

GREAT BASIN CESU ANNUAL MEETING
University of Nevada, Reno
Rita Laden Senate Chamber Room (3rd floor), Joe Crowley Student Union
November 7, 2011
11:30 AM to 1:00 PM

Agenda

- 1) Welcome/Introductions
- 2) Minutes from past meetings; review action items
- 3) Update on renewal of CESU Cooperative Agreement (2011-2016)
- 4) Protocol for adding new GB-CESU partners
- 5) GB-CESU website (current status; needed additions?)
- 6) Updating the GB-CESU Strategy Plan (2011-2016)
- 7) CESU projects (Keeping project information up-to-date and available)
- 8) Agency updates (federal partners)
- 9) University updates (university partners)
- 10) Status and role of newly-created Great Basin Consortium
- 11) Other business
- 12) Adjourn

GB-CESU Annual Meeting Minutes, November 7, 2011

The following are the minutes from the recent GB-CESU meeting and the recommendations of actions.

1. The GB-CESU met on November 7, 2011 from 11:30 am to 1:00 pm at the University of Nevada, Reno, just prior to the start of the first annual Great Basin Consortium conference.
2. The following GB-CESU representatives were in attendance:
Mike Collopy and Christina Clack (UNR), Bruce Roundy (BYU), Jeanne Chambers (RMRS-USFS), Paul Doescher and Larry Curtis (OSU), Angie Evenden (NPS), Todd Hopkins (FWS), Mark McKinstry (BoR), Sue Phillips (USGS), Kimberly Page (BSU), Stan Smith (UNLV), Paul Verburg (DRI)
3. Others in attendance:
Marc Johnson (UNR), Tom Fish (CESU – National Office), Jim Evans (Partnership for National Trails), Jobald Kabir (BoR)
4. After introductions, Mike Collopy welcomed the attendees and passed out meeting handouts (attached to these minutes). The committee reviewed action items from minutes from previous meetings. There were no comments from the group regarding the minutes.
5. Mike Collopy gave an update regarding the recent renewal of the CESU Cooperative Agreement (2011-2016). The new agreement has been posted on the GB-CESU website and distributed by email. The agreement's first amendment adding Ball State University as a partner has also been distributed by email and posted on the website. Tom Fish (CESU-National Office) added that the decision to approve the renewal of the GB-CESU Cooperative Agreement and the addition of Ball State University was unanimously approved.
6. The group discussed current plans for GB-CESU to start the process of adding additional partners now that the renewal is in place, (e.g. DoD, US Army Corps of Engineers and, NV Dept of Agriculture). Mike Collopy reminded the partners that when adding large complex agencies such as the DoD, we need to ensure that their involvement must be within the scope of the GB-CESU's stated mission.
7. Subsequent to their request for more information about joining the GB-CESU, a follow-up email was sent to the Nevada Department of Agriculture with instructions about the application and review process; however, we have not received a response.
8. Mike Collopy stressed the need to update the protocol for addition of new partners to the GB-CESU currently listed on the website. Tom Fish indicated that a revised process was being developed nationally, so we opted to wait for that process to be implemented.
9. There was discussion of overhead rates and joint venture agreements vs. cooperative agreements; and frustration with current regulations limiting flexibility in soliciting new members and projects.
10. Christina Clack reviewed the GB-CESU website for the group discussing each section's purpose and the location of important downloads / information.
 - a. A link to the GB-RMP database will be added to the GB-CESU site to strengthen the expertise listing. Jeanne Chambers mentioned the possibility of flagging CESU members in their database. Christina Clack will follow-up with Jeanne Chambers and add this link to the website.
11. Mike Collopy discussed the need for an updated Strategic Plan, now that the new Cooperative Agreement is in place. He requested suggestions on who to take charge of the coordination of the update. Nat Frazer (USU, GB-CESU Senior Partner) was suggested due to his experience and familiarity with strategic planning. Collopy will follow up with Nat Frazer and other partners to assemble a planning committee that will update the current GB-CESU Strategic Plan for full committee review.

- a. Identify committee
 - b. Identify actionable items to include and reasonably accomplish
 - c. Incorporate action items within the goals of the GB Consortium
 - d. Todd Hopkins offered to seek out award programs for national recognition and present a relevant list to the CESU.
 - i. Tom Fish suggested implement student awards to assist in heightening the visibility of projects. Any student awards can also be posted on the national CESU site.
12. Recommendations were sought for more effectively tracking CESU projects. Angie Evenden discussed the current methods used by the NPS and mentioned that they were fortunate to have a central processing office to simplify this process. Mike Collopy described UNR's current method by including "CESU" in all project titles.
13. The committee discussed University vs. Federal partner tracking and decided that the current methods for all partners need to be reviewed.
- a. Angie Evenden passed out the current listing of NPS projects.
 - b. Following a discussion of the issue, Angie Evenden volunteered to coordinate with the federal agency partners to see if sufficient tracking could be accomplished by the federal partners.
 - c. Mike Collopy suggested that once we learn what the federal partners determined was feasible, depending on the outcome, we might need to schedule a conference call with the university partners to discuss options for project tracking by the university partners.
 - d. Tom Fish discussed the National CESU's plan for tracking projects nationally. They are currently building a mechanism for this and hope to include a searchable database on the national website. Tom Fish is hopeful that it will solve a number of issues with reporting and limit gaps of information. This effort is currently on schedule for implementation during the summer of 2012.
 - e. Mike Collopy reiterated that in the meantime, we need to do our best to keep track of our projects, so we don't fall behind waiting for a better system.
14. The meeting adjourned at 1:00 pm.

Handout Materials

GB-CESU Annual Meeting 11.7.11

GREAT BASIN CESU ANNUAL MEETING
COLLEGE OF AGRICULTURE, BIOTECHNOLOGY AND NATURAL RESOURCES
UNIVERSITY OF NEVADA, RENO
August 24, 2010, in FA 214
8:30 A.M. to 3:00 P.M.

Agenda

- 1) Welcome/Introductions**
- 2) Discussion of renewal of GB-CESU**
 - **UNR expression of interest**
 - **White Mountain Research Station**
 - **Utah State University**
 - **Other partner Universities**
- 3) Decision about renewal of GB-CESU (action item)**
- 4) Discussion of changes to organizational structure/operations**
- 5) Assignment of renewal application tasks (action item)**
- 6) Updates on CESU related programs**
- 7) Agency updates**
- 8) University updates**
- 9) CESU projects – How to keep up-to-date information?**
- 10) Other business**

Following is the minutes of the recent CESU meeting and the recommendations of actions to be approved by the committee.

