December 2005

Center for Grassland Studies Newsletter, Winter 2005, Volume 11, No. 1

Center for Grassland Studies

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Volume 11, No. 1 Winter 2005

Grass Seed Production Research in Nebraska Panhandle

by David Baltensperger, Department of Agronomy and Horticulture, UNL

Grass seed production has been an expanding industry in the Nebraska Panhandle the past 10 years. University of Nebraska researchers started by working to develop improved irrigated production techniques for types of Kentucky bluegrass, tall fescue, and perennial ryegrass. The first phase was formation of a research team. Members of the existing UNL Turfgrass Science Team partnered with specialists at the Panhandle Research and Extension Center with expertise in the areas of agronomy, pathology, entomology and weed science, and with agronomists from adjacent states.

Sideoats grama on a research plot at the Panhandle Research and Extension Center.

Commercial production of Kentucky bluegrass has become part of irrigated production in the region. Producers are finding the value of including grass seed production in their rotations because of the positive impact on subsequent bean, beet, corn and potato production. Working with producers, a complete package for regional production has been developed. The industry also has developed enhanced cleaning facilities to handle increased production. Several companies are now willing to contract for production in the region. A summary of techniques appropriate for grass seed production is included in a UNL publication, "Kentucky Bluegrass Seed Production in Western Nebraska and Eastern Wyoming" (EC 03-180).

Dan Laursen, chair of the High Plains Grass Seed Producers Association, serves as a mentor for first-time producers under a grant with the North Central Sustainable Agriculture Research and Education Program. Laursen says the learning curve is steep and management more intensive than most Panhandle crops, but turf seed production can be quite rewarding. Dr. Robert Shearman, who has served as co-leader of the research team for several years, suggests that producers can expect three to four years of production from this perennial crop before fields need to be re-established. To keep the fields in production this long, it is imperative that producers exercise good post-harvest management. This is the critical time period for growing a seed crop the following year rather than a much lower-value hay crop. Along with post-harvest management, the turf research team has investigated planting methods and timing, weed control strategies, disease and insect management, and effects on rotations to subsequent crops.

In more recent years, emphasis has been placed on forage and cool-season reclamation grasses including western wheatgrass, intermediate wheatgrass, crested wheatgrass and Indian ricegrass. Intensive production techniques developed for turf seed production have been found to have good potential for these crops. While seed demand for an individual species is very limited, the opportunities across the spectrum of reclamation and

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The Center for Grassland Studies is a unit within the University of Nebraska-Lincoln Institute of Agriculture and Natural Resources. It receives guidance from a Policy Advisory Committee and a 50–member Citizens Advisory Council. This newsletter is published quarterly.

Note: Opinions expressed in this newsletter are those of the authors and do not necessarily represent the policy of the Center for Grassland Studies, the Institute of Agriculture and Natural Resources or the University of Nebraska.

Martin A. Massengale ..... CGS Director
Pam Murray ..... CGS Coordinator
Jan Shamburg ..... CGS Secretary
Anne Moore ..... Newsletter Layout

From the Director

Recently, I had the opportunity to attend part of the Nebraska Turfgrass Conference, which is organized and conducted largely by our University faculty working in the area of turf. It is noteworthy how fast changes and improvements are occurring in turfgrass management and development.

New cultivars (varieties) that have shown improvement in a number of characteristics are constantly coming into the marketplace. Also, there have been major improvements in equipment and management practices. Each new cultivar may require a different set of management practices for optimum performance.

Turf is used in numerous ways, and all of us connect with it in some manner. Lawns, golf courses, athletic fields, parks and playgrounds are just some of the uses. In all instances, people prefer a high-quality turf, which requires careful management practices after establishment.

There is no one grass that is perfect for all turf areas. One must ask what grass best meets the intended use, what level of maintenance is required, and where the location will be. The same species may be considered valuable in one location, yet a weed and/or invasive species in another location. A case in point is annual bluegrass. In the far northern climates, it is often used for turf purposes, but farther south it is considered both a weed and an invasive species. It is a pesky problem in Nebraska, as it looks good early in the year, then flowers and produces seed, matures and leaves a brown or dead spot in the turf. It is a prolific seed producer and may reappear for many years if the seeds are allowed to mature and drop to the soil. Some new herbicides show promise of controlling annual bluegrass if they are applied correctly.

