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NEBRASKAland

August-September 2015



Buck pronghorn gather in a pasture on the Oglala National Grassland west of Toadstool Park.
Photo by Justin Haag.

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How to Hunt Squirrels • North Fork Frontiersmen • Frog Camo



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NEBRASKAland Magazine

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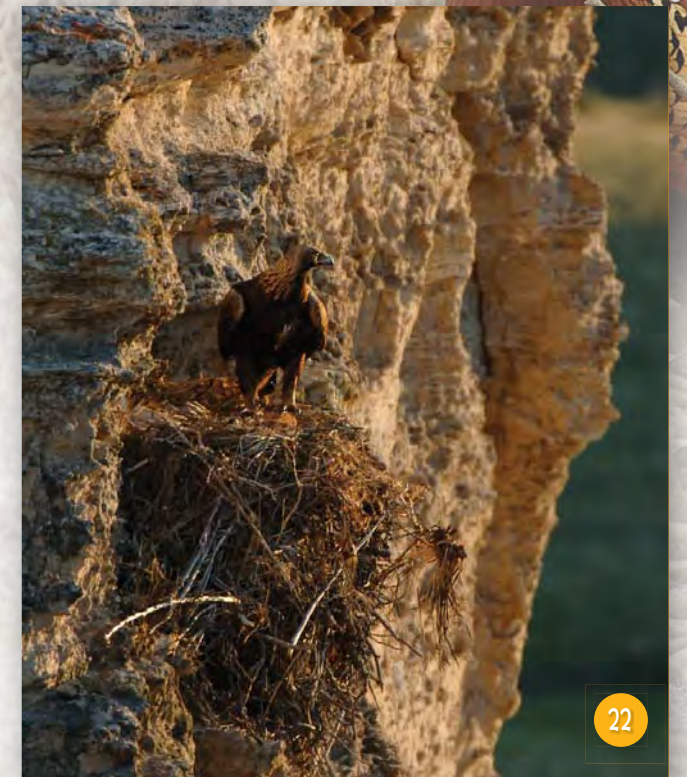
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ON THE WEB...



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Cover: The American burying beetle is one of two endangered insects in Nebraska. See the story on page 36. Photo by Eric Fowler.



Brent Hall photographed this 17-year cicada on his parent's acreage near Humbolt.



Kevin Hice photographed these prairie chickens on April 4, 2015 on private land in Brown County south of Long Pine.

Outdoor Plates

Tim Jordening shot his first sharp-tailed grouse when he was 16 and can't wait for his 39th season to open this September. He hasn't had his plate, which lists the Nebraska bag limit, nearly as long as he's been following his dog through the Sandhills in search of sharpies and prairie chickens.

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) along with your hometown and a brief description of the interests expressed on your license plate to Eric.Fowler@Nebraska.gov.



Alan Shadduck took this photo of a storm cell passing over Hastings this summer.

Visitor Letter

I just received our July copy of NEBRASKAland and, after reading it the first time, it was time to find the visitor – which I found on page 29, upper right hand corner on the photo of the article by Matthew Marx. The visitor is a stick insect, or *Phasmatodea*.

As always, great articles and photos in this issue. Finding the visitor is an added feature to the magazine and something I and lots of other readers look forward to.

Rich Ryan
Omaha, Nebraska

That's Not A Shrew

Congratulations on an excellent magazine. As a lifelong Nebraskan, farmer and avid outdoorsman, the articles and photographs remind me of what a diverse and beautiful state we live in. However, try as I might I can't find the least shrew on page six of the July issue. It is an excellent picture of what appears to be a least weasel.

Matt Schuetz
Stanton, Nebraska

Matt, below is what a least shrew looks like, as you already know. We regret the error.
– Editor



Send your comments to:
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Please include your postal address and telephone number. Letters may be condensed and edited. Photographs are also welcome.

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Mixed Bag

A Mammal Brief

White-tailed Deer Fawn

By Lindsay Rogers

One of the most well-known large mammals of North America is the white-tailed deer. This stately species was once extirpated, or eliminated, from Nebraska due to overhunting and a lack of game regulations. With the introduction of game laws and hunting seasons in the early 1900s, Nebraska's population is now at an estimated 250,000.

One of the main reasons white-tailed deer have returned to the state in such great numbers is their ability to reproduce. Breeding takes place starting in mid-October, peaks in mid-November and continues into December. Nearly 70 percent of does produce twins; approximately 140 fawns are born for each 100 does in the population. Fawns are born starting in May and continuing into late summer with the majority born in June. At birth, fawns weigh between five and eight pounds. They are ruddy to deep tan in color with characteristic white spots. The white spots are amazing camouflage. Fawns will lay among the leaves in the forest floor for hours at a time as the mother leaves to feed. The white spots mimic the speckled sun shining through the forest canopy. ■

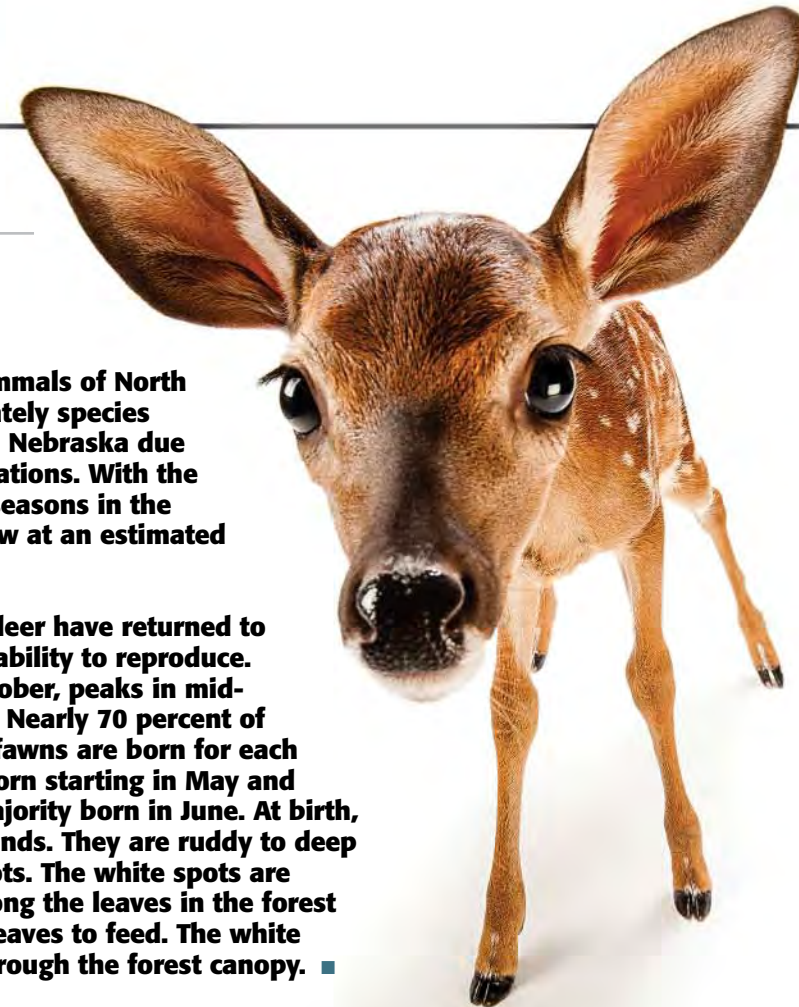


PHOTO BY JOEL SARTORE

Lindsay Rogers is an outdoor education specialist with the Nebraska Game and Parks Commission.

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Travelogue

By David Bristow

McCook

Like many Nebraska communities, **McCook** began as a railroad town. In 1882 the Burlington and Missouri Railroad needed a division point between Lincoln and Denver. Rather than build at the existing towns of Indianola or Culbertson, the railroad started a town halfway between, where it owned land. McCook soon became the largest city in southwestern Nebraska.

But on the morning of May 31, 1935, McCook residents weren't thinking about the railroad. It was the Republican River that had them worried. Flood waters came rushing through the valley as a wall of water, leaving 40 men trapped on the roof of the city power plant. Hundreds of people watched helplessly from shore. They feared the building would collapse, but no one dared swim the torrent of water.

Someone came up with a bold plan. Using the power lines, the men on the roof pulled a rope to the building. Then a man pulled himself across and brought back a telephone cable car to carry men to safety.

Two men were rescued this way before the water tower collapsed, taking the line with it and sending one man into the water; he survived, but the rest of the men were stuck until the water receded the next day.

Not everyone was so fortunate. Across southwestern Nebraska, the Republican River Flood of 1935 killed more than 100 people – one of the deadliest natural disasters in Nebraska history.

The following years saw the construction of several flood control dams along the Republican and its tributaries – so many that the Nebraska Tourism Commission has accurately dubbed southwestern Nebraska "Prairie Lakes Country." McCook lies within a half-hour's drive of three of these scenic lakes –

Swanson, Red Willow and Medicine Creek – each of

which is a state recreation area with ample facilities for boating, camping, fishing (bass, crappie, northern pike, walleye and others) and hunting (pheasant, quail, waterfowl, and white-tailed and mule deer).

In McCook itself, downtown has historic buildings and restaurants, specialty shops, a fine arts gallery, a historic theater and free summer concerts at the **Norris Park** band shell. The **Bieroc Cafe** on Norris Avenue is known for year-round live folk music performances by national artists, and the **Loop Brewing Company** is a must-stop for dinner and drinks.

Norris Avenue takes its name from U.S. Senator George Norris (1861-1944), one of the most influential statesmen of the 20th century. His house is open as a state historic site and is part of the Heritage Square walking tour, which includes the homes of three Nebraska governors and a house designed by Frank Lloyd Wright.

McCook is also home to **Heritage Hills Golf Course**, a challenging 18-hole links course located on hills overlooking the Republican River valley – where the deadly floods are long gone, but the scenery remains. Gotomccook.com. ■



McCook's City Power Plant - 1935



McCook



Barnett Park along the Republican River



Senator George Norris State Historic Site

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During the 1890s some theorized that smoke particles blown into the clouds would precipitate rain. These men appear to be trying that process.

A Brief History Nebraska's Rainmakers

By Patricia C. Gaster,
Nebraska State Historical Society

Years ago pioneers believed that rain followed the plow; the evaporation from land surfaces and the conservation of runoff water caused a proportionate increase in the rainfall. But after the cycle of wet years had passed, the dry 1890s brought ruin to farmers in semi-arid regions.

During Nebraska's severe drought of 1894, professional rainmakers promoted the "concussion theory," based on the popular observation that the detonation of high explosives sometimes caused rain. Some theorized that smoke particles blown into the clouds would precipitate rain.

Frank Melbourne was one of the best known of a small group of rainmakers active in the Great Plains during

the 1890s. A native of Australia, he came west from Ohio in 1891 with his brother and worked in Nebraska, Kansas and Colorado. He popularized the idea of manufacturing gas on the ground, thus creating a cloud which ascended and united with the upper air, causing rainfall.

Melbourne was highly publicized and charged high prices for his services, but refused to discuss his methods in detail – though he claimed that his method was capable of doubling the world's arable area.

Pioneer doctor William B. Swisher was another well-known rainmaker of that era. According to the *Nebraska State Journal*, in 1893 Swisher contracted with J. H. McMurtry of Lincoln to make it rain over the capital city for the sum of \$500. Swisher set up his apparatus and took credit for a "small sized squall" afterward – and then sued when McMurtry refused to pay.

Though not required to demonstrate his apparatus, Swisher set it up in

the courtroom for people to see. The *Journal* described two stone churns with inverted funnels, an iron box with a hinged cover, a battery and electric wire, and accessories consisting of "a pair of old balances, a wash basin, a glass funnel, two bottles, a glass dish, a small pitcher and a quart tin cup. Among the weights of the scale is a rattlesnake's rattle."

A University of Nebraska professor testified that rain had been forecast for the day Swisher promised to create a shower; the professor also showed maps to prove that the rain was general over the whole region. In reply, Swisher "swore positively that he made the rain that fell in Lincoln, but did not give his reasons for so believing." The judge awarded Swisher a judgment of \$50.

In time the dry years ended and the rainmakers went on, perhaps, to other money-making schemes. ■

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SAFETY



Niobrara State Park's Night Owl 5K Run/Walk

By Jenny Nguyen

Join Niobrara State Park's third annual Night Owl 5K Run/Walk on Sept. 12. Race for first place or jog/walk at your own pace. Bring your own glow sticks, necklaces and bracelets to light up your run. Headlamps or flashlights are strongly recommended. This nighttime race is open to all ages and pre-registered participants will receive a T-shirt and a wristband. Following the race, an award ceremony will be held at the Group Lodge. If you have a wristband, enjoy a buffalo burger meal with coleslaw, beans and ice cream. Registration begins at 7 p.m. and the race will begin at 8 p.m. To register, contact Niobrara State Park at 402-857-3373; pre-register for \$20 or \$25 on the day of the event. Spectators are invited to the buffalo burger dinner for \$12 per person. ■



PHOTOS BY JENNY NGUYEN



Nebraska Bird Library

Turkey Vulture

Song or calls: Usually silent, but over coveted animal carcasses groups of vultures may hiss, flop or fight.

Description: Sexes similar. Adult uniformly dark brown with small, red, unfeathered head; white tipped bill. In flight, wings held in shallow V; pale gray primaries contrast with dark wing linings and body, giving wings two-toned appearance; tail narrow and fairly long, extending beyond feet. Immature similar to adult, but with dark head and bill.

Food: Feeds on carrion and locates by sight and smell.

Habitat: Open plains, sandhills or areas offering visual foraging. Cliffs, crevices, abandoned buildings or other cavities are used for nesting sites.

Where in Nebraska: Common regular spring and fall migrant throughout the entire state and locally uncommon regular breeder statewide.

Field Notes: At night, groups of a few up to 100 roost together in trees and then leave in late morning when thermals develop.

Fun Facts: The turkey vulture will defecate on its own legs, using the water in the feces to cool itself down. ■

To learn about more birds visit:
NebraskaBirdLibrary.org.

