

Loss of Fire, Juniper Encroachment, and Ecosystem Services in Grasslands

by Dirac Twidwell, Department of Agronomy and Horticulture, UNL

The Great Plains of North America. To some, the phrase conjures up mental images of an *Ocean of Grass* spreading across the interior of the continent. To others, the Great Plains is best recognized as a *Sea of Fire* dancing with this *Ocean of Grass*. For those belonging to the latter, the structure and function of grasslands have been inherently linked to fire since the last glacial maximum, when climatic conditions provided a more favorable environment for woody plants. This imagery is indeed consistent with the accounts of early Euro-American settlers. Washington Irving (1832) remarked, "*The grass is at times green and short and at other times tall and white... nothing but bare prairie, which becomes confused in the distance with the smoke of burning grass.*"

It is now a well-established scientific conclusion that human use of fire gave rise to the Great Plains. For thousands of years, Plains Indians increased fire activity beyond the occurrence of fire that would have resulted from lightning alone. The actions of previous inhabitants are responsible for a wide range of grassland-dependent ecosystem services that society continues to value in the Great Plains today. Unique plant and animal life abound. The Great Plains supports nearly 50% of U.S. beef production. The region is still rich in underground water resources. The once expansive prairies of the Great Plains have been reduced to a fragmented grassland biome. Of course, this reality is not new. Dr. John Weaver, a pioneer of prairie ecology, remarked during his exceptional career as a professor at the University of Nebraska, "*The disappearance of a major natural unit of vegetation from the face of the earth is an event worthy of causing pause and consideration by any nation. Yet so gradually has the prairie been conquered by the breaking plow, the tractor, and the overcrowded*

herds of man... that scant attention has been given to the significance of this endless grassland or the course of its destruction. Civilized man is destroying a masterpiece of nature without recording for posterity that which he has destroyed (1954)." Here, Weaver brings attention to humanity's direct conversion and displacement

of Great Plains grasslands, and yet the grasslands remaining today are experiencing a new and somewhat unexpected threat as a result of the lost coupling between humanity and fire: juniper encroachment.

Similar to the gradual loss of grasslands noted by Weaver, juniper encroachment gradually displaces grasslands. In the southern Great Plains, where Ashe juniper and eastern redcedar have transformed expansive grassland areas to juniper woodlands, researchers in Kansas, Oklahoma and Texas show it takes 40-60 years to cause a shift from grassland to juniper woodland. The impacts on the ecosystem services de-

sired from this region are therefore often not observed until after a critical tipping point has already been crossed. Yet, the effects on ecosystem services are dramatic. I recently led a review of the consequences of the grassland to juniper woodland transformation, compiling information from an extensive amount of scientific research. The loss of grasslands to juniper woodlands is linked consistently to collapses in grassland birds, small mammals, and plant biodiversity. It has been identified as a leading reason for the decline of the lesser prairie-chicken, which has recently been listed as threatened in the Endangered Species Act, and provides a cautionary warning for other grouse species occurring in areas experiencing early stages of juniper encroachment. Livestock production declines 75% following grassland conversion to juniper woodland. Although wildfires are less likely to occur in juniper

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Early stages of eastern redcedar encroachment.

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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. MassengaleCGS Director
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FROM THE DIRECTOR

Nebraska is an important agricultural state and the economy of the state is so dependent on the health of the agricultural sector that we must take the necessary steps to ensure its sustainability. Animal and plant commodities and their products generate much of the income for this industry. Grasslands are an important component of both the plant and animal production systems, and they must be sustained if we are to feed and clothe the world's population in the future.

There are numerous uses and values that make grasslands important not only to their owners, but to society overall. Most grasslands are not located on land that is suitable for growing cultivated crops because of topography, climate and soil conditions. However, they do produce vegetation for grazing by livestock that converts this material into food and fiber. Therefore, it is critically important to continue to use and further enhance sustainable practices on our grasslands.

Many people remember or are knowledgeable of the "Dust Bowl" in the Great Plains in the 1930s. The loss of topsoil during that era had a negative impact on the region for many years following. At that time, producers had fewer crops and options within those crops to select because of the drought and the resulting loss of topsoil.

