

# Great Plains Cooperative Ecosystems Studies Unit



A QUARTERLY REPORT OF ACTIVITIES

Volume 1, Issue 1

C. Lockert, editor  
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## Welcome! NRCS Joins the GP-CESU

The Executive Committee of the GP-CESU recently unanimously voted to accept the Natural Resource Conservation Service (NRCS) as our sixth federal agency partner. Their membership is official as of August 27, 2004. We look forward to developing a long working relationship with NRCS, and assisting them in meeting their client land management needs. Our technical representative for NRCS is Dr. Sheryl Kunickis, please contact her to discuss possible future collaborations. She can be reached at the address provided at the end of

the article.

This is the fourth amendment to the original GP-CESU Cooperative and Joint Venture Agreement. Since being established in October of 2000, we have added five university and two federal agency partners. Currently, Kansas State University is preparing a proposal to be considered as a new university partner in the GP-CESU.

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## Upcoming GP-CESU Review and Renewal

The second round CESUs are approaching their five-year anniversary dates in 2005. The cooperative/joint venture agreements for these CESUs will be up for renewal at that time. This includes the GP-CESU! We have received guidelines for the renewal from Dr. Gary Machlis and the CESU Coun-

cil. The objectives of the CESU review and decision on renewal are to:

- 1) assess mutual consent in continuing the activities of the CESU,
  - 2) evaluate the activities of each CESU
  - 3) renew each agreement, as appropriate.
- continued on p.2

## MARK YOUR CALENDARS!

CESU  
NATIONAL  
NETWORK  
MEETING WILL  
BE HELD  
JUNE 21-23,  
2005 IN  
WASHINGTON,  
D.C.

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## Upcoming review and renewal continued

Overview of the review and renewal process:

- 1) The host university prepares a letter of interest describing the interest and intent of the host and each of its non-federal partners to renew the CESU. Deadline is January 21, 2005.
- 2) The host university and non-federal partners prepare a brief self-assessment. Deadline is

January 21, 2005.

- 3) The CESU manager committee prepares a brief review and recommendation to the CESU Council concerning renewal. Deadline is March 11, 2005.
- 4) The CESU manager committee identifies 1-3 external reviewers to prepare an independent review and recommendation to the Council. Deadline is March 11, 2005.

- 5) The CESU Council will review the materials and decide on the renewal of each CESU in May 2005.

We will be contacting our university collaborators to determine your intent to continue the agreement and for assistance with the self-assessment. Taking into account the upcoming holidays and semester break, we do not have a large time frame to work with.

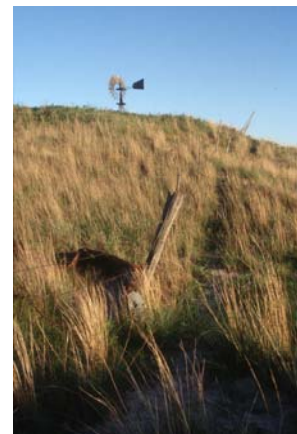


Photo courtesy of Dave Wedin, School of Natural Resources, University of Nebraska

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## What's New on the Web: <http://greatplains.cesu.unl.edu>

We continue to update the web site and are continuously working to make it better. If you have suggestions, please let us know. Our on-line project library provides a brief summary of on-going projects and those that have been completed are marked with a "Final Report" icon. By following this link, you will find either the entire final report or a final report abstract. We would also like to include any publications that have resulted from the work. If you are a PI that has a publication from a GP-CESU

project, please send us the citation information.

Under RESEARCH NEEDS/National Park Service, you will find a list of needs for each park in the Great Plains CESU region. This is a good resource identifying possible research/technical assistance projects in the parks. The NPS Comprehensive Call for proposals will be out this month, the proposals are due in January. Take this opportunity to review the research needs and determine if you may be able to

assist a park in developing a scope of work to submit for funding. Contact information for resource managers' is available at the same location.

Finally, we are working to develop a searchable expertise database for the web site. Our partner technical representatives will receive information on this via email. Please pass the information on to faculty throughout your respective institutions, and encourage participation.

NPS

COMPREHENSIVE  
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AND SUBMIT A  
PROPOSAL

Also on our Web site:

- How to initiate a project through the GP-CESU
- Download the NPS Task Agreement Summary form
- Upcoming meetings and conferences



## Project Spotlight by Gary Willson, NPS Research Coordinator

### Shipwrecks and Related Sites on the Missouri River between Fort Randall, South Dakota and Sioux City, Iowa

Investigator: Dr. Annalies Corbin, East Carolina University

Historic records document approximately 60 steamboat wrecks in the Missouri River within the boundaries of the states of South Dakota and Iowa. In addition to steamboat wreck sites, a number of relict support facilities includ-

ing landings and docks lie along the river. This research compiled information from historic newspaper accounts, a number of shipwreck databases, and several key archival sources to determine which shipwrecks and related sites may be found on the Missouri River between Ft. Randall, South Dakota, and Sioux City, Iowa. This stretch of the Missouri is included within the Missouri National Recreation River (MNRR). Forty-five shipwrecks or associated sites were documented. For each shipwreck, a general description and his-

tory of operation of the steamboat is provided and, if available, the date the boat sank or was destroyed and the general location of wreckage is given. The MNRR is using this information in a new interpretative program on the history of steamboats on the middle Missouri River.



