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NEBRASKAland

August-September 2016

Nebraska's Bats

See page 54



A skipper butterfly using its long proboscis to feed on the nectar of a purple coneflower in Lancaster County. Photo by Chris Masada.

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NEBRASKAland Magazine

Volume 94 • No. 7 • August-September 2016

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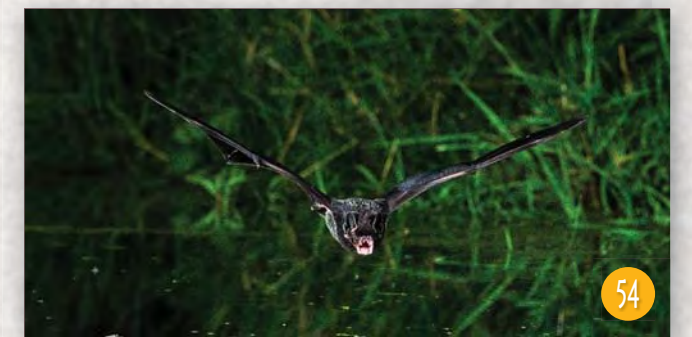
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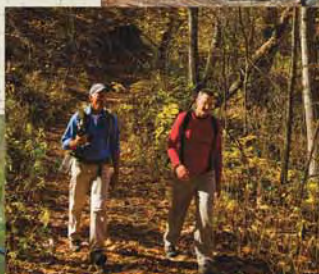
Cover: A hoary bat clings to a cottonwood tree along Soldier Creek at Fort Robinson State Park. Photo by Eric Fowler.

EXPLORE YOUR STATE PARKS.

In Nebraska's state parks, an adventure waits over every ridge and around every bend. Moments wait to be had and memories beg to be shared. This fall, get outside and discover seventy-seven parks and enjoy unlimited experiences. No matter what you choose to do outdoors—it'll be time well spent.

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This composite photo art of a 1961 Chevrolet Impala was submitted by Richard Jones of Gothenburg.



Suz Swanson shot this photo near her parents' home in Hastings.

An Open Letter to Hunting By Erin Diegel

I am a single mom of three children, enjoy everything outdoors, and before 2014, had never given hunting a second thought. I had never used a bow, never shot a gun, and I even went 14 years without eating meat.

I remember it like it was yesterday. I was on my first ever online date with a guy named Eric, and he spoke the words "I am a bowhunter." I immediately flinched. Unsure and completely raw, I agreed to exchange some golf lessons for some shooting lessons. What was this hunting stuff all about?

Little did I know at the time, but my life changed forever. Big game draw deadlines, land access, Pope and Young, bugling, books about elk and deer, the rut, date nights with Eric to Cabela's, tree stands, rangefinders, grunt calls, bows, arrows, 3D targets, fletchings, guns, bullets, .243's, shotguns, and camo – so, so much camo.

After 18 months, three arrows, two bullets and a lot of hard work, I wish to express my gratitude to the hunting industry and what it stands for. I have said goodbye to the city girl vegetarian, and hello to a new way of life.

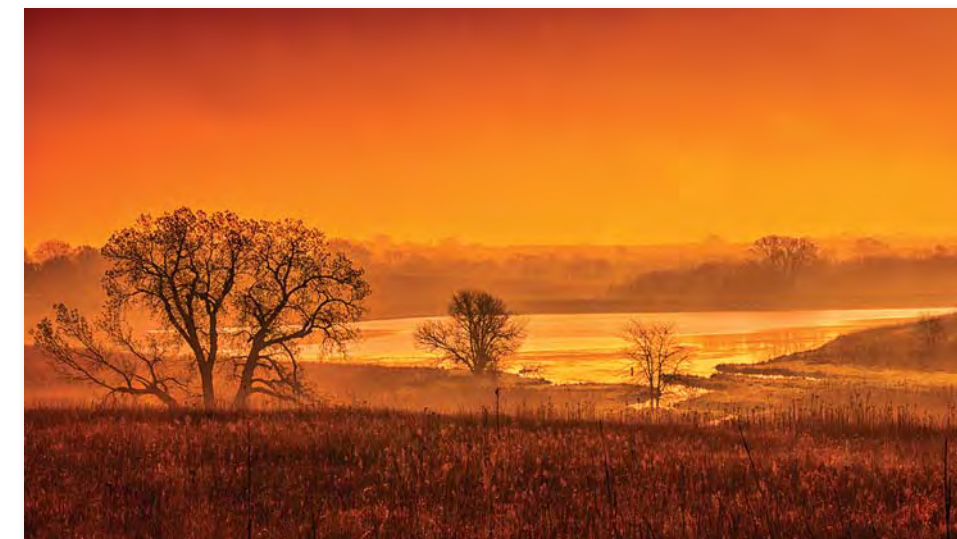
Thank you hunting for educating me.



Tiara Kush of Omaha took this photo at Standing Bear Lake in June "after an ugly line of storms passed through the area."



Casey J. Koltz photographed this dragonfly on the Upper Dugout Creek north of Bridgeport.



Bruce Thiel of Lincoln sent in this photo of Mayberry Wildlife Management Area just east of Burchard.



Dan Walter caught these bobcats on his trail camera on the Niobrara River southeast of Gordon.



Mark Deane photographed this blue jay feeding during the winter in Papillion.



Jim Gross of Burwell captured this trail cam photo on public land in Loup County.

A Girl Scout Thank You

Dear Nebraska Game and Parks Commission,

Girl Scouts in Nebraska recently wrapped up the 2016 Girl Scout Cookie Program. In recognition for the achievement of selling 500 or more boxes of Girl Scout Cookies, girls could choose from a list of incentives that are in line with our mission and our programming.

For the first time, we offered Girl Scouts a Nebraska Game and Parks Commission park permit, and it was our most popular incentive this season!

Thank you for helping Girl Scouts encourage Nebraska girls and their families to head outdoors and explore their state.

Denise M. Moore
Girl Scouts Spirit of Nebraska

Bruce Thiel submitted this photo of the Filley Stone Barn outside Filley in Gage County.



Ryan Jones of Seward took this photo of fox kits on a friend's farm in Seward County.



Mel Flick captured this pheasant photo south of Morrill.



Outdoor Plates

Matt Hover of Omaha has been hooked on pheasant hunting since he first tagged along with dad and grandpa at age 5 about 35 years ago. Nearly every fall weekend he can be found following his German shorthaired pointer through fields in southwestern or northeastern Nebraska with friends and family.

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

Share your outdoor experience with us!



#NEGameAndParks



Photo Contest for Readers

As you may have noticed, we receive a lot of great photos from our readers.

Some of these are published each month in our "From Our Readers" section, but we also want to bring attention to our annual photo contest, which is accepting submissions now with winners to be published in our December 2016 issue.

See our ad on page 79 for more details, and continue to send in your photos through Facebook and e-mail for possible inclusion in **NEBRASKAland**.

Happy Shooting.

-Editor

Corrections: In the last issue (July 2016), the purple loosestrife photo on page 28 should have been credited to Bob Grier, not Michael Forsberg.

-Editor

Send your comments to:

Jeff Kurrus, Editor
NEBRASKAland Magazine
P.O. Box 30370

Lincoln, NE 68503

or e-mail Jeff.Kurrus@Nebraska.gov

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

Bobcat

By Lindsay Rogers, Outdoor Education Specialist

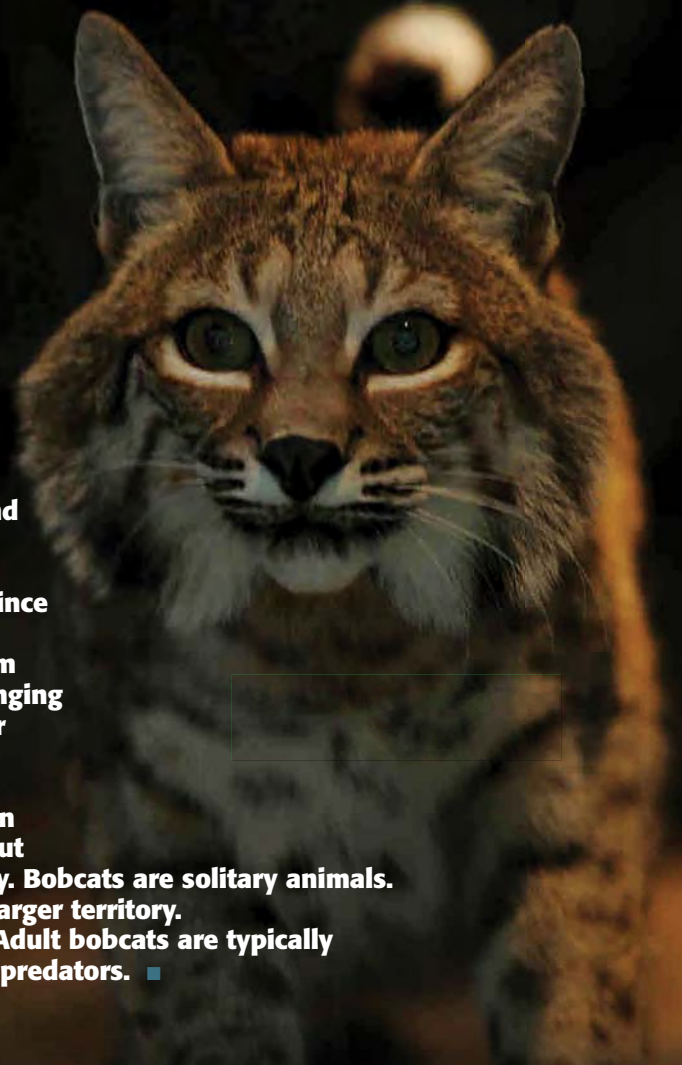
Lynx rufus

Named for their short, “bobbed” tail, bobcats are the most widely spread native cat species in North America. They are found throughout Nebraska in a variety of habitats, but are most common in areas where hunting and escape cover is near, such as forests, wetlands and edge habitat. They are not often seen, but fur harvest records indicate their populations have remained at a high level since greatly expanding during the late 1990s.

This elusive species is fairly small, ranging in length from 19 to 48 inches. They are amazing hunters, taking prey ranging from rabbits to deer. In typical cat fashion, they stalk their prey and pounce when ready, killing with a bite to the neck or head.

Bobcats typically mate in early spring with young born in mid-summer. The young remain with their mother for about eight months until they disperse to find their own territory. Bobcats are solitary animals. Several females may establish territories within a male’s larger territory.

Bobcats are most vulnerable to predators when young. Adult bobcats are typically capable of defending themselves or escaping most native predators. ■



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Travelogue

By Angela White, Nebraska Tourism Commission

Grand Island

Grand Island is Nebraska's largest city outside of the Omaha and Lincoln metro area. The town was named after the French LaGrande Ile, referring to a large nearby island in the Platte River. During the spring, a sandbar just south of Grand Island is home to one of the largest crane roosts in the world. More than 80 percent of the world's population of sandhill cranes converge on the Platte. Millions of migrating ducks and geese also arrive with them.

Those who love to learn about history and agriculture will also want to visit the **Stuhr Museum** and **Raising Nebraska**. The award-winning Stuhr Museum is an incredible way to relive pioneer history. The newly renovated Stuhr Building houses permanent history displays, an art gallery, and an interactive children's area. The museum is also home to a 1890s railroad town. Costumed interpreters act as pioneers, cooking on wood stoves, selling wares in the mercantile, crafting in the mill and hammering horseshoes in the blacksmith's shop. Festivals and holiday celebrations are held year-round.

Interested in agriculture? Raising Nebraska is a 25,000 square foot exhibit designed to let people see agriculture from every angle – from water conservation to soil health, from animal well-being to food safety, from economic impact to global hunger. Touring Raising Nebraska is free and open to the public Monday-Friday from 9 a.m.-noon and 1 p.m.-4 p.m., as well as the second Saturday of the month from 10 a.m.-noon.

Grand Island is also home to the **Nebraska State Fair** and **Fonner Park**. The annual fair features a great variety of concerts, a fantastic midway and agricultural competitions. A variety of popular concerts are scheduled in the Heartland Events Center during the fair and year-round. The 2016 State Fair will run from Aug. 26 through Sept. 5. Fonner Park features live thoroughbred horse races daily from mid-February through early May, along with year-round nationwide simulcasting. Located in the Fonner Park Concourse, The Nebraska Racing Hall of Fame is filled with racing memorabilia.

Those looking for a place to stay while in town will find a variety of options from campgrounds to comfortable hotels. Named for the winter stopover used by Mormon emigrants heading westward, **Mormon Island State Recreation Area** offers comfort and conveniences to campers and other travelers on I-80, as part of Nebraska's unique "Chain of Lakes." The first of these areas developed was Mormon Island. This area and companion **Windmill SRA** near Gibbon are the most intensely developed.

Grand Island also offers a diverse selection of restaurants sure to please any craving. Dining options range from steakhouses like **Texas T-Bone Steakhouse** to Japanese cuisine at **Fuji Steakhouse** and just about everything in between. A plethora of national chains line Merchandise Mile along Highway 281. Fast food, ethnic food and diners can all be had within a few blocks of the many stores in this shopping district. Downtown is peppered with unique, locally owned restaurants like **Wave Pizza Company** and **Banzai Beach Club**, which serves gourmet pizzas, and **Sin City**, which serves great burgers and breakfast. For more information go to VisitGrandIsland.com. ■



State Fair



Sin City

Grand Island



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Long before Photoshop, photographers had many darkroom tricks for doctoring photos, as in this early-twentieth century postcard by Nebraska photographer John Nelson (1864-1942). NSHS RG3542-141-4

A Brief History Those Fish Stories

By the Nebraska State Historical Society

Improbable fishing yarns have been around as long as fish and fishing. The *Norfolk Weekly News-Journal* in the summer of 1907 reported an escalating series of such tales from Verdigre, Neligh and Valentine. The *News-Journal* on July 26, 1907, found clues in these “fish stories” to the national character of Americans, particularly those in the West.

The *News-Journal* printed: “It is a rule of human thought that man constantly goes through the process of setting first one goal for his achievement, gaining that goal and then advancing the pegs to aim at further on and up ... Striking examples of this desire to accomplish always more and more, to move always further and further along the route of advancement in thought and action, has been found here in northern Nebraska within the past few days. Those fish stories have furnished the example.

“A few days ago a Verdigre dispatch in these columns told of a remarkable fish catch in the Verdigre creek. A small fish had been drawn out of the water when a very large catfish came along and swallowed the little three-pound fish and was hooked. After a struggle the monster catfish was landed. Steak from the catfish was enjoyed in a Verdigre restaurant for supper that night. The story had the ring of truth and the

fish editor of The News cordially believes that it happened. But that is neither here nor there.

“Western America is not satisfied to stand still. To remain stationary is retrogression, and the West goes forward. Came a story from Neligh next day. A much bigger fish had been caught at Neligh. First a small fish was hooked. On this as bait another hit. Then came the monster third fish to swallow both the other two. A man was drawn clear across the stream in trying to land the mammoth catch. It was a fish story pure and simple. But as a fish story it was a clever yarn. And fairy tale though it was, credit must be given to Neligh for the progressive spirit which prompts men to risk their all for the sake of going on and up.

“But even that was not enough. The further west you go the more progressive the people, according to popular theory. And the impression apparently had reasonable foundation. Valentine is located a couple hundred miles west of Neligh. Both are in Nebraska. But it took Valentine to set a new mark. Captain McCloud was fished out of the river. He was hanging to a clothes line rope. What was first thought to be a drowning person proved to be a catfish weighing 102 pounds. Was it true? Ask the cook. So shrewd a westerner as Dr. Warner of Butte asked The News if it were true. The sporting editor throws up his hands at the query. It sounded well. And at all events, true or untrue, it was seeing Neligh and Verdigre and going them one better. Surely Valentine paid to sit in the game.” ■

Visit the Nebraska State Historical Society’s website at NebraskaHistory.org.

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Details at: wcHeritageDays.org

By Craig Allen

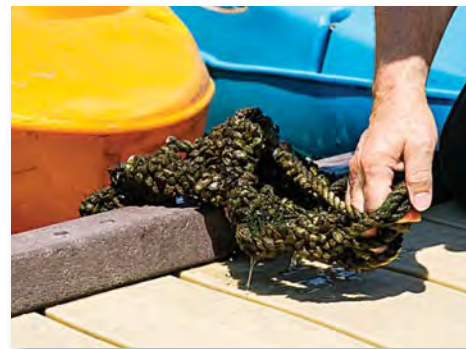
In Nebraska, zebra mussels have been found in Offutt Air Force Base Lake in Bellevue, Lewis and Clark Lake, the Missouri River below Gavins Point Dam, and just this year were rediscovered in Lake Zorinsky in Omaha. Biologists and managers are working to keep zebra mussels and other



Jim Higgins of UNL's NIMBUS aerial robotics lab prepares a drone for flight to test for zebra mussels at Offut Lake.



To test for zebra mussels, a drone has been fitted with a pump and filtration system that captures immature mussels.