Today's level of agricultural production would not remain viable under such conditions; therefore, we must prevent those kinds of occurrences from happening again. Fortunately, the United States Congress recognized those devastating conditions and has been supportive of sustainability through appropriations in the farm and other bills relating to agricultural production and conservation practices along with the quality and quantity of the nation's water.

When properly managed, grasslands are generally quite resilient and sustainable. They provide an excellent groundcover that improves water infiltration and groundwater recharge, reduce wind and water erosion of the soil, and contribute organic matter and carbon to the soil, thereby enhancing the water-holding capacity and nutrient recycling through decaying organic matter. The employment of conservation practices, ecological principles of species diversity and recommended management practices all contribute to sustainability. When such practices are used, they also improve wildlife habitat, afford better protection of natural resources, and may provide additional sources of income.

Owners and users of grasslands should take a more active role in ensuring that these lands are managed to minimize damage to soil, water and other natural resources, which are all important in maintaining our future food production systems.

M. A. Massengale

Hitler's Effect on Wildlife and the Geography of the Nebraska Farmstead

by Larkin Powell, School of Natural Resources, UNL

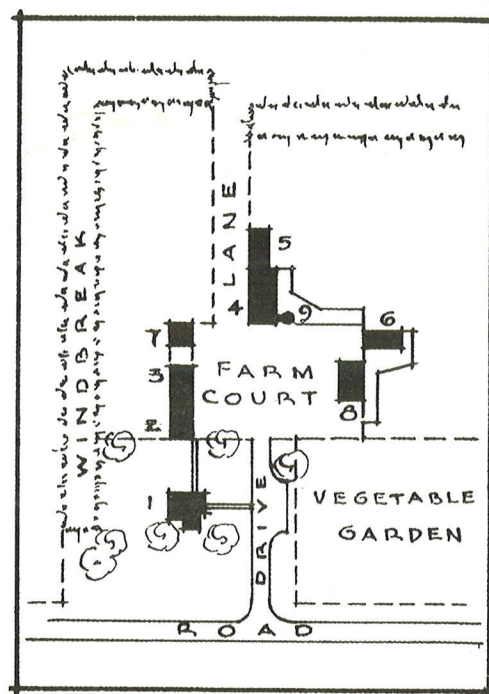
Nebraska's landscapes, which support our wildlife, have gone through several periods of rapid transition in history. Perhaps one of the most powerful transitions was the period surrounding World War II.

How is it possible that Adolph Hitler's aggression in Europe changed the Nebraska landscape? Our landscapes are farmed landscapes. Wildlife lives on farms. Soldiers who returned from WWII to Nebraska farms came home to a landscape that would never be the same.

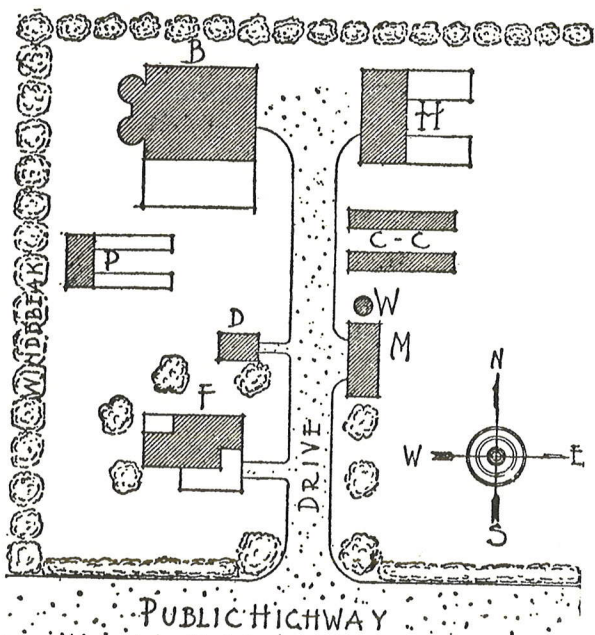
The smallest unit of the agriculture industry is the farmstead. Farmsteads are where decisions are made by the staff of the farm. Farmsteads are the destination for supplies, energy, and equipment that are purchased from an external source to accomplish the tasks of the industry. And, farmsteads are where resources are brought, after extraction from the landscape, in preparation to be sold. Nebraska's landscape is composed of many farms, and these farms produce goods. Farming is an industry. And, the industry is operated from farmsteads.

