

Cooperative Ecosystem Studies Unit **Great Basin CESU**



Cooperative
Ecosystem
Studies Units
Network



College of Agriculture Biotechnology
and Natural Resources



Nevada Agricultural Experiment Station
University of Nevada, Reno

Renewal Application for 2011–2016

Renewal Application: Self-Assessment

Great Basin Cooperative Ecosystem Studies Unit

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Submitted by

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as Host Institution

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Executive Summary

GB-CESU Activities Related to the General Review Criteria

1. Commitments Identified in the CESU Agreement and Amendments:
 - The host university and the thirteen partner institutions, with the participating eight federal agencies, conducted a program of research, technical assistance, and education.
 - The mission and the GB-CESU roles were identified, as approved by the executive committee of managers.
 - The host university and partner institutions developed and approved a multi-year strategic plan for 2006-2011.
 - In addition to annual meetings and midyear meetings (as needed), three large conferences and two special meetings were organized/cosponsored by the CESU.
 - Annual work plans involved 1) the formation of ad hoc committees of the executive committee members, 2) assignment of specific charges for the committees at the annual meetings, and 3) committees reporting back to the managers on various CESU issues raised at the meetings. Examples include: development of guidelines for new applicants, collection of data on projects, website development issues, development of projects in response to RFPs, etc.
 - Many of the projects included participation of both undergraduate and graduate students.
 - Educational and training opportunities to participating federal employees were provided through a number of funded CESU projects.
 - The host university provided basic administrative and clerical support, access to campus facilities, and suitable office spaces for federal personnel located on campus. The cost of providing basic services was estimated at approximately \$32,000 per year (salary and fringe) plus operating costs, but not including office space, clerical support, and other operating costs associated with federal employees located on campus.
 - Several administrative policies were discussed and instituted at CESU meetings, including policies for new CESU members, maintaining databases, etc. as shown in minutes of the meetings.
 - There was at least one meeting annually.
2. Project Completion and Delivery:
 - There were a total of 277 cooperative/joint venture agreements during 2006-2010 consistent with CESU objectives for a total of approximately \$55 million.
 - To the best of our knowledge, all projects were consistent with the CESU mission and were successfully completed and accepted by the agencies.
3. Involvement of Partner Institutions:
 - There was active involvement of 12 out of 14 partner institutions in the CESU projects during 2006-2011.
 - The two minority institutions were not very active in the CESU during the past several years; however, since were located outside the Great Basin region, they also had membership in other CESUs
4. Facilitation of Collaboration and Involvement:
 - There were a number of ways in which the collaboration and involvement of partners were achieved. These include:
 - Interaction with several other GB organizations that either existed or were established since the last renewal of this CESU
 - Development of projects involving multiple institutions such as those funded by joint Fire Sciences programs
 - Hosting and participating in major conferences and symposia
 - Partnering with private efforts such as S.M. Stoller Corporation, Environmental Surveillance, Education, and Research programs

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I. Introduction

The Great Basin encompasses most of Nevada, the western half of Utah, the southern third of Idaho, the southeast corner of Oregon and a narrow strip of northeastern California. More than 60 percent of the land in the Great Basin is in the public domain. The Great Basin is a large geographic ecoregion in the heart of the western United States, bordered on the west by the Sierra Nevada, on the east by the Wasatch front of the Rocky Mountains, on the north by the Snake River and on the south by the Mojave Desert. The region is approximately 900 miles long from north to south and 570 miles wide from east to west.

The Basin can be generally characterized as a series of north to south trending mountain ranges, semi-arid foothills and arid valley rangelands, riparian wetlands and desert playas. Although water resources are scarce, the region has an abundance of other resources, such as gold, minerals and renewable energy such as biomass, geothermal, solar and wind.

The human population is largely concentrated in urban areas, with the rural areas among the most sparsely populated in the United States. The Great Basin ecosystem's plant communities are home to more than 200 bird, 70 mammal, and 20 amphibian and reptile species. The region has many sensitive, threatened and endangered plant and animal species, many of which are unique to the Basin. This ecosystem, known for habitats rich in plant and wildlife diversity, supports a way of life unique to the history of the West, and is undergoing drastic changes. Among those are (1) invasive weeds, (2) declines in sagebrush and grassland habitat for wildlife, (3) reduced grazing capacities for domestic livestock, (4) frequent droughts, (5) increases in the incidence and extent of wildfires, (6) human population growth and urbanization, and (7) increased pressure on recreational and cultural resources.

Emerging critical issues include climate change; cheat grass die-off; expansion of Medusahead, cheat grass, and pinyon and juniper in lower elevations; development of renewable energy resources; wildfires; and declining habitats for sage grouse and other potentially endangered or threatened species.