1. The GBCESU executive committee met on August 24, 2010 from 8:30 am to 3:00 pm. in Reno
2. The following members were in attendance:
Peg Rees (UNLV), Bob Williams and Laurie Averill-Murray (USFWS), Sandra Brewer (BLM), Bruce Roundy (BYU), Jeanne Chambers (RMRS-USFS), Nat Frazer and Eugene Schupp (USU), Paul Doescher (OSU), Angie Evenden (NPS), Carrie Phillips (USAS), Mike Odegard (NRCS), Rang Narayanan and Ron Pardini (UNR).
3. Others in attendance:
Mile Collopy (UNR), Marc Johnson (UNR), Tom Fish (CESU – National Office)
4. Provost Johnson from UNR expressed his commitment to the GBCESU and his interest in UNR continuing to host the CESU upon renewal. He would transfer CESU operations under the VP for Research at UNR to be coordinated by Dr. Mike Collopy and will provide resources as necessary to meet the CESU agreement. Dr. Rang Narayanan will continue to run the CESU for now and assist with the transition to occur upon renewal.
5. Rang read the letter from Frank Powell (WMRS, UC San Diego)
6. Nat Frazer expressed USU's interest and commitment of a position in his college to assist with CESU.
7. There was considerable discussion about the higher expectation of CESU upon renewal in coordinating Great Basin issues beyond the CESU being a funding mechanism.
8. Because there were a number of executive committee members not present at the meeting, it was upfront agreed to that the action items are only recommendations. These recommendations should be sent to all members and seek formal input from everyone. Accordingly, I request that you send your input, if any, on all action items that were decided at this meeting.
 - a. It was moved that the GB-CESU will be renewed and a renewal application will be made.
 - b. UNR will continue to serve as Host Institution if the renewal application is approved and USU will serve as a senior partner. The role and responsibilities will be worked out between UNR and USU and described in the renewal application.
 - c. It was decided that UNR will investigate opportunities and means to help in the coordination of multiple organizations that are involved, some of the functions of which, may be overlapping and duplicative.
 - d. UNR on behalf of the GB-CESU will call a meeting sometime in the first week of November (NOV 1-5) to discuss coordination with GBRMP, GBEP, GBCESU, and GBLCC.
 - e. A facilitator will be identified through the help of Angie Evenden (NPS) to conduct the meeting.
 - f. Nat Frazer, Rang Narayanan and Mike Collopy will get together to identify the role of host institution, senior partner and other expectations of the CESU upon renewal.
 - g. Rang/Collopy will contact federal agencies and universities to get input on a new set of action plans for the renewal application.
 - h. UNR will also describe the new coordinator arrangement through the UNR VP's office and resource commitments in the proposal.
 - i. Tom Fish will request a formal letter from Provost Johnson on UNR's commitment to the CESU upon renewal.
 - j. Rang/Collopy will request an expert directory from all partners and will provide an Excel template.
 - k. Rang/Collopy will compile all the CESU projects by requesting information from all partners.
9. An update of GBRMP(Chambers), GBLCC (Rang and Frazer) and GBEP (Rang)activities were provided.
10. USFWS designated Laurie Averill-Murray to replace Steve Caicco.
11. BLM will decide on who will replace Nora Devoe at a later date.
12. NPS will have a search for a new coordinator to replace Angie Evenden.
13. The meeting adjourned at 3:00 pm

GB-CESU Conference Call – Agenda

May 11, 2011

1. Ball State University application to join the GB-CESU (letter of intent and other materials sent in previous email)
2. Nevada Department of Agriculture application to join the GB-CESU (letter of intent sent in previous email)
3. Great Basin Consortium (GBC) (<http://environment.unr.edu/gbcesu/about/gbconsortium.html>); 20 Jan 2011 meeting notes attached)
4. Fall 2011 Meeting of the GB-CESU (possibly in conjunction with other GBC members)
5. National CESU education products – suggestions for research highlights

GB-CESU Conference Call – Meeting Notes

Present on Call: Laurie Averil-Murray (USFWS), Colden Baxter (ISU), Paul Doescher (OSU), Kim Dow (BLM), Chris Lauver (NPS), Bruce Peterson (NRCS), Sue Phillips (USGS), Kurt Pregitzer (UI) and Paul Verburg (DRI)

- I. Request for feedback on the Great Basin Consortium draft page:
<http://environment.unr.edu/consortium/index.html>
- II. GB-CESU Annual Meeting for Fall 2011
 - a. Discussed proposal to convene all Great Basin Consortium organizations (i.e., GB-CESU, GB-RMP, GB-LCC, GB-RI, and GB-EP) and whether to hold separate or joint business meetings
 - i. Benefits of joint meeting
 1. Commonality of topics and attendees
 2. Groups can meet during breaks/lunch to address specific issues
 3. Limiting travel for multiple organizational members
 - b. Briefly reviewed draft template for meeting organization in GBC meeting notes
 - c. Agreed to move forward with joint planning committee for joint meeting: Collopy (GB-CESU), J. Chambers (GB-RMP), Mike Pellant (GB-LCC, GB-RI), and R. Narayanan (GB-EP)
- III. National CESU Office requests CESU projects to highlight in education products they are developing
 - a. Looking for successful, long-term and high-profile projects
 - b. Need suggestions for research highlights
 - i. SageSTEP – suggested by Paul Doescher (OSU)
- IV. Discussed Ball State University's request to join the GB-CESU
 - a. Application process listed online; if approved, amendment wouldn't be created until after the new Cooperative Agreement was in place
 - b. Comments
 - i. Chris Lauver (NPS) – NPS has additional research that they like for BSU to conduct and are interested in developing an ongoing relationship with them.
 - ii. Colden Baxter (ISU) – Not sure if the research will extend past Dr. Bernot's involvement. If approved, would recommend revisiting the institution's involvement in the future. No real downside.
 - iii. Paul Verburg (DRI) – Didn't get a sense of how BSU would benefit the GB-CESU
 - iv. Michael Collopy (UNR)

1. BSU can be revisited at the next renewal (every five years).
 2. Will reach out to BSU and stress the importance of broadening their institution being actively involved in the CESU (i.e. conference calls, annual meetings, other collaborative research, etc.).
 3. Will ask them to articulate how they anticipate benefitting the GB-CESU.
 4. Will discuss transitional/logistical issues with them during the shift to the new cooperative agreement
- v. General consensus was to extend an invitation to join the GB-CESU
- V. Nevada Department of Agriculture Application
- a. Received letter of intent, no complete application yet
 - b. Comments
 - i. Paul Verburg (DRI) – Uncomfortable with the application and concerned about cap on overhead. Could potentially open a door for other state agencies to go this route.
 - ii. Michael Collopy (UNR) – It is not clear from the letter what the specific nature of their contribution would be. Suggests that he reach out to Tina Mudd (the agency’s point of contact) for clarification. Has some apprehension about not being open to involving interested state agencies, but understands DRI’s concerns.
 - iii. Paul Verburg (DRI) agrees
 - iv. Kurt Pregitzer (UI) – Supports considering state agencies for membership in the CESU and doesn’t want to see them fall away
 - v. Michael Collopy (UNR) – Will contact NV Dept of Agriculture (T. Mudd) with specific questions to determine intent (i.e. funding vs. outreach)
 - c. Consensus was to entertain a complete application from the NV Dept. of Agriculture
- VI. Revisiting other agencies – proactively reach out for applications
- a. There was support for re-contacting federal agencies (i.e., DoD, USACE) that had previously expressed interest in the GB-CESU and see if there was continued interest.

PROTOCOL FOR ADDITION OF NEW PARTNERS TO THE GREAT BASIN CESU

I. SUMMARY

The GB-CESU Executive Committee herein delineates the policies pertaining to the application process for admission of additional organizations into membership in the GB-CESU. The fundamental feature of these policies is that candidate organizations will be evaluated using steps similar to those used when the founding membership was defined. The Executive Committee will base its decisions on application materials and an interview. The addition of a new Federal Agency or a new Partner Institution must be approved by all GB-CESU Executive Committee members. Consistent with Article III.C of the GB-CESU Cooperative Agreement (<http://environment.unr.edu/gbcesu/downloads/GBCESU-Agreement.pdf>), new members will be added through an amendment to the agreement. And, "Amendments shall be in writing, signed, and agreed to by all signatories to this Agreement".

