



A flock of cedar waxwings perch in a flowering crab apple tree in Lincoln. Photo by Eric Fowler.

Published by the
NEBRASKA
— GAME  PARKS —
NebraskalandMagazine.com
OutdoorNebraska.org

Published by the Nebraska Game and Parks Commission since 1926

NEBRASKAland

April 2015



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INSIDE

A New Wildlife Management Area – Chat Canyon
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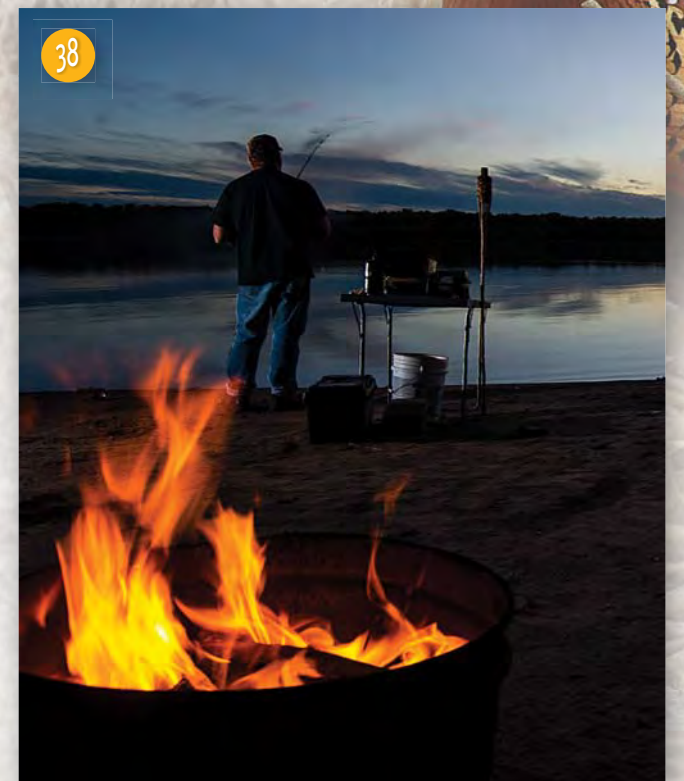
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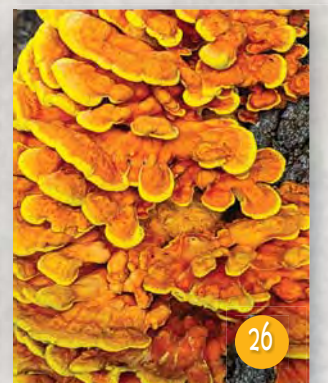


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ON THE WEB...



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NEBRASKAland (VOL. 93 / NO. 3, ISSN 0028-1964) is published monthly, except for the combined Jan./Feb. and Aug./Sept. issues, by the Nebraska Game and Parks Commission, 2200 N. 33rd St., Lincoln, NE. Periodicals postage paid at Lincoln, Nebraska, and additional mailing offices. POSTMASTER: Send address changes to NEBRASKAland, P.O. Box 30370, Lincoln, NE 68503-0370.



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Cover: Fog rises at sunrise from the Niobrara River at Chat Canyon Wildlife Management Area southeast of Nenzel. Photo by Eric Fowler.



Puppy Poses

This is my new German shorthair, Drake, and his first quail. He is 9 weeks old today and just wanted to share this picture with your magazine and fans.

Matt Williams
Elk Creek, Nebraska

It looks like he is off to a good start.
—Editor

Great Guide for Fishing

I found a little green stink bug on page 27 as I read through another great issue – thanks especially for



Kathy Keylon from Beatrice sent us this sunrise view from her bedroom window.

the beginner’s guide for fishing. That will come in very handy with nieces and nephews! I don’t know what the insect’s real name is, but it stinks.

John F. Montag SJ
Via email

Coincidence

There is a green stink bug on page 27, next to the sentence about stink bait ... coincidence? Hmm.

Rob Mercer
Stanton, Nebraska



Chris Clay from Omaha sent this image of the Platte River at sunset across the street from Schramm Park State Recreation Area.



Outdoor Plates

Jason Lambley now owns an outfitting business in Canada, but developed his love for hunting when growing up in Morse Bluff. His mother Lois keeps the plates he had before he headed north that show his favorite duck and his love for goose hunting. His current Manitoba plate reads “I HNT 4U.”

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

Message in the Magazine

Now, you can send a message to *NEBRASKAland Magazine* at [Facebook.com/nebraskalandmagazine](https://www.facebook.com/nebraskalandmagazine) and your comment or photograph may appear on these pages.
—Editor

Send your comments to:
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Letters may be condensed and edited for clarity. Photographs are welcome and will be returned.

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Mixed Bag

A Mammal Brief

Black-tailed Jackrabbit

By Lindsay Rogers, Outdoor Education Specialist

With their characteristic large back legs, it should come as no surprise that the black-tailed jackrabbit is an excellent jumper. They are able to leap nearly 20 feet in one bound and can reach speeds of 30-35 miles per hour. They live in hot, arid areas primarily in the southwestern United States.

In Nebraska, they can be found across the state, but are more common in central and western areas. To cope with the extreme heat, they often lower their metabolism, take shelter in the shade and become active during the cooler temperature at night. They have blood vesicles near the surface of their large ears to help with cooling. Jackrabbits feed entirely on plants and rely on their food for most of their water consumption. ■



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Travelogue

By Julie Geiser

Eustis

The village of Eustis, known as the "Sausage Capitol of Nebraska," is nestled in the hills between the Platte and Republican rivers, only 13 miles south of Interstate 80 in Frontier County.

Founded by mostly German immigrants, Eustis keeps its heritage alive with its June celebration known as Wurst Tag (Sausage Day). Wurst Tag activities include the early morning volkshoch and 5K obstacle course and village parade. There are heritage contests, games, demonstrations, a car show and displays.

The day concludes with a large German dinner with authentic sausages and pretzels made by Eustis bakers. Enjoy some Nachtsche (a German dessert) and hit the polka and American street dance under the stars for live entertainment.

Along with rolling hills, visitors will encounter deep, rugged canyons beautiful and unique for photographers and outdoor enthusiasts. Plum Creek, Gallagher Canyon, Johnson and Elwood lakes give visitors easy access to several water sports, fishing, hunting, camping, boating and golfing.

The lakes are connected by a series of canals where floating down the canal between Gallagher Canyon and Plum Creek Lake on an inner tube, canoe or kayak offers a different outdoor experience. The area provides beneficial habitat where many species of animals and birds can be seen.

Anglers catch channel catfish, sauger, walleye and a variety of panfish that thrive in the canals and lakes. Paddlefish have also been released at Gallagher in hopes to provide another type of fishing for anglers in the future.

Eustis is also home to the Village Pie-maker. This enterprise makes 15 different varieties of ready-to-bake fruit pies delivered to outlets across Nebraska and the United States, producing 12,000 pies a week.

Gregg Wolf and Doug and Deb Breinig started the Lone Wolf Wurst Meats Company in 2011, and produce summer sausage, polish sausage, brats, hard-tack meat sausage and marinated prime rib. Many of the recipes for the sausages are more than 100 years old. Wolf's grandfather, an immigrant from Germany, made these same recipes on the farm and hung the sausages in his attic to dry.

The village of Eustis remains a pleasant surprise for visitors, connected to its history while providing the fun, and food, people have come to love. ■

 Plan your visit to Eustis.



Canoe fishing at Gallagher Canyon



The Eustis German Market



Edibles from Eustis



Hello, I am Doug Keller owner of Eustis Body Shop. Welcome to Eustis. I opened our first shop right here on Main Street in Eustis in 1979.

I cannot tell you how proud I am to have made my start in Eustis. We have enjoyed much success over the years. There is now a Eustis Body Shop in Eustis, Lexington, Kearney, Grand Island and Cozad. We recently opened a mechanic shop in downtown Eustis as well.

I hope you enjoy reading about Eustis in NEBRASKAland. With our five locations in Central Nebraska, remember you have a friend in Eustis Body Shop when you need a tow or collision repair.

Doug Keller Owner, Eustis Body Shop

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A Brief History Bootlegger's Carnival

By Patricia C. Gaster,
Nebraska State Historical Society

The passage of the 18th Amendment to the U.S. Constitution outlawed the manufacture and sale of liquor nationwide, but statewide prohibition was already in effect in Iowa and Nebraska. In 1916, Iowa went dry and Nebraska voters adopted a prohibitory amendment to their state constitution that took effect in May 1917. Enterprising individuals soon learned how to profit by flouting the law. The Dakota County Herald on May 24, 1917, reprinted an article from the Sioux City (Iowa) Journal reporting the bootlegging then rampant in that vicinity:

"When Iowa went dry January 1, 1916, bootlegging increased in Sioux City. For the first few months everybody who had a taste for this profitable business indulged himself.



May 1, 1917, the first day of statewide prohibition in Nebraska.

But when the police raiding squad started its work the ranks soon were thinned. The man with the clever idea survived, and his unimaginative neighbor was run out of business."

One unusual method for transporting illegal liquor involved horse collars. "A short time ago a number of metal horse collars were shipped into Dakota City. The collars are used only for heavy draft work and in the artillery branch of the army. The great numbers of this kind of harness where there was no apparent need aroused the suspicions of the authorities.

"An investigation was made and it was found that each collar contained several gallons of whisky. Every horse in Dakota county is now eyed with suspicion."

The newspaper reported many other novel hiding places for booze,

including pianos, ash barrels in back yards, and dry goods boxes with false bottoms. "One day one of the raiding squad noticed that the gas jet in a house that they were visiting was damp. He opened the jet and applied a match. A fine stream of ice cold beer squirted into the air. A tank was found in the attic which was connected with a gas pipe to the sitting room on the first floor."

Bootlegging continued even after the 18th Amendment, banning liquor nationwide, was ratified in January 1919. Nebraska was not one of the 36 states (out of a total of 48 then) that later voted to ratify the 21st Amendment to repeal national prohibition, but in November 1934 Nebraskans did vote to repeal the state's constitutional prohibition by a 60- to 40-percent margin. ■

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Fred Bargemann's Saloon, Bancroft, before prohibition.

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Must-Haves for the Tackle Box

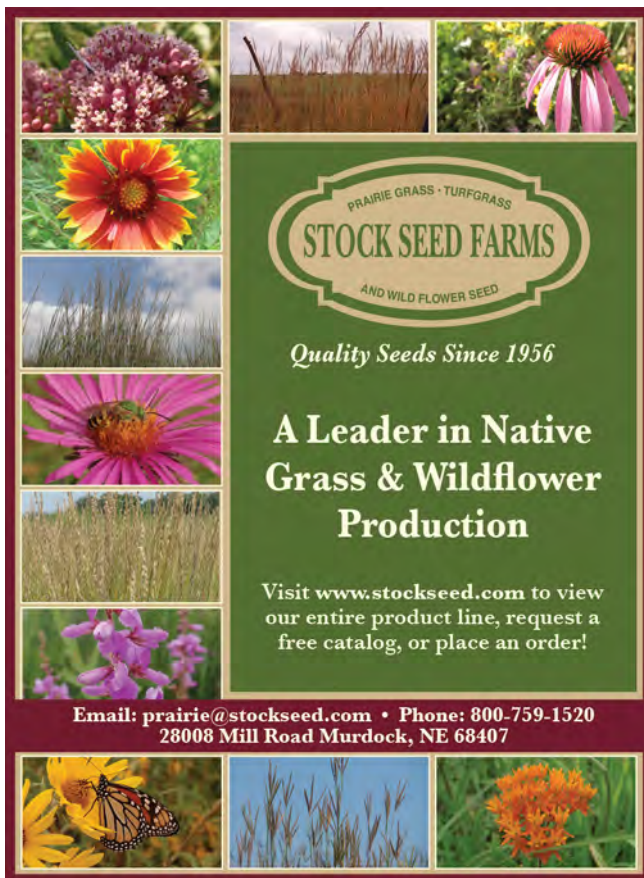
By Julie Geiser

Don't let the first fishing excursion of the year be a disaster. Aside from a fishing license, fishing guide with rules and regulation and a Nebraska Park Entry Permit (if fishing state parks or state recreation areas) here is a list of the top 15 items that are a must-have in every tackle box:

1. Extra fishing line
2. Needle-nose pliers
3. Extra hooks
4. Hook sharpener
5. Clippers
6. Bug spray
7. Water
8. Swivels
9. Sinkers of assorted sizes
10. A few different jigs, plastics and lures
11. Multi-tool
12. Super glue
13. Head lamp
14. First aid kit
15. Tape measure/scale combo. ■



PHOTO BY JEFF KURRUS



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Mobile Field Guides

By Callie Rietfors

Rather than lug around field guides on nature walks, lighten your load by downloading a few useful apps to your smartphone instead. These are some of the best wildflower and bird identification apps available for Apple, Android and most tablets.