Farmsteads have two basic components: yards and buildings. Yards are designed to provide livestock with grazing or other feeding areas and areas in which to move. Buildings house people and animals, store produce, machinery, implements, and food, and provide enclosed spaces for farm operations. A study of the geography (spatial arrangement) of these components of the farmstead can provide insight into the forces that affected the farm landscape.

As WWII approached, the farm industry in Nebraska was in an early stage of a complete transformation. The average farm size in Nebraska had grown from 180 acres in 1890 to about 300



A farmstead in the 1950s, as proposed by Iowa State Extension. The farmhouse (1) is surrounded by a garage (2) and machine shed (3). A poultry house (7), barn (4), cattle shed (5), silo (9), hog house (6), and corn crib (8) complete the complex farmstead structure.



A farmstead in the 1920s, as suggested by the Farm Journal's "How to do Things" book. The farmhouse (F) is backed by the dairy (D), poultry house (P), a small machine shed (M), and a well (W). A corncrib (C), hog barn (H), and big barn (B) complete the farmstead.

acres by 1940. The Depression had kick-started a decrease in the number of farms as the U.S. entered WWII. The typical farm in Nebraska produced more than four commodities.

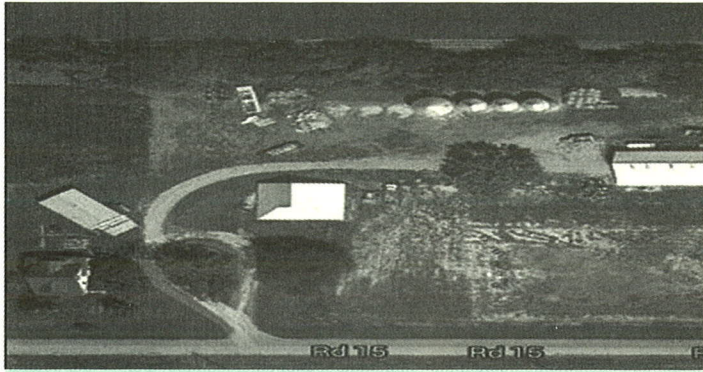
Mechanization and electricity came to the farm just in time for WWII, which created unique demands from landscapes. Tractors were a godsend to answer the call for production when there were fewer young men to work the fields. Further, innovations such as refrigeration and synthetic fabrics preceded the war. All of these factors came together to create a "perfect storm" that would modify farmsteads in Nebraska.

Nebraska's farmsteads have been a series of modifications of a linear layout. Farmsteads of the 1920s were more complex than the farmsteads of early settlers. As a farm experienced success, the owner could invest in equipment to produce additional commodities. Farmers in the 1920s were encouraged to position key buildings along a lane that led perpendicularly from the main road. The house greeted the visitor immediately, and a row of trees surrounded the entire farmstead to provide shelter from prevailing winter winds, as well as shade in the summer. The well was near the house, a by-product of the early years when a house and a well were the critical components of a Nebraska farm.

Some farms in the 1920s would have a small machine shed to protect the large investments in new implements and engines. A dairy was close to the house because it was used morning and night, and the milk required processing. The poultry barn, or

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Hitler's Effect on Wildlife and the Geography *(continued from page 3)*



A farmstead in York County as shown on Google Maps. The farmhouse and garage are alone on the west side of the farmstead, while two machine sheds and grain storage facilities to the north complete the simple farmstead structure.

chicken coop, was placed close to the house to provide some security — chickens were the easiest of livestock to steal. A corn crib was central to the house and all livestock barns, because corn served as feed during winter months. A barn was placed farthest from the house. The barn housed cattle and horses on the bottom level. The top level was a hay mow to provide winter feed and bedding. And, a hog house rounded out the layout. The hog house and barn were placed away from the house to reduce odors.

Radiating out from the 1920s farmstead was an array of pastures and small fields. Each of the livestock had its own yard. Pastures beyond the yard provided grazing in the summer for the relatively small number of livestock. The farm would include a pasture for hogs, for cattle, and for horses, and perhaps a pasture for sheep. Beyond the pastures, the crops began. Two essential crops were corn and oats, which provided feed for livestock. The patchy farm with hedgerows, orchards, small grains, and grass provided nesting habitat for many birds.