II. APPLICATION PROCESS

Prospective member organizations, whether solicited or unsolicited, are required to provide the appropriate application materials described below. Based on review of these materials, the Executive Committee will determine whether or not to proceed with the interview stage of the admission process.

a. APPLICATION MATERIALS

- i. A federal agency seeking membership must submit to the Host University a letter of interest stating that their agency is a current member of the CESU Council, and that they are prepared to fulfill their responsibilities as a Federal Agency Member of the RM-CESU, including the payment of the one-time assessment of \$10,000 to the host University.
- ii. An academic organization seeking membership as a Partner Institution must submit to the Host University a letter of interest confirming that they have reviewed the general CESU descriptive materials and the GB-CESU Cooperative and Joint Venture Agreement, and that they agree to abide by all of the responsibilities and expectations of partner institutions.
 1. After the Host Institution has received a letter of interest, the prospective new academic Partner Institution may be asked to submit a written proposal that includes the following ten elements:
 - a. A contact person, along with their title, address, phone number, fax, and email address;
 - b. A list of programs relevant to the Federal land management, environmental and research agencies, including degrees offered and number of graduate students in each program;
 - c. A list of 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);
 - d. A list and brief description of relevant facilities and equipment;
 - e. A list and brief description of relevant experience in research, technical assistance, and education linked to CESU Network objectives (such as previous grants, special project awards and so forth);
 - f. A list and description of current formal and informal relationships with Federal land management, environmental and research agencies;
 - g. A description of services to be provided to the participating Federal agencies and Federal employee(s) by the university;

- h. A description of the actual, assessed overhead rate (not to exceed 17.5%) to be charged and cost items to which the rate is applicable for activities conducted through the CESU, including research, technical assistance, and educational services;
 - i. 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
 - j. Staff, faculty time, educational services and other commitments the university wishes to offer the CESU, including amount, kind, dollar value and duration of assistantships, work-study funds, clerical support, and so forth.
- iii. A non-academic, non-federal institution/agency seeking membership as a Partner Institution must submit to the Host University a letter of interest confirming that they have reviewed the general CESU descriptive materials and the GB-CESU Cooperative and Joint Venture Agreement, and that they agree to abide by all of the responsibilities and expectations of partner institutions.
 - 1. After the Host Institution has received a letter of interest, the prospective new non-academic, non-federal Partner Institution may be asked to submit a written proposal that includes the following three elements:
 - a. A contact person, along with their title, address, phone number, fax and email address;
 - b. A brief description of research, educational and technical assistance contributions and services to be offered to federal land management, environmental and research agencies; and
 - c. Other information relevant to CESU Network objectives.
 - iv. After receipt of these materials, the Executive Committee will consider the nomination.

b. INTERVIEW

If a majority of the Executive Committee agrees that the nomination appears to have merit, an invitation will be extended to the appropriate official to attend the next Executive Committee meeting. This meeting may be required, as it provides an opportunity for the proposed new member to make a presentation to the committee addressing the components of the Application Materials in Section II.A above. The committee is free to ask additional relevant questions, as well as answer any questions that the proposed new partner may have.

III. ADMISSION DECISIONS

The Executive Committee will discuss the merits of the proposal and put the nomination to a vote, Federal Agency nominees and Partner Institution nominees are elected to membership by consensus of the Executive Committee. For successful applicants, the Host Institution works with the national CESU staff to prepare an appropriate amendment to the list of members in the GB-CESU Agreement. The amendment will be signed and agreed to by all signatories to the Cooperative Agreement. The amendment and documentation of the application process will be forwarded to the CESU Council for concurrence. Following the Council's approval of the amendment, the Host University will issue a formal letter of acceptance welcoming the new partner, and distribute the amended agreement to all GB-CESU member organizations.

Great Basin CESU

Cooperative Ecosystem Studies Unit

**Strategic Plan
2006-2011**

GREAT BASIN COOPERATIVE ECOSYSTEM STUDIES UNIT

Strategic Plan for 2006-2011

Introduction

The Great Basin Cooperative Ecosystem Studies Unit (GB-CESU) was established in 2001 for a five year term as part of a national network of Cooperative Studies Units to provide research, technical assistance and education to federal agency resource managers.

The GB-CESU encompasses the Great Basin region including portions of five states: Nevada, California, Idaho, Oregon and Utah. The CESU is hosted by the University of Nevada, Reno. The GB-CESU is now a partnership among 14 universities and 8 federal agencies. Members of the GB-CESU are: University of Nevada, Reno, Oregon State University, University of Idaho, Idaho State University, Boise State University, Utah State University, University of Utah, Brigham Young University, Great Basin College, University of Nevada, Las Vegas, Desert Research Institute, University of California – White Mountain Research Station, California State University – Fresno and Texas A&M University, Kingsville, Bureau of Land Management, USDA Forest Service Research, National Park Service, Agricultural Research Service, US Fish and Wildlife Service, Natural Resources Conservation Service, Bureau of Reclamation, and US Geological Survey – Biological Resources Division. The GB-CESU also has several designated cooperators including state agencies, tribes and NGOs. The host institution provides leadership and administrative support for the GB-CESU in conducting a program of research, technical assistance and educational activities in partnership with GB-CESU members.

After the first five year term expired in 2006, the GB-CESU was reviewed and approved for a second five year term in 2006. The Strategic Plan outlined below is a revision of the 2002 strategic plan based upon review comments and will guide GB-CESU operations until August 2011 when the GB-CESU Cooperative and Joint Venture Agreement expires. These plans may be revised as necessary by the Executive Committee comprised of representatives from the 22 partner institutions.

Mission and Objectives

The mission of the Great Basin Cooperative Ecosystem Studies Unit is a partnership for research, technical assistance and education to enhance understanding and management of natural and cultural resources within the Great Basin.

As stated in the August 2006 GB-CESU Cooperative and Joint Venture Agreement, the objectives of the GB-CESU are to:

- Provide research, technical assistance and education to federal land management agencies, environmental and research organizations and their potential partners;
- Develop a program of research, technical assistance and education that involves the biological, physical, social, and cultural sciences needed to address resource issues and interdisciplinary problem-solving at multiple scales and in an ecosystem context at the local, regional, and national level; and
- Place special emphasis on the working collaboration among federal agencies and universities and their related partner institutions.

Critical Needs and CESU Program Elements

The growing concern regarding ecosystem health in the Great Basin has been clearly outlined by the Bureau of Land Management in two publications - "Out of Ashes, An Opportunity" in November, 1999, and "The Great Basin: Healing The Land" in April, 2000. The BLM Great Basin Restoration Initiative (GBRI) was launched based on the problems and issues documented in these publications. The needs addressed in these publications also provide a good foundation for the work of the GB-CESU. Protection of wildlife and habitats, restoration of range and forest lands, their ecosystems and their health, economic health and stability of rural economies and their industries, and enhancing our understanding, appreciation and preservation of historic cultural resources pose major challenges to land management agencies in the Great Basin.

Encompassing all these concerns are three overarching, transcendent themes that form the root causes of virtually all contemporary concerns and issues. They are:

1. The rapid transformation of ecosystems and loss of associated plant and animal species across the region.
2. The inability of users, managers, and the general public to agree on what the causal factors are driving these ecosystem changes and the lack of agreement on prudent courses of action or solutions to the resulting problems.
3. The contrast between the scales of time and space at which Great Basin ecosystems actually operate, versus the much more limited scales of time and space at which most people view them, use them, and attempt to manage them.

The ecological health and resiliency of many important components of the Great Basin are clearly in jeopardy. Attachment A to this Strategic Plan provides a detailed description of priority research, technical assistance and education themes of concern to all partners and cooperators in the GB-CESU for 2006-2008. A special emphasis will be placed on developing CESU projects across multiple university and agency partners to address critical needs of the region.

Planning Context

The first context for the Strategic Plan is the set of recommendations from the external review of the GB-CESU for the period 2001-2006 by Bob Alverts (Attachment A). Major recommendations of this review are (a) to set up an informal process for agencies to send their needs through federal managers to the host university for dissemination to increase participation among all partners, agencies, involvement of minorities, seek greater collaboration and develop large-scale thematic projects; (b) to develop a better outreach communication plan through website, workshops, etc.; (c) to enhance connections to other environmental and scientific groups and (d) more frequent communication among partners through conference calls, etc.

