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Center for Grassland Studies

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University of Nebraska Lincoln

Biodiversity Maintenance with the Healthy Farm Index

by John Quinn and James Brandle, School of Natural Resources, UNL
Ron Johnson, Department of Forestry and Natural Resources, Clemson University

In the Summer 2009 issue of this newsletter we wrote about the Healthy Farm Index (HFI) and ecosystem services provided in agroecosystems. The HFI addresses biodiversity maintenance decisions on individual fields and farms with the ultimate goal of understanding the driving forces, tradeoffs, and relationships to improve the effectiveness of whole farm management for biodiversity and ecosystem services. Building on the last article, we will discuss how the Healthy Farm Index is applied, using a University of Nebraska–Lincoln research farm as an example, and further examine farmland biodiversity, emphasizing the importance of managing for diversity in agroecosystems.

UNL ARDC Agroforestry Research Farm

State and Function

We have designed the HFI to differentiate between farmland biodiversity state and function to allow for better consideration of the multiple objectives the landowner may want to consider. State refers to the status or well-being of biodiversity on the farm. The state of biodiversity at a location can be considered an indicator of ecosystem health. Function is the role or benefit that biodiversity provides to the farm and surrounding environment. Rather than establishing an objective to increase biodiversity broadly, the Healthy Farm Index allows a farmer to focus biodiversity maintenance efforts on one group of species or a single ecosystem at a time.

Biodiversity state can be measured at genetic, species, and ecosystem levels for both **planned** and **associated** biodiversity.

Planned biodiversity – Crops, livestock, or landscape elements such as windbreaks that a farmer maintains on a farm.

Associated biodiversity – Species and ecosystems that interact with farm systems but are not typically managed for as part of a farm operation.

Including indicators in the HFI that represent different measures of biodiversity increases the value of the assessment process and limits information lost. The value of considering multiple measures of biodiversity state emerges when a landowner is able to recognize more closely where they score high and where they can improve biodiversity conservation on their farm. Because the index includes different indicators of biodiversity, it is easy to identify actions that address how an area of interest can be improved. For example, if a farmer was interested in improving the planned species diversity on their farm, they could include cover crops with increased frequency or add an additional crop into their rotation. Because the index addresses multiple measures of biodiversity, the farmer will be able to observe subsequent changes in other biodiversity measures. Building on the previous example, cover crops might improve bird habitat, thus increasing the abundance of local species of interest.

The cyclical process of annual assessment adds additional value to the Healthy Farm Index. The ability to reassess the next year, looking at both planned and associated biodiversity states, will allow farmers and researchers to better understand the con-

(continued on page 6)

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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

We have heard much in recent times about the greening of our environment, cap and trade, energy conservation and renewable energy. These topics mean different things to various people, but they are important to each of us in one way or another.

During the past century, the carbon dioxide (CO_2) concentration in the atmosphere has increased, thus causing, according to many individuals, a warming of the earth's environment. In the past, most of the CO_2 in the atmosphere has come from buring fossil fuel and the soil reservoir.

Production agriculture can impact climate change by how the land is used. Intensive cropping systems will cause more CO_2 to be released back into the air than will grasslands which, during most of the year, capture and store carbon (carbon sequestration). Modern industrialized agriculture is not as ecofriendly as grassland agriculture, for example, because of soil tillage and the greater use of fossil fuels in such things as fertilizers, pesticides, tillage operations, packaging and transportation of the products.

The multifunction of grasslands will become more important as we go forward because of our increasing population trends, energy supplies not being as abundant and our concerns about the environment. Grasslands provide food, fiber and feed for humans and animals, seedstocks for biofuel production, soil erosion control and improvements, water conservation, wildlife habitat and space for recreation. Agricultural lands, and especially grasslands, are looked upon to provide these necessities and amenities for us humans.

Bio-based and renewable fuels have been a consistent source of energy throughout much of history. Until fossil fuel use became widespread, rangelands, cultivated grasslands and forests were essential elements of a prosperous and stable society. If bio-based fuel production systems continue to increase in the United States, we could see an increase in grassland acres replacing marginal lands that are now used for crop production. The conversion from fossil to bio-based fuels, which have been highly popular in recent years, may not occur easily, as there are many adjustments to be made.