If successful, UAV technology will help facilitate the work of biologists such as Allison Zach, the coordinator of the Nebraska Invasive Species Council, and personnel of the new Aquatic Invasive Species Program at the Nebraska Game and Parks Commission. ■



Dr. David A. Clark

Deb, from Atkinson, said this about the Potter Duckpin Bowling Alley, featured on the "Earth + Sky" tour:

To receive a copy of the 2016 Nebraska Passport, email info@NebraskaPassport.com with your name, mailing address and the number of booklets you'd like to receive. More information can be found on NebraskaPassport.com. Safe travels! ■

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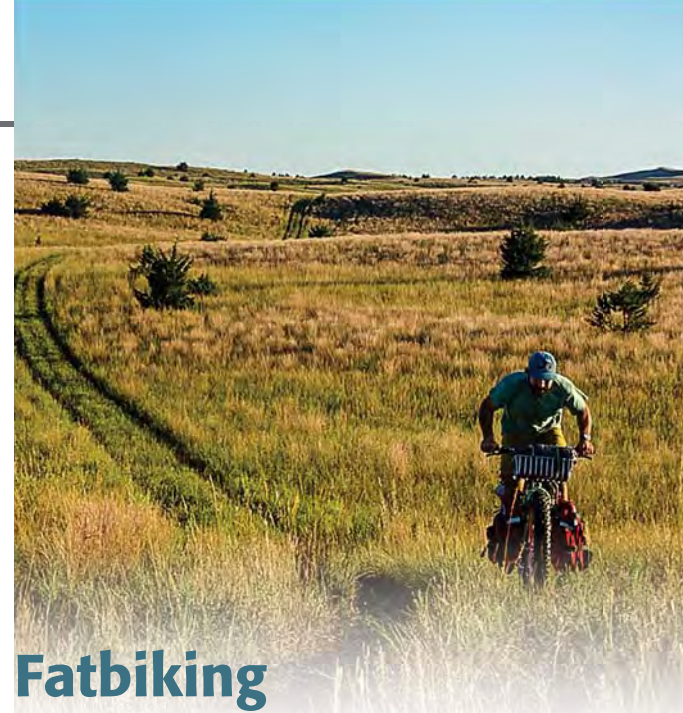


PHOTO BY JENNIFER HARRIS

Fatbiking

By Carl Gauger

The back roads of the Nebraska Sandhills have always been off limits to cyclists. Even a mountain bike's knobby 2-inch-wide tires sink into the sand, leaving you, quite literally, spinning your wheels. However, with the advent of "fatbikes," purpose-built mountain bikes with 4- to 5-inch-wide tires, a cyclist can float over sand, snow and rough terrain with far less effort than on a traditional bicycle. The wide, knobby, low-pressure tire, a disadvantage on smooth pavement or gravel roads, enables you to get the traction you need to propel yourself across the often soft and blown-out back roads of the Sandhills. Here are a handful of essentials that you need to know in order to have a good time.

Flat Protection - The Sandhills are riddled with sandburs, and riding a traditional tube and tire setup is a recipe for disaster. Talk to your local bike shop about setting your bike up "tubeless," a method that involves latex sealant inside of your tire rather than a tube. It fills holes as the punctures are created. Through years of riding this way in the Sandhills, I've never had a flat despite pulling hundreds of thorns from my tires. A less effective but cheaper alternative is to use a self-sealing tube, such as the Slime brand.

Low Pressure - This is key to maintaining traction in the sand, even with a 4 or 5-inch tire. Run as low as 5 to 7 psi, which will leave your tire soft and squishy, but will keep you hooked up even in loose sand.

Moisture Content - Unlike other types of off-road cycling, recent rain is your friend. The more moisture content in the sand, the firmer it is and better traction you will get.

Take Your Time - Don't expect to cover the same distance you would on a traditional bike. Fatbiking on sand is slow going, so take time to pause and look around! Because you're quieter than a vehicle, and covering far more ground than on foot, fatbikes are ideal for taking in landscapes and viewing wildlife.

Location - The best public places in the Sandhills to ride fatbikes are Nebraska National Forest at Halsey and Samuel R. McKelvie National Forest near Valentine. Detailed maps are available from the Forest Service. Fresh water from windmills, public facilities and campgrounds make these areas ideal for exploration by fatbike. ■

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By Paula Hoppe, Certified Master Naturalist

Spider hunting is probably not something most of us think about, but something that the kid in each of us needs to try. It doesn't take any special equipment: just take a flashlight or headlamp – and perhaps a little courage – and head out into the dark jungle of your back yard at night.

With your flashlight positioned near or just above your eyes, (the location of the flashlight is important) look out across the grass. A small, bright green glow or “eyeshine” in the grass means you have spotted a spider, and he is looking right back at you.

Most spiders have eight eyes, and their configuration can give you a clue as to what kind of spider you are observing, though this can be difficult to discern in the field. Two large eyes, with a small one on either side over a row of four smaller eyes is a good indication you've encountered a wolf spider.

Wolf spiders, Nebraska's largest



PHOTO BY JOEL SARTORE

The wolf spider is Nebraska's largest spider, and while its eyes shine black in studio photos like this one, its eyes glow green when shined with a flashlight at night.

spiders, are just one of a number of spider families that hunt or forage at night. These predators have an iridescent

layer called the tapetum lucidum located just behind the retina. This reflective layer bounces light back onto the photoreceptors in the retina, permitting them to see well in dim light. This, along with sensing vibrations, helps wolf spiders locate prey.

A tapetum lucidum is also found in some mammals and birds, producing that familiar glow we've all seen in car headlights alerting us to the presence of deer, raccoons and other nocturnal prowlers.

While spiders' eyes glow green, the eyes of moths and June bugs are revealed as little sparks of red or orange.

Spiders are beneficial neighbors, and as you gaze around you may be amazed to see the number of tiny predators that are patrolling your backyard quietly doing their job, keeping you safe from overwhelming numbers of pesky insects. ■

visit CHEYENNE COUNTY

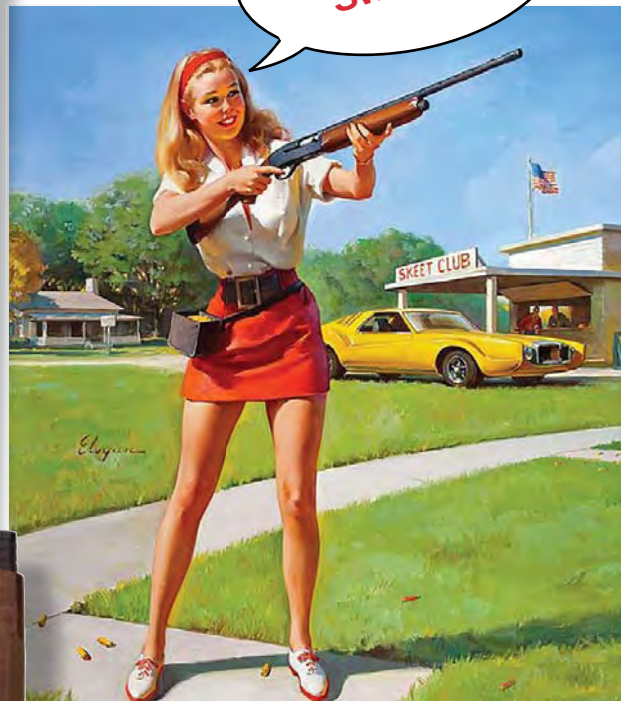
Sidney Dalton Gurley Lodgepole Potter

Upcoming Events:
 Downtown Sounds Summer Concerts - July 15th and August 5th
 Cheyenne County Fair and Rodeo - July 17th-23rd
 Potter Days - September 2nd-4th
 Old Settlers Days - September 3rd-5th

For more information on all that Cheyenne County has to offer, go to
www.sidneycheyennecountytourism.com
 OR contact the Cheyenne County Visitors Center
 658 Glover Rd., Sidney, NE
 (308) 254-4030 / (866) 545-4030



"Must... have... Sweet 16!"



16' for 2016

By Jarrod Spilger

Although the 16-gauge used to be a popular shotgun chambering, this classic gauge has recently fallen out of favor, largely due to a scarcity of ammunition and its exclusion from the target sports.

All that changed this year when Browning “reintroduced” the 16-gauge, “Sweet Sixteen,” A5. While that name may be familiar to many, this new A5 is not the Auto-5 of old.

The original Auto-5 was a long-recoil operated autoloader, wherein the entire barrel moved rearwards upon firing to cycle the action. The new A5 is inertia operated. A stout spring inside the bolt compresses upon firing to move the bolt and cycle the action. This is the same system found on Benelli autoloaders, but Browning's Sweet Sixteen is the only inertia powered 16-gauge available.

To feed the Sweet Sixteen, Browning also introduced a line of 16-gauge target and hunting loads this year.

Personally, I own a 16-gauge Remington 870 Wingmaster which I've used on everything from ducks and doves to turkeys and trap.

I also inherited my maternal grandfather's old 16-gauge Stevens single-shot when he passed away. He used it to hunt game birds in his younger years, as well as to protect the chicken coop from mammalian raiders on his farm near Farwell.

This spring, gunsmith Wade Bentley of Cairo restored the old single-shot, which had a missing firing pin and cracked stock. I hope to use Grandpa's gun on rabbits and maybe even quail this fall.

After all, 2016 is the perfect year to rediscover the 16-gauge. ■

NPS Turns 100

By Eric Fowler

On August 25, the National Park Service will celebrate its 100th anniversary. The movement to protect the nation's special places began long before that, but it continues today with the same mission as the bill signed by President Woodrow Wilson that was meant “to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

Soon after Euro-Americans began pushing westward, and the words and images of writers, artists and photographers like John Muir, George Catlin and William Henry Jackson describing the wonders they found in their new country spread, citizens began to push for the preservation of those magical places. The movement led to the Yosemite Valley becoming a California state park in 1864, and later a national park, and Yellowstone becoming the world's first national park in 1872.

Created to care for those parks and more than 30 others that had been established by 1916, the National Park Service now oversees a system that covers more than 84 million acres and is comprised of 410 sites with 28 different designations. These include 128 historical parks or sites, 81 national monuments, 59 national parks, 25 battlefields or military parks, 19 preserves, 18 recreation areas, 10 seashores, four parkways, four lakeshores, and two reserves. More than 300 million people visited these sites in 2015.

In Nebraska, there are three national monuments, a national scenic river, a national recreational river and four national historic trails. Several Nebraska state parks, state historical parks and state recreation areas are located along the trails and scenic and recreational river segments.

Many parks will hold special events to commemorate the centennial. For more information on the Park Service, go to NPS.org or FindYourPark.com. ■

The National Park Service in Nebraska

- Agate Fossil Beds National Monument, Harrison
- Homestead National Monument, Beatrice
- Scotts Bluff National Monument, Gering
- Chimney Rock National Historic Site, Bayard
- Niobrara National Scenic River, Valentine to Newport
- Missouri National Recreational River, South Dakota to Niobrara and Gavins Point Dam to Ponca
- Lewis and Clark National Historic Trail, Missouri River, Rulo to South Dakota
- Mormon National Historic Trail, Omaha to Wyoming
- Oregon and California National Historic Trails, Fairbury to Wyoming





Funds for Wildlife

By Jerry Kane

A nationwide panel of energy, business and conservation leaders on March 2 released its recommendations on how to avert the nation's growing endangered species crisis, according to the Association of Fish and Wildlife Agencies (AFWA).

The The Blue Ribbon Panel, co-chaired by former Wyoming Gov. David Freudenthal and Bass Pro Shops founder John Morris, determined that using a portion of revenues from energy and mineral development on federal lands and waters to fund state-based conservation could address conservation

needs for thousands of species.

An annual investment of \$1.3 billion from these development revenues into the unfunded Wildlife Conservation Restoration Program would allow state fish and wildlife agencies to proactively manage these species, reducing taxpayer costs and the regulatory red tape that comes when species are listed under the federal Endangered Species Act.

Annual allocations of dollars to the states would help address the gap in funding for wildlife conservation. Traditionally, state fish and wildlife agencies, such as the Nebraska Game and Parks Commission, have been funded by sportsmen through license fees and excise taxes on hunting and fishing equipment and motorboat fuels. These

funds support game species and conservation activities, but wildlife agencies also have responsibilities for restoring at-risk species' populations, education and keeping common species common, all of which is largely unfunded.

States are poised to take action should the Blue Ribbon Panel be successful. Every state has a wildlife action plan. Collectively, these plans identify 12,000 species in greatest need for conservation efforts.

Nebraska's wildlife action plan, the Natural Legacy Project, identifies 89 species of

greatest conservation need. Of these, more than two dozen species of plants and animals in Nebraska are listed as threatened or endangered.

If funded, Nebraska would collaborate with partners and landowners to implement proactive, voluntary projects to enhance our grasslands, combat invasive species, restore wetlands and improve our woodlands. ■



Piping plovers are found along shorelines, on mud flats and sand flats. In Nebraska, they can be found along the Platte River east of Lake McConaughy, and lower reaches of other major rivers.

State: **Threatened**

Federal: **Threatened**



The pallid sturgeon is a long-lived fish that matures slowly. Pallid sturgeon can live more than 40 years, reach 5 to 6 feet in length and weigh up to 65 pounds. In the Missouri River along the Nebraska border, they rarely exceed 10 pounds.

State: **Endangered**

Federal: **Endangered**



The swift fox, the smallest wild canine living in North America, can reach speeds up to 25 mph and lives in Nebraska's shortgrass prairies.

State: **Endangered**

Federal: **not listed**



The Salt Creek tiger beetle is one of the world's rarest insects, with very limited habitat. It is known to occur only in Lancaster and Saunders Counties in Nebraska, just north of Lincoln.

State: **Endangered**

Federal: **Endangered**



The small white lady's slipper is a perennial orchid found in native, wet meadows.

State: **Threatened**

Federal: **not listed**

Bug Banter

How to Quarantine Emerald Ash Borer

By Julie Van Meter
State Entomologist, Nebraska
Department of Agriculture

The Nebraska Department of Agriculture confirmed the first find of emerald ash borer (EAB) in the state on June 8. This invasive beetle was discovered in ash trees at Pulaski Park in Omaha by arborists with the City Parks Department. A second infestation was confirmed in Greenwood on June 17. Nebraska becomes the 27th state to confirm an EAB infestation since it was first found in Michigan in 2002.

"While it is unfortunate that we have confirmation of the pest in Nebraska, it is not unexpected, considering the close proximity to confirmed pest infestations in Iowa, Missouri and Kansas," said NDA Director Greg

Ibach. "The Nebraska Department of Agriculture, along with the United States Department of Agriculture, the Nebraska Forest Service and members of the Nebraska EAB Working Group have been preparing for the possibility this pest would enter the state."

NDA has issued a quarantine covering Cass, Dodge, Douglas, Sarpy and Washington counties, which prohibits the distribution of all ash nursery stock originating within the quarantine area, and regulates the movement of all hardwood firewood and mulch, ash timber products and green waste material out of the infested counties.

The quarantine is intended to aid in the prevention of human-assisted spread of the pest into uninfested areas. A USDA quarantine is also expected, and NDA and USDA staff will work with the public and impacted industries to ensure compliance with the quarantines. NDA staff will continue to set and monitor EAB traps and conduct visual surveys across the state to identify additional infestations.

The Nebraska EAB working group offers the following suggestions:

- Prevent the spread of EAB by using locally-sourced firewood, burning it in the same county where you purchased it. Infested firewood can easily transport EAB and other invasive pests.

- Only high value ash tress located within 15 miles of a known infestation should be considered for treatment. Trees that are experiencing declining health should be considered for removal.

If you feel you have located an EAB infestation, please report it to the Nebraska Department of Agriculture at 402-471-2351, the Nebraska Forest Service at 402-472-2944 or your local USDA office at 402-434-2345.

Additional information on EAB, including the quarantine information, can be found on the NDA website at: NDA.Nebraska.gov/Plant/Entomology/EAB/. For Nebraska specific recommendations and guidelines on EAB, visit EABNe.info. ■



YOU NEVER KNOW WHAT IS LURKING IN YOUR FIREWOOD

Invasive pests like Emerald Ash Borer can move in firewood.

BUY LOCAL, BURN LOCAL.

www.nda.nebraska.gov



Upcoming Events

by Jerry Kane

Contact the Nebraska Game and Parks Commission at 402-471-0641 or visit OutdoorNebraska.org for more information.