Nebraska had over 1 million horses in 1920, but the introduction of tractors had reduced the number of horses to less than 500,000 by 1940. Factories geared to produce tanks and other vehicles for the war effort were retrofitted to produce tractors after the war. Horses essentially disappeared by 1950 — so few that the Department of Agriculture stopped counting them.

How did this affect wildlife? Most farms eliminated the oat field with no horses to feed. The horse pasture was plowed for crops. Two important habitat areas for grassland wildlife disappeared from almost every farm in Nebraska.

The need for victory in the war also drove innovations in chemistry that would eventually help soil quality. After the devastation of the Dust Bowl, farmers and ranchers had a new appreciation of the soils that supported their livelihood. “Your soil fertility can be compared with your bank account,” wrote the *Nebraska Farmer*.

Farmers were instructed that crops on “tired soils” needed specific elements, including nitrogen. Barnyard manure was suddenly replaced with a magical powder — synthetic nitrogen fertilizer. Ironically, explosives such as TNT needed the same synthetic nitrogen product. Factories were built to mass-produce ingredients for bombs during WWII. After the war, the factories were retooled to produce fertilizers for farmers.

How did synthetic fertilizers affect the geography of the farm

and wildlife? Quite simply, the product worked. The University of Nebraska’s tests in 1950 claimed that an application of nitrogen would result in an average of 14 bushels more per acre. The *Nebraska Farmer* reported that applications to wheat doubled the yield in Butte County. More profits to the farmer meant purchase of more land and larger machinery. Farm fields continued to get larger. Quail, jackrabbits, cottontails, songbirds, and pheasants lost their fencerow “edge” habitat. These species began a slow, steady decline on the private lands of Nebraska.

WWII also changed the livestock on Nebraska farmsteads. The refrigeration industry was buoyed by production needs of the war. The need for a set of milk cows diminished when the “fridge” came to the farm. Nylon was mass-produced for parachutes, and synthetic fabrics eventually replaced itchy, woolen sweaters. By the 1950s, farmsteads had lost horses, milk cattle, and sheep, which sharply reduced the number of pastures around the farmstead. The corn fields crept as close to the farmstead as the windbreak would allow, and the landscape was simplified yet again. Grass began to disappear from the 1950s farmstead.

However, the geography of the buildings was more complex than the 1920s farmstead — mostly as a result of buildings required by mechanization. A family car required a garage, which was not present in the 1920s. The machine shed was larger to accommodate more, and larger, machinery. The horses were gone, but their empty stalls remained in the barn — perhaps filled with small implements that did not fit in the machine shed. As crop yields began to increase, and as farm size continued to increase, more and larger corn storage buildings were added to the farmstead.

Fast-forward to present-day Nebraska, and the modern farmstead has taken linearization to an entirely new level. Yards for livestock have disappeared from many farms. Livestock (especially hogs and poultry) have been moved indoors for their entire time on the farm. Large livestock houses are created in duplicate, triplicate, and more — lined up along the central lane. An addition to the farmstead — the manure pit — is necessary because of the magnitude of livestock. Metal grain bins also line the central road. The small hen house is gone. The machine shed and the garage are even larger. And, the barn is gone from most farmsteads.

Currently, the USDA reports that farms produce an average of only one commodity. Simpler farms mean simpler landscapes, which support fewer species of wildlife. Of course, not all wildlife has done poorly under the new landscape configuration. Numbers of deer, turkeys, and sandhill cranes have increased because they do not rely on grasslands and they benefit from waste corn in our fields.

The soldier who came back to Nebraska from fighting Hitler’s armies did not see these changes immediately. But, WWII was a game-changer for the farmsteads and landscapes of Nebraska. Today, we continue to combat Hitler’s ghost as we focus conservation efforts on private lands in eastern Nebraska to support wildlife on profitable farms.

Editor’s Note: Larkin Powell is a Professor of Conservation Biology and Animal Ecology at UNL. He is also the Director of the Great Plains Cooperative Ecosystem Studies Unit (GP-CESU), a network of 19 academic institutions in the Great Plains region and 10 federal agencies. His book, *The Best of Intentions*, is scheduled for publication in 2016.