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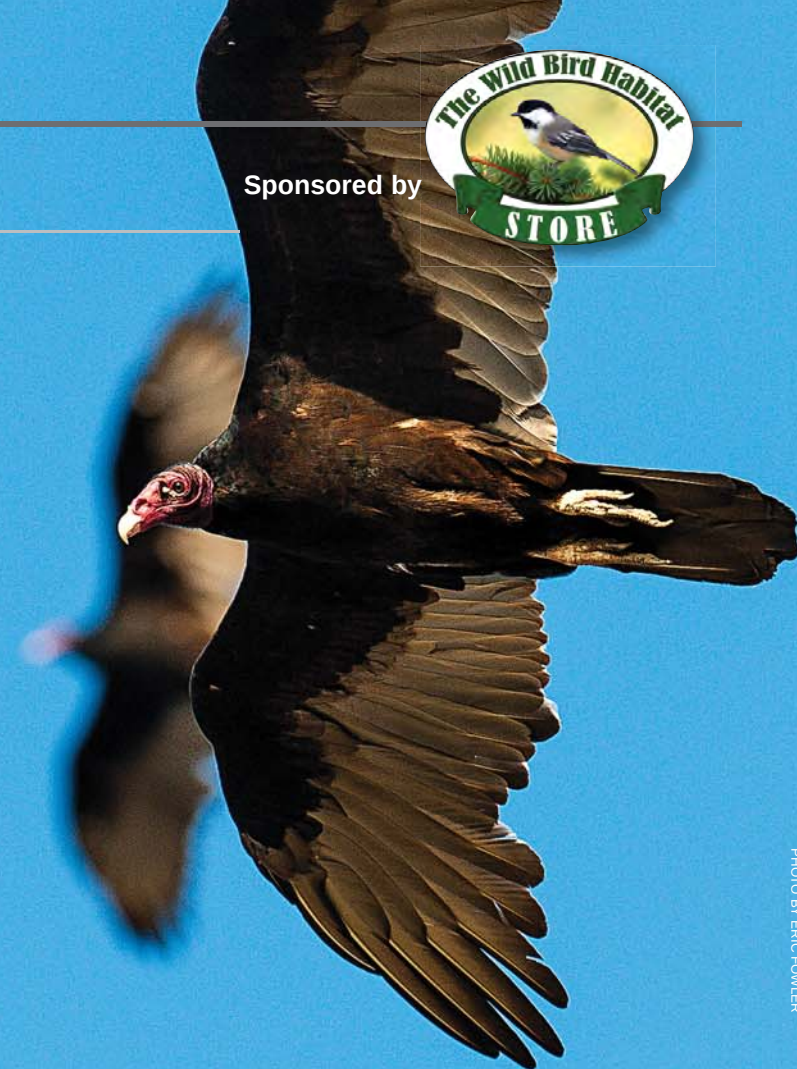


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Wingtips by Wild Bird Habitat

Turkey Vultures are referred to as buzzards as it reminded European settlers of a bueto hawk in Europe called a buzzard.

They are a scavenger that is immune to bacteria and disease from feeding on carrion, dead animals.

Turkey Vultures are solitary ground nesters found in caves, under logs, and in abandoned farm buildings.

After nesting Vultures roost communally in large trees using the same roost for decades. They are comfortable roosting around human activity.

They can soar for hours on thermals without flapping a wing. While soaring they hold their wings in a dihedral or V- shape.

A remarkable bird with many unique adaptations and cousin to the California Condor. Learn more online at The Turkey Vulture Society.



Now You See Me

By Dan Fogell

When I was really young I thought all frogs were green. Maybe it was all the children’s books I had with green frog illustrations, or that the most common frogs where I grew up were actually called “green frogs.” Then one day on a camping trip I found a light brown frog with black spots. A little library research told me it was a northern leopard frog. Good name, I thought. How come it had spots? Why wasn’t it green?

It turns out that many frogs are not green. They can be gray, blue, red, black, yellow or a combination of colors. They can be spotted, striped or have all kinds of strange colored shapes on them. There are even frogs that can change their skin color throughout the day, or even in just a few minutes. Why, you ask? What kind of survival strategy do frogs have invested in their skin color?

Green is easy. It’s the color of the vegetation in the ponds where frogs often live – including lily pads, duckweed, even the algae that grows on the water surface – so there is an obvious camouflage advantage. But not all frogs live in ponds. Some live in mud along the shore. Some live in grass near the water. Some live in trees. And each of these species has a skin color and pattern that affords it an amazing camouflage. Even the light brown, spotted skin of leopard frogs makes them difficult to find in grass along the water’s edge. Here in Nebraska, having light brown skin with stripes or spots provides excellent camouflage in grass, which is a common habitat feature alongside ponds, lakes and streams.

Our treefrogs here have the special ability to change their color and their pattern when necessary. They’re called Cope’s gray treefrogs, and they may be gray, green or even white. Sometimes they have a pattern, and sometimes they don’t. This versatility in color and pattern is due to physiological changes to cells called chromatophores in the frog’s skin.

Temperature changes and certain hormones can make these cells either express color or not, thus changing both their color and pattern and making them hard to detect on either leaves, bark or other substrates. But when they jump, treefrogs use a different strategy involving skin color – something known as flash coloration. On the inside of their thighs, treefrogs are very brightly colored – usually yellow or orange, so that when they leap they “flash” their bright colors. This is an advertisement saying “I taste terrible, so don’t bother eating me.” The bad taste comes from poison glands found throughout the frog’s skin. All frogs have poison glands in their skin, but at least treefrogs are nice enough to warn you.

Speaking of warnings, camouflage is not always the best strategy. Some tropical frogs don’t even try to hide. They are bright yellow, red, fluorescent green and blue. These are the dart frogs or poison arrow frogs of Central and South America. And although all frogs have poison glands, these frogs have especially toxic, even deadly poisons in their skin. In nature, bright colors (called aposematic coloration) often mean “stay away” and these little frogs definitely follow that rule. They don’t mind letting you know where they are



Nebraska treefrogs have the special ability to change their color and pattern when necessary.



A plains leopard frog hides in grass and mud, camouflaging its entire body.



The lack of camouflage of poison dart frogs of Central and South America warns predators to “stay away.”

because they’re pretty confident nothing is going to eat them. ■

Dan Fogell is a herpetologist and author of A Field Guide to the Amphibians and Reptiles of Nebraska.



PHOTOS BY DAN FOGELL

Lowering the Yellow Flag

By Justin Haag

Visitors to a popular Panhandle attraction are seeing fewer blooms of one particular pretty flower – and that’s being considered a good thing.

To many settlers of European descent who moved to the High Plains from the eastern United States in the 19th century, flowers were used to brighten the landscape and add a touch of “the old country” to a new homestead.

When someone planted a small stand of yellow flag irises near a pond on James Cook’s storied Agate Springs Ranch in Sioux County, it’s doubtful the family ever could have imagined the scene a little more than a century later.

Over years, the irises from the Cooks’ ranch amazingly spread eastward eight miles down the Niobrara River, near its headwaters where it flows through grasslands in the manner of a small creek. Each spring, more irises bloomed than the last, making a spectacular show of yellow during their short blooming period and delighting many visitors to Agate Fossil Beds National Monument. With the Cooks’ ranch just to the west of the tourist attraction’s border, most of the irises would bloom on public property easily viewed from the road.

The show has proven to be too much of a pretty thing, however. Research showed the plants were not only negatively affecting water quality, but were also changing the stream’s flow. In many places, for instance, plants had grown in from the sides and caused the active channel to deepen and the water to flow faster. The characteristics of the river’s flow are considered to be important along the upper Niobrara

with rare minnow species such as the redbelly dace and finescale dace.

Nick Sanderson, the Sioux County weed superintendent, worked with the Nebraska Game and Parks Commission to gain approval from the Department of Environmental Quality to have the irises sprayed with Habitat, a herbicide approved for aquatic applications. Sanderson said funding has been a huge hurdle for the project, but the Nebraska Weed Management Area Coalition has helped secure grants from the Nebraska Environmental Trust and a few other sources.

The first contracted spraying was last fall, but iris can be a stubborn plant.

“We put a huge dent in them, but it’s a little discouraging to see how many survived. We knew we weren’t going to get rid of all of them overnight,” he said. “We’re making headway, and you can see grass growing in places that were covered with iris last year.”

Of course, the High Plains of western Nebraska isn’t the only place yellow flag iris, or *Iris pseudocoris*, has been considered a problem. A number of states have even prohibited the pretty plant. Irises are a popular variety for beginning gardeners, but people are advised to plant them in dry locations where there’s no risk of its seeds and rhizomes moving along waterways and competing with other shoreline vegetation.

With such hearty characteristics, yellow flag irises will be showing their color for centuries to come – hopefully just not along the Niobrara River of Sioux County. ■



PHOTO BY JUSTIN HAAG

Lake McConaughy

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Photo Courtesy of Nebraska Tourism

Leafy Masterpieces

By Lindsay Rogers

As summer comes to a close and fall approaches, it is a great time to look at leaves. There are many different kinds of leaves – the broad, lobbed leaves of a bur oak; the giant, triangular leaves of a catalpa tree; or the thin, needle-like leaves of a ponderosa pine. Whatever the shape, leaves serve one purpose for the plant – to convert the sun's energy and carbon dioxide into food through a process called photosynthesis.

I, however, can think of many purposes for a leaf. Shade is a great benefit in the hot summer sun. Or try using a few leaves to create a masterpiece. Gather a few leaves (several different kinds or shapes work best), a few pieces of paper, a bottle of glue or a glue stick and some crayons or markers.

Arrange the leaves to create a butterfly (pine needles work well for antennae), a wild turkey (thin wildflower leaves work well for a giant turkey tail) or a completely new animal creation. Use your imagination! ■



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My Photo Tip: Using Light

By Eric Fowler

People sometimes show me their photos and beaming with pride say, "Isn't that nice?"

Too often I say, "It is. But why didn't you go back when the light was nice?"

You may have found the perfect scene, the perfect location from which to photograph it and nailed the composition, but if it's noon and the light is cold and flat, you don't have a great photo.

Sometimes all it takes to get all of those elements to come together on your first visit is a little homework that can start at home on your phone or computer. Check the weather to see how much cloud cover there will be, or if there might even be fog, and to see when the sun will rise and set. The Photographer's Ephemeris will tell you the latter, but its best feature shows you where the sun will meet the horizon, which can help you get in the right location for the best composition. The satellite view in that app, or Google Earth or Maps, will help

you scout a location.

But sometimes, you simply need to lace up your boots, go for a hike and scout a location with every intention of returning to get the photo you want. That's what I did to capture a set of images of the Niobrara River at Chat Canyon Wildlife Management Area south of Nenzel in 2013. I knew propensity for fog to rise from the river on a cool morning meant there would be a good chance of capturing a striking image at sunrise. But light can change quickly, and I didn't want to be searching for the perfect spot while it was. So I spent a day hiking to every high point with an unobscured view of the river.

From those points, I surveyed the scene and pulled out my phone and checked the TPE app to see where the sun would rise. I snapped some photos on that cloudy day that weren't bad. But I knew where I wanted to be when I returned two days later. After an hour's drive – some of it on Sandhills' two tracks – and a half-mile hike through a dew-soaked prairie, sweet light hit the scene and my "homework" and scouting paid off.

Sometimes you're lucky and are in the perfect spot when the light is right. Don't be afraid to go back if it's not. As a wise photographer once told me, "The harder I work, the luckier I get." ■



PHOTOS BY ERIC FOWLER

Upcoming Events

by Jerry Kane

Contact the Nebraska Game and Parks Commission at 402-471-0641 or visit OutdoorNebraska.org for more information. Visit HuntSafeNebraska.org for a list of hunter education classes and BoatSafeNebraska.org for a list of boating safety classes.

June 29-July 2
Outdoor Adventure Camp Nebraska Game and Parks Outdoor Education Center, Lincoln, 402-471-6141

August 1
Squirrel season opens

August 1
Discover the Real Missouri River Niobrara State Park (SP), Niobrara, 10 a.m.-2 p.m., 402-857-3373

August 1
Buffalo Cookout and Ponca Cultural Night Niobrara SP, Niobrara, 6 p.m., 402-857-3373

August 1-2
Living History Fort Atkinson State Historical Park (SHP), Fort Calhoun, 10 a.m.-5 p.m., 402-468-5611

August 1-2
Pioneer Longrifle Rendezvous Indian Cave SP, Shubert, 402-471-5427

August 4
Family Fishing Event Independence Landing, Seward, 6-8 p.m.

August 4-6
BB Gun Camp Nebraska Game and Parks Outdoor Education Center, Lincoln, 12:30-4:30 p.m., 402-471-6141

August 4, 18
Ladies Day at the Range Nebraska Game and Parks Outdoor Education Center, Lincoln, 6:30-8 p.m., 402-471-5662

August 5
Family Fishing Event City Park Pond, Pawnee City, 6-8 p.m.

August 5, 12, 19, 26
Beyond Becoming an Outdoors-Woman (BOW) Shotgun Class Platte River SP, Louisville, 402-471-5547

August 6
Family Fishing Event Mormon Island State Recreation Area (SRA) Lake No. 1, Grand Island, 6-8 p.m., 308-385-6211

August 7-9
Ponca Pow-Wow Niobrara SP, Niobrara, 402-857-3373

August 7
Bighorn sheep lottery applications end



Danish Alps Recreation Area and the 226-acre Kramper Reservoir, located near Hubbard, is now open. Built by the Papio-Missouri River Natural Resources District with fish habitat designed by the Game and Parks Commission, the lake offers camping, no-wake boating and hiking, and holds bass, bluegill, walleye, crappie and catfish. A grand opening is set for Aug. 1.

PHOTO BY ERIC FOWLER

August 7
National Park Service Campground Program Niobrara SP, Niobrara, 7 p.m., 402-857-3373

August 8
Waterfowl Hunting Safety Workshop Niobrara SP, Niobrara, 10 a.m., 402-857-3373

August 8
Dutch Oven Cooking Wildcat Hills SRA and Nature Center, Gering, 9 a.m., 308-436-3777

August 8-9
Bow Sight In Nebraska Game and Parks Outdoor Education Center, Lincoln, noon-5 p.m., 402-471-6141

August 8-9
Becoming an Outdoors-Family Workshop Fort Kearny SRA, Kearney, 402-471-5547

August 9
Archery paddlefish season closes

August 9
Nebraska Water Wonders: Water Usage in Nebraska Lake McConaughy SRA, Ogallala, 2 p.m., 308-284-8800

August 10
Fall turkey permits available beginning at 1 p.m. Central Time

August 10 and 12
Rimfire Sporter Clinic Platte River SP, Louisville, 6-8 p.m., 402-471-5547

August 11
Family Fishing Event Halleck Lake, Papillion, 6-8 p.m.

