Center for Grassland Studies

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# Bringing Back Grazing Lands in the Rainwater Basin

by Doreen Pfost and Andy Bishop, Rainwater Basin Joint Venture

A conservation partnership in south central Nebraska's Rainwater Basin is working with cattle producers to expand grazing opportunities in the region while also improving wetland habitat for migratory birds.

The Rainwater Basin is a 160-mile-wide region that covers all or part of 21 counties, from Frontier and Dawson counties in the west to Butler, Seward and Saline counties in the east. Scattered across the region's flat or gently rolling loess plains are hundreds of playa wetlands — shallow, usually small, clay-lined basins fed by rain or melting snow. Most playa wetlands hold water only a few months of the year; some are regularly dry enough to be farmed, but are prone to drown-out. Many, because of their ephemeral nature, were long ago drained and incorporated into the row crop operations that characterize this fertile region.

**Grazing cattle help maintain wetland habitat in Rainwater Basin wetlands.**

In addition to its agricultural value, the Rainwater Basin is internationally important migration habitat. The spring waterfowl migration in the Rainwater Basin, along with the sandhill crane migration on the Platte River, is a source of wonder for many Nebraskans, and attracts nature lovers from around the country. Some eight million ducks and millions of geese, plus hundreds of thousands of shorebirds, stop over in the Rainwater Basin on the way to their northern breeding grounds. Here, the birds rest and eat; the nutrients and body fat they acquire are crucial to their chances of reaching their breeding grounds and producing a healthy brood of offspring.

The Rainwater Basin Joint Venture (RWBJV) is a public-private conservation partnership that, along with other conservation efforts, has worked since 1992 to ensure that south central Nebraska can provide adequate wetland habitat — and nutritional resources — to meet the physiological needs of these millions of birds. The partnership recently adopted a new Implementation Plan that charts a course to provide enough high quality wetland habitat to furnish migrating waterfowl with 4.4 billion kilocalories of wetland plant forage — a goal that will call for more than 60,000 acres of functioning wetlands on private and public lands.

That's a tall order for a region where 70% of the land is in row crops and 99% is privately owned. The Joint Venture hopes to achieve this goal for the future, in part, by looking to the past.

The first settlers to this region found wetlands that, for thousands of years, had been subjected to fires, drought-deluge cycles, and herds of grazing, trampling bison and elk. Frequent disturbance had generally kept wetland plant communities in an early successional state, dominated by annual plants that provided a rich food source for waterfowl. A perimeter of mudflats provided invertebrates for shorebirds, and surrounding grasslands protected the wetlands from siltation.

The region's early farms integrated wetlands into their operations as pasture; grazing cattle emulated disturbances caused by wild ungulates, and as a result, many wetland pastures continued to provide good waterfowl habitat. However, in the second half of the 20th century, modern agriculture equipment, gravity irrigation, and USDA incentives were just some of the forces that encouraged expansion of row-crop agriculture, often at the expense of pastures and wetlands. Extensive conversion continued until the 1986 Farm Bill brought some protection for wetlands, but by then, over 85% of Rainwater Basin wetlands had been

*(continued on page 4)*

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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
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# From the Director

We have a tendency in this country to overlook the importance of the turfgrass industry to both our citizens and the economy. In addition to its monetary value, turfgrass provides tremendous aesthetic value to our society. Essentially, all of us are impacted each day in some way by turfgrass, whether it be by observation and/or use of our lawns, parks, golf courses, other recreational areas or green spaces. Through turf we cross-link our biological, social and economic systems.

Lawns have been an important component of gardens for thousands of years in Asia and the Middle East. However, the modern turfgrass industry developed rapidly in the United States after World War II. The fast growth of both our economy and the population, along with commercial property development, resulted in a housing expansion, which in turn had a major impact on the turfgrass industry. As the houses were built, lawns were established. People had more household income as well as more free time, and leisure activities became more popular.

