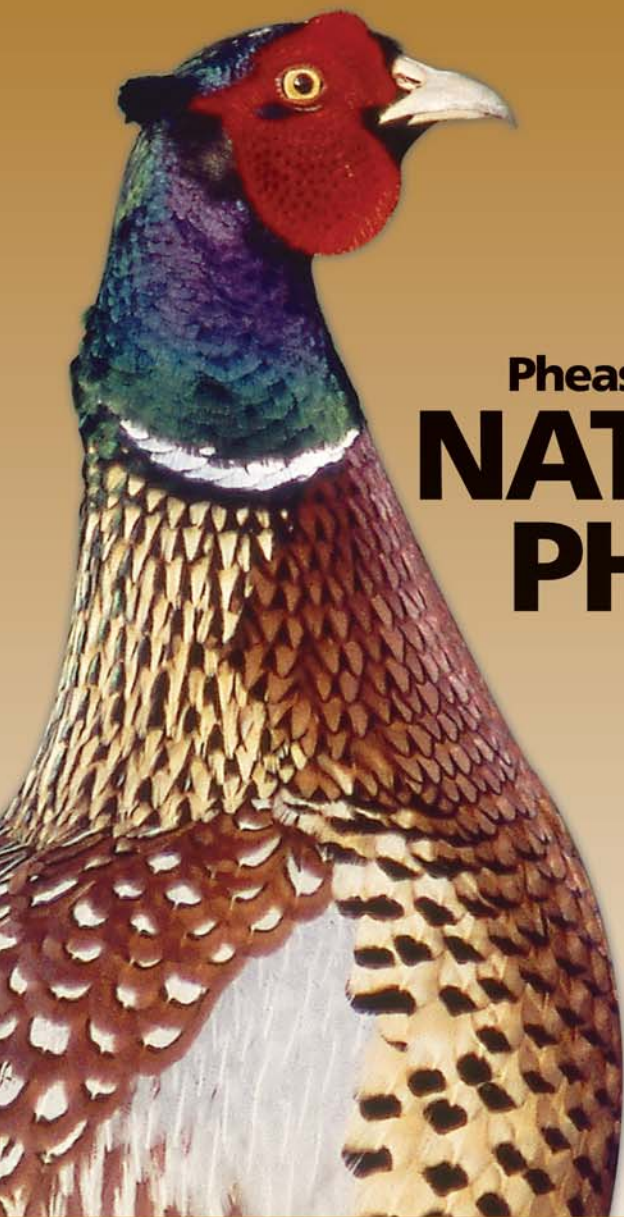




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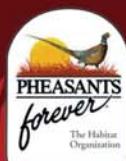
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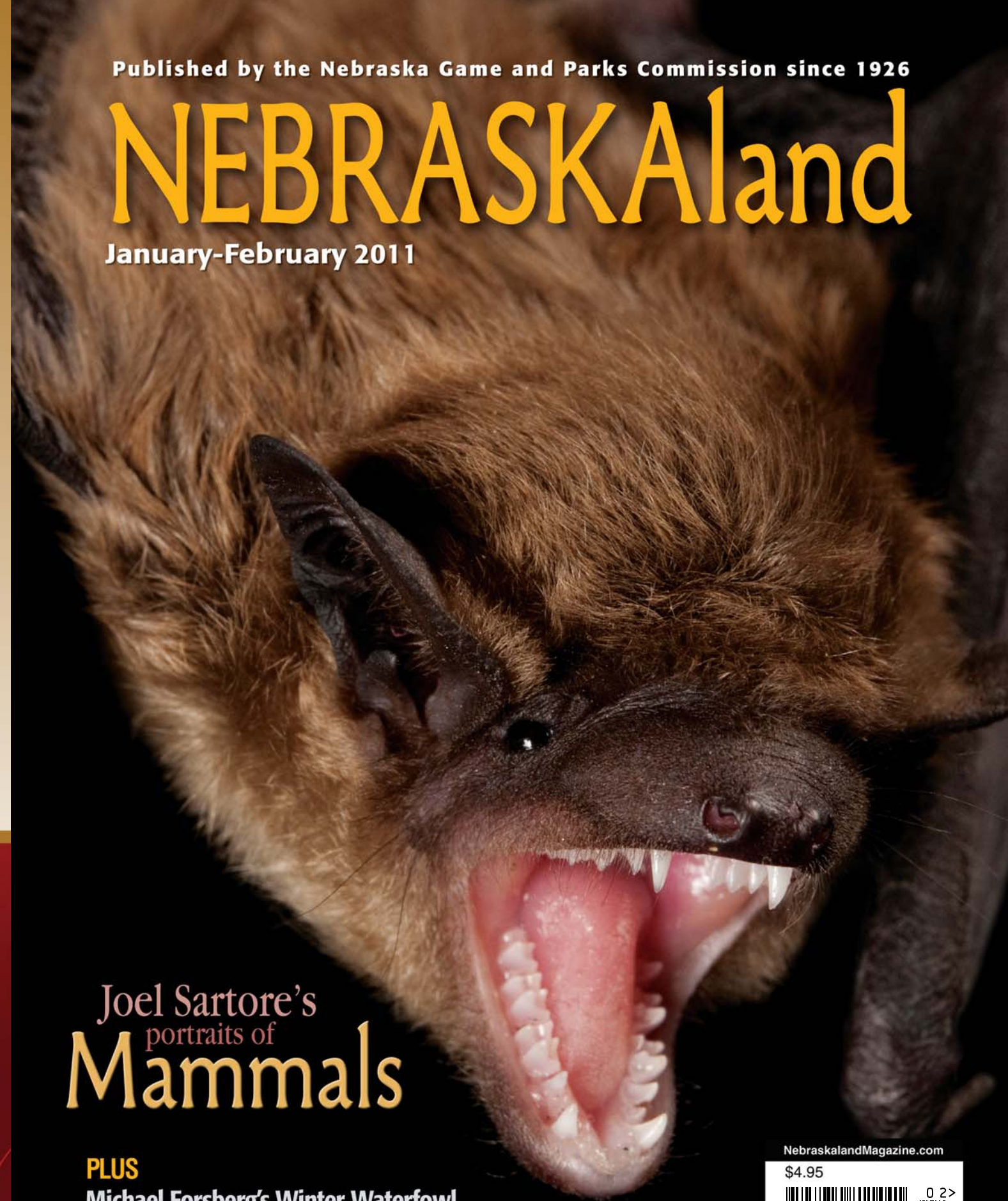
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NEBRASKAland

January-February 2011



Joel Sartore's
portraits of
Mammals

PLUS

Michael Forsberg's Winter Waterfowl

Potash • Windmills • A Checkoff for Wildlife

The Lucky 13 - Reasons to visit state parks all year long

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NEBRASKAland

Volume 89, Number 1, January-February 2011

FEATURES

14 Mammals - Our Seldom-seen Family Members

An upclose look at some of our fellow mammals that we may not often get a look at while they're alive.

TEXT AND PHOTOS BY JOEL SARTORE

20 Windmills

Well-known symbols, many historians believe that windmills played a key role in the settlement of the Great Plains.

By ELIZABETH MACK

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As winter settles in each year, slowly descending from the far north, it pushes waterfowl ahead of it. Many of these birds travel no further than Nebraska's Sandhills, where powerful springs pushing up from the Ogallala aquafer provide the open water that they need.

TEXT AND PHOTOS BY MICHAEL FORSBERG

28 The Lucky 13

Here are 13 activities to do at Nebraska's state parks this year, as well as some of best places to do them.

TEXT AND PHOTOS BY JEFFREY KURRUS

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Almost 100 years later, little remains of Nebraska's short-lived WWI potash industry that once had local landowners seeing little but dollar signs.

TEXT AND PHOTOS BY JON FARRAR

42 Wildlife Conservation Fund

Donations to Nebraska's Wildlife Conservation Fund play a key role in the surveying and protection of a variety of nongame species found in the state.

By GERRY STEINAUER

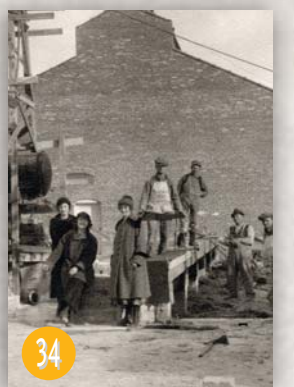
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Cover: The big brown bat, *Eptesicus fuscus*, is only about five inches long from nose to tail and is found throughout the state. To see other portraits of Nebraska mammals, see page 14. Photo by Joel Sartore.

Opposite: A corner post wrapped with wire is glazed with light January hoarfrost in Gosper County. Photo by Luke Kathol.

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“Old fashioned” Duck Hunting

Hi Jon [Farrar]
I don't know if you recall me, but you went with my sons (Aaron and Jake) out to the Verona Complex for a youth waterfowl hunt last year and used a photo of us in last January/February's magazine.

I just wanted to show you that we are still out hunting with the kids and doing a fine job! This photo was taken after a Saturday morning hunt on a “secret” CRP-MAP tract in Gage County. They say there are no birds in Gage County this year! Ha, we know better!

I read your article on “old fashioned” duck hunting and never knew about rubber waders! Sounds like something I am glad I missed! I enjoyed that more than any other story in the whole issue! Thanks for the lessons in appreciating what we have with neoprene!

Shawn Meyer
Beatrice, Nebraska

Contrary Natures

When I moved from the city to rural Washington County decades ago, I was fascinated with the local creeks and asked many of the longtime residents what animals they saw in theirs. Several mentioned that there used to be a lot of shitepokes, and I gathered that the name described the habit which in those days was not a common four-letter word. However, they said shitepokes were large and black, and I thought they were describing cormorants. Thanks for the update!

In the same vein, a co-worker from South Dakota told me boxelder bugs are called Democrat bugs because Franklin Delano Roosevelt's Civilian

Conservation Corps planted so many boxelders along the creeks during the depression/dust bowl days. Old-timers around here remembered that trees in our creeks were planted by the CCC.

I may be one of those people “with contrary natures” Jon Farrar writes about, but I don't think I am alone in loving the

botany/biology background from articles on milkweeds, box elder, turtles and the rest. In the future, I think we will all think like Chris Helzer: If it's better for insects, it's better for game animals and for us.

NEBRASKAland is better than ever.
Linda Ferring
Blair, Nebraska

Correction

In the “Live Decoys” article that ran in the November 2010 issue of NEBRASKAland, the photo on page 15 was credited incorrectly. It should have been attributed to Jacques Smith of Shelton, who said it was taken in about 1903 and identified the men in the photograph as, from left to right: Rodney M. Smith, Scott Smith and Evan Smith. We regret the error.

“That's My Car!”

I think the old car seen on page 19 of the December NEBRASKAland Magazine in the Darr Wildlife Management Area is the one I learned to drive in 1953.

When the interstate went though our farm south of Darr in 1961, we had already junked the car due to a broken spring (among other ills) and pulled it



down by the river with the tractor.

Several years later we found that it had been pulled into a washout to keep the river from eroding the north bank, and about five years ago I made a trek to retrieve the horn ring and some other trim parts to make a shadow box to frame a picture of the car. It is a 1947 Dodge and served nine of us well at the time (though not all at the same time).

Peter J. Seberger, Maj. USAF Ret.
Darr, Nebraska

Great Teaching Tool

Thought I'd drop you a note and say thanks for the great job you guys do. I incorporated a few of last month's articles in my EE presentation to Edison School 6th graders at Desoto last week. We were studying animal adaptations, primarily the beaver, and I slipped in Chris Helzer's article on winter survival strategies as well, which they loved. I also showed them Eric Fowler's story on the Desoto buck study, and wouldn't you know it, as we were taking a bus ride onto the Refuge to look at the new wetlands area we spotted a doe with a radio collar and ear tag. Talk about great timing. I want to thank the whole staff for a great job. Please pass this along so they can see the fruits of their labor.

Steve Tyler
Omaha, Nebraska

NEBRASKAland Visitor Letters

We want to thank all 78 readers that sent e-mails and letters for last issue's visitor, a **grass spider** on page 50 (see page 13 for the winner, rules and this issue's hint). Here are just some of the many wonderful responses we received:

Just received the December issue of NEBRASKAland and nearly jumped out of my skin when I turned over to page 50 and saw this month's visitor. I don't know the American species of the spider but it could have been the brother to the English version I found on my curtains yesterday morning!
Valerie Stride,
England. United Kingdom

I have found the visitor on page 50 of the December 2010 issue of NEBRASKAland. It is a grass spider. I used to see them in and around hay

bales when I used to work on the farm.
David Gloe
Omaha, NE

I was quickly thumbing backwards through the December issue of NEBRASKAland I had picked up in the mail today when the spider on page 50 jumped out at me and I about threw the magazine across the room! I hate spiders, but love the magazine!
Kelly Mercer
Stanton, Nebraska

Grass spiders, or funnel-weaver spiders, of the genus *Agelenopsis* are a common Nebraska spider. They weave dense, funnel-shaped webs in grass and other vegetation. While generally an outdoor spider, they will enter homes in the fall, as the weather turns colder.

They are generally harmless to humans, and can actually be beneficial, catching and consuming other insects.

A good identification characteristic is the pair of long spinnerets at the end of their abdomen. These spiders may be confused with the wolf spider, which is generally larger and has more hair, or the brown recluse, which tends to be lighter in color and less hairy. Grass spiders also have dark brown bands on their cephalothorax (back), while the brown recluse is marked with a violin shape.

— Julie Van Meter,
State Entomologist,
Nebraska Department of Agriculture.



Send your comments to:
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Lincoln, NE 68503
or e-mail doug.carroll@ngpc.ne.gov. Please include your postal address and telephone number. Letters may be condensed and edited for clarity. Photographs are welcome and will be returned.

Story and photo submissions can be sent to the same address. Include a self-addressed stamped envelope for mailed submissions. The publisher assumes no responsibility for unsolicited material.

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Cedar Waxwings – Here Today, Gone Tomorrow

Jon Farrar

Two waxwing species are found in Nebraska. The **Bohemian waxwing** is uncommon in the state except in the northwest, where it is considered an erratic but regular winter visitor. **Cedar waxwings** might be seen statewide, are common during spring and autumn migration, are common winter visitors (particularly in the southeast), and uncommon but regular breeders in eastern and western Nebraska. They are most conspicuous in late-winter when flocks are attracted to fruit still clinging to trees, particularly flowering crabapple trees in cities, which they typically swallow whole. As their name suggests, the “fruits” found on red cedars and other junipers are commonly part of their diet. Waxwings are known to become intoxicated or even die from feeding on overripe and fermented fruit.