With the increasing scarcity of water, many people are looking for a grass that will use less water, withstand longer periods of drought, require less mowing and less fertilizer and pesticide use while still maintaining its dark green color and a high-quality turf. Everyone wants a grass that is disease and insect resistant and easy to maintain.

Other topics that are receiving attention in turfgrass today are molecular genetics and genetically modified plants. Molecular genetics provides a tool to study and manipulate gene expression. There may be one or many genes controlling different characteristics in plants. For example, there could be a "green" gene that delays senescence and the plant stays green longer, a "dwarf" gene controlling height of plants, or a gene for lignification in the cell wall where the leaves would be stronger and stiffer.

Genes from different species of plants can now be transferred between the two, creating a transgenic (genetically modified) plant. There has been a rapid increase in use of these transgenic plants in several field crops, but they have not become widely used in turfgrasses to date. There are some economic, agronomic and environmental benefits to transgenic plants (biotech crops), but there can also be some disadvantages such as transferring a gene to a weedy species and developing a resistant weed. These kinds of activities make for an exciting and challenging future.

Workshops, conferences, symposia and discussion groups are all important in keeping our turf maintenance people up-to-date and skilled in techniques using the latest technology. Also, they are just some of the ways land-grant universities serve their clientele base.

M. A. Massengale

Can Perennial Grass Pastures be Profitable in the Great Plains?

by Rob Mitchell, Ken Vogel, and Gary Varvel, USDA-ARS, Lincoln, NE
Terry Klopfenstein (Animal Science), Dick Clark (Agricultural Economics), and Bruce Anderson (Agronomy and Horticulture), UNL

Many producers wonder if planting perennial pasture and grazing is an economically viable alternative use for dryland acres. Two important concerns are the cost of grass establishment and the livestock performance potential of these perennial pastures. In a recent study, we monitored pasture establishment costs, steer performance, and net return per acre for perennial grass pastures in eastern Nebraska.

Cattle dine on a meal of Indiangrass.

Bonanza big bluestem was no-till seeded into soybean stubble in May 1998 near Mead, NE in one-acre pastures. Weeds were managed with herbicides in 1998. Fertilizer was applied as ammonium nitrate at 100 lb N/acre in 2000, 2001, and 2002. Each one-acre pasture was stocked with three crossbred yearling steers (650-960 lb) in mid-June 2000, 2001, and 2002. Pastures were grazed continuously until forage stubble height was about six inches.

We calculated the cost of production from actual costs and published custom rates for seeding, fertilizer, and herbicide application. All production inputs are presented in $/acre (Table 1). Pasture establishment costs were amortized for 15 years at 5% interest, and are presented per acre based on an 80-acre pasture. No costs were included for lost production in 1998 and 1999 before grazing because hay could have been harvested, for livestock transportation costs, or for livestock sales commissions. To determine the pasture value, we assumed steers were purchased in June and sold in August when the pastures were fully utilized. Although this is not a typical approach to marketing steers, the value of steers coming off pasture minus the value of steers going onto pasture provided a straight-forward approach to determine gross dollar return per acre (Table 2). Cattle prices are based on an average of Nebraska markets for June and August in 2000, 2001, and 2002. Annual precipitation was 23 inches in 2000, 27 inches in 2001, and 25 inches in 2002, all below the long-term average of 28 inches.

Table 1. Production inputs ($/acre) for Bonanza big bluestem pasture establishment and management near Mead, NE in 2000, 2001, and 2002. All inputs are presented in $/acre and assume the establishment of an 80-acre pasture.

		Management			
Input	*Establish*	*2000*	*2001*	*2002*	*Mean (2000-2002)*
Seed Cost	46.00	-	-	-	-
Custom Plant	10.00	-	-	-	-
Fence[1]	92.06	-	-	-	-
Water[2]	106.65	-	-	-	-
Fertilize	0	22.00	22.00	22.00	22.00
Custom Spread	0	4.50	4.50	4.50	4.50
Herbicide	8.75	8.75	0	8.75	5.83
Custom Spray	5.00	5.00	0	5.00	3.33
Burn	0	3.00	3.00	0	2.00
Annual Inputs	-	43.25	29.50	40.25	37.67
Amortization[3]		24.60	24.60	24.60	24.60
Total Inputs	268.46	67.85	54.10	64.85	62.26

[1]Assumes $4,910/mile for a 4-wire barbed-wire fence on 80 acres.
[2]Cost for 120' well, tank, and solar pump ($8,532) on 80 acres.
[3]Establishment cost amortized for 15 years at 5% interest on 80 acres.