Using grassland plants to sequestor carbon in the soil may be another source of income for grassland farmers. Some of the largest carbon producers such as utility and transportation companies may need to buy replacement credits to offset the carbon that they produce and release into the atmosphere.

When grasslands are used for bioenergy production, carbon dioxide is removed from the atmosphere and sequestered in the soil. Plants with deep root systems, especially legumes, are better for this purpose because the deeper the carbon is stored in the soil, the less of it is returned back to the atmosphere. Most legume plants have a deep tap-root and they also have the unique advantage of adding nitrogen to the soil from the atmosphere.

In the future, as personal incomes rise in developing countries, we will see an increasing demand for animal protein produced in systems such as grasslands and forages that are viewed to be more friendly to the environment. Also, new and alternate uses for grassland species would further increase their acreages. However, expanded acreages of grasslands will not solve all of our atmospheric and climatic problems, but whatever direction our future holds, grasslands will be an important part of it.

M. A. Massengale

Record-breaking Cold and Snow: What's that Mean for Turf in the Spring?

by Roch Gaussoin, Department of Agronomy and Horticulture, UNL

Rumor has it that warmer temperatures and blue skies are just around the corner. The turf will soon need to be mowed and the winter of 2009-10 will become a not-so-fond memory. What are we expecting to see as conditions improve? "Winterkill" is a general term that is used to define turf loss during the winter. Winterkill can be caused by a combination of factors including crown hydration, desiccation, low temperatures, ice sheets and snow mold. Because of the unpredictability of environmental factors and differences in other factors such as surface drainage, the occurrence of winterkill can vary greatly depending on turf location.

Crown hydration

In general, annual bluegrass (Poa annua) golf course greens and fairways are the most susceptible to crown hydration injury. During the warm days of late winter, annual bluegrass plants start to take up water (hydrate). Potential for injury exists when a day or two of warm daytime temperatures in late winter is followed by a rapid freeze. The most common time for winterkill associated with crown hydration and refreezing to occur is during the late winter and early spring when there is snowmelt or rainfall and then refreezing of the water that has not drained away. Crown hydration is a problem during these events because ice crystal can form in the crown of the plant, rupture the plant cells, and ultimately cause the plant to die.

Annual bluegrass is more susceptible to crown hydration injury than other cool-season grasses because it emerges from dormancy and begins taking up water. Other cool-season grasses take longer to come out of winter dormancy, which delays water uptake and results in lower susceptibility to crown hydration injury during the late winter.

Desiccation

Winter desiccation is the death of leaves or plants by drying during winter when the plant is either dormant or semi-dormant. Desiccation injury is usually greatest on exposed or elevated sites and areas where surface runoff is great (Beard, 1973). Winter desiccation injury to turfgrass in Nebraska is common, but in areas with long-term snow cover, as was seen throughout eastern Nebraska, damage will be minimal.

Low-temperature kill

Low-temperature kill is caused by ice crystal formation at temperatures below 32 degrees F. Factors that affect low-temperature kill include hardiness level, freezing rate, thawing rate, number of times frozen, and post-thawing treatment (Beard, 1973). Soil temperature is more critical than air temperature for low-temperature kill because the crown of the plant is at or near the soil surface. It is difficult to provide absolute killing temperatures because of the numerous factors involved. Beard (1973) provided a general ranking of low-temperature hardiness for turfgrass species that were autumn-hardened.