August 11
Best Shot Camp Nebraska Game

and Parks Outdoor Education Center, Lincoln, 6:30-8:30 p.m., 403-471-6141

August 12
Family Fishing Event Holmes Lake, Lincoln, 6-8 p.m.

August 13
Family Fishing Event Recharge Lake, York, 6-8 p.m.

August 15
Private land antlerless elk season opens

August 15
Living History Rock Creek Station SHP, Fairbury, 9 a.m.-5 p.m., 402-729-5777

August 20
Archery antelope season opens

August 22
Lewis and Clark Heritage Day Ponca SP, Ponca, 402-755-2284

August 23
Family Fishing Event Terry's Pit, Terrytown, 4-7 p.m.

August 28
National Park Service Campground Program Niobrara SP, Niobrara, 7 p.m., 402-857-3373

August 28
Nebraska Game and Parks Board of Commissioners meeting, Burwell

August 28
Drawing for bighorn sheep lottery permit

August 29
Carp-a-Thon Alexandria SRA, Alexandria, 10 a.m.-2 p.m., 402-729-5777

August 30
Nebraska Water Wonders: History of Kingsley Dam Lake McConaughy SRA, Ogallala, 2 p.m., 308-284-8800

Thank You, Perry Myers

By Jeff Kurrus

Perry Myers's dad was an advocate of gun safety. When Perry, now living in Omaha, was young, gun safety was paramount in the field. "Dad would let me carry a gun when I started hunting, but it couldn't be loaded," he said. "Slowly we could shoot a little."

When he found out through friend and Nebraska Game and Parks Commissioner Mick Jensen that Mick was heavily involved with teaching gun safety, it was a no-brainer what Perry wanted to do with two of his father's guns. "I knew my father would rather they be donated than sold," he said, and followed through with this notion by donating them to the Nebraska Game and Parks Commission.

The shotguns, a Mossberg model 183, .410 bolt action and a Remington model 11-48, 28 gauge semi-automatic, will now be used to support the Nebraska hunter education program, said Commission Education Manager Jeff Rawlinson. "Each year more than 8,000 kids learn the principles of safe gun handling and responsibility," he said. "These firearms will be used as training aids in these classrooms." ■



Director Jim Douglas (left) accepts gift on behalf of the Nebraska Game and Parks Commission from Perry Myers at Eugene T. Mahoney State Park.

PHOTO BY JEFF KURRUS

How Does HIP Help?

By Dr. Mark Vrtiska

The Harvest Information Program (HIP) has been in place since 1999. Prior to that time, estimating U.S. harvest for migratory birds such as doves and waterfowl was problematic. Each state had some sort of estimate, but all methods differed. Thus, the U.S. Fish and Wildlife Service (USFWS), in cooperation with state wildlife agencies, developed HIP to provide a consistent, nation-wide sampling frame of migratory bird hunters to estimate harvest of all hunted, migratory birds.

Not having reliable and consistent harvest estimates could possibly jeopardize hunting seasons if those opposed to hunting take the USFWS – or possibly states – to court on the basis that hunting is having an effect on a population. Having those estimates solidifies that hunting seasons are not imposed on species in a "haphazard" manner, and allows migratory bird managers to make observations and decisions about regulations.

When individuals sign up for HIP – which they are required to do in every state they hunt migratory birds – they are providing a stratified (based on the number of particular migratory birds they harvested) sampling frame for estimating harvest. Most people are confused and believe harvest is estimated from the questions they have to answer, and that's incorrect. They are simply stratified into two or more groups. The USFWS then samples hunters from each of these groups to estimate harvest.

HIP data also have been used to provide sampling for various surveys that have asked hunters their preferences and opinions regarding hunting seasons and other regulation matters. So, it's been invaluable from that standpoint as well.

While HIP is required legally, it's an extremely important program that the USFWS and states use to better manage and maintain migratory bird hunting seasons. ■

NEBRASKAland Visitor



Last issue's winner of the Visitor drawing was Millie Simcox of Wolbach, Nebraska, who found the **walkingstick** on page 29.

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 critter found in Nebraska. We will then gather the correct entries and draw one to win a *NEBRASKAland* 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 pages 1, 4, 12, 21, or 36-40.

*Walkingsticks are large, elusive insects that get their name from the strange appearance of their bodies; they literally look like sticks. This appearance acts as a camouflage, making it difficult for predators such as birds and other insects to see them. Walkingsticks can be found in a variety of habitats in Nebraska, from forests to prairies. The walkingstick hidden in last month's issue is a **short-horned walkingstick**, *Parabacillus* species, usually found in prairies. Short-horned refers to the very short antennae of this genus, as compared to other walking sticks that have much longer antennae. Walkingsticks are herbivores, feeding on plant leaves, and are most active at night. One notable skill: Nymphs (immatures) have the ability to regenerate a lost leg, which is handy since they can easily break off, especially when grabbed by a predator.*

Special thanks to Julie Van Meter, State Entomologist, Nebraska Department of Agriculture. Photo from Thinkstock. Bugguide.net is a popular site for identification.

Blind Time

Photos and story by Michael Forsberg

Spending hours or days in a blind waiting for animals that may or may not appear can be a sacred practice of sorts. It teaches the virtues and values of patience, observation, listening and just being. You become finely tuned to the world around you, and that in itself is its own reward. But every once in awhile those photos you imagine in your mind's eye can be conjured into existence, and it makes those ants in your pants, frozen water bottles and sore muscles even more worth it.

As a wildlife photographer for 20 years, I cut my teeth working as a staff photographer and writer for *NEBRASKAland* in the 1990s, at a time when the other staff that I would learn so much from had a combined experience of over 100 years in the field and had just about as many different kinds of blinds as they did years of experience. And what I didn't learn from Jon Farrar, Bob Grier, Ken Bouc, Rocky Hoffman, Tom Keith, and Don Cunningham, I learned on the fly through trial and mostly error.

I remember the first story I did for the magazine was photographing wintering bald eagles at Lake McConaughy. Jon Farrar suggested I use a cardboard box that held a refrigerator. Looking back now, I am pretty sure he was joking, but I didn't know any different so I went to a local furniture store and pulled one out of the garbage, cut holes for a lens port, and slung an old white bedsheet over the top of it all that I stapled in place and anchored in a snowdrift with rocks. It held up for about a week along the shoreline before it was torn apart by the winter winds, but it worked.



A female northern harrier (above) and its day old chick at a nest in the prairie pothole region of North Dakota. Working with biologists, I placed a small remote camera at the nest that I could trigger with a walkie-talkie remote from a distance away. I sat in an L. L. Rue portable blind (right) from 100 yards away watching the harrier hunt wetlands and bring food back to the nest. It would feed about three times a day. Each time it descended into the grass I knew it was at the nest and I would fire off a few frames.





I used four of these one-person tents on the swift fox project and on many other shoots around the plains like on greater sage grouse leks in the UL Bend Wilderness along the Upper Missouri River in eastern Montana. Sadly, all four tents ended up destroyed either by cows or storms, and to my knowledge, the tent is not made anymore.



Another early story I attempted was photographing cranes on the Platte River. But I didn't want sunset shots of birds in the distance; I wanted to get close. So I went to a place in west Lincoln that had an assortment of defective plastic fertilizer tanks that were for sale, bought one shaped like a pop can for 20 bucks, and had Tim Reigert, longtime art director for the magazine, use a sawzall to cut it lengthwise in half with openings on both ends so it was just the right length for me to lay down in and shoot from the edge of a sandbar. I figured it would be impenetrable to heavy snow, impossible to be shredded by winds and impervious to cows. What I didn't realize was that



I spent parts of three years photographing the natural history of swift foxes in Buffalo Gap National Grassland in South Dakota. My blind of choice there was a sturdy but packable one-person tent, the Slumberjack predator bivy, sold by Cabela's. It was a camo tent, had two entrances and was easy to sleep in. I would place additional camo netting over the top to cut down on any shine from the windows and fabric.





The homemade blind of garden fence, zip ties, camo material and native vegetation is a favorite today. It's fast, light and inexpensive. I fashioned one on a prairie slough next to the Platte River channel to photograph wintering mallard ducks at Audubon's Rowe Sanctuary. I was also rewarded with a small band of deer that would play regularly in front of the blind, chasing ducks and each other like dogs do.

thick plastic doesn't breathe and condensation built up on the ceiling from my breath in the humid cold and dripped on me all night, freezing my clothes to my sleeping bag and forming a thin coating of ice over my camera and lens. It was the coldest night I ever spent.

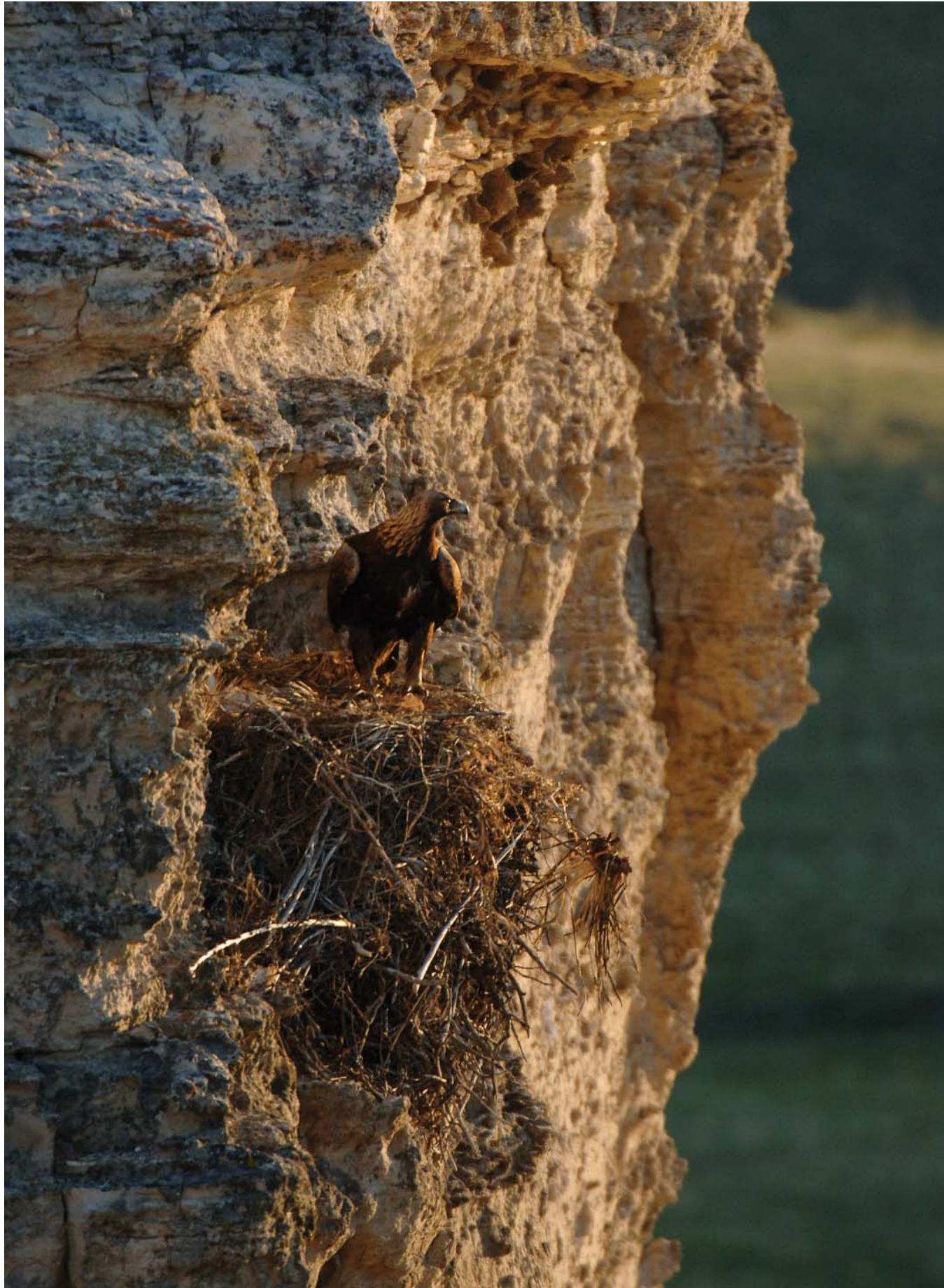
Finally, I remembered my



Sometimes your vehicle is your best blind, especially on a ranch or farm where animals are used to the regular comings and goings of the farmer or rancher in their daily activities. The thing animals don't like is to see your shadow or movement in the vehicle, so minimizing movement and placing curtains of camo material or other fabric on windows is a huge help.

grandparents using a roll of garden fence that they shaped and molded and affixed with mesh fabric with plastic zip ties to keep the rabbits out of their garden patch. I thought that simple bundle of materials could be purchased about anywhere and would provide a perfect base to make my own blinds of





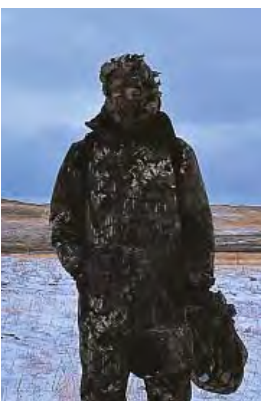
any shape or size. Those lightweight, inexpensive blinds are still usually my first choice today.