Audubon Wildflowers by Green Mountain Digital (\$4.99)

In addition to photos and descriptions of nearly 2,000 North American wildflowers, this app includes range maps, sightings and NatureShare for users to post their observations. Search species by shape, family or name, or by such advanced options as color, habitat, leaf or flower. The guide also includes additional information about identification of wildflowers, the parts of a flower, habitats and classification.

Wildflowers of the Great Plains Full Version by Immersion Media (\$3.99)

Browse 500 native Great Plains species by common or scientific name,

or use the advanced search with such options as color, height, habitat, month, leaf or stem. The app includes photos, detailed descriptions, a notepad, a glossary and plant morphology sketches. There is also a light version of this app available at no cost, which has 25 plant species.

Audubon Birds Pro by Green Mountain Digital (\$9.99)

Find birds with eBird by providing your location for a listing of recent sightings in the area, or search by such options as family, name, habitat, color, song or call, or locomotion. Access range maps, images, sound recordings, descriptions and similar birds for 821 species. NatureShare and additional information about bird conservation, history, birding, plumage and classification are also included.

Merlin Bird ID by Cornell Lab of Ornithology by Cornell University (free)

This app's 5-question ID simplifies identification for the novice. Provide

the location and date of sighting, size and color of the bird, and the bird's actions – eating at a feeder, flying – to determine possible species. Features include photos, descriptions, sound recordings and range maps for 400 North American birds.

The Sibley eGuide to the Birds of North America by mydigitalearth.com (\$19.99)

With more than 6,600 painted illustrations of 813 species, this app's filter option narrows birds by their occurrence in your location. Use the side-by-side comparison feature to listen to sound recordings and view images, descriptions and range maps of any two species at once. Also provided in the app are an introduction taken from *The Sibley Guide to Birds* and information about bird topography. The free light version of this app provides all the features of the full version for 30 species. ■



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Nebraska's Largest Outdoor Classroom

By Cara Pesek

Learn to shoot a bow and arrow, climb a mountain, paddle a kayak and much more May 9 during the Fort Kearny Outdoor Expo at Fort Kearny State Recreation Area.

This annual event, often referred to as Nebraska's largest outdoor classroom, offers dozens of outdoor activities for youth and families free of charge. Children and adults will be able to try shooting sports, kayaking, bank fishing, archery, assorted camping games, outdoor cooking, bow fishing, slingshot shooting and rock climbing.

Game and Parks staff will give demonstrations including Dutch oven cooking, setting up a campsite and fishing demonstrations, and there will be adventure hunts, contests and food vendors, too.

For more information about this great event, visit OutdoorNebraska.org. ■



PHOTO BY JULIE GEISER

Nebraska Bird Library

Sponsored by



Purple Martin

Song or calls: Rich, low "chew" notes. Song is a series of rich, gurgling notes.

Description: Male is dark, glossy purplish-blue overall, with wings and forked, duller black tail. Female and juvenile are glossy purple above and gray below. Typical swallow flight of short glides alternating with rapid flapping.

Habitat: Found in urban, suburban, and rural habitats, usually near water, and always where suitable nesting cavities are available.

Where in Nebraska: Common spring and fall migrant and summer resident across most of Nebraska. Presently Ogallala, Lewellen, and Crescent Lake represent the approximate western limits.

Fun Facts: Purple martins gather in large flocks prior to migration. In fact, more than 30,000 have been estimated to roost in one area of downtown Omaha, Nebraska. ■

To learn about more birds visit NebraskaBirdLibrary.org.

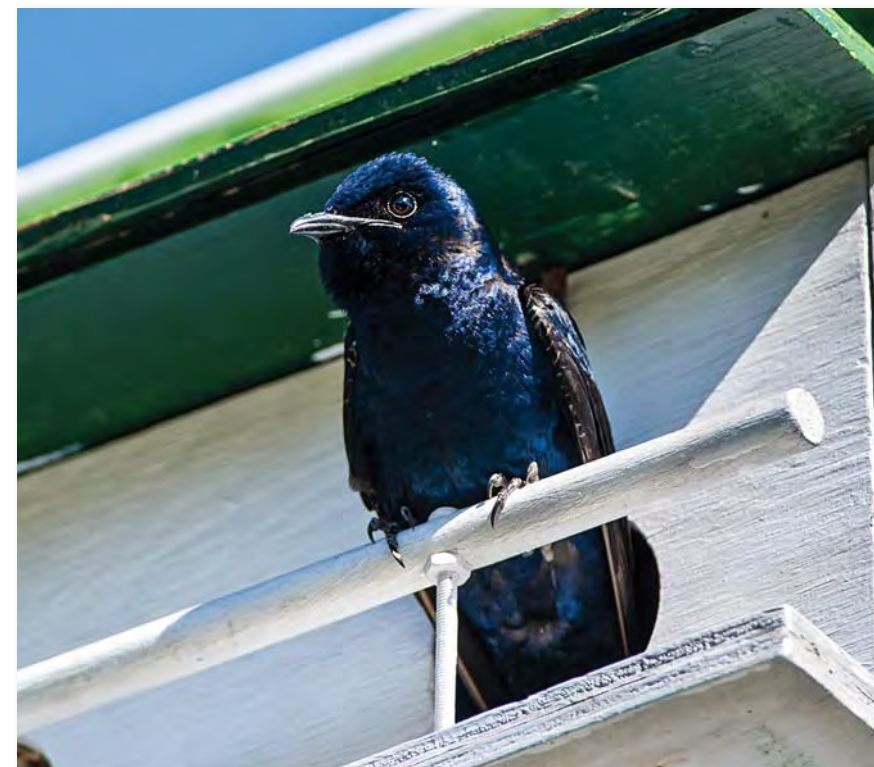


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Purple Martins are the longest managed bird species in North America dating back thousands of years to early human inhabitants.

All Purple Martins east of the Rocky Mountains nest in man-made housing.

Adult Purple Martins with prior nesting experience arrive first in the spring at established nesting sites.

Sub-adult Purple Martins are responsible for starting new colonies arriving during April and early May.

Martin housing must be at least 40 ft. from tall trees or structures and within 150 ft. of an occupied dwelling.

Martin houses must be managed and monitored evicting invasive bird species.

Wild Asparagus

By Julie Geiser

I look forward to spring every year – not only to warmer weather and spring showers, but spending time driving back roads to hunt for asparagus in the ditches.

I find myself constantly looking for the dried asparagus plants from the previous year. The brownish, pale yellow plants along the ditch and fencerows look much like any of the other dead weeds from the past year. But the dead asparagus plant is a little different, and once you train your eye to spot them, can be easy to find.

The old asparagus plant is about three feet tall and has a main trunk, unlike dried weeds from the previous year that have visible forking stems. Usually the asparagus plant will have beautiful lacy foliage – however, the wind and weather over the fall, winter and early spring will take its toll, breaking off the outer edges.

Once you locate the old plants and memorize what they look like, spotting the new plants of the spring is easy to do. I like to mark locations on my GPS, which makes locating the the scrumptious green sprouts much easier.

Asparagus grows in a variety of places – it likes water, but not saturated. It grows in well-drained soil in ditches, riverbeds and alluvial plains where there is plenty of moisture available. It prefers full sun, but will grow in heavier soil and partially shaded areas.

Asparagus (comes from the Persian word *asparag*, which means sprout), is a green sprout with a purplish-green spear at their top. The plants typically live eight to 10 years – the thicker the spear, the older the plant. Thinner spears are usually tenderer, but when gathering them I never get picky.

Gathering and storing the spears is easy, simply cut or snap them off about six to eight inches below the top of the spear. At home, hold the stalks upside down under water to flush any sand or dirt that might be caught in the spear tips, wrap the stem ends in a wet paper towel and seal the asparagus in a plastic bag to store. The spears will last several days in the refrigerator.

Asparagus lasts for about a year when frozen and can be used in all recipes including casseroles, soups, steamed or in stir fry. To freeze, simply blanch or steam the sprouts and place in a freezer bag or container, be sure to get all the air out of the bag or container, label and date the asparagus.

Vacuum sealing asparagus is another great way and arguably the best way to preserve the texture and flavor of asparagus. The sealer draws the air out of the vacuum bags to provide an air tight seal. This allows quick and easy freezing without blanching or steaming.

When using frozen asparagus, do not thaw before cooking or adding to recipes to keep the quality and crispness of the spears.

The tender green sprouts are tasty and can be added to almost any dish. They are delicious in omelets, sauté them in butter and garlic with a twist of lemon, slip them on the grill, add chopped sprouts to soups or try them in a favorite casserole. ■



The asparagus plant appears brighter than the other straw-colored dead plants around it.



Asparagus can be prepared in many ways – cut asparagus into bite-sized pieces, dip in egg batter then coat in crushed saltine cracker crumbs before deep frying until golden brown.



Deep fried asparagus sprinkled with cheese makes a great spring-time treat.

PHOTOS BY JULIE GEISER



PHOTO BY ERIC FOWLER

Work was completed in December on a 20-acre backwater on the Missouri River at Indian Cave State Park near Schubert. The U.S. Army Corps of Engineers' project will provide shallow water habitat for endangered pallid sturgeon, and also provide calm water for visitors to fish, a nice option to the swift waters of the Missouri. Anglers can expect to catch flathead and channel catfish, bluegills, crappies, largemouth bass, carp and other fish in the backwater, which is 3,000 feet long, 50 to 250 feet wide, and 5 to 15 feet deep.

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Upcoming Events

by Jerry Kane

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

April 1-6
Fort Kearny State Historical Park (SHP) visitor center open for crane viewing and history, Kearney, 308-865-5305

April 1-14
Archery paddlefish permit application period

April 2
Just the Basics fishing workshop, Nebraska Game and Parks Outdoor Education Center, Lincoln, 6:30 p.m., 402-471-6141

April 4
Spring Eggstravaganza
Ponca State Park (SP), Ponca, 402-755-2284

April 4
Bird Banding Workshop
Ak-Sar-Ben Aquarium, Gretna, 9 a.m., 402-332-3901

April 5
Light Goose Conservation Order closes in Rainwater Basin and West zones

April 6
Statewide crow hunting season closes

April 8
Bird Watching 101
Johnson Lake State Recreation Area (SRA), Elwood, 308-324-8484

April 11
Spring youth shotgun turkey season opens

April 11-12
Platte River Art Show
Eugene T. Mahoney SP, Ashland, 8 a.m., 402-944-2523

April 15
Light Goose Conservation Order closes in East Zone

April 18
Spring shotgun turkey season opens

April 18
Outdoor Adventure
Indian Cave SP, Shubert, 8 a.m., 402-883-2575

April 18
Lymphomathon
Eugene T. Mahoney SP, Ashland, 9 a.m., 402-944-2523

April 18-19
Great Plains Garrison Troop Muster
Fort Hartsuff SHP, Burwell, 308-346-4715

April 20
Application period begins for Super Tag and Combo lottery permits

April 20
Application period begins for bighorn sheep lottery permit

April 24
Arbor Day, Game and Parks offices closed

April 24
Team Walleye Circuit
Open tournament rules meeting, Lewis and Clark SRA, Crofton, 6 p.m., 308-224-2033

April 25
Crofton Kids' Fishing Clinic
Lewis and Clark SRA, Crofton, 4 p.m., 402-388-2477

April 25
Midwest Regional Cass County Championship of the World Disc Golf Tourney
Eugene T. Mahoney SP, Ashland, 10 a.m., 402-944-7604

April 25
Beyond Becoming an Outdoors-Woman Horses and Camping Weekend
Platte River SP, Louisville, 402-471-6009

April 25-26
Team Walleye Circuit
Open tournament, Lewis and Clark SRA, Crofton, 308-224-2033

April 27
Family Fishing
Terry's Pit, Scottsbluff, 5 p.m., 402-471-5447

“New” Lakes to Fish

By Eric Fowler

Maple Creek Reservoir near Leigh is proving once again that fishing is excellent at new reservoirs, producing largemouth bass, bluegills, channel catfish and even walleyes in both size and quality.