Waxwings are social birds and outside

of the breeding season are usually found in small to large flocks moving from one fruit-bearing tree to another, often remaining until most of the fruit has been consumed. Ornithologists refer to waxwings as “irruptive,” meaning there may be mass movements out of an area where food is inadequate into areas where fruit is available, particularly in winter months. This explains waxwings being more commonly seen in Nebraska some years than others.

Cedar waxwings are striking birds, cinnamon-colored with grayish wings and tails, a terminal yellow tail band, yellowish bellies, crests and black masks lined with white. Waxy deposits on the tips of the secondary feathers (the row back from the large, outermost primary feathers on a bird’s wing) of some birds are visible when viewed closely or with optics. The function of these waxy droplets is unknown but their number is reported to increase with the maturity of the bird, suggesting they are related to mating.

Upcoming Events

Here is a list of upcoming outdoor events across Nebraska. For more information about these and other events, click on the calendar at www.OutdoorNebraska.org.

January 1

• **New Year's Day Buffet – Mahoney State Park, Ashland**
The Breakfast Buffet will be served from 7:30 a.m. to 10:30 a.m.
The New Year Buffet begins at 11 a.m. and goes through 6 p.m.
Adults are \$11.95 and Children (10 and under) are \$6.95 each. A park entry permit is required.
Contact: Brian Schmidt
402-944-2523
ngpc.mahoney@nebraska.gov

January 2

• **Annual Christmas Bird Count – Ponca State Park, Ponca**
This event coincides with the Audubon Society's national Christmas bird count. Amateur and expert bird watchers are invited to attend this event. A free chili feed will be served at noon. A park entry permit is required.
Contact: Jeff Fields
402-755-2284
ngpc.ponca@nebraska.gov

January 16

• **Beyond BOW - Underwater Diving – Lincoln**
Learn how to scuba dive from certified instructors using Lincoln's YMCA pool. Pre-registration is required by January 10.
Contact: Julia Plugge
402-471-6009
julia.plugge@nebraska.gov

February 18

• **Beyond BOW - Snoeshowing Under a Full Moon – Platte River State Park, Louisville**
Pending on the the weather. Pre-registration required.
Contact: Julia Plugge
402-471-6009
julia.plugge@nebraska.gov

February 27

• **Cowboy Poetry and Music Jam – Bowring Ranch SHP, Merriman**
A park entry permit is required.
Contact: Bowring Ranch SHP
308-684-3428
diane.burress@nebraska.gov



Outdoor Message Plates

Shawn Riley of Brule is an area representative for the Nebraska Bowhunters Association, a Bow Hunter Education and 4-H shooting sports instructor, and a mentor hunt volunteer. He likes to tell people he bowhunts 365 days a year, spending time reading, scouting and target shooting when all bow seasons are closed.

If you have a unique outdoor message plate you would like to share, or know someone who does, e-mail a photo (high-resolution, JPEG format only, please) of it to Eric.Fowler@Nebraska.gov, along with your name, hometown, and a brief description of the interests expressed on your license plate.

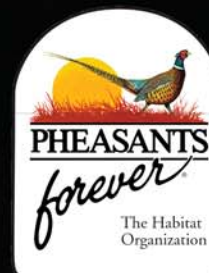


NEBRASKA Pheasants Forever & Quail Forever EVENTS

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Nebraska Banquet Dates

Date	Chapter	Location
01/22/11	Bazile Creek PF	Creighton
01/22/11	Great Plains PF	Holdrege
01/22/11	Lewis & Clark PF	Bow Valley
02/04/11	Rock Creek PF	Fairbury
02/05/11	Webster County	Blue Hill
02/05/11	Southeast NE PF	Beatrice
02/12/11	Otoe County PF	Nebraska City
02/12/11	Perkins County PF	Grant
02/19/11	Little Blue River PF	Hastings
02/19/11	Maple Creek PF	Howells
02/19/11	Plains Sportsman PF	McCook
02/19/11	Ponca Creek PF	Bristow
02/25/11	Cornhusker PF	Lincoln
02/26/11	Rainwater Basin PF	Geneva
02/26/11	Cedar River Ringnecks PF	Greeley
02/26/11	Seward County PF	Seward
02/26/11	Southwestern Nebraska PF	Wauneta
03/04/11	High Plains PF	Sidney
03/04/11	Nemaha Valley PF	Johnson
03/05/11	Dodge County PF	Fremont
03/05/11	Heritage PF	Alliance
03/05/11	Lincoln Creek PF	Aurora
03/05/11	Lower Elkhorn Valley PF	West Point
03/11/11	Prairie Creek PF	Central City
03/11/11	Wachtel Fur Immer QF	Eustis
03/12/11	Corn Country PF	McCool Junction
03/12/11	Dixon County PF	Newcastle
03/12/11	Heartland PF	Omaha
03/12/11	Loup River PF	Ord
03/17/11	Elkhorn Valley PF	Norfolk
03/18/11	Logan Creek PF	Wayne
03/19/11	Franklin County QF	Franklin
03/19/11	Golden Prairie PF	Neligh
03/19/11	Saline County PF	Crete
03/19/11	Washington County PF	Blair
03/24/11	Douglas County West PF	Elkhorn
03/26/11	Lower Platte PF	Ashland
03/26/11	Mile High PF	Kimball
03/26/11	Niobrara Sportsman PF	Gordon
03/26/11	Prairie Hills PF	Kearney
03/26/11	Republican Valley PF	Cambridge
04/02/11	Cass County PF	Plattsmouth
04/02/11	Medicine Creek PF	Stockville
04/09/11	Antelope Valley PF	Oshkosh
04/16/11	Sherman County PF	Loup City



FOR FURTHER CONTACT INFORMATION OR DATES VISIT WWW.NEBRASKAPF.COM

A Look Back - January 1975

Patrick Mainelli

The January 1975 edition of *NEBRASKAland* featured articles on Merriam's turkeys, hunting squirrels and ice fishing. This issue also features two photo essays.

The first, entitled "All Things that Love the Sun," uses macro photography to take a close look at various plant species. The second, entitled "Rim of the World," covers the wildlife and scenery of northwestern Nebraska photographed by recently retired regional editor Bob Grier.

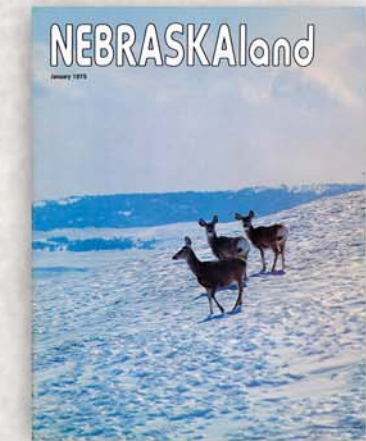
The most intriguing piece in this particular issue, however, could be Gary Gabelhouse's "Winter Survival."

It is interesting because while the gear has changed considerably through the years, the human body has not – at least for those who spend some time afield each winter.

"Somewhere at the end of my hands and feet were toes and fingers; at least I thought they were still there," wrote Gabelhouse, speaking to some of those same feelings I still experience each winter.

Gabelhouse then breaks down both hypothermia and frostbite, the science behind each, and then how to effectively treat their symptoms.

To read Gabelhouse's article, go to *NebraskalandMagazine.com* and click on "A Look Back."



Youngman Opening

Jon Farrar

Youngman Lake on the northwestern corner of 192th and Dodge Road in western Omaha is now open to fishing. The 60-acre lake is the sparkling jewel in the center of a 175-acre Omaha city park some have called Memorial Park West. Land for the park and lake was purchased in 2001 by the City of Omaha and the Papio-Missouri River Natural Resources District. The project was supported by a \$500,000 gift from Judy Wigton, and the lake named in memory of her father, Lawrence Youngman. The Nebraska Game and Parks Commission also contributed to funding the project, including excavating work prior to the lake filling, boat ramp facilities and several fishing jetties. The Commission will be managing the lake's fishery.

Jeff Jackson, Commission fisheries manager for southeastern Nebraska, expects the lake to provide excellent fishing in this urban environment. He said the lake was first stocked two years ago with bluegills and largemouth bass. There has also been three stockings of channel catfish as well as adult crappie. Jackson expects natural reproduction to maintain populations of all those species except the catfish, which will be stocked annually. Because substantial fishing pressure is expected, there is a 21-inch minimum length limit on bass and a one-fish daily bag limit. It should be an excellent catch-and-release lake for bass fishermen, he said. Because of the size of the lake and its urban location, there is a five-mile-per-hour, no-wake boating regulation in place.

Anglers should be aware, Jackson said, that although the lake has public land around its perimeter, there is private land adjoining it, especially on the western end of the lake, where trespassing is not allowed.

Steaming Streams

Patrick Mainelli

If you have ever been lucky enough to stand alone on a quiet morning along the bank of one of Nebraska's many creeks, rivers or streams, you may have found yourself lost in the ethereal mist that is known as steam fog. This phenomenon can generally be seen near the beginning and end of winter when water temperature is often mildly warmer than the surrounding air. Stephen Augustyn with the Air Force Weather Agency explains that, "when the cool air moves over the warmer water, which serves as a moisture source for the air above it, it will instantly condense into minute water droplets that appear as discontinuous fog hovering above the water." These "steamy" moments can be brief and fleeting but always seem to be inspiring.



PHOTO BY PATRICK MAINELLI



PHOTO BY JEFFREY KURRUS

Both cozy and energy efficient, Ponca's "green" cabins feature stucco walls, straw bale insulation and modern amenities throughout.

Ponca's "Green" Cabins

Patrick Mainelli

In the summer of 2009, Ponca State Park opened two environmentally friendly cabins to the public. The cabins were the fruit of two years of planning and construction and were made possible through a collaboration of the Nebraska Game and Parks Commission, The Nebraska Environmental Trust, the National Park Service, the Nebraska Department of Environmental Quality, the Better Ponca Foundation, the Cornhusker Motor Club Foundation, and the Nebraska Public Power District. The goal of this broad partnership was to educate the public on the burgeoning field of "green" engineering, as well as provide a unique, all-natural experience for Ponca visitors.

These "green" cabins, like all cabins at the park, are fully equipped with the modern amenities needed for a comfortable night in the woods. They also boast a number of other unique design elements meant to lessen the buildings' impact on their natural surroundings. Most of the cabins' ingenious modifications are not immediately obvious because they are fully integrated to the architecture of the buildings. In fact, one of the cleverest design considerations would go completely unnoticed were it not for the

educational plaques hung throughout the cabins, educating visitors on various eco-innovations. Packed between the stucco walls of the cabins, are dozens of bales of straw, which act as a natural insulator. In addition to being cheap, renewable and abundant, hay is an excellent insulator with a relatively high R-Value (a measure of a substance's heat permeability).

More than one hundred years ago, Nebraska settlers were already taking advantage of the insulating properties of straw. Today's straw-insulated buildings are covered in a resilient stucco or plaster, providing further temperature regulation and preserving the straw from the damaging effects of moisture and rodents. The quiet earth-tones of the cabins at Ponca blend gracefully with the forest browns of the park, giving the buildings and their environment a seamless feel.

The cabins are climate controlled via a geothermal heating and cooling system that uses the earth's constant temperature as a heat sink or source. With a high-efficiency, ground-source heat pump and underground piping, heat is transferred from the soil to the buildings in the winter and from the buildings to the ground in the summer.

Ponca's green cabins are part of a wider commitment to environmentally sensitive land management throughout

the park. Initiatives such as a wetland waste-water treatment system, the inclusion of native plants in landscape design, a park-wide recycling and composting program, as well as habitat restoration for woodland birds and mammals sets Ponca SP apart as one of the more eco-minded parks in the country.

The cabins, it seems have been a big success: "Public response has been great," said Fields, and as a result, plans for the development of a third green cabin are in the works and are currently in the fundraising stage. The new unit will utilize many of the same techniques, but on a larger scale. While the existing cabins are both two-bedroom single family units, the new facility will contain four bedrooms and better accommodate larger groups.

Reservations for the green cabins (\$138 per night) can be placed by calling (402) 755-2284 or going online to www.OutdoorNebraska.org and following the "Parks" link. Reservations are accepted up to one year in advance for two or more nights.

See You Out There ...
But Where?



Do you know where this
Nebraska photograph
was taken?
See answer at the bottom
of page 13.

PHOTO BY ERIC FOWLER

Preventing Snowblindness

Patrick Mainelli

Although generally considered an occupational hazard unique to the world of mountain climbing, photokeratitis (or snowblindness) can be a painful memento from even a casual day spent in winter's bright landscape. This condition is essentially caused by a sunburn of the cornea, which inflames the membrane lining the inner surface of the eyelid known as the conjunctiva. The effects of snowblindness may not be felt for up to 12 hours after the damage has occurred.

Increased-tear production and swelling of the tissue around the eyes are generally among the earliest symptoms, followed by an intense irritation that can feel like sand is being poured directly into your eyes.

Like sunburned skin, snowblindness is caused by prolonged exposure to the sun's ultra-violet rays. Because fresh snow reflects up to eighty percent of UV rays, even a few hours of unprotected exposure can damage the cornea.

Prevention, fortunately, is as easy as putting on a pair of quality sunglasses and keeping them on. Find a pair that is rated to block one-hundred percent of all UV rays, with large lenses that wrap around to cover even the sides of the eyes.

Remember that UV light penetrates cloud cover, so keep the shades on even when skies are overcast. If your glasses are lost or broken in the field, an emergency pair can be made from a strip of dark fabric with a long thin slit cut across it lengthwise. Attach the "goggles" above the ears using a shoe-string or simply tuck the ends under your cap.

If you feel you may be suffering from snowblindness, quickly remove yourself from the offending light and, if possible, isolate yourself in a darkened room. Remove contact lenses and avoid the overwhelming urge to rub your swollen eyes. As soon as possible visit your doctor, who may administer anesthetic eye-drops to lessen the pain. A cool compress over the eyes, artificial tears or oral pain-relievers can also help reduce the discomfort. The condition will generally heal itself within 36 hours as the cornea regenerates itself. The pupils may remain constricted for up to 128 hours and vigilant protection from bright light is recommended for at least five days after the initial damage.