The Great Basin Cooperative Ecosystem Studies Unit (GB-CESU) is committed to addressing natural resource management issues through research, education and technical assistance. Partnerships with institutions of higher education and federal agencies are vital to the discovery of knowledge, dissemination of information through on-campus educational programs, off-campus outreach and extension programs, and through the provision of technical assistance to agencies for resource management and policy implementation.

II. Great Basin CESU Membership

The Great Basin Cooperative Ecosystem Studies Unit was established in May 2001 with University of Nevada, Reno as the Host Institution and Utah State University as a senior partner. The GB-CESU was renewed in 2006 for a five year period, 2006-2011. The University of Nevada, Reno continued to serve as the host institution. Fourteen partner institutions are participating in the GB-CESU including two minority institutions (Texas A&M University-Kingsville and California State University at Fresno) along with eight federal agencies that were signatories to the agreement.

III. Mission Statement

The GB-CESU is a partnership for research, technical assistance and education to enhance understanding and management of natural and cultural resources of the Great Basin.

IV. Role for the GB-CESU

- Provide research, technical assistance and education to federal land management agencies, environmental and research organizations, state and local governments and communities;
- Develop a program of research, technical assistance and education involving the biological, physical, and cultural sciences to address resource issues and interdisciplinary problem-solving in an ecosystem context at the local, regional and national levels; and
- Place special emphasis on the working collaborations among federal agencies and universities and their related partner institutions.

V. Strategic Plan

The GB-CESU began work on its Strategic Plan in early 2007. The NPS liaison, along with a subgroup of managers, led an effort to develop a draft plan. The process for the development and adoption of the strategic plan involved the following steps:

- A draft plan was developed by representatives of partner institutions and federal agencies
- This draft plan was disseminated to all parties for comments
- A final Strategic Plan was approved in the fall of 2008

The plan identifies six critical research objectives:

- Promote research on fire ecology and post-fire rehabilitation
- Inventory ecosystem conditions, collect baseline data and establish monitoring systems
- Assess the impacts of invasive plant species on native plant populations and ecosystem processes
- Increase our understanding of the basic causes for declines in populations of threatened species and the potential for restoration
- Protect and preserve human and cultural resources
- Promote effective use of water, soil and related resources

The plan also identifies objectives for education, as well as outreach and technical assistance. The complete Strategic Plan can be found in **Appendix A**.

VI. Project Activities

The statement of work agreed to by federal agencies, the host university, partner institutions, and jointly by all three entities in the Cooperative and Joint Agreement between the U.S. Department of the Interior and the USDA Forest Service (Article II, Sections A, B, C and D) has been accomplished by the GB-CESU over the last five years, commensurate with the funding levels and to the degree consistent with the administrative process of the CESU.

There were a total of 277 projects involving 12 of the 14 partner institutions. Total funding through the GB-CESU during this period was approximately \$55 million (including on-going and approved projects for 2006-2011). (The funding level does not include cooperative agreements with USFS and ARS since these projects were not accounted for as CESU projects). Of those projects that went to the partner institutions, there were:

- 87 Bureau of Land Management (BLM) funded projects totaling \$26.4 million.
- 124 National Park Service (NPS) funded projects totaling \$24.1 million.
- 4 Natural Resources Conservation Service (NRCS) funded project totaling \$160,000.
- 40 U.S. Fish and Wildlife Service (USFWS) funded projects totaling \$3.4 million.
- 22 U.S. Geological Survey (USGS) funded projects totaling \$1.1 million.

All projects were consistent with the mission and role of the GB-CESU. Although most projects were research-based in nature, there also were a number of educational and technical assistance projects. In addition, many projects included all three components. The number of projects increased by 157 percent and the total funding provided through the CESU increased by 140 percent compared with the previous five years.

The projects funded by the agencies corresponded closely to all six critical needs identified by the GB-CESU 2006-2011 Strategic Plan. Many new projects related to climate change. There were a number of projects on ecosystem inventory, data collection and monitoring. There were more projects involving education and improvement of facilities. Many projects on human and cultural resources were supported, especially through NPS. In the areas of wildlife and native vegetation and land restoration, there were a number of projects funded jointly by BLM and NPS. More funding was provided by USFWS and USGS during the past five years, compared with previous years. Water and related soil resources were important in the list of projects. See **Appendix B** for a complete summary and list of projects.

Most of the projects involved undergraduate students and/or graduate students who received valuable research training while working on these projects. This often involved extensive experience working in the field collecting and analyzing data. These projects also provided significant opportunities for students to use the data they collected for their research theses and dissertations.