Completed and restocked in 2010 and opened in 2011, the Lower Elkhorn Natural Resources District (NRD) flood control project was built with design and funding help from the Nebraska Game and Parks Commission that will benefit the fishery and anglers for years to come. Nebraska Highway 91 crosses the upper end of the lake, slowing inflow and trapping sediment to maintain water quality.

A second breakwater crossing the middle of the lake provides another buffer as well as a bridge for trails that circle the area. Additional breakwaters will prevent shoreline erosion and also provide angler access. Numerous trees were left standing and underwater shoals and gravel spawning beds built as fish habitat. Picnic areas and RV and tent campgrounds round out the recreation area.

“It has good bank and boat access for anglers,” said Steve Satra, the Commission’s lake program specialist who helped design the reservoir. “Water

clarity is good and it grows a lot of aquatic vegetation, which is important to the fish community. When you start putting all that together, you’re going to see some pretty good looking fish, and we are.”

Other new reservoirs are also providing excellent fishing, as are old ones that have been rehabilitated under the Commission’s Aquatic Habitat Program (AHP) and federal programs it administers, including the Sport Fish Restoration (SFR).

Work on both includes building structures such as the ones used at Maple Creek to maintain good water quality, provide varied depth and fish habitat. Rehabilitating older reservoirs often also includes removal of sediment, stabilizing shorelines and building new boat ramps.

Fish thrive when vegetation is flooded as the lakes are filled or refilled. Anglers can expect to see good sized bass, keeper-sized panfish, and quality channel catfish three to four years after a lake is stocked. Some of the top “new” lakes are listed here.

Arnold Lake, Arnold: AHP project, stocked in 2013-14. Small but numerous largemouth bass and some keeper bluegills.

Big Indian 11a, Beatrice: SFR and Lower Big Blue NRD rehabilitation, stocked in 2011. Good numbers of bass and bluegills.

Burchard WMA, Burchard: AHP and SFR project completed in 2013. Lake lowered but not drained for project to maintain quality fish population. Slow to fill and new boat ramp not yet in service, but open to fishing.

Hedgefield WMA, Hickman: SFR rehabilitation, stocked in 2010-11. Good numbers and size for bass and bluegills.

Iron Horse Trail Lake, Du Bois: AHP, SFR and Nemaha NRD rehabilitation, stocked in 2011-12. Reservoir boasts one of the highest bass densities in the state, and some larger bass and bluegill.

Lone Star Recreation Area, Tobias: New Little Blue NRD reservoir completed in 2007 with SFR. Fish slow to start but now good numbers of quality bass and a few nice crappies.

Victoria Springs SRA, Anselmo: AHP project, stocked in 2013-14. Small but numerous largemouth bass and some keeper bluegills. The park’s paddleboats are back on the water as well, no longer shut down by excessive vegetation in summer thanks to deeper water.

Lakes Closed for work:

Fish populations have been removed for rehabilitation work at the following waters: Conestoga SRA, Emerald; Lake Helen, Gothenburg; Rat and Beaver Lake, Valentine; Watts Lake, Valentine. ■



Anglers fish for panfish among flooded trees at Maple Creek Recreation Area near Leigh.

NEBRASKAland Visitor



Last issue’s winner of the Visitor drawing was Mara Dobesh of Wahoo, who found the **stink bug** on page 27. 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 Magazine* mug. To enter each month, write:

NEBRASKAland Visitor
2200 North 33rd Street,
Lincoln, NE 68503.

Or e-mail:

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

HINT: This issue’s visitor is not on page 3, 7, 19, 30-37 or 56.

Several species of stink bugs can be found in Nebraska, including the brown, green and twice-stabbed stink bug. Most feed on plants, using straw-like mouth parts to inject digestive enzymes into plants and suck up fluids. Some, however, such as the spined soldier bug, feed on other insects. Adults overwinter in leaf litter and vegetation, emerging in spring to lay eggs on the underside of leaves. Nymphs emerge from the eggs, looking similar to adults but lacking fully developed wings. They undergo five instars before reaching full maturity. This type of development, with three distinct life stages, is called simple metamorphosis. Some insects, such as butterflies, undergo complete metamorphosis, with four distinct life stages: egg, larva, pupa and adult.



Special thanks to Julie Van Meter, State Entomologist, Nebraska Department of Agriculture. Photo by Chris Helzer. Bugguide.net is a good site for identification.



After the Migration

Photos and story by Michael Forsberg

Spring migration season along the Platte River is a whirlwind of wild wings, unpredictable weather and far-flung visitors from across the region and around the globe. This convergence provides the spectacle to one of the great winged migrations left on earth. But once the spring crane migration season ends, there is a palpable and collective exhale, the way a stadium feels once the crowd has dissipated after an intense football game.

The viewing blinds that provided windows of wonder and collected thousands of gasps, wide smiles and even tears, now sit empty, their windows left flung open to let those memories flow back out as a gift to the river and be carried downstream.

Out along the braided river, the roar of cranes has been replaced by the busy murmurings of resident ducks and geese establishing nests, and the brilliant, colorful flashes of songbirds, neo-tropical migrants, as they begin to arrive and flit among the budding cottonwood trees.

In a farmer's field the cold wet sting of a spring blizzard, winter's last breath, has melted into the land to mingle with the earthy fragrance of freshly tilled soil as a new crop is prepared to plant.





The page has turned in our endless progression of seasons in the central Platte River Valley. But feathers and fluff carried by the wind will linger awhile longer, pinned up like ticker tape along the riverbanks and in the prairies, reminding us of this ancient passage that marks time in our lives. ■

Mushrooms Through the Seasons

While the most popular, morel mushrooms are just one of a select number of edible fungi species in Nebraska.

Story and photos by Julie Geiser

Nebraska's mushroom hunters typically consist of those seeking the sponge-like morel mushroom that appears in the sandy soils of the state's major river valleys each spring. Once the morel season has dissipated, most mushroom collectors assume that the mushroom season is over – yet die hard hunters know that the collecting has only begun.

The key to fungi hunting starts by learning the habits of favored mushrooms – timing is everything: a few days too early and mushrooms will not be visible, hidden under a mulch layer of leaves, dirt and wood; too late and they will be gone – all dried up or occupied by bugs.

Starting in spring the desirable morel mushrooms start to appear after a nice rain or snow melt with warm temperatures following.

Morels

The morel (*Morchella*) is one of the most unmistakable fungi. All morels have a round to cone-shaped cap that is honeycombed with pits and ridges that resemble a sponge. Morels have a short stalk and are hollow through the cap and stem and host a warm brown to tan or yellowish color.

False morels should not be mistaken for morels and should not be eaten. They will have a cotton-like fiber in the stem. Sliced long ways the difference is noticeable as false mushrooms are not hollow. The cap will not be honeycombed and pitted like the morel and will be red-brown, brown or yellow-brown.

Widely scattered or clustered morels can be found in a variety of places; they like loose, sandy soil with high humidity and decaying vegetation

that can be found in wooded areas, hardwood forests with ash and elm trees, riparian woodlands, fruit orchards and sandy soils near rivers and streams. Look for them under conifers and in ravines and deciduous woodlands; recently burned areas and disturbed areas will also produce morels.

Scan for early morels in dense underbrush and around fallen trees and river banks on south-facing slopes and open areas in woodlands where the sun can penetrate the ground – later on, hit the shaded and north-facing slopes. Use a walking stick to carefully move leaves and debris out of the way to reveal morels hidden on the forest floor. Once you train your eyes to “see” morels collecting will be easier.

When gathering, pinch the morel at the base and gently twist to break the stem or carry a small knife to cut the

stems. Then place the mushrooms in a mesh bag. This allows your morels to breathe, keeping them fresh and it lets some of the bugs fall out.

The morel season can last several weeks in Nebraska depending on local conditions – soil moisture and temperature are contributing factors of the morel's arrival. Many morel collectors look for warm rains followed by sunny days with night temperatures above 45 degrees and ground temperatures of 50-60 degrees to prompt the fruiting body of this mushroom to arrive. A morel will emerge, grow and die in about four to six days. Many hunters heed old-time advice and head to the woods when the lilacs bloom. Be on the lookout for morels from mid-to-late April through May.

Sliced, breaded, seasoned and fried, morels are a delectable treat. There are many creative ways to cook and eat morels and many ways to preserve them for future use. Always be sure to cook morels before eating them to prevent illness.

Sulfur Shelf

The sulfur shelf, more commonly known as chicken-of-the-woods, is a mushroom that should be admired for not only its flavor but its unique beauty. It looks like something you would find on a coral reef.

This large, fleshy fungi starts small or fingerlike and soon becomes fan-shaped with overlapping clusters stacked on top of one another. Its smooth to suede-like surface is often uneven or wrinkled.

The sulphur shelf has no real stem and its caps grow in large, individual “shelves” ranging from two to 10 inches across and up to 10 inches long. The caps have whitish to yellowish



Morels are one of the most unmistakable mushrooms with their cone-shaped, honeycombed cap encompassed with pits and ridges that resemble a sponge.



True morels (top) are hollow, while false morels (bottom) contain a stalk throughout the mushroom.

ILLUSTRATION BY TIM REIGERT



The sulfur shelf, or chicken-of-the-woods, mushroom is easy to distinguish with its bright colors and is a good mushroom for the beginner collector.



pores on the underside with no gills.

This mushroom is easy to distinguish with its bright colors and is a good mushroom for the beginner collector as it has no look-alikes.

Its colors range from red-orange to bright orange, yellow-orange and sulfur yellow or salmon when the fungi is young. The flesh is thick, soft and full of water when fresh and will become tough, lose some color and eventually crumble with age.

Masses of sulfur shelf grow on dead stumps and logs of hardwoods or conifers and will sometimes appear on live trees or on roots and buried wood. This mushroom doesn't need much moisture to fruit.

Picking smaller, knobby caps as they first emerge are the best for eating. To harvest larger or older mushrooms, trim off the tender flesh near the outer edges of the cap, remove any hard, woody flesh, and then cook. When cut, the tender flesh will leak a clear, watery juice.

This variety tastes and looks much like lemony chicken when cooked. It is good sautéed, deep fried, baked or

used in soups. However, some people may have an adverse reaction to this mushroom so try a small taste the first time to see how it makes you feel.

Then remember where you first found them, because they will appear on the same stumps year after year showing up in late summer and early fall.

Shaggy Mane

Shaggy mane is distinctive and easy to recognize – they grow solitary or in tight groups, preferring hard ground and grassy areas with rich or disturbed soil. This mushroom has an elongated shaped, shaggy cap with brownish upturned scales and a straight, semi-smooth stem.

This mushroom is also known as “inky cap,” as the gills and often the caps digest themselves at maturity, turning into an inky black fluid that will drip to the ground. This auto-digestion helps disperse spores into the air to produce a future crop.

This 2- to 6-inch tall mushroom

The shaggy mane is both an urban and suburban mushroom – it is so widely distributed it can occur almost anywhere. Get shaggy manes to the frying pan quickly as they deteriorate rapidly.

fruits from the ground opposed to growing on trees. From pastures, roadsides, gardens, lawns and parking lots the shaggy mane is both an urban and suburban mushroom – it is so widely distributed it can occur almost anywhere.

Not only are these mushrooms edible but they are delicious with a light taste and great texture. Slice in half, dip in egg batter and bread crumbs and then sauté. But get them to the pan soon after picking, as they can deteriorate rapidly, or freeze them for future use.

Look for shaggy manes in late summer and fall.

Giant Puffballs

Giant puffballs are sought-after delicacies that are large, round to oblong “balls” that grow alone or in groups on the ground in pastures, meadows, grasslands, along roads and other open places. Puffballs may be baseball-sized or as large as a soccer ball.

Young puffballs have a white, spongy interior, which is when they are prime for eating. As they age they become brown and discolored. At that time their skin will crack and trillions of powdery internal spores will be released.