PHOTO BY PATRICK MAINELLI

Updating Your Parks

Elizabeth Mack

Platte River State Park outside of Louisville is undergoing several updates, including the addition of a new shooting complex. New buildings for the archery range, small-bore rifle range and the indoor pellet gun range should be completed in time for the Outdoor Discovery Program April 20-21. The sidewalks are poured and work is being done on the baffles for the rifle range. Prototype designs for the new shooting benches and target holders are complete and will represent designs that shooters will appreciate, with a focus on utility for education programming, according to Jeff Rawlinson, NGPC Assistant Administrator for the

Information and Education Division. Features of the new complex will include open firing areas and an elevated archery tower to simulate treestand shooting.

A new horse camp is under development in the South Shore area of Branched Oak State Recreation Area near Raymond. When completed, the horse camp will include electrical hook-ups, water, restrooms, grills, picnic facilities, hitching posts, corrals and an ADA-accessible mounting ramp.

Construction of 15 new mini-lodges at Ponca State Park has been in full swing, and the last five of these ultra-modern cabins should be completed by spring. These mini-

lodges will have all the modern amenities, including cable TV and high-speed internet. Ponca's fishing lake has also undergone some renovation, including a new boardwalk around the lake, which will be accessible from several of the mini-lodges.



PHOTO BY JEFFREY KURRUS



PHOTO BY ERIC FOWLER

The new shooting complex at Platte River State Park near Louisville. Above: A new cabin at Ponca State Park near Ponca.

Learning to Hunt in Deer in January

Jeffrey Kurrus

Three years ago I hunted for a month straight, through December and the first half of January, and never saw a single deer. Hunting the same spots I did through firearm season, I was convinced that I just wasn't there at the right time and wasn't watching the right place.

Then I talked to Kit Hams, the Commission's big game program manager, who informed me that deer, late in the year, can usually be found near thermal cover and that whitetails will move large distances to find appropriate habitat during the cold winter months.

Still being hard-headed, two years ago I hunted my same spots again, and again saw few deer through December and January. I didn't make that mistake again last year.

Before last year's late-season doe hunt, I starting looking for evergreens while driving country roads and then started knocking on doors, asking if I could shoot a doe or two off of the landowner's property.

A couple gave me permission, and I immediately started seeing deer. I also saw tracks, scat and bedding areas – three things I had failed to see in the previous years. As a final test, I went back to those same spots where I had hunted the previous years, and walked over a mile and never saw a single deer track in the snow. So if I wasn't convinced before that point, I was then. I would never again hunt for deer late in the season without making sure some evergreens are close by.



PHOTO BY JEFFREY KURRUS

Want to find whitetails during the winter? Find thermal cover.

Wanahoo Update

Jon Farrar

Lake Wanahoo was created by impounding Sand Creek one mile north of Wahoo in Saunders County. The lake is still filling, but eventually will cover more than 637 acres. This flood-control and recreation reservoir has been a long time coming, and anglers probably have at least another year to wait before they will get a crack at its fish.

In the early-1990s, this reservoir was little more than a dream in search of funding, but eventually work on the \$30.5 million project started in 2004. Lake Wanahoo is named after Wanahoo Park, a recreation area that operated near Wahoo until the 1960s. Funding for the project came from the U.S. Army Corps of Engineers, the Lower Platte North Natural Resources District and Saunders County. Additional funds came from the state Department of Roads and the Nebraska Environmental Trust. Eventually, a four-lane segment of Highway 77 will pass across the dam.

The Nebraska Game and Parks Commission spent \$1.4 million to develop the lake's fishery, most of the work being done in advance of the dam being closed. Deep-water areas were excavated, most of the trees in the lake bed were left standing and other sub-surface structures were built to enhance



PHOTO BY ERIC FOWLER

fish habitat. The lake is part of a 1,600-acre recreation area that will be open to the public for fishing, hunting, camping, day-use and no-wake boating. Lake Wanahoo will be the only large reservoir between the Salt Valley Lakes near Lincoln and the Papio Creek lakes west of Omaha.

Jetties constructed before the lake began filling will not only reduce wind and wave erosion, said Jeff Jackson, Nebraska Game and Parks Commission's southeastern Nebraska fisheries manager, but will also provide shoreline access to otherwise inaccessible portions of the lake. An initial stocking of 500 adult largemouth

bass was made last winter, followed by fingerling-sized stockings of bass, bluegills, walleyes, northern pike and crappies in 2010.

Jackson said the water quality in Wanahoo is excellent, and he hopes seven small impoundments on tributaries above the new lake will help reduce unwanted sediment from washing into Wanahoo, prolonging the lake's life and enhancing its fish habitat quality. Shallow wetlands on the upper end of the lake will also trap sediment and provide wildlife habitat.

The grand opening of the new recreation area is expected to occur in 2012.

Officer's Notebook

Motel Bloodbath

Seeing as how it was mid-May, I was somewhat skeptical when I received a call from the McCook Police Department about someone butchering a deer inside a local motel room.

When I arrived I found out three out-of-state construction workers were renting the room in question. The management told me they didn't want the construction workers prosecuted – they had only called me to collect for the damages done to the room. I didn't bother to tell management that those were not options they could select.

Three day-shift employees told me that when the cleaning staff went to the room that morning, the carpet of the newly remodeled room was splattered with blood, as were the walls, floor and tub of the bathroom. One of the cleaning staff, who was used to processing venison at home, looked into some coolers in the room and saw what she believed to be boned-out venison. My first thought was thought most people would be horrified upon entering a motel room covered with blood and wouldn't have searched any coolers in it.

After a few more questions, my empathy for the mess and expense the motel operators were faced with faded – management had apparently found the three men butchering the deer in the parking lot the night before, and instead of alerting authorities, they just told the men to remove the carcass from public view. Apparently the suspects had complied with that request.

Because the suspects were supposed to be returning to the motel at noon to retrieve their belonging and settle up their bill, I sent out a call for assistance and several members of the McCook police department and Red Willow County sheriff's office arrived just in time to help greet the suspects. We quickly got a search warrant and after it was served, the assisting officers returned to their normal duties and I readied the suspects for an immediate court appearance before they left the state.

The suspects were calm and cooperative, but one of them had to be on the verge of a violent eruption. As I was processing him, I noticed a discrepancy between the name he had given me and the one used on the motel registry. Some indescribable intuition made me decide to handcuff this suspect, but as it turned out, he had more experience with the process than I. As I prepared to handcuff him, he bolted from my control and ran to a nearby creek area.

Figuring two in the hand is worth one in the bush, I turned my attention to the remaining two suspects. One of them informed me that at age 27, the escapee had already spent much of his life in the criminal justice system. With numerous felony convictions and having served two sentences in the penal system, he was currently facing additional felony charges for drugs, weapons and three assaults on officers in Missouri. Given his past, he was also facing the "three strikes and you're out" habitual offender status, which would result in his spending the rest of his life in prison.

I processed the two remaining suspects, and after returning to the motel, I met their employer, who had went looking for the three missing employees. He was less than pleased when I explained the situation to him, but promised his cooperation. Using a local girlfriend's cell phone, the suspect called the foreman asking for help and his last paycheck. Arrangements were made to get him his check, hopefully hand-delivered by me and two assisting officers.

The first and second efforts to complete the transaction failed, but the suspect was finally located and apprehended in his girlfriend's car in Indianola. He had spent hours in custody and was within minutes of freedom and going undetected as being a fleeing felon when the adrenaline pumping through his system finally caused him to flee. The last I knew, this subject was incarcerated in Missouri, where he probably will remain for quite some time.

– Virgil Gosch, Conservation Officer, McCook



PHOTO COURTESY JERROD BURKE

Logan Burke of Curtis poses with the mule deer buck he shot this past November using a \$5 youth deer permit.

Deer Harvest Sets Record

Nebraska's November firearm deer harvest set a record last fall, rising 18 percent over last year.

The 2010 November firearm harvest was 63,300, compared to 53,767 in 2009. Most of the increase was from antlerless white-tailed deer that were harvested, as 21,000 bonus antlerless white-tailed deer tags were available.

Good weather benefited hunters and farmers as the corn harvest was nearly complete at the start of the firearm season, giving deer fewer places to hide. In 2009, more than half of the crop was still in the field at the start of the season.

"This is a good step toward our goal of a 25-percent reduction in the deer herd in eastern Nebraska over the next three years," said Kit Hams, big game program manager for the Nebraska Game and Parks Commission. "The use of Earn-a-Buck rules on Elkhorn and Wahoo permits and the October firearm antlerless season (3,000 deer harvested) in 2010 have both been successful in increasing doe harvest."

Assuming normal harvest rates during archery, muzzleloader and January antlerless seasons, hunters should harvest about 90,000 deer in Nebraska for the 2010 seasons, compared to the previous record of 80,400 in 2008 and 78,000 last year.



A Beyond BOW (Becoming an Outdoors-Woman) class uses snowshoes at Platte River State Park last January.

Snowshoes

Kelsea Nore

Sledding. Skiing. Snowboarding. These are probably the first things that come to mind when someone says 'winter sports.' Finding the right hill or slope in Nebraska can prove to be a challenge for cold-weather enthusiasts in the area. However, the state has an abundance of outdoor trails at our state parks, many of which are open year-round. Getting out on these trails may require some different equipment than your usual hiking gear, however – for instance, snowshoes.

Snowshoes have a long history, more than 5,000 years by some estimates. Indigenous peoples from all over the world had a variation on a pair of shoes with wide, flat bottoms that made traversing deep snow possible. Their ancient inspiration undoubtedly came from the observation of animals: *Lepus americanus*, with its over-sized feet, was eventually renamed the snowshoe hare.

European settlers, fur trappers especially, in North America quickly learned to copy the form and function of the 'teardrop' (or tennis racquet) shaped snowshoe. Typically the shoes were made from tough wood, a cross bar through the center and rawhide webbing. Technology, however, has changed the shape and size of the modern snowshoe. They are now lighter, slimmer and have crampons for traction on dense snow or ice.

Sizes are based upon a person's weight. Mike Johnson, guide and owner of Worldwide Trekking in Omaha, suggests going down one size for local trails, as Nebraska is less likely to have deep powder. Smaller shoes have less of an effect on gait and help pack down snow on the trails. Other equipment includes two ski or trekking poles for stability and, naturally, warm layers of clothing.

Platte River, Fort Robinson and Indian Cave state parks are popular destinations for snowshoers and cross-country skiers, but any trail open in the winter can be used. Click on the 'Trails' link on the NGPC's website for a listing of open trails and parks. A park permit is required. "Get out and enjoy it," Johnson said. "You can go by yourself or with friends and there's no excuse not to be active all year-round. There's something really great about snowshoeing on a quiet winter's morning."

For information and answers about guided tours, check out www.worldwidetrekking.net.

Turpin Time

Dick Turpin

You know, here's a little tip for you...if you're out there in the woods and you come in to a small town...you've been hunting...boots get a little damp...here's what you do...go to the laundromat and put them in the dryer...basically all you have to do is tie a good big knot in those strings...kind of measure it out so when you set them in there...you're going to close the door on that knot and those boots are hanging where the baffles don't hit...close the door...the baffles are not hitting...put the quarter in...hit high temp...that's all there is to hit...check them once in awhile...don't let them get too hot...hey, how ya doing...oooh...that's July's issue...look at...oh...maybe I better go check on my boots. ■



NEBRASKAland Visitor Winner and Hint

Last issue's winner of the NEBRASKAland Visitor drawing was



Cathy Saeger of Fremont, Nebraska, who found the **grass spider** on page 50.

Readers are encouraged to contact NEBRASKAland within 10 days after this issue's publication with the correct page number and name of this issue's "Visitor" – a bug found in Nebraska that just happened to find its way onto one of the pages of our publication.

We will then gather the correct entries and draw one to win a **new** NEBRASKAland Magazine mug. To enter each month, write: **NEBRASKAland Visitor 2200 North 33rd Street, Lincoln, NE 68503.**

Or e-mail:

Tim.Reigert@Nebraska.gov with "Visitor" in the subject line of the message.

HINT: This issue's visitor is not on page 4, 5, 39, 42 or 45.

Mammals

Our seldom-seen family members

Text and photos by Joel Sartore

Say hello to your little friends. Actually, since many of them live with you, maybe you should think of them as family members, only with really odd hours and bad habits. Raccoons probably den in the storm sewers in front of your house during the day and raid your trash cans at night. Opossums get into the cat food, then play dead when your dog catches up to them. Bats sleep the day away behind your downspouts. Mice are making their home out in that pile of old stuff in the garage even as we speak, getting ready for the annual move to the basement once the weather turns cold.

Yet as populous and widespread as mammals might be, we don't often see many of them. All have been persecuted by humans since time began, so of course they're a little jumpy. The result is that most of us get only fleeting glimpses of our mammalian cousins at best, usually as they're running away in high gear.

In order to give you, the *NEBRASKALAND* faithful, a longer look, I've photographed as many popular mammals as I can against black and white backgrounds. Looking into their eyes was quite a revelation – each species had a personality



With lungs that take up a huge percentage of their body cavity, **pronghorn antelope** are built not only for speed but to run immense distances across the Plains. These two were photographed at the Great Plains Zoo in Sioux Falls, S.D.

all its own. It was also quite nice not seeing just their rear ends for a change.

For example, those groundhogs that I've always seen just as brown flashes diving for a hole under my barn are actually quite comic. One hand-raised version was brought over to my studio not long ago, where it proceeded to stand up and beg for carrots. "If you tried to do this with a wild groundhog, it'd take your face right off," said its keeper, Laura Stastny of Nebraska Wildlife Rehab. She said handling any wild animal is a bad idea.

I couldn't agree more. The badger is another example of something that's best left alone. They're the Nebraska version of a wolverine – inquisitive, energetic, feisty and more than willing to stand their ground. Again, the badger you see here, along with all the rest, came from either zoos or wildlife rescue folks, so all were conditioned to humans and at least tolerated the photographic process.

Of course, I'm still missing a few species. Most notably absent is the American bison. I tried photographing one last year at a zoo in Buffalo (how ironic), but it didn't work out as the animal wasn't hand-raised and wouldn't come close to me and my photo gear. But as the jewel in the crown of Nebraska mammals, I can't quit now.

And so a plea – if any of you know where a guy can find a hand-raised and halfway-tame bull bison that'll stand still for a quick portrait, please give me a call.

I'll be right over.

PS...I'm not kidding. ■



Thanks to the **beaver**, the ecology of the American West was historically much wetter than it is today. Their dams along streams created thousands of impoundments. That all changed, though, with European settlement.



Though this **big brown bat** looks ferocious, he's actually a sweetheart says his keeper, Laura Stastny. Bats play a critical role in our night skies, feeding on tons of insects each night across our state.