August 1
Squirrel season opens

August 1
Outdoor Skills Club Nebraska Game and Parks Outdoor Education Center, Lincoln

August 1
Growing Up WILD Workshop St. Thomas Lutheran Church, Omaha

August 2
Family Fishing Event Prairie Queen Recreation Area, LaVista

August 2
Pollinators Workshop City Hall, Bassett

August 2
Growing Up WILD Workshop ESU 16, North Platte

August 2
Explore Bowhunting Nebraska Game and Parks Outdoor Education Center, Lincoln

August 2, 9, 16, 23, 30
Introduction to Competition Rifle Shooting Nebraska Game and Parks Outdoor Education Center, Lincoln

Aug. 2, 16
Women's Firearm Series: Introduction to Handguns Nebraska Game and Parks Outdoor Education Center, Lincoln

August 3
Family Fishing Event Mormon Island State Recreation Area (SRA) Lake No. 1, Grand Island

August 3
Family Fishing Event Recharge Lake, York

August 3, 10, 17, 24
Beyond BOW Summer Shooting Series: Shotguns Platte River State Park (SP), Louisville

August 4
Outdoor Photography Nebraska Game and Parks Outdoor Education Center, Lincoln

Fishing for bass at Wood Duck WMA

August 4
Family Fishing Event Holmes Lake, Lincoln

August 5
State Park Summer Speaker Series: By My Teeth Chadron SP, Chadron

August 5
Family Fishing Event Iron Horse Trail Lake, North Platte

August 5
Bighorn Sheep Final day for lottery applications

August 5, 12, 26, September 2
Explore Gun Safety and Technique Nebraska Game and Parks Outdoor Education Center, Lincoln

August 6
Raptor Recovery Two Rivers SRA, Waterloo

August 6
Family Fishing Event Red Willow Reservoir SRA, McCook

August 6
Waterfowl Hunting Safety Workshop Niobrara SP, Niobrara

August 6
Crittter Corner: Aquatic Mammals Nebraska Game and Parks Outdoor Education Center, Lincoln

August 6
Family Fun Night Red Willow SRA, McCook

August 6-7
Living History Fort Atkinson State Historical Park (SHP), Fort Calhoun

August 6 - September 3
Archery Fun Shoot Nebraska Game and Parks Outdoor Education Center, Lincoln

August 6 - September 3
Buffalo Cookout and Entertainment Niobrara SP, Niobrara

August 8
Fall Turkey permits available beginning at 1 p.m. Central Time

August 11-14
The Trotter's Performance Fort Robinson SP, Crawford

August 12
Family Fishing Event Fort Kearny SRA, Kearney

August 12
Growing Up WILD Workshop Harrison Elementary School, Omaha

Aug. 12
Project WILD workshop Harrison Elementary School, Omaha

August 12
State Park Summer Speaker Series: The Magical Ecological Mystery Tour Fort Robinson SP, Crawford

August 12-14
Ponca Pow-Wow Niobrara SP, Niobrara

August 12-14
Becoming an Outdoors-Family Camp Fort Kearny SRA, Kearney

August 13
Rimfire Steel Plate Fun Shoot Platte River SP, Louisville

August 13
Hooked for Life Youth Fishing Event Swanson Reservoir SRA, Trenton

August 13, 27, September 10, 24
Fishing Clinic Two Rivers SRA, Waterloo

August 14
Family Fishing Event Terry's Pit, Terrytown

August 14
3-D Archery Shoot Red Willow SRA, McCook

August 15
Elk private land antlerless season opens

August 15
Bullfrog season opens

August 16
Pollinators Workshop Public Library, Norfolk

August 18
Meeting Nebraska Game and Parks Board of Commissioner, Broken Bow

August 18
Bighorn Sheep drawing for lottery permit

August 20
Antelope archery season opens

August 20
Nebraska Nurses Association 5K Run/Walk Lake Minatare SRA, Minatare

August 20
Tandy Leather/Animal Hides and Leather Two Rivers SRA, Waterloo

August 22, 24
Introduction to Civilian Marksmanship Program Platte River SP, Louisville

August 26
Pollinators Workshop Ponca SP, Ponca

Aug. 26
Movie in the Park Calamus Reservoir SRA, Burwell

August 26 - September 5
Nebraska State Fair Grand Island

September 1
Hunting Seasons Open for cottontail, jackrabbit, dove, snipe, grouse, rail, raccoon and opossum

September 1
Niobrara-Verdigre High School Cross Country Invitational Niobrara SP, Niobrara

September 1
Archery, Season Choice, River Antlerless Private Land Only, Statewide Whitetail Buck, Gifford Point Wildlife Management Area (WMA), Youth, and Landowner deer hunting seasons open

September 2
State Park Summer Speaker Series: Celebrate National Archaeology Month Chadron SP, Chadron

September 2
National Park Service Presents: Missouri National Recreation River – A National Park Niobrara SP, Niobrara

Sept. 2, 9, 16, 23, 30
Families on Target Nebraska Game and Parks Outdoor Education Center, Lincoln

September 3
Fish Fry and Fireworks Indian Cave SP, Shubert

September 3
Crittter Corner: Ducks Nebraska Game and Parks Outdoor Education Center, Lincoln

September 3-4
Living History Fort Atkinson SHP, Fort Calhoun

September 3-5
Living History Fort Kearny SHP, Kearney

September 3-11
Early Teal hunting season in High Plains Zone

September 3-18
Early Teal hunting season in Low Plains Zone

September 4
Sidewalk Chalk Art with Bird and Emerald Ash Borer Program, Niobrara SP, Niobrara

September 4
National Park Service Special Event Niobrara SP, Niobrara

September 5
Labor Day Nebraska Game and Parks' district offices and service centers closed

September 8, 15, 22
Rifle Shooting Series Nebraska Game and Parks Outdoor Education Center, Lincoln

September 10
Night Owl 5K Run/Walk Niobrara SP, Niobrara

September 10
Family Fishing Event Barnett Park, McCook

Sept. 10
Women on Target Nebraska Game

and Parks Outdoor Education Center, Lincoln

September 11
Family Fishing Event Zoo Pond, Scottsbluff

September 12
American Paint Horse Association Trail Ride Fort Robinson SP, Crawford

September 15
Fall Turkey hunting season opens

September 15
Bull Elk archery hunting season opens

September 16
Great Park Pursuit final day of participation in and postmark deadline

September 16
Mainly Marathon Chadron SP, Chadron

September 17
Antelope muzzleloader hunting season opens

September 17-18
Missouri River Outdoor Expo Ponca SP, Ponca

September 24
Bull Elk firearm hunting season opens

September 24
Elk public land antlerless hunting season opens

September 24
Woodcock hunting season opens

September 24
Nebraska Youth Smallbore Silhouette Invitational Pressey WMA, Oconto

September 24-25
Competitive Horse Trail Riding Indian Cave SP, Shubert

September 25
Living History Arbor Lodge SHP, Nebraska City

September 30 - October 2
Autumn Harvest Art Show Eugene T. Mahoney SP, Ashland

September 30 - October 2
Becoming an Outdoors-Woman Workshop Ponca SP, Ponca

NEBRASKAland Visitor



Last issue's winner of the Visitor drawing was Ginne Pracher of Sturgis, South Dakota who found the **loosestrife beetle** on page 28.

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:

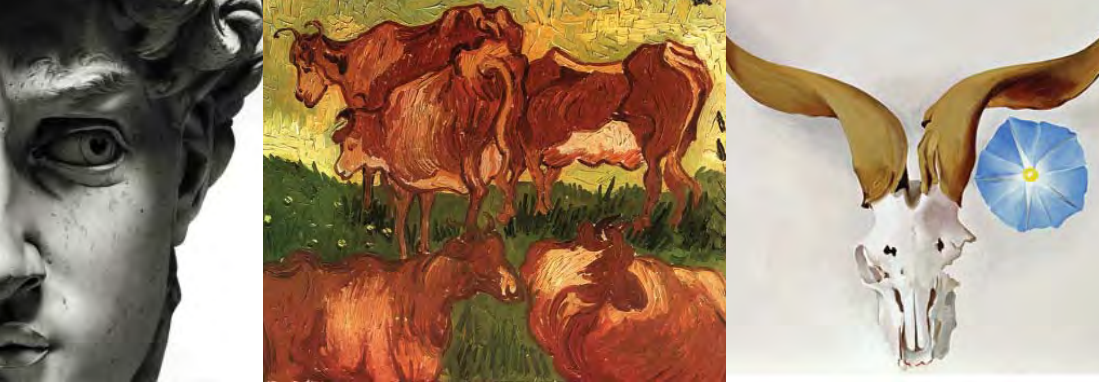
Tim.Reigert@Nebraska.gov with "Visitor" in the subject line of the message.

HINT: This issue's visitor is not on pages 5, 16, 19, 20, 22, 23, 25, 36, 46, or 70.

*This small, brown to tan insect is a **Galerucella beetle** (*Galerucella californiensis*). Originally from Europe, it was purposely introduced to North America for use as a biological control agent to suppress purple loosestrife (*Lythrum salicaria*), a noxious weed in many states including Nebraska. Adult beetles overwinter in the soil or leaf litter and emerge in spring to feed on purple loosestrife, giving leaves a shot hole appearance. Females lay eggs on the loosestrife, and larvae emerge and begin feeding. Initially larvae feed at shoot tips, then move on to leaves and stems. The leaf feeding creates a window-pane effect, with soft tissue eaten but veins and the upper epidermis layer left intact. All this feeding reduces plant growth and vigor, inhibits flowering, and weakens the plant, allowing native plants to better compete and reestablish.*

Special thanks to Julie Van Meter, State Entomologist, Nebraska Department of Agriculture.

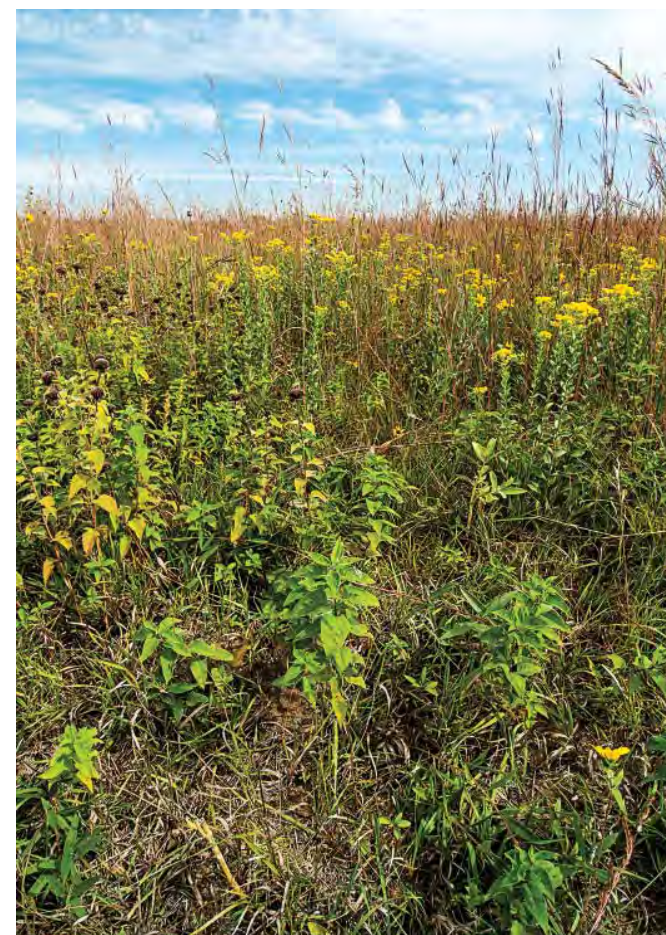




Habitat Artists

Story and photos by Chris Helzer

Cattle are seen by some people as big, dumb, ugly brutes that just stomp around and eat every plant they see. In fact, as many wildlife biologists know, a cow can actually be an incredible habitat artist. A regular



No mower can be as selective as cattle can be as they pick out the plants they do and don't want to graze.

Micowlangelo or Jackson Bullock. Vincent Van Cow? Georgia O'Beefe?

The artistry of cattle helps meet the needs of the diverse ecological communities that live in grasslands. Every animal species (including invertebrates) has its own individual habitat preferences. Some species seek out tall, dense vegetation, some like their vegetation short and sparse. Other species look for something in between – or need multiple habitat types, depending upon the time of season. By providing a variety of habitat patches representing the entire spectrum of vegetation structure types, land managers create hospitable places for most wildlife and invertebrate species to live. Ideally, the habitat structure of each patch changes from year to year, resulting in a kind of shifting mosaic of habitat patches across the landscape.

Mowing and burning are important strategies for wildlife managers, but both are mostly non-selective. When a prairie is mowed or burned, all the vegetation is affected simultaneously, and the overall habitat structure is fairly homogenous. Cattle, despite derogatory comments to the contrary, are smarter than a mower blade, and make choices about which plants they eat. They are very good at selecting the most nutritious plants at any particular time, so while they might have general preferences, their diet selection changes day by day. In June, for example, a cow might chew big bluestem plants right down to the ground, but in late summer when big bluestem is less tasty, the same cow will ignore it in favor of other options. It's not unusual for a cow to walk past sunflowers for months without giving them a second glance and then spend a whole morning eating every



Cattle can help wildlife managers maintain plant diversity for pollinators and other wildlife by selectively grazing grasses, tipping the competitive balance toward wildflowers as seen at The Nature Conservancy's Platte River Prairies.

sunflower they see. Sometimes it can be hard to tell whether that kind of behavior reflects a smart diet or just an artist's temperament. Regardless, selective grazing by cattle results in a patchiness no mower can create.

While it can be hard to predict the day-to-day dietary choices of individual cows, the overall grazing behavior of a herd is predictable enough that a land manager can set up grazing regimes aimed at specific wildlife habitat objectives. Perhaps the most useful grazing treatment for wildlife habitat is aggressive season-long grazing in a pasture followed by a couple years of rest. The repeated grazing of plants throughout the entire growing season does a couple important things. First, it creates and maintains a short vegetation structure that is valuable for a number of species. Fire and mowing can create short structure, too, but the result is temporary because vegetation starts growing back as soon as the treatment ends. Second, grazing the same plant

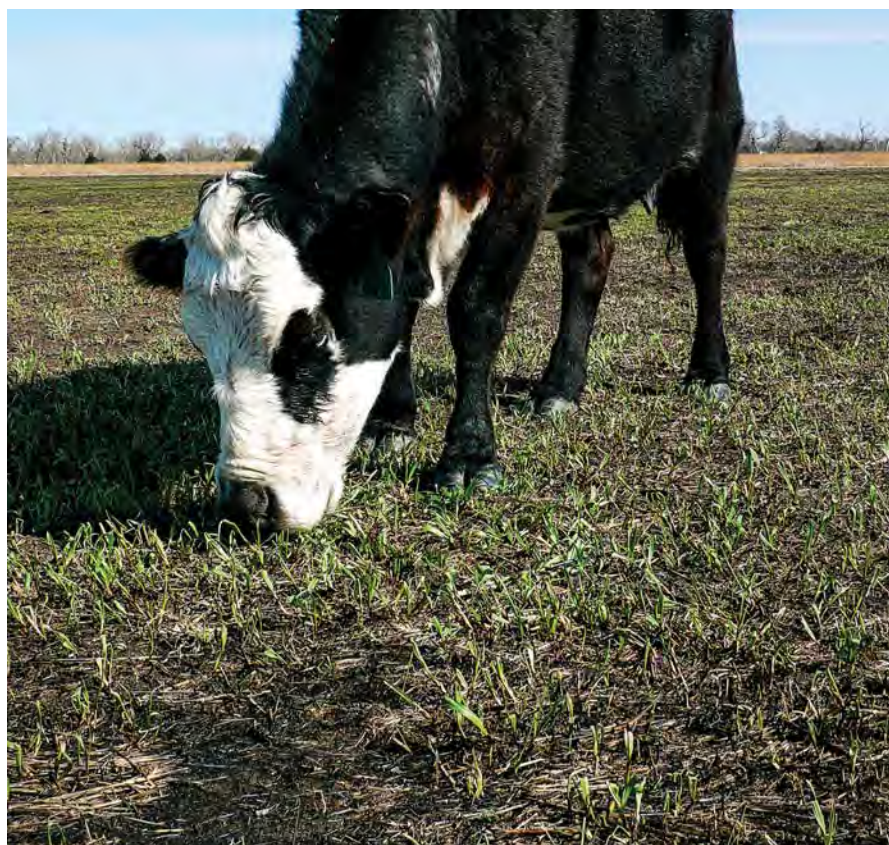
repeatedly weakens it enough that it can take a year or more to regrow its root mass. In the meantime, the loss of vigor by intensively grazed plants – especially grasses – temporarily opens up space for a profusion of 'weedy' plants. The resulting combination of short, weak grasses and tall, broad-leaved plants might be the most valuable and uncommon habitat structure in grasslands. It creates excellent brood-rearing habitat for grouse, quail and other grassland birds. It also provides favorable conditions for many insect, mammal and reptile species.



The stocking rate in a season-long intensive grazing pasture determines which plants will be grazed and how much of each plant is consumed. A light stocking rate allows cattle to be picky about their diet, and they eat only the best parts of their favorite plants. Under higher stocking



Above: The combination of short grass and tall wildflowers is excellent habitat for quail, pheasants, insects, reptiles and many other species. Only grazing can create that kind of habitat architecture.
Below: It might not look like it, but this cow is creating art.



rates, cattle eat more of each plant, but also broaden their diet to include plants they wouldn't necessarily eat under a lower stocking rate. When a large proportion of a plant is clipped off, it needs a longer recovery period than it would if only its leaf tips were grazed, and recovery takes even longer if that plant is grazed repeatedly over several months. That recovery period, highlighted by the kind of temporary weedy growth mentioned earlier, is incredibly valuable for many wildlife species, and also sustains plant diversity because it favors both dominant plants and those that flourish only when those dominants are suppressed.

The differing impacts from various stocking rates give land managers incredible flexibility in how they use cattle to manipulate habitat. Sometimes, even just the walking paths and patchy grazing by a few cows across a large area can improve habitat for wildlife that don't thrive when vegetation gets too dense. A



This area was grazed intensively a few years prior to this photo, but given time to recover, the grasses reasserted their dominance. While some wildlife need this kind of heavy cover, many prefer a more patchy vegetation structure.

slightly higher stocking rate can result in most grasses being grazed but only a small proportion of wildflowers, creating a heterogeneous vegetation structure while leaving plenty of blossoms for pollinators. Under even higher stocking rates, most plants are grazed fairly intensively, and it can take them a year or more to regain their previous vigor.

Cattle grazing can also be used as a very focused treatment to suppress invasive or overly dominant plant species by repeatedly clipping them off during their peak growing season. Smooth brome, reed canarygrass and other invasive grasses, for example, can form monocultures with very little wildlife habitat value. Because those grasses grow primarily in the spring, intensive spring grazing can keep them short and sap their energy. If cattle are removed as the growth period of those grasses is ending, summer grasses and wildflowers can grow unimpeded, take advantage of those weakened plants and become more abundant. Although the impact of this kind of grazing treatment is temporary – brome and canarygrass vigor returns within a year or two – applying intensive spring grazing every several years can diversify the plant community and improve wildlife habitat.

Using cattle as wildlife artists is still a growing field (so to speak), and land managers continue to learn how best to use bovine tendencies to create quality habitat. However, a few keys to success have emerged. First, it is important to manage a particular patch of habitat differently from year to year to maintain diverse populations of both animals

and plants. Second, it is important to periodically graze an area hard enough that it temporarily weakens the dominant grasses. Grazing rotations in which cattle leave a pasture before they graze the vegetation very short create landscapes in which habitat conditions don't vary much from place to place. More aggressive grazing, followed by long rest periods, provides better habitat contrast between pastures and better wildlife diversity. In addition, the recovery periods after intensive grazing often include the kind of temporary 'weediness' that is so valuable to many wildlife species.

As is common with other artists, most cattle are not appreciated for their good taste until after they are dead. While it's true that chronic overgrazing can degrade the quality of grasslands, it's unfair to paint all cattle with the same brush. Cattle can create unique and valuable habitat conditions for wildlife that may be impossible through any other means. Please, don't underestimate their value. ■

Chris Helzer is the Director of Science for The Nature Conservancy in Nebraska. He has been a contributor to NEBRASKAland since 1994. Chris blogs at prairieecologist.com.



