Late-day sunlight shines off of the James Family Conservatory at Eugene T. Mahoney State Park. Photo by Jeff Kurrus.

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NEBRASKAland

December 2009

Wildfowl Hunting Snapshots

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NEBRASKAland

Volume 87, Number 10, December 2009

FEATURES

DEPARTMENTS

Cover: A lanyard with calls and bands provides a snapshot from waterfowl season. See story beginning on page 12. Photo by Jeff Kurrus.

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Caught in the Snow

On October 10 we had unseasonal temperature and snow accumulation in our area, with amounts ranging from five to eight inches. We were in the eight-inch region and tied the record with a high of 41 F and a low of 27 F.

When I went outside to take pictures of the winter wonderland, I noticed the biggest and coldest gray tree frog I've ever seen. The poor thing moved in slow motion. I snapped a few photos, put him in a bucket and brought him in the house to warm up. After he recovered, I made a shallow hole in the warm garden soil, put him in and covered him lightly. I hope he remained in the hole, because that night the temperature fell into the 20 degree mark.

Marion Ball
Arlington, Nebraska

Eggs that Flock Together?

This summer my wife took down one of our hanging baskets to water it and noted this nest with four eggs. Since the eggs were different colors, we assume two species were using the same nest. Just curious if you had seen this before and if you could identify the species that laid the eggs. I know that a house finch was one of the species, but we're not sure if they hatched successfully.

Kevin Byington
Omaha, Nebraska

Joel Jorgensen, nongame bird program manager, responds:

There is a perfectly good explanation for this observation. You are correct, there are eggs from two different species of birds in the nest. The small, pale eggs are that of the house finch. This species has a penchant for nesting in hanging, potted baskets. The larger eggs are from a brown-headed cowbird, a nest parasite. Brown-headed cowbirds lay their eggs in other species' nests and have the host species raise their young. Cowbirds never build their own nests.

An Unexpected Photo

Although I live in Ontario, Oregon, several of my friends know that I was born and raised in Nebraska. I was actually born on the banks of the Platte River south of Shelton ... an Oregon Trail baby! One day one of my friends gave me several dozen *NEBRASKAland* magazines. He had found them at a local garage sale and thought of me. Imagine my surprise while reading them to find a picture of my dad, Roland Hackbart, on page 29 of the April 2000 issue. The picture had been taken before he met my mom and 30 years before I was born. Even though the magazine came to me through a roundabout way, it was no less enjoyable. Thanks.

Dale Hackbart
Ontario, Oregon

Thanks for the Memories

I would like to commend Jon Farrar on his article "Save the Gizzard" in the November 2009 *NEBRASKAland*. It brought back fond memories of my Dad and me cleaning the ducks and geese when I was younger. My family, as well as many others, always ate the whole bird. Nobody turned up their noses at the dinner table.

Today's hunting shows rarely highlight eating the whole bird when recipes are shown at the end of the show. Some of the younger generations watching now have a "substitute teacher." In this hurried world, many traditions have been lost.

I admire the past generations for eating everything they shot. By utilizing discarded material they could make something out of nothing – decoys, blinds and feather dusters, just to name a few. It was made to work and last.

My family has enjoyed the many diverse articles published in *NEBRASKAland* over the years. Our favorite ones center on the state's hunting, particularly history articles. Thanks for everyone's hard work in producing a superb magazine.

Lisa Bringewatt
North Platte, Nebraska

Sassy Cat

I was just reading the letter in the November 2009 issue questioning the bobcat picture that was in the October 2009 issue of *NEBRASKAland Magazine*, so I thought I would send you a picture of our domestic housecat, "Sassy." I always say she looks kind of like a bobcat. Every marking on her body and head are exactly the same on one side as on the other side. I think she has Siamese blood in her, as she has the blue eyes.

Janett Wohlers
Crawford, Nebraska

Prices Incorrect

The Gift Collection portion of last month's *NEBRASKAland* incorrectly listed the current prices for lifetime hunting and fishing permits. For a listing of the correct prices, contact your local district Commission office and ask for a copy of the Lifetime Permits and Stamps brochure or go to OutdoorNebraska.org and click on "License & Fees." We regret the error.

— the Editor

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

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Nebraska Wildlife Crimestoppers 1-800-742-7627

PHOTO BY BILL HAGER

Blue Moons

Jon Farrar

This month, on the last day of the last of the "ought years" most of us will ever see, there will be a "blue moon." Do not expect a moon blue in color; rather it will be the second full moon in the same month. This second full moon happens about every three years. The metaphorical phrase "once in a blue moon," was once a commonly used expression meaning something uncommon or rare.

The explanation for blue moons is rather simple mathematics, and yet another example of man's sense of order not aligning with nature's sense of order. There is a full moon every 29.5 days but our Gregorian calendar months range from 28 to 31 days (29 every fourth year in February, the Leap Year), and so the day of the month of the full moon advances through the calendar months. Whenever a full moon occurs on the first day or two of a month is the time a second full moon will appear at the end of the month.

A rare phenomenon, last occurring in 1999, and happening about once in every 19 years, is two blue moons in the same year. This most often occurs in January, as February has less days than the 29.5 days in which moon phases go full cycle. In those rare years, there is no full moon in February.

An older definition of a blue moon is a third full moon of a season (as summer), the significance of which is rather obscure as most four month periods have four full moons. And, there is a more literal meaning of blue moon – a moon that is bluish in color because of dust particles or smoke in the atmosphere.

There will not be another blue moon until November 2010, and none in 2011.

Record Elk Harvest

As of late-October, hunters harvested a record 66 bull elk this fall season, compared with 57 taken in 2008.

The bull elk season, which ended October 25 in all units except the Boyd Unit, resulted in a success rate of 80 percent for 82 bull elk permit holders. The Hat Creek Unit had the highest rate at 100 percent, followed by Niobrara River, 84; Bordeaux, 81; Ash Creek, 78; North Platte River, 68; and Box Elder, 67.

Forty cows were also taken during the first half of the antlerless elk season, which also closed October 25 for all units except the Boyd Unit. The second half continues December 1-21.

PHOTO BY ERIC FOWLER

Goose (or Duck) Kabobs

Eric Fowler

Ingredients:

Skinless, boneless duck or goose, bacon, bell peppers, onions, and tomatoes. You know, kabob stuff.

Marinate:

1 can beer (the cheap stuff is fine)
½ cup soy sauce
1 teaspoon ginger

Directions:

Cut duck or goose breasts and thighs into 1-inch cubes and marinate in the refrigerator overnight. Drain meat, wrap in bacon and thread onto bamboo or metal skewers with cubed vegetables between each chunk. Grill until medium or medium-rare (don't overcook), turning often and dousing fire started by bacon grease as necessary.

Alternatively, skip the marinate and sprinkle kabobs with seasoned salt before cooking.

A Look Back - December 1987

Jeff Kurrus

"There's a great deal more to come … from the new Eugene T. Mahoney State Park near Ashland, to expansion of Nebraska's very first state park at Chadron," was written in the December 1987 of the magazine in the article "Nebraska Parklands – Scenic Treasures and Outdoor Pleasures," a sure sign that things have definitely changed through the years when Mahoney is now the state's most popular park.

However, some things have remained the same. Current *NEBRASKAland* senior editor Jon Farrar was writing about waterfowl hunting then, as he did with his article "Ducklore Lodge – The Memories Storz Built," and he continues that trend in this month's photo essay entitled "Wildfowl Hunting Snapshots." In that same issue, Farrar introduced readers to the Ord's kangaroo rat in one of the magazine's popular sections of the time, "Notes on Nebraska Fauna." Coincidentally, Farrar revisited this mammal in the October, 2009 article entitled "Gnomes of the Night."

"The common boxelder, a member of the maple family, makes maple sweeteners available to plainsmen who adopt Yankee gathering and refining techniques," was the introduction to Doug Kapke's article "Sweet Harvest," which also included a how-to for making homemade syrup. And last was "Dickie Trammel And The Walgren Lake Monster," in which the writer, signed "Yrs. Sincerely, Clemens Babcock," chronicled the story of a friend's dog, Mamie, emerging from a hole in the ice during a winter fishing trip with a live crappie in her mouth. The truth of this story is still yet to be determined.

Short-horned Lizards

Chris Helzer

When you've got the kind of camouflage a short-horned lizard has, freezing in place is a pretty good way to escape notice from predators and prey – their sand-colored, rough skin blends extremely well into the dry terrain they live in. As winter approaches, however, these lizards prepare to freeze in a more literal way.

PHOTO BY CHRIS HELZER

In the fall, short-horned lizards dig a shallow burrow, four inches or so deep, in which they will spend the winter. While an adequate depth to survive in the southern United States and Mexico, four inches is probably a little inadequate in Nebraska. Because they manage to emerge each spring from those shallow burrows, even in places like southern Alberta, scientists believe horned-lizards might be able to survive, at least for a few days, being frozen solid.

This possible ability is only one of many interesting facts about short-horned lizards. To start, they are often referred to as horned or horny toads because their fat bodies and short legs make them look somewhat more like toads than lizards.

Unlike most reptiles, short-horned lizards are viviparous, giving birth to live young rather than laying eggs. They can have between 5 and 36 young, each just over an inch in length. If they can keep from being eaten by hawks, snakes, coyotes and other predators, horned lizards may live as long as five years and grow to a maximum length of about six inches.

Their cumbersome bodies make it difficult to move through dense vegetation, so they primarily inhabit open grassland areas where vegetation is sparse, and they particularly like warm, south-facing slopes. Their home ranges are less than an acre in size. Within that area they hunt for insects, particularly ants, by sitting still until prey comes within range.

Being cold-blooded, they soak in the sun on cool mornings and will flatten their bodies like a deflated tire to maximize their exposure to sunlight. During hotter parts of the day they narrow their body for the opposite effect, and when even that fails to cool them sufficiently, they dig themselves into loose soil or seek shelter in rodent burrows. When temperatures drop overnight, horned lizards often seek vegetation that is dense enough to provide some insulation against the cold.

In Nebraska, short-horned lizards are found mainly in the very western end of the state in places such as the Oglala National Grassland and Toadstool Park. If you're hiking in those areas, look around carefully in places where vegetation is sparse and you might catch a glimpse of one of the state's most unusual creatures.

New Quail Forever Chapter

A group of Howard County residents have formed the nation's newest chapter of Quail Forever (QF). The group, called the Central Nebraska Chapter of QF, plans to improve area habitat for bobwhite quail.

"Considering the tough times bobwhite quail are having due to habitat losses across much of the U.S., all of us in central Nebraska are pretty fortunate to have the growing quail numbers we've seen in the last decade," said George Burgess, the new chapter's president. "This chapter wants to make sure those bird numbers continue to improve and this is our way of giving back."

Formed in 2005, QF applies the successful Pheasants Forever model of empowering local chapters to determine how 100% of their locally raised conservation funds will be spent toward quail habitat. To date, four chapters of QF have joined Nebraska's 60 PF chapters.

The Central Nebraska Chapter will host Howard County's first ever QF banquet on Friday, November 20 at the Boelus Civic Center, beginning at 5:30 p.m. The chapter is planning a hog roast for the dinner. Tickets for the event are $40 and are available by calling Pete Berthelsen at (308) 754-5339, Ryan Lodge at (308) 750-1215, or George Burgess at (308) 390-0583.

To join or learn more about Quail Forever or Pheasants Forever chapters in Nebraska, go to www.NebraskaPF.com or call toll free (877) 773-2070.

Thank You

NEBRASKAland would like to thank the freelance writers and photographers who made such valuable contributions to the magazine in 2009: Michael Cameron, Mark Dietz, Judy Dye, Gary M. Fellers, Michael Forsberg, Liese Greensfelder, Bill Hager, Paul Haverkamp, Chris Helzer, Fran Higgins, W. Wyatt Hoback, Thomas R. Jones, Jeff Kooser, Margie Lukas, Elizabeth Mack, Matthew Marx, Pasquale Mingarelli, Tom Scheimo, Ron Stave, Dick Turpin, Justin Wambold, Julie Watts, and Greg Wingfield.


Hager


Higgins


Lukas


Mack

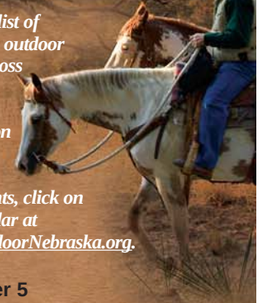

Marx


Scheimo

NEBRASKAland also acknowledges the many conservation officers, wildlife and fisheries biologists, and other Nebraska Game and Parks Commission employees for their contributions.

Lastly, *NEBRASKAland* would like to thank all of the outdoor experts who provided such invaluable research support for the more than 200 articles in this magazine's 84th consecutive year of publication.

Upcoming Events



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

December 5

- **Fort Robinson State Park Annual Historical Christmas Dinner** (sold out)

December 6 and 12

- **Christmas at the Bowring – Bowring Ranch State Historical Park**

Two sit down meals and entertainment fundraisers for local youth groups. Reservations are required.