During the last few decades, the importance and value of the "green" industry have grown significantly. Turf and associated economic sectors such as manufacturing of turf equipment, lawns and garden retail stores, lawncare services, grass seed production and sod farms, comprise a large component of the green industry. This significant growth in the turf industry has resulted in many career opportunities, and all indications are that this will continue well into the future.

The production and care for high quality turf require intensive management, and many of our homeowners want a quality lawn. Because turf areas normally occupy much smaller spaces than those of traditional crops, are in more prominent places and cover a highly valuable parcel of real estate, their appearance is very important. Millions of lawns surround homes throughout the United States, and turf quality varies greatly from home to home. Generally, grasses are easy to grow and survive even under harsh conditions; however, developing and maintaining a high quality lawn does require good management practices. Turfgrass is a superior ground cover for many landscapes and especially those around homes. It helps to control wind and water erosion, abates air pollution and noise, provides a soft surface for playing numerous sports — lessening injury to players, releases oxygen to the atmosphere, and provides a valuable aesthetic asset. Also, since most grasses are perennial in nature, they generally provide permanent ground cover.

The University of Nebraska has been fortunate to have had an outstanding group of faculty working in turfgrass research, teaching and extension dating back many years. These faculty members have continued to serve the industry well by concentrating on plant breeding, turf management, water use efficiency, drought tolerance, fertilizer management, weed, insect and disease control, and other areas of concern. Corollary to and highly supportive of the faculty has been an industry group. This industry group has had a significant and positive impact on the progress and productivity of the turfgrass program at Nebraska through financial support, sharing of ideas and encouragement. It is exactly the kind of cooperation and teamwork that provides for a highly productive output. The residents of our state and region have benefited greatly from the excellent work of these professionals.

M. A. Massengale

# Turfgrass Phosphorus Requirements Are Lower than Previously Thought

by Bill Kreuser, Department of Agronomy and Horticulture, UNL

Phosphorus is an essential plant nutrient commonly applied to turfgrass and other agronomic and horticultural crops. Over the past decade several states have enacted laws that prohibit phosphorus application to turfgrass in an effort to reduce nonpoint source pollution. Most legislation, however, allows for phosphorus fertilization when it is deemed necessary by soil tests. Soil test calibration studies are necessary to provide context to soil test results. During a calibration study, various plant responses are assessed across a broad range of soil nutrient levels. In turf, responses such as clipping yield, visual quality rating, deficiency symptoms, and stand density are commonly used to determine the soil test critical point: the point at which plant demand for the nutrient is met by soil supply. Turfgrass visual quality, clipping yield, and stand density are reduced when the soil test level is less than the critical point and application of fertilizer is recommended. Fertilization when the STP (soil test phosphorous) level exceeds the critical point is not recommended because additional nutrients are not likely to stimulate a turf response.

The Mehlich-3 soil test has become popular with many soil testing labs because it is effective across a wide range of soils. It has also become the preferred method for high value turf including golf putting greens, tees and fairways. Despite increased popularity, Mehlich-3 calibration studies in turf were lacking, which led to speculation about how much phosphorus golf turf needed. Some texts and lab recommendations suggested Mehlich-3 soil test phosphorus requirements were as high as 50 ppm. To determine the soil test phosphorus critical point for golf turf, we designed a calibration study to measure turfgrass response when grown in different Mehlich-3 soil test phosphorus levels and ultimately determine how much soil test phosphorus is required to grow healthy golf turf.