A Life of Taxidermy

Story and photos by Sarah Kocher

Of all the titles they could go by – fixer, hairdresser, mixed media sculptor, zoologist, mortician – the people who take apart and rebuild animal bodies tend to stick to just one: taxidermist. According to Lincoln taxidermist JD Oenbring, this name is a pretty accurate one, because in Greek, “taxi” means “to move” and “derma” translates to “skin.”

For these professionals, the challenge is similar to that of the Six Million Dollar Man: take apart something fragile and temporary and build it back together as an indestructible substitute. It becomes exactly as it was before but, somehow, is simultaneously completely different.

In doing so, the processes of taxidermy and replica creation turn a body that was not meant to last forever into something with an incredible shelf life. Like an artist, each taxidermist’s

work turns out differently than the rest. Like a scientist, though, the general steps are widely respected and followed with precision and attention to detail.

When You Bag a Bird

Oenbring grew up on a farm where her parents raised show birds, so her specialization in the flight-inclined and feathered began with peacocks. Since then, she’s worked her way to turkeys, ducks, pheasants and geese, among others.

For all of these birds, the process is the same, and it starts the way many other jobs do: with paperwork. Each

bird is tagged to keep up with state and federal regulations as well as for Oenbring’s personal organization. Once a mounting pose has been chosen, Oenbring skins the bird out with one cut from the wishbone to the vent, right

along the belly line where the feathers don’t grow. The wing bones and leg bones are cleaned of meat and emptied of marrow with a pick. She holds the skin, now floppy and shapeless, to a wheel that looks like a wire bottle brush on steroids. It serves much the same purpose, too, degreasing the skin and removing fat like the world’s most aggressive steel wool.

The bird is then cleaned at least three times with Dawn dish soap, which works just as well for taxidermists as it does for baby seals rescued from oceanic oil spills.

“At this point, it’s almost like being

a hairdresser for feathers,” Oenbring said. She then blow-dries the skin, leaving the feathers fluffy and the skin slightly wet to maintain some stretch. This skin is then adhered to the body form, which is made entirely from foam. Initially, taxidermists used papier-mâché or wrapped hay bundles to build the body, but now the foam comes out of a taxidermist’s mold or in the shape of a form that is mass-produced and ordered from a catalog.

Next, Oenbring uses epoxy to sculpt the eye rings and finesse the shape of the head.

“Sometimes they [the heads] run

too big, too small ... one size doesn’t fit all,” Oenbring said. Instead, the taxidermists use these plastic molds as a rough shape to begin with, paring it down or building it up to fit the specific skins with which they are working. The wing structures, however, are filled with clay, and if the bird is to be mounted in a flying position, Oenbring pushes a wire up through the wing along the bone line, simultaneously giving it structure and flexibility.

As the skin dries, its colors fade. While the feathers don’t require any extra care, any portion of skin showing,

especially the feet and fleshy areas around the eyes, have to be painted to better mimic the bird’s coloration while alive.

The head, body and tail are all prepared separately and then brought together at the end for presentation, like an ornately complicated three-piece jigsaw puzzle.

When You Mount a Mammal

“A fair amount of taxidermy is just problem-solving,” Omaha taxidermist Branden O’Hare said. “You’re always just fixing one thing after the other.”



JD Oenbring smooths the feathers down to get a better feel for how this pheasant fits onto its form.





A bobcat hide, tagged and treated, waits for its turn under Branden O'Hare's careful eye.



O'Hare shows off his jaw and mouth molds, which he uses to add more texture and realism to an animal.



Branden O'Hare investigates the fit of an eye socket as he works on a hunter's deer. No two deer are alike, so part of O'Hare's job is sculpting the generic deer forms in places where hides may differ from deer to deer. On this one, it's the eye socket.

In this way, stuffing and mounting predators – O'Hare's specialty – and deer is a puzzle with a similar process to that of a bird's.

O'Hare, operator of O'Hare's Taxidermy, began to master these processes in a high school art class, when he set about restoring his grandpa's 50-year-old battered deer mount that had been shot in Nebraska's first ever deer season in 1951. He grew up loving hunting and art, and by meshing both together, taxidermy was a natural fit.

Mammals with fur or hair are a tag-team effort between taxidermists

and tanners. O'Hare will clean and salt-dry the hide, but then it is sent to a tanner for the treatment it needs to be workable and sustainable. While O'Hare acknowledges that this exportation slows turnaround, the quality, he says, is worth it.

Once the hide returns, though, O'Hare still has some fine-tuning to do. He thins the areas around eye sockets, lips and the nose.

"You get it so thin you can see light through it," O'Hare said. However, the majority of the manipulation required is done to the forms the pelt is stretched over. O'Hare said cats are

often quite noticeably off, a distinction attributable to inaccurate or ill-fitting cat skulls, specifically.

"Somebody just sculpted this bobcat form, so it's an artist's representation of a bobcat," O'Hare said. To counteract this problem in his own work, O'Hare has several casts he has made from previous conservation work that serve as points of reference for the cats he mounts now.

His reference collection doesn't end with casts; an accurate anatomy is only one aspect of an animal's life-like qualities. Each mount also has what Columbus taxidermist Daryl Keyes

calls "attitude." O'Hare replicates this attitude with a plethora of referential pictures: closed-mouthed cats, growling cats, alert cats, pouncing cats, sitting cats, cat ears, cat eyes, cat paws, and on and on. Hairless cats make especially good references because they show off every muscle and fold of skin.

The process for deer is identical: tan hide, edit form, add artistic details. All three taxidermists refer to deer as the "bread and butter" of taxidermy. O'Hare says he will do a deer a day during deer season.

"Everyone thinks taxidermy is great



Daryl Keyes works with pins and plastic to protect the delicate fins as he finishes a fish mount.

fun, kind of like art class and all that, but the reality is, a lot of it is in the prep,” O’Hare said. “It’s just a lot of getting ready to mount things.”

When You Fight a Fish (and Win)

The same is not true for fish.

Keyes, who owns and operates Pheasant Hollow Taxidermy, started taxidermy as a teenager by taking a correspondence course through the mail; he started with birds, shooting starlings with his BB gun to give himself something to practice on. Since then he has expanded, working his way through apprenticeships and hobby taxidermy into his own business. He

says that when it comes to fish, the post-mount paint work takes most of the project’s time.

Similar to other animals, the skin is removed from the fish meat, but with a fish, the skin is “carded”—tacked to foam boards to dry out and stabilize. Because a high percentage of

a fish is water, the fish skin shrinks noticeably more than other animals. The fish’s face and fins, then, must be rebuilt carefully.

Once the fish is dry and its shape and size have been mostly restored, the scales are sealed so the paint doesn’t soak in and Keyes begins immortalizing the fish. A fish’s color is actually drawn from the skin, and the scales add iridescence. Therefore, to restore the shimmer and color of the mount, Keyes uses metallic, pearl and powder paints as well as makeups, chalks and charcoal for painting and scale-tipping.

“I try to put some art into my fish especially,” Keyes said.

However, Keyes’ fish customers have a second option; for catch-and-release anglers or people fishing far away, all that’s needed is a picture. Replicas are built from high-quality forms ordered based on the fish you caught but, for whatever reason, don’t want to bring in. To create these replicas, Keyes also consults a plethora of reference photos. Because



The taxidermist’s bouquet: JD Oenbring’s turkeys wait for a body to complete them.

the coloration of different fish varies so much even within species, these reference photos help Keyes choose how to best recreate the fish’s details.

“You have to build all of that from a blank canvas, so if you have a picture, you have a road map to follow,” Keyes said.

The Hunter’s Role

For Keyes, O’Hare and Oenbring, the work begins after the animal is already dead. For their customers, however, the work begins the second an animal steps into their crosshairs or hooks onto their lines. Hunters are well aware that meat can spoil, but few remember that the rest of the animal is perishable, too, O’Hare and Oenbring said.

“Treat it like you would a steak,” Keyes said. “Don’t drive it around in the back of your truck for three days.”

O’Hare agreed: “The fresher it is when I get it, the better off it is,” he said.

Once an animal is dead, it needs to go into a freezer as quickly as possible. For fish, this is because they lose

their color as soon as they die. For mammals, freezing is smart because the bacteria that causes an animal’s hair to fall off prefer a wet and warm environment. Freezers, on the other hand, are cool and dry.

Oenbring recommended wrapping your animal in heavy-duty plastic to avoid freezer burn. Keyes said fish do best in a wet towel or old shirt, which freezes as a hard cast and protects the delicate carcass from any damage incurred by moving.

Doing It Right

Despite the calculations, the preparations and the science of it all, taxidermy still offers many challenges. The perils of working with once-live creatures are that imperfections are run-of-the-mill. The feathers fall out. The hide is damaged.

“The general public doesn’t understand how long it takes to do taxidermy,” Keyes said. “It’s time-consuming, tedious work and our materials are very expensive.” Keyes

estimated that 90 percent of his customers come in during two months, and the rest of the year is playing catch-up.

“I think the two biggest complaints that most customers have are ‘It takes too long’ and ‘It costs too much,’” Keyes said.

But, as O’Hare said, taxidermy is problem-solving. And each of these three, it seems, wouldn’t have it any other way, because according to Oenbring, their exact, quality work is a chance to make something that could be creepy become something beautiful instead.

“I feel like people can tell the difference,” O’Hare said. “People can tell when they’re done right.” ■

Sarah Kocher is Editor-in-Chief at the Augustana Mirror in Sioux Falls, SD. This is her fourth story in NEBRASKAland.



JD Oenbring specializes in birds, which means she has quite the collection of duck forms to choose from.

Time Well Spent

What to Do in August-September

By Renae Blum

With the end of summer in sight, make sure to enjoy every last bit of sunshine. Below are a few ways you can experience the official end of summer and beginning of fall to the fullest. For a complete list of upcoming events across the state, or for more information on any of the activities listed here, visit Calendar.OutdoorNebraska.gov. ■



PHOTO BY JUSTIN HAAG

Pollinator Workshops

Aug. 2, 16, 26

Various Locations

Pollinators – bees, butterflies, beetles and other critters that pollinate plants – are responsible for one out of every three bites of food we eat. They are also worth nearly \$20 billion to the U.S. economy annually. At these workshops, you'll learn more about these fascinating creatures, as well as how to make a pollinator garden.

Ponca Tribe of Nebraska Powwow

Aug. 14

Niobrara State Park

Traditionally, powwows celebrated the fall harvest, successful hunts, and all the births, deaths and weddings of tribe members during the previous year. They were also gathering places for relatives, friends and other tribes. At this modern powwow, join with the Ponca Tribe of Nebraska in celebrating their heritage. This family-friendly event will include traditional drumming, dancing and singing, with the chance for you to join in the festivities.

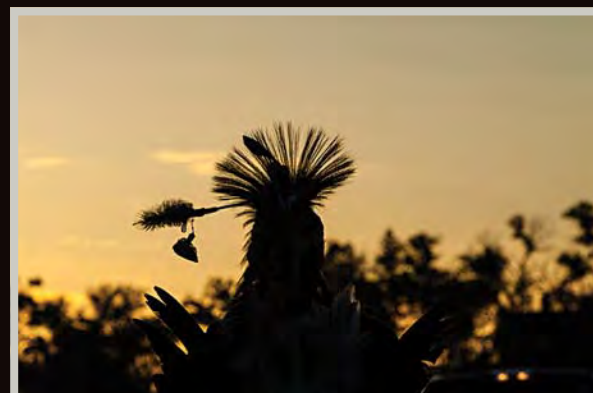


PHOTO BY JUSTIN HAAG



PHOTO BY BOB GRIER

Hunting Seasons Open

Various Dates

Statewide

August and September hold opening dates for hunting various species. For a complete list, visit OutdoorNebraska.org/HuntingSeasons.

Labor Day Weekend

Sept. 3-5

Various Locations

Over Labor Day Weekend, you can catch living history demonstrations at Fort Kearny State Historical Park and Fort Atkinson State Historical Park. You can also watch fireworks and eat fresh fish at Indian Cave State Park, enjoy a buffalo cookout at Niobrara State Park, and try out a sidewalk chalk art project while learning about the emerald ash borer at Niobrara State Park. Check the calendar for additional events.



PHOTO BY ERIC FOWLER

Teal Hunting

Shooting Limits at County Line

Story by Rick Wheatley and photos by Jenny Nguyen

As I was standing thigh-deep in the marsh, watching the stars reluctantly give way to the pink in the eastern sky, I could hear ducks in the distance calling out their greetings to a new day. I imagined how many times this scene has played out before me: the human hunter, waiting to take his game to feed his family and community. The equipment may be different, but the ducks, the people and the sunrises are still the same.

The morning sun peeps over the horizon as Jim Shaw of Lincoln scans the still-dark sky for teal at County Line Waterfowl Production Area in September 2015. Located in York and Fillmore counties, the WPA is part of Nebraska's Rainwater Basin region.



I was there to continue a family tradition of hunting teal on opening day with my cousin Keith Brown and his son, Pete. Keith – now 79 – is the reason I hunt waterfowl. He is a duck hunter of the highest order, having decades of waterfowling under his belt. He not only loves the hunt but is also a true conservationist fighting for water rights in this area we were hunting, the Rainwater Basin.

I am from California but often visited Nebraska as a child with my parents for vacation. My father, Joe, was from Falls City and from an early age I knew I belonged here in this state. But as I grew older, life got in the way of my dreams. Whenever I spoke with Keith, he would always tell me that I needed to come back and hunt with him. So after yearly trips of coming back to Nebraska to hunt in the fall as an adult – which always seemed too short – I made the permanent move in 2013. And I haven't looked back since.



TOP LEFT: Keith Brown of Lincoln (left) and Rick Wheatley of Omaha set up a small duck spread in the dark.

TOP RIGHT: Teal and other birds zoom and zig-zag over the marsh at County Line Waterfowl Production Area after sunrise.

OPPOSITE: Bryan Grove (left), Keith Brown and Pete Brown of Lincoln try to identify incoming birds.





TOP LEFT: The seeds of smartweed, a common wetland plant, are eaten by many waterfowl species, including teal.

BOTTOM LEFT: The author, Rick Wheatley, walks through the marsh at County Line Waterfowl Production Area.

OPPOSITE: Female green-winged and blue-winged teal are kept dry in a floating sled. Teal are some of the tastiest waterfowl that Nebraska has to offer. Remember to keep game as clean, dry and cool as possible for best table fare.



County Line Waterfowl Production Area is located half in York County and the other half in Fillmore, 3 miles south and 2.5 miles east of McCool Junction. It totals 406 acres, including 224 acres of wetland and 182 acres of upland habitats.

That day at County Line, we were about to reap the rewards of Keith's and the Friends of the Rainwater Basin's hard work. My first year in 2014 was a learning experience as I had never hunted teal before then. As the sun rose, birds catapulted across the sky. We crouched low in the reeds, looking skyward and in they came like mini fighter jets buzzing all around us from different directions. These small ducks took me by surprise with their speed and low-flying acrobats, and it took a few shells before I connected with my first bird. As I picked it up, I proudly showed it to Keith, and he smiled and said, "There's more where that came from."

The 2015 opener was no different. With the morning light, the birds came in, and being rusty from months of no shooting, I took several shots before downing my first bird of the season. By mid-morning, we all had our teal. But more importantly, I felt that I was now a permanent part of my family's tradition. ■



Grouse Hunting

By Julie Geiser

A primer for the prairie grouse season in Nebraska

Prairie chickens and grouse inhabit remote areas hidden within mile after mile of rolling prairie hills and grasslands punctuated by an occasional windmill, hay meadow, shrub thicket or cedar tree grove blended in the landscape. For those willing and able to walk several miles for birds, it's a hunt made of peaceful scenery and lasting memories.

Hunting the Hills

Most of the prairie grouse's range in Nebraska is in the Sandhills region covering the northwestern and north-central parts of the state. These rolling hills are not for the faint of heart and hunters should be in good physical condition to conquer Sandhills hunting. The physical hardships of grouse hunting, however, are paid off by stunning views along with a bagged bird or two.

Part of a successful hunt is recognizing good bird habitat, using the time of day to your advantage and access to hunting areas that have ample habitat. These will help cut down the number of footsteps a hunter takes.

Look for moderately thick, shin- to knee-high grass in hill valleys and areas where there are broad-leaved plants and insects – food sources for birds. Hillsides and tops should have tall grasses and shrubs, such as plum, chokecherry, poison ivy and wild rose.

Crop grounds and pivots can also produce birds feeding on corn, wheat, milo, grasshoppers, crickets and other insects and forbs. Later in the season, mid-October on, look for birds feeding

in harvested crop fields and areas with wild rose hips, poison ivy berries, cedar berries and any remaining insects.

Early Season Hunting

Some of the best hunting is early in the season as the birds haven't been hunted much and the weather is sunny and warm.

"Use weather conditions to your favor – temperature, wind, sun and the time of year will determine where you look for birds," said Lance Hastings, Nebraska Game and Parks Commission wildlife district manager in North Platte and an avid prairie grouse hunter. "I have my best luck early in the season when it's sunny, hot, with some breeze or wind. Mid-to-late morning if it's hot and breezy, I hunt areas with shade and out of the wind. Shade can consist of abrupt elevation change [topography], a single cedar tree or an immature shelterbelt, a lone deciduous tree, plum thickets, or tall grass shading some bare sand. I use the topography of the hills to determine where I walk to find birds, never walking in a straight line.

"Based on my hunting experience, I find sharptails in the higher, more abrupt terrain with rougher, larger hill ranges, and find prairie chickens in more rolling, gentle, sloping hills. There are areas in Nebraska with primarily prairie chickens, areas with primarily sharptails, and areas with both species present in the same areas of the Sandhills," Hastings added.

Birds can be found feeding in valleys with good habitat and low-to-mid northern hillsides in the early mornings and from mid-afternoon to sundown.

Mid-day you will find birds loafing along higher ridges, and early in the season birds will keep cool under plum, poison ivy, and chokecherry patches and take advantage of shady spots with cool breezes on warm days.

Late Season Hunting

As the weather cools and winter nears with temperatures consistently dropping below 40 degrees, look for birds on southern slopes, downwind from ridges as they will sun themselves and feed on any remaining insects that will be attracted to thicker weeds or shrubs and the warm sun.