Table 2. Net return ($/acre) for Bonanza big bluestem pastures grazed near Mead, NE in 2000, 2001, and 2002.

	2000	*2001*	*2002*	*Mean*
Animal Weight On (lb/acre)	2,358	2,472	2,544	
Market Price On ($/cwt)[1]	85.33	90.50	78.52	84.78
Animal Value On ($/acre)	2,012.08	2,237.16	1,997.55	
Animal Weight Off (lb/acre)	2,868	2,835	2,886	
Market Price Off ($/cwt)[2]	77.99	86.59	72.70	79.09
Animal Value Off ($/acre)	2,236.75	2,454.83	2,098.12	
Gross Return ($/acre)	224.67	217.67	100.57	
Inputs ($/acre)	67.85	54.10	64.85	62.26
Net Return ($/acre)	156.82	163.57	35.72	118.70
Beef Gain (lb/acre)	510	363	342	405
Net Return/lb of gain ($)	0.31	0.48	0.10	0.30

[1]Average June (On) steer prices for each weight class in Nebraska each year.
[2]Average August (Off) steer prices for each weight class in Nebraska each year.

We started pasture establishment with a blank slate, so costs include not only the costs associated with grass establishment, but also fencing and water development, and assumed 80-acres was a reasonable pasture size for water development. Pasture establishment costs were $268/acre and were amortized for 15 years at 5% interest, resulting in a $25/acre amortization (Table 1). Seeding costs were 17% of the pasture establishment costs, whereas fence and water development accounted for 34% and 40% of the pasture establishment costs, respectively. Weed control was only 5% of the pasture establishment costs, and is a good reminder that controlling weeds during grass establishment is a good investment. Annual pasture inputs ranged from $30 to $43/acre and averaged $38/acre for the three years. Fertilization accounted for at least 61% of the annual inputs. Total pasture inputs ranged from $54 to $68/acre, and averaged $62/acre. We did not include the cost to purchase land, interest costs on livestock loans, government cost-share programs, or the implications to taxes, soil erosion, wildlife habitat, or carbon sequestration.

Beef production averaged 405 lb of beef/acre (Table 2). The continuous grazing period was 62 days in 2000, 43

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Grass Seed Production Research in Nebraska Panhandle (continued from page 1)

forage species could play an important niche in regional crop production.

Producer Carl Thomas notes that a different thought process is required for these species, as each requires different adaptation of equipment for successful production. It is important to remember that seed production is on a different scale than commodity production. Prices for seed on a per-pound basis are frequently in the range of commodity crops on a per-bushel basis. Labor and management costs are much higher on a per-acre basis. Consequently, it becomes very important to shift gears in thinking about both costs and returns, and to fully explore the market potential before growing these crops.

Combining Kentucky bluegrass within a seed production field on the Dan Laursen farm in Box Butte County, Nebraska.

One of the exciting findings by the team has been how effective establishment techniques used for turfgrass seed production have been on developing good seed production stands for all of the cool-season grasses. New varieties of intermediate wheatgrass developed by the USDA Agricultural Research Service and University of Nebraska are now under production in the region.

Research is currently focused on warm-season forage and reclamation grasses adapted to the region. Current work includes blue grama, sideoats grama, little bluestem, sand bluestem and switchgrass. Preliminary results indicate that these species also have potential for the region. A recent UNL NebGuide (G03-1531), outlines these warm-season production techniques and lists items to consider when planning to grow these crops. The research team has identified improved weed control strategies as a priority for this group of crops, as many of the available herbicides used for these crops when grown for forage production have a negative impact on seed yield.

Efforts have also been initiated to look at the potential for bentgrass seed production. Initial work by our research team was focused on winter hardiness. We were able to demonstrate that seed production plots over-wintered well. Subsequent work shows that it has potential in the region, and that we have the additional benefit of providing natural isolation from other bentgass species. Consequently, the region may have the potential to produce seed of some of the first genetically modified turfgrass types. While not a large market, the use of bentgrass for golf course greens provides a consistent high-value market for the best cultivars of this species.

David Baltensperger and Dan Laursen standing in a field of western wheatgrass on Laursen's farm.