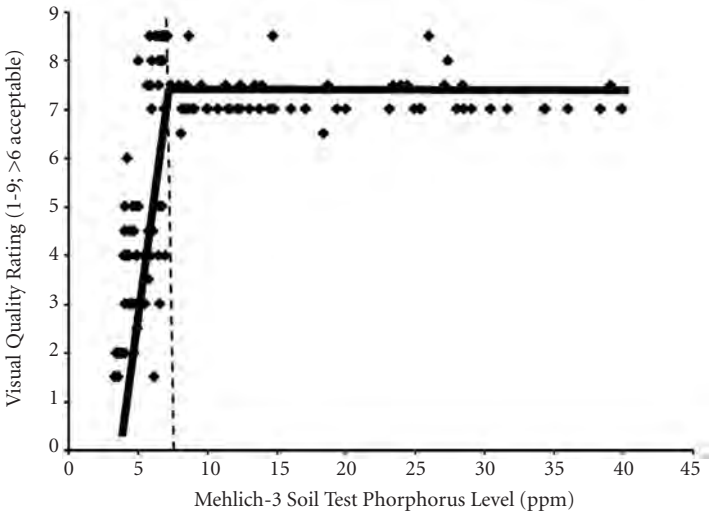



**Figure 1. Turfgrass quality rating response to Mehlich-3 soil test phosphorus level. Data were combined over six months. Visual quality was rated on a scale of 1 to 9, with 1 representing "dead," 6 "minimally acceptable," and 9 "perfect" putting green visual quality. The dashed vertical line represents the critical point where additional soil test phosphorus did not increase visual quality rating.**


**Figure 2. The effect of Mehlich-3 soil test phosphorus level (ppm) on a creeping bentgrass golf putting green. Phosphorus deficiency was easily confused with severe drought. Soil test phosphorus levels of 7 ppm or greater had equal turfgrass quality.**

A new research putting green was constructed with various amounts of phosphorus fertilizer in the spring of 2008. The different fertilizer levels created a range in soil test phosphorus from 3 ppm (no fertilizer applied) to 55 ppm across the 32 plots. The green was seeded with creeping bentgrass (*Agrostis stolonifera* L. cv. Penn A4), fertilized weekly with urea at 0.2 lbs N/ 1000ft$^2$, and mowed at 0.125 inch. Six soil samples to three-inch depth, clipping yield, and visual quality ratings were taken during each month of the growing seasons. Turfgrass quality was rated on a scale of 1 to 9, with 1 representing "dead," 6 "minimally acceptable," and 9 "perfect" putting green visual quality. Regression was then used to create calibration curves for each month.

The different soil test phosphorus levels resulted in a broad range of turfgrass visual quality ratings (Figure 1). Plots that did not receive P fertilization during construction or establishment consistently had the lowest quality ratings. These plots were blue to purple in color, grew slowly, with thin/spindly leaves, and limited thatch or mat accumulation. These symptoms were often mistaken for localized dry spot by people not familiar with the study. Turfgrass quality rapidly improved as STP level increased from 3 ppm to the critical point, which averaged 7 ppm (Figure 2). The exact critical point for each month varied from 6 to 11 ppm. Turfgrass visual quality did not change once Mehlich-3 STP values exceeded the critical STP point.

The dense fibrous root system of turfgrass allows the plant to be very efficient at harvesting phosphorus from the soil. The critical levels found in this study are well below the levels suggested in many turfgrass texts and popular press. The Mehlich-3 STP

*(continued on page 4)*

## Turfgrass Phosphorus Requirements *(continued from page 3)*

critical point for the green in this study was 7 ppm; the exact STP requirement for other creeping bentgrass putting greens is likely different. Factors such as soil mineralogy and pH, grass cultivar, environmental conditions (e.g., shade), and N fertilization rate can alter the STP critical point. To account for these factors, we recommend a conservative Mehlich-3 soil test phosphorus level of 15 ppm. Phosphorus fertilization when Mehlich-3 soil test phosphorus levels are greater than 15 ppm will not further enhance turfgrass quality and is a waste of resources.