TJ Walker, a district wildlife manager with the Commission, tries to approach birds that are feeding on insects by walking with the wind and circling out and around the thicker weedy spots then coming back over the ridge. "You can also walk cross-wind, following the base of or part way up a slope to the areas where birds are finding insects."

Another tactic Walker uses is pass shooting. "Once the fall crops get harvested, find a spot between extensive rangeland and a field of corn stalks, bean stubble or other possible winter food sources. Go out in the evening and watch for prairie grouse flying into the field one to two hours before sunset and back out of the field after sunset. The next morning return to the spot where they crossed the fence and hunker down in the grass or weeds and wait for some pass shooting."

Walker's final tip is to "Watch your leads and try to hit them out in front of you or after they pass by. The birds are flying faster than they look as

they approach. If you end up shooting upward you will more than likely shoot behind them."

On windy, colder days birds will spend the afternoons congregating in areas out of the wind, preferably with some sun just below ridge tops.

Right after a snow, groves of hardwoods and cedars are good locations to target grouse. They like to sit in the trees, and if it's sunny in the mornings, they'll soak up all the sun they can get and search for food. Look for food sources that will be easily available and not covered by snow to find birds.

Dogs in the Field

A good dog is an asset for the upland bird hunter as downed grouse can be difficult to find in heavy cover. Marking locations where you see birds go down can lower the odds of losing them, but a hunting dog is instrumental in finding lost birds.

Sandburs and cactus can be hard on dogs' feet in the Sandhills; a set of dog boots will help your four-legged friend in the field. Porcupines and rattlesnakes may also be encountered when hunting. Keep an eye on your dog's behavior; persistent barking and jumping back and forth in one area is usually a sign of trouble. Be prepared for incidents by carrying tweezers and needle-nose pliers to remove cactus or quills.

Snake vaccinations for your dog can be administered earlier in the year to prevent reactions to rattlesnake bites. Lastly, be sure to bring water for your dog, especially early in the season when weather is generally hot.



Julie and Tom Geiser's dog, Annie, poses with bagged grouse on a pickup tailgate in the sandhills area of the Nebraska National Forest in Thomas County.

Guns, Loads and Laws

Most hunters use 12- or 20-gauge shotguns with improved cylinder and modified chokes early-to-mid season. Birds haven't been hunted and aren't spooked so they usually don't flush until you're in range. Warm days and windy days may provide closer shots. Use shot-shells loaded with 1½-ounce of No. 6 or No. 7 shot.

Late-season birds will most likely be taken at longer ranges. Shooting an unplugged semi-automatic or pump shotgun this time of year gives hunters a well-needed advantage. During the winter birds will form groups, which means more eyes are on the look-out and birds have generally been hunted, making them leery. When longer shots are needed pull out the full choke and heavier shot loads. Non-toxic shot is required when hunting on waterfowl production areas, national wildlife refuges and some state wildlife management areas, as posted.

Nebraska is divided into east and west zones by U.S. Highway 81 for prairie grouse hunting, each with their own daily bag and possession limits. The east zone requires a special grouse permit, while the west does not. Season dates are from Sept. 1, 2016 through Jan. 31, 2017 for both zones.

There are many public lands on which to hunt prairie grouse; hunting is allowed in season on all state wildlife management areas, some state recreation areas and many federal lands unless otherwise posted. Some special regulations may apply on federal refuges. Hunters need a Nebraska hunting permit and habitat stamp to hunt upland game. Grouse may be hunted from 30 minutes before sunrise to sunset. ■

More information about regulations and places to hunt are found in the 2016 Hunting Guide and the 2016 Public Access Atlas, both available in print or at outdoornebraska.org.

Field Care

The early season can be quite warm in Nebraska making it essential to field dress and cool birds quickly to prevent spoilage.

Bring a cooler of ice for the ride home and stuff the dressed body cavity with ice to keep the meat flavorful.

When transporting grouse, hunters must leave the head or one leg attached for identification while in the field or for the ride home.

Transition Time

By Jeff Kurrus

From August through September, a world of transition occurs throughout Nebraska, a transition that is witnessed by outdoor enthusiasts as they make their own shifts to welcome in the new season's beauty and abundance.



PHOTO BY JUSTIN HAAG



PHOTO BY JUSTIN HAAG



PHOTO BY JUSTIN HAAG

ABOVE: The stock-still water of a pond reflects the colors of autumn at Gilbert-Baker Wildlife Management Area north of Harrison.

OPPOSITE: Late-blooming flowers such as the viscid aster attract a bevy of activity from six-legged visitors such as the bumble bee and Colorado plains soldier beetle.

LEFT: For many mammals, such as this bachelor herd of pronghorn on the Oglala National Grassland, the coming of fall brings the annual challenge of finding mates and passing genetics to a new generation.

The dog-days of summer see most anglers waiting for the early- and late-day hours to wet a line, but a few die-hards will look for fish hiding under mats of aquatic vegetation when the sun is at its highest point.

Some will venture into the heat on foot or two wheels, hiking and biking on trails throughout the state. Others are content to explore backroads in the comfort of air conditioning. But all will find the many botanical wonders produced during spring and summer and a scene that changes by the day.



PHOTO BY JEFF KURRUS



PHOTO BY JUSTIN HAAG

BOTTOM RIGHT: With the landscape abuzz with a wide variety of insects and other creatures, fish have become accustomed to getting their food from resources above the water's surface. Anglers are wise to follow the cue and mimic such top-water prey.

TOP RIGHT: As mornings and evenings become cooler, the look and feel of a trusted firearm goes along with the allure of autumn's splendor as hunters take to the field.

OPPOSITE: Marty Hughes, of Lincoln, fishes from a kayak at Wanhoo State Recreation Area in Wahoo in Saunders County.



PHOTO BY JUSTIN HAAG



PHOTO BY ERIC FOWLER

Jackets are now needed for early morning walks to see still-blooming asters, sunflowers, and sumac that has started to turn red. Soon, frost will arrive, first in the northwestern corner of the state, and in some years in the east by September's end. Autumn, and the cascade of color that it brings, has begun. ■



PHOTO BY JUSTIN HAAG

Others remain close to the water, keeping cool on the beach or in the pool, or occasionally abandoning their kayak on a paddle down a river or across a lake.

When Labor Day weekend arrives, summer lovers fight on a bit longer, reluctant to park the boat just yet, while hunters embrace the parade of opening days for pronghorn, deer, squirrel, grouse and other seasons.

TOP LEFT: Often the first hint of the approach of fall, sumac glows red at Branched Oak Lake SRA/WMA near Malcolm.

BELOW LEFT: Raptors such as the red-tailed hawk seek rodents and other small prey, building reserves for upcoming journeys southward.

RIGHT: The spiraled hair-like achenes of mountain mahogany at Wildcat Hills State Recreation Area near Gering are among the visual wonders that greet the eye this time of year.



PHOTO BY JUSTIN HAAG

Getting the Point

Story and photos by Justin Haag

The Artifact Road Show is helping researchers learn more about the distant, and not-so-distant, past of the Great Plains.

About 10,000 years ago, a man chipped away at a piece of stone with a goal in mind. With each strike, he carefully crafted a tool that would play a critical role in his survival. If his knapping skills were up to par he'd be able to deliver a fatal strike to a bison and help provide nourishment to himself and others in his tribe.

That prehistoric hunter would surely be amazed to see his handiwork again subjected to a high level of attention by the scientists on this day who have temporarily set up shop at the **Trailside Museum of Natural History** at Fort Robinson State Park. No doubt, the modern technology at the Artifact Road Show would look vastly unfamiliar to someone from such primitive times.

With high-tech imaging equipment, the researchers are making a three-dimensional digital replica of the artifact and recording all of its vital data. As the artifact arrives along with many other pieces belonging to the collection of a nearby rancher, students use its shape and other characteristics to categorize the spearhead as a Scottsbluff point – one of dozens of different types of projectiles that have been found throughout the High Plains. At another station, laser beams record every dimple and dent on the point and record them to a computer. At another location, a camera records high-resolution photographs. While all that is happening, the rancher is being interviewed at another station. By the time the rancher leaves the building with his collection of artifacts, the researchers will have everything they need to examine this artifact and others into perpetuity and add to an increasing body of knowledge about those who inhabited the Northern Plains and Midwest hundreds and thousands of years ago.

The artifact is just one of thousands that have been recorded during the past few years by the Artifact Road Show sponsored by the University of Nebraska Archaeological Field School and the National Grasslands Visitors Center.

The road show began in 2013 after conversations between Dennis Kuhnle of the U.S. Forest Service and Dr. Matthew Douglass, a professor of anthropology at the University of Nebraska-Lincoln. They were looking for a way to involve students in research, formalize a documentation process for artifacts and build an oral history for regions of Nebraska and South Dakota. So far, the project has included University of Nebraska students enrolled in the field school, master's degree students and graduates who are employed by

the U.S. Forest Service.

The concept of the event is similar to the popular PBS television series, "Antiques Roadshow," in which locals bring in cherished heirlooms for appraisal as the show travels throughout the United States. While these archaeologists do not assign a monetary value to the artifacts brought in by collectors and private landowners, they're answering questions about their age and who might have



Matthew Douglass and Amy Sobotka photograph a projectile point brought in by a local rancher using a turntable photogrammetry rig. Here the artifact is photographed from multiple angles to allow a 3D reconstruction to be created.

created them.

Perhaps most importantly, through this collaboration with locals, the researchers are covering a lot of uncharted ground for such study. Douglass notes that most archaeological work in Nebraska has been completed on public lands, which amount to less than 2 percent of the state's total area. That leaves a huge area undocumented.

Whether the setting is the Trailside Museum, which houses the Clash of the Mammoths and other prized fossils, or the community center at a small town such as Mullen, the show gathers important information. Each projectile point that is recorded helps add to the knowledge of the people who once lived on this land now known as Nebraska.

Interesting patterns have already emerged. The arrow and spear points from collections in northwestern Nebraska and the Sandhills range from those 10,000-year-old points to much newer historic metal trade points manufactured by Europeans and Euro-American blacksmiths and later copied by the natives.

"From the collections we have seen so far, we are noticing two time periods where we have very few points," he said. "These 'gaps' correspond to massive droughts in the Great Plains and suggest that private collections might help scientists to understand the relationship between cultural and environmental history in our state.

The two most notable gaps are from extensive periods of drought 8,500 years ago and just over 700 years ago. Research has shown that the latter event, known as the Medieval Warm Period, was dry enough to move dunes in the Sandhills.

"It's not surprising that we're seeing gaps, but it's really neat to see that the work being done with geologists is backed up by the projectile points of collectors," Douglass said.

Douglass said they are able to age the points by comparing shapes and other characteristics to those that have been collected among radiocarbon dated materials at other dig sites. Reference manuals, which have been created from that information, have been developed to aid identification.

Equally important to the items used by the historic peoples who inhabited the region are the stories that go along with their discovery, and other historical narratives. Along with collecting data about the artifacts, the project has been interviewing locals to build a collection of information about the history and development of the High Plains as we know it today.

The interviews focus on homesteading, early farm and ranch history, and personal accounts of life on the Great Plains. Some are recorded with people who have been suggested as experts of the region, others are with people who have just walked through the door.

"Through stories, we are gaining important information related to early settlement, the conditions affecting the success or failure of homesteads, and the impact of rainfall and drought cycles on this process," Douglass said.

The project's website is still in development, but people may see "a small sampling" of several hundred images and oral histories at Unl.edu/plains/your-united-states-national-grasslands.

While the focus so far has been in the Sandhills and Pine



Michael Chodoronek shows a point brought in by a local rancher and its virtual representation from recording through 3D laser scanning during the Artifact Road Show at Fort Robinson State Park.



The 3D laser scanner records a projectile point during the Show, sponsored by University of Nebraska Archaeological Field School and the National Grasslands Visitors Center.

Ridge regions, the program is just hitting its stride and researchers are entertaining invitations to set up their show at locations throughout the state. They're reaching out to Nebraska's many small museums and historical societies hosting an Artifact Road Show event. They'd also like to work with school teachers who want to involve their students in archaeology.

Just as the peoples of 10,000 years ago surely learned their chances of success were greatly improved with the cooperation of their fellow tribesmen, Douglass knows the success of this project hinges on the involvement of others. In that spirit, he's encouraging people across the state to become involved in the Artifact Road Show. They can watch their local news for an upcoming road show, or contact him or Kuhnle to arrange a location.

"We're the researchers and we're working really hard to learn about the history, but it's the people who live throughout the state that know so much about things we've never seen or heard of," he said. "It's through their collaboration that this is able to happen." ■

Nebraska's Bats

Story and photos by Eric Fowler

Threats ranging from disease to wind turbines are driving research that is allowing researchers to learn more about this unique mammal.

If you're like most people, you assume the winged creatures flitting through the sky at dusk from spring through fall are birds. Some are, mostly swallows. But if you take a closer look, you'll notice some have a different shape and wingbeat than birds. If you could get a really close look, you'd see they have hair, not feathers. And you might get a slight case of the creeps when you realize they are not birds, but bats.

More numerous and better known in parts of the country where there are more caves and mines, bats are common throughout Nebraska, with 11 species either living here year-round or migrating through the state, and two other species with few records that were likely wayward travelers.

The most common, big brown bats, which are actually quite small at a half to three-fourths of an ounce, are found statewide. They are often the ones you see darting through the evening sky, especially in older neighborhoods, where you may have them roosting in your attic or even find one in your house. Others are commonly seen above rivers, streams and ponds, or in woodlands. Bats provide a valuable service: an individual can eat hundreds of insects in a single night, providing billions of dollars of benefits to agriculture by controlling crop pests and reducing the number of mosquitoes we swat on a summer evening.

But all is not well with bats. White-nose syndrome, which is caused by a non-native fungus, has been decimating populations of hibernating, cave-roosting bats in the eastern United States since it was first discovered in 2006. It was first detected in Nebraska in 2015. The disease has led to federal protection of the northern long-eared bat, which is fairly common both in eastern Nebraska and in the eastern United States and was listed as threatened in 2015. It has pushed the Indiana bat, an eastern species which has been listed as endangered since 1967, to the edge of extinction.

The growth of wind energy is also a threat. The massive rotating blades of the turbines strike and kill flying bats, with losses the greatest in areas where populations are high and when bats are migrating.

Yet compared to other mammals, and even birds, little is known about bats. It is difficult to study such a small mammal which mostly roosts in dark, hard-to-reach places, and is active only when flying at night. The recent threats to populations and advances in technology, however, have helped boost bat-related research throughout the country. This is adding greatly to the knowledge base as researchers try to firm-up a baseline from which they can see what effect, if any, these threats will have on bats, and how that may affect the natural world around us.



After dropping in for a drink, a hoary bat flies from a spring-fed creek in the bottom of Bull Canyon in the southern Wildcat Hills in Banner County.



Keith Geluso, a professor at the University of Nebraska at Kearney, removes a big brown bat from a mist net he set above Soldier Creek at Fort Robinson State Park as part of a population survey of bats in the Pine Ridge he conducted for the U.S. Forest Service.

Bat IOI

Bats are the only mammals in the world that truly fly. They navigate the skies on wings that possess a bone structure resembling a human arm and hand. Stretched between elongated finger bones to its hind legs, and between its legs, is a thin membrane of elastic skin that forms the wing surface when a bat's arms and fingers are extended. Extending from the leading edge of the wing is a clawed thumb that, with its hind feet, allows a bat to cling and climb. Bats fly well and can make rapid changes in flight to catch insects or avoid obstacles. To drink, they swoop down over a stream, pond or stock tank, open their mouths and skim water from the surface.

They navigate the night skies not with vision, but with echolocation. Many species emit high-frequency sounds and, with their sensitive ears, listen for the echoes that bounce back from objects in front of them, a technique man has replicated in sonar. During the day most species roost in mines, caves, trees, buildings, cracks in rock faces or other tight, dark places. Some forest species such as red and hoary bats are happy to roost in trees in

broad daylight.

The smallest of Nebraska's bats, the eastern pipistrelle and western small-footed bat, weigh about one-sixth of an ounce, equal to that of a nickel, and have a wingspan of about 8 inches. The largest, the hoary bat, can weigh up to 1¼ ounces and has a wingspan of 13 inches. A bat's body is covered with soft, dense fur. Some have furred tails they can wrap around their bodies to conserve heat.

Bats are warm-blooded mammals that give birth to live young and nurse them with milk. Bats mate in the fall, winter or early spring. Females of some species delay fertilization by storing the male's sperm until they ovulate in late winter or spring. Gestation lasts one to two months. Females can carry their young to new roost sites until they can fly on their own at about four weeks of age, and wean them by six weeks. Some species form maternity colonies of a handful to hundreds of thousands of bats.

Some people say bats are just winged mice. But unlike mice and most small mammals, which live short lives and reproduce rapidly, most bats produce just one young per year, some up to four, throughout their lives. They can

live 10 to 20 years, and the oldest known bat lived to age 35.

While a few of the world's 1,100 species of bats eat fruit, nectar, blood, fish or small mammals, most, including all of Nebraska's species and nearly all of the 50 or so found in the United States, are insectivores. As such, bats found in colder climates such as Nebraska have two methods of surviving the months when insects are not available. Some hibernate, primarily in caves or mines, from mid-fall until insects emerge in the spring. Others migrate to warmer climates, returning in the spring.

As is the case with wild animals, Nebraska is a crossroads for bats. While some are found statewide, including the resident big brown bat, others are at the eastern or western edge of their range here. The resident long-legged bat, for example, is found only in the Pine Ridge. The ranges of some bats, like many other mammals, are shifting. The migratory evening bat, once found only in southeastern Nebraska, is spreading westward along the forests that have grown along rivers since fire was controlled and rivers dammed.