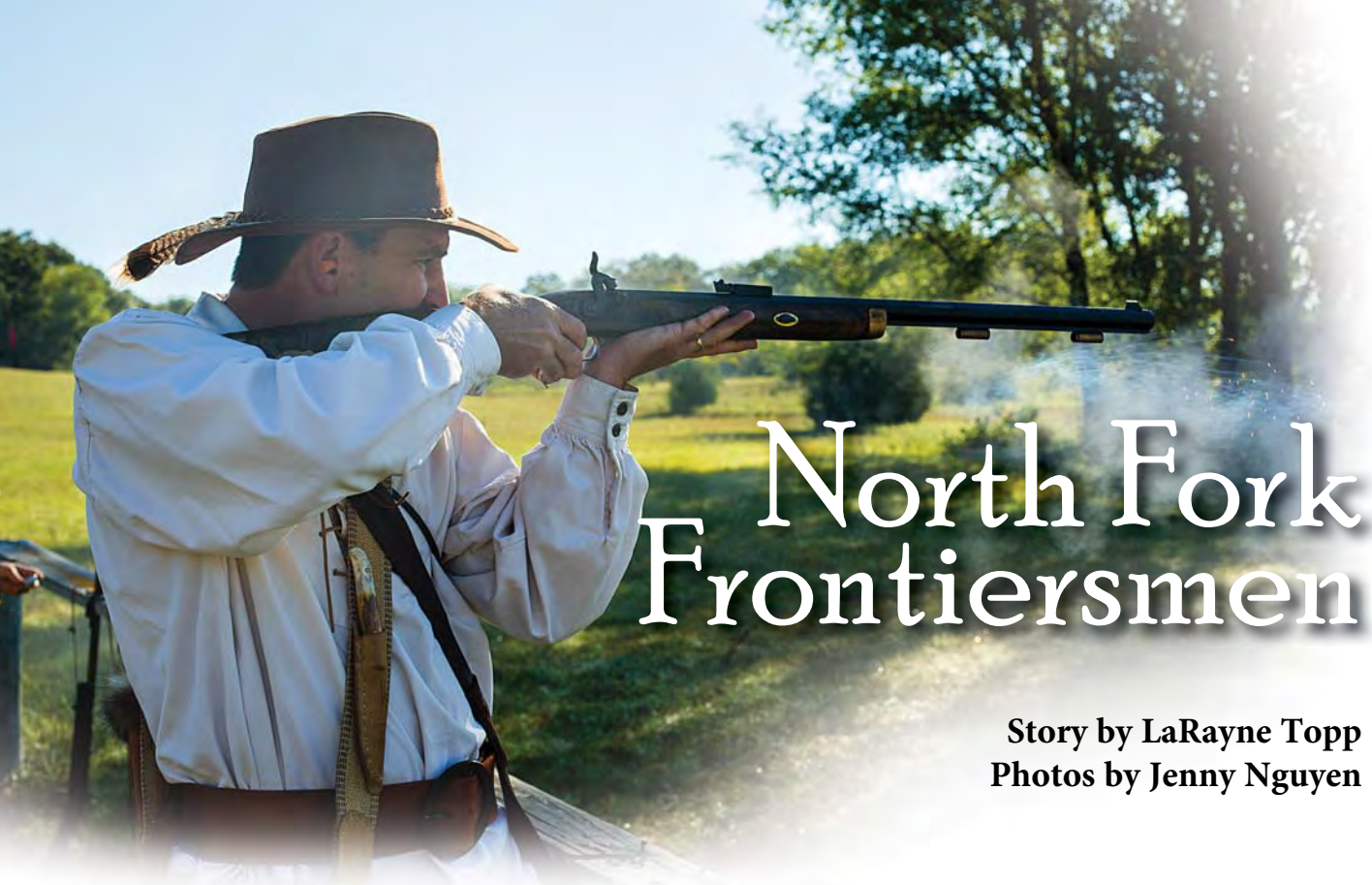
Each photographic situation in nature demands a little different approach, so the tool bag for blinds has become diverse and selection is made for the situation. Today some blinds I use are homemade, some are manufactured and bought off the shelf and some blinds are not really blinds at all. I've included a handful of my favorite blinds here with the images that they helped create.

But just like hunting from a ground blind or tree stand, the most important thing is you have to be out there, spend the time, do your homework, get into place before the animals arrive, then don't leave the scene until after they do. If you do those things, build trust and honor your subject, in the end you will be rewarded beyond measure by the beauty and nuances of our natural world, whether you make photographs or not. ■

The most involved blind was built with the help of a rancher friend of mine for a golden eagle nest on a cliff face in Sioux County, Nebraska. We put four t-posts in the ground and built a plywood box frame anchored to the posts with bailing wire on a side slope across a small canyon from the nest, then took rock slabs from the area and stacked those around and on top of the roof. Built in the fall when the eagles had dispersed, it was in place in the spring and remained in use for several years.

Michael Forsberg is a professional nature photographer and contributing editor to NEBRASKAland. To see more of Mike's images, visit MichaelForsberg.com.





North Fork Frontiersmen

Story by LaRayne Topp
Photos by Jenny Nguyen

The frontiersman stepped out from beneath the shadowy canopy of evergreens. He lifted a black powder measure to the barrel of his muzzleloader. The powder horn at his side was etched with delicate scrimshaw in the images of snake and bear, its stopper intricately carved in the shape of a man's hand. A knife, its handle fashioned from the jawbone of a black bear with the teeth intact, was attached to a possible bag of hand-stitched leather. One can only imagine the hours a mountain man would have spent, kneeling by a warm fire on cold winter nights, carving and shaping the tools he'd need for the next day's hunt.

Members of the North Fork Frontiersmen of the Elkhorn River can tell you just how many hours. For the past 30 years, members of the club have held mountain men rendezvous to spend time with others interested in the

history of the first white men who scouted un-trapped streams, barely a step ahead of restless pioneers looking for good farmland. These men and women come to sharpen their muzzleloading shooting skills and hone their frontier skills, and to talk around the campfire about the frontiersmen who once explored the Far West, trapping beaver and other animals in Rocky Mountain country in the first half of the 1800s. Back then, buckskinners had only themselves to rely on for food and shelter, trading the furs from animals they shot and trapped for necessary supplies.

Held in Battle Creek in recent years, the location of the shooting grounds has varied since the club's existence, but the enthusiasm of the North Fork Frontiersmen has never wavered. At one time, they registered over 100 shooters at their meet; however, a typical shoot will bring in 60 to 70 shooters plus their families.

Powder and Lead

Early on, meetings were at the local community college. Stories swapped and lessons learned included presentations on mountain man history, firearms, tools and period clothing, many led by college professor and history buff Gary Miller.

Miller was just a "little guy," he said, when he became fascinated with a colorful book about Sioux Indian chiefs. He soon began to search out stories about American Indians and white immigrant settlements and the history of the Wild West. He read all he could about the exploits of Davy Crockett, Daniel Boone's early years on the Kentucky frontier, and author James Fenimore Cooper's *Leatherstocking Tales*, with its Natty Bumppo character inspired in large part by Daniel Boone.

"My interest was always there," Miller said, but it lay

dormant for years while he filled his free time with other outdoor activities, such as hunting and fishing. So when Miller found out that his neighbor picked up a muzzleloader, so did he. Miller soon discovered the existence of muzzleloader clubs across the state as well as on the national level.

When Vance Willets, now of Grand Island, placed an ad in the Norfolk Daily News in 1983 to gauge interest in forming a local club, Miller and wife Barb knew it was time to quit thinking about it and join. So did others from throughout the area, and the North Fork Frontiersmen was born.

The club reached nearly 40 members in its first year. Officers were chosen and the club met once a month, at the shooting range if weather permitted. By 1984, the club had located a few acres of pastureland near Norfolk for the club's first competitive shoot.

"It's difficult to find places to hold the shoots," Miller said. "Neighbors may complain, plus there are the questions of liability and responsibility. It's not necessarily easy."

Miller's interest in muzzleloading is fed by serving as field representative and regional coordinator for the High Plains area of the National Muzzle Loading Rifle Association, a position that requires him to promote the organization and the sport in general.

For some, black powder and lead is the club's main draw. Take Tom and Lola Brockman, for example, who have been North Fork members since 1989 and enjoy the camaraderie found at meetings, but originally, black powder was their primary attraction. Tom's interest in black powder firearms began when he came into possession of his grandfather's 1865 musket; Norwich Arms was originally commissioned to manufacture the muskets for use in the Civil War, and



Some knives and tools Frank Novotny has accumulated for his mountain man re-enactments.



The palisade shoot is a timed event where shooters try to knock down as many animal-shaped targets as possible with their muzzleloaders.



A member tidies her camp at the North Fork Frontiersmen rendezvous at Yellow Banks Wildlife Management Area.



Ron and Mary Jones prepare lunch at their camp.

Brockman’s musket was retooled after the war into a shotgun.

Tom and two friends initially attended classes taught by Miller, and learned they could buy black powder through the North Fork Frontiersmen, but only if they were members. Brockman admitted the purchase of black powder was a backdoor approach to becoming a member, but soon after joining, Brockman headed off to a Red, White and Blue Muzzleloaders’ Rendezvous outside of Grand Island. He slept in his car outside of the rendezvous grounds while watching the mountain men on the “other side of the fence.” Hooked, he promised himself the next year he would attend the rendezvous as a full-fledged member to camp with the other mountain men.

Today, Tom and Lola Brockman join long-time members at rendezvous who have been baptized with frontier names, such as “Old Buffalo,” “Griz,” “Two Feathers” and “Little Fox.” As club officers, they work behind the scenes to help keep the Frontiersmen club going, arriving early at shoots to set up camp. They are also in charge of the knife and tomahawk throws.

Since joining, Brockman has also made and fine-tuned much of the trappings he takes to shoots and rendezvous, including wooden table and chairs, a cooking stove, knives and walking sticks. Lola Brockman and other members are in charge of the “shack” at the North Fork shoot, where they

sell targets for the shoot and tickets for the club’s drawings. They use targets that are standardized throughout the state and national muzzleloading organizations.

“True blue shooters will buy every target available to see how they can do,” said Frank Novotny, another long-time member of the Frontiersmen.

Re-enactment

While many members head for the cloud of smoke at the firing line, others like Frank Novotny come for the re-enactment. Novotny enjoys making the clothing, tools and other trappings frontiersmen once used, from powder horns and leather knife sheaths, to moccasins and capotes to weather the cold. He has carved measures and stoppers from deer antler, stitched his possibles bag and fashioned buckles for it. He has used a forge to make small tools and a number of knives. Like the frontiersmen would have made their tools from whatever steel was on hand, Novotny used old knives to make suitable patch knives and hunting knives, plus added new handles on throwing hawks.

Frank and his wife Lana Novotny are both devoted members of the North Fork Frontiersmen. Frank was an Omaha city boy when he first picked up a shotgun and picked off rabbits and pheasants at his uncle’s farm along the eastern edge of Nebraska. He tried his hand at archery next, and when he was in his late teens he spotted an ad in a Dixie Gunworks’ catalog for a single shot Spanish black powder shotgun. It was a plain and inexpensive shotgun, Novotny said, but it sparked his interest in re-enactment of the mountain man period.

When Novotny saw a flyer in a Norfolk newspaper for a North Fork Frontiersmen meeting, he knew he had to check it out. Novotny purchased a 20-gauge flintlock smoothbore or trade gun, and built a percussion muzzleloader from a kit. He became a regular at meetings of the North Fork Frontiersmen, bringing along his wife and two daughters. As youngsters, his daughters regularly beat the boys their age at the firing line. As they’ve left home, Frank has begun to interest his 5-year-old grandson in black powder.

Using their acquired skills as fontiersmen, Novotny and many other members have also made many period pieces to donate to the club’s fall raffle, including handmade leather possibles bags or knives with deer antler handles, which help to fund the club’s various activities. Winning ticket holders might also win a new rifle, a gift certificate to a local business or a Terry Redlin print, for instance. Area businesses also donate other prizes.

Women on the Frontier

“There are fewer women than men, but almost all shoot,” Gary Miller said. Female members such as Jane and husband Brad Becker attend shoots because of their love of history and because it’s fun.

While not a big-time shooter, Lana Novotny has tried her hand at throwing the tomahawk, and she plans to pick up a fry pan and sling it in the air at the next meet like other North Fork Frontiersmen women who have practiced this tradition. But if you ask Lana, one of her favorite times of



Bill Jeffries (left) and Dave Schramm compete in the palisade shoot, a timed event where shooters try to knock down as many animal-shaped targets as possible from a small replica of a frontier fort, dubbed Fort Elkhorn.

the rendezvous is when she and Frank share their own type of rendezvous – a moonlight walk through the campsite. She recalls one of their first walks.

“The first time out was a night of full moon, shining upon the white canvas with silhouettes of teepee and lodges on the prairieland. Other nights the warm glow of the campfires and lanterns lit and candlelight glowing set the camp off under the protective cover of moon and stars.”

The Fall Shoot

The club’s fall shoot happens every year in early September. Truly engaged members show up fully dressed as early 1800s trappers, hunters, buckskinners and mountain men, while others wear flip-flops and blue jeans. But all follow the rules of safety, as patrolled by the range officers who are set apart by red sashes.

“It’s kind of like being a referee to see if things are fair for everyone,” Miller said, “but we’ve never had to kick anybody out for unsafe behavior.”

North Fork Frontiersmen and families typically set up camp on Thursday or Friday, with a chili feed on Saturday night. The North Fork Shoot often ends with a dessert cook-off, where the men use Dutch ovens to bake their chosen desserts. Three are selected by the crowd and a winner is chosen.

In addition to the shooting range, a well-used attraction at the fall rendezvous is the palisade shoot. Metal silhouettes of woodland animals are set up near a replica of a frontier fort, dubbed Fort Elkhorn. The event is timed, and shots are made through portholes or over the top of the wall of the old stronghold.

“We borrowed the idea from Gary, South Dakota,” Miller said. “It’s a fun activity and popular.”

Spectators are welcome. “Tin teepees” are not allowed onto the campground, although they may camp in a separate, designated area. To match the true spirit of the mountain men way of life, “There are no plastic Tupperware boxes in the camp,” Tom Brockman said.

All efforts are made to replicate the atmosphere of an authentic, old-time rendezvous, where trappers traded pelts for goods. It was a place where trailblazers could meet with the hibernants who came down from the Indian villages and others, often highly-educated and successful businessmen. All played their part in opening the West, founding the trails across the plains and passes through the mountains that guided early explorers and the first wagon trains. ■

The 2015 North Fork Frontiersmen Muzzleloaders annual shoot and rendezvous is scheduled Sept. 12 – 13 at Yellowbanks Wildlife Management Area near Battle Creek.

Banding Together

Story and photos by Justin Haag

An annual cooperative project in the Panhandle is uncovering information about the region's bird life – for both researchers and children.

As the big Blue Bird bus rolls down the highway, most of the children aboard haven't given much thought to what species of birds are flying outside its windows. It will be a different story for the children as they return to the school later that day.

The children, who are participating in one of the Panhandle's most popular field trips, are about to be immersed in avian life at one of the Rocky Mountain Bird Observatory's two banding stations. For the past eight years, the Colorado-based conservation organization has partnered with the Nebraska Game and Parks Commission to offer banding stations in the conifers of the Wildcat Hills State Recreation Area near Gering and Chadron State Park near Chadron.

The banders use mist nets to catch

the birds, collect data and band them for future identification and migration tracking.

The banding stations serve not only as a way to monitor numbers and species of birds in these special habitats, but also to educate children and the general public about birds.