Gray snow mold March 1, 2010, Lincoln, NE. Photo credit: Zac Reicher

Low-temperature hardiness	Turfgrass species
Excellent	Rough bluegrass Creeping bentgrass
Good	Kentucky bluegrass Colonial bentgrass
Medium	Annual bluegrass Tall fescue Red fescue
Poor	Perennial ryegrass

Ice sheets

Ice sheets are often blamed for killing turf when, in fact, it is crown hydration and subsequent refreezing that causes the lethal effect. The reason for the confusion is that as snow melts and refreezes, creating ice sheets, the ice sheets are often in poorly drained areas where crown hydration can occur because of the standing water. As the ice sheet melts away, the area damaged closely mirrors where the ice occurred, and therefore, the conclusion is that ice sheets caused the kill. Beard conducted research on ice sheets on three turfgrass species: Kentucky bluegrass, creeping bentgrass and annual bluegrass. Kentucky bluegrass and creeping bentgrass survived 150 days of ice cover without significant injury; annual bluegrass was killed somewhere between 75 and 90 days of ice cover (Beard, 1998). The author concluded that cause of death for the annual bluegrass was most likely from toxic gas accumulation under the ice sheet.

Snow mold

Gray snow mold requires extended periods of snow cover; pink snow mold can occur either with or without snow cover. While their outward appearance is similar, circular patches of tan

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turf — sometimes with orange/brown margins, the pathogens have different temperature requirements for infection. Infection by gray snow mold occurs within a narrow range of cold temperatures (32-36 degrees F). Snow cover offers extended periods when these temperatures are maintained at the turf surface. Gray snow mold is relatively uncommon in the central Great Plains and Midwest, and normally increases as you move north where extended snow cover is more common. In many areas of the region, snow cover exceeded 80 days, resulting in ideal conditions for gray snow mold expression (see photo). If snow mold injury is a recurring problem, applying a preventive fungicide in late autumn is the best control option. Extensive gray snow mold expression has already been seen in eastern Nebraska. ***Do not be tempted to spray a fungicide for gray snow mold now***. At this time of year, management of gray snow mold damage centers on turfgrass recovery. Because of the narrow range of temperatures required for infection, the disease will not spread any more this year. Disturbing (raking, verticutting) the matted turf and a light application (<0.25 lb/M) of quick release N will help turf recovery as temperatures rise and enhance healing. Pink snow mold is much more common in the southern parts of the region because infection occurs under a wide range of temperatures (32-50 degrees F) and extended snow cover is not needed. Symptoms that develop after snow melts — during cold wet weather in spring — are attributed to the *Microdochium* patch phase of the disease. The pathogen produces spores (called conidia) at the edge of circular patches. The spores may move down slope, causing new infections, especially on golf course putting greens. Young (less than one year old) creeping bentgrass is especially susceptible to snow mold damage. On high-maintenance turf (i.e., golf course tees and putting greens), fungicide application to pink snow mold may be justified if numerous patches developed over the winter. A contact fungicide (chlorothalonil) will limit spread while turf remains dormant. Once turf is actively growing, a penetrant type fungicide (such as a DMI) may provide more effective control.

Steps in recovery

Reestablishing turfgrass in damaged areas can be very challenging in the spring because of the saturated soils and cool temperatures. Depending on the extent of damage, either seeding or sodding may be necessary to facilitate recovery. In areas where the turf was killed in a manner that left well-defined margins between dead and living turf, it may be feasible to strip dead turf and sod the area. In areas where the kill was more scattered, it may be easier to seed the area.

Literature Cited

Beard, J.B. 1973. Turfgrass: Science and Culture. Englewood Cliffs, N.J.: Prentice-Hall.

Beard, J.B. 1998. Winter ice cover problems? TURFAX. 9(1):1-2,5.

Additional resource: http://www.turf.msu.edu/winterkill-of-turfgrass

Flawed Turfgrass Research Report Gets Mass Media Attention . . . Now What?

Editor's Note: CGS Associate and turfgrass specialist, Dr. Roch Gaussoin, suggested that readers of this newsletter might be interested in the following press release from Turfgrass Producers International.

East Dundee, IL (February 2010). Turfgrass provides numerous environmental benefits and its ability to store carbon is one of them; but when a recently published and peer reviewed research study regarding the ability of turfgrass to store carbon reached the opposite conclusion of previous studies, more than a few turfgrass researchers and green industry experts were scratching their heads.

