faculty are 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 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 benefit from increased research, fieldwork, and employment opportunities; exposure to contemporary federal resource management issues; and additional faculty, courses, and seminars.

University research programs benefit from consistent and comprehensive 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 benefit from the overall CESU Network as it makes their unique skills and expertise easily accessible by resource managers throughout the country.

4. Increased diversity of research scientists and institutions

The science capability of federal agencies must be improved, and the cadre of federal scientists needs to diversify. CESUs include Historically Black Colleges and Universities (HBCU), Predominantly Hispanic Serving Institutions (PHSI), and Native American Tribal Colleges (NATC) as partners. 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 critical to federal resource management.



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.



The CESU Web Site

The CESU Coordinating Council provides a web site for those interested in learning about CESUs, and as a resource for members of the CESU Network. The web site provides access to a wide range of information about CESUs, including this general introduction; maps of current and planned CESUs; agreements, strategic plans, reports, and activities for current CESUs; schedules for meetings and other activities of the Council; a directory; an administrative guide; and materials for current competitions. Please visit www.cesu.org/cesu.

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