Use soil tests to monitor plant available phosphorus level over the course of time much like a fuel gauge on a car. When the Mehlich-3 phosphorus level begins to approach 15 ppm, it is time to fertilize with phosphorus. Visual symptoms of phosphorus deficiency can be quickly corrected with light rates of phosphorus fertilizer. As with all soil testing, it is important to be consistent in how you sample. Plants redistribute nutrients to the top of the soil profile over time. Shallow sampling will yield higher soil test phosphorus levels than deep sampling. Make sure sampling depth is uniform from location to location and over time to compare soil test phosphorus levels over time and space. Also, stick with one soil testing lab and one testing method (e.g., Mehlich-3, Bray-1, Olsen). Different labs use different methods, or variants of the same method like the Mehlich-3, which makes it possible to get different results from different labs. Soil testing can be a great way to monitor soil nutrient level, but make sure proper calibration and interpretation is used to make sense of the numbers.

## Grazing Lands *(continued from page 1)*

drained. Cattle production in the region dwindled; meanwhile, habitat loss here and across North America led to plummeting waterfowl populations.

In response to habitat loss, the U.S. Fish and Wildlife Service and Nebraska Game and Parks Commission purchased wetlands from willing sellers and, initially, often fenced them for "protection." Within a few years, they were choked with invasive plants including hybrid cattail, reed canary grass, and bulrush. In time, public land managers explored grazing as a tool for managing wetland vegetation. Today, both agencies work with cooperators — local cattle producers whose cattle graze federal Waterfowl Production Areas and state Wildlife Management Areas in accordance with programs that help manage the wetland and upland plant communities.

Successful management on public lands is just one part of achieving the Joint Venture's habitat goals. The Implementation Plan's strategies for wetland restoration and management on public lands aim to provide about 55% of the wetland forage needed by migrating waterfowl. The rest must come from private land. To that end, Joint Venture partners are heeding the lessons learned on public lands.

For example, the USDA Natural Resources Conservation Service's Wetlands Reserve Program (WRP) has been a cornerstone of wetland habitat work on private land in the Rainwater Basin. A voluntary federal program, WRP helps landowners restore their wetlands and, in most cases, pays the landowner for a protective easement that restricts most uses. In 2008, the NRCS, responding to encouragement from the RWBJV, created a WRP enrollment option that allows qualified landowners to retain the right to graze their wetlands, following an approved grazing program. Grazing allows the restored wetland to provide an economic benefit, and helps maintain the wetland, thus protecting the investment made in its restoration.

But the WRP grazing option is just one way to make the transition from marginal cropland — or idled wetland — to pasture. Through the Working Lands Initiative, RWBJV partners can help landowners in a number of ways. The partnership provides assistance to seed the tract with native grasses and restore the wetland, if necessary. Partners provide cost-share assistance for seeding, fencing, well development, and other livestock watering infrastructure.

**Approximately 8 million ducks and millions of geese stop over in the Rainwater Basin each spring.**

In some cases, especially if the investment in restoration is significant, the landowner sells a grassland/wetland easement on the tract — one that protects the wetland but permits grazing and haying. In other instances, landowners may sign a ten-year agreement stating that they, or any lessees, will follow a grazing plan to control invasive species and manage the plant community in a way that improves migratory bird habitat.

Funding for the Working Lands Initiative comes from various RWBJV partners including the Nebraska Environmental Trust, Ducks Unlimited, Natural Resources Conservation Service, North American Wetlands Conservation Council, the Nebraska Game and Parks Commission, and the U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program.

The RWBJV is working with Nebraska Cattlemen to find ways to make more cattle producers aware of new grazing opportunities. In addition, the partners will work with selected landowners to develop demonstration sites — tracts that can be featured on tours to showcase the economic and biological benefits of the Working Lands Initiative.

Together, RWBJV partners and many Rainwater Basin agricultural producers hope to demonstrate that agriculture and wildlife habitat can not only coexist, but thrive together. For more information about the RWBJV, see rwbjv.org.

# Landscape Changes to Grassland Ecosystems

by Peter Berthelsen, Pheasants Forever Director of Habitat Partnerships

Landscapes across the Midwest and Great Plains are changing at an alarming rate.