Will Changing Forage Resources Shift Nebraska Beef Production Systems?

by Jim MacDonald, Department of Animal Science, UNL

By now most in production agriculture are aware of the recent conversion of U.S. grasslands into crop production. In a 2013 publication, Wright and Wimberly estimated that 1.3 million acres of rangeland in the western cornbelt region of ND, SD, NE, MN and IA have been converted to corn and soybeans during the time period from 2006 to 2011. In Nebraska, the amount of land USDA designates as Principal Crops Area Planted increased from 18,689,000 acres in 2006 to 19,553,000 acres in 2013, an increase of 864,000 acres, or 4.6%. Others can debate if this change should be classified as “good” or “bad.” I can’t tell you if it is good or bad, only that it is different. Therefore, my purpose is to simply point out that land use has changed and the area of traditional grasslands will likely not increase in the foreseeable future.

The cow/calf and stocker cattle segments of the beef industry have been the primary users of Nebraska grasslands for generations. Through time, experience and research, the men and women responsible for managing this dynamic resource have become adept at understanding the interrelationships between cattle, grass, soil, and wildlife associated with grasslands. Now, the combination of reduced acres of grasslands and increased beef prices has strengthened the value of grasslands in Nebraska. The UNL Agricultural Economics Department tracks lease rates for cow/calf producers. Over the past five years the average five-month lease rate in Nebraska has increased from \$150/pair to \$220/pair, an increase of 47%. Cow numbers have dropped significantly over that same time period, largely due to drought. Now the general sentiment is that cow numbers should increase. But how much expansion can we expect on a shrinking land base? Is the remaining grass too expensive for traditional cow/calf production, and better utilized for stocker cattle? Are there other opportunities that exist in this new environment?

One issue that we believe is a key to expanding the number of cows in Nebraska is optimal use of corn residues. As corn acres and corn yields increase, corn residue is one of the few forage resources that are increasing rather than declining. This realization has caused us to rethink traditional beef production systems. For example, it is common throughout much of the Northern Great Plains for beef cows to graze in the summer and to be confined for part of the winter. If residues are available in the winter, is it possible to confine the cows during the summer and graze during the winter? Are there consequences for birth date, age at weaning, animal health and reproduction if this system were adopted? Researchers at UNL have been investigating confined cow production systems for the past three years, and the economics for summer confinement and winter grazing of residues appears favorable. We hypothesize that it is possible to develop a cow/calf production system based on the use of corn residue, rather than grassland, but we have much left to learn.

We also must keep in mind the relationship between crop production and beef production. While cows once grazed throughout most of Nebraska, producers have become more specialized over time, focusing on either beef production or crop production. Now, a majority of cows resides in the western half of Nebraska while much of the opportunity for expanded residue use exists in the eastern half of the state. Is it possible to assimilate

cows back into eastern Nebraska agricultural production systems, and where will the expertise come from for managing these cows? As an instructor at UNL, I am continually amazed at the number of young people looking for opportunities in production agriculture — students who have no “home place” to which they can return, many of whom may have grown up in urban areas. There appears to be opportunity for young people who want to manage cattle grazing residue in eastern Nebraska to enter the industry. It is possible they may not even need to own the cattle. I’m waiting for a young entrepreneurial spirit to piece together a business plan to take advantage of the opportunity.

The other issue that is currently being emphasized by UNL is the impacts of removing residue from fields. We have good evidence that grazing residue has no long-term negative impacts. We have much less information, and therefore less agreement, on the impact of mechanical removal of residues. We are also beginning to investigate incorporating cover crops into these integrated production systems and are interested in determining if cover crops retain their benefits when grazed. UNL has just completed the hiring process for three new faculty members who will be working on these issues. Dr. Mary Drewnoski (beef systems specialist), Dr. Daren Redfearn (forage agronomist) and Dr. Jay Parsons (systems economist) will be joining the team of UNL faculty that is already working on these issues. We are looking forward to working with these scientists to expand on the Nebraska advantage of grasslands, crops and livestock.

Literature Cited:

Wright, C.K., and M.C. Wimberly. 2013. Recent land use change in the Western Corn Belt threatens grasslands and wetlands. *Proceedings of the National Academy of Sciences*. www.pnas.org/cgi/doi/10.1073/pnas.1215404110.

CGS Associates

At a March 19 reception for Nebraska State Senators held in Lincoln, the Association of Nebraska Ethanol Producers presented animal scientist **Terry Klopfenstein** with a special recognition award in honor of his contributions to the industry.