VII. GB-CESU Meetings and Activities

1. Meetings

- CESU meetings were held annually during 2006-2010.
- Three midyear teleconference meetings were also held.
- Three large conferences/symposia were held with attendance ranging between 150 – 300 people.
 - In November 2006, the Great Basin Collaborative Research and Management Workshop was convened in Reno. This workshop was led by USFS-RMRS, in cooperation with UNR and DRI, and cosponsored by the CESU.
 - In February 2008, the Great Basin Environmental Program (GBEP) NGO meeting was held. This meeting was organized by UNR and cosponsored by the CESU.
 - In December 2009, the American Deserts Symposium was held by the Society for Range Management and cosponsored by the CESU.
- Two other smaller conferences were held.
 - In October 2006, the first organized meeting of the Great Basin Environmental Program was held.
 - In November 2010, a meeting was organized by the CESU to coordinate the functions of four Great Basin organizations.

The regular CESU meeting agenda and minutes are attached in **Appendix C**. Many of the annual meetings and the conferences included field trips. Some meetings also showcased CESU projects through poster sessions, scientific paper presentations, and recognition and awards to scientists and students. These meetings served the purpose of sharing research and disseminating results to federal agency employees and NGOs.

2. Activities

- The CESU website was originally developed by Utah State University and was later transferred to the University of Nevada, Reno. Considerable work was put in to develop a database for federal partners to keep CESU project information current. This effort has not succeeded; however, we are working with the non-federal partners to continue our efforts in this regard. The website also needs considerable updating.
- The host university has provided space and facilities to the BLM, NPS, USFS-RMRS and ARS on campus.
- Administrative policies were developed at various annual meetings including guidelines to add new federal and non-federal members, discussions also occurred related to keeping project information current, website development, etc.
- A list of faculty expertise was developed/updated as part of the renewal application along with unique laboratory facilities and specialized equipment availability (see **Appendix D**).
- Request for proposals were disseminated to CESU partners, as well as employment opportunities.
- Developed partnership with Stoller Corporation resulting in CESU scientists getting funding for projects.
- A new GB-CESU brochure was developed showcasing some key projects.
- Several new Great Basin organizations have been formed between 2006 and 2010. These include:
 - Great Basin Research and Management Partnership (GBRMP)
 - Great Basin Environmental Program (GBEP)
 - Great Basin Landscape Conservation Cooperative (GBLCC)The CESU has been actively engaged in all these organizations.
- A meeting organized by the GB-CESU in November 2010 to coordinate the activities of these organizations resulted in an agreement to form a “Great Basin Consortium,” that would coordinate the activities of these organizations and minimize duplication of effort.

VIII. Critical Self Assessment

1. **Funding:** The GB-CESU has continued to have great funding success with 2.5 times the growth in projects and funding levels compared to 2001-2006.

2. Growth in Partners:
 - o The GB-CESU has added Texas A&M Kingsville, a minority institution, as a partner during this past 5-year period.
 - o There has been no change in the number of federal partners. The Department of Defense (DOD) showed interest in becoming a partner, but was not voted in, as the CESU required additional information that the DOD did not supply. The Army Corps of Engineers expressed interest, but did not follow through with a request.
3. Performance of Federal Partners: Federal partners have worked exceedingly well with the non-federal partners. To increase the responsiveness of the host and partner institutions, more active communication is needed when funding opportunities arise. The largest funding agencies, BLM and NPS, are yet to appoint permanent coordinators to the CESU. Both USFS-RMRS and ARS need to develop procedures to ensure that future cooperative projects are accounted for in the CESU system.
4. Project Participation: The two minority institutions have not participated. Opportunities for participation by minority institutions need to be facilitated and promoted. While overall participation has increased over the last 5-year period, more work needs to be done to engage all partners.
5. Type of Projects:
 - o There have been more educational and technical assistance projects compared to 2001-2005; however, more needs to be done in this area.
 - o Larger, multi-institutional projects need to be developed to address critical and emerging issues.
6. Activities:
 - o CESU activities were regularly organized, but attendance needs improvement. This is partly due to declining budgets at the non-federal partner institutions.
 - o Partner institutions need to collect and maintain CESU project information, and disseminate information on funding opportunities and CESU activities within their respective institutions.
 - o More activities targeting students, scientists, and NGOs need to be developed.
 - o Partner institutions need to develop a formal mechanism to identify and keep track of CESU projects. A training workshop for fiscal officers is key to accomplishing this.
7. Collaboration:
 - o Federal partners can play a role in working with the host institution to facilitate the development of larger scale, multi-institutional and multi-disciplinary projects. This will greatly increase collaboration among the academic institutions and enable them to better address the priority research needs of the federal partners. A consortium of Great Basin organizations is being formed to avoid duplication of effort and insure better coordination.
8. Project Information Database: It is critical that the GB-CESU develop a more effective reporting system that enables partners to develop and maintain an accurate database for CESU projects. This effort should be a top priority in the next period and will need to be accomplished with assistance from federal partners and non-federal institutions.
9. Website:
 - o An updated website is an important priority and is being planned under the new organizational structure of the host institution.
 - o Funding opportunities should be posted on the website, but also sent to contracts and grants offices of partner institutions.
 - o Employment opportunities for students must be also widely disseminated.
10. Resource Needs:
 - o The CESU needs to create a mechanism to support the administration of the CESU by the host and non-federal partners. This could be achieved in a variety of ways and has been discussed for a number of years.