In summer, most bats roost in

Nebraska's Bat Species

YEAR-ROUND RESIDENTS

Big Brown Bat

Year-round residents and Nebraska's most common bat. Commonly roost in attics, barns and other buildings, as well as large, hollow trees. Summer female nursery colonies average about 100 bats. Females have one or two young per year. Hibernate in caves, mines, cellars, storm sewers and buildings that stay above freezing. Often take flights on warm winter nights to drink.

Little Brown Bat

Found in the eastern quarter of Nebraska, along the North Platte River in extreme western Nebraska, in the Pine Ridge, and along the Niobrara River. Roost primarily in buildings. Females have one young and form nursery colonies that can contain hundreds or thousands of individuals. Hibernating bats have not been found in the Pine Ridge and researchers believe that some might winter in caves in the Black Hills. Commonly found hibernating in mines in eastern Nebraska.

Northern Long-Eared Bat

Found in eastern Nebraska, along the Niobrara River across northern Nebraska and in the Pine Ridge, and also occurs along the Republican River. Roosts under peeling bark and in cracks of dead or live trees, and occasionally in buildings. Nursery colonies may contain dozens of females. Females have one young. Known to hibernate from October to March in caves and mines, but recent findings suggest they may also hibernate in cracks in cliffs.

Tricolored Bat

Formerly known as the Eastern pipistrelle, found mostly near limestone quarries in Cass and Sarpy counties, but some have been captured along the Niobrara River in Cherry County, in Dixon County, and from Happy Jack Chalk Mine in Greeley County. Hibernate in mines, rock faces and attics. Roost in trees in summer. The smallest of Nebraska's bats, weighing one-sixth of an ounce, equal to a nickel. Females bear twins.

Fringed Bat

The relatively few records of this western species are from the

Pine Ridge, Wildcat Hills and Pine Bluffs areas in western Nebraska. A year-round resident of the Black Hills, and likely Nebraska as well. Elsewhere it is known to breed, roost and hibernate in caves, mines and buildings, but recently researchers have found them roosting in ponderosa pine trees in the Pine Ridge. Females have one pup.

Western Small-Footed Bat

Western species found primarily in the Panhandle, but some have been captured along the North Platte River, in central Nebraska near Halsey and along the Niobrara River. Found in northwestern Kansas and may be present along the Republican River in southwestern Nebraska. Roosts in rock crevices, in buildings and under the peeling bark of trees. Hibernates in caves and mines. Females have one young.

Long-Legged Bat

Western species found only in the Pine Ridge. Females have one pup and form nursery colonies in tree cavities, under bark, in buildings and in rock crevices. Hibernate in caves and mines, likely in the Black Hills, but some may also winter in northwestern Nebraska.

MIGRATORY SPECIES

Hoary Bat

The largest of the bats found in Nebraska at 1.25 ounces. Solitary animals roost in the leaves or bark of trees or in other vegetation. Found statewide from May to October. Many more migrate through state to and from points north. It has the largest range of all North American bats, stretching from Argentina and Chile to the boreal forests of northern Canada, and is most common in the northwestern United States and the Plains. Females usually have one pup but can have as many as four.

Eastern Red Bat

Found in a variety of wooded habitats across Nebraska, including riparian and urban forests, the Pine Ridge, Wildcat Hills and Niobrara River valley. Colored orange to rusty red. Roosts in foliage of trees and other vegetation. Begins arriving in late April and most are gone by late-October. Recently found to winter

under the leaf litter on the forest floor in locations as close as Missouri. Females have two to five pups.

Evening Bat

Found only in southeastern Nebraska 20 years ago, this species is expanding its range westward along wooded river corridors, and is now found along the entire Republican River and the Platte as far west as Buffalo County. Females form nursery colonies in hollow trees, under tree bark and in buildings, and have twins. Present in Nebraska from April to late-September.

Silver-Haired Bat

Once believed to only pass through Nebraska in the spring and fall, the species is now known to breed in southeastern Nebraska, the Pine Ridge, and along the North Platte River. Some may even hibernate here in trees, buildings, mines and caves, but there are no winter records of the species here. Roosts under bark and in cracks in trees, and in sheds, garages and barns. Females bear twins.

OTHER SPECIES

Townsend's Big-Eared Bat

The only Nebraska record of this cave and mine-dwelling species common in the western United States came from the Pine Ridge in Sheridan County in 1972. A year-round resident of the Black Hills in South Dakota and also found in eastern Wyoming, researchers suspect there may be a few of this hard-to-net species in cave-like holes scattered around the badlands of Toadstool Geologic Park, the Pine Ridge or the Wildcat Hills. Females have one pup. Its very large ears are distinctive.

Brazilian Free-Tailed Bat

This colonial species is native to the southern United States, where it congregates in large numbers in caves in places like Carlsbad Caverns National Park in New Mexico, where visitors can watch them pour out of the cave at night as they leave to feed on insects. Fewer than 10 of the species have been found in Nebraska, likely young that lost their way during migration. ■



A western small-footed myotis huddles in the bark of a cottonwood tree in the Pine Ridge.

places much warmer than their winter hangouts, especially females. They find their way into attics, hang among the leaves of trees, or crawl into the cracks of cliffs or under tree bark. Some have night roosts in trees or cliffs, where they take breaks between nighttime feeding sessions.

Their appetite for night-flying insects is ravenous, and that alone is their primary value to the ecosystem in temperate climates such as ours. Bats eat everything from large moths and beetles to tiny mosquitoes and gnats, with some species showing at least a seasonal preference for certain types of insects. They are capable of consuming 40 to 100 percent of their body weight in a single night of feeding, which might amount to thousands of mosquitoes or more than one hundred moths. A single colony of 150 big brown bats in Indiana was estimated to eat nearly 1.3 million insects each year. The one million little brown bats lost to white-nose syndrome in the northeast would have consumed 700 to 1,450 tons of insects annually.

Some of the insects bats consume,

including flying moths and beetles that are the adult forms of crop pests such as the European corn borer, the western bean cutworm and three species of corn rootworm, can cause substantial losses in crop fields. A recent study estimated the insect control provided by bats to be worth more than \$3.7 billion per year, and possibly as much as \$53 billion, to agriculture in North America. This estimate was based on the increased yields farmers could attain, and the reduced costs of pesticides that would have to be applied if bats were not present, and even reducing the fungal diseases that are spread by insects.

The benefits of insect control by bats may have a public health benefit as well. West Nile virus, first detected in the U.S. in 1999, has sickened tens of thousands of people and killed more than 1,800 in the United States, including 67 in Nebraska. Now the Zika virus, which can cause defects to infants born by women infected during pregnancy, is spreading around the globe. Both are spread by mosquitoes, which are consumed en masse by bats.

White-nose Syndrome

In the winter of 2005-2006, bat biologists were called into action when people began finding dead and dying hibernating bats in a cave in New York with a white fuzz on their nose and other parts of their bodies. The following winter it was found in four more caves. The culprit was soon identified as a fungus and the disease took on the name of the outward signs of infection: white-nose syndrome.

Since then, white-nose syndrome has spread rapidly throughout the eastern United States and Canada. The fungus that causes it was first detected in Nebraska in 2015. And this year, it made a quantum leap to the state of Washington, the 29th state in which it was documented. The disease invades and ingests the skin of hibernating bats and causes them to wake more frequently during the winter, sometimes flying outside their hibernaculum or clustering near the opening, all of which depletes the fat reserves needed to survive winter. To date, the death toll is estimated at more than 6 million bats. In some caves, the floors were literally carpeted with carcasses, and losses ranged from 70 to 100 percent. In New York state, the disease reduced the population of little brown bats by an estimated 90 percent. Throughout the northeast, the northern long-eared bat declined by up to 99 percent.

The latter led the U.S. Fish and Wildlife Service to list the northern long-eared bat as a threatened species. The agency chose not to designate roost trees or hibernacula, the places in which they hibernate, as critical habitat for the species, a move that would have required special management considerations. Threats to those habitats were not the problem, the agency determined. It was the fungus that causes the disease.

The fungus thrives in the cool moist conditions present in caves and persists in the soil. It is believed to have hitchhiked here on the clothes or shoes of people who visited caves or mines in Europe or Asia, where native bats have become resistant to it. Man likely helped it make the jump over the Rocky Mountains or across the Pacific to Washington as well. Bats have taken care of the rest, spreading

the fungus from cave to cave and state to state in their day-to-day or seasonal movements.

The disease has been found to affect seven species of hibernating bats, including four found in Nebraska: the northern long-eared, little brown, big brown and tricolored bats. The fungus that causes it has been found on five other species, two of which, the silver-haired and eastern red bat, are found here. The symptoms are not always visible, and not all infected individuals perish. Monitoring has shown some cases of bats surviving infection, and population declines have slowed or stopped in some locations, giving researchers hope that bats had or are developing a resistance to the fungus. Some species, like the big brown bat, are more resistant to the disease than others. And while the northern long-eared bat may be among the most susceptible, the disease has placed the Indiana and gray bats, which both were listed as endangered prior to the arrival of white-nose syndrome, at risk of extinction.

No deaths or outward symptoms of the disease have been found in Nebraska, where the only positive sample came from an abandoned, century-old, underground gravel mine in Cass County. But researchers have only tested for it in four locations. As of yet, they have not been able to obtain access to huge underground limestone mines in Cass County which historically held large populations of roosting and hibernating bats.

Researchers are looking for ways to fight the fungus. The logistics of deploying any panacea that may be found to all hibernacula makes winning that fight unlikely, and most researchers expect it to continue its westward march and eventually spread throughout North America.

Wind Power

Another major threat to bats rose from the horizon before white-nose syndrome arrived, but has increased greatly since 2006: wind energy. The generating capacity in the United States has risen nearly six-fold since then to more than 61,000 megawatts, and there are now about 49,000 wind turbines operating in 40 states, including 890 in



University of Nebraska at Kearney student Cody Dreier swabs a tricolored bat for white-nose syndrome. The bat and others were collected as they hibernated in Happy Jack Chalk Mine near Scotia and returned there after testing.

Nebraska.

While wind energy has reduced the country's dependence on fossil fuel, there has been an environmental cost. The rotating blades of the turbines, some 130-feet long, can reach speeds of 179 mph and have been found to kill passing birds and bats. A recent study estimated between 140,000 and 328,000 birds are killed annually. Another study estimated 600,000 bats die each year, a conservative number that only looked at deaths during migratory periods. In both cases, the estimates were based on ground surveys beneath the turbines. Most bats are killed when they are struck by rotating turbine blades, but a few die from by the respiratory trauma caused by the sudden drop in air pressure around the blades.

The highest rates of bat mortality have been recorded at wind farms in the Appalachian Mountains in Tennessee and West Virginia, where bat populations are high. Surveys at wind farms in Nebraska turned up comparably fewer bats, but most are located in open grasslands where there are far fewer of the winged mammals.

The migratory hoary bat is killed by wind turbines more than any other species. Researchers speculate they may be attracted to insects that are found near the turbines, that they confuse the towers as trees and attempt to roost there, or that some other feeding or mating behavior is involved.

In many cases, companies have



Condensation covers the fur of a tricolored bat hibernating in Happy Jack Chalk Mine near Scotia.

been willing to work with regulatory agencies to monitor bat and bird mortality with pre- and post-construction surveys, including in Nebraska, where most voluntarily complied with requests by the Game and Parks Commission to do such monitoring, which is ongoing. Researchers looking for ways to reduce bat mortality are finding possible solutions. Studies have shown that rotating the blades of the turbines so



Mike Fritz, a biologist with the Nebraska Game and Parks Commission, searches the ceiling of an abandoned, century-old gravel mine in Cass County for hibernating bats to test for white-nose syndrome.



A northern long-eared bat takes flight after emerging from a gap in a cabin wall at Catron Camp and Retreat Center, a Girl Scout camp near Nebraska City. This bat and others established a maternity colony, the first documented in Nebraska, in the space between the walls of several of the cabins and came and went through a 1 centimeter wide opening. They continue to use the site.

they are parallel to the wind and barely spin when wind speeds are below the level at which they are capable of generating electricity – about 7.5 mph – can reduce mortalities by 30 percent. Another study said increasing those operating speeds to 18 or 20 mph cut bat losses by 40 to 90 percent. The decline is due to most bats flying when wind speeds are low.

Such adjustments are now being required by the U.S. Fish and Wildlife Service at facilities where not doing so could harm threatened and endangered species such as the Indiana and northern long-eared bat. In keeping with the “green” image of the renewable energy industry, the American Wind Energy Association, with support of many of its members, has agreed to voluntarily make these operating adjustments during the fall migration.

Research

The threats to bats from wind energy and white-nose syndrome have exponentially increased the amount of funding for and research being conducted on bats in Nebraska and elsewhere. Previously, most studies in Nebraska were conducted by university professors that had such an interest in the flying mammals that they often

funded the projects themselves.

Those researchers include the husband and wife team of Cliff Lemen and Patricia Freeman, both retired from the University of Nebraska-Lincoln, who continue to work in bat research and monitoring funded by the Nebraska Game and Parks Commission, the U.S. Fish and Wildlife Service, the schools and others. Also heavily involved is Keith Geluso, a professor at the University of Nebraska at Kearney who began his bat research as a boy with his father, Ken Geluso, who is retired from the University of Nebraska at Omaha but continues to help his son and others on bat research. Jeremy White, a faculty member at UNO, who also studied there under Ken Geluso, is also involved. While Geluso works in western Nebraska and the others in the east, they all work together on some labor-intensive projects.

Numerous graduate and undergraduate students at all three universities, including several working under Craig Allen at the Cooperative Fish and Wildlife Research Unit at UNL, and Mike Fritz, a Game and Parks Commission nongame biologist, are working on bat studies as well.

Until recently, Nebraska research has mostly involved using mist nets to catch bats coming to water to drink at night, or by crawling into caves and

mines to survey hibernating or roosting bats. These surveys continue to add to what is known about the distribution of Nebraska’s bat species, and has provided evidence of the expansion of the range of some species, including the evening bat, which Keith Geluso didn’t find along the Platte River near Kearney when he moved there in 2006 but now catches regularly.

When threats to a species appear, however, so does funding for more intensive research and the use of high-tech and costly methods. With a grant obtained by the Commission through the Fish and Wildlife Service, Lemen, White and Freeman worked on a two-year radio tracking study of northern long-eared bats at Fontenelle Forest in Bellevue, where Ken Geluso began surveying bats more than 20 years ago. Tiny transmitters were glued to the backs of 15 bats in Oct. 2014 with hope of confirming the belief that the species was hibernating in mines near Weeping Water and Louisville, where specimens were collected in the 1960s and 70s.

The bats stayed at Fontenelle longer than expected, some into November. Two tagged bats shrugged off the cold and simply didn’t leave their roost trees for seven straight nights. Most bats outlasted the battery life on their transmitters, which last just 10 to 20

days. Researchers conducting grid surveys by air but couldn’t locate the few that left before their batteries died, but at times they a single bat.

In the second year of the study, they abandoned the air search and set out a line of data loggers connected to receiving antennas on towers, and set the transmitters on 21 bats to work only at night, doubling battery life. One bat was recorded near Weeping Water two and a half hours after it left Fontenelle Forest, a 25-mile journey.

The study had many challenges and leaves questions unanswered. The range of the transmitters is three miles, but is only a half mile in woodlands, where the bats live. And the signal it emits can’t be heard when the bats are underground. So they don’t know if the bat they recorded near Weeping Water entered a mine or kept flying. And they don’t know if others went to the mines without passing the data loggers, to other points in Nebraska, or flew down the Missouri River and left the state. A larger sample could have provided better results, but funding limited the number of transmitters that could be used.

Keith Geluso and his UNK students are in the second year of their own radio tracking study in the Pine Ridge to identify the summer maternity roosts of species that are rare in Nebraska or being affected by white-nose syndrome in the east. Funded by the Game and Parks Commission and the U.S. Forest Service, the study tagged 20 bats in 2015 and 40 bats this summer.

The first year, the little brown bats they tagged all returned to roost in the attics of buildings at Fort Robinson State Park or in downtown Crawford, even one that was captured six miles away, a movement that surprised Geluso. The long-legged bat roosted in cliff faces. A few of the northern long-eared bats they tracked roosted in live cottonwood trees along creeks. Most other bats roosted under the peeling bark of ponderosa pine snags, of which there are plenty following massive wildfires in the region in 2006 and 2012. Some individuals roosted alone while others of the same species roosted in a group with 5 or 10 other females. One female moved its baby to a new tree every night. The information may help guide future management

by the U.S. Forest Service and the Commission.

Lemen and Geluso are leading another study at Happy Jack Chalk mine near Scotia that is implanting PIT Tags under the skin of bats that hibernate there, mostly tricolored bats. The tiny, glass-encased microchips contain a unique code that can be read at close range, and are widely used in wildlife research and by veterinarians to identify individual animals. Readers at entrances to the mine, which has 6,000 feet of honeycombed caverns, record when bats come and go. The data they collect will help researchers better understand when the bats use the mine. They are also putting arm bands on the bats they collect at Happy Jack, and in other locations around the state, and are surprised at the low recapture rates, leaving them to wonder where else the animals could be going.

Listen Up

Allen and his UNL students are using another high-tech tool in bat research, acoustic recorders, to get a big-picture view of the movements and habitat selection of bats. Since 2014, they have been placing ultrasonic microphones capable of recording the echolocation calls of bats in numerous locations around the state. Using software, they can look at the frequency and shape of the calls to help identify species.

One study, funded by the Nebraska Environmental Trust, has set a grid of 21 recorders that stretches roughly from Crete to Nebraska City and Leigh to Blair with the intent of learning when migratory bats arrive and leave the area. The recorders, placed on grain elevators, the observation towers at Platte River and Eugene T. Mahoney state parks and other structures, have



Researchers attach a radio transmitter to a northern long-eared bat captured at Fontenelle Forest in Bellevue in 2014, part of a Game and Parks Commission-funded study to determine where the species, which was listed as threatened in 2015, was hibernating.



Hundreds of big brown bats roost in gaps between concrete sections of an abandoned building at Camp Ashland, a Nebraska National Guard facility near Ashland.

the entire agricultural landscape. The UNL recorders placed in agricultural areas, however, are recording a greater number of bat calls than anticipated.