Work on annual ryegrass for seed production led to the observation that we have a great environment in which to screen for winter hardiness in this species. This has led to the development of improved winter-hardy types. Annual ryegrass is extensively used in the south for winter forage production by annually over-seeding summer pastures in the early fall. It has been limited in how far north it can be grown. Through a cooperative project with the University of Florida, a group of potential new annual ryegrass cultivars has been developed. The cultivars combine good rust and gray leaf-spot resistance required for southern production with improved winter hardiness and good forage yield. We expect the first cultivar from this effort to be released this year.

Many species and cultivars of turf, forage and reclamation grasses provide the Nebraska Panhandle with the potential to take advantage of increased seed demand. Infrastructure developed by the industry and production technology developed by the seed production research team make this an exciting opportunity for regional producers.

Additional Reading:

Margheim, J.F., D.D. Baltensperger, J.T. Cecil, R.C. Shearman, D.C. Laursen, A.P. Merrigan, J.M. Krall, C.D. Yonts, R.G. Wilson, S.D. Knox, J.E. Watkins and G.L. Hein. 2003. Kentucky Bluegrass Seed Production in Western Nebraska and Eastern Wyoming. EC 03-180. (Contact the CGS for ordering information.)

Nielsen, E.L., D.D. Baltensperger, J.F. Margheim, R.C. Shearman, P.A. Burgener, J.M. Blumenthal, R.M. Harveson, G.L. Hein, R.G. Wilson, and K.P. Vogel. 2004. Irrigated Production of Warm-Season Grass Seed in the High Plains. NebGuide G 03-1531-A. Online at ianrpubs.unl.edu/horticulture/g1531.htm.

Forum – Monitoring Rangeland Health for an Experiment in Public Land Ownership

Rangeland is land that is dominated by grasses, forbs, and shrubs and managed as a natural ecosystem. Nearly 40 percent of the United States is classified as rangeland – about 800 million acres – much of it in the West. Rangelands not only provide the basis for low-input and renewable forage for grazing, but also serve as watersheds, recreational areas, and natural environments for native plants and wildlife.

A large portion of U.S. rangelands are public lands managed primarily by the Bureau of Land Management, the National Park Service, and the Fish and Wildlife Service within the U.S. Department of the Interior (USDI), and the Forest Service in the U.S. Department of Agriculture (USDA). These agencies have a long history of land stewardship, and they are constantly challenged to find a balance among the diversity of goods and services provided by our nation's rangelands. But conflicts increasingly occur as diverse segments of the public compete for those goods and services.

With those conflicts in mind, the recent creation of the Valles Caldera National Preserve in the Jemez Mountains of northern New Mexico has led to a new approach to managing natural resources on public lands.

Scientists at the ARS Jornada Experimental Range near Las Cruces, New Mexico, are providing data on rangeland health for management of the Valles Caldera, 310 miles to the north. The Jornada is one of more than a dozen ARS rangeland research locations strategically placed to study rangeland in different ecosystems.

The Valles Caldera is an 88,900-acre former ranch – now a federal nature preserve that is the first to be run by a board of individuals rather than by a federal agency. The preserve is operated by a trust – a government corporation administered by a nine-member board. The forest supervisor of the Santa Fe National Forest and the superintendent of Bandelier National Monument sit on the board. Other members include individual citizens representing ranching, wildlife, and conservation interests. It is a grand experiment in the management of public lands – the first such experiment since the USDI and USDA models of public land management.

The Valles Caldera Preserve is known for its huge meadows, abundant wildlife, meandering streams, and remarkable scenery – all within a 12- to 16-mile-wide volcanic caldera, or cauldron.

The federal government bought Valles Caldera in 2000 for $100 million as part of the National Forest System. The rangeland monitoring arrangement gives Jornada scientists the chance to apply the rangeland assessment techniques they specialize in. It is one of their largest applications to date, in terms of acreage.

ARS, along with other federal and state agency and institution collaborators, provides the basic biologic and ecological research to this sociopolitical experiment in land management. The monitoring efforts, which also involve training of public volunteers, will allow Jornada researchers to test monitoring guidelines on land that is very different from what they are accustomed to working with. The Valles Caldera is really an oasis in the desert – a mountainous area with grass growing at a high enough elevation to avoid the desert heat.