In 2012, the US Department of Agriculture reported that Nebraska led the nation in the number of acres of land converted from non-cropland to cropland. In many cases, this report is summarizing the significant amount of native grassland that has never been farmed before, but is now being converted to row crop production. In that single year, a total of 54,876.6 acres of non-cropland found its way into production, primarily of corn and soybeans. Even more amazing is that Nebraska's total was more than the combined number of acres for the 2nd (South Dakota at 27,128.4 acres) and 3rd (Texas at 26,395.2 acres) place states.

Much of the acreage being converted from non-cropland into cropland includes native grasslands that are being converted throughout the Great Plains at a rate that is causing great concern. A National Academy of Science study documented that 1.3 million acres of grassland were converted to corn and soybean production in Nebraska, North and South Dakota, Iowa and Minnesota from 2006 to 2011.

The land-use changes happening in Nebraska and throughout the Great Plains are being driven by multiple factors that include high commodity prices, crop insurance subsidies and biofuel feedstock needs. In the end, it is really about one thing: the ability to produce more income from farming a piece of ground than from grazing it.

Perhaps the greatest frustration associated with the rapid conversion of native grasslands to cropland is that the conversion often has no relationship to the land's ability to produce viable crops. One of the unintended consequences of federal crop insurance and high commodity prices has been to produce a strong financial incentive for the cropping of lands that would not be cropped without the financial security (and profit) associated with federal crop insurance.

One of the best explanations of this complicated issue can be easily viewed and understood by watching a short video on the subject produced by the World Wildlife Fund at: www.youtube.com/watch?v=3UW2Vt54ff4. This video spells out the drivers that are changing the grasslands in the Midwest and Great Plains at a staggering pace.

Grassland conversion to crops obviously has significant impacts on those changing environments. Some of the results that are occurring are a cause for concern and include:

- Temperate grasslands are now the most altered and least protected ecosystem on the planet. Forget about the rainforest, native grasslands are disappearing at the most alarming rate.
- Most converted grassland acres are designated as highly erodible and susceptible to higher rates of soil erosion, degraded water quality and increased chemicals in water sources.

**Fields like this one that were native grassland in 2011 and converted to crop production in 2012 are often done so with little regard to the field's ability to actually produce crops. The economic incentives offered from federal crop insurance typically provide a guarantee of financial profit regardless of crop production.**

Native grasslands are critical for many forms of wildlife. Once lost, those grasslands and the value they provide are very difficult to re-establish. Wildlife that is hurt when grasslands are converted to cropland includes:

- Grassland nesting birds — This group is declining faster than any other group of birds in North America. The list of these birds experiencing significant decline includes Eastern Meadowlark, Bobolink, Greater and Lesser Prairie Chicken, Short-eared Owl and Grasshopper Sparrow.
- Monarch Butterflies — The once common butterfly is now experiencing all-time population lows due to losses in habitat and declines in the abundance of milkweed plants. In the past 10 years, Monarch butterfly wintering populations have declined by a staggering 93.3%.
- Pheasants and Quail — Upland bird hunting is a major economic incentive for states throughout the Midwest and Great Plains. In most of the states long known for premier

*(continued on page 6)*

**The pace at which native grasslands are being converted to crop production is happening at an alarming rate. In 2012, Nebraska led the nation in having 54,876 of "non-cropland converted to cropland" according to the US Department of Agriculture data.**

## Landscape Changes *(continued from page 5)*

bird hunting, pheasant and quail numbers have reached all-time lows, leading to decreased economic drivers for state wildlife agencies and local economies.