The **groundhog** goes by many names, but a favorite is 'whistle pig.' It got this nickname from the high pitch squeal it makes when danger approaches.



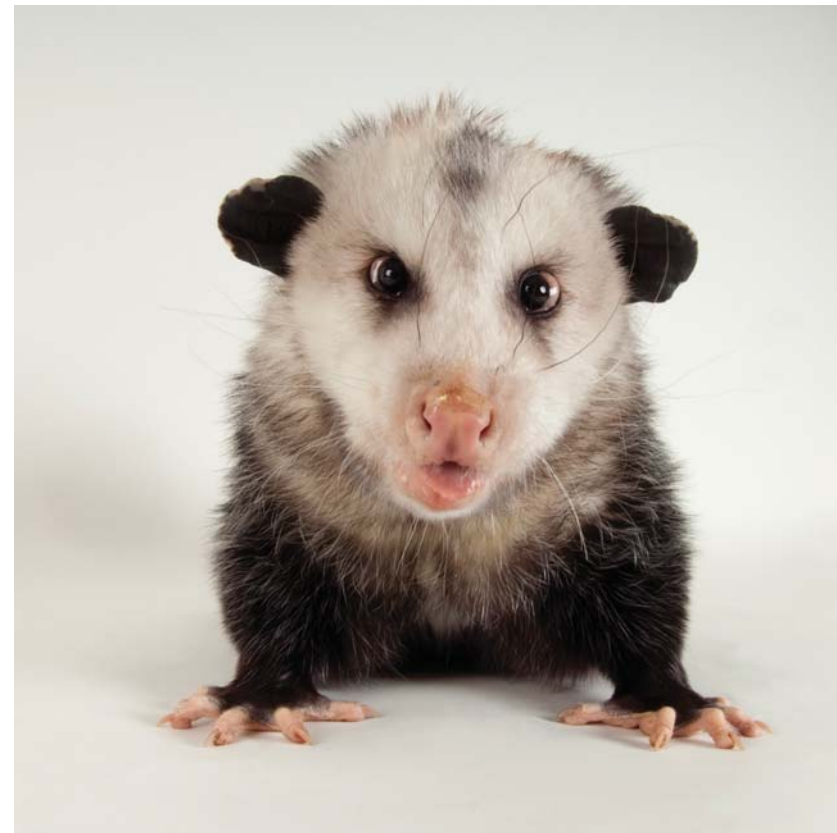
Perhaps the most-seen large Nebraska mammal in urban landscapes, the **raccoon** often travels in family groups at night. It is an extremely adaptable species, able to thrive in just about any environment.



Nocturnal and rarely seen by the average hiker, the **flying squirrel** uses folds of skin between its front and hind legs to actually glide from tree to tree.



The **red fox** is an adaptable canid, and can often be found within city limits.



When threatened, a wild **Virginia opossum** will 'play dead,' emitting a terrible smell, locking its jaws and appearing completely lifeless. It's an involuntary act in which the animal can be poked or even carried away without it waking up for several minutes or longer.



The long whiskers on a **white-footed mouse** are important touch receptors.

Though it has worked wonders with natural threats for thousands of years, the raised tail of a **skunk** is of no use against oncoming cars, hence the great number of this species you see dead along Nebraska roads.

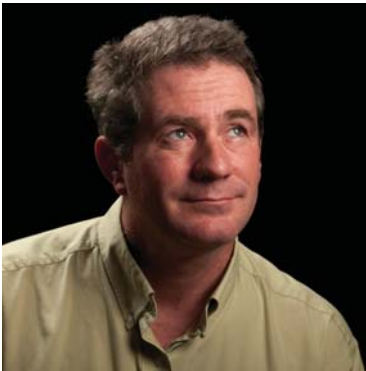


This hand-raised **badger** at a rehab center in Oregon didn't mind having his picture taken. Don't try this with a wild one.



The **coyote** is said to be one of the most adaptable and intelligent animals roaming our countryside. This animal knew to just strike a pose and wait patiently for dinner.

The **photographer** (*Homo sapiens sartoricus*) strikes a lifelike pose.



Joel Sartore is a contributing photographer for National Geographic Magazine, speaker and author of RARE: Portraits of America's Endangered Species. To see more of his pictures of threatened and endangered species, go to rarethebook.com.

Windmills

Iconic Symbol of the Great Plains

By Elizabeth Mack

A universal symbol of the Plains, many historians believe that the windmill played a key role in the settlement of the Great Plains by early Euroamerican settlers.

The windmill was one of three inventions that made settlement of the Great Plains possible, according to author and historian Dr. Walter Prescott Webb in his landmark 1931 book, *The Great Plains*.

Although the other two he mentioned (barbed wire and the Colt revolver) had their place, the image of the windmill – sprawling, spoked sails atop a wooden tower – was one of the universal symbols of the American Plains. Some believe that windmills, even more than railroads, were vital to the settling of the West: As farmers and ranchers settled along the arid Plains landscape, they needed water and water-pumping windmills could provide a seemingly limitless supply of irrigation.

According to Richard Hills, author of *Power from Wind: A History of Windmill Technology*, farmers in early American settlements first erected windmills to grind their grain. As settlers migrated westward in the mid-nineteenth century, they found much drier conditions than the lush, fertile East, with no trees and few streams available for irrigation. The 100th meridian runs straight through Nebraska and essentially marks the division between the United States’ drier, western climate and its moist, eastern climate. Agriculture west of this meridian typically relies on heavy irrigation, thus Plains settlers adapted their grist mill technology to a water-pumping windmill that could produce the needed water. When the Homestead Law of 1862 created the need for the

homesteaders to mark their property, they each dug a well – powered by windmills – on their fields.

The Plains’ “windmill belt,” as Randy Stubbs, owner of Big Country Windmills in Maxwell, refers to it, luckily has a vast water source not far below the surface: “Without the water-pumping windmill, we would only have had settlers along the rivers and in those rare places where there may be a spring. In Nebraska, especially western Nebraska, we are in an area that is perfect for windmills: dry regions; abundant underground water; and steady winds.”

“Does the wind blow this way all the time?” asked the visitor to a ranch in the West.

“No Mister,” answered the cowboy, “it’ll maybe blow this way for a week or ten days, and then it’ll take a change and blow like hell for a while.”

– Webb, *The Great Plains*

As windmills followed the western settlers, so too did the transcontinental railroad. Windmills supplied the water needs for locomotive boilers and travelers alike, and windmills became prominent features at railway stations. The first successful water-pumping windmill was the wooden-wheeled Eclipse, but the upkeep on this open-gear model was very labor intensive, as someone had to climb it once a week to grease the gears. Historians say male settlers would court and marry a woman based on her ability to climb a windmill tower

and keep it greased. According to Stubbs, the big breakthrough in windmill technology was the oil bath, a self-lubricating design: “This meant you didn’t have to climb your windmill and grease it every week. I sell some of those open-gear windmills you have to grease, but in today’s world it’s way too labor intensive.”

Between 1854 and 1920, more than 700 U.S. companies manufactured a wide variety of windmills. Several of those companies continue to make windmills today, including Dempster Industries in Beatrice and Aermotor in San Angelo, Texas. Stubbs says there are still plenty of ranches, especially in the Sandhills region of Nebraska, that rely on water-pumping windmills because they are too far from electrical sources, but as more and more of the ranches electrical needs are met, many

are going to an electrical pump. However, the market for water-pumping windmills is still going strong, said Stubbs, as many younger retirees across the nation are purchasing hobby farms, “what we call acreages in Nebraska.” His biggest customer base is in the Great Lakes region: “They buy a 5- to 10-acre hobby farm and want a windmill on it. In some cases they want it to pump water, but it’s not a necessity for their day-to-day operation. It’s the nostalgia.”

Nostalgia for the windmill is what drove Billie Wolfe, a professor of home economics who taught housing design for Texas Tech in the mid-sixties, to begin her quest to preserve the Plains’ historic windmills. In the early 1990s, Wolfe made arrangements to purchase one of the finest assemblages of early windmills in the country from Mitchell resident Don Hundley, who owned the

Windmill Hill Museum at the time. Museum groups, including the Smithsonian, and several private collectors had often attempted to purchase the rarest of his pieces, but Hundley refused to break up the collection. His entire collection is now housed at the American Wind Power Center in Lubbock, Texas.

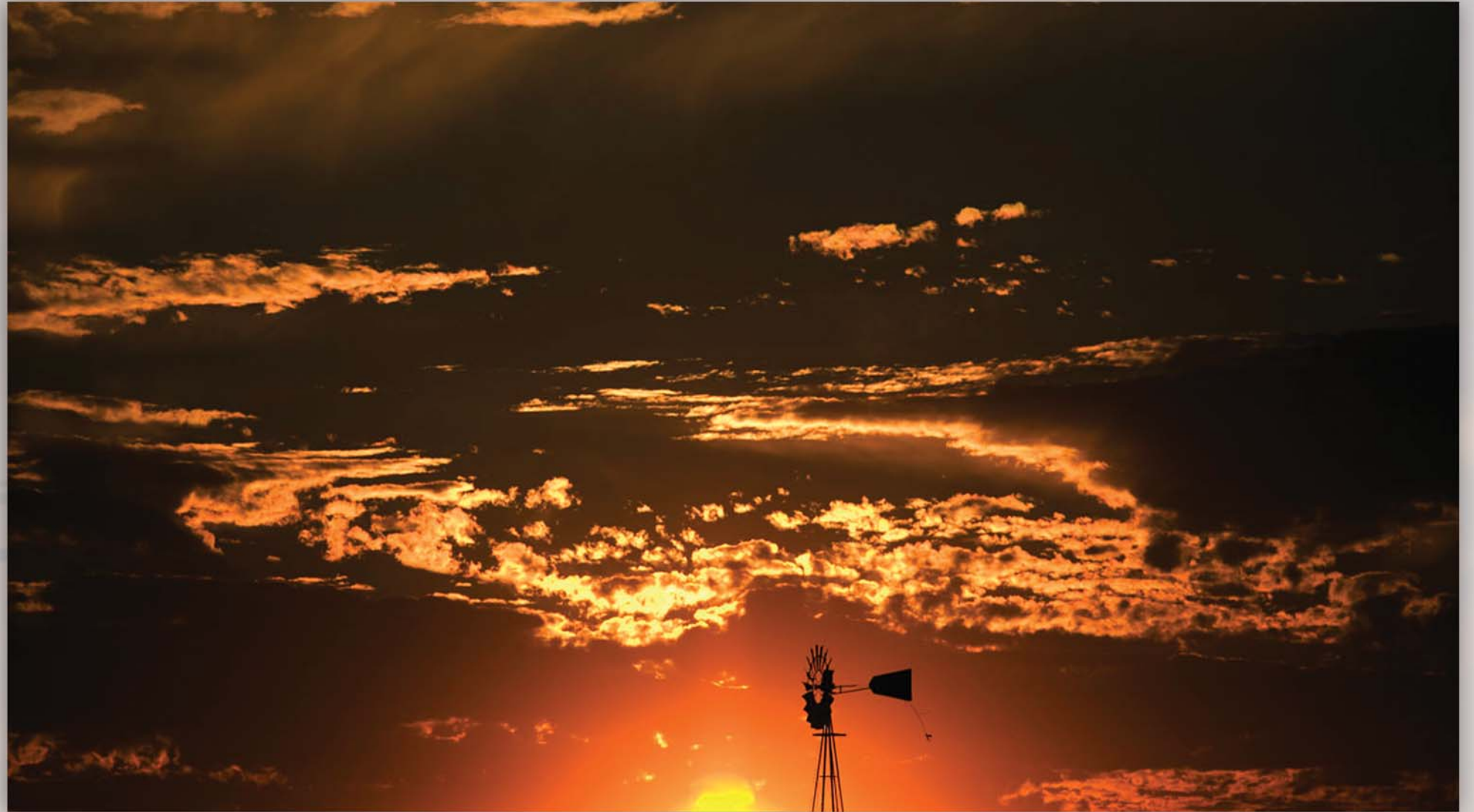
As electricity was introduced across the Plains in the 1930s, the majestic working windmills that helped settle the West began to slowly vanish. Many of the early wooden structures either slowly rotted or were destroyed by fire, as the tall structures acted like lightning rods on the open prairies. However, many communities across the Great Plains continue their desire to restore a part of this nostalgic history by preserving windmills, including one antique collection restored to working

order that can be found at Windmill State Recreation Area near Gibbon.

“Years ago, people didn’t want a windmill in their yard because they didn’t want to look like a farmer,” Stubbs says. “Now everyone wants one.” Nostalgia is a powerful emotion. ■

For more information on *The American Wind Power Center and Museum*, visit <http://www.windmill.com/index.html>. Some historical information used here was taken from *Power from Wind: A History of Windmill Technology* by Richard L. Hills.

Elizabeth Mack is a freelance writer and frequent contributor who lives in Omaha.



A windmill at sunset in Sarpy County.

Sandhills Winter Waterfowl

Photos and text by Michael Forsberg

Winter rushes into the western Sandhills on the wings of geese. They descend as shadowy figures in a twilight sky, carving circles as they spiral downward to the sheltered waters of the Blue and Birdwood, Clear and Otter creeks.

From the headwaters of these valley streams to their confluences with the North Platte River, as well as many other places in the Nebraska Sandhills, powerful springs pushed up from the immense Ogallala aquifer below provide critical winter refuge for migrating waterfowl in the central plains.

A flock of Canada geese descend on Blue Creek at winter twilight.



Water runs off the well-oiled feathers of a common goldeneye, a diving duck and winter migrant from the far north.

If winter arrives to the Sandhills on the wings of geese, then it has firmly settled in with the arrival of the merganser, bufflehead and goldeneye – diving ducks from the immense boreal forests of the far north that rim the earth like an emerald crown. These fish eaters share space on the water with squabbling rafts of mallards from the prairie potholes of the Dakotas and elegant trumpeter swans from the western Sandhills, whose nearly full-grown cygnets stand out in their suits of gray.

Early in the winter season, these waterfowl may range widely as large areas of open water and land persist. Later, however, when snow blankets the prairie and temperatures plummet to below zero for days or weeks on end, their winter haunts shrink. Nighttime roosts become centers of activity 24 hours a day and the most powerful springs become waterfowl magnets. The force of the springs, the body heat of large numbers of birds and their constant movement stirring the water's surface are the only things that keep ice at bay.