The study in question (containing miscalculations which we'll address in a moment) got extensive media coverage because of the negative conclusions it presented. According to Amy Townsend-Small, Earth system science post-doctoral researcher at University of California, Irvine and the lead author of a study that was accepted for publication in Geophysical Research Letters, a journal of the American Geophysical Union (AGU), it was suggested that the carbon-storing benefits of lawns were counteracted by fuel consumption.

Focusing on four parks and lawns in Southern California, the Townsend-Small and colleague Claudia Czimczik study found that greenhouse gas emissions from fertilizer production, mowing, leaf blowing and other lawn management practices were four times greater than the amount of carbon stored by grass in parks and lawns. The UCI study was supported by the Kearney Foundation of Soil Science and the U.S. Department of Agriculture.

The reported conclusion reached by the Townsend-Small and Czimczik study was fundamentally the opposite of previous research findings regarding carbon sequestration in turfgrass and the amount of carbon resulting from the care and maintenance of turfgrass.

The study generated plenty of press coverage by way of the American Geophysical Union (AGU) and a press release distributed by the University of California (Irvine). Publications and Web sites such as *USA Today, National Geographic's Green Guide, Science Daily, China Meteorological Administration (CMA), First Science, Discovery News, Yahoo News India*, and just about every science publication, newspaper, news outlet, green industry Web site and various blogs carried assorted headlines that read:

- "Urban Green Space May Aid Global Warming"
- "Green Spaces (Lawns) Are Not So Green"
- "Urban Lawns Contribute to Climate Change"
- "The Grass Isn't Always Greener"
- "Lawn Care = Bad for the Environment?"
- "City Parks May Be Bad For The Environment"
- "Study Fumes Over City Park Grass"
- "New CO_2 Threat to the Planet"

There was only one problem: The authors of the Amy Townsend-Small research report acknowledge their study contained errors and miscalculations.

So how did the errors in the study come to the surface? Dr. Thomas Rufty, Bayer Distinguished Professor, Environmental Plant Biology, North Carolina State University, questioned the findings based on previous research models and proceeded to point out

several discrepancies in the Townsend-Small research report:

Rufty commented, "Regarding carbon sequestration and greenhouse gas emissions in urban turf by Townsend-Small and Czimczik, we suspected an error in calculations because their numbers were so different from the models we are developing." Rufty was challenged to find out why there was a discrepancy. He reported that two of his Ph.D. students took apart all of the assumptions and calculations in the Townsend-Small paper and found mistakes. When asked to provide a complete analysis of the situation … they immediately presented their findings. Rufty reviewed their findings and confirmed they were right and that errors had been made.

Rufty then emailed the authors and they confirmed there was a mistake in their spreadsheet that no one had caught during the writing or peer review. The authors said 'someone' had informed them of the mistake and a correction was sent to the journal. Their corrected calculations showed that CO_2 generation was 122 g m-2 yr-1 rather than 1238 g m-2 yr-1 in the paper.

"This is important, because it makes the situation with 'ornamental lawns' carbon neutral to positive, depending on some of their other assumptions about fertilization. The students also are arguing that the authors made another mistake that will result in decreasing the estimated CO_2 further – they did not take into account C speciation during combustion. Depending on the kind of mowers used, this will lower levels by another 15 to 50%," according to Rufty. Rufty added, "The Townsend-Small and Czimczik paper is being viewed as an important publication for the carbon sequestration debate. I'm hoping our efforts will help correct this misperception."

It should be noted that Dr. Rufty isn't alone in questioning the study. More than two dozen leading turfgrass extension specialists and turfgrass researchers from across the nation are currently reviewing the study and they have already indicated there are numerous concerns above and beyond miscalculations. They have indicated (under independent and non-collaborated review) that they are not only questioning the methodology that was used, but the absence of critically important information. It is likely the authors can expect to receive numerous questions and valid concerns following these reviews, and they can also anticipate a request to offer some valid explanations.