Supper served at 5 p.m. on December 6 and 6 p.m. on December 12. $15 per person. Call (308) 684-3428

December 16

- **Bowring Christmas Lights – Bowring Ranch State Historical Park**

Enjoy Christmas lights, decorations, music and play cards and other board games. Refreshments will be served in the visitor center. Call (308) 684-3428

December 18-21

- **Christmas at the Cody's – Buffalo Bill Ranch State Historical Park**

The 1886 mansion, 1887 horse barn, log cabin and other outbuildings all have exterior lights. The mansion will have 18 lighted and decorated Christmas trees and decorations in the interior. There will be a large decorated Christmas tree in the barn where visitors can make their own ornament to hang on the tree. Santa Claus and Buffalo Bill will talk to visitors. Outside there will be roasted chestnuts, hot apple cider and cookies. Draft horse-drawn hay rack rides will be available (weather permitting).

5:30 - 8 p.m. $5 per person at the door, children 12 and younger are free, as well as military with current ID card. Call (308) 535-8035

December 24-25

- **Christmas Buffet – Eugene T. Mahoney State Park - Peter Kiewit Lodge**

5 p.m. - 8 p.m. on Christmas Eve, 11 a.m. - 6 p.m. on Christmas Day. Adults $13.95, children $6.95

December 31

- **New Year's Eve Adults/Kids Buffet – Eugene T. Mahoney State Park - Peter Kiewit Lodge**

11 a.m. - 6 p.m. Adults $13.95, children $6.95

Officer's Notebook

The Duck Check

One cold December morning about three years ago, Conservation Officer Sean McKeehan and I were checking duck hunters at the south end of Two Rivers State Recreation Area on the Platte River. On our way back across the river, Sean, who was leading us, started falling very slowly in the river. He was still going down when, all of a sudden, he did some kind of twist and tried to take me under with him. I let go of him and he went under the water up to his chin.

When he finally regained his feet and stood up, he was wet from his chin to his toes. As I looked at him, trying not to laugh, the three hunters we just checked yelled at us, "Thanks, we wanted to know how deep the water was there." Sean looked at me and said he was going to the truck to dry out.

By the time I met him back there, he had the defroster on high and the dash board was lined with two cell phones, a gun belt, and a wallet with all its paper in it. Sean also did not have much in the way of clothing on either. I got in the truck and started laughing uncontrollably as I drove him back to his vehicle so he could go change.

– Jeff Clausen, Conservation Officer, Waterloo

First, Officer Clausen failed to note how cold it really was that day. He also failed to mention was that I did not just fall in the river – I gracefully found a submerged root that my foot fit perfectly under. I tried my best to quickly pull my other foot up, however, the river current caused my foot to hook to the back of my other leg still wedged in the root. At that point, there was no stopping this tower from falling, especially with Jeff's "help."

With water rushing into my waders, I tried to get my legs downriver so the current would help push me back to my feet. Well, since Jeff was now standing on the downriver side of me, all the while pushing down on the back of my neck (so it seemed), I could not get my legs past him to help me stand up. I tried to kick my legs around a little more, which might have tripped Jeff a little, but I don't believe I gave him just cause to use the top of my head as a pivot post. But it did move him out of my way far enough that I could finally stand back up.

It could not have been more than two or three minutes after we crawled back up the bank that my waders had already started freezing solid on the outside. When I got back to the truck, I struggled forever to get those frozen stiff waders off, remembering that when we finished checking duck hunters, we were to appear on Greg Wagner's radio show.

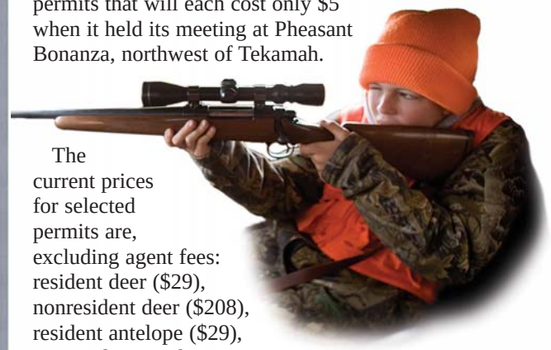
As Jeff drove back, he replayed the story, laughing continuously. I also had to relive the whole thing again when my wife showed up at the office and, of course, once we were on Wagner's radio show. While I did not understand the humor that day, nowadays I will at least give a smile when the whole fiasco gets brought up again … and again … and again.

– Sean McKeehan, Conservation Officer, Ashland

Changes in Hunting Regs

There has been a national trend of declining participation in hunting for years, but at their October meeting, the Nebraska Game and Parks Commission took a big step to to attract more young big game hunters.

The Board of Commissioners approved youth deer, turkey and antelope permits that will each cost only $5 when it held its meeting at Pheasant Bonanza, northwest of Tekamah.



The current prices for selected permits are, excluding agent fees: resident deer ($29), nonresident deer ($208), resident antelope ($29), nonresident antelope ($149.50), resident turkey ($23), and nonresident turkey ($90). All hunters, including youth, pay those prices. Starting next year, youth under age 16 may purchase those permits for $5 each.

Other permits were created and fees amended by the board: In an effort to raise funds for such things as acquiring land, supporting public access programs and improving habitat, the board raised the cost of an annual Nebraska Habitat Stamp to $20. It also raised the annual Nebraska Aquatic Habitat Stamp to $10.

New permits that were created include nonresident paddlefish, nonresident combination hunt/fish permit, lifetime fur harvest, nonresident elk and nonresident landowner elk.

The board also raised the cost of a lifetime habitat stamp by $80 to $400 and created agent fees of $1 (purchased through Commission) and $2 (purchased through an agent other than Commission) for most hunting, fishing and fur harvest permits.

In addition, changes to the 2010 turkey hunting regulations also were approved – spring turkey permits are now valid for both the archery and shotgun seasons as long as the appropriate weapon is used.

The following changes were also made at the October meeting:

- A limited landowner applicant may be a spouse or child of the owner or leaseholder of qualifying land or a sibling sharing ownership of the land. The spouse or child need not be residing in the same household of the owner or leaseholder.
- Added landowner bull elk to the list of permit applicants who receive preference points if denied a permit and who lose all preference points if granted a permit. It also removes language that states all preference points will be lost if a person does not apply at least once for five consecutive years.
- Removed all restrictions on draw weight and draw length of archery equipment used to take deer, antelope, turkey, elk, and bighorn sheep.
- Added a regulation that archers hunting deer, antelope, elk, or bighorn sheep are not required to wear hunter orange during the firearm seasons for antelope, elk or bighorn sheep.
- Removed all restrictions on how long deer, antelope, turkey, elk, bighorn sheep, game birds or game animals may be possessed. Added language that states that it is unlawful to possess more than a possession limit of game birds or game animals.

Outdoor Message Plates

Mike Gleason's love for hunting in Nebraska and elsewhere is strong enough that it not only shows on his message plate – I HUNT – but his wife, Judy's, as well – I HUNT NE. A Holdrege native now living in Lincoln, Gleason is involved in Ducks Unlimited and the Safari Club, and while he's hunted around the world, he still enjoys walking the Sandhills for grouse and hunting waterfowl on the Platte River. Judy doesn't hunt, but loves the outdoors and joins Mike regularly.

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

Deer Meetings Scheduled

The Nebraska Game and Parks Commission will be scheduling meetings across the state in December to provide information on current issues and the management of deer and big game.

At the meetings Commission Wildlife Division district managers will be on hand to field questions and comments from those in attendance.

To find out when and where meetings in your area have been scheduled, contact your local Commission district office.

Turpin Time

Dick Turpin

This is for you archers, muzzleloaders, or even late-season rifle hunters. Take a small pile of clothespins and spray paint them fluorescent so they'll work at night or in the daytime.

Then throw a couple of them in your pocket and use this as your reference on the last blood spot you saw after you shoot a deer. You go five or 15 feet or 20 yards and find another spot … put a clothespin there and pick the first one up.

Keep leap frogging those clothespins and they'll help you establish a deer trail and won't lose the place you last found blood. ■

Wildfowl Hunting Snapshots

Photos and text by Jon Farrar

Another duck hunting season is nearly behind us. All that remains for us early shooters are a few birds in the freezer and, if we had occasional flashes of foresight in the thick of birds working our decoys, a handful of snapshots for the scrapbook – our new pup bringing back its first duck or a decoy; a best friend scrunched up in the corner of the blind sleeping; eggs, hash browns and sausage sizzling on a griddle.

LEFT: GARY EBERT SWEET TALKING MISSOURI RIVER MALLARDS. ABOVE: RICH WALTERS AND ASPEN ON THE NORTH PLATTE RIVER.

OPPOSITE: DUCK HUNTER'S CABIN APPROPRIATELY OUTFITTED WITH WONDERFULLY UNNECESSARY MEMORABILIA. **ABOVE:** THE LOGBOOK – A LINK BETWEEN HUNTERS OVER THE DECADES. **BELOW:** FAVORITE OLD DUCK CALLS.

If we are lucky, we hang our waders in a hunting cabin now and then. We are double lucky if that cabin has been around long enough to have accumulated all the memorabilia and paraphernalia needed to create the proper ambiance – unclaimed camouflaged hats on twisted wire coat hooks, a blue-glass Mason jar stuffed with curled tail feathers from drake mallards, a 1962 calendar from the local hardware store, a cigar box filled with duck calls with missing or bent reeds, an old wooden decoy with no head, and cast-iron skillets hanging on the wall with lovely patinas born of decades of pig fat. After supper there will be 10-point pitch or penny-ante poker. Light-sleepers hustle off to their bunks before the heavy snorers wind up for the night. Why do snorers fall asleep so quickly?

Dogs are not required to hunt ducks, but they should be. Not just because they find and retrieve birds that might otherwise be lost, but because they are part of the hunt, the best of them as good-natured companions as to be found in boat or blind. The best dog is always your own dog, but proper hunters love all dogs that do their job and are at least as well behaved as their two-legged companions. Waterfowlers take pride in their calling skills and shooting abilities, but the welling of pride when a new pup brings back its first duck or goose, that this dog may be the next in a line of "best ever" retrievers, knows no equal.

A hunting dog's enthusiasm is infectious, their powerful need to hold a bird in their mouths unexplainable, their tolerance for the worst of waters and weather a toughness we admire. Some dogs live most of their lives in outdoor kennels and that is a shame, for the dog and for the owner. Other dogs have their own recliner in the house. The more a dog and his hunter live together the better they come to understand one another: little routines, the meaning of the most subtle gesture – they come to communicate in ways far more sophisticated than electronics.

OPPOSITE: WALTERS' CHOCOLATE LAB FETCHES IN A DRAKE WIGEON IN NUPTIAL FEATHERS. **ABOVE:** EBERT CLEARS THE WAY THROUGH THE DECOYS FOR HIS YELLOW LAB PUP, MOOSE. **BELOW:** DOUBLE RETRIEVE BY MOOSE.

More ducks are probably killed on bluebird days than in the face of a storm, but waterfowlers persist in believing the best days are when there is "weather" about – sleet, driving snow and howling nor'westers. When a night wind suddenly begins flapping the canvas or rattling shutters, hunters clamber out of their beds extra early to make ready – work up a more hearty breakfast than usual, build coat-pocket sandwiches of bratwurst with onions and mustard on rye. Winter storms bring discomfort and misery as often as ducks – decoys foolishly left out and frozen in ice the next morning, a shotgun overdue cleaning and working sluggishly, balky outboards. But there is an undeniable magic in hunting such days, watching careening greenwings materialize out of a wall of snow only 50 yards from your decoys. How did they know they were there?

There is magic in hunting over water. Rowing out in the darkness before the first hint of dawn, the patter of coots running unseen across the water ahead; the nervous whimpers from your dog laying on hay in the bottom of the little duck boat, his head on the gunnel; the crunch of window-pane ice at the feet of cattail stalks as you push your boat into them. Blood never courses a duck hunter's veins so warmly as during a morning on the marsh or river – a steaming dog between his legs, shotgun across his lap, decoys bobbing before him, the vision of orange legs dropping down. It has always been that way. ■

ABOVE: FAVORITE OLD DECOYS IN THE BOTTOM OF THE BOAT. **BELOW:** BOATS DUSTED IN SNOW AT A MARSH-STYLE LAUNCH SITE IN THE SANDHILLS. **OPPOSITE:** DUCKS HUNG TO AGE ON THE CABIN WALL THE MORNING AFTER THE STORM FROZE THE MARSH. THE HUNT IS OVER.

Finding Art in Ice

Text and photos by Doug Carroll

Patience is a valuable virtue to have (or learn) when trying to turn a frozen chunk of water into a masterpiece.

Mike "Pudge" Mulder uses an electric chainsaw to carve a 300-pound clear block of ice into the shape of Nebraska.

Most people look at ice as something to scrape off their windshield, skate on or perhaps drill a hole through and do a little ice-fishing. For Mike "Pudge" Mulder, however, ice is a medium to be turned into a work of art.

Mulder, the Food Service Director at Eugene T. Mahoney State Park near Ashland, has been shaping blocks of ice into sculptures for more than 30 years and sees no sense in stopping now.

"I started working with ice back in 1976. One of the first ice carvings I did was for the Iowa Beef Packers Association's annual party. I carved the letters I.B.P in a block of ice and colored it with glitter like their company logo. I thought it was the best thing I had ever done back then, and it got me hooked on working with ice. I loved that feeling of making a block of ice come to life."

After shaping his sculpture, Mulder uses a dremel tool to carve letters in the ice.