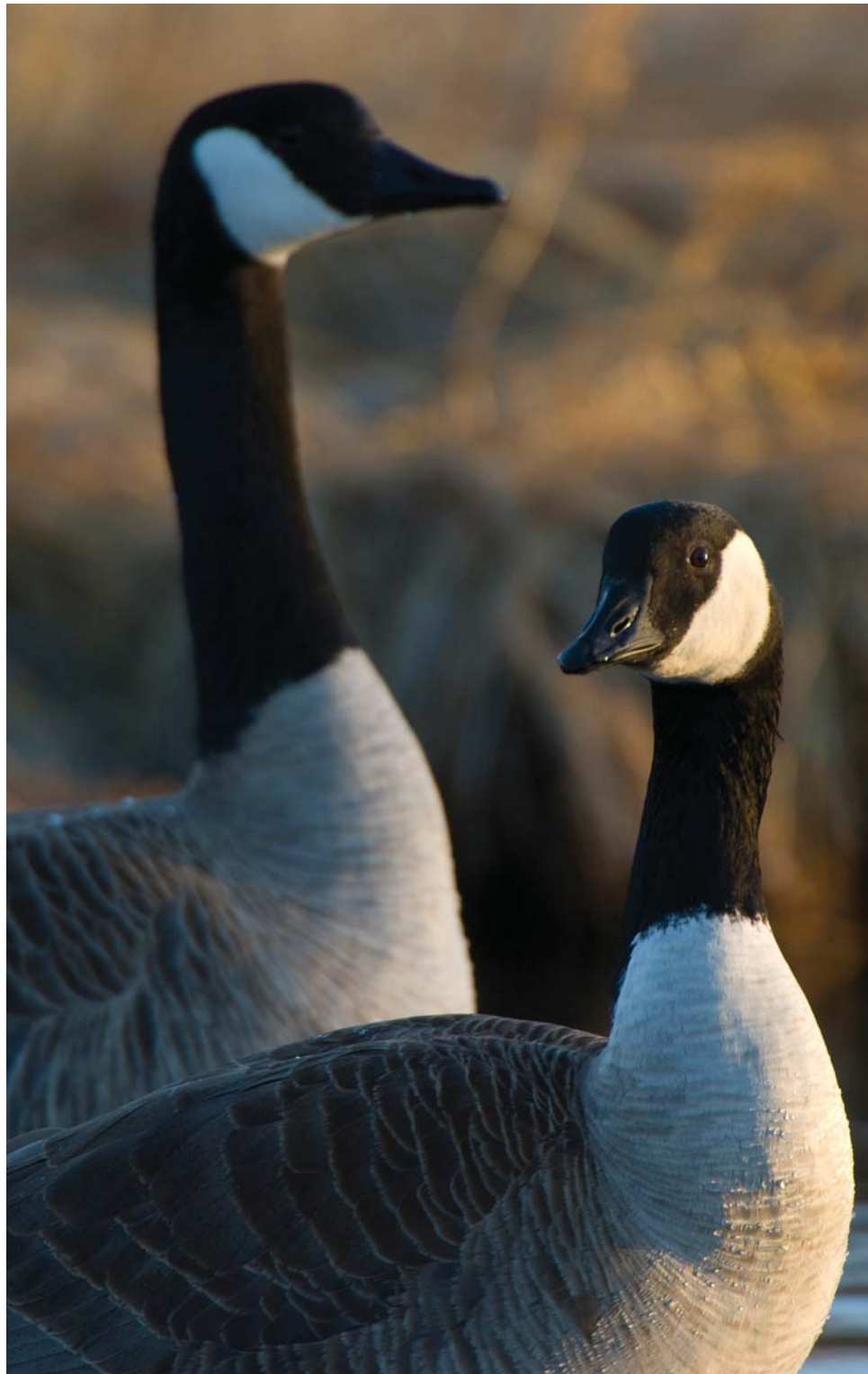
By late winter, food grows scarce on these last pockets of open water and only the strong survive. Predators such as northern harriers strafe low over grassy swales and shorelines. Bald eagles perch high on hilltops and lone cottonwood trees. Raccoons, mink, fox and coyotes stalk the banks looking for an opportunity to cull the weak.



At 20 below zero, a mallard duck lifts off as the sun rises on a warmwater slough along the North Platte River.



The ghostly figure of a raccoon stalks the shoreline at dusk.



A Canada goose pair greet morning light on the roost.



A coyote keeps a keen eye and ear on all that moves in the Blue Creek Valley.

For those survivors that see winter's retreat, these refuges transform to become places where the next generation is made. Pair bonds are solidified among the Canada geese, mallard drakes battle over prospective mates, and adult trumpeter swans shake free of their family ties and begin courtship flights, cloud-white beacons flying low and calling in synchrony over the Sandhills valleys, heralding in the first notes of spring. ■



Trumpeter swans, with seven foot wingspans, fly in tight formation through a stiff winter wind.

The Lucky 13

Reasons to Visit Nebraska's State Parks All Year Long

By Jeffrey Kurrus

Whether you're single or married, childless or family-filled, Nebraska's state parks and recreation areas have something for you this year. In the pages that follow, you'll find our list of some of the best places to participate in many of this state's great outdoor activities.



PHOTO LEFT AND OPPOSITE BY ERIC FOWLER

ABOVE: HORSES AND RIDERS MAKE THE STEEP CLIMB TO THE TOP OF RED CLOUD BUTTES AT FORT ROBINSON STATE PARK NEAR CRAWFORD. FORT ROBINSON OFFERS MORE THAN 100 MILES OF HORSE TRAILS AND VISITORS CAN RENT RIDES OR BRING THEIR OWN. OPPOSITE: AIDEN AND CULLEN COOK OF JACKSON AND KIERA, GAGE AND JERRY CROXEN OF SIOUX CITY, IOWA, ROAST A HOTDOG OVER A CAMPFIRE AT PONCA STATE PARK, WHERE VISITORS HAVE THE OPTION OF CAMPING OR RENTING ONE OF THE PARK'S 19 CABINS.





PHOTO BY ERIC FOWLER



PHOTO BY ERIC FOWLER

OPPOSITE, TOP: CAMPERS FISH AND PLAY ON THE BEACH AT LAKE MCCONAUGHY NEAR OGALLALA. MCCONAUGHY BOASTS MILES OF BEACHFRONT FOR FAMILY FUN.
OPPOSITE, BOTTOM: KIDS ARE ALWAYS SMILING WHILE VISITING E.T. MAHONEY STATE PARK, WHICH OFFERS SWIMMING, HIKING, FISHING, HORSEBACK RIDING, MINIATURE GOLF, SLEDDING, CAMPING, WILDLIFE VIEWING AND MUCH MORE.
ABOVE: SHAYLA, SHAYNE AND TRYSTAN BENNETT OF PALMER ENJOY A FALL AFTERNOON ON THE SWINGS AT MORMON ISLAND STATE RECREATION AREA NEAR GRAND ISLAND.
BELOW: LOUISVILLE STATE RECREATION AREA OFFERS MANY FISHING, BOATING AND CAMPING OPPORTUNITIES. LOCATED ALONG THE PLATTE RIVER IN EASTERN NEBRASKA, LOUISVILLE SRA GIVES THE METROPOLITAN COMMUNITY A GREAT OUTDOOR DESTINATION CLOSE TO HOME.

To Ride a Horse

- Fort Robinson SP- 100+ miles of trails
- Indian Cave SP- 25 miles
- Lewis and Clark SRA- 5.5 miles
- Pawnee SRA- 6 miles
- Rock Creek Station SHP- 4.5 miles

To Play on the Beach

- Calamus Reservoir SRA
- Fremont Lakes SRA
- Lake McConaughy SRA
- Louisville SRA
- Mormon Island SRA

To Meet New Friends

- Branched Oak SRA
- Johnson Lake SRA
- Lake McConaughy SRA
- Smith Falls SP
- Summit Lake SRA

To Take the Family

- Buffalo Bill Ranch SHP
- E.T. Mahoney SP
- Schramm Park SRA
- Wagon Train SRA
- Wildcat Hills SRA

To Get Away from Everyone

- Blue Stem SRA
- Gallagher Canyon SRA
- Long Pine SRA
- Olive Creek SRA
- Sherman Reservoir SRA

To Camp and Hunt/Fish Nearby

- Chadron SP
- Lake Minatare SRA
- Lewis and Clark SRA
- Medicine Creek SRA
- Memphis SRA



PHOTO BY JEFFREY KURRUS



PHOTO BY JEFFREY KURRUS



To Water Ski

- Branched Oak SRA
- Calamus Reservoir SRA
- Lake McConaughy SRA
- Lake Minatare SRA
- Lewis and Clark SRA

To Comfortably Camp with a View

- Chadron SP
- Lake Ogallala SRA
- Lewis and Clark SRA
- Merritt Reservoir SRA
- Niobrara SP

To Ride a Bike

- Cowboy Trail- 195 miles of open trail
- Platte River SP- 17 miles of trails
- Niobrara SP- 14 miles
- Ponca SP- 17 miles
- Willow Creek SRA- 9.3 miles

To Take a Long Hike

- Chadron SP- 9.8 miles
- Fort Robinson SP- 100+ miles
- Indian Cave SP- 25 miles
- Platte River SP- 17 miles
- Wagon Train SRA- 10.5 miles



To Attend a Summer Event

- Lake McConaughy SRA and Kites and Castles - 7/30/2011
- Merritt Reservoir SRA and the Nebraska Star Party - 7/31 – 8/5/2011
- Niobrara SP and the Ponca Tribe Powwow - 8/12 – 8/14/2011
- Arbor Lodge SHP and the Applejack Festival - 9/16 – 9/18/2011
- Ponca SP and the Missouri River Expo - 9/17 – 9/18/2011

To View Wildlife

- Lake Ogallala SRA - Eagles in January and February
- Fort Kearny SRA - Sandhill cranes in February and March
- Niobrara SP - Birding and prairie wildlife in May and June
- Platte River SP - Whitetailed deer and turkeys in August
- Fort Robinson SP - Bighorn sheep, buffalo and more all year

To Live in the Past

- Ashfall Fossil Beds SHP for fossils dating back 12 million years
- Buffalo Bill Ranch SHP and the creation of the Wild West Show
- Fort Atkinson SHP and the Lewis and Clark expedition
- Fort Robinson SP for westward expansion history
- Rock Creek Station SHP for Wild Bill Hickok and the Pony Express

For more information on Nebraska's State Parks System, visit OutdoorNebraska.org.



OPPOSITE, TOP: JASON WEBER OF LINCOLN MAKES THE ROUNDS ON VICTORY LAKE AT FREMONT LAKES SRA. WHILE SMALL IN SIZE, THIS SRA GIVES EASTERN NEBRASKANS A SKIING SPOT CLOSE TO HOME. FREMONT LAKES SRA ALSO HAS MORE THAN 800 CAMPING SPOTS FOR VISITORS. **OPPOSITE, BOTTOM:** PLATTE RIVER SP, BORDERING THIS FAMOUS AND HISTORICAL RIVER IN EASTERN NEBRASKA, FEATURES 10 MILES OF BIKING TRAILS, FISHING LAKE FOR KIDS, SWIMMING POOL, RIVER OVERLOOK AND ITS NEWLY ERECTED SHOOTING PARK. **THIS PAGE, TOP:** FORT KEARNY SHP NEAR KEARNEY FEATURES A REBUILT STOCKADE, PARADE GROUNDS AND BLACKSMITH SHOP THAT GIVE A GLIMPSE OF WHAT LIFE WAS LIKE AT A FRONTIER FORT. **THIS PAGE, BOTTOM:** A BALD EAGLE SOARS OVER LAKE OGALLALA. IN FEBRUARY, HUNDREDS OF THESE MAJESTIC BIRDS GATHER AT THE LAKE DURING THE COLDEST OF WINTER TO FEED ON FISH FLUSHED FROM LAKE MCCONAUGHY THROUGH THE HYDROELECTRIC PLANT.

Potash

Boom and Bust in the Sandhills

Text and photos by Jon Farrar

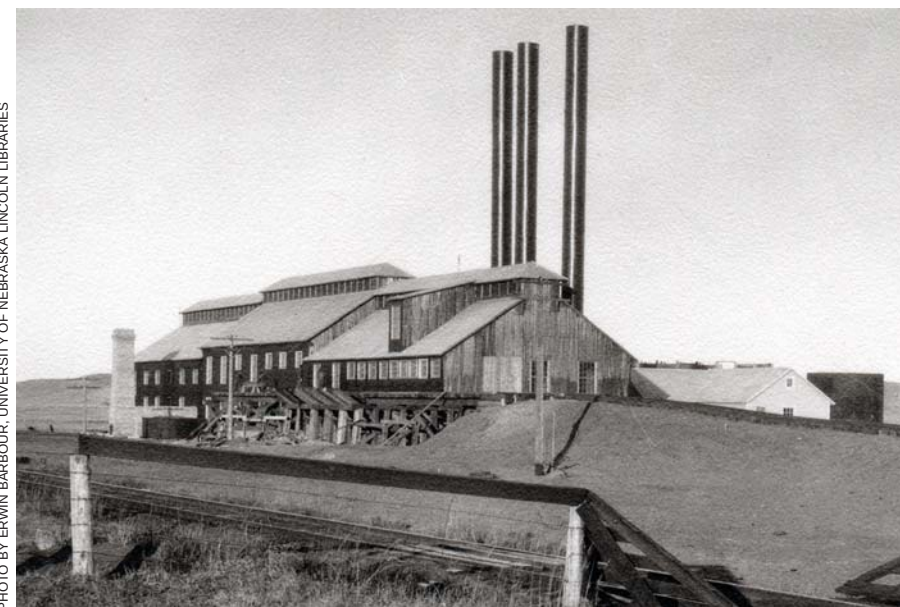
There is no perfect modern-day comparison to the circumstances spawning the short-lived potash industry in Nebraska during World War I. The cessation of rubber and silk shipments from countries we were at war with, or countries occupied by countries we were at war with, during World War II (leading to the development of nylon to replace silk and synthetic rubber to replace natural rubber) is close. Still, the history of the potash boom during World War I is uniquely concise. Oddly enough, the long-cursed alkaline wetlands of the western Sandhills became one of the best alternate sources of potash for fertilizer the U.S. had, and by the end of the war the region was meeting about 60 percent of the country's need.