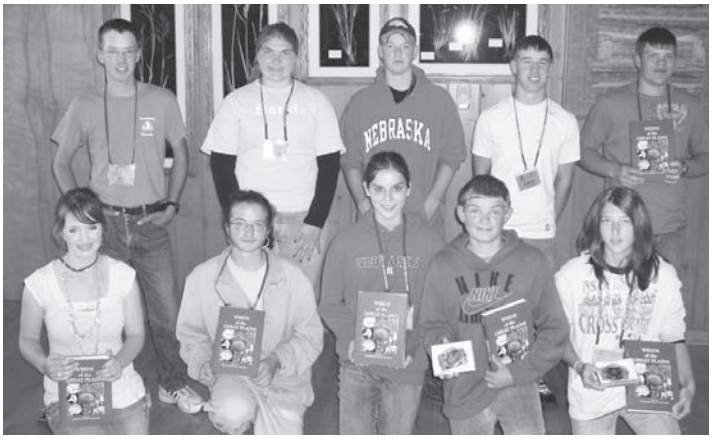
Now that it's apparent that flawed research (miscalculations alone) has received broad media coverage worldwide, and as of this writing the misinformation is still posted on the Web sites of the University of California (Irvine), the UCIrvine Today NEWS, the University of California UC Newsroom and on the American Geophysical Union (AGU) Web site (despite concerns expressed to UCI) the real question is, how do you get the same media coverage for the corrected version of the research report which will likely show that turfgrass has a positive impact on the environment when it comes to carbon sequestration? The challenge is much like getting the genie back in the lamp . . . or trying to get spilled coffee back in a cup.

Media Contact: Jim Novak, Public Relations Manager, Turfgrass Producers International, 2 East Main Street, East Dundee, IL, USA 60118, Phone: 847-649-5555 or 800-405-8873, Fax: 847-649-5678, E-mail: jnovak@TurfGrassSod.org, Web site: www.TurfGrassSod.org

2010 Nebraska Youth Range Camp

by Shelly Taylor, USDA Natural Resources Conservation Service and Camp Co-Director

It's finally time to forget about all this snow, and start planning for summer! We need your help in recruiting students ages 14-18 for the 47th annual Nebraska Youth Range Camp. It will be held June 7-11, 2010 at the Nebraska State 4-H Camp in Halsey.



The 2009 top 10 campers were recognized and given a plaque, belt buckle, and plant identification book. Awards are given annually to the top crew, top returning camper, top first-year camper, and runner-up. The top 10 campers are eligible to compete for a trip to the International SRM meetings held early each year.

The Camp consists of a dynamic curriculum that appeals to students with a wide array of interests including, but not limited to, rangeland management, conservation, ecology, animal science, and wildlife. With nearly 50 years to perfect and evolve this curriculum, every student, regardless of prior experience, will learn substantial information that will help them become more aware of Nebraska's most prevalent land use. Rangelands cover nearly 50% of Nebraska and approximately 60% of the United States – numbers that convey the dominance of this land use. Recently there have been several political issues regarding the management of these rangelands, which further emphasizes the reason it is imperative for us to educate the youth so they can become proficient and effective leaders in resource management as well as informed voters.

The students that attend this camp will be actively involved with lectures, field activities, hands-on experience, and recreational activities that are all led by some of Nebraska's most respected and dedicated leaders, teachers, and professionals. Each student will be sent home with a binder that is filled with educational materials.

Interested individuals can find more information, the application and brochure by visiting the Nebraska Society for Range Management Web site at www.nesrm.org and then clicking on the Nebraska Youth Range Camp link near the bottom of the page.

Biodiversity Maintenance with the Healthy Farm Index (continued from page 1)

sequences of their actions on multiple measures of biodiversity. Given the increased information available and a better understanding of tradeoffs, the farmer can weigh the costs and benefits of managing for biodiversity. Additionally, we can begin to better understand how these changes in biodiversity state will influence biodiversity function and ecosystem services.