In addition to demonstrating the bird banding process and educating about the birds that have been caught, the stations provide games and activities that help explain bird life. Some lucky students even get to handle and release the banded birds, under the guidance of the observatory staff.

As the observatory's education coordinator for Nebraska, Alexandra Mayes has developed a special appreciation for the stations' value as an educational tool.

"Birds are among the only wild



Garrod holds a spotted towhee in a "photography grip."

animals that kids are going to see every day, so this is a great way to get them interested in nature," said Mayes, who is responsible for organizing and leading the school programs. "If the kids start looking for birds, they're going to notice a lot of other things in the outdoors."

In addition to hosting numerous school groups each fall, the banders also present public programs at the parks. They give park-goers and birdwatchers a unique opportunity to get a close look at birds they usually only see through binoculars.

In addition to the educational component, the stations are obtaining valuable data.

The pines of western Nebraska provide a unique opportunity for birders, and the stations provide a



Josh Lefever, a seasonal employee for the Rocky Mountain Bird Observatory, demonstrates the banding process to a group of students from Gordon and Rushville under the Sawmill Shelter at Chadron State Park.

way for the organization to monitor fall migrations of species – primarily songbirds.

"Our banding contributes to the documentation of bird species distribution and the occurrence of rare or unusual species in the state," said Nancy Gobris, biologist and banding coordinator for the bird observatory.

The Wildcat Hills banding station began in 2007 with Chadron State Park's added a year later. Through the years, a total of 6,462 birds of 91 species have been caught and banded at the two locations.

The 4,216 birds caught at the banding station at Wildcat Hills make up almost two-thirds of the total. While Chadron State Park, which experienced a wildfire in 2012, may not have captured the overall numbers, its diversity slightly exceeds that of the Wildcat Hills with 70 species compared to 68. It has topped Wildcat Hills in numbers and diversity the past two years.

The first dusky flycatcher to ever be banded in the state was caught at Chadron State Park in 2013. Other occasional prized catches at the stations have been the mountain chickadee, pine

warbler, red-naped sapsucker, Steller's jay and lesser goldfinch.

At both locations, chipping sparrows have outnumbered other birds caught in the nets, especially so at Wildcat Hills. Also numbering in the hundreds are red crossbills, black-capped chickadees, pine siskins, spotted towhees, dark-eyed juncos and house finches. Two warbler species, orange-crowned and Wilson's, are common at Chadron State Park.

What will 2015 bring to the mist nets? With August upon us, the banders will soon find out. One thing's for sure, they're certain to attract a number of big Blue Birds – Blue Bird buses, that is. ■



The Pine Ridge of northwestern Nebraska and the Wildcat Hills south of Gering provide habitats distinctive from other regions of Nebraska.

This Event's for the Birds

The banding stations are coming off a record year for numbers of species caught at both locations in the Panhandle and expect to have another solid year in 2015. Plan to get a first-hand look at the operations.

This year's bird banding stations of the Panhandle will be in operation from Aug. 24 to Oct. 9.

Public banding events will be Labor Day weekend at Chadron State Park and Sept. 12 at the Wildcat Hills Nature Center and State Recreation Area, both during the mornings.

The events are free, but vehicles entering the park must have a Nebraska park entry permit.



Holly Garrod of Evergreen, Colorado, a seasonal employee of the Rocky Mountain Bird Observatory, releases a banded dark-eyed junco at Wildcat Hills State Recreation Area.

Life after Death

the American Burying Beetle

Story and photos by Eric Fowler

Somewhere in Nebraska right now, a beetle is emerging from its natal den, which just happens to be what's left of a dead bird, or maybe a dead baby bunny, buried a few inches under the ground. The beetle's parents located and buried the carcass in June, laying eggs that hatched into larvae that fed on the carcass until it was time to pupate and turn into an adult insect.

While it is one of many carrion beetles – insects that feed on nearly anything dead – this one is special. The American burying beetle was the first insect in Nebraska to be listed as an endangered species by the U.S. Fish and Wildlife Service. It has become the poster insect for some who would rather not see pipelines and power lines built in Nebraska.

But when the black and orange insect was listed as an endangered species in 1989, we barely knew it still existed in Nebraska. As it turns out, that was because no one had really looked. The listing and some accidental discoveries prompted more searches, and we now know Nebraska may have more of the colorful insect than any of the six states where it can still be found. And thanks to research spawned by pipelines and other projects of the sort, we know more than ever about the American burying beetle. And we're learning more each year, knowledge that will help sustain and even expand populations here and elsewhere.

Clean-up Crew

The American burying beetle (*Nicrophorus americanus*) is one of

about 570 species of carrion beetles found worldwide, and at 1½ inches long, it is the largest of the 31 found in North America. Nebraska is home to 18.

Carrion beetles are part of nature's clean-up crew, which has a roster that includes turkey vultures, raccoons, ants, flies, bacteria and fungi. Using specialized organs on the tips of their antennae, these insects can smell a dead mouse within an hour of death from up to two miles away. Strong fliers, carrion beetles are active in their search, following the scent trail to their prize, and are among the first of the scavengers to arrive. They feed on whatever they find – dead birds, mammals, fish and even other insects – wherever they find it. By doing this they help recycle nutrients into the soil and remove a possible breeding ground for flies that are not only annoying, but also spread diseases, a direct benefit to everyone from cattlemen and their livestock to picnickers.

There are two subfamilies of carrion beetles that differ primarily in their breeding habits. Silphinae lay their eggs near a carcass, and when they hatch, beetle larvae feed on fly larvae. The American burying beetle is part of a smaller group called Nicrophorinae that takes a much more unique approach, burying a carcass on which its young will feed.

During the breeding season in late-May through June, American burying beetles search for just the right size corpse, preferring dead birds and mammals weighing 3 to 7 ounces. Quail, meadowlarks, 13-lined ground squirrels, pocket gophers, young pheasants and rabbits, and other species, young and

old, fit this bill. A male that finds such a carcass will broadcast pheromones to attract a female. If more than one pair is present, a fight ensues that is usually won by the largest individuals.

The winning pair works together to remove soil from beneath the carcass, plowing through it like a bulldozer until it is below ground level and then pushing soil over it. If the soil where the animal died is too hard and the prize small enough, the beetles turn on their backs, crawl under it, lift it with their legs and methodically move it to a spot where the soil is softer. They can move a mouse up to six feet.

Burying their food reduces the chance they will have to share it with others, be it vertebrates or insects, especially other carrion beetles and flies. Flies quickly lay eggs, which soon hatch into maggots, a direct competitor with beetle larvae. But because flies are active during the day and most burying beetles are diurnal, the nocturnal American burying beetle has the advantage and often wins the race by having the

carcass buried before sunup. If some flies do lay eggs, phoretic mites, hitchhikers on the beetles, will eat the eggs, one of many mutually beneficial relationships that occur in the natural world. The underground brood chamber also protects the beetles from predators that may eat them, a list that includes bats, opossums, shrews and even the northern leopard frog.

Once a carcass is buried, the beetles remove its hair or feathers and work the mass into a compact ball, secreting a saliva-like substance as they go that will slow decomposition. The female then lays 10 to 30 eggs in an underground chamber above the carcass. When the eggs hatch in a few days, the parents feed the young, regurgitating partially digested food. Soon, the larvae are able to feed on the carcass on their own, yet the parents continue to care for them, warding off any predators that may find their way into the brood chamber. This care is a rarity in the insect world. If the carcass the parents chose isn't large enough to support the brood, the adults

will cannibalize smaller larvae to ensure survival of the rest.

After about two weeks, when nothing but bones remains, the parents leave and the young pupate remain in the soil next to the carcass. They emerge as adults about a month later. The parents continue to feed on carrion, but soon, with their short life cycle of slightly more than a year complete, they die. The young adults will feed into September or October, when they burrow into the ground. They remain there until the following spring. Unlike some insects that migrate and others that freeze solid and resume their life at the spring thaw, overwintering burying beetles remain at or below the frost line, moving up and down in the soil profile to stay cold but avoid freezing.

Rediscovery in Nebraska

The American burying beetle was once found in 35 states and three

Canadian provinces in eastern North America. Its decline was first noted in the 1880s and nearly complete by the 1920s. Today its numbers and range have been cut by 90 percent. It is found only in Rhode Island, Arkansas, Oklahoma, Kansas, South Dakota and Nebraska, the latter four of which straddle the edge of its historic range.

A limiting factor in the western portion of the beetle's historic range was annual rainfall. Soils must stay moist after they burrow into the ground in the fall and emerge in the spring. If it dries out, the beetles will die. Soil type can also inhibit the beetle's range. Those with higher clay content are simply too hard for the insect to dig through. The species has been found to prefer loam or sandy soils.

Within its historic range, habitat conversion – primarily through agriculture and the tillage, irrigation, and insecticide and pesticide use that comes with it – is the prime cause of the American burying beetle's decline. Additionally, most appropriately sized

The male and female American burying beetles are easily identified by the orange patch above their jaws: the female's is a triangle and the male's a larger rectangle.



Estimated Current Range of the American Burying Beetle in Nebraska – 2014



prey is available in large blocks of grasslands and woodlands, much of which has been lost to the plow and saw. While farming isn't compatible with beetles, ranching is. The insects do fine in grasslands that have been hayed or grazed. Light pollution and the effect it might have on nocturnal species may also be a factor.

By the time the American burying beetle was added to the federal list of endangered species in 1989, the only documented populations anywhere in the country were in Oklahoma and Rhode Island. At the time, only sparse

records existed in Nebraska, including one from Lincoln County a year earlier.

But with a federal listing comes awareness, and later, research. In 1992, several American burying beetles were found during surveys for mammals on the Valentine National Wildlife Refuge in Cherry County, and another that somehow died in a boat during the winter. In 1994, a girl from Keya Paha County pinned one in her insect collection that was entered in the state fair, much to the surprise of entomologists who saw it. Building on these discoveries, researchers

have since found that the Sandhills region stretching from Cherry to Knox counties and from northern Custer County north into South Dakota is home to the state's – and perhaps the nation's – largest population of beetles.

Another accidental discovery of American burying beetles was made by a Central Nebraska Public Power and Irrigation District biologist conducting shrew surveys in 1994. An expanded search identified another healthy population of beetles in the rugged Loess Canyons region stretching from the Platte River between North Platte and Lexington south to Curtis.

“Historically, 200 years ago, American burying beetles occurred

throughout eastern Nebraska,” said Dr. Wyatt Hoback, an entomologist who has spent much of his career studying the species. “There are historic records from Lancaster and Antelope counties. But those populations no longer exist, and that's because of human disturbance.”



WYATT HOBACK

Research

Not surprisingly, the Loess Canyons and eastern Sandhills regions represent the remaining areas in Nebraska with sufficient unbroken grasslands and rainfall to support American burying beetles. But threats to the insect remain in both areas, and have driven research that has increased the understanding of the insect.

The federal Endangered Species Act and Nebraska's own version of the law requires that projects not harm a listed species. The U.S. Fish and Wildlife Service and Nebraska Game and Parks Commission work with project planners to find ways to avoid harming species, come up with ways to minimize losses, or to compensate for losses through habitat acquisition and

Several other species of burying beetles are usually caught in baited pitfall traps used to survey American burying beetles. In this trap are Gold-necked carrion beetle (*Nicrophorus tomentosus*), easily identified by the yellow hairs on its thorax, and the margined burying beetle (*Nicrophorus marginatus*).



restoration in other locations. Highway projects were among the first to raise the question about how the work might affect the beetle, and neither road planners nor researchers were sure what the soil disturbance that came with such projects meant for the insect.

Similar questions were raised by the initial and revised route of TransCanada's proposed Keystone XL Pipeline, which would carry oil 1,179 miles from Alberta, Canada, to Steel City, Nebraska, where it would connect to the existing pipelines that would carry it on to refineries in the Midwest and on the Gulf Coast. TransCanada's first Keystone pipeline was completed in recent years, following a less direct route from Canada to Texas that also crossed eastern Nebraska. Currently, the possible effects of Nebraska Public Power District's R-Project, a planned 345,000-kilovolt transmission line that will stretch 225 miles from NPPD's Gerald Gentleman Station near Sutherland north to Thedford and east into Holt County, are being analyzed.

Hoback has been a part of much of the research these projects have spawned. He began studying American burying beetles in 1998 while at the University of Nebraska-Lincoln. As an entomology professor at the University of Nebraska-Kearney from 1999 to 2014, he led numerous research projects and population surveys conducted by his students. For many summers, he has worked as an independent consultant for companies such as TransCanada. Now at Oklahoma State University, his research and field work on beetles continues in Nebraska and elsewhere.

Studies conducted for the Nebraska Department of Roads identified several strategies that could lessen the effects of projects on the beetles. Those studies found that beetles prefer moist loam soil, even more so if it's covered with grass and leaves. As such, Hoback determined that mowing roadsides prior to projects and removing the cut vegetation decreases soil moisture and makes it less likely that beetles, which are highly susceptible to water loss and desiccation, could be breeding, wintering or simply spending the day underground in those areas. Removing roadkill that could attract beetles to a project area was also recommended.



Wyatt Hoback places a spot of blue paint on the shield of an American burying beetle captured in a pitfall trap during population surveys in Holt County that will let him know if he recaptures the beetle on a later date.

Hoback also used dead lab rats monitored with infrared video cameras to study the effectiveness of the “bait-away stations” that were being used to draw beetles away from construction areas and thought to be an effective avoidance measure. Video from one such station in 2009 pictured 15 American burying beetles 15 minutes after sunset. Three hours later, an opossum arrived and immediately ate a beetle. In the minutes that followed, and in a later visit the same night, the opossum ate six more. The study found that other predators including leopard frogs arrived and dined on beetles and other insects at the sites.

“Bait-away stations not only attracted predators of the beetle, but they also didn't hold beetles there,” Hoback said. “Beetles would feed and then go back to the work zone.”

That finding led to studies that measured the effectiveness of trapping beetles and relocating them to other areas. Five-gallon buckets were buried to ground level, baited with a rat and partially covered so insects but little else could get in. This trapping method is now the standard throughout the beetle's range thanks to research in Nebraska that found it to be more effective and reliable than methods using smaller containers and baits that were being used elsewhere.

The traps have been shown to attract

nearly all of the beetles within a half mile – a 500-acre area – during five nights of trapping. Traps were placed every mile through the study sites and beetles that were captured were marked with a spot of paint and moved 3 to 7 miles east of the project site, putting them on the downwind side of the prevailing winds. From 2007 to 2012, more than 2,500 beetles were moved a few miles from the construction sites, and none returned, Hoback said.