Mulder estimates that he has now done between 1,200 and 1,500 ice carvings, anywhere from 20 up to as many as 100 in a single year, including doing 15 in one week for the grand opening of a casino in South Dakota. He's done ice sculptures for a variety of events and parties at numerous places that he's worked, including creating his works of art for several special events and holiday dinners at E.T. Mahoney SP.

To create his pieces, Mulder starts with special ice that is created by air being blown into water as it freezes to prevent bubbles or other defects from forming. The resulting block of clear ice weighs about 300 pounds and measures 20 inches wide, 40 inches high and 10 inches thick.

To shape the ice, Mulder uses an electric chain saw and a set of chisels made in Germany specifically for carving ice, chisels that he sometimes spends hours at a time sharpening until they are just right. He also has the chain saw blade resharpened after every two or three sculptures, and uses a dremel tool to dig out holes, outline the figures that he is cutting out, and do detail work in delicate spots.

Depending on the time of year, Mulder usually lets the block of ice sit outside the freezer for 30 to 90 minutes to air out and become "tempered," as he calls it, before beginning his work.

"You get used to knowing when the ice is just right to start on. Remember, you are using a chain saw to cut the body out, so you have to be careful – one wrong move or too much pressure and you could find yourself starting over.

"After I have the bulk of the ice removed from what I'm carving, then I use a shaver to bring it a little more into shape. A shaver is like five ice picks in one handle. After that I use the chisels to make the final shape and detail the ice until I get everything the way I want it. When I'm done with everything else, then I use a v-shaped chisel to put the final detail work on the ice – usually what I call vine work to decorate the surface up."

Mulder estimates that he spends about three hours on the average sculpture, but that can vary greatly depending on the complexity of the design.

"There are times that I can do a swan in about an hour, but I can also spend four or five hours doing the detail work on something like the wings of an eagle or the feathering on a swan. I know I sometimes spend way too much time working on the details – I always want them to look perfect, so it drives me crazy until I feel like it is just right. I have finished a carving many times and then went back in the freezer to work on it some more because I decided it didn't look the way I wanted it to yet."

Mulder credits his ice sculpting with helping do his normal work better. Being in the food service business, he said, requires him to be very understanding while training a lot of people how to do a variety of jobs – "from cooks to dishwashers and everything in between" – and working with ice has made him a more patient person.

"You cannot rush an ice carving – you need to make sure you take it easy and do it right the first time because you'll just have to start over if you're not being patient and careful."

Mulder has justifiable pride in every sculpture he has ever done, but like all artists, he has his favorite pieces, some with special meaning to him.

"One of the best ice sculptures I've done was for my daughter's wedding. Their last name is "Bolt" so Tarah asked me to do something with a bolt in it – a bolt like nuts and bolts. So I had a bolt coming out of a rock with the threads on the bottom of the bolt and a six-sided head at the top. I carved their initials on the top of the bolt and added a heart on the side of the bolt down at the bottom, so when I was finished it looked like this huge bolt and heart coming out of a rock."

No matter where life might lead him in the future, one thing is for sure – he'll never be too far away from his ice tools.

"I like working with ice because I like the end result. I like knowing people really appreciate what I have done – it's very self-fulfilling and it's an accomplishment people get to enjoy. Then you get to watch it melt away." ■

Red glitter adds color to Mulder's creation and helps the letters stand out in the almost finished piece.

The finished sculpture is now ready to be the centerpiece of a special dinner or other event.

Windpower
Not Entirely Green

Text and photos by Eric Fowler

Wind energy has the potential to be the state's newest cash crop, but many obstacles must be overcome to make that a reality, including ensuring that development does not adversely affect wildlife and wildlife habitat.

Green is the latest buzzword in the nation's vocabulary. Products are advertised as being green, stamped with green and packaged in green. Green is good. Not green? That's bad.

On the energy front, wind is being billed as the greenest of green, the environmentally friendly solution to our country's need for more power to run our computers, plasma TVs and, soon, electric cars.

PHOTO BY ROCKY HOFFMANN

Greater-prairie chickens are one of many wildlife species that could be adversely affected by the development of wind farms.

Wind energy currently provides a little more than one percent of the nation's electricity. While there is enough wind in the country to generate twice as much electricity as is currently produced by all sources, some estimate that wind energy could realistically provide 25 percent of our electricity, reducing both our dependence on foreign oil and the emission of greenhouse gas. Best of all, it's seemingly free for the taking.

Yet to be found, however, is an energy source without some environmental cost, and wind energy is no exception. The towers, rotating blades and transmission lines can all cause direct and indirect mortality to birds and bats, and wind farms can fragment rare or pristine landscapes, thereby degrading wildlife habitat as well as the scenic value of the land. Those concerns led the Nebraska Wind and Wildlife Working Group (NWWWG) to develop planning tools and voluntary guidelines for wind developers to consider when selecting a site for a new wind farm. The group also hopes the Nebraska Legislature will use the guidelines as it develops a state plan for renewable energy expansion under the interim study called for in the last session by Legislative Resolution 83.

The NWWWG was created by Nebraska Game and Parks Commission and U.S. Fish and Wildlife Service (USFWS) officials and also includes representatives from the Nebraska Energy Office and several conservation groups, including the Nebraska Wildlife Federation and The Nature Conservancy. It supports wind energy, but only if it is done in a way that does not adversely affect wildlife. "We want to see wind power developed in Nebraska, but we want it to be done right," said Tim McCoy, agricultural program manager with the Commission.

With its relatively low population and vast open spaces, there appears to be plenty of room for wind farms in Nebraska. According to the American Wind Energy Association, the state ranks sixth in wind energy potential, but 22nd in production, with a current capacity of 152 megawatts (MW) – enough to power 121,600 average-sized homes. The state's capacity more than doubled following the completion of the 80-MW Elkhorn Ridge Wind Energy Project near Bloomfield last spring, where private developers erected 27 three-MW turbines that rise 410 feet from the base to the tip of the 144-foot-long blades. Texas leads the nation with more than 8,700 MW of capacity and Iowa, which ranks 10th in potential, is second with more than 3,000 MW.

Studies conducted under LR 83 assume Nebraska will be producing 7,800 MW of wind energy by 2030, 50 times more than today and 87 percent of the capacity of the state's existing coal, nuclear and hydro generating facilities. Much of that power would be exported. To produce it, the Nebraska Power Association estimates 2,600 wind turbines would need to be erected. The total cost, including land leases and major expansion of the transmission grid needed to export the power, is estimated at $20 billion.

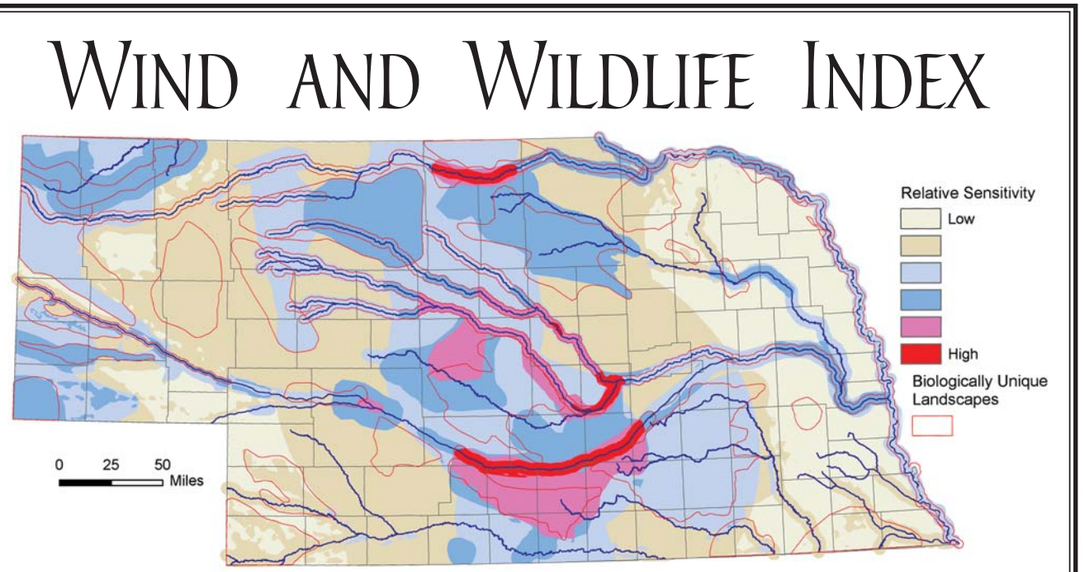
But while wind energy potential is high in Nebraska, so too is the potential for its development to pose serious threats to wildlife. The Central Platte River and the Rainwater Basin attract millions of ducks, geese, sandhill cranes and other migratory birds during their spring and fall migrations. While studies have found relatively few bats and birds are killed at most wind farms in the Midwest, there have been cases of significant losses to what some call the Cuisinart effect of the blades at some farms in the U.S. The most extreme case may be at Altamont Pass Wind Farm in central California, one of the nation's oldest and the world's largest, with nearly 5,000 small turbines spread over 75 square miles and along a major migratory bird route and amidst a major golden eagle nesting area. Studies estimate the spinning rotor blades annually kill as many as 4,700 birds, among them 1,300 raptors, including more than 100 golden eagles. To reduce losses, many towers have been moved or replaced with newer models believed to be less lethal to birds, and half of the turbines have been shut down from November through February. Such restrictions reduce the cost effectiveness of any facility.

A wind farm in the Rainwater Basin could also kill a large number of birds, and of greater concern would be the death of even one federally endangered whooping crane, either due to collision with the turbine blades or with the transmission lines that would need to be built to carry wind power to the grid. No more than 269 whooping cranes were expected to fly south this fall from their breeding grounds in Canada's Northwest Territories to their wintering grounds on the Gulf Coast in Texas. An estimated 21 percent of this flock, the only self-sustaining population in the world, was lost between April 2008 and April 2009. "Most mortality occurs during migration, and of all the known sources of mortality, collisions with power lines are the highest," said Martha Tacha, a biologist in the USFWS Grand Island field office.

In addition to direct mortality, fragmentation of the state's grasslands and the displacement of grassland birds is also a concern. A Kansas study found the lesser prairie chicken, a candidate for listing under the Endangered Species Act (ESA), has an innate aversion to man-made structures, likely an evolutionary adaptation to avoid high points where raptors might perch. The study predicted that nesting and brood-rearing hens of both lesser and greater prairie chickens, the latter of which is found in Nebraska, would avoid areas within one mile of a wind tower. A Minnesota study found nesting densities of grassland birds to be four times higher 200 or more yards from a wind tower than within 90 yards.

A few wind farms spread across the Sandhills, one of the largest intact grasslands in the world, might have a negligible effect on grassland birds. But with less than two percent of the historic tallgrass prairie remaining, one wind farm in or even next to a remnant tract in southeastern Nebraska could displace greater prairie chickens and

A Lincoln Electric System wind tower rises above a cornfield north of Lincoln. The guidelines developed by the Nebraska Wind and Wildlife Working Group encourage placing turbines on ground that has already been disturbed rather than in grasslands or wildlife habitat.



MAP BY RACHEL SIMPSON, NATURAL HERITAGE PROGRAM

Developed by the Nebraska Wind and Wildlife Working Group, this map shows how sensitive different areas of the state might be to wind energy development. Biologists considered the habitat needs and areas used by 14 wildlife, bird and bat species (including eagles, whooping cranes and bighorn sheep), their current population status and how wind towers could affect them. Major stopover points for migratory birds were also included. The map only gives a broad look at the state, however, and site-specific evaluations may still find that building a wind farm in low-sensitivity areas could have a significant effect on wildlife or habitat resources. For a detailed explanation on how the map was developed, go to OutdoorNebraska.org and search for "Wind and Wildlife."

other grassland birds, which collectively have seen the steepest population declines of all North American birds in the past 30 years, primarily due to habitat loss. Remnant native prairies are often found on ridge tops that are not suitable for farming, but also have the greatest wind potential. And wherever wind towers are built, roads must be built to service them, further degrading the grasslands. "There's not a lot of native prairie left and wind farms have a big potential to damage a lot of them," said Gerry Steinauer, a botanist with the Commission.

Potential and reality differ widely when it comes to wind power. Contrary to popular belief, the wind doesn't always blow in Nebraska, and sometimes it blows too hard for wind turbines to operate safely, meaning only 40 percent of generating capacity is actually realized, making site selection key in profitability.

Nebraska's unique position as the only state in the nation where all power companies are publicly owned is part of the reason it has lagged behind other states in wind development. With electric rates fifth lowest among the 50 states – and half of what Californians pay – paying for wind farms takes longer in Nebraska. Nebraska's public power companies are also not eligible for the same federal Production Tax Credits that private companies use to subsidize wind development in other states. In Iowa, state and federal incentives amount to a 45 percent subsidy in the cost of developing wind energy, which now provides 7 percent of that state's electricity.

Nebraska's competitive disadvantage was lessened in 2007 when state laws were changed to allow for Community-Based Energy Development (C-BED), and construction of new farms in the state is beginning to pick up. C-BED wind farms are financed by landowners, who are eligible for federal tax credits and also for state sales and use tax exemptions on equipment to build the facilities. Similarly, public power companies are partnering with private wind energy developers, agreeing to purchase the power from the corporations, which can build and operate the wind farms and collect the federal incentives. Nebraska Public Power District (NPPD) buys power from the owners of the Elkhorn Ridge facility and will also buy power from two similar projects in the works near Petersburg and Broken Bow, each of which will add 54 1.5-MW turbines and 80 MW of generating capacity.