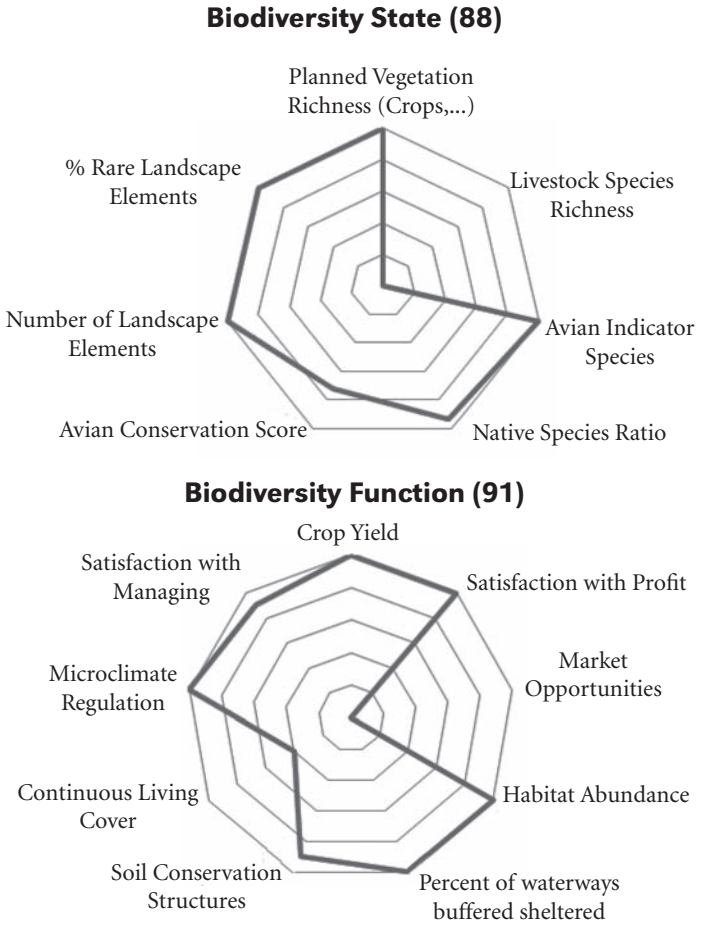
Ecosystem services, the benefits that people receive from nature, are provided by biodiversity. With the Healthy Farm Index, we are seeking to include ecosystem services as part of the assessment and decision making process, and ultimately to communicate their value to farmers and decision makers at local and national levels. Observation of natural systems and replicated field trials demonstrate that increasing biodiversity improves many ecosystem services. In managing for biodiversity, however, particularly on farms with multiple functions, the goal is not just to increase biodiversity, but rather to maintain a level biodiversity that benefits the farm system. Ideally, a farm would have a variety of species and ecosystems that provide beneficial functions such as insect pest suppression and water filtration. It is challenging and resource intensive to manage a farm or an ecosystem in the absence of biodiversity. A farm without appropriate biodiversity may substitute for some services using inputs but will lack resilience when the inputs fail or are unavailable.

Demonstration of Healthy Farm Index

To demonstrate the Healthy Farm Index, we have assessed one of the University of Nebraska–Lincoln's research farms. The UNL Agricultural Research and Development Center (ARDC) agroforestry research site, located north of Lincoln, is 450 acres managed around a replicated windbreak system that has supported 30 years of research. The primary rotation within the windbreaks is wheat, followed by corn and then soybean. In 2008, 45 acres within one windbreak system were certified organic. The site has been home to many research projects addressing ecosystem services including microclimate regulation and biological control. Avian point counts have identified 65 bird species using the farm. The farm was assessed using the Healthy Farm Index based on the management of the farm in 2009. The farm scores near 90 for both biodiversity state and function, as the figure in the right column depicts.

The high scores received by the ARDC agroforestry farm reflect the value of biodiversity to farm health. As mentioned earlier, the farm has a three-crop rotation. Additionally, cover crops and alfalfa are part of the farm operation. One component missing from the agroforestry site is an active livestock component as part of the management system. The farm does have a full assemblage of rare and common grassland and shrubland indicator species. However, as a result of the abundance of woody cover and less grassland, its conservation value for grassland birds, a group in need of conservation, is reduced.