The second context is the set of priorities and emerging critical issues in the Great Basin. The Great Basin Environmental Program (GBEP) is an initiative that is being developed by the host institution as a mechanism to attract more resources to direct towards critical environmental issues of the Great Basin. The initiative attempts to bring federal and state agencies, universities, and NGOs within a collaborative organizational structure to address the identified six thematic issues. These include (i) wildfires, (ii) water use and conservation, (iii) land use and health, (iv) culture and communities, (v) biodiversity and

(vi) urban, rural, wildlands mosaic. The GB-CESU will be an integral part of this initiative to identify and prioritize research, educational and technical assistance project needs and develop targeted proposals.

The governors of four western states (NV, UT, ID, and WY) have recently signed a Memorandum of Understanding (MOU) called “War on Cheatgrass” with a pledge to cooperate on the key issue of wildfires and invasive species in the west. The host institution, on behalf of the CESU, is working to assist Nevada state agencies to establish a coalition of Great Basin federal, university and state agencies to develop management and on-the-ground project implementation. CESU partner agencies and universities will be members of the coalition.

The third context is the need to increase communication between (i) host institution and partners providing information on opportunities to collaborate on CESU projects, employment and internship opportunities for students, external funding sources and availability, etc., (ii) federal agencies and partner universities in disseminating information about specific project needs and providing opportunity for increased collaboration among CESU partner institutions, (iii) CESU and external constituents on project reports and findings, outcomes and impacts and future needs for research, education and technical assistance.

The fourth context is the need to develop the CESU into a more “vibrant” entity by increasing participation and activities of the unit and by bringing members together and facilitating work on natural and cultural resource issues in the Great Basin. This may require informing partners and agencies of the advantages of the CESU framework, facilitating the use of the CESU system for projects, working to improve the administrative and organizational structure of the CESU and developing administrative support resources to accomplish the above.

Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis

It is important to understand the strengths, weaknesses, opportunities and threats (SWOT) within the planning context outlined above to chart a course of action plan. The SWOT analysis provided below helps delineate the strategic action plans that take advantage of the GB-CESU’s strengths and capitalize on the opportunities available in the region. Overcoming the weaknesses and counteracting the threats are important in defining the action plans for the next three years.

Strengths

- The GB-CESU has no shortage of critical issues to focus on in the Great Basin.
- Extremely competent university faculty knowledgeable about the Great Basin and interested in working collaboratively on regional issues.
- Federal agencies that are active and supportive of collaborative efforts with universities.
- Closely tied network of federal and university researchers who are mutually supportive of each others’ efforts.
- Integrated research and outreach programs at land grant universities through their experiment stations and cooperative extension offices as mandated by funding requirements of USDA, CSREES.

Weaknesses

- The CESU’s administrative structure does not lend itself to target resources to accomplish its strategic objectives.

- Coordination among multiple federal agencies located in different states throughout the region on prioritizing issues, avoiding duplication of efforts and promoting pooling of resources.
- Communication and coordination on management issues between federal and state agencies.
- Lack of authority or mechanism under the existing CESU agreement to disseminate agency needs among partners and direct resources to established priorities set by the CESU.
- Low indirect cost rates inhibit willingness of university partners to increase membership.
- Mechanisms for quality control of CESU projects by the CESU are absent.
- No continuing funding for administrative activities of the CESU, such as initiating new large thematic proposals, increasing participation by developing multi-institutional projects involving minority institutions and outreach efforts of completed projects.

Opportunities

- Increasing incidences of wildfires, expansion of invasive species and competition for water resources due to population and economic activities in the region provide for increased opportunities for the CESU to assist with research, education and technical assistance needs of agencies.
- Initiatives like the Great Basin Restoration Initiative (GBRI), Great Basin Environmental Program (GBEP), Great Basin Research and Management Partnership (GBRMP), National Environmental Observatory Network (NEON) provide opportunities to develop a new research agenda to address emerging critical issues.
- Working with state agencies to form a coalition of federal, university and state agency partnerships to address management issues and to implement on-the-ground projects, providing new opportunities.

Threats

- Partner federal agencies use mechanisms other than the CESU to fund projects to partner universities for various reasons.
- RFPs through “Grants.gov” by some agencies circumvent CESU cooperative/joint venture agreements process.

Strategic Goals

University and agency partners and cooperators of the GB-CESU will collaborate to address the critical needs identified in Attachment A in coordination with the national CESU network. The following strategic goals will guide the actions of the GB-CESU until August 2011 when the GB-CESU agreement will be up for renewal. These goals complement the GB-CESU objectives and provide a vision and framework for a proactive CESU in the Great Basin.

- Cooperate in the development and implementation of high quality research, education and technical assistance projects.
- Increase engagement of university researchers in federal agency projects and improve the relevancy of research in addressing management needs by ensuring that: 1) federal agency research, technical assistance and education needs are clearly articulated and communicated to university partners in a

timely fashion, and 2) federal managers remain aware of available university expertise and resources to apply to federal projects.

- Seek opportunities for all GB-CESU university and agency partners to be active participants in CESU projects.
- Provide encouragement for the development and implementation of effective multi-institution and multi-agency collaborations among GB-CESU partners to address the critical needs identified in Attachment B.
- Facilitate application of scientific results to land management by ensuring that results and outcomes of GB-CESU projects are made available to CESU partners and others through high visibility outreach programs.
- Maximize effectiveness of the GB-CESU partnership by integrating CESU projects and activities with other scientific programs and collaborations in the Great Basin.
- Facilitate opportunities for student research, internships and education that are pertinent to the needs of management and research agencies.
- Develop funding to enhance GB-CESU administrative support for the above activities.

Actions

The following actions are those that the GB-CESU anticipates undertaking over the next three years, 2008-2011 to meet its goals described above. These actions incorporate suggestions resulting from the 5-Year External Review of GB-CESU Operations (Alverts 2006).

A. Programmatic Strategies for Research, Technical Assistance and Education (2007-2011)

- Stimulate projects dealing with the critical needs of the Great Basin as identified by the GB-CESU.
- Facilitate development of CESU projects that involve multiple CESU academic members and partner agencies and address high-priority needs through topic specific working groups, on-line chat rooms and conference calls.
- Explore ways of engaging participation of all GB-CESU members and partners in one or more projects through improved and active communication between federal agencies and university partners.
- Hold or co-sponsor annual conference/workshop focused on needs identified by agency partners.
- Coordinate and integrate CESU projects and activities with other scientific collaborations in the Great Basin by ensuring CESU representation in appropriate meetings.
- Encourage federal partners to conduct an assessment of agency research, technical assistance and education needs and to convey this information as opportunities to the academic partners.

- Compile and update information on subject matter expertise offered by member academic institutions and make this information available and useful to partner agencies.
- Develop and implement creative and effective venues for communicating the results of CESU research, technical assistance and education projects to land managers, scientists and others (e.g. information alerts by email, websites, and conference venues).
- Increase opportunities for student involvement, including minorities in CESU projects and activities and encourage partner agencies to hire students.
- Increase awareness of CESU services and benefits among members and partner agencies.

B. Operational Effectiveness

- Hold semi-annual Executive Committee and Manager's Committee meetings (one face-to-face meeting per year and one conference call).
- Develop executive committee and managers committee operating principles and guidelines for: 1) responsibilities of member agencies and institutions, 2) committee composition, and 3) expected level of agency/partner participation.
- Develop and implement an annual work plan.
- Develop procedures for Host Institution to ensure coordination, internal communication, project identification, accomplishment reporting to CESU partners and the national program office, and record keeping. CESU members will assist Host Institution in annual reporting and record keeping efforts.
- Obtain financial support for a dedicated CESU Coordinator at the Host Institution.
- Develop and use communication tools for enhancing internal effectiveness and external visibility of the GB-CESU (e.g. website, brochure, info alerts emails with links).
- As appropriate, coordinate activities with the national CESU network.