HAVE SOMETHING TO SHARE WITH US?  
SEND YOUR NEWS AND  
ANNOUNCEMENTS TO CHRISTINE LOCKERT  
(CLOCKERT2@UNL.EDU) FOR INCLUSION  
IN THE QUARTERLY NEWSLETTER.

### Analyzing Landscape Structural Changes Using Image Interpretation and Spatial Pattern Metrics

Investigator: Dr. Sunil Narumalani, University of Nebraska

Park ecosystems, especially those in small park units, are impacted by changing land use outside park boundaries as well as internal management actions. This research integrates remote sensing and landscape metrics to quantify land use/land cover changes at Wilson's Creek National Battlefield, Missouri. Aerial photography and IKONO satellite data were used to develop land cover classification change detection and landscape metrics techniques were used to analyze landscape classes, while a threat vector analysis assessed resi-

dential migration towards the park. Landscape pattern changes revealed natural land cover classes, such as oak/hickory forest, have been impacted by human activities primarily through regulariza-

tion of their boundaries. The study area has experienced tremendous residential growth beginning in the 1960s. An analysis of growth revealed the park faces multi-directional threats.

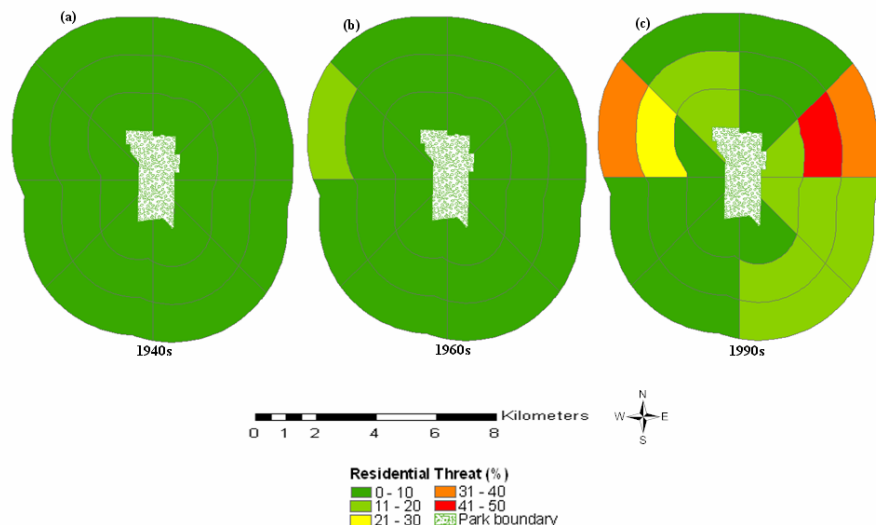


Figure: A threat vector analysis based on the ratio of residential land growth in each segment during the (a) 1940s, (b) 1960s, and (c) 1990s



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*The mission of the Great Plains Cooperative Ecosystem Studies Unit is to determine the ecological state of public lands of the Great Plains and examine its future within the context of private lands. Our focus is on improving the scientific basis for managing ecosystems in the region, through more active an interactive technical assistance, research, and education among the partner institutions and agencies.*

**GP-CESU Members:** *University of Nebraska (host), Black Hills State University, Colorado State University, Langston University, Little Priest Tribal College, North Dakota State University, South Dakota State University, Texas A&M University, University of Minnesota, University of North Dakota, University of Oklahoma, University of South Dakota, and University of Wyoming. Bureau of Land Management, Bureau of Reclamation, National Park Service, Natural Resource Conservation Service, US Forest Service, and US Geological Survey.*

Visit us online at

<http://greatplains.cesu.unl.edu>

## A Summary of FY04 Activities From the NPS Research Coordinator



Niobrara National Scenic River, Nebraska. Photo by Carmen Thomson

In FY 2004, the NPS funded 19 projects for \$459,868. Over the 4-year history of the GP-CESU, the NPS has obligated \$1,951,793 representing half of the total GP-CESU funding.

The Natural Areas Association will hold its 32nd annual conference in Lincoln, Nebraska, during September 21-24, 2005. The GP-CESU is a primary organizer of the conference.

The GP-CESU partnered with the Desert Southwest CESU to jointly fund a project to document the fire history of Capulin Volcano National Monument from an analysis

of fire-scarred ponderosa pine trees. The project's investigator is located at the University of Missouri, the host of the Upper Middle and Mississippi Valley CESU.