This past year's corn yields were 10% above average, normal for soybean, and 10% below normal for wheat. At year's end, the farm manager was very satisfied with the farm profit and satisfied with the farm management system. The farm does not currently capture other sources of income from the farm, but has had an active woody floral program in the past. A high percentage of the farm is available as habitat to local species, and much of the farm



is protected from soil erosion and excessive evapotranspiration by planned ecosystem features. Additionally, wide buffers protect the waterway running through the property. The recent increased use of cover crops will improve nutrient cycling, which is a supporting ecosystem service that we are planning to include in the HFI.

Discussion / Conclusion

The UNL ARDC agroforestry site is a unique farm. Its planned landscape diversity is greater than most farms. The success of the operation, however, demonstrates the value of biodiversity as part of a farm system. Assessment of the farm also demonstrates that the HFI is not limited to organic farm systems and is a valuable tool for any farm type. Using the results provided by the Healthy Farm Index, a landowner can better consider the steps needed to address individual objectives and concerns related to biodiversity maintenance. To ensure future success, the assessment process with the HFI should not stop at one review. Assessment can become an annual process that allows for a better understanding of tradeoffs and synergies between objectives over time. By identifying one or two measures of interest with the stated objective to improve them gradually each year, the farmer can slowly manage and assess the state and function of biodiversity on their farm, improving health and function of the farm and neighboring ecosystems.

For more information on the integration of biodiversity maintenance into farm management with the Healthy Farm Index, please visit http://hfi.unl.edu.

Nebraska Grazing Conference Celebrates 10th Anniversary

We celebrate a decade of Nebraska Grazing Conferences this year! The 2010 conference will be held, as it was the first nine years, at the Kearney Holiday Inn. Dates are Tuesday and Wednesday, August 10 and 11. The program, which is planned by a large committee representing many aspects of the grazing industry in the public and private sectors, appears below.

The two-day pre-registration fee of $80 (**payable to 2010 Nebraska Grazing Conference**) is due to the Center for Grassland Studies by August 1. The fee covers lunch both days, the evening banquet, break refreshments, and the conference proceedings. One-day registrations are also available. Registration fee will be waived for students who will still be in high school next year and who pre-register by the Aug. 1 deadline, compliments of the UNL College of Agricultural Sciences and Natural Resources. Reduced registration fees apply for other full-time students. Late fees apply to registrations postmarked after August 1 and to walk-ins.

Participants of any of the previous Nebraska Grazing Conferences as well as all Nebraska extension educators will receive a brochure in the mail in June. Others may contact the CGS office to be placed on the mailing list. Information and the registration form are also on the CGS Web site (www.grassland.unl.edu).

The conference is a collaborative effort with many co-sponsors. Contact the Center for Grassland Studies, one of the underwriting sponsors, with questions.

Tuesday, August 10

9:00 Registration (browse exhibit area, refreshments available)
10:00 Welcome and announcements
10:10 Opening remarks, TBA
10:30 Mob grazing, Neil Dennis, Sunnybrae Farms, Saskatchewan, Canada
11:45 Lunch
12:45 Mobile meat plant and grass-fed meat marketing, Jim Knopik, Belgrade, NE
1:30 Grass-finished beef in Brazil, Cesar Miranda, visiting scientist with USDA/ARS, Lincoln, NE
2:15 Break (browse exhibit area, refreshments available)
2:45 Concurrent sessions:
Generational transitioning: financial plans, John McGlynn, Verdigre, NE; continuing the ranching tradition, Sherry Vinton/Jessica Taylor, Whitman/Tryon, NE; conservation management, Todd and Kristen Eggerling, Martell, NE
Mob grazing: power of stock density, Terry Gompert, UNL, Center, NE; facilitating mob grazing, Doug Peterson, USDA/NRCS, Gallatin, MO; tricks of the trade, Neil Dennis
4:30 Break to reconvene
4:45 Animal behavior, Tom Noffsinger, D.V.M., Benkelman, NE
5:45 Social (cash bar in exhibit area)
6:30 Banquet
7:30 Animal behavior workshop, Tom Noffsinger