In the years before World War I,

most of the world's potash came from Germany, where extensive, underground deposits were mined like rock. In those times, the U.S. was a world leader in exporting manufactured goods, and ships returning from Europe frequently carried potash rather than making the Atlantic crossing with their cargo holes empty or at least not filled to capacity. In the U.S. potash was used in an array of products, from glass to soap, but about 90 percent of it was used for fertilizer. Prior to 1912, the price was stable at \$8 to \$10 per ton, but as Europe edged closer to world war the volume shipped to the U.S. dramatically declined and prices soared. In 1917, potash was selling for \$150 per ton. Once the U.S. entered World War I supplies from Germany vanished.



About the only reminder of the potash boom remaining are the concrete, brick and steel remnants of the Western Potash Company plant near Antioch. In 1979, the site was added to the National Register of Historic places.



The Hord Alkali Products Company at Lakeside began operation in 1917. Barbour wrote it was an "exceptionally large, well-regulated, and promising plant."

With inexpensive foreign supplies gone, the U.S. turned to homegrown supplies. Potash was a byproduct of dust from cement kilns, wastes from distilleries and sugar refineries, and kelp harvested on the California coasts; but those sources could not meet the demand during World War I, and other sources were sought.

Alkaline crust had been gathered from ephemeral wetlands in the western Sandhills as early as 1900, but such endeavors never prospered. A more serious attempt to mine potash from western Sandhills wetlands was initiated by John H. Show and Carl L.

Modesitt (also seen in print as Modisett) in 1912. They filed mineral claims on 230-acre Jesse Lake and surrounding school sections in southern Sheridan County, and erected a 40-foot-high evaporating tower to concentrate the lake's briny waters. Over 200 (and eventually 1,000) sand-point wells were sunk in the lake bed to a depth of about 17 feet, and the alkaline water fed into trunk pipes to a central pumping station. As the operation evolved, the brine from the evaporation tower was pumped a little over two miles to the south, where it emptied into three steel storage tanks with a total capacity of

40,000 gallons. The tanks were adjacent to the Chicago, Burlington, and Quincy Railroad line where the potash boomtown of Hoffland would spring up only two years later. From the tanks, the brine flowed into four concentration vats called "cookers" to be reduced to about 20 percent solids, then into finishing vats that produced a 40-percent-solids solution.

About 200 pounds of potash could be produced per day. The operation was inefficient as the cost to produce a pound of potash exceeded the price received, in part because the potash still had a high moisture content, hence

high shipping costs. By late-summer 1913, the plant closed.

Source of the Salts

The water in lakes and wetlands of the western Sandhills vary in salt concentrations from mild to strong. Highly alkaline lakes are devoid of aquatic vegetation, salt-encrusted and cracked mud most summers; while mildly alkaline lakes are fringed with bulrush and saltgrass. Dissolved solids (a commonly-used measurement of salts dissolved in the water, or degree of alkalinity) in the lakes of southern



Workers at the Nebraska Potash Company near Antioch posed for a photograph in front of the power plant and next to “evaporating pans” that were being installed. The negative identifies the photographer as Hager, perhaps a student of Barbour.

Sheridan County ranged from about one percent to about 19 percent in Jesse Lake. Seawater contains approximately four percent dissolved solids; and waters of the Great Salt Lake about 20 percent. Only lakes with concentrations exceeding five percent were considered worth mining.

Why are the shallow lakes of the western Sandhills alkaline? The salts found on and near the surface were once believed to have been drawn up from deeply buried marine deposits of the Cretaceous period, when a vast inland sea covered much of what today is the North American continent. A similar geologic history created the extensive German potash deposits, state

geologist Erwin H. Barbour wrote in his 1916 paper, *A Preliminary Report on the Alkali Resources of Nebraska*. That was almost certainly not the source of briny waters in the western Sandhills, though, wrote George E. Condra, Director of the the Nebraska Conservation and Soil Survey Commission, in his 1918 publication, *The Potash Industry of Nebraska*.

Salts are naturally occurring in nearly all soils. Condra believed the source of salts in the western Sandhills and along the North Platte River Valley had their origin in the Rocky Mountains. The tableland of western Nebraska was laid down by erosion of the Rocky Mountains, as gravel, sand and silt was

carried easterly by streams and deposited. Surface and subsurface drainage is to the southeast, so salts leached from the tablelands were carried into the western Sandhills. Because the Sandhills are of such recent origin (there being evidence winds during periods of drought were still reworking the dunes as recently as 600 years ago) an extensive system of creeks and rivers to drain the region is yet to develop. The result is that the western Sandhills are poorly drained, and mineral-rich water leaching down through dunes to wetlands is not efficiently carried away. During wet cycles, and even during the rainy spring months in years of average precipitation, these salt-rich waters pool on the surface and in summer evaporate. After hundreds of years, the salts became increasingly concentrated.

Blossoming of Industry

In the summer of 1914, a year after they had ceased operation and as political events in Europe leading to World I began influencing the availability of German potash, Modesitt, Show, and Omaha investors organized to resume

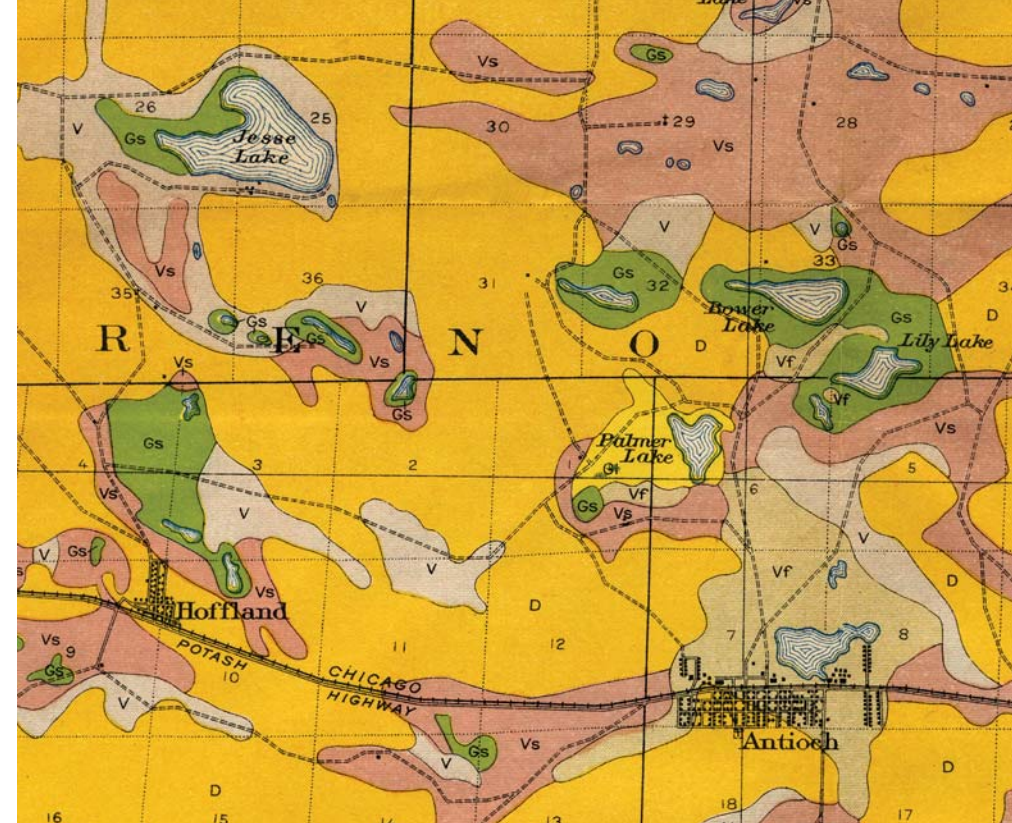
potash production on Jesse Lake. They made two significant changes from their earlier operation – increasing the size of concentration vats and building their plant adjacent to the Chicago, Burlington, and Quincy Railroad line little more than two miles south of Jesse Lake, about 12 miles east of Alliance. The new venture and corporation was named the Potash Reduction Company.

Pipelines buried 30 inches underground carried the brine from the lake to the plant. Iron pipes were initially used but it soon became evident they were corroding, so they were replaced with pipe made of wooden staves bound snugly together with wrappings of a heavy, No. 6 wire. Stave unions were sealed with tar.

“Some of it was redwood, some of it was made out of fir lumber,” the late Paul Dietlein recalled in a 1982 interview. Paul’s father, George, was a railroad man, but in 1919 moved his family to Antioch where he became a management employee of the American Potash Company. Paul was born in 1907 and so was 12 years old at the peak of the potash boom. “Those pipes were made out of long strips of this wood, and they were beveled just enough so they would fit and was round.”

Labor and shipping costs remained high, so the Potash Reduction Company made additional changes to their plant to increase efficiency. Plants built after theirs did not learn by trial and error the way the Potash Reduction Company had – instead they imitated it.

Large, concrete basins were constructed adjacent to the plants where the salt-rich water was sprayed into the air, using solar and wind power to begin concentrating the potash. The brine was then further concentrated in evaporation towers and coal-fired boilers. Barbour wrote that some “heavy liquor” or “alkali salts in solution” were shipped in tank cars. Most of the briny syrup, though, was then pumped into slowly rotating dryers of “intense heat produced by the combustion of crude oil accompanied by a forced blast of air.” Barbour described the “revolving steel dryers”



A 1918 soil survey map shows Jesse Lake, the most productive lake mined for potash, and the boom towns of Hoffland and Antioch. For decades after the potash industry folded, State Highway 2 through the Sandhills was called Potash Highway.

as about 65 to 70 feet long and six feet in diameter.

“Some alkali adheres to the sides of the cylinder and is jarred off by means of heavy mechanical hammers, weighing about 50 pounds each, which strike the revolving cylinder at regular intervals,” Barbour wrote of the American Potash Company plant. “The hard lumps drop from the lower end of the cylinder onto a belt conveyor, are carried to an upper floor, pass through a crusher, and drop down a chute into bags holding 200 pounds each.”

“That stuff that dried on the sides would drop off, cake, and dropped into a thing that had an auger, a big auger, up at the other end,” Dietlein recalled, providing a varied account of how dried potash was jarred off the sides of the rotary driers. “A fellow would stand up there with the sledge and pound on that thing, and that would jar it loose, I don’t know... those sledges probably weighed ten pounds. They were hitting that dryer, that steel dryer...to break that mud loose that had baked on the side. Most of them guys were damn husky guys....”

Because wood-frame buildings had burned, later plants were built of steel, concrete and brick. The plants operated year-round so as to make efficient use

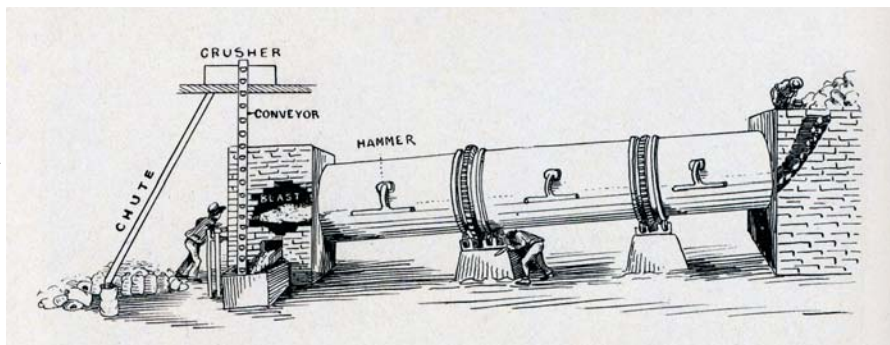
of the facilities and because the brine was more concentrated below the frost line in winter. Nebraska Potash Company’s electrical generators not only provided light for the plants but also for the homes in Antioch.

Condra estimated a large potash processing plant cost between \$100,000 and \$400,000, required several acres of land and typically had the following equipment and buildings – a main building for storing, evaporating, drying, grinding and sacking; boiler and engine houses; bins for coal and oil storage; a supply house and blacksmith and carpenter shops; office buildings; bunkhouses and eating houses; homes for employees; a railroad siding; and a freshwater supply.

Boom Towns

When the overseas supply of potash vanished, other plants sprung up like mushrooms in southern Sheridan County. By the end of World War I, there were 10 plants capable of producing 100 tons or more per day, and small wildcat operations capable of but seldom producing 10 tons per day that sold their potash to larger companies.

Because hundreds of men worked at each plant and the nearest large town,



A schematic sketch by Barbour of a revolving steel drier used by American Potash Company near Antioch. The driers were about 70 feet long and six feet in diameter.



The water in lakes and wetlands of the western Sandhills vary in alkaline concentrations from mild to strong. Highly alkaline lakes shrivel and dry to cracked mud encrusted with salt deposits most summers.

Alliance, was miles away, the potash companies built housing for workers at the same time they were building their plants. Dietlein said Antioch jumped in population from about 25 to 1,500 in just a few weeks.

“They were living in tents, shacks, anything to keep the rain off of them,” Dietlein said. “It sure went wild out there, and we had all classes of people. A lot of them single [men], most of them single. A lot of them were married but hadn’t brought their family in or anything. No place for them. There was two pool halls there in town, a ladies ready-to-wear store. About the time the potash pulled out, two drugstores, a

restaurant, two restaurants, and what else? That’s the only business places I can actually remember. At Antioch, there was probably 3,000 people [living there] at one time.

“The housing, they built housing for the married men to live in. They built some pretty nice houses. Each potash plant had a couple or three real nice, modern homes for their superintendent, probably the office manager, and then the plant manager. They usually had the best houses. The rest of them, the lake’s foreman, he had a pretty nice house, by the standards those days you would consider a nice house. Each plant had about the same setup, you

see. They had a lot of those houses built that were four-room houses.”

Condra, in his 1918 writing, probably based on information from a year prior, noted that Antioch “is destined to become the big potash center,” and that there were more than 200 houses in that town, all of which “sprung up within a year.” All had electric lights, steam heat and indoor plumbing – conveniences rare at that time in small towns, particularly in the Sandhills. Some of the larger companies provided public entertainment and public bathhouses. Condra reported that adequate labor was difficult to hire and retain because of the sparsely populated

region and because so many young men were in the military, even though wages were generous for the time.

Dietlein said eventually Antioch had a mayor, but law enforcement was a problem as the county sheriff was at Rushville on the norhtern end of Sheridan County. Prohibition was the law of the land but liquor was available in Antioch’s two pool halls, Dietlein said. The best of the two was run by a man named McGee.