The GP-CESU participated in a Department of Interior agency meeting on the genetics of bison herds on federal lands and initiated a NPS project through the UMMV-CESU and the University of Missouri to produce a set of management and culling recommendations that better mimic natural considerations and processes for regulating herds at Badlands National Park, Theodore

Roosevelt National Park, and Wind Cave National Park.

The GP-CESU organized and moderated a session on Great Plains restoration at the 15th annual conference of the Society for Ecological Restoration. The session included papers from five researchers who were working in six park units. In addition, three resource managers from the parks attended the conference through financial support provided by the GP-CESU.



**Projects FY 04 (a complete list of all projects, with principle investigators included is located on-line)**

<b>Partner</b>	<b>Agency</b>	<b>Year</b>	<b>Title</b>	<b>Amount</b>
CSU	BLM	fy2004	Pre-Fire Treatment Effectiveness	\$303,892.00
NDSU	NPS	fy2004	Assess the Impacts of International lake Level Management by Using an Interdisciplinary Approach: Benthic Invertebrate Community Structure	\$29,519.00
OU	BLM	fy2004	HERP Inventory	\$18,000.00
SDSU	NPS	fy2004	Badlands National Park Bighorn Sheep Reintroduction	\$23,865.00
SDSU	NPS	fy2004	Terrestrial Insect Inventory	\$14,375.00
SDSU	NPS	fy2004	Add'l Funding: Swift Fox Reintroduction	\$34,435.00
SDSU	NPS	fy2004	Add'l Funding: Monitor for Chronic Wasting Disease	\$24,000.00
UMN	BOR	fy2004	3D Geology and Regional Inventory of Groundwater Resources	\$309,135.00
UMN	NPS	fy2004	Third Year Funding: Document changes in reservoir mngt.	\$86,782.00
UND	BOR	fy2004	Ecology of Moose in the Northern Great Plains	\$16,000.00
UNL	BOR	fy2004	GIS Database Development for Kansas and Nebraska Reservoirs	\$29,730.00
UNL	NPS	fy2004	Add'l Funding: Red Cedar Removal on Bird and Small Mammal Popn	\$77,109.00
UNL	NPS	fy2004	Restoration of Threadleaf Sedge	\$14,405.00
UNL	NPS	fy2004	Add'l Funding: Resource Needs Catalog	\$12,000.00
UNL	NPS	fy2004	Add'l Funding: Unique Geometry of Waterfalls	\$23,770.50
UNL	NPS	fy2004	Plant Inventory at Missouri National Recreation River	\$9,805.00
UNL	NPS	fy2004	Develop Management Plan for the Historic Osage Orange Hedgerow	\$8,918.00
UNL	NPS	fy2004	Historic American Engineering Record (HAER) of the Titan One Missile Complex 2A	\$18,000.00
UNL	NPS	fy2004	Archeological Investigations at Hopeton Earthworks National Historic Landmark	\$4,371.00
UNL	NPS	fy2004	Add'l. Funding: Resource needs catalog	\$10,000.00
UNL	NPS	fy2004	Add'l. Funding: Land use/land cover interpretation	\$3,825.00
UWYO	BLM	fy2004	Lynx Database	\$12,500.00
UWYO	BLM	fy2004	Little Missouri Antelope Trap	\$9,752.00
UWYO	BLM	fy2004	Interagency BTPD	\$7,000.00
UWYO	BLM	fy2004	Interagency HTEF	\$7,000.00
UWYO	BLM	fy2004	Sage-Grouse Landscape Survey	\$6,000.00
UWYO	BLM	fy2004	Pygmy Rabbit Ecology Study	\$10,000.00
UWYO	BLM	fy2004	Mapping Cheatgrass - phase I	\$9,000.00
UWYO	BLM	fy2004	ADP NEPA	\$61,000.00
UWYO	BLM	fy2004	Hydrography Dataset	\$50,000.00
UWYO	BLM	fy2004	Mapping Cheatgrass - Phase II	\$13,435.00
UWYO	BLM	fy2004	Three Rare Plant Surveys	\$19,000.00
UWYO	BLM	fy2004	Blowout Penstemon Study	\$8,000.00
UWYO	BLM	fy2004	Survey Aspen Woodlands	\$4,000.00
UWYO	BLM	fy2004	Collect Biologist Data	\$60,000.00
UWYO	BLM	fy2004	Coal Bed Methane Information	\$20,000.00
UWYO	BLM	fy2004	Reservoir Modeling	\$50,000.00
UWYO	NPS	fy2004	Add'l Funding: translocation guidelines	\$18,540.00
UWYO	NPS	fy2004	Develop Long-term Translocation Guidelines for the Black-Footed Ferret Population at Conata Basin, Badlands NP	\$22,530.00
UWYO	NPS	fy2004	Development of Short-Grass and Mixed-Grass Conceptual Models for the Southern Plains Inventory and Monitoring Network	\$23,617.50