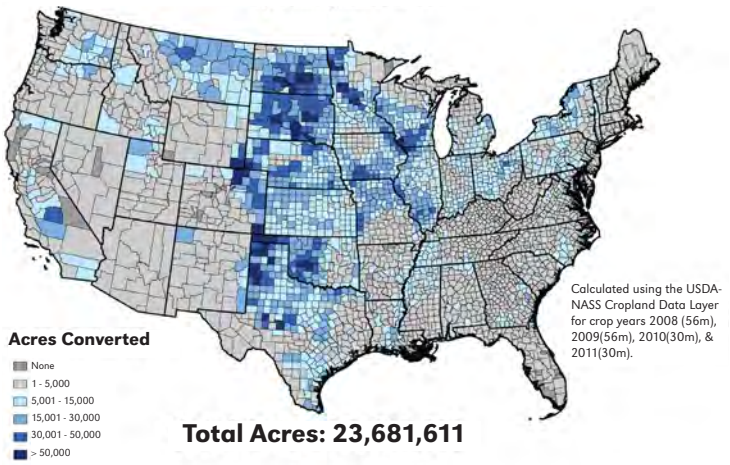
- Honey Bees — The advent of Colony Collapse Disorder (CCD) in 2005 has produced dramatically reduced honey bee hive numbers and their success across the country. Today, beekeepers annually experience between 30% and 50% loss of their colonies each year. While the reason for CCD is not yet attributed to a single cause, it is clear that the continuing loss of high quality honey bee foraging habitat is a key factor that reduces a hive's ability to ward off the negative effects of things like Neonictinoid pesticides, disease and parasites.
- Waterfowl — As much as 50% of the North American duck population reproduces in the native grasslands of the Great Plains where grassland conversion is taking place.

Wildlife populations in the Great Plains often decline from "the death of a thousand paper cuts." The dramatic changes in available habitat are often subtle and hard to notice. The shrub thicket in the fence line that is removed, the native grassland converted to corn and soybean production, the small wet area in the field that is drained and farmed, the old abandoned farmstead leveled and now farmed… all of these changes are small, happen every day, and go unnoticed by many. When combined, they have a cumulative effect of changing the landscape and available wildlife habitat in very dramatic ways.

Today, there is a good chance that the wildlife numbers and habitat that you remember from as little as five years ago have been dramatically impacted. If having increased wildlife numbers due to great habitat is important to you, I would encourage you to get involved. Pheasants and Quail Forever are working to make the remaining wildlife habitat as good as it can be for all forms of wildlife — grassland songbirds, to butterflies, to gamebirds. They are all experiencing declines that more and better habitat can help address. The more people that get involved, the more great things we can do to benefit wildlife.

For more information, see the 'Nebraska Pheasants Forever' Facebook page or our website, www.NebraskaPF.com.

**Acres of Grassland/Wetlands/Shrub Land Converted to All Crops By County, 2008-2011**




**During a four-year period from 2008 to 2011, nearly 24 million acres of native grasslands, primarily located in the Great Plains, were converted to crop production. The conversion of those acres to crop production have had significant impacts on environmental impacts like wildlife habitat, soil health and water quality.**

# Worldwide Study Finds that Fertilizer Destabilizes Grasslands

Fertilizer could be too much of a good thing for the world's grasslands, according to study findings published online Feb. 16 by the journal *Nature*.

The worldwide study shows that, on average, additional nitrogen will increase the amount of grass that can be grown. But a smaller number of species thrive, crowding out others that are better adapted to survive in harsher times. It results in wilder swings in the amount of available forage.

"More nitrogen means more production, but it's less stable," said Johannes M.H. Knops, a University of Nebraska–Lincoln biologist and one of the paper's international co-authors. "There are more good years and more bad years. Not all years are going to be good and the bad years are going to be worse."

The three-year study monitored real-world grasslands at 41 locations on five continents. The sites included alpine grasslands in China, tallgrass prairies in the United States, pasture in Switzerland, savanna in Tanzania and old fields in Germany. Two sites in Nebraska were part of the study, the Cedar Point Biological Station near Ogallala and the Barta Brothers Ranch in the Sandhills near Valentine.