“Legally speaking, all they could sell was near-beer. But they would spike it with alcohol; put an ounce of alcohol in a bottle of near-beer, and by God, about three or four bottles of that



Though seemingly inhospitable, even highly alkaline wetlands support life, particularly insect larvae, and tiger salamanders that perish when wetlands dry.

would put you buzzing. Now I was told, and I don’t know this to be a fact of course, but I was told that McGee had been a bootlegger and an ex-prize fighter back in Boston, and he come out there and started that pool hall. He run a pretty good place, pretty decent place. If them guys got too wild and too rowdy in there, he would just throw them out of the damned place, throw them out in the gutter. He didn’t stand for ... just the normal amount of guys feeling good, drinking, and stuff like that, that was fine and dandy, but if they got wild and got to fighting and wanted to tear up things, McGee took them and handled them.”

Dashed Dreams

Almost from the beginning it was obvious Nebraska’s potash industry would be short-lived, but there was no shortage of investors believing otherwise. Reports that investors in American Potash Company at Antioch received more than \$4 for every \$1 invested when the company was sold to the Western Potash Company fueled the fever. Even after the Armistice Treaty ended World War I in November 1918, two new companies sprang up, believing it would be years before potash shipments resumed from war-torn Germany. The Berg Potash

Company near Sutherland and the Republic Chemical Works Company (also a Berg Company venture) near Merriman in northwestern Cherry County began building plants in 1919. The Sutherland plant was never completed.

Marianne Brinda Beel, in *A Sandhills Century, Book I, The Land – A History of Cherry County, Nebraska*, wrote of the plant near Merriman:

“The William Berg Co. sold \$1,000,000 worth of stock in a potash venture in Merriman; many of the investors were local ranchers and merchants,” she wrote in the 1986 Cherry County centennial book. “It was to be the largest plant in the state and would employ about 200 men with a payroll of \$30,000. They built a mess hall and bunkhouses for Japanese help and built company dwellings with a promise of many more. Water was pumped through 10-inch cypress wood tongue-and-grove pipeline from ponds near Gay Lake, 12 miles west of town.”

Gay Lake had a sandy bottom, rather than an impervious “mud bed” as do the lakes in southern Sheridan County. Barbour wrote of highly alkaline lakes: “The lake beds are rendered impervious by fine materials, which are washed in from the surrounding watershed. This is all muck, and varies in thickness from 2 to 10 or 15 feet. This impervious muck



The open shorelines, shallow water and abundance of insect larvae and brine shrimp of alkaline lakes attract an array of shorebirds, including American avocets that nest nearby and do not avoid the salt-encrusted soil and vegetation.

contains magnesia, aluminum hydrate, and lime, with silt and some organic matter.” In Gay Lake west of Merriman, though, groundwater levels were high and flooded the lake in the spring, diluting the potash concentrations, and the sandy bottom allowed surface water carrying salts to seep away.

“The plant was converted to a fertilizer factory,” Beel wrote. “They resumed work in October [1919] working one shift of 12 hours a day and expected to be working 200 men

by summer, but as yet hadn’t turned out any fertilizer.... Because of a coal strike they were forced to shut down again but were able load out their first [rail] car in November and closed again in December.”

More stock was issued and the plant reopened in February 1920. By May, the plant again closed and Merriman’s electric lights went out, as the plant had been providing electricity to the town. Shortly thereafter, the Merriman potash plant was destroyed by fire, a fire many

considered of suspicious origin. Mari Sandoz summarized the potash boom in her book *Old Jules*, the story of her father and his role in settling the western Sandhills.

“Men let their cultivators stand in corn rows, the polished shovels buried in the earth; left their mowers with the steel teeth in blowing timothy and purple-bloomed alfalfa,” Sandoz wrote. “They squatted on their dusty heels, talking. They leaned over the hog pens in the evening sun, talking. Work was started at Jess [Jesse] Lake, four [two] miles from the south road [Today’s Nebraska Highway 2, the stretch of the highway between Grand Island and Alliance, was called the Potash Highway for decades after the potash boom.]. A Chicago concern already controlled a thousand acres of the foulest, richest brine, quietly leased up before a foot of pipe was shunted to the sidings at Reno. Five thousand dollars went into a well and an evaporating tower before anyone knew what was up. A \$50,000 plant was already on paper. The report of the water analysis once more brought a stream of Eastern money to the Panhandle. It would carry away the profits as before.

“Almost every Kinkaidier with a mud hole briny enough for water puppies (the sandhill salamander) carried a bottle of the gray water with him and thrust it hopeful on any stranger in leather puttees or with a crease in his pants,” Sandoz continued.

““So it goes,’ Jules told his family gloomily ‘I pick out a good place with fine grass and fresh water, and along comes a war, shuts off German potash, and lot of fools that don’t know any better than to file on stinking alkali lakes make more money in a month than I can by working a lifetime.’”

It is unlikely that many ranchers substantially profited selling or leasing mineral rights, as Jules Sandoz contended, as payment to ranchers was based on the profitability of potash production. As with the center-pivot irrigation boom in the eastern and southern Sandhills in the 1970s and ‘80s, those who profited were investors who bought range land cheap, developed the land and sold with substantial profits before the folly of farming sand dunes became fully evident.

The Crash

Nebraska’s governor-elect Samuel McKelvie and the Nebraska congressional delegation attempted to have federal legislation passed to impose an import duty on foreign potash after World War I, so home-harvested potash would remain competitive. Apparently the cotton-farming lobby had more clout, as Nebraska’s delegation was unsuccessful. Most of the potash plants began laying off employees or shutting down in 1919. Those remaining in production were crippled by a coal strike in Wyoming, and a ton of coal was required to reduce brine to a ton of potash. By late-1920, plants were again shutting down. Potash was again being shipped from Germany. The potash boom in Nebraska had run its course. Antioch and Hoffland vanished as quickly as they had sprouted.

Today, about the only reminder of the World War I era potash boom are the concrete, brick and steel remains of the Western Potash Company plant on the

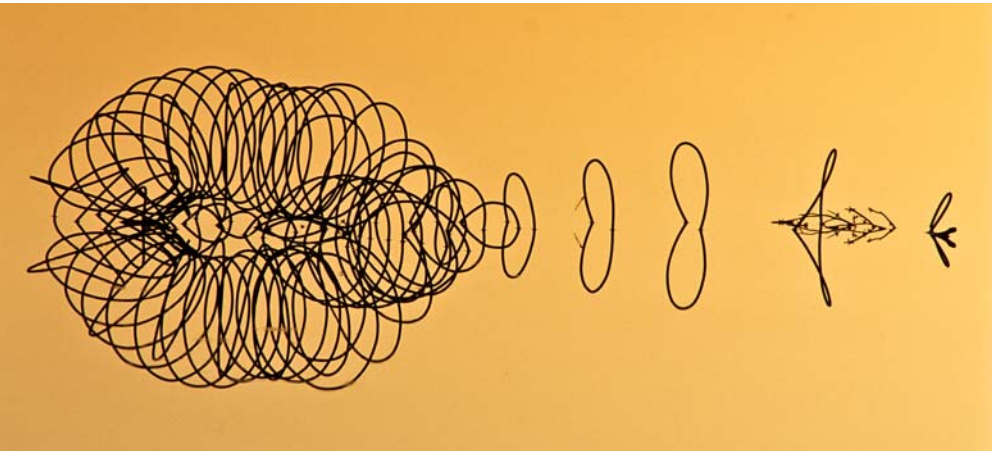


Potash pipe wire salvaged by ranchers can still be seen used for fencing, and for years after the plants vanished the wooden pipe staves were used for corrals.

north side of Nebraska Highway 2 near Antioch, between Lakeside and Alliance. They stand, somehow Stonehenge-like, somber and silent reminders of the fickleness of commerce and wars, and the folly of short-term speculation. In 1979, these remnants were added to the National Register of Historic Places. If you drive slowly enough, and look in shallow pools of water shrinking away in the summer sun, you might see a coil of the old wire once used to wrap the wooden

potash pipes emerging from the water. And if you look closely at a gate post here and there, you might see twists of No. 6 wire nearly a hundred years old, relics and about the only remnants of the potash boom still doing something useful. ■

Editor’s Note: A longer version of this article with additional information can be found at NEBRASKALandMagazine.com. While there, check out the magazine’s blog, “Afield and Afloat.”



Coils of the heavy wired used to bind the wooden pipes through which alkaline water was once pumped still rise from the beds of shrinking pools in dry summers.



Wildlife Conservation Fund

Supporting Surveys and Research

By Gerry Steinauer, Botanist,
Nebraska Game and Parks Commission

A primary duty of the Commission's nongame program staff is the monitoring and researching of our state's nongame species (those species not hunted or fished). Highlights of some of this past summer's projects included surveys for the rare timber rattlesnake and western slender glass lizard, the monitoring of Nebraska's sole Ute ladies'-tresses orchid population, plant surveys of the Pine Ridge escarpment and Fort Niobrara National Wildlife Refuge, and a study of bats in southwestern Nebraska to determine the potential impact of wind power development on this vulnerable species group.

Such projects are vital, as conserving a species requires knowledge of their abundance, population trends, distribution, habitats, life history and response to disturbance and management. Such information allows us to enhance habitat in the most effective manner, allocate our limited conservation dollars to the most ecologically important projects, and determine if our past conservation efforts have been successful.

For example, multi-state surveys indicate conservation efforts have significantly increased bald eagle populations in recent decades, allowing this species to be taken off state and federal threatened species lists. On the other hand, monitoring of the Salt Creek tiger beetle in the salt marshes near Lincoln (its sole habitat) indicate this species has declined to three meager populations and is teetering on the brink of extinction.

These nongame projects are funded with federal grants and the Commission's Wildlife Conservation Fund, which is supported primarily through tax donations. Conservation Fund dollars are vital to the nongame program, as they often provide the match necessary to obtain the federal grants that make a project feasible. For example, ten dollars donated to the Wildlife Conservation Fund is matched to federal grants and becomes 40 dollars to put towards conservation. Unfortunately, funding for nongame work is usually limited,

and we struggle to get current information on declining species in the state.

The following is a look at two of the nongame projects that the Commission has worked on this summer – they illustrate the importance that Wildlife Conservation Fund donations can have on Nebraska's various species.

Ute Ladies'-tresses Orchid

In 1996, a Wyoming botanist surveying upper Niobrara River Valley meadows in Wyoming and Sioux County made the first discovery of the rare Ute ladies'-tresses orchid (*Spiranthes diluvialis*) in our state. Spurred by this find, in late summer of 1997 the Commission conducted extensive surveys for this federally threatened orchid in wet meadows throughout the Panhandle and western Sandhills, but found no new populations. In Nebraska the orchid appears restricted to privately-owned alkaline meadows along a roughly two-mile stretch of the Niobrara River Valley. Last August Andrew Pierson, Rocky Mountain Bird Observatory biologist, and I revisited the orchid meadows to evaluate their population.

The elegant Ute ladies'-tresses orchid is a long-lived perennial with a single 5- to 20-inch stem arising from a short, tuberous root. The lower leaves are up to a half inch wide and a few inches long, becoming progressively smaller higher on the stem. The flowering spike is 1½ to 6 inches long, with numerous small, ivory-colored flowers arranged in spirals, resembling the braids (tresses) of a woman's hair. A late bloomer, the orchid flowers for a few weeks beginning in mid-August. Fruiting pods form in early fall and, if successfully pollinated, are packed with thousands of dust-sized seeds.

In its upper reaches, the Niobrara River Valley is encased by rocky, mixedgrass prairie-covered bluffs. The stream itself is narrow, easily jumped in most places if not for its

In Nebraska, the rare Ute ladies'-tresses orchid is restricted to alkaline meadows along a roughly two-mile stretch of the Niobrara River valley in Sioux County.

PHOTO BY GERRY STEINAUER

“The one process now going on that will take millions of years to correct is loss of genetic and species diversity by the destruction of natural habitats. This is the folly our descendants are least likely to forgive us.”

– Edward O. Wilson, Biologist, Harvard University

cattail and willow-choked margins. Wet meadows of sedge and grass form a narrow to wide band bordering the stream bottom. Bluff ward these give way to higher and drier terraces of prairie grasses, with occasional low, wet swales among the terraces. It is in the moist meadow areas that the orchid grows – an Idaho study found the orchid grew only where groundwater was within a meter of the soil surface and soils stayed moist during critical late-summer flowering.

In 1992, when the United States Fish and Wildlife Service listed the Ute ladies’-tresses orchid as a threatened species, there were only 6,000 known plants in 10 populations in Colorado and Utah. Since then surveys have documented more than 35,000 plants in 50 populations and expanded the orchid’s range to include British Columbia, Idaho, Montana, Nebraska, Washington and Wyoming. In addition, surveys and research have shed light on the plant’s complex life history, habitat needs and threats.

Our 2010 orchid count documented 831 flowering plants, fewer than the “thousands” reported by the Wyoming botanist in 1996 and the approximately 2,300 plants found by Commission biologists in 1997. Our results, however, might indicate a real decline in Nebraska’s Ute ladies’-tresses population or simply a natural annual fluctuation in flowering individuals – the surveys counted only flowering plants, as non-flowering orchids are extremely difficult to find among the meadow grasses. Studies in other states found that Ute ladies’-tresses counts based solely on flowering plants exhibit large annual fluctuations, as the number of plants that bloom each year varies depending on climatic conditions, herbivory (mainly by voles, which seem to relish the flowering spikes) and management. Drought or late summer haying the previous year, for example, stresses plants, limiting flowering the following year. In other states where monitoring included both flowering and non-flowering plants, orchid populations have remained relatively stable over the years.

Compounding these monitoring problems is the fact that, because of orchid’s symbiotic relationship with mycorrhizal fungi, adult plants can go dormant for one to several years before reappearing above ground. Most orchid species and many other plant species form interdependent associations with soil fungi, which infect the plant’s roots and aid in nutrient and water absorption, allowing the plants to exist only as a root for long periods with no active photosynthesis. The microscopic seeds of most orchid species lack endosperm (starch supply) to fuel germination and early growth, and also depend on fungal infection for nutrient intake. The Ute ladies’-tresses thus will grow only in meadows also suitable for survival of its associated mycorrhizal fungi, which may partially explain the species’ spotty distribution and rarity.

In Nebraska and elsewhere, the Ute ladies’-tresses does

best in meadows that are hayed or grazed in early summer (June through mid-July). The early grass harvest lessens competition, but does not impact the late-developing, diminutive orchid. The orchid, however, either does poorly or doesn’t survive at all in meadows consistently hayed in late summer (late-July through September), as the cutting of flowering stalks prevents seed formation and reproduction.