Correctly identifying this mushroom is crucial. Puffballs should have a thick, white flesh inside; don't eat anything with a brown, black, purple or yellow interior. The white flesh should not have gills in it – if there is any evidence of gills, dispose of immediately.

Deadly amanitas look similar to a puffball with a universal veil that surrounds the young mushroom. Slicing the mushroom will help identify a puffball from an amanita as the embryonic outline of a cap, gills and stem of the amanita will be revealed.

Puffballs should be used soon after harvesting or refrigerated for future use. They have a rich, nutty flavor, and absorb flavors that they are cooked with. Puffballs are good fried in a



Always cut puffball mushrooms in half to check color and for the embryonic outline of a cap, gills and stem of the deadly amanita mushroom.

batter, sautéed alone or with vegetables and occur in late summer and fall. It is imperative to know what mushrooms you are collecting – some species of mushrooms in Nebraska are poisonous.

The morel, sulfur shelf, shaggy mane and puffball described here are some of

the most recognizable of the edibles. It is unwise to eat any mushroom when in doubt about genus and species, so stick to these Nebraska edibles if you're a beginning mushroom hunter. These are more than enough to keep you busy throughout the year. ■



Sliced quarter-inch thick, puffballs can be dipped in an egg batter, coated with flour and cinnamon and fried until golden brown like French toast. Top with a pear slice.

Turkey Tail

The turkey tail is a small, fan-shaped mushroom that boasts a tough texture but is leathery and supple when fresh.

The fans resemble that of a strutting tom turkey, are covered with fine hairs and have bands of contrasting colors ranging from white, gray, brown, yellow, buff to bluish, reddish or black and sometimes greenish from algae. Its flesh is thin and has virtually no stalk.

This polypore mushroom has a long history of medicinal use in China dating back to the mid-1300s during the Ming Dynasty because of its immune-boosting capabilities. Turkey tails are most popularly known as being a natural source of the anti-cancer Polysaccharide-K or PSK, which is a carbohydrate found in the fruit bodies and in the mycelium of turkey tails.

Turkey tails can be consumed by drinking the tea made by boiling them for a prolonged period of time. Some mushroom hunters will chew the fresh caps like gum or use them to make ornaments or jewelry.

This mushroom typically grows in rows, tiers, or overlapping clusters on logs, stumps or fallen branches of hardwoods, thriving mostly on decaying matter. At times it will thrive on live trees, but rarely appears on conifers. Turkey tails are commonplace and widely distributed year-long, and can even be found fruiting during winter.



The turkey tail is often researched as a medicinal mushroom.

Monarchs

Habitat loss threatens colorful insect's future

Story and photos by Eric Fowler

The migration of the monarch butterfly, an icon of the insect world if there is one, is one of the great mysteries of the world. The drastic decline – 90 percent in 20 years – in the number of monarchs making that annual fall flight to central Mexico is no mystery. Habitat loss, especially in the upper Midwest, is the primary cause of the species' decline.

Whether the decline can be reversed, or even stopped, so that migration can continue is yet to be seen. But work is underway on many fronts. On one, environmental groups have proposed giving monarchs protection from the Endangered Species Act. On another, many groups are working to plant more milkweed, with some monarch lovers even tossing seed bombs out their car windows to propagate the species on roadside ditches. The decline in this colorful native plant is believed by many to be the root cause of the monarch's decline. The species only lays its eggs on milkweed, which serves as the food source for its larvae. And with fewer plants on which to lay eggs, there have been fewer adults to complete the migration.

The Monarch's Year

The life of each monarch we see in Nebraska, and every one east of the Rocky Mountains for that matter, can be traced to a volcanic mountain range in central Mexico. There, a super generation of monarchs that lives longer than any other spends the winter.

Tens of millions of the butterflies arrive in November and cluster on oyamel fir trees in south facing slopes at elevations of 10,000 feet. There, it is cold enough to slow the insects' metabolism, but not cold enough to freeze them to death. Monarchs can't handle cold like some insects, a fact that drives their migration. These overwintering sites were only discovered in 1975. To that point, they were known only to local villagers, who have since become guides for tourists who come to witness the spectacle, and caretakers of the land, much of which has been protected by the Mexican government.

Monarchs begin flying north in March, following the emergence of milkweed. When they leave Mexico, they

push the play button on sexual development that had been in suspension since they began their southward migration months earlier. This super generation, with its wings weathered and less colorful than monarchs we see, lays eggs from northern Mexico and Texas to as far north as Kansas, Missouri and Virginia, and then dies. The generation it produces continues the northward movement, fanning out across the United States and into southern Canada, where it also reproduces and dies.

The offspring of this second generation are the monarchs we see throughout the summer. They begin as eggs laid from late-May through July. Some emerge early enough to produce a fourth generation from eggs laid from late June through August.

Unlike earlier generations, which are able to reproduce within days of emerging, these third and fourth generation adults emerge in reproductive diapause, with their reproductive organs stalled in state of suspended development. These changes, and the start of the migration, are triggered by shorter days, cooler temperatures and changes to the milkweed plants. In the northern monarch range, migration begins in late August. Migrating monarchs typically begin to arrive in northern Nebraska in early-September. By the end of the month, most monarchs have left the state.

Native to North and South America, monarchs spread to Hawaii, Spain, Portugal, Australia and New Zealand and other parts of the world in the 1800s, most likely with help



A pair of monarch butterflies feed on butterfly milkweed nectar (*A. tuberosa*) in a restored prairie in Lincoln. The species only lays its eggs on milkweed, and the decline of the native wildflower has been tied to the monarch's decline. Other milkweeds native to Nebraska include common, swamp, prairie, whorled and showy.

from man. But the North American monarch is the only butterfly in the world that migrates. Other butterflies and moths emigrate, moving to find warmer weather or food, but their young make the return flights.

Monarchs west of the Rockies, which make up 5 percent of the world's population, follow a similar routine, but migrate only as far south as southern California. Scientists still aren't sure how the rest of North America's monarchs find their way to Mexico, some traveling up to 3,000 miles, an amazing feat for a bird, much less an insect. Yet by November, nearly every surviving butterfly from east of the Rocky Mountains has arrived in a small, mountainous area west of Mexico City.

In Mexico, the wintering monarch population, which are known to occupy only 11 to 14 sites, is estimated by surveying the area the butterflies cover. In the winter of 2013-14, that number hit an all-time low of 1.65 acres, down from a high of 51.8 acres in 1996-97. Researchers estimate

this 90 percent decline had left just 33 million monarchs. Things improved slightly this year, with monarchs covering 2.8 acres.

But in the past, winter storms in the mountains have led to catastrophic population declines. With so fewer monarchs remaining, the effects of such losses could be much more dire for the rest of the population.

Milkweed and Monarchs

Logging in the monarch's winter home, and the possible loss of roost trees, was feared as the major threat to the butterfly until recently. With the creation of reserves by the Mexican government, that threat has been minimized. Researchers only recently realized the loss of milkweed throughout the insects' range is of equal concern.

The metamorphosis of a monarch begins as a pinhead-sized egg that females lay on the underside of the leaf on

Pollinators

Why and How You Can Help

The monarch butterfly isn't the only insect that is in decline. Pollinators in general, including butterflies, moths, flies, native bees, non-native honey bees, ants, birds, bats, and other species are becoming fewer.

Why should you care? Because pollinators help about 85 percent of the world's flowering plants reproduce, including many of the fruits, vegetables and nuts that we eat, as well as those eaten by wildlife. Moving pollen from the male to female parts of a single plant, or from one plant to another, is what produces seeds or fruit. Honeybees, imported from Europe in the 17th century to pollinate crops, do this for at least 90 commercially grown crops in North America. Around the world, 87 of the top 115 food crops – 35 percent of the global food – depend on pollinators.

Monarch populations are down 90 percent in the past 20 years. The number of honeybee hives is down 60 percent from 1942.

There are many factors causing the decline, especially the widespread use of herbicides and insecticides and habitat loss. The latter is something everyone – homeowners, acreage owners, farmers, ranchers and public land managers – can help reverse by turning grass into pollinator habitat.

Whether planting a backyard "butterfly garden" or enrolling land in the USDA Conservation Reserve Program, the key is to plant many types

of native wildflowers. "The more you have, the better," said Pete Berthelsen, director of habitat partnerships for Pheasants Forever, noting that variety helps ensure that there will be wildflowers in bloom from April through October.

Biologists have discovered that "great pollinator habitat is great habitat for all kinds of wildlife," Berthelsen said, especially pheasants and quail. Under a canopy of wildflowers, chicks have plenty of room to move around and chase the insects that make up 95 percent of a chick's diet.

The Farm Bill Wildlife Biologist program, a partnership between Pheasants Forever, the USDA Natural Resources Conservation Service and the Nebraska Game and Parks Commission and other state wildlife agencies, is promoting the use of high-diversity mixtures for CRP that include 30 to 50 species of wildflowers, including milkweed, and are no more than 50 percent grass. "The great news is those mixtures don't have to cost any more than what the old traditional mixtures did," Berthelsen said. Those old mixes still in use a few years ago often included just five grasses and a few forbs, and soon grew into a solid stand of grass that provided winter cover for pheasants and quail, but had little value the remainder of the year.

Chris Helzer manages prairies for The Nature Conservancy in the Platte River Valley in central Nebraska that have been restored with up to 230 species of grasses and forbs. "If you've got good plant diversity and you have scale, those are the two things that are critical for almost every wildlife species you could be interested in," he said.

One of the biggest challenges in the creation of pollinator habitat continues to be the thought of what is and isn't a weed. Helzer has worked to change that perception among county weed superintendents, farmers and anyone else who will listen, but still sees many people "spray everything that's not grass. That's going to take a long time to change, I'm afraid.

"Plants that we might think of as weeds are really good pollinator habitat," he said. "Like hoary vervain or native thistle or milkweed. Those are the three top butterfly plants on the Platte River and they're considered weeds by most farmers and sprayed."

Cattlemen can help the cause with pollinators, too. Helzer has watched cows eat the flowers off every milkweed plant in a pasture. Using a rotation that rests pastures every few years will ensure that the plants can flower, produce seed, spread

Several Nebraska businesses provide native, local ecotype seed, plants or consulting services to assist you in developing monarch or pollinator habitat.

- Asclepias Seed Company, Ogallala - Seed and products made from milkweed. BuyMilkweed.com.
- Bluebird Nursery, Clarkson - Wholesale and retail sale of native plants, including several milkweeds. BluebirdNursery.com.
- Monarch Gardens, Lincoln - Consulting for home and business gardening with native plants. MonarchGard.com.
- Nature Hills Nursery, Omaha - Milkweed and other native plants. NatureHills.com.
- Prairie Legacy Inc., Western - Consulting and native seed for prairie restoration. PrairieLegacyInc.com.
- Shoestring Acres Seed, Lincoln - Native grass and wildflower seed. ShoestringSeed.com.
- Stock Seed Farms, Murdock - Native grass and wildflower seed. StockSeed.com.

rhizomes and persist in the landscape.

Drive past acreages sprouting around every city in Nebraska and you will find that many people want to take the city to their country home, turning their entire lot into a fescue or bluegrass lawn. A good example can be found on one side of Cunningham Lake on the north edge of Omaha, where a few eight acre acreages are mowed from one property line to the next.

On the other side of the lake, Jan Glenn's yard only stretches 50 feet from her home. From there, she watches foxes, deer, turkeys pheasants and other wildlife that live in the tall native grasses and wildflowers covering the rest of her acreage that was part of her family's farm. "It's my entertainment," she said, noting that she still spends more time than she would like mowing the little turf she has. "It's a symphony and moving pictures at the same time. It's just gorgeous. It's my peace."

Acreage owners, businesses or even cities can benefit on several fronts from converting grass to pollinator habitat. At the State Farm Lincoln Operations Center, the company saves \$16,000 a year in maintenance after converting 8½ acres of turf to short-grass prairie. "Now we have zero maintenance other than mowing every couple of years," Warren Gran, administrative services supervisor. "It's worked out really well."

Creating and maintaining pollinator habitat does take some work. But the long-term savings and the benefits to pollinators and wildlife are worthwhile, and those who enjoy watching them, certainly make the work worthwhile. ■

any of the 27 species of milkweed plants native to North America. Females lay hundreds of eggs in their 2- to 5-week reproductive lives, but they only lay one egg per plant to ensure that larvae, which emerge in three to eight days, will have enough food to satisfy their voracious appetite.