Monitoring of Strategic Plan and Limitations

Each year at the in-person GB-CESU meeting the Executive Committee will assess how well operations are working and how well these plans are being implemented. Changes in operations or the strategic plan will be made as needed. Such changes will take into account performance of the GB-CESU relative to the plan and account for the issues and needs arising from member institutions and from managers, especially the Managers' Committee.

Some of the action items are contingent on availability of additional sources of funding to support administrative activities required to carry out the plan. While we will seek administrative support funding, the extent to which some of the action items will be accomplished will depend on the amount of funding that becomes available.

The extent to which the CESU can facilitate development of large, thematic CESU projects that involve multiple CESU members will depend on whether the CESU is made aware of specific project needs of agencies and a request made to respond to those needs.

The bilateral process of executing agreements between an agency and university PI without a process approved by and involving the CESU executive committee will render the CESU in a position of disadvantage in terms of facilitating development of large, thematic projects, controlling the quality of the projects, or ensuring projects are consistent with the strategic goals of the CESU.

Attachment A
EXTERNAL REVIEW OF
GREAT BASIN COOPERATIVE ECOSYSTEM STUDIES UNIT (GB-CESU)

Bob Alverts, Science and Management Consultant
January 30, 2006

This review is offered at the request of the CESU National Coordinator and the Great Basin CESU (GB-CESU) Manager's Committee. The report follows guidelines provided by the CESU National Office in their November 2005 letter and those of the GB-CESU Managers' Committee. It builds on information from the Self-Assessment by the host university, and telephone interviews conducted with technical representatives from partner universities and federal agencies.

Criterion 1: Were the formal commitments identified in the CESU agreement (and amendments) fulfilled?

1. *Did the host university and partner institutions conduct with participating federal agencies a program of research, technical assistance and education related to the CESU objectives?*

Yes, the GB-CESU has engaged in a program of research, technical assistance, and education on behalf of federal natural resource management. As of December 2005, 115 projects, representing a broad range of subject areas and disciplines, have been initiated at a funding level of nearly \$23 million. Most projects are multi-year, so only a portion of them have been completed to date. Research projects represented 50 percent of the workload in the first 5 years, while technical assistance projects represented 44 percent of the total, and educational projects represented 6 percent. Several of those interviewed noted that the CESU program is a definite asset to federal management agencies, and that CESU projects have sparked additional work and funding opportunities for the partners.

2. *Did the host university and partner institutions develop and adopt with participating federal agencies a CESU role and mission statement?*

Yes, the host institution, the University of Nevada-Reno, College of Agriculture, Biotechnology and Natural Resources (UNR), along with other GB-CESU partners and cooperators, developed a mission and vision statement as part of the Strategic Plan prepared in a 2002 workshop.

3. *Did the host university and partner institutions develop and adopt with participating federal agencies a multi-year CESU strategic plan?*

Yes, as noted above, a strategic plan for the GB-CESU was completed in 2002 and developed with considerable input from resource managers, partners and cooperators.

Both academic and agency technical representatives expressed concern over the potential for reduced federal budgets over the next five year period, and what implications that may have for the GB-CESU and national program network.

4. *Were periodic meetings of the CESU convened for the purpose of collaboration and coordination of CESU activities?*

Yes. The GB-CESU has hosted at least one meeting each year, and those interviewed spoke highly of the annual meetings. In addition to annual meetings, a Great Basin Summit was held in the fall of 2003. That workshop, attended by over 100 participants, provided information on current research and explored new thematic subjects for collaborative research, technical assistance and education. The 2004 GB-CESU annual meeting was jointly held in collaboration with the Colorado Plateau (CP-CESU) and Rocky Mountain CESUs (RM-CESU). Annual meetings have included field trips, summaries of research projects, and discussion on future issues, needs, and growth opportunities for the program.

5. *Did the host university and partner institutions develop with participating federal agencies annual work plans to guide the activities of the CESU?*

Yes. Goals and objectives are contained in the 2002 GB-CESU Strategic Plan and annual objectives have been adopted at annual meetings. Partner agencies have also articulated their needs to the universities.

Those who were interviewed noted that, in spite of efforts to have an open process for advancing projects, a number of partner institution faculty members and agency resource professionals remain unaware of the CESU program.

6. *Were students encouraged to participate in the activities of the CESU?*

Yes. Students were involved in specific projects, many of which were used in graduate level Masters theses and PhD dissertations. Most projects have had student involvement.

7. *Did the host university and partner institutions offer educational and training opportunities to participating federal agencies' employees?*

Yes, as noted above, six percent of all projects were classified as educational. Most technical assistance activities and a number of research projects also had an education/training component, including: field trips, workshops, handbooks and consultations. The technical representatives who were interviewed noted that, as the program matures, more projects are being developed to include a blend of research, technical assistance and education. They also noted that the national training centers of the Bureau of Land Management (BLM) and Fish and Wildlife Service (FWS) continue to serve primary training and education functions for those agencies. However, there is significant potential to expand science delivery and education-related activities through university extension programs and use of the Community College partner institution.

8. *Did the host university provide basic administrative and clerical support, access to campus facilities, suitable office space and basic services for federal personnel to be located at the host university?*

Yes, the host institution (UNR) has provided required services and office space to two federal employees (one from the National Park Service (NPS) and one from BLM) who serve as GB-CESU Coordinators and members of the Managers' Committee. In addition, UNR has provided overall program coordination and administrative support for the GB-CESU, with staff currently donating

time on a pro bono basis. With 15 academic partners, 8 federal partner agencies, and 9 cooperators, the administrative workload is larger than that of several other CESUs. UNR has largely subsidized the program, charging work to other university accounts in order to keep a rainy day fund from the \$10k contributions of each federal agency (paid as agencies joined each network unit). The fund account would have been exhausted by now had UNR not donated time and expenses from other university accounts.

9. *Did the host university coordinate activities, as appropriate, with the partner institutions and develop administrative policies for such coordination?*

UNR and the two federal agency CESU Coordinators worked with other academic and federal partners to develop administrative procedures for technical aspects of coordinating the GB-CESU. These are addressed in the Strategic Plan and have been covered at each annual meeting. Additional coordination and information sharing occurs through the GB-CESU website: <http://www.ag.unr.edu/gbcesu>.

Those interviewed spoke of the excellent shared leadership provided by the host university and Dr. Rang Narayanan, Associate Dean, UNR, and by Drs. Bert Frost, NPS Coordinator and Nora Devoe, BLM Coordinator.

Although informed of activities and invitations to participate, two of the partner institutions (both minority universities) have had no involvement in the GB-CESU and are withdrawing from the program. New minority institutions are being added (as described below).

It is also clear from partner interview comments, that several agency and university partners do not yet have a clear understanding of the CESU program or the processes involved to make it work. At least one academic partner spoke of the administrative process as being sometimes cumbersome, particularly for multi-party projects. The processing time for projects seems to vary between agencies. For example, one partner institution grew tired of waiting for BLM to complete administrative details for a planned activity, so they shifted funds from BLM to the NPS. Site visits and periodic workshops are recommended to build improved understanding of the program and its potential. In addition to university and agency technical representatives and executives, it is recommended that university and agency grants and contract staffs participate in these meetings.

10. *Did the host university establish a CESU Manager's Committee and convene annual meetings?*

Yes, as described in previous responses.

Criterion 2: Were the projects successfully completed, and was there effective delivery of relevant and high quality project results to managers, consistent with the mission of the CESU?