Another study, funded by the Nebraska Department of Roads, deployed 52 detectors across the state in 2015 to look for the northern long-eared bat. The work, which sampled 377 locations for six nights each, confirmed the range that previous sampling with mist nets had defined: eastern Nebraska, along the lower Platte River and along the Niobrara River west into the Pine Ridge. In 2016, the same 52 detectors are being deployed for a week in five different one-square-mile areas within the range to better understand how the species uses different habitats, including forest and water. The results will help the Department avoid bats during

shown there are indeed peaks in activity in the late summer and fall when bats are migrating. This fall, a high-intensity survey will put more recorders in a smaller area, which could allow researchers to determine the speed and direction of the migration.

Early data showed that microphones placed farther off the ground may better detect the movements of high-flying migrating bats. Some microphones recorded up to 1,400 calls in a single night, which could represent a few bats making many passes or many bats passing by. In 2015, a total of 580,000 bat calls were recorded from April to November.

Among the findings, the acoustic recorders may lend credence to the study that places the value of bats to agriculture in the billions. Some question whether those findings, based on a small sample area near prime bat habitat, could be extrapolated across

construction projects.

A third acoustic study, funded by the Commission, will look at the distribution and habitat selection of all bats in Nebraska, deploying 20 stationary and three mobile detectors in 38 different locations. This data will be used for the new North American Bat Monitoring Plan, a nationwide effort to collect data using acoustics, summer maternity colony and winter hibernacula surveys to identify population trends in all species on local, regional and range-wide levels. Nebraska is one of the first states to implement the program.

UNL students will also be probing cracks and crevices with specialized cameras to search for maternal roosts.

The acoustic detectors can do something researchers armed with mist nets cannot: be in the field night after night throughout the entire year, and be in many places at once. But the

microphones are only able to record bats that fly within 25 to 50 meters, so while they can sample a larger area than mist nets, it is still relatively small.

While the technology has been in use for more than 20 years, recent advancements, especially in software, improved its accuracy. Still, the technology is far from perfect when it comes to identifying species. The calls of some species are difficult to discriminate from others, and even the species that are believed to be easy to identify have varied calls. A study by Lemen, Freeman, White and a UNO student found that the four software programs used by bat researchers agree on the identification only 40 percent of the time.

Some researchers, and even the creators of the software, worry this will lead those using the technology to draw the wrong conclusions. Because they are not foolproof, many believe acoustic data should always be backed up with netting, especially to confirm the presence of a species not normally found in an area. But researchers admit mist netting surveys are also biased, as they sample a minute area and some species are harder to catch than others.

That said, Lemen, Freeman and White are using acoustic recorders themselves, sometimes simply to find the best places to set out their nets. In 2015, they used them to test a hypothesis that may be leading them to a new finding on northern long-eared bats.

This forest species is known to primarily hibernate in mines and caves, which begged the question as to why they are found along the Missouri, Niobrara, and Republican rivers and in the Pine Ridge, but not the Platte River. None of these areas have the typical hibernacula, but all have plenty of woodland habitat, and all but the Platte have rocky cliff faces.

Hypothesizing the bats were using cracks and crevices in these cliffs and rock faces, the researchers deployed their acoustic detectors in numerous areas across the state and found two rocky areas being used by northern long-eared bats, one near Ponca and another along the Little Blue River in Thayer County.

This fall and winter, they will use

acoustic recorders and, if they can secure funding, an infrared camera, to try and pinpoint the exact cracks the bats are using in the limestone cliffs near Ponca. If they can find the cracks, they will use harp nets to catch bats, and place data loggers in the cracks to measure and record temperature and humidity and see if the conditions are conducive to the fungus that causes white-nose syndrome.

They won't be entirely surprised if the species is using cracks as hibernacula, as the species is often found in cracks within the mines in which it hibernates. But it would be new information on this highly-studied species, and if the conditions in the cracks don't support the fungus, it could provide a refuge for the species across the Great Plains and even in the cave-rich east.

What We Don't Know

Thanks to current and past research, Nebraska is far ahead of many states when it comes to what is known about its bats. But researchers readily admit they know little about these unique night-flying mammals, and new findings continue to show they don't

even know how much they don't know.

They don't know, for instance, where the resident little brown and western small-footed bats that inhabit the Pine Ridge in the summer hibernate in the winter. Or if red bats seen emerging from the leaf litter on the forest floor at Indian Cave State Park last February were wintering there or just early migrants. And no one has spent much time to see if bats are roosting or hibernating in storm sewers in cities and towns across Nebraska, as they are known to do elsewhere.

They don't know if the losses from white-nose syndrome will be long lasting nationally, or if it will even affect bats in Nebraska. Or if wind turbines will have a lasting effect on hoary bat populations, of which researchers really have no firm estimate.

They don't know if a reduction in bat numbers will lead to an increase in insect populations and the problems that come with them, or if they will find that while bats do indeed eat a massive amount of insects, including mosquitoes, that they don't really control them.

A large-scale test of these questions is underway where bat populations

have been decimated in the Northeast, and the answer could come into focus in the coming years.

Researchers do know, however, that bats will be slow to recover from these losses due to their low reproductive rates, and that is what scares them.

It's all something to think about when you're out for a walk at dusk and look up and see what you now know is a bat darting through the sky, gobbling up insects. If you hadn't been thinking about it already. ■

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Hundreds watch as Nebraska Wildlife Rehab, Inc. volunteer Scott Hansen releases a big brown bat during Bats Over Omaha at the Joslyn Art Museum in May. About 250 bats that had been taken from buildings where they weren't welcome and then cared for through the winter were released during the educational festival, which draws around 1,000 people each year.

Fishing the Texas Rig

A tried-and-true way to catch bass.

By Julie Geiser

Avid bass anglers most likely know all about the Texas rig. Newbies to the fishing world may want to try this simple yet tried and true rig for bass, too.

The Texas rig is simple to set up and easy to use – it's also my go-to set up when nothing else will catch bass. I use this rig all times of year, with winter being somewhat of an exception, but I have caught fish in open water during the winter months with this rig, too.

For the beginner, start by sliding a bullet weight on the line, and then tie a 5/0 or 6/0 size off-set hook – EWG (extra wide gap) or my favorite, a Keeper™ hook – to the line, and thread your favorite plastic onto the hook. Use larger hooks for longer plastics and smaller hooks for smaller plastics. I poke a hole through the plastic then sink the hook back into the plastic for a virtually weedless presentation. For bass fishing I use at least 6- to



The Texas rig needs a bullet weight, off-set hook, and the angler's choice of soft plastics. The bait can be fished weedless, and is a go-to for many largemouth bass anglers throughout the year.

10-pound test line and a medium action rod.

Once you get started using the Texas rig you can add variations to your bass fishing tricks. Behind the weight add a bead onto the line as a noise attractor. When skipping worms into areas where you don't want a big splash or don't want the weight and plastic to separate under water where you know you'll hang up, keep the weight next to the nose of the worm by using rubber bobber stops.

The weedless presentation lets you fish a worm faster through large areas such as ledges, weed lines, weed beds or trees. The weight may hang up on rocks but it's a great way to feel the bottom and the bite. Fishing this set-up is easy: with the rod tip down pull up about two or three feet, then reel in the slack as you lower the rod tip and do it over and over feeling the weight hit bottom as you go. Sometimes fish hammer the presentation, while other bites are subtle, almost feeling like a snag. When you're not sure if it's a bite gently pull up on the line and hope the big one doesn't release the worm. If there is tension, set the hook.

Changing up the speed of the lure presentation can be done if bass aren't hooking. Let the worm do its work by slowly fluttering to the bottom if a faster presentation isn't getting bites. Let the worm sit on the bottom

for a few minutes, then give it a few short jerks and allow it to settle again, tempting fish to bite. Then continue lifting and lowering the line.

Changing plastics is another way to trick bass that won't bite. Keep the Texas rig but change worm colors, tail patterns or switch to crayfish or frogs.

During the spring and early summer the bite is on most of the day. Bass will actively feed, coming out of the cold semi-hibernation they've been in. Fishing shallows, weed beds and lines, structure, ledges and trees will produce bass. When summer heat takes its toll, the bite will taper off during the heat of the day with mornings and evenings producing the best bite. Fish can still be caught using the Texas rig by fishing deeper, shady areas.

Fall will find fish feeding to fatten up for the slower winter months ahead. Fall is a great time to fish with the Texas rig – they are eager to bite and will be in about the same areas as spring bass.

When there is open water during the winter months fish can still be caught but worm presentations are slowed down, allowing fish to get up the gumption to feed in colder water. On warmer and sunny winter days fish the shallows where bass will be at the water surface catching some sun before retreating to deeper waters. ■



Using a Texas-rigged plastic worm is effective at catching largemouth bass.

PHOTOS BY JULIE GEISER



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interesting notes for readers of all ages

by Lindsay Rogers and Donna Schimonitz

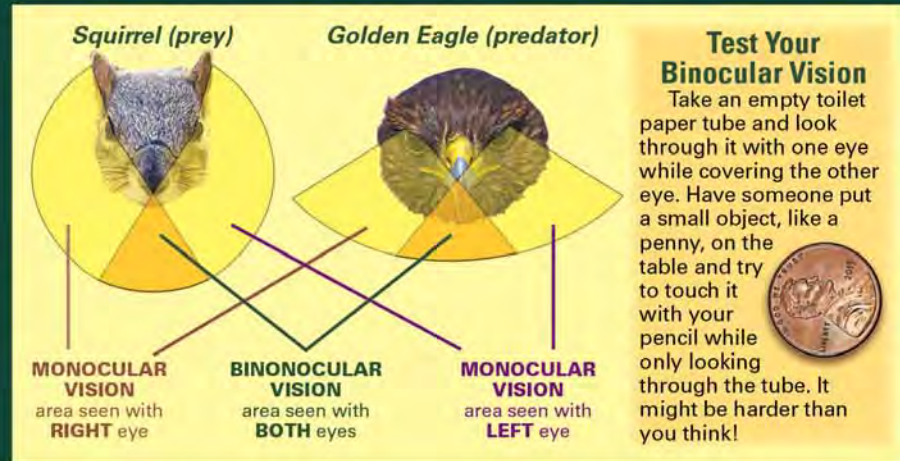
I Spy With My Little Eye

Kristal Stoner, Wildlife Diversity Program Manager, Nebraska Game and Parks Commission

Humans can see lots of colors in the day, but we can't see very well at night. We can tell how far away something is, but we can't tell if something is behind us. What about other animals? Do they see the same things we do?

Our eyes are in front of our heads, much like cats, owls and coyotes. Because our eyes are in front of our head and close together, we have a small field of view. Having eyes close together means that each eye sees much of the same thing. This is called binocular vision. This allows our eyes to determine the distance of something. This is called depth perception. Animals that hunt other animals (predators), need to have binocular vision in order to know how far away their prey is before they pounce!

Animals that eat plants are called herbivores. Plants don't move very much, so herbivores rarely have to try to catch them. Because of this, they don't need binocular vision. But, they need to be on the lookout! Many herbivores are prey species, so they need to watch for other animals that may eat them. Prey species tend to have their eyes on the side of their head, like rabbits. They can see behind and above



them without turning their head as much as we do. This way, they have a better chance of seeing a predator coming and they can run away.

Rabbits have large eyes located high on the sides of their head, so their field of view is almost 360 degrees, meaning the rabbit can see almost all the way around itself. They can see well above their heads, too. But, since their eyes are on the side, they have a small blind spot directly in front of their nose, below the chin.

Owls have special eyes to allow them to see prey in front of them,

but also to be able to see in the dark. Nocturnal animals, animals that are out at night, tend to have large eyes. Large eyes let in more light, so they can see better in the dark. All owls have large eyes in the front of their head. In fact, they have the most forward-facing eyes of all the birds, so they have very good depth perception. Owls can't move their eyes in the sockets, but have a very flexible neck so they can turn their head 270 degrees. Many owls also have a reflective layer in the back of their eye that helps reflect light inside their eye and helps their night vision.

All snakes are predators, but they can only see out about 40 feet in front of them. Rattlesnakes see the world much as we do, but they are also able to "see" heat. Mice and rabbits, which are a usual dinner for rattlesnakes, release body heat that is actually infrared. Rattlesnakes have holes on each side of their head called pit organs that can sense infrared. They use this infrared vision to know exactly where their dinner is! 🐍

NATURE CALENDAR

- **Watch for water snakes basking near the water:** mid-July through September
- **Purple poppymallow in bloom:** primarily in June through October
- **Look out for mulberry scat from raccoons:** all summer



Carter snake near pond. Photo by Justin Hong

Urban Neighbors

Letting wild stay wild.

By Adam Jones, Watchable Wildlife Biologist

When I was a kid growing up in town, my parents had several bird feeders and other wildlife feeding stations placed around our backyard. I remember one night, while watching television, I heard a loud, guttural growl followed by a strung out "hiss" outside the kitchen window. Compelled by natural curiosity and childhood bravery, I went to the window and turned on the outside lights. What I saw still resonates in my mind. My dad had built a small feeding platform for the many squirrels that lived in our wooded yard. However, on this night, and on this platform, there were two large, ferocious looking creatures sitting together eating. One was a large, hunch-backed, black-masked animal with a ringed tail and intense, black eyes while the other was a gray, rat-tailed creature that was so ugly it was cute with jaws opened wide showing many sharp teeth, dining together on this feeding station. It seems as though my parents, wanting to get rid of our dinner left-overs, were putting scraps of food on this platform which brought in these nocturnal opportunists.

The large raccoon, and its smaller opossum companion, looked up when the light was turned on, saw me watching from the window, and in what I can only describe as a "shrug of the shoulders," they continued to feast. It seems that the easy, tasty food was more than enough reward to keep them from scurrying into the night. Paying no heed to me, they would hiss and growl at each other yet continued to eat in short, wary bursts. For the next hour or so I watched these two take turns eating.

This is my earliest memory of watching urbanized wildlife really interact with each other and people. Although they appeared to be relatively calm, and tolerant of each other, my parents would not let me outside to watch these wild animals any closer. It was only later in life that it occurred to me that they continued eating despite the fact I was observing them because they were habituated to their human dominated environment. In other words they were so used to being around people and our homes and businesses that the "fear" response had lessened. A simple light did not send them running for the woods.

This behavior has been evolving slowly for centuries as human activity continues to spread into the natural, wild environment. Although these still wild animals no longer appear to fear humans, they are still wild. This lack of fear allows people a glimpse into their wild world, and provides enjoyment and wonder to those watching. However, it can also lead to human-wildlife interactions that are not so enjoyable.

People are encouraging human-wildlife interactions, and this can be a positive experience. Gardens invite wildlife; people love birds and squirrels, among other creatures, and entice them into their backyards with feeders. These areas have become resource zones that expand the imaginary



PHOTO COLLAGE BY TIM REIGERT

boundaries between the wild and domestic. These are shared territories that both wildlife and humans consider to be home.

We want our encounters with wildlife to be on our terms, but this is becoming more difficult in urbanized environments. It is one thing to have a feeder in your yard, but what happens when you feed a wild animal from your hand? You may walk away with an invaluable experience to hold close for the rest of your life. However, if that same animal were to come up to your neighbor's kid expecting the same result, this may become a harrowing experience that will haunt the kid forever. Many love all wildlife in our backyards, but when gardens start to get eaten, some people want to trap, relocate or even kill these animals.

Over the years since that first encounter with that masked intruder and his rat-tailed cohort, I have become aware of the ever shifting balance between enjoying a glimpse into the "wild world" of my backyard and the effects my wild neighbors and I impose upon each other, both positive and negative.

Urban wildlife have become accustomed to the ease of our artificial feeding methods. Humans and animals are both creatures of habit. I know exactly which aisles to hit at the grocery store so I can shop faster, because after a long work-filled day I want to use as little energy as possible to shop and eat. The same efficiency can be said for our wild neighbors. They know where and when to visit particular areas depending on their food needs, and will return day after day as long as the market is still open.

I take it as a compliment that many types of wildlife use my backyard, and I try to provide habitat for them. I respect them, however, and let them stay wild.

Living with wildlife can be a bit of a compromise. Some years, my fruit trees and vegetables have bites already taken from them when I harvest, but I feel this is a small price to pay in my relationship with wildlife and for the enjoyment it affords me. ■



Make Your Own Pollinator Garden

Help protect vitally important, struggling species.

By Renae Blum

Do you like chocolate? How about coffee? Anyone up for some apples or almonds? If you answered “yes” to any of these questions, then you need pollinators. Pollinators, including bees, butterflies, birds, ants and many other species, play a critical role in our food production, economy and natural landscapes. Although small, these species are responsible for pollination – a process of transferring pollen from one plant to another, allowing for new seed production. In fact, one in three bites of our food can be attributed to pollinators.

Without pollinators we wouldn’t have peppermint, tea or many varieties of fruits and nuts. Even meat and dairy products require pollinators – leaf cutter bees and honeybees pollinate alfalfa, which is a major source of food for cattle. Pollinators are worth nearly \$20 billion to the U.S. economy annually and keep the delicate food web in balance.

Recently, though, pollinators have been struggling. Habitat loss, disease and pesticides have contributed to their falling numbers. The good news is that by helping pollinators expand their habitat, you can be part of the solution. This space could be a backyard, land around a business or school or land enrolled in the Conservation Reserve Program (CRP) – nearly any space where you can plant freely can be put to work for the benefit of pollinators. What should you put there? Here are some tips.

- Variety, variety, variety. Plant a wide variety of flowering plants with differing colors, petal shapes and blooming seasons. Blooming times are especially important – pollinators need nectar-producing flowers continuously from April to October, covering their entire life cycle.

- Go local. Native and local plant species are most attractive to bees and caterpillars and as host plants for larvae. Stay away from invasive

species, rare species and modern hybrid flowers, especially those with “doubled” flowers. Your local garden center and extension office can help you shop for local seeds and native plants.