The larvae are adapted to the sticky, toxic latex sap the milkweed plant contains, even absorbing the toxins to make them taste bad, a defense against would-be-predators, as they go through five instar, or growth, stages. They emerge as a 2- to 5-millimeter-long, green caterpillar and molt between each stage, adding their characteristic black, yellow and white bands by the second stage. They eat constantly and by the time they pupate, they grow to 25 to 45 millimeters in length and increase their weight 2,000 times, all in a period of just nine to 14 days.

When they are ready to pupate, they spin a silk mat on a plant, hang up-side-down, shed their skin a final time and form a bright green, gold-trimmed chrysalis. Ten to 14 days later, the adult butterfly emerges, its black and orange wings becoming visible through the chrysalis just before this happens. Within a few hours, their wings are dry and they can fly. Within a few days, they will mate and start laying eggs. Two to five weeks later, they die.

The likelihood of adults finding milkweed on which to lay eggs, however, is not as good as it once was. A common plant in native prairies, milkweed was also common in and around crop fields in the Corn Belt. That began to change in the mid-1990s with the introduction of genetically modified crops that were resistant to Roundup and other systemic herbicides known as glyphosates. Farmers once used tillage to control plants that would compete with crops for sunlight, water and soil nutrients, but the process was inefficient and always missed some "weeds." The development of herbicides allowed them to control grass or broadleaf plants without tillage, but not both. Now farmers can efficiently use glyphosate to kill everything but the genetically-modified corn, soybeans or other crops they plant. Roundup Ready soybeans were introduced in 1996, and corn in 1998, and today, approximately 94 percent of soybean fields and 89 percent of corn fields are planted to glyphosate-resistant varieties.

Other areas where milkweed grows have been disappearing at an alarming rate. High crop prices in recent years, which some say are due in part to the Federal mandate for ethanol, encouraged producers to farm more acres. Between 2008 and 2011, 23.6 million acres of grassland were converted to cropland. In Nebraska from 2007 to 2012, 2.8 million acres of grassland were plowed to farm, including a nation-leading 55,000 acres in 2012 alone.

While crop prices have fallen, the loss of prairie may not be over. Much of the grassland that was converted



The State Farm Lincoln Operations Center converted 8½ acres of turf to native grasses and wildflowers, creating pollinator habitat and saving \$16,000 a year in mowing, fertilizer and weed control and 2 million gallons of water in irrigation.



Millions of monarch butterflies roost in oyamel fir trees on the Sierra Chincua near Angangueo, Mexico. Monarchs from east of the Rocky Mountains fly up to 3,000 miles to winter in this mountain range before flying back north to start the next generation.

PHOTO BY JOEL SARTORE

had been enrolled in the federal Conservation Reserve Program. Just 24 million acres are now enrolled nationwide in the program, which pays farmers to plant highly erodible and marginally productive cropland to grass, providing benefits to wildlife and improving water quality. That is down from a high of 36.8 million acres in 2007. The current acreage enrolled matches the program cap from 2016 and beyond. Nebraska had 791,000 acres enrolled in December, down from 1.34 million acres in 2007.

Urban development continues to gobble up acres as well. And even in grasslands, ranging from roadsides to CRP fields, milkweed and anything else that isn't a grass is often sprayed by farmers and land managers who consider them weeds. In pastures, cattle feast on milkweed flowers, and season-long grazing leaves none to reproduce.

A 2012 study by Iowa State University and University of Minnesota researchers found that in the Midwest from 1998 to 2011, milkweed production declined by 58 percent and monarch butterfly production dropped by 81 percent. Both numbers have increased since.

Studies and Solutions

Chip Taylor has been studying insects at the University of Kansas since 1969 and began a tagging study of monarchs in 1992 that grew into a program called Monarch Watch. Tagging programs that began in the 1930s eventually led

researchers to the wintering grounds in Mexico, but "There was a lot about the migration that still wasn't known," Taylor said.

The program, with the help of volunteer taggers who come in the form of school teachers and students, youth groups, nature centers, individuals and others, has tagged about 1.2 million monarchs. About 16,000 tags have been recovered, mostly in Mexico where the program pays locals 50 pesos for each tag they recover.

Taylor said those recoveries have shown that while monarchs breed throughout the eastern United States in the summer, most of the individuals that arrive in Mexico originate along a corridor between Texas and Minnesota, and in the upper Midwest – eastern Nebraska, the eastern Dakotas, Minnesota, Wisconsin, Iowa, Illinois, Michigan and parts of Indiana and Ohio. "If you look at the corn and soybean distribution you will pretty much define where most of the monarchs come from that reach Mexico," Taylor said.

Taylor said he first became aware of the milkweed decline in farm country after receiving a letter from a concerned Nebraska farmer in 2004. The farmer told Taylor he was using Roundup Ready corn and soybeans, that it was eliminating the milkweed he used to have and he believed the butterflies would soon be gone too.

"I said 'Oh crap' and realized he was right," Taylor said. "Nobody was concerned about habitat loss at that time. That didn't come into the picture until it was quite clear five

or six years later that the [monarch] population was going down."

In 2005, Taylor started the Monarch Waystation program with the goal of creating small patches of milkweed and other pollinator habitat in home gardens and public parks across the monarch's range to ensure at least some would find places to lay their eggs. Taylor expects the program will hit 10,000 waystations this year, but that is only scratching the surface. "We need 9 or 10 million of those things to really restore habitat," he said.

So he and others at KU have developed other programs, including Bring Back the Monarchs, a nationwide program aimed at restoring 20 milkweed species for monarch caterpillars and other wildflowers for adult butterflies and other pollinators. The program will provide free milkweed plugs to schools and nonprofits who want to help the cause. A spinoff of that program, The Milkweed Market, began in 2013 and is collecting milkweed seeds from across the country, raising plugs in a nursery and selling those plants back to gardeners in the region they came from. This year they expect to sell more than 100,000 plugs.

Others are promoting the need to plant milkweed and other wildflowers to help stem the decline in pollinators. On a small scale, "guerilla gardeners" are creating balls of mud, clay and milkweed seed and tossing them out on public lands and road ditches to help propagate the species. Bigger efforts include the Monarch Joint Venture, a group of state and federal agencies, non-governmental organizations and academics that is working to conserve the species through the North American Monarch Conservation Plan, created in 2008 by many of the same people and their counterparts in Canada and Mexico.

The Center for Biological Diversity, Center for Food Safety, Xerces Society and Dr. Lincoln Brower, a monarch researcher, filed a petition with the U.S. Fish and Wildlife Service asking that the Monarch be given the protection of the Endangered Species Act. The service announced in December that such protection may be warranted, and initiated a year-long review process to determine whether it will be listed or not.

While he believes it could be soon if the continued loss of habitat isn't stopped, Taylor doesn't think the monarch is currently threatened or endangered, and isn't sure listing it as such would help. The problem – habitat loss –



In the fall, milkweed pods open and the wind will catch the silky parachutes on the seeds and carry spread them throughout the countryside.

spans the continent, and a program to solve it would be "extraordinarily large."

"The question is, what is it going to take and who is going to step up do it," Taylor said. "This is one of those all-hands-on-deck-sort of situations."

Taylor said it will take help from private citizens, the agricultural community, and park and highway managers to stem the tide. "Basically we have to look at every landscape out there and ask 'can we put milkweed in that habitat?'"

"The problem we've run into with monarch butterflies is we've created these huge holes in their environment. We've created this incredibly fragmented landscape out there and eliminated milkweed in huge areas of the country, and now the question is how can we address this. Milkweed is not that hard to bring back. It can be done."

And if that can happen, the monarch migration, one of the world's great wildlife spectacles, will continue. As will the insect's uncanny ability to teach school children the magic of metamorphosis.

Raising Monarchs

A School Project Turned to a Passion

Each year, millions of school children learn about one of the amazing feats of the natural world – metamorphosis – with the help of one of America's best known insects: the monarch butterfly.

Shauna Groenewold's interest in monarchs started on that same front 20 years ago when she helped her daughter, Kalyn, raise them from egg to caterpillar to butterfly for a science fair project.

"I initially discovered how easy it was, and it was fun. I enjoyed it. So I just kept doing it," she said.

Like frogs and salamanders, butterflies became another on the list of "weird pets" for the mother and daughter who were allergic to pet dander. And that's how Groenewold describes raising them. "It's sort of like taking care of any other pet," she said, "except not as demanding."

Feeding monarchs requires milkweed, and lots of it. Without a ready supply, you won't be able to support the larvae. Groenewold and her husband, Mike, a horticulturist, have plenty of milkweed and other pollinator-friendly plants in their flower garden, which is certified as a Monarch Waystation though MonarchWatch.org.

The Groenewolds grow swamp, butterfly and common milkweed. "Some people don't like common milkweed because it's been associated with weeds," she said. "But more and more people are incorporating it in their landscape because they realize it has really pretty flowers and it's so fragrant."



Shauna Groenewold clips a leaf from a milkweed plant on which a monarch butterfly laid an egg in her backyard butterfly garden in Lincoln.

Groenewold usually finds her first monarch egg in May when her milkweed plants are only 3 inches tall. While monarchs have few predators, rearing them in captivity does increase their likelihood of survival. But Groenewold, who has reared as many as 58 monarchs in a single year, doesn't expect her work to make a difference in the continental population on that front. Raising awareness of the species decline and its habitat needs, however, might. So she speaks to garden groups and others, and takes adult butterflies to work and gives them to coworkers so their children can release them.

And for the past two summers she has participated in a nationwide tagging program through Monarch Watch and put small stickers on about 30 monarchs she has either reared or caught in her yard. She hasn't had a tag recovered in Mexico yet, but knows the odds are long since there are millions that make the journey and only 1 percent of all tags are recovered. "I'm hopeful," she said. ■



The egg laden leaf is placed in plastic container to hatch.



Monarch eggs are nearly small enough to fit through the eye of a needle.



When they hatch, monarch larvae are only 2 to 5 millimeters long.



When they are ready to pupate, caterpillars suspend themselves from a silk web.



A monarch pupae looks different after the caterpillar molts for the last time (foreground) than it does a few hours later (background).



Before it emerges, the wing pattern of the butterfly is visible through the pupa covering.



Groenewold's homemade monarch rearing cage includes a locker rack, a box, a fast-food cup to hold water and milkweed in a laundry bag.



Butterflies emerge with wrinkled wet wings that straighten in a few minutes.



Groenewold places tags from MonarchWatch.org on the wings of some of the butterflies she raises or catches in her garden.



Tagged monarchs are released within a day of emerging.

Beyond the Bagshot

By Jeff Kurrus

It's an oft-repeated notion that anglers fish for everything but the fish – that the sights and sounds away from the water draw us back again and again. Well, it's a little white lie for sure. Show me an angler who never pulls a fish from the water and I'll show you a future golfer.

But there does remain some truth with this notion, that it's the peripheral of our passion that actually makes fishing such great time spent. For while I spend a minute or two showing friends photographs of my biggest fish after each trip, the discussion always detours to what else I saw during my trip.

From watching a snapping turtle that is a better angler than me to a loon trying to keep its chick away from the same pike I'm looking for, days on the water have little to do with the fish anglers are trying to catch – as long as a selfless fish can allow itself to be hooked every once in a while. ■

PHOTO BY JUSTIN HAAG



LEFT: Kevin Rice of Bayard casts from the shoreline as night falls and a campfire burns at Lake Minatare State Recreation Area. RIGHT: George Chin fishes from the bank at Lewis and Clark State Recreation Area.

PHOTO BY JEFF KURRUS



ABOVE: Crankbaits shine in an angler's tacklebox in Sarpy County.