By law, the Valles Caldera is required to pay for itself through user fees by 2015. Small ranchers in northern New Mexico pay to graze 1 to 25 cattle per ranch in this oasis all summer. The first two years, due to drought conditions, fewer than 2,000 cattle grazed there each summer. Citizens throughout New Mexico value the Valles Caldera for its scenery and wilderness. Hikers pay to hike, and in the fall, elk hunters pay to hunt. The purpose of the trust is to manage these lands sustainably for multiple uses, including fishing.

It is a highly visible place to demonstrate the application and benefits of ARS research. Jornada scientists have been going into the Valles Caldera twice a year for the past two years to measure vegetation and test soil. Within 10 days of collecting the data, they give it to the Valles Caldera Board of Trustees and post it on their website at usda-ars.nmsu.edu/JER/data_index.htm for public viewing. ARS also helps pay a small local business to do some of the tests and measurements.

The Jornada scientists are using the Interpreting Indicators of Rangeland Health guidelines they published in 1999 and revised this year jointly with the U.S. Geological Survey, USDA's Natural Resources Conservation Service, and the Bureau of Land Management. They are also using a version of the Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems, being published this year by the Jornada with contributions from these and other agencies. These scientific methods and guidelines are tools for ranchers and land managers who choose to use them in their programs. They are leading the way in monitoring and protecting rangelands like Valles Caldera in the United States, Mexico, and around the world.

Evert K. Byington
ARS National Program Leader
Rangeland, Pasture, and Forages
Beltsville, Maryland

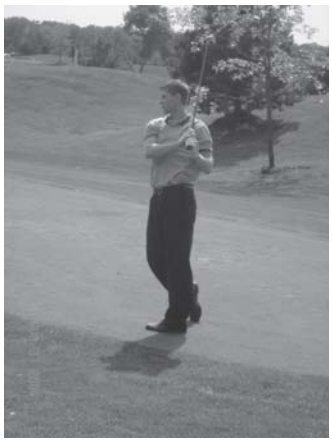
Source: Reprinted from *Agricultural Research* magazine, July 2004, published by the USDA Agricultural Research Service, online at www.ars.usda.gov/is/AR/archive/jul04/form0704.htm.

PGM Program Swings into 2nd Semester

The first semester was very busy for Professional Golf Management students and staff. Second semester isn't much different! In January PGM staff and three students attended the 2005 PGA Merchandise Show in Florida where they met with their counterparts from other PGA/PGM™ programs as well as with PGA personnel. They also talked with people who visited our exhibit during the show. This is THE major event for people in the golf industry, with an average attendance around 40,000. All PGM schools are represented at this annual event.

The PGM Student Club is planning a fund-raiser for later in the semester that will involve a tournament, silent auction and dinner. Information will be posted in the Student Club section of the Web site (pgm.unl.edu).

High school students interested in attending a golf camp in Lincoln have two options this summer. PGM staff members have been working with U.S. Sports Camps to organize a five-day Junior Resident Camp for more advanced golfers. Campers will receive daily instruction from PGA professionals with video analysis, play at local courses, and attend sessions on rules, etiquette and the mental game of golf, and participate in evening activities. Camp dates are June 20-24, and cost is $685. For more information, see www.ussportscamps.com.



PGM student Brad Thorberg hits a ball at Wilderness Ridge Golf Course early in the school year.

PGM Director Terry Riordan and Coordinator Scott Holly, a PGA professional, will again conduct the Big Red Golf Camp sponsored by the University of Nebraska Cooperative Extension 4-H Youth Development program. Campers will have on-the-course and in-the-classroom sessions throughout the week. The camp will conclude with a tournament and awards banquet. The camp, which is open to high school students at all levels of playing ability, will be June 12-17. Registration fee is $440 if received by the April 1 priority deadline, $490 by the final deadline of May 1. A brochure on the Big Red Camps is available online at bigredcamps.unl.edu, or call 402-472-2805 to have one mailed to you.

The PGM student room is used for watching golf instruction videos and programs on the plasma TV, accessing the Internet, reading reference materials, registering for tournaments, holding small meetings, studying, or just visiting with fellow PGM students.

2005 Nebraska Grazing Conference to be Aug. 8-9

Kearney will be the site of the fifth annual Nebraska Grazing Conference, to be held August 8-9, 2005. The program is in the planning stages. Past participants will receive a brochure in the mail. Watch for details in the Spring 2005 issue of this newsletter and in other media outlets. Updates will also be posted at the conference Web site: www.grassland.unl.edu/grazeconf.htm.