1. *Were projects conducted successfully, with all project deliverables accepted by collaborating agencies providing project funds?*

Since many of the projects have yet to be completed, this question cannot be answered fully. However, projects that have been brought to completion have included the appropriate

products. Those interviewed noted that several projects did not meet the original due date and had to be extended. The Principal Investigator (PI) on a project left the university before completion, requiring some adjustments to keep the activity on track. Another project is being disputed, and corrective actions are being taken on all projects for which there are issues. The best evidence regarding whether or not federal agencies have been served is their repeated use of the CESU, including multiple projects awarded to individual universities and to individual PI's, workshop leaders, etc. within the partner universities.

UNR has developed a database so all projects can be readily tracked and accessed. NPS and BLM projects have been entered in early testing. More work will be completed in the year ahead.

2. *Were some projects unsuccessful, with project deliverables rejected by collaborating federal agencies providing project funds?*

No unsatisfactory or unsuccessful projects have been identified. As noted above, a PI left a partner university before completing a project, requiring necessary changes to keep the activity on track. Another project is currently being disputed, and corrective actions are being taken concerning projects for which there are issues. In addition, several projects were not completed by the original due date, requiring time extensions. This is a situation that needs to be addressed.

3. *Did the host university and partner institutions provide effective delivery of relevant and high quality project results to managers, consistent with the mission of the CESU?*

As noted above, there are significant opportunities to improve effective delivery of project results. Annual meetings have been a useful tool for sharing current information and project results, as have professional society meetings and other workshops. The GB-CESU website also has the potential to better inform partners of completed projects. Several of those interviewed suggested the website not only be updated to stay current, but that it be expanded to include a list of completed projects, PI contact information, a summary of outcomes and results, and other relevant information.

Criterion 3: Was there involvement of the partner institutions as appropriate in the activities and projects of the CESU?

1. *Did partner institutions participate in activities of the CESU?*

Partner institutions participated in visioning, planning, and administrative activities of the GB-CESU as described previously. Thirteen of fifteen academic partners have participated in at least one annual meeting, and eleven of fifteen universities have had at least one CESU project. The two minority institutions (DQ University and Haskell Indian Nations' University) have not participated in either annual meetings or any projects. They are withdrawing from the GB-CESU. Two additional universities are being added as minority institutions: California State University at Fresno, already a GB-CESU partner, is being added as a minority institution as well; and, Texas A&M University, Kingsville is being added as a new minority institution partner.

As described earlier, all but four of the academic partners have at least one project underway at this time. Along with the minority institutions, no projects have yet been initiated for Great Basin College or the UC San Diego, White Mountain Research Station. The distribution of project participation over the life of the CESU is skewed toward three universities: Utah State University (USU), University of Nevada, Las Vegas (UNLV), and UNR. This is a pattern characteristic of at least three of the original CESUs (RM-CESU, PNW-CESU and CP-CESU), and most likely is reflective of two phenomena: 1) the NPS and BLM have located staff at the host university to help broker their activities. NPS and BLM personnel are likely more familiar with the resources of the host university and other partner land grant institutions than with other partners in the GB-CESU. Over time the effect of this phenomenon is likely to decrease; and 2) the academic partners with a high proportion of projects, are universities where the federal agencies have had long standing relationships, where their expertise in natural resource and environmental science is well known among the agencies. Since many projects come directly to principal investigators and educators, one should not be surprised that previous associations have produced a skewed distribution of projects over partners, especially during the first years of a new program such as CESUs.

Several of those interviewed suggested site visits to other university partners in order to improve understanding of the program and build opportunities, and to learn about the academic capacity at other partner institutions. They also suggested a rotating schedule for the annual meeting, and involving several of the universities in these meetings, who have had limited involvement in the program.

2. *Did partner institutions participate in projects of the CESU?*

Yes, as answered above. There are also nine additional cooperators in the GB-CESU. So far no projects have been established with them, and future project work remains problematic, as there are no indirect cost benefits granted them with respect to projects. However, these members remain interested in collaborating professionally because of the subject areas being worked on, and the progress being made on some of the major thematic issues in common.

Criterion 4: Did the CESU facilitate collaboration and substantial involvement among its federal agency partners?

The federal agencies were involved in all initial visioning, planning, and administrative aspects of the CESU. As described earlier, most projects are with the NPS, but BLM, FWS, NRCS, FS, and USGS are also involved. Not all federal partners are actively involved in projects. The Bureau of Reclamation (BOR) and Agricultural Research Service (ARS) are new members to the GB-CESU, and will be developing projects soon. Research agency partners (e.g., ARS, FS and USGS) also experience challenges with the low overhead rates, losing business as a result.

Overall Assessment:

Although there have been challenges to developing partnerships for research, technical assistance, and education for the GB-CESU, this CESU has clearly developed a viable program in its first five years. The program has grown to one of the largest in the CESU network, with fifteen university partners, eight federal partners and nine cooperators involved. Still others have expressed interest in joining. There has been shared leadership between the host university, federal coordinators and other partners. Most partners have been active; and 115 projects valued at \$23 million, and representing a broad range of disciplines and subject areas, have been implemented. Two minority institution partners have been inactive and are withdrawing from the CESU. New minority partners are being added to replace them.

Based on the information available for this assessment, a few phenomena are worth examining as the GB-CESU moves forward:

- 1) The number of partners who have joined this CESU is impressive, as is the volume of activity undertaken. The fact that federal agencies have continued to use the CESU is a testimony to its success. The skewed distribution of projects over the partner agencies and institutions should be studied to understand it better, and efforts taken increase involvement of the non-participating partners. Annual meetings should be rotated around the region and site visits to partners should be conducted to keep partners informed of program details, procedures, opportunities, capacities and contacts. As a tool for increasing participation in the program, an informal process might be set up that would have agencies send their needs through the federal coordinators to the host university, who in turn sends out the needs to all partners, seeking interest and involvement. Institutions that respond could work collaboratively on follow-up actions to implement and complete projects.
- 2) There should be a significant effort to get the new minority institutions actively involved in the GB-CESU.
- 3) Partners should find the means and appropriate forums to openly discuss and strategize on ways to take on new large scale, complex thematic issues (e.g., climate change, invasive species, water, fuels, etc.) applying the logic embedded in the Joint Fire Science Program project currently underway.
- 4) Although administrative procedures have generally worked well, additional efforts are needed for all partners (e.g., workshops, conference calls, etc.) to develop understanding of required procedures and lessons learned, so future difficulties can be avoided.
- 5) Several of those interviewed noted the need for a communications plan and improved communications, including routine reporting of current and future activities, along with information on administrative procedures and project results, and development of GB-CESU and national network calendars. Suggestions include periodic conference calls; workshops, including the national biennial workshops; site visits; a newsletter; and the GB-CESU website. The website should be updated and expanded to include information on completed projects, and include links and information useful to partners. The RM-CESU is seen as a website worth emulating. Hiring a communications specialist is also recommended.
- 6) The GB-CESU should seek opportunities to connect CESU program activities with other large environmental networks in the Great Basin (e.g., the National Science Foundation's (NSF) National

Environmental Observatory Network (NEON) and Consortium of Universities for Advancement of Hydrologic Science (CUAHSI).

- 7) The low indirect cost rate is seen as stifling significant involvement from several of the academic partners, several of whom cannot afford to be involved with a large project portfolio.
- 8) Finally, there are opportunities to significantly improve and expand education/science delivery activities.

The GB-CESU has had an excellent start and it offers a strong basis for continued success. Renewal of the GB-CESU agreement seems appropriate.

Attachment B
Great Basin Cooperative Ecosystem Studies Unit
Statement of Research, Technical Assistance and Education Critical Needs
2007-2009¹

Climate change may be the single most important factor driving future management of the Great Basin. Models currently predict a northward displacement of regional climates such that warmer and drier conditions will modify the existing climates throughout the Great Basin. Potential problems facing citizens of the Great Basin include: increases in catastrophic wildfire, continued spread of invasive species, displacement of fauna and flora in elevation and latitude, reductions in watershed capacities and potential decreases in the livability of many of the urban and rural environments of the Region. The Great Basin CESU is uniquely poised to provide a leadership role in dealing with the critical needs of the future.