Threats to Nebraska’s Ute ladies’-tresses population include aggressive, non-native forage grasses, primarily Garrison creeping foxtail and quackgrass, which are invading the meadows and could eventually displace orchids. Also, recent center pivot irrigation development in the upper Niobrara River Valley has lowered local groundwater levels and reduced stream flows, particularly during the species’ critical late-summer flowering stage. Nebraska’s Ute ladies’-tresses may not survive if the upper Niobrara River valley’s natural hydrology is not maintained. Only through continued monitoring and research can we track the status and needs of this rare orchid.

Western Slender Glass Lizard

The western slender glass lizard (*Ophisaurus attenuatus*) is likely Nebraska’s rarest and most reclusive reptile. Until recently its only documentation in the state was from two collections in the 1930s from Franklin and Johnson counties. Not seen in over 75 years, scientists thought it extinct in the state and blamed the loss of its tallgrass and mixedgrass prairie habitat to the plow.

Slender glass lizards are unique among lizards because they are legless. Add to this their extremely long tail, and superficially they resemble and often are mistaken for snakes, despite their movable eyelids and external ear openings. They can reach 20 to 40 inches in length, the tail accounting for up to two-thirds of their measurement. Glass lizards are so named for their fragile tail, which breaks off when seized by predators and fractures into pieces when handled. Brownish colored with dark stripes running along the back and sides, glass lizards are perfectly camouflaged for life among prairie grasses.

Dan Fogell, herpetologist and science instructor at Southeast Community College in Lincoln, has been on a 13-year quest to rediscover the western slender glass lizard in Nebraska. Reports over the years of “strange-looking snakes” from Nebraska’s south-central tier of counties spurred Fogell to make weekend road trips in search of his reptilian quarry.

Supported by the Wildlife Conservation Fund, Fogell began an intense survey effort for the lizard in August 2009. Oddly, driving roads in search of road kills and live individuals is the most productive survey method for finding slender glass lizards. “On hot summer days with a strong south wind, they



PHOTO BY DAN FOGELL

Slender glass lizards are unique among lizards, for they are legless. They are likely Nebraska's rarest and most reclusive reptile.

show up on roadsides at dusk and you have a short survey window. They are diurnal and move about and eat at the cool times of day,” said Fogell. “We could walk prairies looking for them, but they are so well camouflaged it would be like looking for a needle in a haystack. You need to find them out of context.”

Over the last two summers, Fogell has found three slender glass lizards – two dead and one alive – on roadsides in Franklin County. In addition, a turkey hunter recently photographed a glass lizard in Webster County.

“These surveys are essential,” said Fogell. “For one, we now know the glass lizard still exists in the state and that its range is limited. We also know the lizard survived extensive changes to our landscape over the last century. With future landscape-level changes on the horizon, such as climate change, we need to determine if this species will survive, perish or expand its range in the state.”

Nebraska’s glass lizards are a peripheral population at the northwestern edge of the species’ range. “At the edge of a range, conditions are never perfect for survival because resources are less and more varied when compared to the center of the range, so peripheral populations must evolve added survival characteristics,” said Fogell. “At least for herpetofauna, peripheral populations often survive stress better than core populations. Our population may be important for the long-term survival of the glass lizard with the onset of climate change.”

Loss of the remaining native grasslands presently poses the greatest challenge to the survival of the glass lizard in Nebraska. How remnant prairies are managed is also important. “In Kansas, I have observed that we don’t find slender glass lizards in prairies that are overgrazed or annually burned due to reduced grass cover. The grass canopy keeps them cool in summer, offers protection from predators and supports insects for food,” said Fogell.

Though he has finished his official surveys for the Commission, Fogell will continue his search for the slender

glass lizard. He hopes to eventually find them in Webster and Harlan counties. At this time he doubts he will ever find large populations of the lizards in the state, though with the onset of climate change the species may eventually expand its range northward.

With the aid of Wildlife Conservation Fund monies, Fogell was able to rediscover the western slender glass lizard in Nebraska. “Basically, these monies allowed me to intensify my survey effort,” said Fogell. “Previously I would get out one maybe two times a year, and I was never lucky enough to find a glass lizard. The monies covered my gas, meals and lodging, and allowed me to hire an assistant. I don’t do this work for the money, I do it for the data, and more surveys provide more data.”

Without such data, protecting species such as the western slender glass lizard and Ute ladies’-tresses orchid becomes that much harder to do and the likelihood increases substantially of them disappearing from our state entirely. And nobody wants that. ■

Donations to the Wildlife Conservation Fund can be made online at <http://www.nebraskawildlife-fund.org> or by a check written out to the fund and sent to the Commission at P.O. Box 30370, Lincoln, NE 68503-0370. Contributions can also be made by using the nongame check-off box found on state income tax forms. All contributions to the Wildlife Conservation Fund are tax deductible.

Gerry Steinauer lives in Aurora and is a botanist for the Nebraska Game and Parks Commission’s Wildlife Division. He has been contributing stories and photographs to NEBRASKALAND since 1990.



Pheasant Fest 2011 Coming to Omaha

National event has something for everyone.

By Doug Carroll

It may not be as good as being in the field, but it will definitely be warmer there, and it may help you find more success and enjoyment in future hunts. Who knows, maybe you can make a weekend of it and do both.

"It" is Pheasant Fest 2011, a national festival put on by Pheasants Forever that will be held January 28-30 at the Qwest Center in Omaha. Pheasant Fest is a trade show that focuses on wildlife conservation, upland game bird hunting, dog training and wildlife habitat management and restoration. In connection with the trade show, Pheasants Forever will be holding seminars on habitat improvement, pheasant hunting, shooting sports, wild game cooking, dog training and conservation, among other topics. A

"help desk" will also be available to help landowners learn more about managing their land for wildlife of all types, so there's something for everyone who attends this event.

"There's going to be 20,000 plus people with a passion for wildlife and the outdoors that will attend the festival in Omaha this year, and this is just the type of show to attend if you're at all interested in wildlife habitat," said Pete Berthelsen, senior field coordinator for Pheasants Forever and Quail Forever in Nebraska.

"Every hour there will be five to six different seminars and presentations to attend, all of them free with your price of admission and covering such topics as wildlife management, outdoor photography, cooking, predator calling, dog training ... if you're interested in

any of these topics, Omaha is the place to go."

The first-ever Pheasant Fest was held January 2003 in Bloomington, Minnesota, and the event has grown markedly since its inception. National Pheasant Fest 2011, presented by Cabela's, will be Pheasants Forever's seventh such event, and marks the second time this event has been held in Nebraska. This now annual gathering has grown into the nation's largest event for upland hunters, farmers, sport dog owners and wildlife habitat conservationists.

"We're extremely excited to bring our biggest and best event to Nebraska and to have Cabela's on board as presenting sponsor for National Pheasant Fest 2011," said Howard Vincent, Pheasants Forever's president



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Pheasant Fest 2011 is expected to draw thousands of visitors to the Qwest Center this January.

and chief executive officer, "The event has grown dramatically since we last brought it to Omaha, and we plan to unveil new features for our second go-round, making it your pheasant destination to kick off 2011."

Berthelsen said the help desk that will be open throughout the duration of the show should be of particular interest to landowners that attend the event. Landowners visiting the festival from anywhere in the nation can sit down and look at aerial photos of their land with Pheasants Forever biologists that can help suggest ways of improving their wildlife habitat while increasing revenue from their land.

"All a landowner has to do is to be able to tell the biologist where their land is and they can help find programs to improve habitat and increase revenue for their farm or ranch. It really is a one-stop shopping venue," he said.

Daily admission to the event is free for children under five years of age, \$5 for people 6 to 16 year of age, and \$10 for attendees 17 years old or older. The doors will be open from 1 p.m. to

9 p.m. on Friday the 28th, 9 a.m. to 6 p.m. on Saturday, and 10 a.m. to 5 p.m. on Sunday.

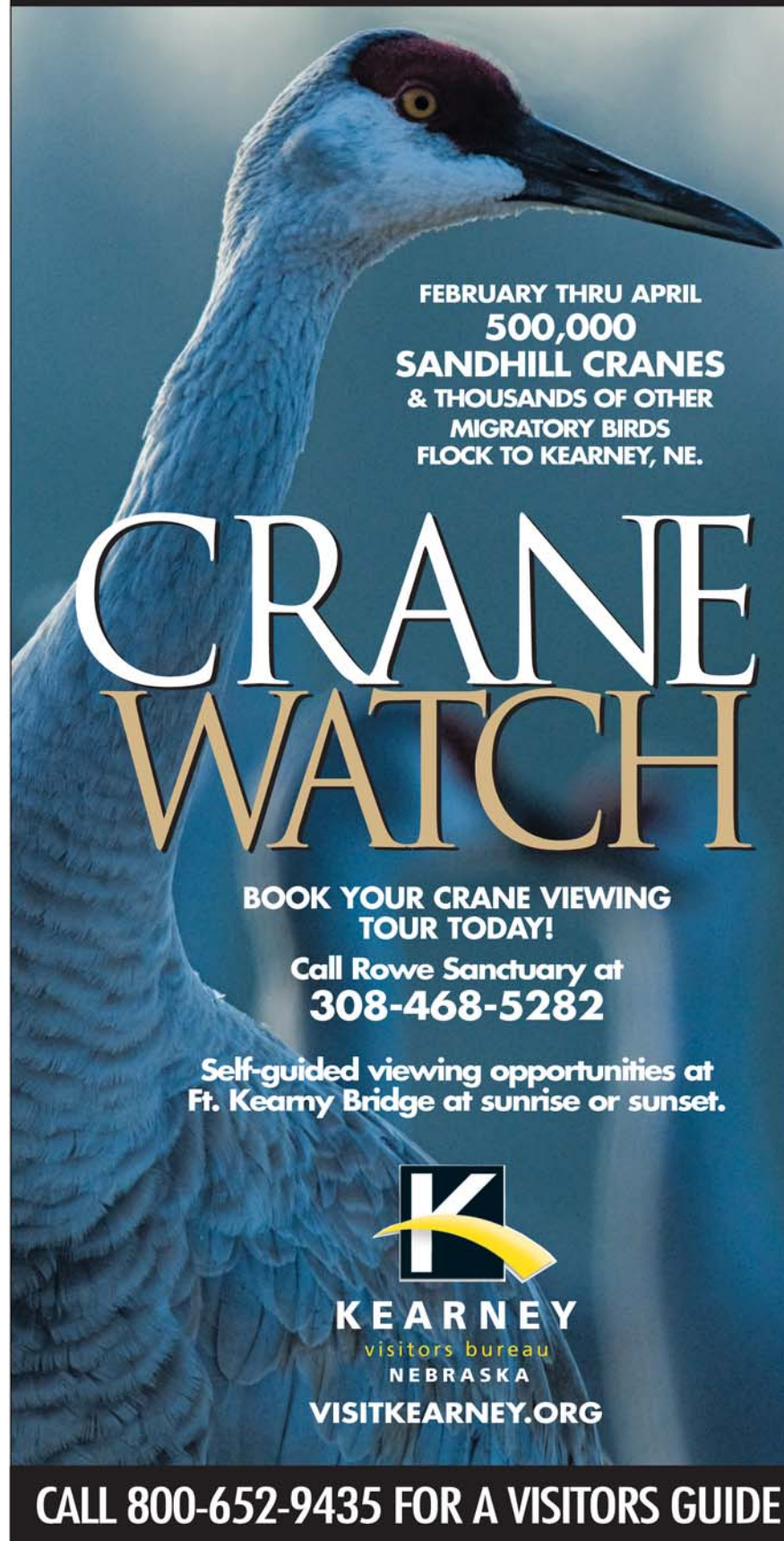
"This is only the second time Pheasant Fest has been in Omaha – it bounces around from state to state

every year, but some of the locations are quite a ways away," said Berthelsen. "This is an opportunity that folks in Nebraska don't have every year without having to drive or travel a long way." ■



Dog training is just one of the many and varied seminars and presentations that will be available to participants at this year's Pheasant Fest.

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▲ This 1941 photo shows Calvin Harvey (left) and Bernard Bolin, who enjoyed hunting in the Page area through their school years. Bernard entered France at Omaha Beach and was killed near St. Lo in 1944, while Calvin was in the infantry in Luzon. Calvin hunted and fished throughout his lifetime and passed away in 1995.
— Lyle Harvey, Page, Nebraska



▲ Pictured left to right is my dad, Howard Gould; his brother, Ralph Gould; and their brother-in-law, Delbert Rickett, around 1947. These three hunted for many years in the 1930s and 1940s on the Missouri River just north and east of Newcastle. The photo shows a good day's hunt with mallards, snow, whitefront and Canada geese in the mix. They had many fond memories of their hunting days together on the Missouri.
P.S. — I've always thought of this photo as the "Untouchables" on their day off!
— Daniel Gould, Laurel, Nebraska



▲ This photo was taken the day after a successful nighttime raccoon hunt. Alvin Shafer, my uncle, snapped this photo on November 30, 1946. The three men (left to right) are my dad, Alfred Shafer; my uncle, Ralph Shafer; and a neighbor, Harold Rowell. The little white dog dad is holding is Bounce, our family pet; the other three "coon hounds" were used to trail and tree the coons. They bagged seven raccoons that night, and as you can see, they have already skinned the coons and have their hides stretched out on drying boards. That was how they prepared the hides, which would later be sold to a local fur buyer. The scene of the photo was beside a barn near "The Brick," which was a name the family used to refer to the two-story brick house where my dad and uncle grew up and where I was born. The remains of the house are three-and-a-half miles east and a fourth of a mile south of Shubert.
— Lonnie Shafer, Exeter, Nebraska



▲ This picture was taken in November of 1978 or 1979 after spending three hours hunting just north of Superior Street in Lincoln. From left are Brad Nelson, Les Watermeier and myself, Larry Harre. Watermeier shot a double on the rooster pheasants while everyone enjoyed shooting the ducks and quail. No dog was used during the hunt but we did use a fishing pole to retrieve a mallard drake from the ice, which was too thin for us boys to walk on.
I truly enjoy your magazine and sent many copies to Col. Nelson while he was stationed in Afghanistan with the U.S. Army last year. Thank you for the wonderful pictures and stories about our great resources in Nebraska.
— Larry Harre, Kearney, Nebraska

Send contributions to: Portraits from the Past, NEBRASKALAND Magazine, P.O. Box 30370, Lincoln, NE 68503-0370. Or e-mail to tim.reigert@nebraska.gov. Photos should show people enjoying Nebraska outdoor activities, such as camping, boating, hunting or fishing, and must have been taken before 1980. We will give priority to unusual photos or activities. When possible, please include a story about the photograph and identify the people, places and approximate date it was taken. Photos will be returned.

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