The study found common trends among grasslands around the world:

- Natural — unfertilized — grasslands with a variety of grass species have more stability because of species "asynchrony," which means that different species thrive at different times so that the grassland produces more consistently over time. This finding was consistent with the findings of previous, single-site studies as well as previous biodiversity experiments conducted in Europe.
- Fertilized plots saw declines in the numbers of species compared to unfertilized control plots. The plots averaged from 4.4 species to 32.3 species per square meter and declined by an average of 1.3 species per site.
- Fertilization reduced species asynchrony and increased the variation in production levels over time compared to control plots. This weakened the benefits of species diversity seen in the un-manipulated plots.

While public attention has grown about elevated levels of carbon dioxide and global warming, Knops said elevated levels of mineral nitrogen in the environment also are concerning. While it's rare for ranchers and farmers to fertilize rangeland and pasture, grasslands are affected by nitrogen deposition that results from burning fossil fuels, as well as from fertilizer runoff and ammonia volatilization from cropland.

Knops said fertilizer overuse could intensify the detrimental effects of drought on grasslands, such as the drought that devastated cattle herds in Texas and Oklahoma from 2011-13, when Texas lost about 15 percent of its cattle herd, or about 2 million animals.

It also could have ripple effects during bad years by reducing the plant cover, which increases erosion, and decreases water filtration and carbon sequestration benefits provided by grasslands.

The Nature article, "Eutrophication weakens stabilizing effects of diversity in natural grasslands," is one of several research articles on the relationships between grassland diversity, productivity and stability, generated by the Nutrient Network experiment. Knops called it an unprecedented experiment.

"In the past you didn't see a collaborative effort at a really large scale like this in biology or in ecology," he said.

Source: Leslie Reed, Office of University Communications, UNL, 2-17-2014.

Editor's Note: The *Nature* article can be viewed at www.nature.com/nature/journal/vaop/ncurrent/full/nature13014.html.

## *On the Land* Is Now Online

The Sand County Foundation's Leopold Conservation Award (LCA) Program magazine *On the Land* is now available. As an outcome of its Innovations on the Land Symposium held in Lincoln in July 2013 (see Fall 2013 issue of this newsletter), the magazine features engaging, in-depth stories of the lives and livelihoods of five remarkable Leopold Conservation Award-winning land stewards. View the magazine at leopoldconservationaward.org/wp-content/uploads/sites/5/2013/11/On-the-Land-PDF-Final.pdf. You can also view presentations from the symposium, including one by Nebraska 2013 LCA winner Homer Buell, at www.youtube.com/watch?v=fgkyGj9lfZU&list=PLSFYRmLq8gg73b_FMp09Sy3ANVnvnQPSD.

There was another outcome of the July symposium. In February, 2014, Sand County Foundation convened a group of interested LCA recipients, including Buell, and program partners near Capitol Hill to participate in a message training session and meetings with policy makers, like-minded organizations and relevant press to discuss the critical importance of voluntary, private landowner conservation efforts.

The Nebraska LCA recipient will be announced on April 18 in connection with a celebration of Earth Day.

## CGS Associates

**Tiffany Heng-Moss** received the 2013 National Teaching Award for Food and Agriculture Sciences. She is one of only two professors in the nation to be honored by the Association of Public and Land-grant Universities.

**Jerry Volesky** received the 2013 Innovative Extension Specialist Award for his relevant, insightful extension programming and leadership to rangeland users, especially with drought management, the Ranch Practicum, Range Shortcourse, Range Youth Camp, Range Judging, and evaluation of annual forages. He also helps plan, and is a frequent speaker, at the annual Nebraska Grazing Conference.