So far, utilities and developers have shown an admirable concern for nature in their site selection. Two sites were proposed for the new wind farm near Broken Bow. One was located west of town in the Central Table Playas region, an area dotted with wetlands and frequented by migrating whooping cranes. After reviewing the NWWWG guidelines and touring the site with Commission and USFWS staff, NPPD ruled out that site and selected the other east of Broken Bow.

"We talked about it and we just felt it was not the right place to go," said Joe Citta, NPPD's corporate environmental manager who also heads up the environment committee for the Legislature under LR 83. "There was another area we had that was less intrusive on those wetland areas. It was just not the right thing to do for the cranes."

Such changes please members of the NWWWG. "Our initial concern was it was going to be full speed ahead and developers were going to say 'You aren't going to slow this down. We're going to do this when, where and how we want,'" McCoy said. "That hasn't been the case so far, and the more we do, the better it seems to be."

The change follows what appears to be a nationwide trend in the wind energy industry. In Kansas, Horizon Wind Energy, The Nature Conservancy and others formed a partnership to restore and enhance prairie chicken habitat and offset moderate losses of grassland habitat to wind farms. Similarly, at the Elkhorn Ridge project, NPPD completed conservation easements to protect prairie chicken habitat to make up for habitat taken up by the wind turbines.

Environmental considerations are part of any project NPPD develops, Citta said, whether it's wind power or transmission lines. The public aspect of NPPD and other Nebraska utilities helps ensure those considerations are made. "We all have boards or city councils or whatever to report to, and when we do our projects, it's all in the public eye," he said.

But such foresight is not guaranteed, nor is there any guarantee that a wind farm will never be built in the middle of the Rainwater Basin. Currently, there are few laws that could stop such a development. Wind farms of 80 MW or less are not required to obtain a permit from the Nebraska Power Review Board, so no environmental review is required to identify, minimize or mitigate losses to wildlife or wildlife habitat, as the NWWWG guidelines recommend. Larger projects could easily sidestep the current law by being divided among two developers or built in phases.

The NWWWG is also concerned about the growing phenomenon known as "turbine envy." Landowners can earn a substantial amount of money by leasing their land to wind developers for turbine construction, and as such, wind energy is being touted by some as the state's newest cash crop waiting to be developed and exported. Eager to cash in, some landowners may balk at any voluntary guidelines that tell them how they can use their land. Private developers may do the same.

The NWWWG hopes the work done under LR 83 could lead to the voluntary guidelines becoming requirements, ensuring wind farms aren't built where wildlife losses could be high or where rare, pristine habitats destroyed. The state of Wyoming recently took such a step, saying wind development would not be allowed in the core habitat of the sage grouse, also a candidate for ESA listing, and that wind farm and transmission line development would be carefully thought out.

LR 83 began in response to a number of wind energy-related bills introduced during the last session of the Legislature. "Job growth, additional landowner income and increased tax revenues are very attractive to legislators," said McCoy. "But changes that would allow commercial overdevelopment of wind without any tie to local funding or ownership, or without any required regulations or permitting, could turn Nebraska into the Wild West for wind development."

That concerns even the state's public power companies. The current transmission grid is built to handle the power generated and consumed in the state, plus the minimal amount that is currently exported. Increasing the state's wind generating capacity to 7,800 MW will require significant transmission line upgrades on both the state and regional distribution level. State utilities and their ratepayers don't want to be stuck with the estimated $4 billion tab that chore will carry.

More power will be needed to meet growing demand in the state, and wind can help meet that demand, possibly negating the need to build more power plants. But conventional production will still be needed when the wind doesn't blow, especially in the summer when demand is the highest.

So while wind power may seem to be there and free for the taking, harnessing it isn't as simple as putting up towers. Especially when it comes to finding a place for them.

"With new types of energy come new challenges," said McCoy. "From a wildlife standpoint, wind energy is different from anything we've ever dealt with before. These are towers in the air with spinning blades that can kill things, not just development that affects habitat on the ground.

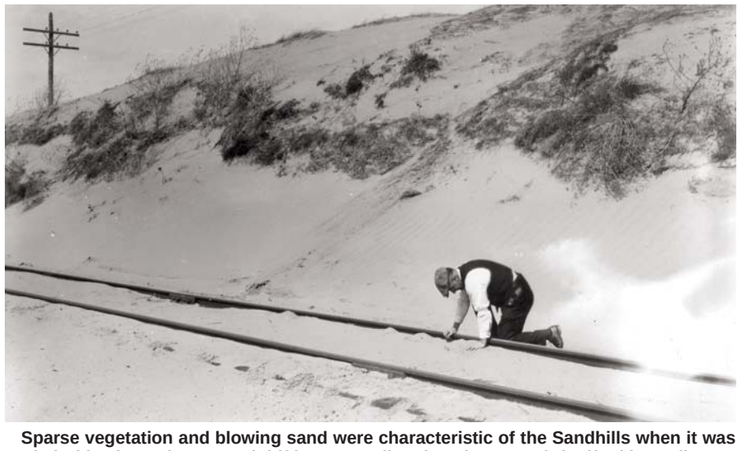
"It's got to be green, not just a little bit green." ■

The 27-turbine, 81-megawatt Elkhorn Ridge Wind Energy Project north of Bloomfield was built by private developers after Nebraska Public Power District agreed to purchase the electricity generated by the facility. Such agreements are helping wind power expand in Nebraska.

The Shifting Sandhills Vegetation

Text and photos by Gerry Steinauer

Prior to Euroamerican settlement, bison were the primary large grazer in the Sandhills. Here bison graze on The Nature Conservancy's Niobrara Valley Preserve.



NEBRASKA STATE HISTORICAL SOCIETY

Sparse vegetation and blowing sand were characteristic of the Sandhills when it was settled. This photo shows sand drifting onto railroad tracks west of Thedford in April 1924.

As the last ice age released its frozen grip on the continent some 12,000 years ago, spruce trees grew in Sandhills valleys and prairie grasses and aspen groves covered the upland dunes. In contrast, only 650 years ago, near the end of one of several, recurring long-term droughts, many dunes lacked plant cover; blown by wind, they rolled across the landscape. Early European explorers who entered the then prairie-covered Sandhills labeled them an uninhabitable wasteland. Not until the late-1870s did the first settlers, cattlemen, venture into the Sandhills and find its lush valleys and grassy dunes to their cattle's liking. Today, cattle ranching is still the region's principal industry.

Little impacted by farming and development, the Sandhills remain one of North America's most unspoiled grassland ecosytems. Covering 20,000 square miles of north-central Nebraska, it is the continent's largest sand dune field, with some wind-formed dunes reaching 400 feet in height and five miles in length. In valleys between dunes, the region's high water table provides for nearly 2,000 lakes and over a million acres of marsh and wet meadow.

Prior to Euroamerican settlement, the region's climate, along with wildfire and bison grazing, shaped the plant cover of the dunes and valleys. After settlement, cattle ranching and an invasion of non-native species has influenced Sandhills vegetation. If the past is a predictor of the future, the Sandhills' plant communities will continue to evolve in response to human occupation and climate change.

The Last 12,000 Years

As the ice age period drew to a close, glaciers to the north were in retreat but our region's climate was still cold and moist. Mammoths, giant bison and other ice age megafauna roamed the Sandhills. North America's post-glacial climate warmed swiftly, though, and around 11,000 years before present (yrBP), prairie begin to displace woodland in the Sandhills and elsewhere in the Great Plains. This rapid climate change and accompanying vegetation change doomed most megafauna species to extinction. Some archeologists believe hunting by the newly arrived Native Americans contributed to the extinctions. With the megafauna gone, modern day bison emerged as the Great Plains' primary large grazer.

As the Plains' climate continued to become warmer and drier, the region entered an intense drought about 9,000 yrBP, which lasted 3,000 to 4,000 years. The protective prairie grasses were parched from Sandhills dunes, exposing sands to erosive winds and dunes moved across the landscape. This major period of dune formation and migration in the Sandhills reworked most of the large, and nearly all of the small, dunes that filled the landscape.

During this drought, many Sandhills valleys were like oases among Sahara-like dunes, as groundwater sustained wetland vegetation. When migrating dunes buried valleys, new valleys formed in their wake. The presence of bison hoofprints buried deep in today's dunes – lobed impressions in the laminated sands and now visible in road cuts and blowout walls – suggests bison were common when the dunes were being reworked and forage and water were available in nearby valleys. With game available, Native Americans likely occupied the Sandhills during this period, possibly only seasonally, and migrated to more hospitable areas outside the region during the driest times.

Around 6,000 yrBP, the region's climate became wetter than in previous millennia and prairie grasses again covered the dunes. This condition has generally continued to the present, although it has been interrupted by three substantial periods of drought

and associated dune activity, each lasting several hundred years.

About 950 yrBP, the most recent of these prolonged droughts set upon the Sandhills. This one lasted 300 years. While not as severe as some earlier droughts, dunes were again laid bare and began migrating, although the lower, moist slopes of many larger dunes appeared to have remained grass-covered and stable.

"Wherever we look in the Sandhills, we find smaller-scale dunes formed during this period superimposed on the big dunes formed earlier," said Jim Swinehart, University of Nebraska geologist. "Even if the large dunes were stabilized at this time, they were hanging on by their fingernails, as only 15 to 30 percent plant cover will keep dunes stable."

NEBRASKA STATE HISTORICAL SOCIETY

Cattle were first brought to the Sandhills in the 1870s. Above cattle graze a Sandhills valley in 1926.

Swinehart believes the Sandhills' numerous wetlands helped keep lower slopes grass-covered. Through evaporation, wetlands release moisture to the atmosphere, moderating the local impact of drought on vegetation.

Arrival of the Euroamericans

James McKay, leading an Upper Missouri Company expedition into the eastern Sandhills in 1796 to locate native trading partners, was the first explorer to leave a written record of the region. At the time, the Sandhills were still the contested hunting grounds of several tribes, including the Cheyenne, Pawnee, Omaha, Ponca and the increasingly powerful Sioux. McKay's limited notes mention "many wild cattle [bison]" between the Calamus and North Loup rivers, but paint a bleak picture of what is now the rich grazing lands of southeastern Cherry County: "Great desert of drifting sand where there is neither trees nor soil nor rocks nor water nor animals of any kind."

In the first half of the 1800s, the region's reputation discouraged exploration as travel on loose sand was difficult by horseback and even more difficult by wagon. Most early westward trails skirted the Sandhills. Traveling through the Sandhills in 1855, Lieutenant G. K. Warren described the dunes north of the Calamus River as characteristic of the region: "The sand is nearly white … and about three fourths covered in coarse grass and other plants … the feet of the animals [their horses] frequently sinking so as to make progress excessively laborious."

In 1857, Warren led a military expedition into the Sandhills from the southeast to identify travel routes through the region. His route ran westward up the Middle Loup River Valley and then northward to the Niobrara River, at times following "buffalo and Indian trails." On July 29th, the expedition observed a herd of several thousand bison moving down the Middle Loup Valley. A few days later, near the confluence of the Dismal and Loup rivers, J.H. Snowden, the expedition's chief topographer, described the Sandhills on both sides of the river as "much broken and cut by the winds, supporting a very scant vegetation." Perhaps grazing by the bison herd observed days earlier had contributed to the scantness of the vegetation. When the expedition reached the Loup headwaters, Warren wrote: "Our greatest wish is to be away from it [the Sandhills] as soon as possible and never return."

Only two decades later, in 1876, the Sioux' hunting rights in the Sandhills were ceded and their primary food source, bison, had been exterminated by market hunters. Concurrently, cattlemen were becoming aware of the once-dreaded region's ability to produce beef. One story goes that in 1874, cattle herds being moved north to Indian agencies on trails along the western edge of the Sandhills were scattered by a winter storm. The cattle drifted east into the Sandhills, where they were feared lost in the sea of sand. Cowboys later found the cattle fat and thrifty in the lake country where they had survived the winter, and word quickly spread that the Sandhills could support livestock.

In July 1877, William F. "Buffalo Bill" Cody and famous U.S. Army Indian scouts Frank and Luther North drove 1,500 cattle to the south branch of the Dismal River Valley and claimed one of the first ranches in the Sandhills, an unfenced stretch of land about 20 by 30 miles in what is now Hooker County. Other cattlemen followed. Many of the largest operations were owned by European investors who demanded high profits and the range was heavily stocked. Severe winters in 1886 and 1887 killed many cattle and put many of the large livestock operations out of business. By the late-1880s, the open range years were waning. The departure of the large investors, the coming of barbed-wire fence, the draining and development of meadows for hay production, and windmills allowed cattle to be better managed and introduced a new type of ranching to the Sandhills.

The region's sandy, nutrient-poor soils and semi-arid climate had for the most part dissuaded farmers from settling in the Sandhills. The Kinkaid Act of 1904, however, allowed homesteading on 640 acres, instead of the 160 acres allowed by the earlier Homestead Act, and land-hungry farmers with new hope in the Sandhills flocked to the region, first settling and farming in the more moist, deeper-soiled valleys.