PHOTO BY JEFF KURRUS

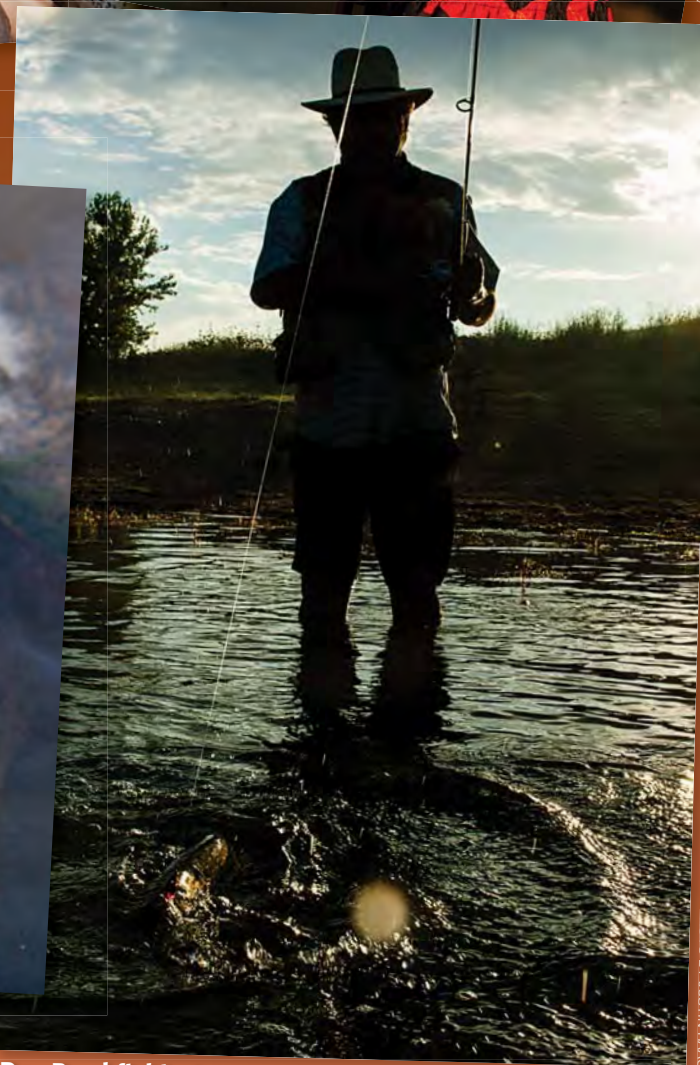


PHOTO BY JUSTIN HAAG

Dan Burchfield of Casper, Wyoming, lands a northern pike while wading at Box Butte Reservoir State Recreation Area.

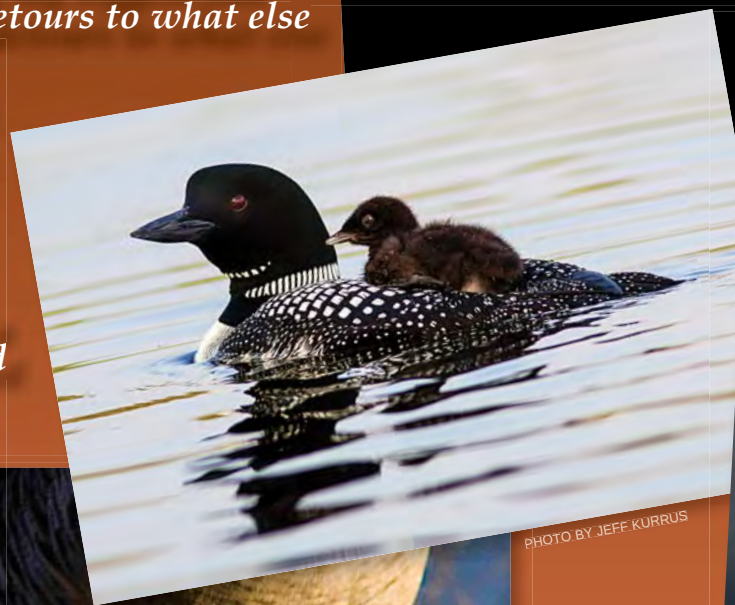


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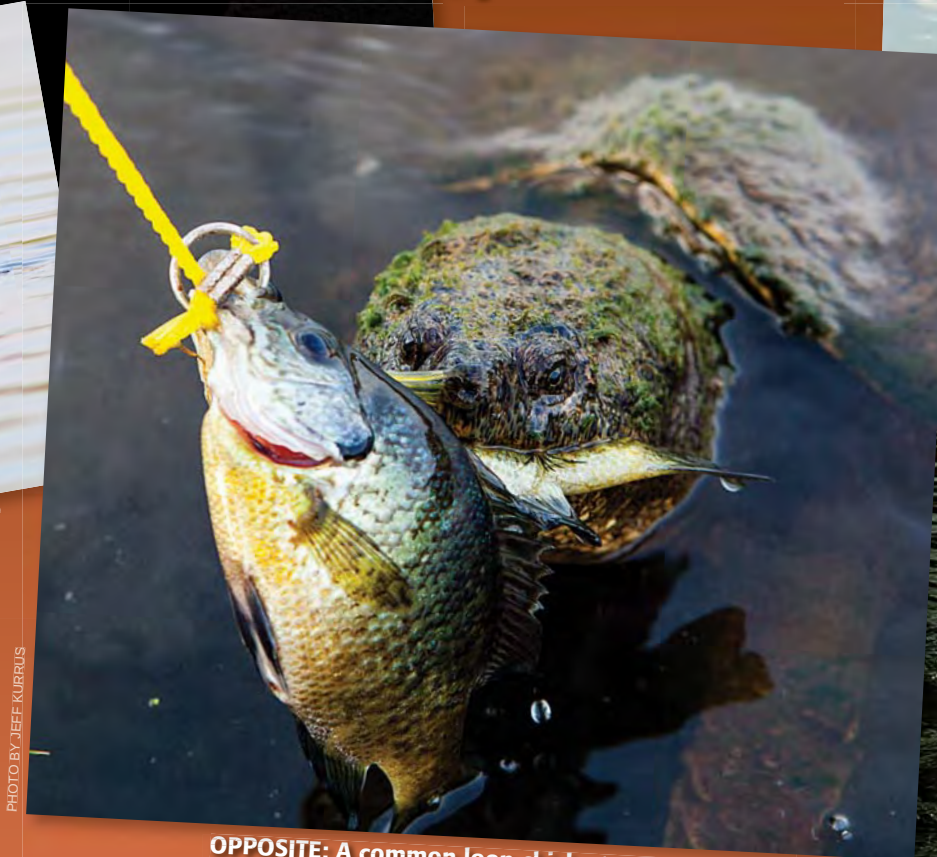


PHOTO BY JEFF KURRUS

OPPOSITE: A common loon chick attempts to stay safe at Spitzer Lake in Otter Tail County, Minnesota. ABOVE: A snapping turtle eats a bluegill from a stringer on a private lake in Burt County.



PHOTO BY JEFF KURRUS

Canada goose and goslings walk along the bank at Prairie View Lake in Douglas County.



GATHERING MULBERRIES in the author's farmyard near Wagner, South Dakota.

White Mulberry

Mixed emotions and the price for pancakes

Story and photos by Gerry Steinauer, botanist

Last July, the mulberry trees in our South Dakota farmyard were flush with ripe berries and I planned to make a haul. Early one morning I grabbed a plastic ice cream pail from the basement and set out picking berries, tediously one-by-one, from a large, century-old tree. I was soon interrupted, "Get the mulberry sheets," hollered my mother-in-law Lucille from the back porch. Confused, I asked "What?" In a tone that seemed to question my common sense, she repeated, "Get the mulberry sheets. They are in the oak dresser in the hallway. Spread them out below and shake the branches." "Oh, I get it." I thought. "How practical."

Sure enough, in the bottom drawer were two well-worn, purple-splotted white sheets, so I grabbed one and headed back to the tree and spread it below. I then gave the overhanging branch a good shake and the plump blackberry-like fruits fell like manna from heaven onto the sheet. I dragged the sheet below another branch and shook again – more mulberries. In 10 minutes, it was laden with well over a gallon of ripe fruit. I picked out a few stems, leaves and unripe berries, filled my pail and was off to the kitchen.

Natural History

In its native China, white mulberry (*Morus alba*) is the primary food of silkworms, and in the early 1600s the species was introduced to our eastern seaboard to raise silkworms. In 1624, to stimulate silk production, the Virginia legislature passed a law requiring every male resident to plant at least four white mulberry trees. "Mulberry mania" – the widespread planting of white mulberry plantations in eastern states – peaked in the early 1800s, but was a short-lived craze. In the late 1830s, cold winters in the north and disease in the south caused mass die-offs of plantation mulberries and the North American silk industry soon withered.

Though the plantation trees were dying, the weedy and prolific mulberry had long been escaping plantings and establishing in the wild. Birds relish the fruits, as the purple droppings on your windshield attest, and are proficient seed dispersers. Ornamental and windbreak plantings aided the species' expansion and today white mulberry grows in all the lower 48 states except Nevada.

Herbaria specimens from the 1880s indicate white mulberry was then established in only a few eastern Nebraska counties. By the mid-20th Century, however, it was a widespread vagrant growing in vacant lots, fence rows, road ditches and creek bottoms throughout eastern

and central Nebraska. To the bane of conservationists and cattlemen, it has also invaded woodlands and prairies displacing native flora and livestock forage.

A low-branched, sometimes bushy tree, white mulberry often has several main trunks and can reach 50 feet in height. The shallow, furrowed bark is yellow-brown and the sapwood and roots a vibrant yellow. The wood is described as durable, flexible and elastic, and was once valued in making sporting goods, such as tennis and badminton rackets and hockey sticks. It is still used to make furniture and house and boat building materials. In China and Europe, the fibrous wood is used to make paper. I favor mulberry for firing my wood stove, it being readily available, hot burning and easily split with one swing of the ax.

White mulberry stands out as one of the last trees to leaf out in spring and to shed leaves in autumn. The serrated-edged leaves have one to five shallow to deep lobes, characteristic of the species. Some trees, though, especially older individuals, also have unlobed leaves. The unwary might confuse these trees for the native red mulberry (*M. rubra*) which have mostly unlobed leaves, though with more extended and sharply pointed tips. Red mulberry grows in deciduous forests throughout the eastern United States, including the eastern one-fifth of Nebraska. It has a single trunk with dark brown bark, which further distinguishes it from white mulberry.

The small, green male and female flowers of white mulberry occur in separate drooping catkins and appear in late April and May before and as the leaves emerge. Although male and female catkins can occur on the same tree, usually a tree has only female or male flowers and this



Red mulberry has mostly unlobed leaves.



White mulberry usually has 1 to 5 lobed leaves.



THIS MULTIPLE-TRUNKED white mulberry has survived over a century of winters on the Great Plains.



MULBERRY PANCAKES are best served with real butter and warm syrup.

explains why some trees are fruitless. The up to three-fourth inch long fruits ripen in June and July in a succession of colors from green to white to red to purplish-black, though ripe fruits are occasionally white. The name “white” mulberry refers either to the white immature fruits or the sometimes white mature fruits.

The Sweet Purple Fruit

That July morning, I froze my berries in zip-close bags. For several days afterward, I added a handful of fresh picked berries to the batter of my morning whole grain pancakes and for good measure threw another handful on top the finished stack. They were quite tasty. The frozen berries I

planned to bake into scrumptious pies or muffins for the family to enjoy when we returned to the farm for Christmas. That never happened ... I got distracted with pheasant hunting, which somehow took priority over baking. The berries, however, did not go to waste. I discovered that Lucille had been including them in her ritual bowl of morning cereal and had already put a good dent in my stash. She would eventually finish them.

Mulberries are often described as blackberry-like in flavor, sweet, but slightly tart, some say with a hint of vanilla. For me, their flavor is uniquely “mulberry-like,” and my unrefined taste buds discern not the faintest hint of blackberry or vanilla. The flavor, size and juiciness of the berries tend to vary from tree to tree and year to year. A tree may have sweet, juicy berries,

while its neighbor’s fruits are rather dry, bland or unpleasant tasting. I have walked away from mulberry trees with big, tempting fruit spitting purple pulp.

For me, even the best mulberries play second fiddle to wild raspberries, strawberries or plums, though I know others who favor mulberries. Don’t get me wrong, when my path crosses a tree with tasty berries I will eat my fill. As a young child playing along a creek in my hometown of Millard I once ate heartily from a mulberry tree, then, wanting some for later, stuffed the front pockets of my new jeans with the soft berries. Returning home, with jeans purpled-stained with guilt, my mother was not pleased, and, like my mother-in-law years later, unimpressed with my mulberry harvesting technique.