Can Perennial Grass Pastures be Profitable in the Great Plains? (continued from page 3)

days in 2001, and 38 days in 2002. Average daily gain for the three years was 2.8 lb/head/day. Additionally, we re-grazed the pastures in late August and early September 2002 for more than 90 steer days in an effort to stress the grass and evaluate its persistence. Stands were excellent, and there were no persistence problems the follow growing season.

Perennial grass pastures can be profitable in the eastern Great Plains. Big bluestem returned an average of $119/acre during three years in eastern Nebraska. These cattle gains represent grazing on only the first growth of big bluestem. The inclusion of late summer grazing on regrowth and rotational stocking would increase profitability. Additionally, June and July in 2001 and 2002 were extremely dry and limited pasture production. Big bluestem pastures require moderately-intensive management to maintain productivity. Improper management, primarily grazing too heavily too late in the summer, will promote weeds and increase costs. Big bluestem pastures are profitable in eastern Nebraska, and provide an excellent alternative use for non-irrigated cropland in the eastern Great Plains. Bonanza big bluestem is adapted to Plant Hardiness Zones 4 and 5 in the Tallgrass Prairie region east of the 100th meridian.

Dates for 7th Nebraska Ranch Practicum Set

Applications are being accepted for the 2005-06 session of the Nebraska Ranch Practicum. Meeting dates will be June 14 and 15, July 14, September 7 and 8, November 10, 2005 and January 4 and 5, 2006.

The Nebraska Ranch Practicum is a comprehensive educational program that integrates information into a framework for decision-making in ranch management based on an understanding of seasonal patterns in markets, livestock nutrient requirements, and quantity and quality of forage resources. Specific objectives of the program are to: 1) improve decision-making skills needed to manage ranch operations more efficiently; 2) enhance stewardship of natural resources; 3) improve skills in critical evaluation of alternative production enterprises; and 4) enhance ranch sustainability. It is taught by an interdisciplinary team of UNL professors in agronomy, animal science and agricultural economics. Extension educators also assist with instruction and serve as facilitators. Cow-calf producers, veterinarians, extension educators, natural resource agency personnel, and other advisors to the industry can benefit from this program.

The Nebraska Ranch Practicum Web site, www.panhandle.unl.edu/ranchpracticum, contains program and registration information. Also, the Winter 2004 issue of this newsletter contains a detailed description of the Practicum (www.grassland.unl.edu/winter04.pdf, page 5).

Application and a $200 deposit are due by May 2, 2005. Enrollment is limited to 35 and applicants will be notified of their status no later than May 17. Deposits will be refunded if space is not available. Participants must pay the balance of $400 by May 28.

Questions? Contact Brent Plugge, 308-236-1235, bplugge1@unl.edu.

CGS Associates

Tiffany Heng-Moss was presented one of the first Omtvedt Innovation Awards for outstanding strengths and innovative work in the UNL Institute of Agriculture and Natural Resources. Irv Omtvedt is the past IANR Vice Chancellor.

At the annual banquet of Gamma Sigma Delta Honor Society of Agriculture in November, **Ellen Paparozzi** received that organization's Excellence in Teaching Award.

Shashi Verma was among the recipients of the American Society of Agronomy highest award, ASA Fellow, at its annual meeting in November.

Robert Klein recently received the 2004 Distinguished Achievement Award in Education from the North Central Weed Science Society for his long and distinguished career in weed science.

Changing Natural Landscapes: Ecological and Human Dimensions

The UNL Center for Great Plains Studies and the Natural Areas Association announce a joint conference to be held in Lincoln September 21-24, 2005. This is the Center's 29th annual interdisciplinary conference and will explore both the ecological and human dimensions of our changing natural areas. Sessions and symposia will include:

Natural Areas in Literature
Management of Natural Areas for Traditional Uses
Art and the Environment
Birth and History of Ecology
Protected Areas and Human Rights
Natural Resources Management in Cultural Parks
Sacred Sites
Land Ethics
Restoration and Management of Tribal Lands
Prairie Dogs and the Grassland Ecosystem
Fire Ecology and Management
Bison Management and Conservation
Rare Species Conservation
Natural Areas Restoration
Landscape Ecology
Impacts of Invasive Species
Management and Conservation of Flora and Fauna

Details on the conference and call for papers can be found at www.unl.edu/plains/events/2005/overview.htm.