Today the Sandhills region is densely vegetated with prairie grasses, such as little bluestem and prairie sandreed.

In all, about 10 percent of the Sandhills was farmed in the late-1800s and early-1900s. Defeated by poor soils, grasshoppers and drought, most of the ill-fated sodbusters had left the Sandhills, abandoning their fields to the prairie grasses, even before the Dust Bowl years of the 1930s.

While history is a great teacher, it is often poorly remembered. In the 1970s, the proliferation of center pivot irrigation again spurred the plowing of drier valleys and gentler dunes for corn production. In a few years, high input costs and low commodity prices caused many of the fields to be abandoned and planted back to grass, most at the taxpayers' expense. Recent high grain prices again have speculators turning over Sandhills sod.

Open Sand to Thick Grass

"In the old days you could track a wolf all the way from the Loup River to the Dismal River" goes a Sandhills saying, describing the scant vegetation and abundant bare sand at the time of Euroamerican settlement. Widely-spaced plants of little bluestem, sand bluestem, prairie sandreed, sand lovegrass and other sand-adapted species provided enough cover to keep the dunes stable, although blowouts were abundant on dry, wind-exposed dune tops. Today, the dunes are more densely vegetated and most old blowouts are grassed over.

Ranchers and scientists speculate as to why the grass cover on the dunes has shifted from sparse to dense since settlement. Theories include elimination of heavy bison grazing, control of wildfires, a wetter climate and improved grazing management.

Because bison had largely been eliminated from Nebraska prior to extensive exploration or settlement of the Sandhills, there are few records of their impact on dune vegetation. The Sandhills at times likely supported bison herds numbering into the tens of thousands of animals. There are no reports of the huge herds, numbering into the hundreds of thousands of animals, reported for other regions of the Plains. Their impact to Sandhills vegetation likely remained localized, with areas near well-watered valleys being grazed and trampled more heavily than areas farther from water. When bison had grazed an area heavily they usually moved to ungrazed areas, allowing grasses to recover.

The impact of early cattle grazing is better documented and was likely more severe. During the late-1880s and early-1900s, the Sandhills were heavily stocked with cattle and areas were overgrazed. At the time there was little understanding of proper grazing management and a misconception of unlimited natural resources. Unlike the free-roaming bison, the fenced cattle could not migrate from heavily grazed areas and would continue to graze diminished grasses. Eventually stressed plants died, leaving more space between living plants.

In other areas of the world, cultivation and overgrazing by livestock have caused desertification and dune movement. In deserts of China's Inner Mongolian region, Swinehart has observed where heavy goat and sheep grazing has denuded vegetation and set dunes to blowing. "These dunes were mainly shrub-covered, and the goats and sheep had chewed them down to

The high dunes bordering Dads Lake on the Valentine National Wildlife Refuge are pocketed with healed and partially-healed blowouts (wind-excavated depressions on dune tops). The blowouts likely healed due to a relatively moist climate in recent decades.

the nub," said Swinehart. Unlike the Sandhills, overgrazing has previously eliminated grasses from these dunes. The fibrous grass roots help bind sand providing protection from wind, trampling and wildfire.

Wildfires were traditionally considered destructive to Sandhills prairie. In 1914, renowned Nebraska plant ecologist Raymond Pool wrote of Sandhills' prairie fires: "Driven by powerful wind, such a fire may sweep for miles across the hills … the immediate destruction of the range is not the only damage done by such a fire … the wind striking upon the exposed sandy slopes results in the rejuvenation of blow-outs and of general maximum sand movement."

Prairie vegetation's response to fire is tied to several factors, a primary one being precipitation. In the Sandhills, annual precipitation ranges from 14 to 24 inches, west to east. A study of fire-scars in tree rings of ponderosa pines on the Niobrara River bluffs in Cherry County adjacent to the Sandhills indicates that during presettlement times, wildfires burned though the region about every five years. Contrary to popular belief, recent studies in the Sandhills have shown that spring fire, followed by adequate rain, increases vegetative cover on the dunes. When grazing follows burning of Sandhills prairies, grasses can be stressed, but when given adequate rest the grasses quickly recover. Autumn fires allow little time for plant regrowth and can expose sands to erosive winter winds. By the following spring, however, new growth protects the soil.

Although, heavy grazing and fire were likely factors, most evidence indicates prolonged drought caused the sparse dune vegetation and abundant blowouts around the time of settlement. Studies of tree ring widths indicate the overall climate was drier and droughts more common in central Nebraska during the centuries prior to 1900 than during the 20th century. Many of the droughts were more severe than the Dust Bowl. The dunes were likely sparsely vegetated for centuries prior to settlement, and today's dense grass cover is favored only by a recent moist climate.

Many ranchers believe their careful grazing management over the last half-century has healed the dunes and blowouts. "Sandhills grazing management has changed a great deal since the early days of ranching," said Pat Reece, a retired rangeland ecologist with the University of Nebraska. "In recent decades most Sandhills ranches have changed from using season-long, continuous grazing to rotation grazing. Much cross-fencing has gone in, making pastures smaller. Cattle are often now in pastures for 30 days or less then moved to a new pasture, and grazed pastures may be rested for an entire growing season before being grazed again. Rest from grazing allows plants to increase energy reserves, grow extensive roots and produce buds for next year's growth. Good grazing management has certainly lessened the stress on dune vegetation."

Reece stressed that rotation grazing is not a cure-all for grasslands. If too heavily stocked or poorly managed, even the best grazing system cannot prevent damage to prairie vegetation.

Invasive Species

A consequence of Euroamerican settlement has been the introduction of non-native plant species to Sandhills plant communities. Most invaders are of Eurasian origin and were either intentionally or accidentally introduced to North America. Invasive species degrade plant communities, wildlife habitat and range production by displacing native vegetation, and can alter soil chemistry, hydrology, natural grazing and fire frequencies.

Fortunately, few non-native plants can compete with native plants in the hostile dune environment and Sandhills dune prairies have remained in good ecological condition compared to more invasive-susceptible grasslands. In areas, smooth brome and Kentucky bluegrass have invaded the moister, low dune slopes and swales. The noxious weed leafy spurge occurs sporadically on dunes, although it is more common in meadows in the northern and eastern Sandhills. The native eastern red cedar is spreading rapidly from river valleys and plantings into adjacent prairie due to wildfire suppression. Its control will likely require prescribed fire.

Invasive plants are far more troublesome in the Sandhills' moist valley communities. Beginning about 1900, many Sandhills meadows and drained lakes and marshes were seeded with Eurasian legumes and cool-season grasses, such as timothy, redtop, reed canary grass and bromes, to increase hay tonnage and quality. Traditional midsummer haying favors these species, which have completed much of their seasonal growth when hayed, but stresses native warm-season plants at peak growth. These invasive species now dominate many Sandhills meadows.

Reed canary grass is the most devastating of the invasive meadow grasses. Once established, it spreads rapidly from rhizomes and seed. When sprayed with herbicides, it quickly reestablishes from seed. Few native plants can compete with reed canary grass and it now forms extensive monocultures in many Sandhills wetlands.

"Though most ranchers haven't planted any for decades, I'm not optimistic about replacing stands of reed canary grass with native plant communities," said Reece. "On state and federal wildlife lands it might be controlled through consistent herbicide spraying if you can get to populations before they get too large. Most ranchers, though, can't afford the cost or don't have the time to control most invasive plants."

As it turns out, reed canary grass does not produce quality forage – as it matures, it accumulates an alkaloid, making it unpalatable to cattle. At the same time, it produces tall, coarse stems that reduce the nutritive value of the hay. Recently, agronomists have been promoting the non-native Garrison creeping-foxtail as a better forage grass for Sandhills meadows. As with other promising introductions, though, it is already spreading from planted sites and displacing native vegetation.

Narrow-leaf cattail, a possible native of the Atlantic seaboard or introduced from Europe, has invaded Sandhills marshes in recent decades. Though similar in general appearance to the native broad-leaf cattail, narrow-leaf cattail is taller, darker green and, as its name suggests, has narrow leaves. Narrow-leaf cattail is aggressive and forms dense stands in many Sandhills marshes. The rapid spread of narrow-leaf cattail is partially due to its light, wind-blown seeds. Additionally, narrow-leaf and broad-leaf cattail easily hybridize through wind-blown pollen, and many Sandhills populations are likely hybrids between the two species. These hybrids are also aggressive.

Hybrids of the non-native narrow-leaf cattail and the native broad-leaf cattail (above) are aggressvie and now form dense stands in many Sandhill marshes.

Another invasive plant that will likely soon reach Sandhills stream channels and wetlands is the European variety of common reed, better known as phragmites. This robust grass grows to 10 feet tall and, like reed canary grass and narrow-leaf cattail, forms dense stands that exclude native vegetation. A less robust, non-aggressive variety of phragmites is native to Sandhills marshes. On the Republican and Platte rivers, the non-native phragmites has colonized river channels and sandbars, destroying waterbird habitat and sucking precious water from the streams. The only apparent control is widespread herbicide application, which also kills other wetland vegetation. Even then, phragmites is likely to reestablish from wind-blown and water-carried seed.

Compared to non-native plants, few non-native animals have adversely impacted Sandhills vegetation. The common or European carp, however, has devastated the aquatic vegetation of many Sandhills lakes and marshes. First stocked in Nebraska ponds as a sport and food fish in the early 1880s, carp quickly entered streams and spread statewide.

Connected during high water, the Marsh lakes, including North, Middle, and South Marsh lakes, are located on the east side of the Valentine National Wildlife Refuge in Cherry County. These lakes provide an example of the destructive nature of carp. Until recently the Marsh lakes were premier waterbird habitat – their clear water and abundant

aquatic vegetation supported a wealth of microorganisms that attracted breeding and migratory ducks, western grebes, white-faced ibises and other waterbirds. Carp entered the Marsh lakes during the high-water years of 1985 and 1986 when the outflow provided an entry point. By 1992, the carp were well established. Bottom grubbing and feeding soon eliminated aquatic vegetation and muddied the lakes' waters so much that microorganism populations plummeted. The lakes' abundant bird life has since vanished.

Refuge manager Mark Lindvall said removing carp from the Marsh lakes would cost well over $200,000 and require lowering the lakes' water levels by pumping before rotenone, a fish-killing chemical, could be effectively applied. Rotenone application, however, is not fail-safe and if all of the lakes' carp weren't killed, which frequently occurs, their populations could rebound in just a few years.

The murky, carp-infested waters of Trout Lake (above) stand in stark contrast to the clear, carp-free waters of West Long Lake. Both lakes are located in Cherry County.

Alternative Management

In recent years, some conservation organizations have begun managing their Sandhills lands in ways designed to improve habitat for native plants and wildlife. One example is the 46,000-acre Crescent Lake National Wildlife Refuge (NWR) in Garden County. The refuge has had a varied management history since its establishment in 1932, ranging from intense grazing and haying to little land management. "We now graze 30 to 40 percent of the refuge each year at light to moderate stocking rates using the neighbors'cattle," said Marlin French, refuge biologist. "We also do some prescribed burning and a little haying of our meadows."

The refuge attempts to provide alternative habitat from the mostly moderately grazed, mid-height prairie found on neighboring ranches. Some of the refuge's upland pastures are grazed to provide short vegetative cover. Others are left ungrazed for two to three years, allowing vegetation to grow tall and dense, and allowing plant litter (dead stems and leaves) to temporarily accumulate.

Mid-height prairie provides habitat for some wildlife species, but species such as kangaroo rats, lizards and lark sparrows are adapted to short-grazed, open, sandy habitats. Nesting sharp-tailed grouse and grasshopper sparrows prefer lightly grazed, tall, dense vegetation.

Previously, the refuge created dense nesting cover in meadows for waterfowl and game birds by not haying or grazing for several years until French discovered that approximately 90 percent of the refuge's duck nests were being predated by bullsnakes. Excessive plant litter had allowed populations of voles and other small rodents that prefer such conditions to explode, in turn providing food for bullsnakes to increase their populations.

"Thick vegetation does provide thermal and escape cover for wildlife, but it is also very predator friendly," said French. In addition, dense litter intercepts sunlight, cooling the soil and favoring cool-season exotic grasses. Waterfowl nest success has risen in those refuge meadows now grazed for short periods in spring or fall to reduce litter.

French also noted that spring prescribed fires have decreased some exotic cool-season grasses in refuge meadows and stimulated native meadow plants. "The native grasses provide better nesting habitat for waterfowl, grouse and passerines than exotic grasses," said French. "On dunes, native grasses and wildflowers have also responded favorably to burning, especially when rains follow the burn."

Crescent Lake NWR supports a large population of endangered blowout penstemon, a plant of open-sand habitats. Once common in the Sandhills, native penstemon numbers in recent years have fallen to a few thousand individuals due to blowouts healing.

In an attempt to create blowout habitat, the refuge conducts heavy fall grazing in pastures with penstemon and uses bulldozers and tractor loaders to expand the edges of existing blowouts. Though much of the work was conducted during the recent drought, the blowouts have expanded little and since 1987 the refuge's native penstemon population has declined from a few thousand plants to about 500. "As much as ranchers dislike blowouts, they are not easy to create," said French.

Climate Change

"Drought is part of the package in the Sandhills," said Swinehart. "If you asked me if we will have a drought lasting 20 to 40 years in the next 2,000 years, I'd say you're darn right. If we keep releasing greenhouse gases like we are, it could happen in the next 100 years."