The fruits of both white and red mulberry can be used in desserts including pies, cakes and cookies, and in jams, jellies, and syrups. Kay Young, author of *Wild Seasons – Gathering and Cooking Wild Plants of the Great Plains*, said that tartness can bring out the mulberry flavor and often adds gooseberries or rhubarb to her mulberry desserts. I have eaten commercially dried mulberries which were excellent – chewy with a fig-like flavor. These can serve as a raisin substitute and be ground into flour. Mark Dietz, a friend and self-described mulberry connoisseur from Papillion, has assured me that mulberries make excellent wine. He has also eaten red mulberries, which I have not, and declares them sweeter and finer fare than white mulberries. Red mulberry is a far less prolific fruit producer than white mulberry, however, and being a high-branched tree, its fruits can be difficult to reach.

White mulberry is a tree for which I have mixed emotions. I find the sprawling, gnarled trees in our farmyard stately and their shade refreshing on a hot summer day. While cutting the invading young mulberries from our tree belts and fencelines, is anything but fun, I suppose it is the price for having sweet mulberries with my pancakes. ■

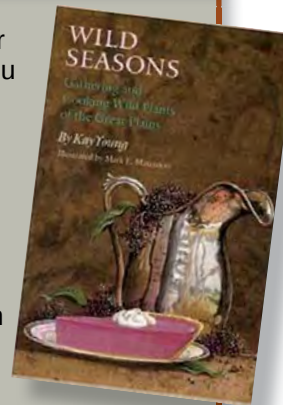
Caring for Mulberry Fruit

From Kay Young’s book *Wild Seasons*.

“In whatever manner you take

mulberries from the tree, transport them home in shallow containers so that the bottom layers of fruit will not be crushed. To avoid spoilage and to remove the tiny insects that are sometimes present between the segments of the fruit, sort the mulberries as soon as possible after they have been picked, then soak them for about 3 minutes in salt water – ¼ cup salt to 1 gallon of water. Drain the salty water and very gently rinse the mulberries in clear water. It is important to handle the fruits gently. Because mulberries soon become moldy even when refrigerated, it is best to keep them no more than 24 hours after they have been picked.”

– Kay Young



Fresh-picked mulberries, cleaned and ready for eating, baking or freezing for later use.

April in the Parks

The wait-'til-next-month month

By Jeff Kurrus



PHOTO BY JEFF KURRUS

Left: The cabooses for overnight lodging at Two Rivers State Recreation Area near Yutan are a short walk from the area's trout lake, a spring favorite for visitors.

Above, right: While April showers may bring many May flowers, a Pasque flower comes as a welcome sight as winter loosens its grip at Chadron State Park. Known also as the Easter plant, its flowering begins as early as late March and peaks in April. In Nebraska, the flower is found primarily in the northern Panhandle.

Below, right: Mourning doves become an increasingly familiar sight in Nebraska during their annual northward migration which runs from March-May.



PHOTO BY JUSTIN HAAG

For many Nebraskans, April is the “wait-’til-next-month” month. Outdoor excursions are delayed a few weeks because of April’s unpredictable weather. Yet the photographers of NEBRASKAland Magazine are not afforded this opportunity. We treat this transitional month just like we do any other by capturing every image we can in hopes of convincing you that today is the best day to start your spring adventures.

And there’s no better place to start than Nebraska’s state parks and recreation areas. From the Panhandle to the southeast, variety awaits those willing to visit just a little earlier than normal this time of year. ■



PHOTO BY JUSTIN HAAG



PHOTO BY JUSTIN HAAG



PHOTO BY ERIC FOWLER



PHOTO BY JUSTIN HAAG

Above, left: The distinct sounds of the Boreal chorus frog, such as this one at Red Willow State Recreation Area, begin filling the air as wetlands increasingly come alive.

Opposite: Similar to the landmarks documented by the westward pioneer, sites such as this one at Ash Hollow State Historical Park stand ready to greet visitors regardless of the season.

Above, right: Anglers walk the dam at Calamus State Recreation Area, pulling crankbaits behind long rods in search of spawning walleyes.

Right: Fort Kearny State Recreation Area offers visitors photo and viewing opportunities of cranes and other migratory birds.



PHOTO BY JULIE GEISER



PHOTO BY JEFF KURRUS



PHOTO BY ERIC FOWLER

Opposite: Combine fishing and wildlife watching at places like Eugene T. Mahoney State Park near Ashland, where this nesting goose was defending its lakeside nest during a visit last April.

Above: Grace Lovell of Adams shows her mother, Anita, and brother, Jonah, something she found while searching the forest floor for morel mushrooms with her family at Indian Cave State Park during the park's annual Outdoor Adventure.

Right: Largemouth bass fishing opportunities abound statewide this month, especially at destinations such as Box Butte Reservoir, Lake Wanahoo, Louisville, Mormon Island, Sandy Channel and Summit Lake state recreation areas and Smith Lake Wildlife Management Area where bass numbers are high.



PHOTO BY JEFF KURRUS

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PHOTO BY JEFF KURRUS

Chat Canyon

Preserving a Niobrara Gem

Story and photos by Eric Fowler

The Niobrara River is an incredible showcase of biological diversity and scenic beauty. Thanks to a first-of-its kind partnership, a small piece of it, known as Chat Canyon Wildlife Management Area (WMA), is a demonstration site that is now open to all to explore and for youth to hunt.

Located southeast of Nenzel in Cherry County, the 460-acre parcel includes 2¼ miles of Niobrara River frontage lined with mixed hardwood forest and wetlands. Ponderosa



The sun shines through fog rising from the Niobrara River on a fall morning at Chat Canyon Wildlife Management Area. Opposite: Prairie wild rose, an important fall and winter food for sharp-tailed grouse and prairie chickens, grows in the uplands.

pine and eastern red cedars grow in the canyons that rise more than 150 feet from the river to Sandhills prairie. Water seeping from the Ogallala aquifer forms streams and waterfalls in a few of those canyons on the south side of the Niobrara. Some flow into riverbottom wetlands, but all add to the Niobrara's flow, just as so many others do on the river's course across northern Nebraska.

Rocky Mountain elk, white-tailed and mule deer, wild turkeys, northern river otters, sharp-tailed grouse, greater prairie chicken, waterfowl, shorebirds, bald eagles, least terns, piping plovers, whooping cranes and numerous songbirds, including the yellow-breasted chat, for which the



Located southeast of Nenzel in Cherry County, Chat Canyon is a 460-acre wildlife management area with a unique biodiversity of plant and animal species.

Despite its bright yellow chest, loud song and conspicuous display flights, the yellow-breasted chat, the namesake of Chat Canyon WMA, is easily overlooked because of its skulking nature and the denseness of its brushy haunts.



PHOTO BY BRIAN E. SMALL



Aromatic aster is one of many wildflowers found on the area.

area is named, live there or visit.

“This place is one of the most beautiful pieces of land I’ve ever seen,” said Jackie Canterbury. “It’s pretty stunning. And secluded. It’s a wild place.”

Canterbury and Jack Gustafson sold the land to the Nebraska Forest Service, which funded the majority of the \$565,000 purchase price with a U.S. Forest Service Forest Legacy Grant. A \$235,000 grant from the Nebraska Environmental Trust was another major funding source for the acquisition, which, with assistance from the Conservation Fund, was also funded in part by the National Wild Turkey Federation and the Nebraska Game and Parks Commission. The area was transferred to the Commission, which will oversee management with help from the Nebraska Forest Service.

The land could have been sold to others, possibly for much more than the appraised value. But Canterbury, a California native now living in Wyoming and self-described “public land junkie” who has studied birds throughout the world, didn’t want to see it developed into riverside homes or simply grazed by cattle. She spent seven years studying the songs of yellow-breasted chats that mate and nest in the thickets along the river, research that earned her a doctoral degree from the University of Nebraska.

“I think one of the most important things that really brings



A game trail leads through an understory choked with eastern red cedar on the north-facing slopes leading to the Niobrara River. As part of its plan to use the area as a demonstration site, the Nebraska Forest Service will thin the ponderosa pine forest and remove invasives such as cedars to improve the overall forest health and reduce the chances of catastrophic wildfires.



A ponderosa pine grows in a restored prairie on the north side of the Niobrara that features a mix of grass and wildflowers.

people together is a piece of land and being in wild places, and that’s kind of what I wanted to give,” Canterbury said. “I’m honored for somebody to get it that will protect it and not develop it. That’s my goal.”

That the Nebraska Forest Service was able to purchase the property came about after it was unable to close a deal in its initial target area under the Forest Legacy program: The Pine Ridge. The national competitive grant program aims to protect quality forest lands that are under a threat of subdivision or fragmentation. That could’ve easily occurred on the north side of the river, where easy access by county road could’ve made lots on a terrace above the river attractive to those wanting their own piece of paradise, said Scott Josiah, director of the Nebraska Forest Service. “I’m thrilled,” he said. “I think it was a fantastic use of public money and protects a unique property.”

The Forest Legacy Program also requires that forests continue to be managed through thinning and even timber harvest. That fits perfectly into the Forest Service’s goal of improving the health of the state’s forests.

“Because a fair number of landowners along the Niobrara River haven’t yet thinned their forest, this can serve as a demonstration of how to do it in a

Solitude at Chat Canyon WMA

Young hunters, birdwatchers and other nature lovers will find plenty to enjoy at Chat Canyon Wildlife Management Area when it officially opens to the public April 1. And thanks to the remoteness of the area, they are likely to have the 460 acres to themselves.

Access to the north side of the river via Anderson Bridge Road, a gravel county road known locally as the River Road, isn’t difficult. Access to the south side, however, requires a 4-wheel drive to navigate three-plus miles of two-track trail roads through the Samuel R. McKelvie National Forest and an easement across private property that separates the wildlife management area from the forest.

Parking lots are being developed, but other than some short stretches of trail roads that will be maintained as service roads, visitors will need to follow game trails or blaze their own walking paths through the grassland or forest to access the far corners of the property.

Hunting access on the property will initially be limited to youth, special needs hunters and anyone with a valid elk permit for the Niobrara River Unit. Youth will be able to reserve the north or south side of the property through the Pass Along the Heritage (PATH) program, primarily for fall or spring turkey seasons and archery, muzzleloader or firearm deer seasons.

Reservations can be made online at [OutdoorNebraska.org/PATH](https://www.outdoornebraska.org/path).

With few pieces of public land on which to hunt elk in the region, the addition of this one will be welcome to those with a permit.

Hardy paddlers can drag their canoe or kayak from the north parking lot to the Niobrara River, but they will find easier access upriver at the public access point on Spur 16F south of Nenzel. From that launch, it’s a two-mile float to the west end of the property and two more miles in which adventurers can stop for a hike or find the perfect spot to stop and set up a backcountry camp. From the east end of the area, it’s another eight river miles to Anderson Bridge Wildlife Management Area and another good access point next to the bridge.



A spike bull elk runs along a fenceline at Chat Canyon Wildlife Management Area. Elk found their way back into the Niobrara River Valley in the 1990s after more than 100 years of absence and numbers are increasing. They are thought to use the Chat Canyon area most often in the winter, and visit sporadically the rest of the year.



Bush morning glory blooms on a September day in the prairie north of the Niobrara River.

way that protects and preserves the integrity of the site and the land,” Josiah said. “We can do it to maximize the management of wildlife as well as protecting the forest from the risk of wildfire and pests. We’re hoping eventually that these techniques and approaches rub off on more landowners.”

Thinning forests will prevent catastrophic wildfires like the ones that burned hundreds of thousands of acres in the Pine Ridge and Niobrara River Valley in 2006 and 2012. Those fires raced through overcrowded stands of trees. In the Niobrara Valley, cedars choked the understory of many pine forests and served as a ladder that carried the flames into the forest crown. In areas that are thinned, fire can stay on the ground where it is easier to fight.

The Niobrara River Valley is just one of many places in Nebraska where cedars are spreading. In 1983, there was an estimated 42,000 acres of cedar forest in Nebraska. In 2005, that total had ballooned to 172,000 acres. By 2010, it had doubled to 350,000 acres. “We’ve got to get this under control so we don’t have these catastrophic wildfires,” Josiah said.

Once the forest is thinned and fire breaks established, the Commission envisions using prescribed fire and short-term, high intensity grazing, or a combination of the two, to replicate the historic disturbances under which the grasslands and forest evolved. This will help increase the diversity of plant life and also control regrowth of cedar trees in areas where they were removed.