Wednesday, August 11

8:00 Coffee available in exhibit area
8:30 Grazing standing corn, Bob Scriven, Kearney, NE
9:00 Improved forages for drier areas, Keith Harmony, Kansas State University, Hays, KS
10:00 Break (browse exhibit area, refreshments available)
10:30 Grassland ecosystem management via the Nebraska Legacy Plan, Jonathan Haufler, Ecosystem Management Research Institute, Seeley Lake, MT
11:30 Customizing grazingland mineral mixes, Dennis Bauer, UNL, Ainsworth, NE
12:00 Lunch
1:00 Managing grazinglands for upland birds, Larkin Powell, UNL, Lincoln, NE
1:45 Grazing strategies for Sandhills uplands, Walter Schacht/Jerry Volesky, UNL, Lincoln/North Platte, NE
2:45 Wrap-up, evaluations and adjourn

CGS Associates and Staff

In November **Roch Gaussoin** received the Cyril Bish Professorship in Horticulture for a five-year period, which comes with a stipend and additional program support.

Kim Todd is the latest recipient of the Irv Omtvedt Innovation Award, which recognizes exceptional service at the University of Nebraska and the Institute of Agriculture and Natural Resources.

Robert Klein has been named a Fellow of the North Central Weed Science Society.

Daniel Walters recently received the 2009 Researcher of the Year Award from the Fluid Fertilizer Foundation.

At the recent annual meeting of the Nebraska Chapter of Gamma Sigma Delta, awards for outstanding service were given to **Dennis Bauer** for Extension and **Tiffany Heng-Moss** for Teaching.

Each year the UNL Parents Association and the Teaching Council query UNL parents, in consultation with their sons and daughters, to recommend faculty and staff who have had a significant impact on their student's experience. The Center's own **Tara Lea**, Educational Specialist for the PGA Golf Management program, was among the recipients of the Certificate of Recognition for Contributions to Students. Other CGS Associates receiving this certificate were **Dennis Brink** and **Richard Sutton**.

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Address Service Requested

The Nebraska Range Shortcourse

The Nebraska Range Shortcourse is scheduled for June 21 to 25, 2010 on the Chadron State College campus. The shortcourse is sponsored by UNL, Chadron State College and the Nebraska Section Society for Range Management. It is designed to provide individuals who have a background in range management, natural resources, or agriculture an opportunity to increase their knowledge of range management. The week-long course focuses on underlying principles of range management for efficient, sustainable use of rangeland for multiple purposes. The shortcourse can be taken for credit through the University of Nebraska–Lincoln or Chadron State College. Sixteen CEU credits are available for the SRM "Certified Professional in Rangeland Management" program. Details are available in the brochure at http://www.ianr.unl.edu/srm/2010ShortcourseBrochure.pdf.

NRCS/SCS Celebrates 75th Anniversary

Editor's Note: In his weekly e-mails, Nebraska NRCS State Conservationist Steve Chick has been sharing information about the history of the Soil Conservation Service, now called the Natural Resources Conservation Service, as it is celebrating its 75th anniversary. The following is from his February 26 "Friday Message."

Through the eyes of many, Hugh Hammond Bennett had made quite an impact in the early 1930s through the creation of the Soil Erosion Service and the Civilian Conservation Corps, but in Bennett's eyes these were only piecemeal approaches to a nationwide need for a conservation movement. He longed to move past the demonstration approach to a more extensive effort of working with all willing farmers and ranchers. On March 11, 1935 Bennett was testifying before Congress on the need for a Federal agency in charge of soil conservation. Bennett was aware of a tremendous dust storm churning its way across the country. It is said that he prolonged his talk long enough for the great cloud of dust to reach the nation's Capitol. Congressman rushed to the windows to see the skies of Washington, DC turning black. One month later on April 27, 1935 the Soil Conservation Service within the United States Department of Agriculture was created without one dissenting vote. Congress declared, "Soil erosion is a menace to the national welfare and that it is hereby declared to be a policy of Congress to provide permanently for the control and prevention of soil erosion."