The exact impact of global warming on the Sandhills remains somewhat unclear. Most global warming models agree there will be substantial warming of the climate in the region. A few models predict less precipitation and some predict more precipitation for the region.

"The problem is the precipitation likely will come in larger amounts in fewer storms, and possibly not during the growing season. From a vegetation point of view, this is less effective precipitation," said Swinehart. "You could see the Sandhills return to what they were 800 or 900 years ago within the next century. It wouldn't be a full blown sand sea, but you better be riding a dune buggy."

Swinehart explained that if Sandhills groundwater is extensively pumped to provide water for thirsty cities or crop irrigation, wetlands will disappear along with their moderating effect on local climate, possibly making area dunes more susceptible to reactivation when drought appears.

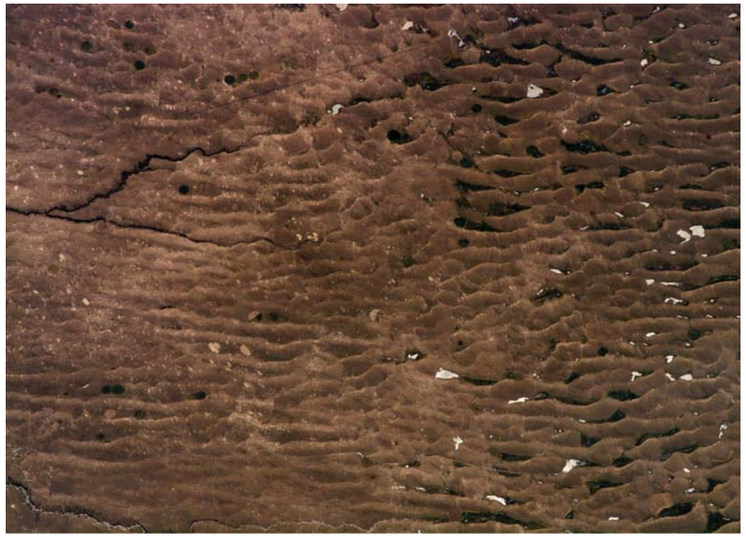
Most global warming models agree there will be substantial warming in the Sandhills region. Blowouts like this one could once again be a common feature of the Sandhills.

Since the last ice age, Sandhills vegetation has changed dramatically, mostly in response to climate. Since settlement, through their occupation and agricultural use of the region and their recent ability to modify the climate, humans now contribute to the destiny of Sandhills plant communities. Over the next century, will the Sandhills remain a well-managed grassland, become open migrating dunes, or become overrun with non-native species? Only time will tell the fate of this unique grassland ecosystem. ■

Gerry Steinauer lives in Aurora and is a botanist for the Nebraska Game and Parks Commission's Wildlife Division. He has been a NEBRASKAland *contributer since 1990.*

A Nebraska-born Astronaut

By Doug Carroll



In 2007, Clay Anderson became the first native Nebraskan to fly into space. Seeing his hometown from some 200 miles above the Earth is a memory he'll never forget, but if things go as planned, he may get another chance in March 2010, when he's again scheduled to rocket into space.

Left: Clay Anderson, the first native Nebraskan to fly in space, shows his Husker pride aboard Shuttle Atlantis in 2007. Above, this photo taken during Anderson's trip on Shuttle Atlantis shows the Dismal and Middle Loup rivers as well as the rolling dunes that make up the Sandhills in central Nebraska.

An admitted small-town Nebraska boy, Clay Anderson grew up dreaming big and working hard, using the lessons he learned from his parents and neighbors while growing up to achieve his lofty goal of flying into space.

Born February 23, 1959 in Omaha, Anderson grew up in Ashland, graduated from Ashland-Greenwood High School and later attended Hastings College, where he received a bachelor of science degree (Cum Laude) in Physics. In 1983, he got a master of science degree in Aerospace Engineering from Iowa State University before joining the Johnson Space Center and holding various positions until reaching his ultimate goal on June 8, 2007, when he lifted off aboard the space shuttle Atlantis and spent 152 days in space as a science officer, conducting experiments and making three space walks.

Anderson credits his success to his upbringing:

"I think that being from a small town is a huge advantage because you can do many different things," said Anderson. " You can be involved in many various activities and you're exposed to many different types of things.

"I think as an astronaut in this day and age, being well-rounded is hugely important. In addition to that, in the town I grew up in, my parents and everyone else I knew looked out for each other. If "Clay" or "Jack Anderson's son" was in trouble, somebody would be there to help until the parents could be involved. So I think there was a huge feeling of family within that small town and I think this mindset permeates through Nebraska and people are able to understand that

Photographed from space, agricultural fields near the South Platte River appear as a mosiac pattern of colors and shapes.

when they hail from this state. They know what it's like to be in a small town and they know what it's like to have a great relationship with all the people in the community."

Anderson said one of the biggest things he learned while growing up was the value of hard work and not to expect anything to be handed to him, lessons that would later prove very valuable to his career.

Anderson said that although his father went to work every day and worked hard, he didn't make much money.

"I remember my first summer job as a NASA intern ... when I got my paycheck, it was more than my father was making and he had been working for the State Department of Roads for years and years. He always instilled in me that you had to work hard, do the right thing and that's how you got ahead – it wasn't somebody handing you something. So I'm very appreciative to my mom and dad for that upbringing, and all the teachers I had in school as well."

Although he didn't do any hunting while growing up, Anderson remembers camping with other Boy Scouts and fishing with his grandfather in the Platte River, nearby Memphis Lake and several creeks around Ashland.

"Grandad, he just liked to throw the old pole over the side of the bridge and we just stood there for a few hours and tried our luck, probably doing more talking than fishing and learning a lot about life that way."

Lake McConaughy and portions of the North Platte and South Platte rivers are readily visible in this view from space.

When Anderson finally was able to make his dream trip to space, he naturally began doing what probably most astronauts do the first time up – he started trying to see his hometown. But it wasn't as easy as one might expect.

"To tell the truth, I was very excited to look for Nebraska and my hometown, to see it from space for the first time, but my first couple of attempts I failed because the earth goes by at five miles every second and I wasn't ready for that.

"You think you know what Nebraska looks like because you look at a map all the time, but when you're looking at the earth from space, you have to be pretty astute at finding the landmarks that will lead you to places you know and can recognzie, like the city of Omaha, the city of St. Louis, or whatever. It took me a little while to get that depth of understanding.

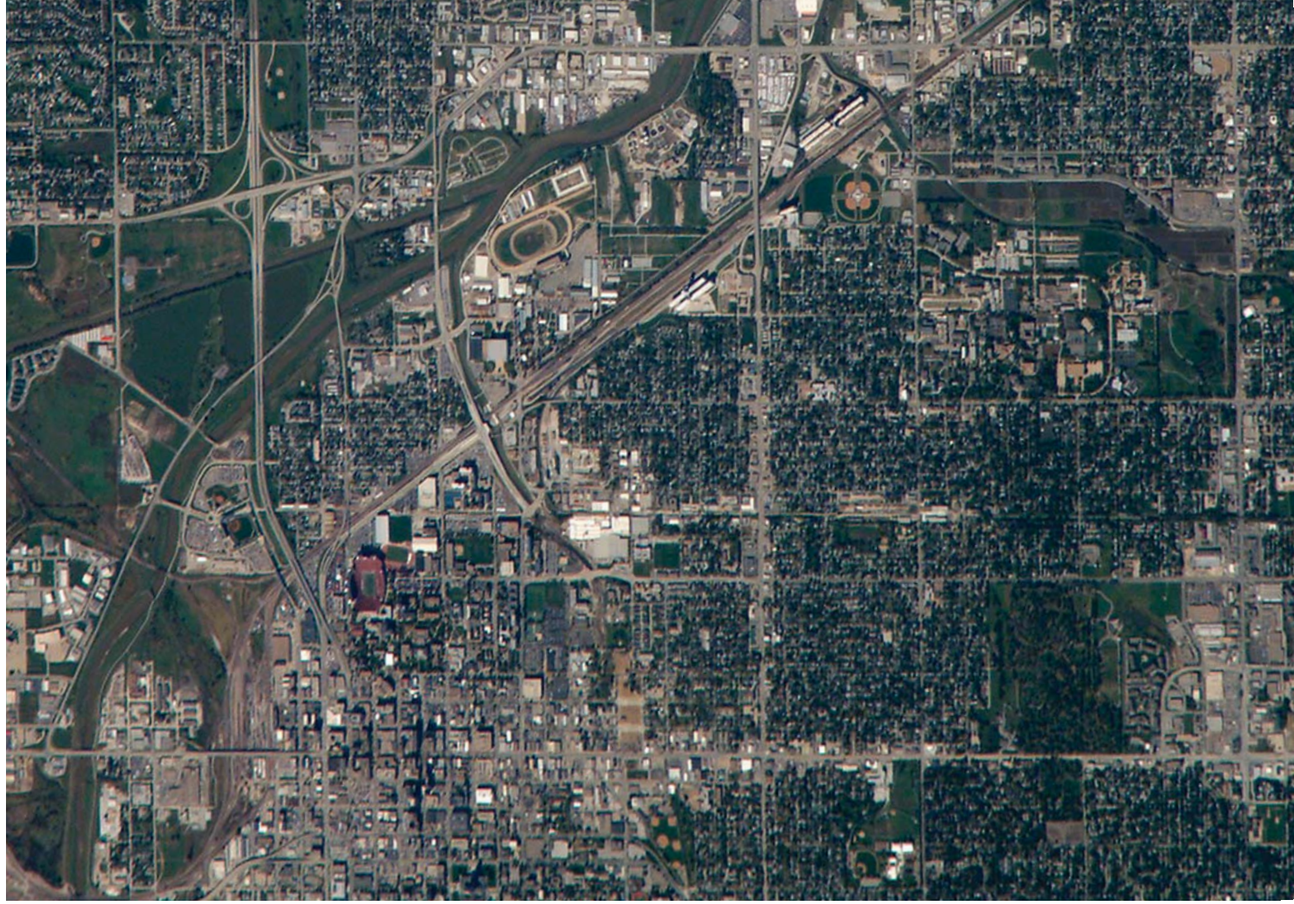
But I'll tell you what, the first time I did recognize things, we were passing southwest to northeast and I saw Lincoln and then I saw Ashland and Omaha and I cried. I was so emotionally excited that I actually shed a tear when I saw my hometown from space for the first time. It was one of the best experiences I had my entire time in space."

Anderson might get a chance to shed another tear in the near future: He's been selected to fly on the space shuttle Discovery in March 2010 and is currently training for that mission. Looks like this small-town Nebraska boy's dreams haven't ended yet. ■

Editor's note: The photos used for this story are courtesy of Earth Sciences and Image Analysis Laboratory, NASA Johnson Space Center. If you'd like to look at other pictures from space, go to http://eol.jsc.nasa.gov/.

To look specifically at some of the photos taken of Nebraska during Clay Anderson's first trip, click on "Technical Search" under "Find Photos>Search. Then under "Geographic Region" click on USA-Nebraska to highlight it. Under "Missions" click on ISSO15, then click the "Submit" button at the bottom of the page. A "Database Search Results" page will then appear and if you click on "Show Thumbnails ...," you can click on each image to see a larger view of it and download it for free if you wish.

Anderson also kept an online journal during his space flight. If you are interested in reading it, go to www.nasa.gov/mission_pages/station/expeditions/expedition15/journals_clayton_anderson.



Photographed by Anderson during the 2007 Nebraska football game against Texas A&M, Memorial Stadium in Lincoln shows up as a sea of red even from over 200 miles away in space.

Return of the Big Cats

Text and photos by Michael Forsberg

Although mountain lions were once part of Nebraska's native fauna, they had been extirpated here by the end of the 19th century. In recent years, young male mountain lions have been seen across the state, but now females have as well and there's evidence they've even had young in the Pine Ridge area.

It was late-February 2007 when I received a phone call from *NEBRASKAland* staff photographer Bob Grier, who had been helping me monitor a camera trap we had set up on a well-established game trail at the bottom of a remote creek drainage in the heart of the Pine Ridge east of Chadron.

The drainage was heavily used in the winter as a travel route, principally by deer and elk, and that winter several area landowners had noticed a large increase in deer numbers after summer wildfires on the west side of Bordeaux Creek Valley had pushed the deer east. A scouting trip to the area in January had confirmed the large deer population, but we were not after pictures of deer – we were after pictures of cougars, often referred to in the American West as mountain lions, one of the last big predators to roam the plains. The landowner had found numerous footprints of a large cat on his land, so we were hopeful that we would be able to catch the cat on camera.

Sandstone buttes rise above the Pine Ridge escarpment in northwestern Nebraska, some of Nebraska's best potential mountain lion habitat.

In late February 2007, a cougar with kittens believed to be less than six months old were captured in a "camera trap" set up along a game trail in a remote area of the Pine Ridge.

Bob was to the point: "Hi, Mike. Do you want the good news or the bad news first?"

"The good news."

"You've got a picture of a mountain lion with cubs."

"Are you kidding me?"

"No, we got it. Two frames."

"So what could possibly be the bad news?"