The North Central Branch of the Entomological Society of America gave the C. V. Riley Achievement Award to **Fred Baxendale** for his outstanding contributions to the science of entomology.

At the annual College of Agricultural Sciences and Natural Resources Awards Banquet in April, the following were recognized: **Bryan Reiling**, recipient of both the UNL College Award for Distinguished Teaching and the 2013 L.K. Crowe Undergraduate Faculty Advising Award; **Rick Rasby**, recipient of a 2014 Holling Family Senior Faculty Teaching Excellence Award.

Loss of Fire *(continued from page 1)*

woodlands than grasslands, fire intensity is incredibly higher and greatly reduces the capacity for firefighters to suppress wild-fires. And finally, the impact of juniper encroachment on water resources continues to be an intense area of research, with both positive and negative effects occurring as a result of site-specific properties interacting with weather conditions to influence runoff and infiltration mechanisms.

In the wake of the juniper encroachment problem, grassland stewards have responded with novel strategies. Landowners have joined forces in neighbor-help-neighbor prescribed burn cooperatives, whereby equipment, money, training and experience are pooled to help burn each other's properties and restore fire to the grasslands of the Great Plains. A number of prescribed burn cooperatives are located in Nebraska, including a couple cooperatives that are among the most active in the Great Plains. In Texas and Oklahoma, some prescribed burn cooperatives have successfully changed

local legislation and received exemptions to conduct prescribed fires during periods of government-imposed burn bans. My previous and ongoing research experiments, with collaborations from scientists at Oklahoma State University and Texas A&M University, demonstrate that such fires are needed if landowners are to successfully meet their restoration goals. This research, along with the actions of landowners looking to use fire in new ways, reveals that there are opportunities to be proactive following juniper encroachment. However, it is also clear that it is much easier to use fire to conserve grasslands prior to juniper encroachment than to restore them after transformation has occurred. Considering the loss of important ecosystem services as a result of juniper conversion of grasslands, adapting rangeland management to ensure the conservation of grasslands is clearly advised — especially in many areas of Nebraska experiencing the early stages of juniper encroachment.

Century-old Sod Wall Unites Researchers across Disciplines

The little house on the prairie is not so little anymore.

A team of interdisciplinary researchers has begun analysis on part of a 110-year-old sod house that was once home to a group of Custer County, Neb. pioneers.

"This is the oddest project I have ever worked on," said John Carter, senior research folklorist/associate editor at the Nebraska State Historical Society. "We have a lot of disciplines bringing together a lot of resources toward a central goal. Never in my life have I been a part of such a thing, nor have I ever had as much fun."

Built by Henry Eugene Chrisman in 1902 and 1903, the sod house was originally a three-room dwelling with exterior doors into each room. The house is unique in that no other with its plan has been recorded in Nebraska.

Two years ago, Larry Estes, whose family owns the sod house, contacted archaeologists at the historical society to survey the property.

"That is where I got involved," Carter said. "I have a long and deep interest in sod houses, as they are not only cultural features on the landscape; they are part of the landscape."

Custer County is the "epicenter" of sod house construction, with more sod buildings there than anywhere else in North America, Carter said.

The project involves studying a 4-by-8-foot chunk of sod deemed the "sod wall," which was removed from the house in November 2013. Pete Stegen of NET produced a video of the teardown available at <http://go.unl.edu/ghxe>.

"I see these sod blocks as archived samples taken from a prairie



An interdisciplinary team of UNL researchers has begun analysis on part of a 110-year-old sod house from Custer County, NE. The project involves studying a 4-by-8-foot chunk removed from the house in November 2013.

in 1902," said Dave Wedin, professor of plant and ecosystem ecology in UNL's School of Natural Resources. "It's rare to find plant and soil samples that old. These samples can give us insights into how that prairie functioned over a century ago before the onset of modern agriculture and all the changes in our landscape."

For example, all native prairies in Nebraska now have several non-native species in them like brome grass and Kentucky bluegrass. Had these invaded yet in 1900? And if these archived prairie soils are compared to modern agricultural soils in that area, how much of the soil organic matter and fertility has been lost in 110 years?

Those are some of the questions Wedin hopes to answer with his sod wall research.

"New techniques allow us to ask new questions from old samples like these pieces of sod," Wedin said.