Canterbury had already burned and reseeded 50 acres of grasslands on the north side of the river to restore the diversity of grasses and wildflowers that had been lost to years of grazing, which hasn’t occurred on the area since

they purchased it in 1996.

“If you’re a connoisseur of habitat, there’s every habitat around,” Canterbury said. “Grassland and forest and wetlands. It’s pretty amazing and very cool.”

“It’s a beautiful mix of different plant communities and ecotypes,” said Josiah.

And now, it is there for all of us to enjoy. ■

The National Wild Turkey Federation’s \$13,655 contribution to the purchase of Chat Canyon Wildlife Management Area came through its *Save the Habitat. Save the Hunt.* initiative.

The program aims to increase the number of hunters, which fund the majority of wildlife management in the United States through the purchase of hunting permits and the payment of excise taxes on their equipment, by improving game populations and increasing access.

The goal of the program is to raise \$1.2 billion to conserve or enhance more than 4 million acres of upland wildlife habitat, create 1.5 million hunters and open access to 500,000 acres for hunting, shooting and outdoor enjoyment.



Marsh fern grows in the moist riverbottom soils on the area.



Water seeping from the Ogallala Aquifer in a canyon on the south side of the river feeds a stream that flows over a small waterfall.

junior journal

from NEBRASKAland's Trail Tales magazine for kids

interesting notes for readers of all ages

by Lindsay Rogers and Donna Schimonitz

The Threat to Bats

Shaun Dunn, Nebraska Game and Parks Commission

Nebraska has 13 species of bats, all of which are insectivorous (they eat insects). This is helpful to farmers because the bats eat the insects that eat the farmers' crops. By having bats around, farmers need less insecticide to control pest insects.

Unfortunately, a fungus is infecting many bats when they are hibernating (sleeping through the winter). This fungus is called White-Nose Syndrome (WNS), because the fungus grows on the bats' ears, nose, and wings, turning those areas white. It's a cold-loving fungus that spreads easily from bat to bat while they are in their hibernaculum (where bats hibernate, such as a cave, mine, or other cool, dark, moist location). The bats huddle together in groups of a few dozen to several thousand in the biggest hibernaculums. When the bats huddle together, the fungus can easily move from one bat to another and infect the whole colony within a short time.

White-Nose Syndrome causes the bats to wake up many times during the winter when there is no food for the bats to eat. As a result, the bats starve and eventually die, sometimes hundreds of them in a single cave. It was first found in New York state

in 2006 and has been moving west ever since. And while WNS has not been found in Nebraska, it has been suspected or confirmed in several states close to Nebraska, including Illinois, Iowa, Minnesota, Missouri, and Oklahoma. If WNS makes it to Nebraska there could be a negative impact to our crops and farmers.

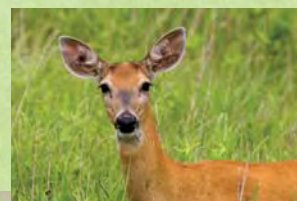
Of the 47 bat species in the United States, only seven have been found to be affected by WNS. The fungus seems to mostly affect the bats that hibernate in caves and mines in large numbers. Other species of bats hibernate in small groups in trees, barns, or other sheltered areas, perhaps preventing the fungus from growing on them. But scientists need to do more research to see what species are affected by WNS.

Hopefully, Nebraska's bats will not be affected as seriously as some states where WNS kills entire populations or groups of bats. In the United States, some scientists estimate more than five million bats have been killed by WNS so far. Scientists will be monitoring bats in Nebraska to look for evidence of WNS over the next few years.

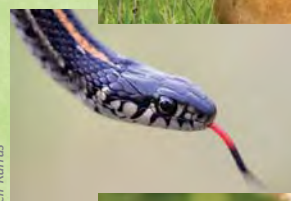
Bats are fascinating mammals and are vital to many ecosystems in Nebraska and the rest of the world.

Let's Go for a Hike!

Identify the Nebraska animal in each photo.



Jeff Kurnus



Jeff Kurnus



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Being prepared for your hike is really important. Here is a checklist of supplies you should bring depending on how long you will be hiking.

- ☐ Trail Map
- ☐ Water
- ☐ Snacks
- ☐ Simple First Aid Kit
- ☐ Sunscreen
- ☐ Bug Spray

Optional items to bring:

- ☐ Camera
- ☐ Binoculars
- ☐ Field Guides
- ☐ Journal and Pencil

ANSWERS: White-tailed Deer (Doe), Garter Snake, Silver-spotted Skipper, American Kestrel

NATURE CALENDAR

- **White pelicans migrate through:** April through May
- **Chokecherry in bloom:** May through early June
- **Look for Morel Mushrooms:** Mid-April through early June
- **Spadefoot toads emerge from hibernation with first rains of spring:** March through early April



American white pelicans photo by Jan Farnar

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▲ Jackrabbit hunt in 1929 on Peter Johnson's farm (my great-grandpa) 3½ miles west of Colon, Nebraska. Pictured (L-R) Ernest Johnson (my grandfather), two cousins and Albert Johnson (my great-uncle). Jacks as big as the dog. I still hunt this farm, but no jacks today.

— Larry Johnson, Malmo, Nebraska



▲ This is a photo of my grandfather, Frank Cornwell, and Daisy, his favorite hunting dog. Frank, who lived in North Platte his whole life, was the town blacksmith. His shop, formerly Van Cleave and Cornwell, and later, Cornwell Blacksmith, was on West 6th Street. Frank was a lifelong hunter, and shared his love of hunting with his sons Dean and Wes. He was known to say, "When it's so cold, you can't stay warm at home in bed with your wife, you might as well go hunting." The writing on the back is that of my grandmother, Bertha, who apparently had the photograph tinted and enlarged as a Christmas gift in 1940.

— Karen Cornwell, Los Angeles, California



◀ Top: My grandfather Monroe Brunt antelope hunting with friend Smalley in the sandhills north of Lewellen.

Bottom: Trout caught by my grandfather Monroe Brunt and his friend Neil Dunbar in North Platte east of Lewellen in May, 1947. They were going to college in Chadron at the time. They caught them with fly rods. I still have the tackle box shown in the picture.

— Ryan Hurlbutt, Kearney, Nebraska



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

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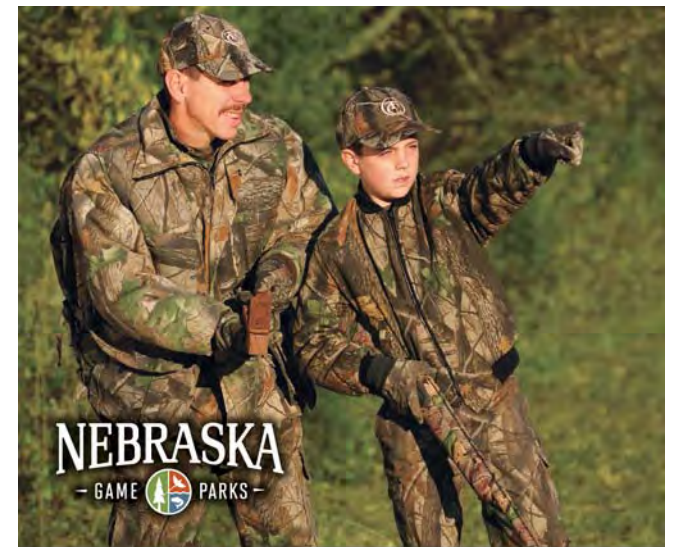
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Wild Turkey and Brown Rice-Quinoa Soup

A simple, healthy soup packed with protein.

By Jenny Nguyen

Wild turkey, like many game birds, greatly benefit from special treatment. I am a huge fan of brining birds, and when possible I also like to age them. But for a simpler method, using wild turkey breasts, and even legs, in soup is an equally satisfying, yet easy meal. This stretches the meat further, and eliminates concern for overcooking it.

If I had to pick only one type of dish to eat, it would be soup. Chicken and rice soup is one of my favorites, and recreating it with wild turkey made perfect sense. To make the soup more interesting, I chose brown rice and quinoa. Brown rice holds up better than white rice and quinoa is delicious and high in protein. If you're one who only likes to eat soup in cold weather, hurry and make this now before the milder temperatures of spring are truly here to stay.

Servings 4-6

Prep Time: 15 minutes

Cooking Time: 1 hour

Ingredients:

- 1 pound of wild turkey breast
- 1 cup of uncooked quinoa and brown rice mix
- 4 cups of low sodium chicken broth
- 4 cups of water
- ¼ cup of diced carrot
- ¼ cup of diced celery
- ¼ cup of diced red bell pepper
- ½ cup of diced onion
- 1 tablespoon of butter
- 1 tablespoon of olive oil
- 2 sprigs of fresh thyme
- 2 bay leaves
- 1 teaspoon of dried parsley, or 1 tablespoon of fresh chopped parsley
- ½ teaspoon of paprika
- kosher salt and black pepper
- Tabasco sauce, optional

1. Cook quinoa and brown rice mix according to package directions, set aside. Then in a pot, bring broth and water to a boil. Add turkey breast(s) and boil for 10 minutes, or until cooked through. Remove turkey and allow to cool before shredding into smaller pieces. Set aside. Return broth to a simmer and cover.

2. Heat 1 tablespoon of olive oil in a sauté pan over medium-high heat. Add carrot, celery, red bell pepper, onion and a pinch of salt, sauté for 5-7 minutes or until onions turn translucent. Remove vegetables from the pan and set aside. Heat butter then brown shredded turkey with a pinch of salt until lightly browned.



PHOTO BY JENNY NGUYEN

Making turkey soup with brown rice and quinoa is a more nutritious, high-protein alternative to white rice.

3. Add to the broth turkey, sautéed vegetables and as much quinoa/brown rice as you want. Add thyme, paprika, bay leaves and parsley. Add a pinch of salt and pepper, cover and simmer for at least 30 minutes to allow flavors to marry. It will also allow rice to soften and thicken up the soup. Adjust seasonings, remove bay leaves and serve with bread or crackers. Add a couple drops of Tabasco sauce in your soup if you'd like. ■

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

 Read Jenny's **NEBRASKAland** blog "Midland Musings."



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Sharing History

It's always a good feeling to put a face to a name, particularly if one has been following a Nebraskan writer's historic stories in magazines for as long as their own history of reading magazines goes.

Even better when that very writer strolled into my office one morning, just as I was beginning my own history as a Nebraskan writer for a magazine.

"Tom Buecker," he stuck out his hand and gave a firm shake. "Nebraska State Historical Society."

He was well-known and respected as a curator at the Fort Robinson Museum for 26 years following eight years at the Neligh Mill State Historical Site, and had been contributing to *NEBRASKAland Magazine* since 1979, before moving to Lincoln to work at the Nebraska History Museum in 2011.



Naturally, I had questions. But he shot first, after a quick glance at my desk. "I see you like old photographs," he said with smiling eyes.

The next afternoon, it was I gazing happily through old photographs at his desk. He had invited me to visit and shared rarely seen – most never-before published – stereoscopic images of the Red Cloud Agency circa 1870s, a recent acquisition of the Nebraska State Historical Society.

He was as lively as the 15th Street intersection outside his downtown Museum window as we examined scenes of the Plains Indian life on the landscape.

We speculated into the afternoon: the

authenticity of early photographs, deciphering the white handwritten captions and sharing stories his research had uncovered. It was a collection that would complement his latest manuscript, *Last Days of Red Cloud Agency*, with publication scheduled for the fall of 2016, a compilation of his meticulous research and extension of his previous publications describing the extensive history of Fort Robinson.

I walked away with more questions than ever, but knowing he had helped me to answer the one that I hadn't even thought to ask: Why is it vital to know our history, and continue to share it with others?

The moment word came of Tom's passing at the Kennard House, I knew our history as Nebraskans would change. Even in his final moments, he was caring for a historic structure, as he did the others – the many monuments of history that had stood tall, witnessed much and shared many a good story – reminding us that our history is always a part of us.

Just as he will always be.

Amy Kucera, Associate Editor
February 10, 2015



Tom Buecker pictured at Fort Robinson State Park in 2001.

A Lakota man in full headdress at Fort Robinson, 1870s.



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