- Provide shallow water sources. Pollinators need water as much as we do. Set out a couple of shallow dishes in the shade.

- Get a bit messy. Beauty is in the eye of the beholder. And, although they may not be beautiful to you, dandelions are gorgeous to many pollinator species. They’re the first thing to bloom in spring and are rich in nectar. Patches of bare soil, brush piles and dead tree branches for nesting are great as well.

- Cut back or eliminate insecticides and herbicides. Pesticides kill or harm most insects, not just the nuisance ones. If you must, spray on dry, calm nights, use

the minimum recommended dose and avoid flowering plants and host plants. As for herbicides, try spot-treating or hand-pulling weeds.

- And lastly, remember that the little things count. “You don’t have to own 500 acres of land to make a meaningful difference,” said Lindsay Rogers, Nebraska Game and Parks wildlife education specialist. “If I plant five milkweed plants in my yard in the middle of Lincoln, or put out a pot of flowering plants on the balcony at my apartment, I’m making a difference.” ■



PHOTO BY BENJAMIN VOIGT



PHOTO BY BENJAMIN VOIGT

Nearly any space that can be planted freely, like this garden on private land in Lancaster County, can be beneficial to pollinators.

PHOTO BY JENNY NGUYEN

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Dove Hunting the Fringe

Sometimes the best spots are far from the crowds.

By Jeff Kurrus

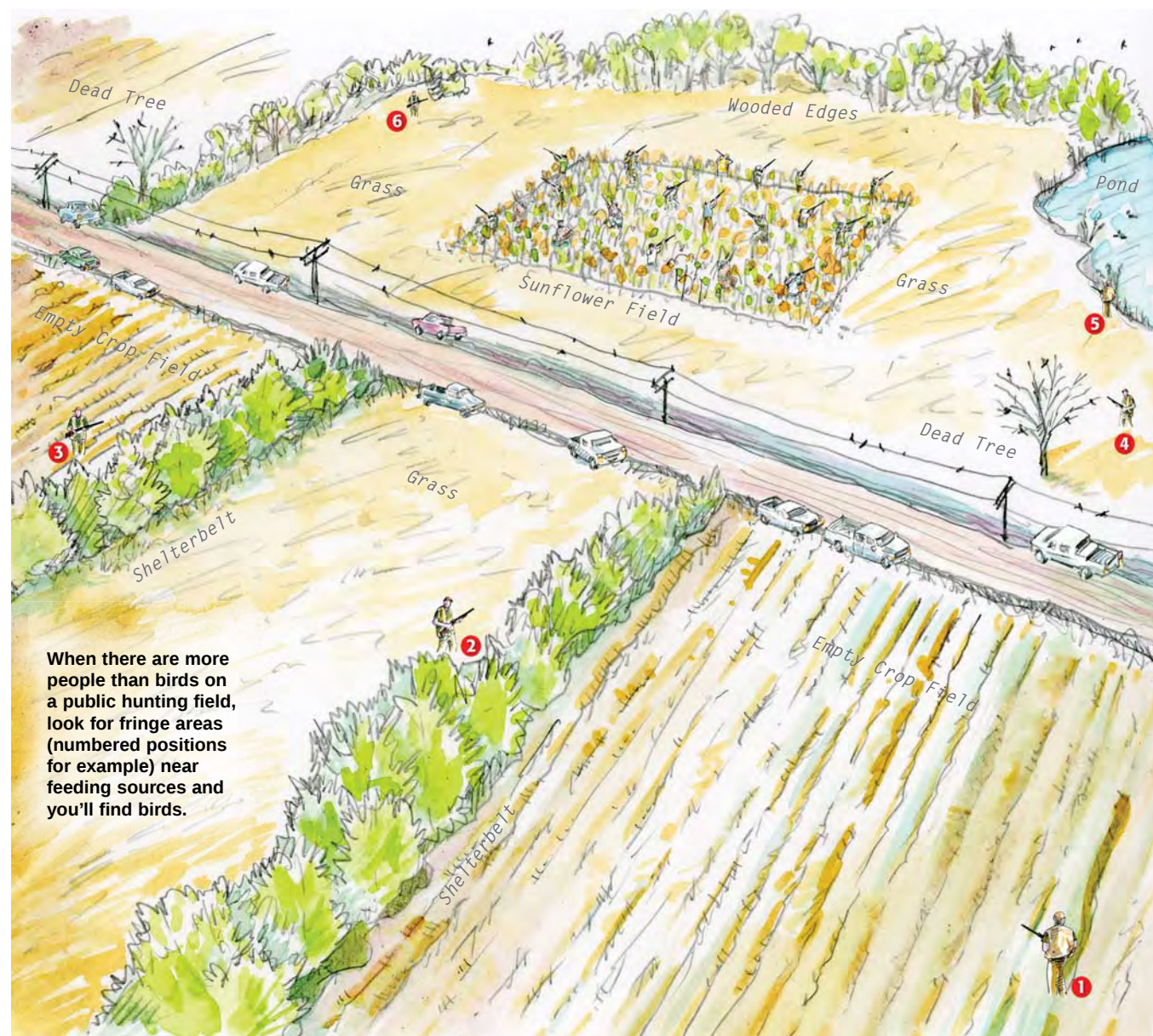
On more than one dove hunting opener, I have walked up to a public shooting area and felt as if I were in line for a Husker football game. Then, once daylight would come, I'd see hunters surrounding a sunflower field, with even more hunters taking spots in the middle, to shoot doves as they come to feed. It's not a scenario I necessarily enjoy. Not only because I don't always

feel safe, but also because I don't think it's always an effective way to shoot birds, especially if there is fringe to hunt close by.

What I look for are paths to and from feeding areas. These might be grass fields, forest edges or even a nearby pond. Because the hunters on the field are going to keep birds stirred up by shooting, I have the opportunity to get some shots on the fringe. It often takes

me a bit of walking to find the perfect spots to set up, but it's worth the hike to make sure I not only stay safe, but get some opening day shooting in.

Think about this method the next time there are more than a few hunters on a public field. And remember, the birds are coming from somewhere. Just make sure you're placing yourself in those spots, and you'll get all the opening day shooting you could want. ■



When there are more people than birds on a public hunting field, look for fringe areas (numbered positions for example) near feeding sources and you'll find birds.

ILLUSTRATION BY TIM REBERT

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State Fair Time

“Step up – one and all!”

By Jerry Kane

The Nebraska Game and Parks Commission will return to the Nebraska Building for the 2016 Nebraska State Fair with a full schedule of activities for the whole family.

Popular features and activities including an indoor archery range, indoor air gun range, kids’ Nerf gun range, 6,000-gallon aquarium featuring Nebraska fish, bighorn sheep exhibit, NEBRASKAland Magazine photo display, indoor and outdoor meandering streams, outdoor playground, kids’ games, demonstrations and more will be back in 2016. New this year is a kids’ educational outdoor fort.

Nebraska Game and Parks staff and volunteers will give a variety of presentations over the course of the fair on topics, including turkey calls, fish cleaning, outdoor photography, pollinator gardens and outdoor cooking with kids, among others.

The Nebraska State Fair takes place in Grand Island Aug. 26 through Sept. 5. For more information on Nebraska Game and Parks activities and features, as well as for a full schedule of demonstrations, visit us at OutdoorNebraska.org. ■

Game and Parks Events at the Fair

- **Fish Cleaning and Cooking Methods - Aug. 27 and Sept. 3, 2 p.m.**
- **Adopt an Outdoor Buddy by the Central Nebraska Humane Society - Aug. 28, 10 a.m.**
- **Waterfowl Hunting and Calling - Aug. 28, 2 p.m.**
- **Turkey Calling - Sept. 3, 1 p.m.**
- **Outdoor Cooking with Kids - Sept. 4 and 5, 10 a.m.**

All events will be held at the Nebraska Building’s Outdoor Campground area. For more information on all events at the State Fair, visit Statefair.org.



Bobbie the Barker is the official mascot of the Nebraska State Fair. She answers questions and tells stories.



Harrison Wooden of Grand Island, under the watchful eye of instructor Scott Howard, takes aim in the archery range at the Nebraska Game and Parks Commission Outdoor Encounter at Nebraska State Fair in Grand Island.

The Best Defense?

Snakes do more than bite.

By Dan Fogell

Snakes bite. At least that’s what everyone believes. And for the most part everyone is right. Because think about it: if you were limbless, how would you defend yourself? You’d bite, right? It’s all you have – a mouth and teeth. So when push comes to shove and the snake you just backed into a corner runs out of options, it’s going to bite. Any animal would. But this is not a snake’s first choice.

By losing their limbs snakes have evolved many ways to deal with provocation. In general, a snake employs any one or a combination of three behaviors: warn, defend and escape. Escape is the ultimate goal, and if it can be accomplished without difficulty the other two will be avoided. But if not, snakes have interesting tools to dissuade would-be harassers.

The ultimate warning is the rattlesnake’s rattle. Everyone knows it, and its message is quite clear: don’t tread on me. But did you know that nearly all agitated snakes rattle their tails as a warning? Rattlesnakes are better at it because they actually have a “rattle,” but the behavior of rattling the tail is very common. Odd, since snakes cannot hear airborne sounds.

Other snakes make warning sounds using different tools. In Africa the saw-scaled viper rubs its scales together to make a loud rasping sound. Closer to home, the bullsnake is one of the loudest. Like all snakes it has a tube in its mouth – the glottis – that helps it breathe while eating. But bullsnakes have a membrane that splits their glottis, so when air passes through it a loud hissing sound emerges. For this to work the snake’s mouth has to be open, which is another common defense display. The open mouth and loud hiss are a quite effective warning system.

Some snakes try to make themselves look bigger. Cobras are masters at this, spreading their neck ribs to form a hood. Our native hog-nosed snakes have similar abilities. In fact one of the local names for them is the “spreading adder.”

Snakes like coral snakes use bright colors to warn predators that they’re dangerous. Harmless snakes like milk snakes mimic coral snakes, gaining protection by having similar colors. The ring-necked snake here in Nebraska is a drab grayish-green color, yet when attacked it will coil its vibrant red tail and display it, warning predators that they probably don’t want to eat it.

Warnings like this are used to prevent attackers from actually apprehending snakes. But when they fail, snakes resort to defending themselves. While biting is a defense behavior there are others. When seized, nearly all snakes tend to discharge their cloacal contents. What does that even mean? It means they defecate all over their assailant – also called musking (yes, like a skunk). Nothing is going to want to eat them after that. But the hog-nosed snake takes it to a different level. Not only does it defecate (supported by a



A bullsnake opens its mouth and hisses as a warning.



Water snakes like this diamond-backed water snake can flatten their necks to appear larger.



This eastern hog-nosed snake is playing dead to avoid being eaten.

cloacal “pop” that is reminiscent of flatulence), but it flips itself onto its back, hangs its tongue out of its mouth, and feigns death.

Some snakes skip the warning and defense steps and go straight to escape but may still be caught by the tail as they slither away. Snakes cannot lose and grow back tails like lizards, but they can quickly turn and twist their bodies until their tail breaks off. It never grows back, and the snake has a stub tail, but it keeps its life.

Lots of things want to eat snakes, and these behaviors evolved so snakes could escape scenarios where they might become meals. Sometimes they work. Sometimes they don’t. So in the end the best action is to simply leave – as quickly as possible. As you encounter snakes during your outdoor activities, watch whatever show they put on but then watch them safely slide away. ■



▲ This photo was published in the Wilber Republican newspaper, Nov. 2, 1961, p. 1. Pictured L to R are Robert Havel (my grandfather), Saline County Sheriff John Tesar, and James Kohel. They shot the first legal deer during the first 5-day rifle deer season in Saline County. The deer were taken 2 miles east and 2 miles south of Wilber on the Stanley Jiskra farm.

– Russell Ripa, Lincoln, Nebraska



◀ This photo was taken on the west end of Harlan County Dam in 1975. Hans DeVry and LaVerne (Curley) Jacobsen. My father, LaVerne, was on the Game Commission in the 1950s. He, Hans, and Virgel Welsh [the photographer?] hunted mostly on the Middle Loup river near St. Paul

– Vernella Pettijohn, Axtell, 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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Stuffed Grouse Breast

A simple yet delicious way to prepare any type of grouse.

By Julie Geiser

Hunting game birds is a big part of my life and coming up with recipes to fix them goes along with the territory. I like to dabble in the kitchen and always try to prepare game with ingredients that will complement their natural flavor, not just mask the game. Knowing that not everyone likes the wild game flavor, I also want recipes to taste good so others can enjoy the flavor as well.

Grouse has its own flavor, but is much like chicken only with a darker meat. It's tender and can be prepared numerous ways; I like grouse in pot pies, dumplings, breaded and fried, baked whole, and I really like anything that has a gravy or sauce along with it.

The recipe below has a creamy velouté sauce that is made easily with the dish. Don't let the fancy name scare you. Velouté (veh-loo-TAY) is a French name for a white sauce that is stock based and thickened with a white roux, which is a mix of flour and fat or butter cooked over low heat and used as a thickening agent. Velouté is one of the five "mother sauces" that most of the classic French sauces are derived from. Knowing how to prepare a velouté gives a base to work from to prepare many other sauces by adding a few different ingredients. What you see below is my version; as stated I like to dabble so you never know what will be thrown into the mix.

Adding bacon to almost any game is always a hit. After all, who doesn't like bacon? The grease also keeps meat tender and adds flavor. Stuffing in this dish adds to the natural flavor of the meat while giving it a little seasoned kick.

After a day walking the Sandhills for grouse, this recipe will be sure to please and is simple to prepare.

Servings: 4

Prep Time: 15 minutes

Cooking Time: 50 minutes

Ingredients:

- 8 boneless grouse breasts from four grouse
- 3 tablespoons of butter or margarine
- 8 slices of bacon
- 8 toothpicks
- 1 box of stuffing mix

Velouté Recipe

- 2 tablespoons of butter or margarine
- 2 tablespoons of flour
- ¾ cup of chicken broth
- ¼ cup of heavy whipping cream
- Salt and pepper to taste
- White wine to taste



PHOTO BY JULIE GEISER

1. Start by washing the breast meat, making sure any shot is removed before moving forward. Separate the tender or smaller backside of the meat off the breast. Lightly sear the breast meat on each side in three tablespoons of butter. Pat extra butter off with a paper towel. Set meat aside.

2. Prepare stuffing mix according to the directions on the box. If you have time and would rather make your own stuffing mix it will add to the homemade quality of this dish. I use a box mix when I do not have extra time.

3. Once the stuffing is complete lay two pieces of bacon out on the table side-by-side. Place one piece of breast meat in the center of the bacon. Place about one-half cup of stuffing mix on top of the breast meat. Place another piece of breast meat on top of the stuffing to create a sandwich. Wrap the bacon around the grouse and secure each bacon slice with a toothpick.

4. Place the bacon-wrapped grouse in a baking dish and cover with aluminum foil. Bake for 35 minutes. When there is 15 minutes left for the grouse to bake, start preparing the velouté sauce, that way it's warm and ready to serve when the grouse is done. Melt the butter in a small sauce pan. Stir in the flour, salt and pepper. Microwave the broth and whipping cream on high for 1 minute. The warm mix will help blend it into the butter and flour so it's not lumpy. Cook the mixture over medium heat, stirring constantly until it is thick and bubbly, about 6-7 minutes. I love a sweet, white Moscato wine, and I dump a few dashes into this recipe to suit my taste.

5. Remove the foil from grouse and bake for another 15 minutes. Place onto a plate, spoon a helping of velouté sauce over each serving and enjoy. ■



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Going Batty

Way back in high school, we often asked our calculus teacher why we needed to learn the mindless drivel he was feeding us. He assured us we would use it. “Whatever,” we said. Even if I would’ve believed him at the time, I never would have guessed I’d use that mumbo jumbo to set up a camera trap to photograph bats in flight.

Photographers have been using camera traps of some sort to capture wildlife on film since George Shiras pioneered the technology in the early 1900s. The pre-packaged trail cameras used by hunters and more advanced systems used by professionals have come a long way from his tripwires and magnesium flash powder.

When I started working on a story on bats, I set the bar high, hoping to use a camera trap to photograph a bat drinking from a water hole. Before I could set my trap, however, I knew I had some numbers to crunch. You can’t simply focus on the spot where the beam crosses the water. You have to take into account the lag time between when the bat trips the “wire” and when the camera actually fires. That’s .043 seconds. So how much air does a bat cover in that time? That depended on how fast they fly, which depended on the species, and whether or not they slowed down to drink. I settled on the low end at 20 feet per second, and figured a bat would cover 10 inches before I got my first photo. My handy smartphone app told me my depth of field would be about 2 feet at f/16 with my 80-200 zoom pulled back to 80 mm. So I figured I’d get two photos in the 1/10th of second the bat would be in focus, which meant my flashes could indeed keep up. Whew! Are you still with me?

So off I went to a wide spot in a spring fed creek in the bottom of Bull Canyon, a fabulous piece of real estate in western Nebraska, where I was told I would find plenty of bats. I donned waders, set two cameras in the middle of the creek, strobes around it, and the infrared trigger across it. I hung my hat on a plastic post I stuck in the creek bottom, set my focus and exposure and headed across the road to camp. Steaks a friend and I had brought weren’t even done cooking when the flashes started popping. The next morning, I stuck the memory cards in the computer and found the setup worked perfectly, except for the one thing. Of the 64 bats I captured in flight that first night, only five were flying the right direction, leaving me with a pile of photos of blurry bat butts.

I moved the cameras to the other end of the pond, but gremlins ruled the shoot the next two nights, at some point jumping in front of the trigger and causing the cameras to fire until the memory cards were full. I caught them and reset in the rain the third night, but the little devils came back after I crawled back in the tent and again left me with a thousand blank frames.

Despite going batty from the technical difficulties, I captured about 20 usable frames of 13 different bats. None were drinking and in focus, but they’ll do just fine. And I’m sure Mr. Ayres will be happy hear this: You were right.

Eric Fowler
June 24, 2016



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