For Johnica Morrow, applied ecology doctoral student, the sod wall presents an opportunity to examine the pests that plagued the pioneers.

"Our lab is interested in studying ectoparasites, namely bed bugs and fleas, which may have lived in the walls of the sod house and fed on its inhabitants," Morrow said. "Studying the sod house will advance our understanding of historic ectoparasitism in the United States. Understanding the nature of bed bug populations in the past is important for understanding emerging outbreaks of bed bugs in contemporary Nebraska."

LuAnn Wandsnider, professor and anthropology department chair, said that as an archeologist, she's focusing on the way people interacted with — and were affected by — sod houses.

"I'm interested in how people use material culture — buildings, clothing — to communicate something about themselves, such as ethnic identity and effective community leadership," Wandsnider said. "In Custer County, with its incredible ethnic diversity of homesteaders, we have a chance to see how sod houses were used in this capacity."

Back at the historical society, David Murphy, senior research architect, said studying the sod wall will shed light on his existing research that focuses on the history and theory of architecture in Nebraska.

"The deconstruction of the sample will allow me to record the coursing of one wall in detail, and perhaps allow me to devise

a reliable, noninvasive recording method for the coursing of other standing structures,” Murphy said. “Several results of the research we do on the sample will directly inform my current work on sod house antecedents, history and construction.”

And that’s just the beginning.

Anyone interested in exploring research opportunities with the sod wall is invited to contact Wedin at 472-9608 or dwedin1@unl.edu.

“I see this project as an example of citizen science and relish the opportunity to work with the public in Custer County,” Wandsnider said. “Also, I appreciate the chance to work with colleagues across disciplines, especially on East Campus, because of the emphasis there on ‘science with a purpose.’”

Source: This article and photo by Mekita Rivas, UNL School of Natural Resources, appeared in the online *UNL Today* on 4/2/2014.

GrassSnap Rangeland Monitoring App Now Available

by Bethany Johnston, UNL Extension

The rangeland monitoring app, GrassSnap, is available for Apple and Android smart devices. Visit the iTunes Store for Apple and Google Play for Android, then search for “GrassSnap.” The app is free, but I would appreciate feedback and comments from users via email or “Rate Us” on the app.

The app takes managers through the steps of taking a photo point and photo plots, photo-stamps the pasture name, GPS location, date, and direction looking using the “New Transect” and “Update Existing” buttons. Comments, Nebraska indexes, and Apparent TREND data are saved with the pictures in individual pasture folders. The grazing indexes and TREND score are specific for Nebraska; however, anyone can record comments about each transect. These comments will be saved with the photographs of the pasture.

The folders (in the Albums button) containing the pictures and data can easily be downloaded to your computer for viewing. The Map button saves your monitoring site locations on a map. The “List View” allows you to view all your monitoring sites and their GPS locations, which saves time when you go back to monitor your sites the next year.

The “Update Existing” button has an overlay feature. When you return to that monitoring site, a ghost image of the original photo point (the landscape view looking out) will appear. This helps you line up the silhouette of the hills, so you get the same, repeatable photograph year after year.

More information about monitoring and GrassSnap is available at centralsandhills.unl.edu/GrassSnap.

Editor’s Note: Johnston will be demonstrating GrassSnap on the first day of this year’s Nebraska Grazing Conference (see right column).

August 1 Is Pre-registration Deadline for Nebraska Grazing Conference



The deadline is fast approaching to pre-register for the 14th annual Nebraska Grazing Conference to be held in Kearney on August 12-13. To receive the pre-registration rate of \$80 for the two days (including lunches and banquet), the form and check (**payable to 2014 Nebraska Grazing Conference**) must be postmarked by August 1. Otherwise, the walk-in fee of \$95 applies. One-day registrations and student rates are available.

This year’s event will feature a live cattle handling and roping demonstration by “The Horse Whisperer” consultant, Curt Pate, which will take place at the Buffalo County Fairgrounds on Wednesday afternoon. Earlier that morning Pate will give a talk on stockmanship and stewardship, followed by a panel of Nebraska producers who use low-stress handling techniques. Pate’s appearance on the program is sponsored in part by the Beef Checkoff. Those interested only in the Pate presentations must complete and pay for a Wednesday-only registration either in advance or on the morning of Aug. 13 at the conference registration desk in the Kearney Ramada (note new location!!).