Future Research Focus

Promote Research on Fire Ecology and Post-Fire Rehabilitation. Wildfires were historically a natural process for maintaining ecosystems, but historical intensive grazing, fire suppression, rangeland vegetation mechanical treatments and the introduction of cheatgrass and other non-native species have significantly altered fire regimes and ecosystem responses to wildfires. Urban development at the wildlands interface has seriously increased wildfire risks to human safety, public and private property. Wildfires are expected to increase in the future. Vegetation management strategies such as fuel reduction, prescribed fire, controlled grazing and green-strip planting need further evaluation. Scientists and land managers accept the inevitability of cheatgrass as a permanent part of the Great Basin landscape; however, methods for controlling the spread and dominance of cheatgrass on rangelands must be developed and where feasible, native plant communities restored. In addition, new invasive species are possible on already degraded sites. Restoration of rangelands devastated by wildfire must at the present time be considered "a great experiment". There is inadequate understanding of management strategies for ecosystem protection, prevention of nonnative plant species dominance, restoration of critical wildlife and other species habitat, or appropriate revegetation and restoration techniques. Research is needed in key areas including: development of pre-fire management strategies to restore natural fire processes; containment and control of fire; safe and effective utilization of prescribed burning; post-fire plant diversity; post-fire re-establishment of native plant species in low precipitation areas; and protection of important cultural resources from fire damage such as rock art and other artifacts.

Inventory Ecosystem Conditions, Collect Baseline Data, and Establish Monitoring Systems. Multiple uses of public lands in harmony with ecosystem protection and restoration is current public policy. Current, and often conflicting, uses include mining, livestock grazing, vegetation management treatments, military training, wildlife and wild horse habitat, wilderness and species protection, and recreation. It is expected that these conflicts will increase under climate change. Although the public generally supports these uses of range resources, specific uses are highly objectionable to certain individuals and interest groups. Much of the controversy over public land management is closely related to one or more of the above uses. The scientific and land management communities must take a more proactive role in providing the appropriate science and knowledge for public decisions on appropriate natural resource uses. Providing reliable, factual information regarding ecosystem condition, trends, and the impacts of various uses and management strategies will require the large-scale application of

assessment and inventory tools with long-term possibilities for longitudinal comparisons. Long-term studies are needed to address the following: ecosystem changes associated with climate change, assessment of land use change over time; identify, monitor, and preserve healthy ecosystems, including reference sites with temporal variation; develop a monitoring system and a research strategy to more broadly and intensively utilize the database created; more effectively utilize GIS and remote-sensing methodologies to address inventory and monitoring needs; establish monitoring technologies to more accurately assess the impact of global changes on ecosystem dynamics; and inventory and document the location of important cultural resources.

Assess the Impact of Invasive Plant Species on Native Plant Populations and Ecosystem Processes.

Scientists, land managers and others agree that the most serious threat to ecosystem health in the Great Basin is the invasion of non-native plant species. The BLM estimates that over 25 million acres of the Great Basin are now approaching annual grass dominance, with cheatgrass and other annual bromes as the dominant non-native species. These species aggressively compete with native perennials following wildfire, and then alter the wildfire cycle after achieving dominance, making it virtually impossible for native shrubs and grasses to recover. The Nevada Weed Association has identified over 30 invasive weed species in Nevada alone that are viewed as serious threats to the rangeland and riparian ecosystems. Tall whitetop is aggressively spreading in riparian and other areas. Tamarisk, or salt cedar, is increasing throughout Great Basin riparian ecosystems and, if not controlled, may become one of the dominant water consumers in the region. Leafy spurge, widespread in the northern states, has been introduced in the northern regions of the Great Basin. Invasive species are so widespread that near-term research results are urgently needed to: contain and control noxious weeds; improve the post-control restoration of native species; protect and preserve valuable cultural resources from deleterious effects of control procedures.

Increase Our Understanding of the Basic Causes for the Decline in Populations of Threatened Species and the Potential for Restoration.

The conservation of biological diversity, species of plants and animals, and the genetic information they contain is a major concern in the Great Basin. This concern increases under the threats of climate change. Because many species and subspecies of plants and animals are unique to the Region, many of these species may be threatened with extinction. For example, in Nevada between 140 and 160 species and subspecies are listed under the U.S. Endangered Species Act as threatened or endangered, are candidates for listing, or have been proposed for listing. Recently, once-common species that are dependent on sagebrush ecosystems such as the Sage Grouse, the pygmy rabbit, and several species of songbirds also have declined precipitously and may be petitioned for listing as well. Thus, one of the major challenges for land management in Nevada is to conserve the state's unique biological heritage while providing for human needs. The GB-CESU offers the mechanism to integrate first-rate science, meaningful public input, and significant interagency cooperation to effectively address this critical issue. More specifically, near-term initiation of long-term research is necessary to better understand the environmental conditions necessary for the successful restoration of threatened species and develop management procedures to alleviate pressures on threatened populations.

Protect and Preserve Human and Cultural Resources. Concurrent with the threats to ecosystem health and survival are threats to the survival of human and cultural heritage, both past cultures and present rural and tribal lifeways. Urban expansion and uncontrolled outdoor recreation threaten archaeological resources that document past lifeways, as well as traditional and sacred properties of Native Americans. The Great Basin is rich in cultural history and tradition, and recent survey results indicate strong urban support for protecting valuable human and cultural resources. Urban respondents to the survey

strongly supported the protection and enhancement of rural communities and families, viewed them as the primary managers of their public lands, and insist that all stakeholders be involved in the public land decision-making process - particularly those most affected. Population shifts may occur under the changing climates of the Great Basin. Economic decision-making models are needed at the enterprise, community and ecosystem level that identify both economic opportunities and impacts of public land decisions. Models that can anticipate future scenarios and inform decision makers of the consequences of alternative decisions are also needed. Critical, short-term research results are needed to develop and utilize more effective needs assessment approaches to identify the highest priority tribal needs while maintaining sensitivity to cultural, social, and historic land use practices.

Promote Effective Use of Water, Soil and Related Resources. The Great Basin is an arid region with extremely limited water supplies. Water resources coming into the Great Basin originate from watersheds mostly on public lands. Water is vital to the health of the Basin's unique ecosystems and the economic viability of its communities. Efficient use of the Basin's scarce water supplies while protecting water quality will be critical to meeting the future water demands of the region. Competition for water resources has intensified as water demands continue to increase for non-traditional uses such as water quality improvement, protection of endangered and threatened species, maintenance of stream riparian zones and wetlands and water-based recreational activities. Continued conflicts can be expected as climate change occurs and new mechanisms evolve for water reallocation and transfers from one use to another. Water conservation, augmentation of water supplies, better management and operation of reservoirs, and conjunctive use of surface and groundwater offer some alternatives to cope with emerging new water demands. Compliance with the Clean Water Act, Federal reserved water rights, Tribal water rights, clean up of superfund sites, and mine de-watering are other important issues facing the Great Basin. Near-term initiation of long-term research is needed to: better understand surface and ground water resources including flow delineation, recharge rates, water quality, water recycling and water reclamation methodologies; delineate the impacts resulting from the reallocation of water and changes related to water rights; better understand soil nutrient dynamics, microbial activity and landform processes related to the functioning of watersheds; gain insight into the historic and cultural view of water and the traditions that surround its use.

Education and Outreach

Education. Federal agencies are concerned with the education and recruitment of qualified resource personnel for the future, as well as providing continuing education opportunities for existing staff. GB-CESU partners will work together in: seeking opportunities for university student participation (including minorities) in federal projects; utilization of internships and special hiring authorities to engage students as potential agency employees in high-priority research projects; ensure that academic programs are relevant to agency needs and qualify students for federal employment; increase offering of continuing education courses and certification programs for agency personnel; and help increase undergraduate enrollment in natural resources and relevant programs to meet future agency personnel needs.