"Well, she must have attacked the camera after it went off because it was knocked to the ground. It's pretty banged up, cords are pulled out, and the rest of the images taken after that were blurry pictures of dirt and grass. There were cat prints all around it."

The photographs weren't great, but they were irrefutable proof of a mountain lion with cubs in Nebraska, something that in recent times had never before been officially documented. It was a complete surprise. The first image showed three-fourths of the adult female's muscular body walking out of the frame, with two cubs trailing behind, one stopping in the frozen creek licking ice with the other close behind. The second image showed a better view of the first cub's body, a tawny brown dressed with spots.

A day after the photos were taken, Nebraska Game and Parks Commission officials recovered the carcass of a mountain lion kitten only a few miles away. Believed to be less than six months old, the young female had been hit as it and two other cubs followed an adult across U.S. Highway 20 near the Dawes-Sheridan county line.

Approximately fourth months later a larger cub, a young male weighing roughly 80 pounds and still with spots on its legs, was killed while crossing U.S. Highway 385 near Chadron State Park, not far from the first sighting of cubs in February. It's only conjecture whether that lion was a second cub from that same litter, but these sightings have been important evidence as biologists start to draw conclusions about the distribution of mountain lions in the state and whether or not they have established a breeding population.

This image and the one shown on page 39, taken only seconds apart, helped build early evidence of cougar reproduction in Nebraska.

DEAN STUDNICKA, WILDLIFE DIVISION

Treed by the landowner's dog near a rural farmhouse in western Nebraska, this cougar spent several hours in the tree before descending and running back into the Pine Ridge.

Sam Wilson, nongame mammal and furbearer program manager for the Commission, said after the first kitten was killed that "… it was the first confirmation of a mountain lion kitten and the first evidence of reproduction in Nebraska in modern times."

At that time, it was also only the second female cougar recently documented in Nebraska (a hunter killed the first female in Sioux County near the South Dakota border in 1991), but since 2007, multiple females had been confirmed in the Pine Ridge. The only known female outside this area was one euthanized in the city limits of Scottsbluff earlier this year. All other mountain lion confirmations in Nebraska with a known age and gender had been dispersing young males.

Almost two years after these first kitten images were made, a second sighting of mountain lion cubs in this state was confirmed when a trail camera placed on a deer carcass in the Pine Ridge by Commission conservation technician Steve Masek captured an image of an adult and a cub in December of 2008.

Today, Wilson and other biologists continue to study evidence of mountain lion distribution and reproduction in Nebraska. He recently answered a series of questions regarding their natural history and status in this state:

Are cougars re-colonizing parts of Nebraska, and if so, where are they coming from?

We've been saying they are likely dispersing from the Black Hills population that was growing throughout the 1990s and now has an estimated 250 animals, according to South Dakota Game, Fish and Parks officials. The assertion was validated twice in 2006 – on February 17, 2006, we got a trail camera photo of a mountain lion in the Pine Ridge with an ear tag that had been placed as part of a study by South Dakota biologists working in conjunction with South Dakota State University where they radio-collar and ear tag mountain lions. Then another Black Hills study animal was confirmed in Nebraska when a young male mountain lion with a South Dakota radio-collar was killed by a semi on Highway 20 near Valentine on June 27, 2006.

Biologists in Wyoming are also aware of a few mountain lions on the Wyoming side of the Pine Ridge, in the Laramie Mountains and the breaks west of Scottsbluff. So mountain lion populations are healthy and growing or stable in the three western states bordering Nebraska – South Dakota, Wyoming and Colorado.

What have you learned from the South Dakota biologists conducting mountain lion research in the Black Hills?

We've learned that dispersing young male mountain lions can cover incredible distances looking for females and a new home range, so I am not surprised to find them anywhere in Nebraska. They had one collared cat get killed by a train in Oklahoma. It had traveled 663 miles. Another research cat was confirmed in Saskatchewan. Their study has been incredibly valuable to everyone involved in mountain lion research or management. We can use the home range and density information they've learned to look at areas in our state that may have similar habitat and hopefully get an idea of how many mountain lions a given area could support.

How many cougars historically existed in Nebraska and how many do you think there are today?

We don't know numbers specifically, but according to Knox Jones Jr. in his book, "Mammals of Nebraska," *historical records show cougars occurred throughout Nebraska and were likely associated with wooded areas or rugged/steep areas. Today it would appear they are very rare in Nebraska, but are starting to become more common, especially in the Pine Ridge. Nationwide where populations are still found, they are likely stable or expanding.*

My disclaimer on all this is that mountain lion population numbers are notoriously difficult to assess – by nature, large predator species are few and far between, and mountain lions are more secretive in their habits than many other species. Certainly the population in the Black Hills has experienced incredible growth since 1990, and the number of mountain lions killed in the western U.S. has risen dramatically since the early 1900s. This likely indicates that their populations are recovering after historic eradication efforts ended and key prey species such as deer and elk recovered as well.

So how many confirmed cougar sightings in Nebraska have we had in recent years?

There have been 87 confirmed sightings since Nebraska's first modern confirmation in 1991. But I must stress that this in no way means that we have had 87 mountain lions in Nebraska – the same animal can be confirmed over and over as it moves through the landscape. More than 80 percent of the sightings have been in the Nebraska Panhandle, with the vast majority of those (63) in the Pine Ridge. confirmed sightings have picked up dramatically in the Pine Ridge since 2004 – from 1991 through 2003 we had only four confirmations there.

The year 2004 was a turning point for our detection. Possibly it was the year a female took up residence in the Pine Ridge, which might have held

Feline Facts

- Cougars (*Puma concolor*), often called mountain lions, pumas, panthers, catamounts or a variety of other names throughout their range, are found from the Canadian Yukon south to the tip of South America, making them the largest ranging land mammal besides man in the Western Hemisphere.
- Typically tawny brown in color, mountain lions have lean, muscular bodies, long tails, short, stocky legs and large paws with retractable claws. Adult cougars can measure six to eight feet in length from head to tip of tail. Their tail can make up one third of their entire length and is used as a counter balance when the animal runs and jumps. Cougars can jump 18 feet vertically and can leap 30 feet or more. Their wide, deeply-lobed paws leave tracks that are typically three to three and a half inches wide with no visible claw marks. Male cougars can weigh more than 150 pounds and be forty percent heavier than females.
- Cougars are a classic low-density species. Mostly solitary creatures, a single cat requires a minimum home range of 50 to 100 square miles to thrive. Both sexes defend home ranges. Males protect their home ranges vigorously and do not tolerate other males, but females are more tolerant and will overlap home ranges with other family groups. Adult females are either pregnant or raising cubs three quarters of their lives. The cubs stay with their mother 14-22 months before they go out on their own. The typical litter size is two to four cubs, and they can have them any time of year.
- Cougars are carnivores, and feed heavily on deer. They are solitary hunters, using stalking and ambush techniques to kill their prey. They can consume roughly one deer a week, perhaps more if they have cubs. They will also eat rabbit, porcupine, raccoon, turkey, etc.
- Before Euroamerican settlement, cougars were found in all lower 48 states but were quickly extirpated throughout their eastern range except in Florida. According to the Cougar Fund, today 16 states have sustaining cougar populations, primarily in the American West, where varying degrees of protections have been in place with regulations on hunting since the early 1970s. Cougars are legally hunted in 13 states.

The Black Hills in western South Dakota contain a healthy population of cougars, and are likely the key source area for animals dispersing into northwestern Nebraska.

dispersing young males. There are also a larger number of hunters now using trail cameras out there in the woods, scouting for deer and sometimes getting images of mountain lions. As of late-October, we had made 18 more confirmations this year alone, more than the total number made from 1991 through mid-2004, and more than any other year at this time of the year.

Would you consider we now have in Nebraska a population of cougars, or are they still mostly transient animals passing through?

Yes, we have evidence of reproduction and a resident population living in the Pine Ridge, including the two documented kitten photos and two trail camera pictures from 2009 that show two adult-sized mountain lions together – either for breeding purposes or it was an adult female with her sub-adult offspring.

We have also confirmed two unique females through DNA analysis of scat we collected. We have suspected that the Pine Ridge may have a reproducing population and have stated so on our web site and in the thousands of brochures that we have been handing out over the years, but this is really the first time we have had the evidence to prove that we have more than one reproducing female.

We still, however, have not had any evidence of reproduction or a resident population outside of the Pine Ridge. In eastern Nebraska, for example, we have only detected transient males. I want to point out that mountain lion populations are detectable, as you can see from the Pine Ridge numbers, and if we had an established population anywhere else we would likely know it, as mountain lions leave tracks on snow, make multiple deer kills that are easily identifiable, and more and more lions get photographed every year by the thousands of trail cameras out snapping photos 24 hours a day on the best deer trails in the state.

So what are the limiting factors for reproduction and maintaining a mountain lion population here in Nebraska?

In a word, habitat. The Pine Ridge, Wildcat Hills and Niobrara River breaks pass the eyeball test for habitat, but are likely too small to carry a completely self-sustaining population of mountain lions without the occasional disperser from one of the neighboring states. We also don't know for sure how well they can do in the other areas of the state that don't have as much cover. Humans and other mountain lions are typically their biggest mortality factors. Public acceptance is probably the single biggest factor for them being to survive and prosper here. Mountain lions are not limited by food almost anywhere in Nebraska, as they eat mainly deer but also raccoons, turkeys, porcupine, etc.

As you see it, what are the prospects for mountain lions continuing to exist with humans across the United States and here in Nebraska?

Mountain lions are secure in the U.S. and have one of the largest ranges of any large mammal, with populations found from the Yukon to the tip of South America. As with all large predators, habitat loss and human understanding are the key. We have created policies to try and ensure a secure future here in Nebraska by minimizing or eliminating conflicts with people or livestock. The Commission created a mountain lion response plan that calls for killing mountain lions that have entered a municipality, depredated on livestock or threatened humans. This policy is aimed at eliminating any problem animals while protecting the majority of mountain lions that are not in conflict with people and simply out there eating deer.

Cougars are a rich part of Nebraska's natural heritage and as a large predator play a key role in the balance of a healthy ecosystem. The question is will we allow these animals to be a part of our future? The conservation challenges are complex, but a combination of continued scientific study, open conversation and tolerance may allow us to coexist with this magnificant cat in certain areas of the Plains once again. ■

Editors note: Public reports are a key element in monitoring the status of mountain lions in this state. If you capture a photo of a mountain lion in Nebraska, please send it and the location where it was taken to sam.wilson@nebraska.gov.

An adult cougar takes its own picture walking through a camera trap at night in the Black Elk Wilderness in western South Dakota. Scientists have learned a single cat requires a home range of 50 to 100 square miles, and can eat up to one deer a week.

A *NEBRASKAland* contributing editor, Lincoln-based wildlife photographer Michael Forsberg's work has appeared in numerous publications, such as *Audubon*, *National Geographic* and *National Wildlife*.

He can be contacted at the Michael Forsberg Gallery, 100 North 8th St., Suite 150, Lincoln, NE 68508, call (402) 477-5030, or go to www.michaelforsberg.com.

Hanging Pheasants and Other Wild Fowl

A little-used process, aging game birds results in a delectable treat.

By Gerry Steinauer

After a pheasant hunt last winter, I mentioned to my friend, Mace Hack, that we should go to my place and clean the birds. "Oh no, I now hang my birds for a few days before I clean them," said Mace. "My English brother-in-law turned me on to it. Aged birds are so much better eating."

Though I knew that the choicest beef and venison steaks result from aging, the thought of hanging pheasants with feathers and entrails intact and letting them "rot a bit" sounded a bit repulsive. But I had to try it.

I laid a young rooster and an old, long-spurred rooster on my basement windowsill for five days. It was during a cold spell and the temperature on the windowsill over the period ranged from 40 to 45 F. When I cleaned the birds, the skins slid easily from the bodies and there was no foul odor.

The fried thigh and breast fillets of the old rooster were tender and tasty, not tough like many mature roosters I have eaten. The young bird was also good, though my girlfriend, Grace, thought the breast meat was too mushy, possibly over-aged, and less flavorful than the fillets of the old bird.

This experiment further kindled my interest in aging pheasants, so I e-mailed Mace's brother-in-law, John Hall, who now lives in Greenwich, Connecticut. Aging game birds is an old European tradition, and who better to provide insight into the matter than an Englishman?

"Experience will teach you how long to hang a pheasant," wrote Hall. "We hang them singly, sometimes in braces, from a beam in a shed using twine around the neck. We don't clean or pluck the birds first, and hang by the neck to keep the blood in the carcass. The temperature in the shed was probably 40 to 45 F in November through January during our pheasant season. Under those conditions we hang birds for about a week, maybe as long as 10 days. Others say to hang them until the tail feathers pull out easily. Often we shoot on Saturday, then clean, pluck and eat the birds the following Sunday or refrigerate or freeze them for later use."

PHOTO BY GERRY STEINAUER

According to Hall, aged pheasant meat is darker, has a more pronounced flavor and is noticeably more tender. He advised not to tell the dinner guests about hanging the birds.

The Science of Aging Game

Three factors affect the tenderness of meat in all animals, whether it be beef cattle or pheasant: background toughness, rigor mortis and aging the meat.

Background toughness results from the amount of collagen (connective tissue) in and between muscle fibers. The amount of collagen, as well as the interconnectivity of the collagen, increases as animals get older, explaining why an old rooster is naturally tougher than a young bird.