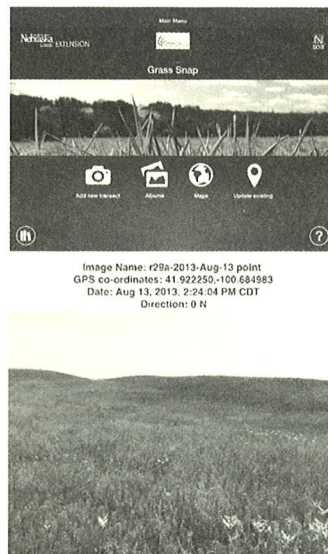
Other conference topics and speakers include:

- Water capture, transfer and storage, Nate Garrett, USDA-NRCS, Grand Island, NE; John Martin, Pleasanton, NE; Roy Westover, Ashby, NE
- Soil health and grazing, Jay Norton, University of Wyoming, Laramie, WY
- Mob grazing research, Walter Schacht/Jerry Volesky, UNL, Lincoln/North Platte, NE; and producer experiences with mob grazing, Tyler Greer, Rusty Star Cattle Co., Ainsworth, NE; Randy Holmquist, Reliance, SD
- Grazing and wildlife, Larkin Powell, UNL, Lincoln, NE; Stephen Winter, Certified Wildlife Biologist®, Winona, MN
- GrassSnap: A mobile app for monitoring grasslands, Bethany Johnston, UNL Extension, Thedford, NE
- Managing during and after drought, Julie Elliott/Nadine Bishop, USDA-NRCS, Holyoke, CO/Imperial, NE
- Research on switchgrass for forage or biomass, Rob Mitchell, USDA-ARS, Lincoln, NE
- Best management practices of 2013 Leopold Conservation Award winner, Beel Family, Johnstown, NE

See nebraskagrazingconference.unl.edu for program details and to download the brochure. Contact the Center for Grassland Studies with questions.



The Horse Whisperer consultant, Curt Pate, will give live cattle handling and roping demonstrations as part of this year’s Nebraska Grazing Conference.



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Prairie Restoration Milestone: Ten Thousand Acres!

It worked out just right for this big event to take place on the grounds of the Prairie Plains Resource Institute's Education Center — how appropriate! The now-so-familiar process was carried out in a spirit of celebration on a rare decent weather day.

The process of maintaining and restoring Nebraska ecosystems — specifically prairies and wetlands — has been a prominent part of the PPRI mission for all of our 34 years. To what end? To preserve biodiversity; to conserve and build the soil; for water quantity and quality and flood control; for wildlife habitat; to create more native prairie seed sources; for education and research and — not least of all — People Pasture! Please refer to “Why we




Prairie Plains Resource Institute Executive Director, Bill Whitney, planted PPRI's 10,000th acre near the Charles L. Whitney Education Center, named after his father. PPRI is headquartered in Aurora, NE.


plant native, local ecotype, high diversity prairies and wetlands” in the February, 2010 issue of *Prairie Plains Link* (prairieplains.org — Publications) for further details.

We are grateful to all of our members and restoration partners through the years for helping make possible what we consider to be such vital work for the future of the plains.

Editor's Note: The above article appeared in the March, 2014 issue of the *Prairie Plains Link* newsletter published by the Prairie Plains Resource Institute. The article and photo are used with permission from PPRI. The Center for Grassland Studies congratulates PPRI for achieving this important milestone!

Info Tufts

 Commenting on the stipulation in the Farm Bill passed earlier this year that farmers must adopt basic soil and wetlands protections to receive federal taxpayer-funded crop insurance, Audubon's legislative director Brian Moore said it is a major new safeguard for birds, particularly grassland species, which is the fastest declining bird group in North America. For more information, see page 8 of the May-June 2014 issue of *Audubon*.

 According to the 2013 annual report of the Nebraska Land Trust, USDA data show that Nebraska had more grassland converted to cropland (54,876 acres) between 2011 and 2012 than any other state in the country — representing a loss of nearly 85 square miles of grassland habitat. As a side note: the Center for Grassland Studies congratulates NLT for being awarded national accreditation in 2013 by the Land Trust Accreditation Commission; approximately 15% of land trusts nationwide hold this accreditation.