Info Tufts

3.8 million acres of grassland located in the Great Plains are part of the National Forest System.

At the October 2004 meeting of the Center for Grassland Studies Citizens Advisory Council, David Wishart, editor of *Encyclopedia of the Great Plains* (listed in Summer 2004 issue of this newsletter, www.nebraskapress.unl.edu/bookinfo/4391.html) described what it took to bring the book to fruition. As royalties from book sales come in, Wishart said they will be used in part to place the book in schools. The University of Nebraska Center for Great Plains Studies, which served as the home of the decade-long project, is now working on a Great Plains atlas, which Wishart said will be published in a couple of years.

Resources

Have you checked out the UNL Animal Science Department's Beef Cattle Production Web site lately? It is loaded with information such as reports (including the annual *Nebraska Beef Report*), learning modules on several beef production topics, Web resources, frequently asked questions, upcoming educational programs, and timely topics. There is also an "ask a specialist" section where you can submit your question and it will be answered by a beef production specialist in the department. See www.animalscience.unl.edu/document.cgi?docID=52.

The Conservation Reserve Program: Economic Implications for Rural America. This October 2004 USDA-ERS report estimates the impact that high levels of enrollment in the Conservation Reserve Program have had on economic trends in rural counties since the program's inception in 1985 until today. Online at www.ers.usda.gov/publications/aer834.

Economics of Sequestering Carbon in the U.S. Agricultural Sector. Atmospheric concentrations of greenhouse gases can be reduced by withdrawing carbon from the atmosphere and sequestering it in soils and biomass. This March 2004 USDA-ERS report analyzes the performance of alternative incentive designs and payment levels if farmers were paid to adopt land uses and management practices that raise soil carbon levels (e.g., converting cropland to forest or grassland). Online at www.ers.usda.gov/publications/TB1909.

Looking for information or a photo of a plant found in the U.S.? The comprehensive PLANTS Web site developed by USDA is the place to go. It is searchable in many ways, and provides scientific and common information. You can get a list of Threatened and Endangered Species as well as noxious weeds by state, obtain Plant Guides and Fact Sheets (developed by a partnership between the National Plant Data Center and the Plant Materials Program), download files and photos, and much more. You can even contribute photos. Learn more at plants.usda.gov.

As we read about the tsunami in Asia or even the unusual rains and resulting mud slides in California, it may seem odd to be talking drought – unless you're in western Nebraska, eastern Wyoming, or other pockets of drought. Drought Information and Resources for Nebraskans is a Web site maintained by the UNL Institute of Agriculture and Natural Resources. The site includes searchable publications relating to crop and livestock management in times of drought, news releases, drought photos, and links to helpful statewide and national Web sites. For example, if you click on "Drought mitigation tools for ag producers," you'll see a list of categories including Range Management. Click on that and you'll see links to publications from Montana State University, Texas A&M University, and the University of Wisconsin – all dealing with managing rangeland before, during and after drought. See ianrhome.unl.edu/drought.

Center for Grassland Studies Citizens Advisory Council member Steve Merkel was recently honored with the Nebraska Turfgrass Association's 2004 Distinguished Service Award. Merkel, CGCS, is the Manager of Golf Course Agronomy for the Landscapes Unlimited Golf Group.

The Center for Grassland Studies extends congratulations and best wishes to Nebraska Governor Mike Johanns on his nomination for U.S. Secretary of Agriculture.

Calendar

Contact CGS for more information on these upcoming events:

2005

Mar. 8-10	National Alfalfa Alliance's Alfalfa Intensive Training Seminar, Indianapolis, IN, www.alfalfa.org/cascconf.html
June 26 - July 1	XX International Grassland Congress, Dublin, Ireland, www.igc2005.com
July 11-15	American Forage and Grassland Council 2005 Conference, Bloomington, IL, www.afgc.org
Aug. 8-9	2005 Nebraska Grazing Conference, Kearney, NE, www.grassland.unl.edu/grazeconf.htm
Sep. 21-24	Center for Great Plains Studies 29th Annual Symposium, Changing Natural Landscapes: Ecological and Human Dimensions, Lincoln, NE, www.unl.edu/plains/events/2005/overview.htm
Nov. 6-10:	ASA-CSSA-SSSA International Annual Meetings, Salt Lake City, UT, www.asa-cssa-sssa.org/anmeet

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