This work raised questions about what happened to the beetles after they were moved, and led to another project that moved two related species of carrion beetles. “When we moved those beetles, we had equal recaptures, whether they had been moved or not, suggesting that the process of moving doesn't impact the beetles,” Hoback said. “So this looks to be a safe and effective conservation measure in situations where a large area with a lot of beetles is going to be disturbed.”

More recent work in areas where beetles were removed has shown that the insect has returned. “As long as the habitat is still suitable, the beetles will come back,” Hoback said.

Hoback's research and that of his graduate students, including Jess Jurzenski, whose work was instrumental in the development of a model and range maps for the species, is now being used to determine if



Phoretic mites hitch a ride on the underside of American burying beetles and eat fly eggs found on carrion the beetles stop to eat.

concerns, Hoback's students also looked at the depths at which American burying beetles and surrogate species spent the winter and found them to remain near the frost line. "The closer they can be to 32 F, the less energy resources and reserves they'll use," said Hoback. "If they get too cold, they'll freeze and they'll die." About 30 to 40 percent of the beetles don't survive winter, a percentage typical in insects."

Pipelines and Power

For projects such as pipelines that require a federal permit and could affect threatened or endangered species, companies must consult with the U.S. Fish and Wildlife Service, which will issue a biological opinion that says whether or not the project will put the species in jeopardy of extinction. The U.S. Department of State and TransCanada did just that for the Keystone XL pipeline, not only for the American burying beetle, but also for 11 other listed species along the route and two other species that are nearing the point they could make the list, said Bob Harms, a biologist in the Service's Grand Island office who has worked on the pipeline project and others.

For the pipeline's initial route, the Service determined in 2011 that the project would not jeopardize the species, even though it crossed a portion of the eastern Sandhills where beetle numbers were among the highest in the state. That finding was challenged by environmental groups, but before it became a major issue, opposition arose to the pipeline's route through the eastern Sandhills, where it would be in direct contact with the Ogallala Aquifer. The outcry led to a



BOB HARMS

new route being selected that avoided the Sandhills, and the Service withdrew its opinion at the request of the State Department and restarted its review process.

The Service's biological opinion for the new Keystone XL route, issued in 2013, produced the same result. In both cases, Harms said, population surveys had estimated the number of beetles present to be low enough that they could withstand such a disturbance, especially considering the ability to trap and relocate beetles. "After that disturbance ends, they could move back into those areas disturbed by the pipeline," Harms said. "The beetles would be impacted because they would be handled by surveyors, but they wouldn't be injured or killed."

After the Service's first biological opinion was issued, the parties anticipated the State Department would approve the project, and TransCanada started the process to trap and relocate beetles from the route in the fall of 2011, hiring Hoback and others to do the work. It would be the last chance to do so until the following June, when the project was to start. It also gave Hoback a chance to further his trap and relocate research and account for most of the 2,500 beetles he has monitored. The company also mowed some areas along the pipeline route to discourage beetles from returning.

The work drew the ire of environmental groups opposed to the pipeline and led to a lawsuit from the Center for Biological Diversity and others. That suit led to a change in the Service's approval process, where trap and relocation and mowing, avoidance and minimization measures that were a part of the pipeline project could only be authorized by a biological opinion.

Whether such work will ever be needed is not yet known, as legislation passed by Congress to move the Keystone XL project forward was vetoed in February by President Barack Obama. The fate of the project remains with the State Department.

When impacts to the beetle or other threatened and endangered species are unavoidable, the Service may ask companies to compensate for temporary and permanent loss of habitat for the species. TransCanada agreed to create a conservation fund to

acquire and manage land in Nebraska for the American burying beetle. The developers of the 400-megawatt Grande Prairie wind farm agreed to do the same. The project, owned by BHE Renewables, a subsidiary of Berkshire Hathaway Energy, and set to begin this fall near O'Neill, will be the largest wind farm in the state.

Hoback said similar conservation measures are regularly part of projects that cross beetle habitat in Oklahoma. "It's kind of like creating a park system for the beetle," he said.

Harms said the American burying beetle has played a role in planning for the R-project, NPPD's power line. He said the utility recognized it would cross through American burying beetle range and rightly coordinated with the Service and the Commission in anticipation of applying for a permit to allow for the incidental take of beetles during construction and project maintenance. While the disturbance won't be as great as it would for a pipeline, tower footings and roads will affect the insect. Harms couldn't say whether or not the Service would approve the permit once NPPD applies for it, but that they would first work with the utility to develop a habitat conservation plan that specifies avoidance, minimization, and habitat compensation measures for the beetle. A final environmental impact statement for the project, the Service's evaluation of how a project might affect the environment, is expected to be complete by late next year, Harms said. Construction is tentatively set to begin in 2017.

Loess Canyons

Within the Loess Canyons region, the American burying beetle population appears to be stable and may even be growing. If habitat work there continues, it could continue to grow.

T.J. Walker, head of the Commission's Habitat Partners section in the agency's North Platte office, has been conducting annual surveys for the insect in the Loess Canyons area in southwestern



T.J. WALKER



University of Nebraska-Kearney graduate student Adrienne Conley of Ocono Falls, Wisconsin, peels away layers of soil from a tube to determine the depths at which the American burying beetle and similar carrion beetles spent the winter as Elizabeth Jorde of Tracy, Minnesota, pulls another tube from the ground.

Nebraska each August since 2007, the longest running survey in the state. He and other Commission staff set 28 traps about five miles apart along county road and highway right-of-ways throughout the region.

Walker said the survey data isn't perfect. Beetles aren't active and easily trapped when it's hot and dry, conditions that are common that time of year. "When conditions are good it probably gives us a fairly good idea of the population," he said.

But trapping has shown that there tend to be more American burying beetles where there are fewer eastern red cedar trees. Walker said they catch the most beetles in two traps set in a 14,000-acre area that burned in a wildfire south of Gothenburg in 2002, wiping out nearly all of the cedars in the process. "It's still somewhat speculative, but we think the main reason is an increase in cedars decreases wildlife diversity. So it reduces the potential available food items that beetles can feed upon," Walker said.

The 338,000-acre Loess Canyons region is one of 40 areas deemed a Biologically Unique Landscape by the Commission through its Natural Legacy Program, part of a nationwide effort to address the needs of declining wildlife. Cedars exploded in the area in recent decades, spreading from the deep canyons into prairies and reducing the amount of forage available

for cattle and the amount of habitat available for wildlife at the rate of 2 percent per year. "In the northern parts of the canyons, it's really not uncommon to see 50 to 60 percent of these properties or more infested with cedar trees," Walker said. "If people don't take care of them, the next thing you know you're losing ridgetops and valleys." When that happens, the cost of grazing livestock escalates to the point where it leaves landowners "struggling to justify owning their property."

People are taking care of them. In 2002, a group that included ranchers, the Commission, the USDA Natural Resources Conservation Service, Pheasants Forever, U.S. Fish and Wildlife Service, and other conservation interests formed the Loess Canyons Rangeland Alliance. The group has since worked to stem cedar encroachment, acquiring a considerable amount of equipment its members have used to conduct prescribed burns on more than 20,000 acres in the region, including cooperative efforts that have neighbors working together on burns that cross property lines. Often this work follows mechanical removal of the trees. The group's success has led to the formation of the Central Platte Prescribed Burn Association in the eastern portion of the Loess Canyons.

Additionally, one of six coordinating wildlife biologists in the state is dedicated to the region. These staff

work with landowners to improve habitat in unique landscapes through a partnership between the Commission and Pheasants and Quail Forever, including projects to stem the cedar invasion.

While the American burying beetle surveys haven’t been running long enough to say for certain, Walker said it appeared that a few traps set in areas where landowners had removed cedars were beginning to catch more beetles prior to the drought in 2012. An in-depth look at the survey data and a comparison to the percentage of trees around each trap is set to begin soon.

The correlation between American burying beetle numbers and cedar trees has brought additional funding to the battle through state and federal grant programs to benefit endangered or declining species. A federal grant paid for about three-fourths of the cost of Wapiti Wildlife Management Area, a 1,920-acre tract in the heart of the Loess Canyons.

Cedar removal at Wapiti and throughout the region has benefitted other species native to the Loess Canyons grasslands, most of which prefer wide-open spaces or areas with a low density of trees. This includes bobwhite quail, grassland songbirds, mule deer, elk, and birds that prefer the edge of deciduous woodlands, which had been degraded by cedar growth in the understory. “We’ve even had a little bit of movement of prairie chickens into areas that were formerly not suitable,” Walker said.

“We’re not going to eradicate cedars from the landscape. It’s not possible. Our goal is to recapture what we can and get landowners to a point where they can manage them and keep them in check.”

Changed Perceptions

The efforts of the Commission and other partners have made to help landowners battle cedar encroachment in the Loess Canyons, and the additional funding the American burying beetle has brought to the fight, has played a part in changing the perception landowners have toward the insect. Initially, Walker said some

feared the insect’s presence would limit what they could do on their land. Now some are proud to have it there.

“The fortunate thing was there was a public enemy number one – the cedar tree – that was shared between our goals for grassland health and the American burying beetle and the landowners’ goals for rangeland,” Walker said.

A similar shift occurred in the Sandhills, where landowners also feared endangered species implications. “Those same landowners were happy to find out they had beetles because it was another road block to the [Keystone XL] pipeline,” Hoback said.

Hoback has found it isn’t hard to change perceptions. “Up in the Sandhills, whenever I meet a landowner and I tell them a little bit about the beetle and its biology, I tell them to keep doing what they’re doing if they raise cows or harvest hay in meadows. The beetles are very compatible with those land uses,” Hoback said.

“Most people, once they learn about it and really understand how the beetle is unique and what it does that’s good for humans, they like having it around. It’s more of an education gap that made people think, ‘Oh crap! I’ve got an endangered species.’ Or ‘Why are we putting so many resources into a stupid beetle?’ It really is a unique part of the North American wildlife and I think people are appreciating it.”

Hoback and others who work with the insect certainly appreciate it. And they are happy there are so many, possibly tens of thousands in the Sandhills alone. “Our population in Nebraska, especially in northern Nebraska, is probably the largest population remaining in the country,” Hoback said, adding that the Oklahoma population would rank second.

But there continue to be threats to the beetle in Nebraska and elsewhere, including the primary cause for its initial decline: the conversion of grassland to cropland. From 2007 to 2012, 2.8 million acres of grassland were plowed to farm in Nebraska, including a nation-leading 55,000 acres in 2012 alone. “The conversion due to high grain prices had a huge effect on the American burying beetle and other wildlife species that use grasslands in the Sandhills,” said Harms. Other



Commission biologists Adam Kester (left) and Justin Haahr check pitfall traps set for American burying beetles at Wapiti WMA in Lincoln County. The area, located in the Loess Canyons south of Maxwell, was purchased in part with federal funds to benefit the insect, and is also home to elk, deer, turkeys and other wildlife.

concerns include construction of wind farms and power lines in American burying beetle range, both leading to temporary and permanent loss of habitat and fragmentation of large blocks of intact habitat, Harms said.

With continued habitat loss in existing ranges, researchers are attempting to expand the insect’s range. Of the reintroductions of the insect to its historic range in Missouri, Ohio and on Martha’s Vineyard in Massachusetts, only Missouri’s attempts, which began in 2012 in the southwestern corner of the state have met success. “Until we understand what’s going on – either we’re not introducing them into the

right habitat or there’s not a prey base or the winters are different or whatever – we can’t say the beetles are doing very well because it’s still been eliminated from more than 90 percent of its historic range,” Hoback said. “A lot of our research has focused on why the beetle still lives here, how to conserve this population and eventually get beetle established elsewhere and move it from endangered to threatened or even recovered.”

Biologists are attempting another reintroduction of American burying beetles in Ohio this year. In June, they collected 10 pairs from the Sandhills, and they will gather 20 more in August.

Initial attempts in Ohio used beetles from Oklahoma. Believing they needed beetles more adapted to cold, they received 30 pairs collected in Nebraska in September of 2013, but that attempt also failed. They hope the timing of the collection will have some success, and that the pairs collected in June might even breed there. Through his experience with another endangered species, the Salt Creek tiger beetle, Harms said he’s found that “You’ve got to be willing to try new things and think outside the box in the world of species reintroduction.”

Research will continue, and Hoback hopes someday it might even unlock

the secrets of the secretions the beetles use to preserve the carrion they bury. “They could potentially contribute antibiotics for humans or livestock, or a way to preserve meat at room temperature,” he said.

For now, those who work with the insect appreciate the value it already contributes: removing a breeding ground for flies that can transmit disease, and the way they do it.

“With the burying beetle, those carcasses turn into more burying beetles,” he said. “It’s crazy to think about the entire life cycle.”

Or maybe, if you have a queasy stomach, it’s better not to. ■

The American Plum

A Worthy State Fruit

Story and photos by Gerry Steinauer, Botanist

Found nearly statewide in a variety of habitats, this native shrub bears delicious fruit, is harvestable by the gallon and is heavenly for jam and jelly.

Nebraska has designated a state bird, a state flower, a state insect and even a state rock, but no state wild fruit as have some other states. North Dakota has the chokecherry, for example, and Ohio the pawpaw. If our legislature should decide to bestow this title, I would lobby hard for the American plum

(*Prunus americana*), often referred to simply as the wild plum. Here are my reasons.

This native shrub represents nearly the entire state, being found in all but a few Panhandle counties, and it grows in a wide range of habitats including woodland edges, prairies, old fields, fence lines and road ditches. Of course,

its most vote-worthy attribute is the delicious fruit, harvestable by the gallon and heavenly for preserves.

I realize Sandhills jelly-makers might rally behind the chokecherry or sand cherry, both common in the region and also excellent for jam and jelly, while eastern pie-bakers might support the Missouri gooseberry, as cream pie made of its fruit cannot be beat, whereas vintners might promote the wild grape. Although these are all worthy candidates, in my opinion, they share a liability placing them a rank below the plum: their fruits are too tart or astringent to be enjoyed fresh. Some might argue that wild raspberries and strawberries are our finest tasting wild fruits. I agree, but they cannot hold a candle to the plum with regard to fruit size, abundance and ease of picking.