Outreach. Increasing public understanding and education regarding basic ecosystem processes and the impact of public policy decisions may increase support for application of science-based management strategies. The need for a knowledgeable public has never been greater as agency professionals grapple with a growing assortment of environmental, ecological, social and cultural complexities that make the implementation of sound management decisions increasingly difficult. Priority areas for increased emphasis include: creating opportunities for university faculty and land managers to interact, communicating concerns and exploring solutions to real problems; increasing agency and university

capabilities to more effectively meet Native American Tribal needs; increasing outreach education capabilities and opportunities for public officials, media staff and the general public.

Technical Assistance

One of the most serious challenges to implementing effective land management strategies is the lack of understanding of how best to achieve many of the agency partners' stated goals. The federal land management agencies and their personnel are very good at what they do, but in many situations the science and technology for implementing practices to achieve mandated outcomes are not well understood or documented. Therefore, technical assistance is needed in the following high priority areas: improving the dissemination and accessibility of technical information and data, synthesis of current scientific understanding of priority topics, and developing systematic procedures based on current knowledge and processes that will improve the land manager's ability to assess ecosystem health.

¹The GB-CESU Statement of Research, Technical Assistance and Education Critical Needs will be reviewed and updated every two years.

Great Basin Consortium

Great Basin Cooperative Ecosystem Studies Unit (GB-CESU)

Great Basin Environmental Program (GB-EP)

Great Basin Landscape Conservation Cooperative (GB-LCC)

Great Basin Research and Management Partnership (GB-RMP)

Great Basin Restoration Initiative (GB-RI)



Great Basin Cooperative Ecosystem Studies Unit

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.



Great Basin Cooperative Ecosystem Studies Unit

Objectives of the GB-CESU:

- Provide research, technical assistance and education
- Develop research, technical assistance, and education programs needed to address interdisciplinary problem-solving at multiple scales and in an ecosystem context
- Facilitate collaboration among federal agencies and universities



Great Basin Cooperative Ecosystem Studies Unit

Unique Role:

- Part of a national program that provides a funding mechanism for transferring project funds from federal partners to universities

Partners/Collaborators:

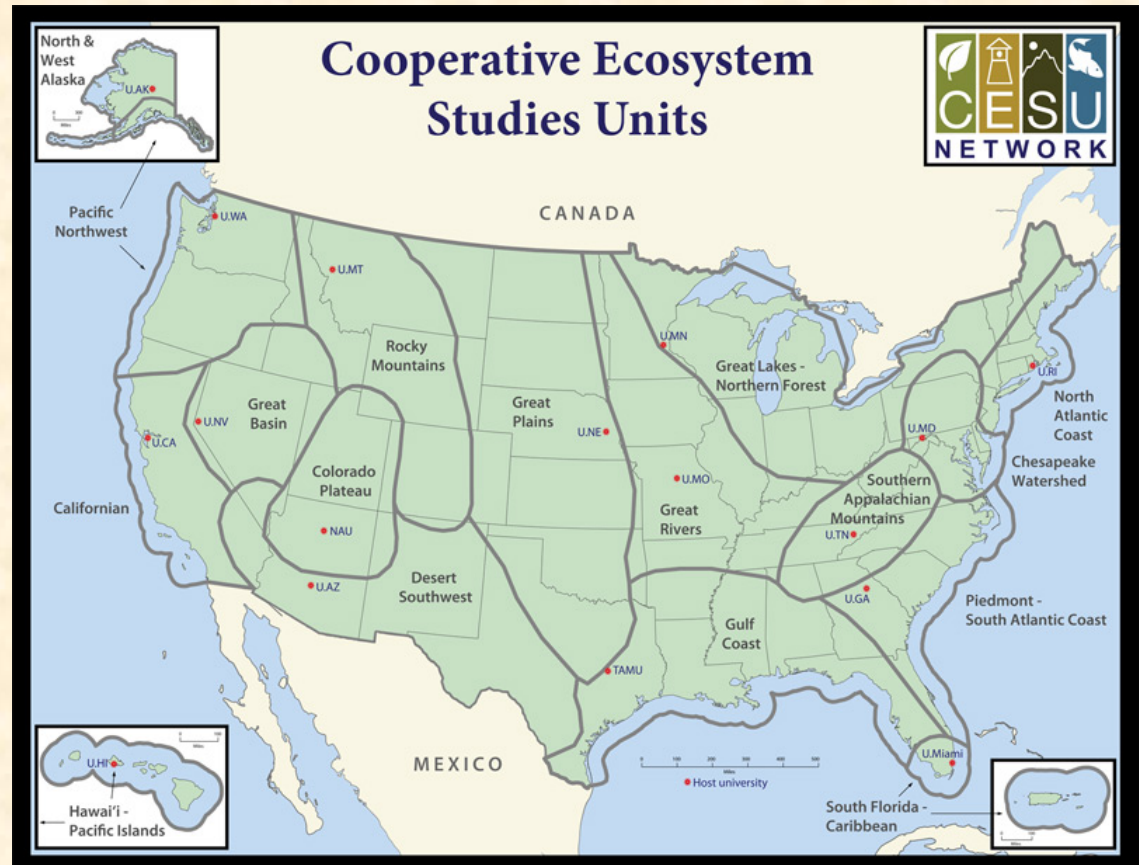
- Universities and federal agencies

Funding/Support:

- Projects supported with federal funds through a cooperative agreement

Staffing:

- In-kind



Great Basin Cooperative Ecosystem Studies Unit

Established in 2000

Cooperative Agreement renewed for 2011-2016

14 university partners

8 federal partners

Research Objectives of 5-yr Strategic Plan:

- Fire ecology and post fire rehab
- Inventory ecosystem conditions
- Assess impacts of invasive plants
- Understand causes of decline in populations of threatened species
- Protect and preserve human and cultural resources
- Promote effective use of water, soil and related resources



Great Basin Cooperative Ecosystem Studies Unit

2006-2011 Accomplishments:

- 277 projects involving 12 of 14 academic partners
- \$55 million in project funding

Source of funding:

- BLM: 87 projects; \$26.4M
- NPS: 124 projects; \$24.1M
- NRCS: 4 projects; \$160K
- USFWS: 40 projects; \$3.4M
- USGS: 22 projects; \$1.1M
- USFS & ARS projects funded through alternate instruments



Great Basin Cooperative Ecosystem Studies Unit

Purpose:

The Great Basin Cooperative Ecosystem Studies Unit (GB-CESU) is a partnership between universities and federal agencies to provide research, education and technical assistance in the management of land and other related natural resources of the Great Basin. The GB-CESU has been in operation since 2001.

What it is:

A cooperative /joint venture agreement between 14 universities and 8 federal agencies

A program of research, education and technical assistance involving biological, physical, social and cultural aspects of the ecosystem to address resource and management issues in the Great Basin

Encourages multi-institutional, interdisciplinary approaches to problem solving in an ecosystem context at the local, regional and national level

Offers an efficient mechanism for transferring funds between agencies and partner institutions to accomplish its objectives

What it is not:

Not a substitute for grants and contracts

Not a funding mechanism where projects are not cooperative/joint venture

Not an instrument to be used when the scope of the projects are different from the stated purposes or mission of the CESU

Not an organization that lobbies for funding

What is Unique:

Only organization that has an efficient mechanism for funding cooperative/joint venture projects

Has a low indirect cost rate to keep project costs low

Emphases collaboration as opposed to competition for project funding

Specifically allows federal agency managers and scientists to use the knowledge and expertise residing at the universities