IX. Host University Organization and Future Plans

Commitment

University of Nevada, Reno (UNR) is committed to continue serving as the host institution for the Great Basin Cooperative Ecosystem Studies Unit (GB-CESU). At the annual meeting of the GB-CESU held on August 24, 2010 (and with subsequent follow-up), the partner institutions agreed to have UNR continue serving as the host institution and have asked UNR to facilitate the renewal application for 2011-2016. At that meeting the partners also agreed that Utah State University (USU) in Logan would serve as the senior partner. The letters of interest from the partner institutions to join the CESU are attached in **Appendix E**.

After discussions with the College of Agriculture, Biotechnology and Natural Resources (CABNR), the Provost, and other UNR administrators, an alternative management structure was proposed for the administration of the GB-CESU. This change will shift the responsibility for administering the unit to UNR's Office of the Vice President for Research, where there is sufficient infrastructure to more effectively administer the GB-CESU and meet the needs of the partner organizations. The major features of the transition plan and the planned activities under this new GB-CESU administrative structure are provided below.

Transition Plan

Due to recent budget reductions, CABNR which has been responsible for the CESU, no longer has the capacity to administer the GB-CESU. As a result, the administration of the GB-CESU will be shifted to the Office of the Vice President for Research (VPR), where sufficient administrative infrastructure exists. Dr. Michael Collopy, Assistant Vice President of Research, will serve as the GB-CESU Director and will be responsible for the functions of the host institution. We believe the centralization of this administrative function will provide a higher degree of commitment and coordination from UNR in administering the CESU. Dr. Rang Narayanan, the current director, and Dr. Collopy are currently working together to transfer all the GB-CESU information to the VPR's office. They are responsible for developing the renewal application for 2011-2016 and facilitating coordination of the review through the USFWS and other federal partners. An updated directory of all university and federal partners is provided in **Appendix F**.

Administrative responsibility for the host institution for the GB-CESU will formally transition to the Office of the Vice President for Research at the time the renewal application for the GB-CESU is approved (sometime in spring of 2011).

Planned Activities Under the New Structure

- The VPR's office will provide the administrative support necessary to coordinate the GB-CESU activities consistent with the GB-CESU cooperative/joint venture agreement. Staff assistants in Dr. Collopy's office will provide administrative support needed to accomplish the activities required of the host institution (A. Gallop and C. Clack).
- The specific roles and responsibilities of Utah State University, which is the senior partner in this CESU, will be worked out with the Host Institution upon renewal as part of the work plan.
- The GB-CESU website will be redesigned, updated and maintained by the VPR's office. CESU funding opportunities and collaborative science efforts will be disseminated. Staff assistants in Dr. Collopy's office currently maintain several university websites and will be responsible for redesigning the CESU website, so that it meets the information dissemination needs of the partners. (C. Clack and J. Kupiec).
- An annual GB-CESU meeting will be organized by Dr. Collopy (VPR's office) and periodic teleconferences will be held with the executive committee, as needed. Additional meetings will be held, as needed, in conjunction with major Great Basin Science Meetings.
- Information on all UNR GB-CESU projects will be maintained by the VPR's office. In addition, UNR will work with each of the partner institutions to develop their respective project information databases, as well as the ability to compile a unified GB-CESU information system. Staff in Dr. Collopy's office (A. Gallop) and UNR's Office of Sponsored Projects and Agreements (OSPA) will work with counterparts in the partner institutions to develop and maintain this CESU database.
- Linkages will be developed with other Great Basin initiatives (e.g., through the website and other venues) to make research databases available to CESU scientists, as well as partner institutions.
- UNR will facilitate development of large scale, multi-institutional and multi-disciplinary projects. Dr. Collopy will enlist the assistance of a well-respected, senior UNR faculty member with appropriate technical and leadership skills to assist with this and other program-building activities (such as those listed below) undertaken by the host institution on behalf of the CESU.
- Increased efforts will be undertaken to facilitate greater participation of the minority partner institutions.
- Assistance will be provided to disseminate science-based information and expertise available within the partner institutions to federal agencies.