**Bryan Reiling** received the 2014 College of Agricultural Sciences and Natural Resources Distinguished Teaching Award.

## 2014 Nebraska Grazing Conference Features New Venues

The 14th annual Nebraska Grazing Conference will be held August 12-13. The location is still Kearney, but this year most of it will be at the Ramada Inn. After lunch on the second day, the conference will move to the Buffalo County Fairgrounds for a live animal handling demonstration by Curt Pate from South Dakota. Pate was a consultant on the 1998 movie, *The Horse Whisperer*. His appearance on the program is sponsored in part by the Beef Checkoff.

As is the case every year, there will be a mixture of university and agency speakers as well as those who manage grazing operations.

While the program was not finalized at press time, we can tell you that in addition to Pate's low-stress animal handling techniques, this year's program will include the following topics: water capture, transfer, and storage; mob grazing; windfarm habitat heterogeneity; managing after drought; switchgrass for forage or biomass; and GrassSnap, a mobile app for monitoring grasslands.

The two-day pre-registration fee of $80 (payable to 2014 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 August 1 deadline, compliments of the UNL College of Agricultural Sciences and Natural Resources. Reduced registration fees apply for other full-time students. Higher 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 will also be 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.

## Opportunities for Livestock Expansion in Nebraska

A new report from UNL outlines the potential for expansion of the state's livestock industry.

Ronnie Green, vice president of agriculture and natural resources for the University of Nebraska, discussed the report March 6 at the Governor's Ag Conference in Kearney.

"We all know that livestock is big business in Nebraska," Green said. "Clearly there are opportunities to expand the industry to ensure further economic success in our state."

Greg Ibach, director of the Nebraska Department of Agriculture, welcomed the report.

"The report outlines exciting rural development opportunities through the livestock sector," Ibach said. "But it also outlines the critical role local community leaders and public policy makers still have in helping Nebraska achieve its full potential."

*(continued on page 8)*

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## Opportunities *(continued from page 7)*

The 24-page report, prepared by faculty in UNL's agricultural economics department, notes that the "Nebraska advantage," a reference to the state's unique mix of crop, livestock and biofuel production, has served the state well. However, the report notes, in some respects Nebraska's livestock industry has fallen behind those in other states.

The report, prepared in collaboration with the Nebraska Department of Agriculture, outlines potential expansion scenarios in beef cattle, dairy cattle, pork and poultry. It outlines potential obstacles and benefits.

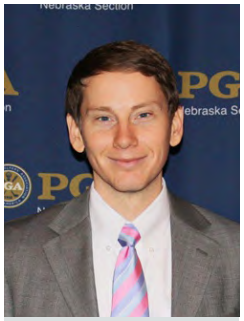
The report concludes: "At this juncture it would appear that the livestock component of this unique system has considerable potential for further expansion. In fact, the long-term economic sustainability of the total crop/livestock/biofuel system and its ability to thrive in the future may hinge upon such expansion as global demand for food products, especially protein-based products, rises. The market forces, both domestic and global, are well positioned to allow investment in and expansion of this state's animal industry in the coming decade."

"As the state's land-grant university," Green said, "we are hoping to use this report as a way to start a statewide conversation about this potential, understanding that all Nebraska citizens have a stake in this matter."

Source: Written by Dan Moser, IANR Educational Media.

Editor's Note: Read the full report at agecon.unl.edu/livestock.

## PGA Golf Management Alumni Earn Awards



Joe Canny

Carly Froehlich Ulrich

Alumni of the UNL PGA Golf Management program continue to make us proud! At the March 3, 2014 Nebraska Section PGA meeting, Joe Canny (class of 2009), Nebraska Junior Golf Tour Director and Player Development Coordinator for the Nebraska Section PGA, received the 2013 Youth Player Development Award, and Carly Froehlich Ulrich (class of 2009), Merchandise Director for Omaha Country Club, won the 2013 Merchandiser of the Year — Private Category.

On the same date, Derrick Vest (class of 2010), Assistant Professional at Southern Hills Country Club in Tulsa, OK, was awarded the 2013 Assistant Golf Professional of the Year Award by the South Central Section PGA.