The plum's thick, somewhat tart, skin may be its only flaw – but what candidate doesn't have a skeleton in the closet? This issue is easily overcome when eating the fruits fresh. I simply pop the whole plum into my mouth, burst it open with a bite to release the sugary pulp and discard the unwanted skin and pit. I know others, fond of tartness, who eat the skin, too. Also, when baked in pies and other desserts the skin's sourness is overcome by the addition of sugar.

I think my case for the American

plum is solid. What more could Nebraskans ask of a wild fruit?

A Thicket-forming Shrub

The American plum's core distribution extends from North Dakota east to Rhode Island and south to Oklahoma and northern Florida with isolated populations to the north, west and south. It has been speculated that prior to Euro-American settlement, Native Americans introduced the plum to the Great Plains from farther east as a food source. Some tribes grew the plum in orchard-like settings, selecting sweet-fruited varieties.

Usually a suckering, thicket-forming shrub reaching about 10 feet in height, the American plum rarely takes the form of a small, single-trunked tree. Specimens with foot-wide trunks and 20 to 35 feet in height have been reported in Nebraska. The national champion American plum growing in Virginia is an 18-foot tall monster with a trunk 3.8 feet in diameter. Over 200 forms of the plum have been selected for domestic cultivation, including non-suckering and thinner-skinned varieties.

The plum's white flowers, arranged



THE FRAGRANCE OF PLUM blossoms is one of the joys of spring. The shrub above flowers on the Prairie Plains Resource Institute's Ratzlaff Prairie in Hamilton County.



AMERICAN PLUMS ripen on the bush at Peterson Wildlife Management Area in Sioux County.

in clusters of three to five, appear before or as the leaves develop in mid-April through early-May. When in full bloom, a plum thicket is a thing of beauty, appearing snow white on the greening spring landscape and emanating a perfumed fragrance. The fruits ripen from yellow to orange and finally to deep red or purple in mid-August through September. They vary in shape from bush to bush, from oval to round, and in size, from slightly larger than a marble to the girth of a ping pong ball. Fruit size may be partially due to genetics, but may also reflect growing conditions. A plum bush growing alone in a glacial rock pile on our South Dakota farm, free of competition from other

vegetation, consistently produces large, scrumptious plums.

A member of the Rose family, the American plum has close relatives in the state. The wild-goose plum (*P. hortulana*), a tall, thicket-former with red fruits, was last seen in Nebraska along the Nemaha River in Richardson County in 1940. Also rare, the red and red-yellow fruited Chickasaw plum (*P. angustifolia*) was last collected in 1897 from a pasture in Adams County. These two species are both more common southward into Kansas and might still be found in Nebraska. Also in the genus *Prunus* are the chokecherry (*P. virginiana*), a common shrub found nearly statewide, and the sand cherry (*P. pumila*), a



PLUMS BY THE BUCKET lay on the porch to ripen. The author's mother-in-law Lucille Kostel and her daughter Grace proudly pose with their harvest.

diminutive shrub of sandy soils. A tree of rich woodlands, the black cherry (*P. serotina*) grows only in southeastern Nebraska. Its fruits, small, dark purple to black and bitter, are relished by birds.

A Harvest of Plums

"Plumming expeditions innumerable" have occurred in Nebraska beginning with Native Americans who, living on the fruit-meager Plains, eagerly

awaited the fall harvest. The naturalist George Bird Grinnell wrote, "Near the [Cheyenne] camps the wild plums seldom ripen because the children pick and eat them green; but in places at a distance many plums were gathered by the women, and were stoned, dried in the sun, and kept for winter. When the ripe plums thus dried were cooked by boiling, they became almost like cooked fresh plums." The Pawnees reportedly dried them unpitted.

Like the Cheyenne children, I, too, anticipate the plumming season,

periodically biking to thickets on the outskirts of Aurora and giving the reddest plums the bite test for ripeness. If juicy and sweet I'll return with a bucket. I've become a serious plum gatherer only recently, since my mother-in-law, Lucille Kostel of Wagner, South Dakota, taught me the art of fruit canning. My largest seasonal plum harvest to-date has been about 15 to 20 gallons, a pittance compared to that of Sherri Seifer, owner of Rafter 7S Jellies, a business located on her families' Sandhills Ranch north of Paxton. The name Rafter 7S comes from their ranch's cattle brand.

"Some years I'll harvest over 600 pounds of wild plums for the making of jams, jellies and syrup," Seifer said. Wild plum jelly is her second best seller, topped only by chokecherry jelly. "Last year was a good year, the plums were so plump and juicy they were splitting," Seifer said. The picking crew consists of herself and whichever of her three college-aged children is home and willing to help. Seifer usually picks within 30 miles of home, but will range as far as 60 miles when plums are scarce, making several return trips to fruit-laden thickets over the harvest season.

Late spring frosts are Seifer's nemesis, as hers is a business sensitive to the whims of nature. She said there are usually some plums every year, but good crops come about one out of three years. In these years, she will harvest large quantities, freezing many plums unpitted for future lean harvests; the frozen fruits stay good for several years. Seifer sells her jellies and syrups online, at farmers markets and at GROW Nebraska stores.

"They are popular because I make them the old-fashioned way, one small, hand-stirred batch at a time," Seifer said. "Customers say our jellies remind them of those their grandma used to make."

My mother-in-law learned how to make plum preserves from her grandmother. While some people use only the pulp or juice for jam and jelly, Lucille, raised on a farm where nothing was wasted, makes use of the



WILD PLUMS, sliced and pitted, make a delicious pie. A little fresh cream drizzled over the top enhances the flavor.



LUCILLE'S "pit sauce" complete with plum skins, pulp and pits is a family favorite.

entire plum: skin and all. After picking a batch of plums she will lay them out on the porch for a few days to fully ripen. When soft, the plums are rinsed

in water, then placed in a large pot and put on the stove and brought to a steady boil for a half hour. When the skins burst releasing the pulp and juice, the juice is ladled off the top, strained and is ready for jelly making. In years of plenty, she cans juice, and it remains good for seven to eight years.

The kettle's remains – pulp, skin, and pits – are placed in an open roasting pan. For every eight cups of this mixture she adds three cups of sugar and then bakes it for an hour at 350 degrees Fahrenheit, stirring it every 10 minutes to prevent burning. Reducing the temperature to 250 degrees F Lucille then bakes it another half hour or so until the mixture is thick and dark red in color. During the baking some pits come to the top and these are scooped off, but many remain in the sauce. Lucille has assured me the pits never split open; the seeds inside contain the bitter tasting and poisonous hydrocyanic (prussic) acid. While the sauce is still piping hot, she adds two tablespoons of lemon juice as a preservative for every eight cups and

then places it directly into canning jars.

"I can't remember my Grandma's Czech name for it, but I think it translated to 'pit sauce,'" Lucille said. "She served it with fresh cream and we kids loved it." I also love it with ice cream or just plain. The pits are simply spit out while eating.

Humans are not the only creatures to partake of plums. Sharp-tailed grouse, squirrels, raccoons, white-tailed deer, fox and coyotes also eat them. In late summer, I often see coyote scat packed with plum pits. Judging from the scat, I think coyotes would also advocate for the American plum as Nebraska's state fruit. ■

Gerry Steinauer has been with the Commission since 1989. Before that, he worked for the Nature Conservancy. This is the 55th article Gerry has written and photographed for NEBRASKAland Magazine.



Big Changes to Hunter Education

By Cara Pesek

Hunter education programs evolve to meet the needs of a changing population.

Four decades ago, fish and wildlife agencies across the United States first began offering hunter education classes.

The concept originated to combat the high number of hunting accidents among those who had never been taught the basics of gun handling and safety. So in 1974, states began offering hunters classes in how to safely and responsibly handle firearms. Instructors also touched on conservation and the modern conservation model – in which revenue generated from the sale of hunting permits, firearms, ammunition, archery equipment and fishing tackle are used for projects designed to benefit fish and wildlife, ensuring that future generations would be able to hunt, fish and enjoy the great outdoors.

Since that time, hunting accidents have declined significantly across the country, and the hunting public has been instilled with a sense of pride about its role in the conservation of America's wildlife and wild places.

"Today our hunters are more educated than they ever were," said Jeff Rawlinson, education manager for the Nebraska Game and Parks Commission. "The hunter education program has been one of the most successful education programs that state fish and wildlife agencies have ever implemented."

After 41 years, the program has evolved. What started as a classroom only experience has expanded to include an online home study course and field day, for example. They were popular options, ones that met the needs of a changing population with evolving learning styles.

This year, Nebraska's hunter education program is evolving again.

This summer, Nebraska Game and Parks has replaced the field day component of the home study course with a two-hour Hunt Safe session. The online class is designed to be completed over the course of six or eight hours, and students can work at their own pace as they have time. Game and Parks recommends that hunters age 15 and under complete the course with the help of a parent. Once completed,

students attend a two-hour Hunt Safe session where a trained volunteer instructor will make sure they understand shoot/don't shoot scenarios, equipment safety and tree stand safety.

Also new this year, hunters ages 16 and older are able to complete their hunter education requirements online without any follow up.

The traditional 10-hour classroom course will still be offered for those who learn best in a classroom setting, though the field day option will not. The new online course is intended as another option for busy families and young hunters used to learning in new ways.

"Today, online is key, and that is where young hunters want to find their information," Rawlinson said. "They want it in short bursts. They want to be able to access it from their smartphone. We've continued to evolve the program to meet the needs of our new hunters."

The new online course and Hunt Safe session offer many benefits, said Wendy Horine, hunter education coordinator for Nebraska Game and Parks. First is the convenience. Soon, Hunt Safe sessions will be available on a recurring basis in locations across the state, so hunters should have no trouble finding one that is convenient to them. Photographs and videos in the online class illustrate scenarios that sometimes were difficult to explain in a classroom setting. And students can save the hunter education manual to their smartphone and access it whenever they have a question.

In recent years, many other states have also begun offering online hunter education courses, Rawlinson said. Initially, some worried whether an online course was as safe as a traditional classroom course, but data shows no increase in hunting accidents in states that offer hunter education online.

"Safety is critical in the field," Rawlinson said. "We only are modeling these changes now because we've seen other states implement similar changes with great success."

The changes will also allow for expanded education for hunters of all experience levels statewide.

"A lot of these kids go through hunter education, and then they ask 'What's next?'" Horine said. She is hoping the implementation of the Hunt Safe sessions – which are



Under the direction of hunter education instructor Nick Tramp (left), student Jamin Cyr (middle) and conservation officer Alex Thomas (right) demonstrate how to safely hold a firearm at Ponca State Park.

PHOTO BY JENNY NGUYEN

less time and labor intensive than the defunct field day – will give Game and Parks staff and volunteers time to plan workshops and demonstrations to help young hunters find success in the field.

A statewide series of turkey hunting workshops last fall was well attended, as was a demonstration in Lincoln on how to field dress a deer. She, Rawlinson and others at Game and Parks are planning more workshops and demonstrations this year.

And just as it has for the past 40 years, hunter education will continue to evolve to meet the needs of new hunters.

"We want our hunters to be the safest hunter in the field," Rawlinson said, "but we also want to give them more skills to put to use out in the field." ■

Hunter Education Requirements

Firearm hunter education is required in Nebraska for all hunters ages 12 through 29 who:

- Hunt any game species with a firearm or air gun. Hunters must carry proof of successful completion while hunting.

Bowhunter education is required in Nebraska for all hunters ages 12 through 29 who:

- Hunt deer, elk, antelope or mountain (bighorn) sheep with bow and arrow or crossbow. Hunters must carry proof of successful completion while hunting.

Hunters age 11 to 15 may complete hunter education in the following ways:

- By taking an online course followed by participation in a two-hour Hunt Safe session. There is a fee for the online course.
- By completing the traditional 10-hour classroom course. This is a no-cost option.

Hunters age 16 and older may complete hunter education in the following ways:

- By taking an online course with no other requirements. There is a fee for the online course.
- By completing the traditional 10-hour classroom course. This is a no-cost option.

For more information or to find upcoming classes, visit HuntSafeNebraska.org. Those who have not completed a hunter education course may obtain an Apprentice Hunter Education Exemption Certificate.

Squirrel Quest

By Jeff Kurrus
and Julie Geiser

In another lifetime, kids grew up with a .410 shotgun or .22 rifle in their hands hunting for squirrels beside mom or dad. The kids were never still enough, never quiet enough, but eventually a just-too-curious or absentminded squirrel would leave their nest and rest just long enough for the youngster to get a shot. The squirrel would fall from a limb, that barely

audible *ummph* sound briefly echoing through the quiet woods as the child handed the gun to their accompanying adult as fast as they could to retrieve their first kill.

Well ... in the eyes of many that seems so long ago. Squirrel hunts have been replaced by, more than anything, the urbanization of our youth and the umpteen entertainment options they



This is how many of us may remember our first times afield –with squirrel gun in hand. While not done as frequently as in yesteryear, it remains a wonderful way to interest a new hunter in the outdoors.

PHOTO BY ROCKY HOFMANN

Jerk Squirrel

By Jenny Nguyen

Servings: 2
Prep Time: 4½ hours
Cooking Time: 5 minutes each side

Ingredients:

- 2 squirrels, cut into pieces
- Marinade Ingredients:**
 - 4 tablespoons of vegetable oil
 - juice of 2 limes
 - 2 tablespoons of white wine vinegar
 - 4 scallions, chopped
 - 1 tablespoon of ground allspice
 - 1 serrano chili pepper, roughly chopped
 - 3 cloves of garlic
 - 1 tablespoon of fresh peeled ginger, roughly chopped
 - 2 tablespoons of brown sugar
 - ½ teaspoon of dried thyme
 - ¼ teaspoon of cinnamon
 - 1 teaspoon of kosher salt

1. Combine marinade ingredients in a food processor, pulse until smooth and spoon out some sauce



PHOTO BY JENNY NGUYEN

into a small container, about ¼ cup, for dipping later. Pour the rest of the marinade into a zip-lock bag and then add the squirrel pieces. Massage the bag to evenly distribute marinade. Refrigerate for at least 4 hours or overnight.

2. Prepare grill. Cook squirrels directly over the coals, about 5 minutes each side or until cooked through. Do not overcook. Serve immediately.

now have. What's been lost is the small-person-hunting-small-things mentality that previous generations grew up with. Starting with small skills and learning the ways of the woods will build knowledge and the passion to pursue other animals. Plus, for all ages, squirrel hunting remains one of the most enjoyable activities one can do in the fall and winter – a pastime suitable for hunters old and new. As long as the hunter remembers – or is taught – where to start.