Rigor mortis is the partial contracting and tightening of muscle fibers in animals after death and results from chemical changes in the muscle cells. Depending on temperature and other factors, rigor mortis typically sets in a few hours after death and maximum muscle contraction is reached 12 to 24 hours after death. Rigor mortis then begins to subside, which is when the aging (tenderization) of the meat begins.

Tenderization results from pH changes in the muscle cells after death that allow naturally occurring proteinase enzymes in cells to become active. These enzymes break down collagen, resulting in more tender meat. In beef cattle, the aging process will continue at a constant rate up to 14 days, as long as the meat is held at a proper and consistent temperature, and then decreases after that. In fowl, the rate of tenderization begins to decline after a few days.

A common misconception is that bacteria-caused rotting is responsible for meat tenderization, and this is why many find the thought of aging game repugnant. Warm temperatures and exposure to air promote bacterial growth and rotting. The greening of tissue and the telltale rotten smell – the latter caused by bacterial waste products – are signs of rotting. Maintaining a constant, cool temperature is key to preventing bacterial growth when aging meats. The sickness-causing E. coli bacteria grows rapidly at temperatures at or above 60 F, but very slowly at 50 F.

Perfecting the Aging Process

Opinion has likely varied for centuries on how to best age pheasants and other fowl to reach perfection in tenderness and taste. In 1825, French intellectual and culinary expertise Jean Anthelme Brillat-Savarin wrote in his famous book *The Physiology of Taste*: "When the pheasant is eaten only three days after its death, it has no peculiarity; it has not the flavor of a pullet, nor the perfume of a quail….. It is especially good when the pheasant begins to be decomposed."

In the days of old in this country, hunters were often claimed to have favored hanging their wild fowl until green around the vent or until the body slipped from the head. Truth be told, in the days before electricity hanging game birds may have had as much to do with meat preservation as tenderization. My girlfriend's mother, Lucille Kostel of Wagner, South Dakota, said before they had electricity and freezers on their farm they let fall-harvested waterfowl and pheasants hang as long as possible on the north side of the barn as a means of storage. Only when a warm spell threatened to spoil the meat or a hard cold threatened to turn the birds into frozen blocks would they clean the birds and then can the meat. Tenderization was not an objective.

Recently science has tackled the issue of the perfectly aged pheasant. In an Australian study, test panels fed roasted pheasants found birds hung for nine days at 50 F to be more acceptable than those hung for four days at 59 F or for 18 days at 41 F. They found the birds aged for four days at 59 F were tougher than those aged for longer periods at lower temperatures. The pheasants hung at 50 F were considered more gamey in flavor.

Retired *NEBRASKAland* writer Rocky Hoffmann has been aging wild fowl for more than 25 years with excellent results. Hoffmann hangs birds in his shed when the temperatures are cool and stable, and uses an old refrigerator when temperatures are too warm, too cold or fluctuating.

Hoffmann has removed the racks from the refrigerator and fastened a grate to the top for attaching hanging hooks. He keeps the refrigerator temperature in the low 40s and hangs pheasants by the head, with the feathers on and entrails still intact. He used to hang them by the feet, upside down with the entrails suspended in the chest cavity. "This is supposedly an old English method to impart flavor into the breast of the bird, but I found no difference in flavor between birds hung by the feet and those hung by the head," said Hoffmann.

Hoffmann explained that leaving the skin and feathers on pheasants while hanging prevents the meat from drying out or freezing if temperatures drop. The feathers are easily plucked after hanging if one desires. He usually plucks and guts waterfowl prior to hanging. He hangs birds for about a week. The skin on plucked birds that are aged turns golden in color.

"The best pheasant I ever ate, I hung for about a month under carefully controlled conditions," said Hoffmann. "I plucked it and roasted it. Pheasants can taste a little bland, but this bird was wonderful. I have even hung some spruce grouse I shot in Manitoba. Locals claim that spruce grouse taste terrible, but these were young birds and after hanging a few days they were delicious." He added that aged waterfowl have a mellow, somewhat nutty flavor.

"Nothing I have ever hung has looked or smelled bad, and I've never gotten sick from eating aged game birds," said Hoffmann. He stressed, however, that he hangs meat only under very controlled temperatures and never hangs birds that are "shot up," where intestinal bacteria could contaminate the meat.

Hanging pheasants and other fowl may not be for everyone, but for those who enjoy tradition and delectable meals, hanging may be just the thing. ■

The Mad Hatter

Where can a pumpkin head buy a decent hat these days?

By Jon Farrar

When the 1950s were giving way to the 1960s, in my little town of Monroe (population about 300) it was a ritual for boys to get a new ball cap as soon as school was over for the year. That meant a trip to Dave Schreiber's Red and White Grocery Store on Main Street. There was a corner of the store where all the clothes a boy needed for summer could be found – Wrangler blue jeans, white T-shirts, black Converse tennis shoes and ball caps. There were several shelves of felt ball caps, each carrying the insignia of a major league baseball team. I suppose there were several ball team choices but we all bought New York Yankee caps, as that was the team in those days. There were rows of different sized hats, both red and blue if my memory serves me – 6½, 6¾, all the way up to 7½ and perhaps even larger.

Those memories bring me to today's sad state of affairs in the hat business: Why is it I can't buy a hat like that today, one without a plastic adjustable head band? Ok, ok, I know why – they are cheaper to make and take up less shelf space – but that will not prevent me from griping. Also, why are most hats sold today made for pinheads? If you have a pumpkin head, as I do, you're invariably on the last one or two pegs on the band and they soon break. And why is it that in recent years almost all caps fit tightly on the head? It's impossible for us old geezers with pumpkin heads, who desire a little vertical frontage to enhance our noggin profiles and who like a little a breeze blowing over our balding pates, to find a proper hat. For unexplained reasons, it's easier to buy a cap with air room over the head in winter caps, when you really don't want the ventilation.

Nowadays, when I find an apparel item I like for a part of my body not likely to change in size – feet, head and hands – I buy several just in case they quit making them, which they surely will if it is something good. But all the good ball caps I bought years ago are now so grimy a waitress will not come to my table if I wear one, as if she suspects I'm a serial killer on the lam who just hopped off the last freight through town.

PHOTO BY JON FARRAR

And why is 90 percent of today's outdoor clothing, including hats, camouflaged? Everything seems camouflaged, even pickup trucks and lingerie. Who wants to lose their pickup in the woods, or have the best parts of their pretty young thing vanish against the Mossy Oak wallpaper in the bedroom? I'm not always hunting or making wildlife photos, and during those times, like going to the grocery store, I want people to see me coming down the aisle and get the heck out of the way, particularly those oblivious people who take up half of the aisle with their cart and the other half with themselves as they strain through their trifocals, calculating price per ounce between two different sized jars of Kosher dill pickles.

What happened to plain brown, like hunting coats and hats used to be? Ok, I could still buy a plain brown hunting coat from Filson, but now it's too late in life for that – I'm too damn old to spend 20 years breaking it in and getting it comfortable. Back when I had still had the time to break one in, I couldn't afford one.

But here is my main gripe about ball caps: Why can't I buy a hat without something written on it or without it featuring a leaping bass or white-tailed deer head? Why do I pay Bass Pro Shop to advertise for them? If you ever walk up behind me on the street you might notice I still wear Wranglers, but you won't see that little faux-leather Wrangler patch on the back pocket – I cut them off with my pocketknife before the first washing so you won't even see where they were. I'm not about to be a walking billboard for Wrangler until I start getting quarterly checks in the mail.

Used to be if something was written on a hat, you got it free. Ok, you probably had to buy seed corn to get a Garst Seed Company cap, or a bulldozer to get a Caterpillar hat, but what I'm griping about is paying for a hat and getting stuck providing free advertising to a retail giant who doesn't need it.

There, I feel better now. ■

Group Opportunities at Parks

State parks great for weddings, reunions, etc.

By Eric Fowler

Nebraska's state parks and recreation areas are obvious destinations for campers, hikers, boaters and general outdoor enthusiasts. But many parks also have group facilities that are great places to hold family reunions, parties, corporate retreats – even weddings.

Between six and 15 couples cross the footbridge and climb the Step Garden to make their vows at Chadron State Park each year. This beautifully landscaped hillside sits in the shadow of towering ponderosa pines in a clearing shaded by hardwoods and edged by Chadron Creek. Couples often hold their wedding reception in the park's central building, which is wrapped by duplex cabins where friends and family can retire when the party ends.

"For an outdoor wedding, it's just cool," said Linda VanHorn, office clerk at the park.

Chadron is one of many state parks that host numerous weddings and receptions each summer. What draws couples there is what spawned each park's creation: spectacular scenery. At Niobrara, wedding guests are treated to an expansive view of the picturesque Missouri River from the brick patio outside the group lodge. At Ponca, they can step onto the patio of the ornately detailed conference facilities of the Missouri National Recreational River Resource and Education Center and soak in the scenery. At Platte River and Eugene T. Mahoney state parks, both situated in the eastern hardwood forest along the Platte River, visitors can choose from one of many facilities to meet the size of their party.

These group facilities are popular for anniversaries, birthdays and Christmas parties. Located between the state's two largest cities, Platte River and Mahoney state parks are in demand for corporate functions. Fort Robinson's Mare Barn, with horse stables and meeting space under the same roof, is frequented by riding groups. Several of the parks offer food service and catering for events.

On a summer weekend at any of the parks, you are apt to find families who traveled from near and far for a reunion gathered in one of the lodges or at a picnic shelter for an evening meal before retreating to their cabin or campsite for the night.

Because of their popularity, many park facilities are booked a year in advance, so you'll want to plan ahead for your group function. For more details and to check availability, contact the park directly or go to OutdoorNebraska.org. ■

PHOTO BY ERIC FOWLER

Brandi Deurmier talks with guests on the Niobrara State Park lodge patio durng the reception following her wedding to Steve Hanson.

Park Group Facilities

Chadron State Park
Step Garden popular site for outdoor weddings. Duplex cabins and central building with kitchen great for reunions and meetings.

Eugene T. Mahoney State Park
As many as 5,000 people have gathered at park's Pavilion for a corporate picnic. Park's large cabins allow for smaller meetings and lodging under one roof. Sixteen group facilities available for rent at the park.

Fort Robinson State Park
Comanche Hall has full kitchen and sleeps up to 60 people. Buffalo Soldier and Dodd Hall meeting rooms accommodate 200 people. Mare Barn Annex meeting room holds up to 150 people and is popular with equestrian groups.

Niobrara State Park
Group lodge near cabins on hill overlooking scenic Missouri River perfect for receptions and other get togethers.

Platte River State Park
Mallett, Scott and Decker Creek lodges popular for weddings, receptions, corporate retreats, Christmas parties and other functions for groups of up to 150 people. Food service available.

Ponca State Park
Missouri National Recreational River Resource and Education Center popular for weddings, receptions and meetings with up to 250 people or can be divided for smaller groups.

Lake McConaughy SRA
Two meeting rooms available in Visitor Center.

Wildcat Hills SRA
Rent a meeting room, classroom or entire Nature Center.

Fort Atkinson SHP
Theater in the Harold W. Anderson Visitor Center seats 63 and is available for rent during the off season, as is primitive Council House building.

Picnic Shelters
Chadron, Fort Robinson, Indian Cave, Eugene T. Mahoney, Niobrara, Platte River, Ponca and Smith Falls state parks, Fort Kearny and Rock Creek Station state historical parks; and Branched Oak, Lake Minatare, Louisville, Calamus, Victoria Springs and Lewis and Clark state recreation areas all have picnic shelters available to rent.

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▲ *A handful of neighbors in the farming community of the Macon Prairie in Franklin County hunted deer together in the 1960s. This group deer hunt began with Nebraska's first modern statewide deer season in 1961. One of those memorable late-November hunts occurred in 1963 when my father, Wayne Steinkruger, shot a record-setting whitetail deer. This deer was taken on land, then owned by Lee Cyr, near the Republican River two miles southeast of Franklin. Now, 46 years later, the antlers were recently scored by a Boone & Crockett Club measurer, who certified the buck at 178⅞ths inches. Currently, this earns the 26th ranking on the Nebraska Game and Parks Commission Big Game Trophy Shelf in the Whitetail Deer – Firearm – Typical category, based on available records dating back to 1945. This score also qualifies for the official Boone & Crockett Club all-time record book.*

Left to right (standing) is George Schurman, Mike McNiff, Rod Steinkruger, Wayne Steinkruger (my father), and Thomas McNiff.

Left to right (sitting) is Roger Steinkruger (my brother), Richard McNiff, and William Nielsen.

– Rod Steinkruger, Franklin, Nebraska

▲ *This picture, taken in 1959 on our farm north of Battle Creek, is of the five oldest Hughes brothers, sons of Jerry and Nancy Hughes. They had just returned from a rabbit hunt with their dad. They are from left to right: Tom, Jim, Bill, Pat and John.*

Bill was mad because there was not a rabbit for him to hold.

– Nancy Hughes, Battle Creek, Nebraska

Send contributions to: Portraits from the Past, *NEBRASKAland Magazine*, P.O. Box 30370, Lincoln, NE 68503-0370. Photos should show people enjoying Nebraska outdoor activities, such as camping, boating, hunting or fishing, and must have been taken before 1970. 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.