Foxes and Grays

In Nebraska, two squirrels are predominantly hunted – the eastern fox and the eastern gray squirrel. Both tree squirrels, each have long, bushy tails

used for multiple purposes, including sunshade, balance and a diversionary tactic against predators. Each also uses a series of barks to communicate with other squirrels against predators, including raptors, snakes and foxes.

The eastern fox squirrel, which are usually rusty colored but can be many shades darker or lighter, resides in much of Nebraska – from the Missouri River to the Pine Ridge. Their habitat consists of open forests with little understory vegetation near waterways, making them the perfect creek, shelterbelt and neighborhood squirrels, where open views abound.

Squirrels are susceptible to predators, as they will sometimes move a mile or more to gather food. Yet even when food is close by, they can be seen in



PHOTO BY JEFF KURRUS

Look for a clear head shot with a safe background when squirrel hunting.



Eastern gray squirrels in Nebraska are found along the Missouri River corridor at areas like Indian Cave State Park near Shubert.

Squirrel calls are used to mimic young squirrels as the hunter attempts to coerce adult squirrels into openings for a clear shot.



PHOTO BY JEFF KURRUS

cutover corn and bean fields in open view of predators. They will also eat a variety of mast as well as seasonal foods, including flowers, insects and seeds.

The eastern gray squirrel is probably the most common tree squirrel in North America, typically found in the dense, unbroken hardwood tracts along the Missouri River in eastern Nebraska. In this state, the gray squirrel's habitat is extremely small, as fragmentation away from the Missouri has caused this squirrel's range to decrease.

Their silver-gray color matches the bark of beech, maple and hickory trees, and they are mast eaters, consuming various nuts, including white oak acorns and beechnuts, and burying more for later – thus proliferating the forest where they live.

Undergraduate Hunting

A first hunt of any species should be filled with excitement, wonder and simplicity. Hunting squirrels should be no different. Because they're tree



Eastern fox squirrels, while typically red, can also show color variations, including patches of gray, white and black.

PHOTO BY JON FARRAR

Squirrel Cleaning Steps

By Jenny Nguyen

Clean squirrels as soon as possible after they've been shot. Warm squirrels are easier to skin than cold squirrels.

1. Turn the squirrel upside down and lay its tail on a counter, tailgate, tree stump, etc., so that the underside of its tail is facing up. Cut through the base of the tail, being careful not to cut through the skin on the other side. Next, slice a few inches of the skin on both sides of the tail down its back and use your fingers to help separate the skin from the meat.



2. Lay the squirrel on the floor. With one foot, step on the tail, and with your hands, hold the squirrel's back legs. Using your foot as an anchor, pull the squirrel's legs upward to peel the skin up to the base of its head. Continuing to hold onto the legs with one hand, use your other hand to pull the front legs free out of its skin. Stop at the base of the paws.



3. Continuing to use your foot to hold the tail, peel the skin off its hind legs upwards, stopping at the base of the paws.

4. Next, cut the front legs from the paws by cutting away from you. Then separate the body from the head. Then cut the paws off the hind legs. If the squirrel is male, trim off its testicles and penis.



5. Hold the now skinless squirrel abdomen side up in one hand. With a sharp knife, blade turned upward, cut through its sternum and all the way down to the anus. Be careful not to puncture any innards.

6. Then pull the entrails out, starting from the windpipe and separating at the rectum, and discard.



7. Rinse squirrel under cold water and pat dry. Freeze in vacuum sealed bags if you're not going to use it soon.

PHOTOS BY JENNY NGUYEN



The Rock Trick

Carry a small pile of rocks in your pocket. If a squirrel spots you and moves to the other side of a tree, keep still for a few minutes then throw a rock on the side the squirrel is on, tricking it to move to the side of the tree where you are on. Work with a hunting partner in the same way. Sitting on opposite sides, your partner will then entice the squirrel to move to your side, giving you a safe shot. -JG



squirrels, locate a section of timber.

Regarding a weapon of choice, you have several options, including bow, pistol or even a slingshot. But the most oft-used choices are shotgun or .22 long rifle. Shotguns usually range from .410 to 12-gauge, with shot size being from 6 to 7½. A modified to full-choke barrel is recommended due to the desire to group as many pellets as possible at your quarry and this weapon is often used in the early part of the season when leaves are on the trees. Any number of .22 rifles can be used, including a Ruger 10/22 or a Remington Model 597, once the leaves fall or when you want a more difficult challenge. Whether hunting with a shotgun or rifle, head shots are the best placement, keeping meat shot free.

Camouflage depends on the time of year, but use common sense and match what you see in the woods and camouflage yourself from head to toe. Cover yourself up with grass or make small blinds with nearby tree limbs to help break up your outline. The less you move, the more chance you have of shooting a squirrel. If you happen to shoot and miss, just wait. The squirrel will usually come back to investigate 20-30 minutes after a shot has been taken.

Because squirrels are early risers and late afternoon feeders, hunt at

sunrise and sunset near den and nest areas in the woods. Active dens are tree cavities worn smooth around the edges, and active nests are big, leafy and look structurally sound. Leaf nests that look ragged or have daylight shining through them are probably not being used.

Now, if you take the preceding information and read no further, you'll be introduced to a passion that gets a lot less attention than it should. But if you read on, then you might just develop a love for an age-old sport that, after its best days, will excite you enough to keep you up at night before opening day.

Grad School Squirrels

Like any other outdoor passion, squirrel hunting can get as complicated as you want it to be. But the next step to learning more about squirrel hunting is identifying food throughout the hunting seasons. In many parts of the state, where nut trees aren't abundant, look for squirrels eating seeds, conifer cones, fruit and berries, lichens, buds, roots, leaves, twig, bark, fungi, vegetation and insects.

In areas with plentiful nut trees, such as the eastern part of the state along the Missouri River, look for acorns to ripen from September to October. Other nuts include shagbark hickory along the Missouri River south of Omaha and hazelnuts in southeastern Nebraska.

Once these trees are identified in the woods, quietly walk to the area and

Both rifles and shotguns are used by squirrel hunters. This Ruger 10/22 (left) with a 3x9x40 Tasco scope costs about \$250, while the break-action 12-gauge single-barrel shotgun costs about \$70, both affordable options for the beginning squirrel hunter.

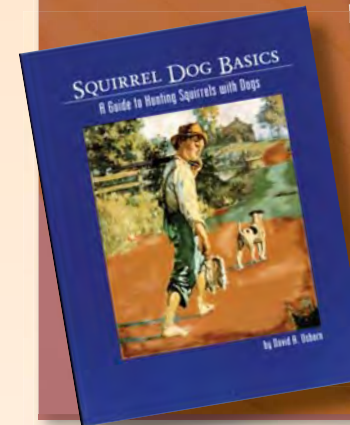
Squirrel Dogs are a Squirrel Hunter's Best Friend

The first time I saw a squirrel hunting dog, I was with a colleague in northwestern Tennessee. Because of my colleague's past missteps afield, I was doubtful early on about that morning's squirrel hunting plan. But my confidence quickly increased as his dog was released from the truck and was, within five minutes, barking uncontrollably against a large red oak tree. But there was no squirrel there, and my hope quickly left.

"No, the squirrel's there," my friend said. "We just haven't found him yet. He'll stretch his body fully out against the bark and won't move until we're gone."

Yet I still didn't see him ... until ... I did see him. Just as my partner said, the fox squirrel had pinned himself against the tree's trunk. One shot from me and the squirrel thudded to the ground. I became a believer.

Hunting with a squirrel dog is thrilling, and there are multiple sites on the web dedicated to this sport which gets a lot more attention throughout more eastern and southern states. A good start to your research would be *Squirrel Dog Basics* by David A. Osborn. -JK



Hunting with a squirrel dog is an exciting alternative to traditional squirrel hunting methods.

PHOTO BY ELIZABETH KINTZ

sit for 20-30 minutes. If there is no activity, move to the next food area after glassing with binoculars. Even if you are in a patch of woods for the first time, use this slow approach technique – listening for squirrel chatter, small limbs snapping or the sound of an animal on the ground – and be quick to stop if a squirrel is spotted. Keep those sounds in your memory to use for later hunts. There's a good chance that the squirrel is not near a nest, so be patient and wait for the squirrel to reappear and offer a safe shot.

During the early part of the season, in August and September, use a squirrel call that sounds like a juvenile in distress. You can also bark with that same call in an attempt to draw out curious squirrels, especially yearlings. Or, while holding two quarters, tap the edge of one on the flat part of the other, and then rub the edges of the quarters together

to mimic a squirrel cutting, or feeding. Making small rustling movements in leaves with your hands or feet may also attract curious squirrels.

Throughout the season, hunting after a rain or snowstorm is a must – especially if it's a sunny day – because squirrels will come out to forage and feed. As the season draws into late fall, look for waste grain near tree lines.

Regardless of when you hunt, it will be fun. Some of our fondest memories in the woods come from our first days afield as well as times we've hunted as adults – alone with an animal that deserves much more company from hunters. ■

Squirrel hunting season opens Aug. 1, 2015 through Jan. 31, 2016.



Full camouflage is strongly advised when squirrel hunting, especially when working in open country where visibility is high.

Legacy of Nebraska

Artist Todd A. Williams paints 93 counties.

By Jeff Kurrus

With Nebraska's 150th sesquicentennial approaching in 2017, Central City-born artist Todd A. Williams will create at least 93 oil paintings, each representing a county in Nebraska. The idea first came to Williams after spending time in both Vienna, Austria and Prague, capitol of the Czech Republic, creating collections of paintings that represented both the past and present of these iconic European cities.

Then, in 2012, he approached Nebraska State Historical Society Executive Director Mike Smith about his idea to create a similar project in his home state. "I wanted to travel throughout Nebraska and capture the spirit of the state from the eyes of an artist," Williams said.

So Williams has worked with Smith's staff to gain more of a historical perspective of the state, while also attempting to simply reveal the beauty of Nebraska's variety of landscapes. Working off of photos, sketches and memories, Williams is accomplishing these goals.

An exhibition at the Nebraska History Museum will debut March 1, 2017, and will feature close to 125 paintings. For more information, visit Toddwilliamsfineart.com. ■



Niobrara State Park, Knox County. Oil 9" by 12" (plein-air).



Lake Fremont, Dodge County. Oil 15" by 30".



Sandhill Cranes, Buffalo County. Oil 24" by 30".



End of Day, Pierce County. Oil 12" by 16".



William Frederick (Buffalo Bill) Cody, Lincoln County. Oil 20" by 16".



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This is a photo taken sometime in the 1940s on Lake McConaughy. It shows my father, Otto Poppe, and my aunts Dorothy Varner (mother's sister) from Cook, Nebraska and Clara Lipps (mother's sister-in-law) from Louisiana going for a joy ride in the fishing boat.

The photo below is my parents' (Otto and Elva Poppe) farmhouse that I grew up in. It was salvaged and moved 10 miles west of Grant, Nebraska. It was in the Platte River bottom and when the dam closed, the towns were under water – caused by Lake McConaughy (around 1940). It is shown here after the move with equipment in the yard.

My grandfather Fred Poppe, from Cook, bought the farm in the late '20s. My father and mother then moved there later and Dad farmed the land. They are all deceased now, but I believe the house is still standing today.

– Eldon Poppe, Lincoln, 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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Broiled Dove

Like the best Thanksgiving turkey you've ever had, just a bit smaller.

By Jenny Nguyen

Plucking a dove is so easy; there is no reason not to do it. The feathers come off quickly and with a few snips using a good pair of kitchen shears, the feet, head and guts are no sweat to remove. You wouldn't think so, but one can get a lot more meat by cooking and eating these little birds whole – grilled, broiled or fried. You'll find good meat around the thighs, wings and back, and I love the skin, which keeps the muscles moist.

I use whatever seasonings I have on hand, but a good sprinkle of salt and pepper is all that is required to bring out the sweetness and rich flavor of dove, which is a darker meat. Its taste is far superior to many wild birds, striking a perfect compromise between wild duck and pheasant. Think dark meat on the best Thanksgiving turkey you've ever had, and multiply that satisfaction by 10. It's too bad they're so small. Because my ratio of birds to shotgun shells is embarrassing, I treat them like they will be my last meal.

Servings: 2

Prep Time: 5 minutes

Cooking Time: 7-10 minutes

Ingredients:

- 4 whole doves
- kosher salt, to taste
- few pinches of Herbes de Provence (or your choice of seasoning)
- few pinches of paprika (Hungarian paprika, preferred)
- olive oil
- 1 tablespoon of melted butter

1. To flatten a dove, cut along the back of the dove with kitchen shears. With the now open cavity facing you, gently bend the sternum toward you until you feel a soft crack, which will flatten the bird. Turn broiler on to "low." Place a roasting rack with a roasting pan in the broiler to allow it to heat up for a few minutes.

2. Rub doves with olive oil. Then generously sprinkle salt all over doves



PHOTOS BY JENNY NGUYEN

on both sides. Rub Herbes de Provence between your fingers then rub it over doves. Place doves breast side down in the broiler and cook on "low" for 5-6 minutes.

3. Take roasting rack with doves out of the broiler and increase heat to "high." Turn doves over so that the breasts are facing up. Paint breasts with melted butter then evenly sprinkle with paprika. Place doves back into the broiler and cook on "high" for 2-3

minutes, or until breasts are golden brown. Do not overcook; meat should be slightly pink inside. Serve doves by themselves, with a salad, rice or pilaf. ■

This recipe and photograph originally appeared on Jenny's Food for Hunters blog at Foodforhunters.com.



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I Smelt a Badger

Recent flooding along the South Platte River system has effected wildlife in various ways. To photograph the animals impacted, I traveled many backroads. Along one road there was a high and dry spot where I noticed a freshly dug badger den.

Not having any badger photos in my portfolio, I set up to capture an image of the creature.

The first day I waited near the den in the early morning and late evening. I could tell by the fresh tracks that the badger was using the den, but no photos were taken this day, as no badger was seen.

The water had been up for so long I knew the badger wouldn't be going anywhere soon and with six-inch to foot high waters, I figured it wasn't finding any food.

I dug through the freezer at home and found left-over smelt from ice fishing, thawed the fish and headed back to the den the next day. I threw smelt around the entrance hole. The badger, however, waited me out until after dark; when I returned the next morning, the smelt was gone.

Finally on day four of stalking the den the badger took the bait and I was victorious. My portfolio now includes badger photos.

*Julie Geiser
June 17, 2015*



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