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# Envirothon Training- Wildlife

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# Major Categories & Topics

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**MAMMAL TRACK, PELT,  
& SKULL  
IDENTIFICATION**

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**ECOREGIONS**

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**COMMON SPECIES-  
BIOLOGICAL  
INFORMATION**

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**VOCABULARY**





# NEBRASKA'S ECOSYSTEMS

## A PRAIRIE STATE

Nebraska is a large, deceptively diverse state. It is a mixing ground where mid-continental species merge. Eastern woodland species like wild columbine are found along the eastern side. Big-horn sheep scramble through our western escarpments, meadowlarks sing throughout our grasslands and shorebirds and waterfowl rely on our many wetlands during migration. Nebraska is the place where everything meets.





# NEBRASKA'S FAUNA

**Birds:** Over 450 species

**Mammals:** Over 90 species

**Fish:** 100 species; 80 native

**Amphibians:** 13 species

**Reptiles:** 49 species

**Insects:** 30,000 species

**Others:** Native mussels- 30 species,  
crayfish - 5 species





# SKULL, PELT & TRACK ID



# Bobcat (*Lynx rufus*)

- **Skull**

- Short and squat (4-7 inches long)
- Binocular vision
- Large canines
- Small quantity of teeth (carnivore)

- **Pelt**

- Tail
- Spots on ventral side

- **Track**

- Front of heel pad 2 lobes
- Back of heel pad 3 lobes
- No claw marks
- 1 ½ inch long- front
- 1 3/8 inch wide- front





# Raccoon (*Procyon lotor*)

- **Skull**

- Non-descript
- Very similar to badger- though not triangular
- Different types of teeth
- 4.5 inches long

- **Pelt**

- Ringed tail
- Salt and Pepper coloring
- Dark spots around eyes

- **Track**

- 5 slender toes
- Feet resemble small human hands
- Claws sometimes visible





# Coyote (*Canis latrans*)

- **Skull**

- Similar to fox but larger
- Large canines
- Binocular vision
- ~7.5 inches



- **Pelt**

- Depends on season when taken  
(reddish-orange) (Salt and pepper gray)
- Large ears
- Long legs

- **Track**

- Similar to fox but larger
- 2.5 inch long x 2.35 inches wide
- Claws usually present
- One lobe on pad





# Opossum (*Didelphis virginiana*)

- **Skull**

- Weird!
- Large sagittal crest
- Large quantity of teeth
- Overbite with canines
- ~4.3 inches long

- **Pelt**

- Mostly grayish color
- Long naked tail
- Small ears

- **Track**

- 5 toes
- Front footprint is wider than it is long
- 1.5 inches long
- 2 inches wide





# Mountain Lion (*Puma concolor*)

- **Skull**

- Large skull!
- Large canines
- Small quantity of teeth
- Binocular vision
- Squat/wide skull



- **Pelt**

- Light brown to dark brown
- Tail length = body length
- Large paws

- **Track**

- Light brown to dark brown
- Tail length = body length
- Large paws





# White-tailed Deer (*Odocoileus virginianus*)

- **Skull**

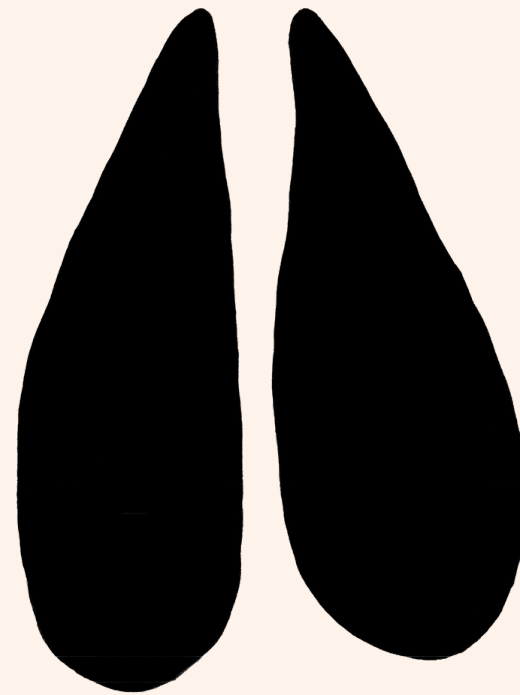
- Elongated nose cavity
- No canines- molars only
- Peripheral vision
- Large skull

- **Pelt**

- Light brown color
- White tail
- Large pelt

- **Track**

- Heart shaped
- Concave wall
- Distinctive 2 parts
- 3.0 inches long x 1.9 inches wide





# Beaver (*Castor canadensis*)

- **Skull**

- Massive orange-colored incisors
- Large gap (diastema) between front teeth and back molars
- Big, robust skull



- **Pelt**

- Dark brown color
- Almost a perfect circle
- Thick hair- 2 different textures

- **Track**

- Front and back feet are different
  - Back webbed, front not
- Often found with claw marks
- Distinctive tail drag mark in center





# Badger (*Taxidea taxus*)

- **Skull**

- Robust and chunky
- From above, appears triangular in shape
- Short snout

- **Pelt**

- Striped face
- Long feet and claws
- Short stubby tail



- **Track**

- Broad, five-toe prints
- Very long claw marks
- Inward-pointing, pigeon-toed gait
- Hind feet land behind





# Red Fox (*Vulpes vulpes*)

- **Skull**

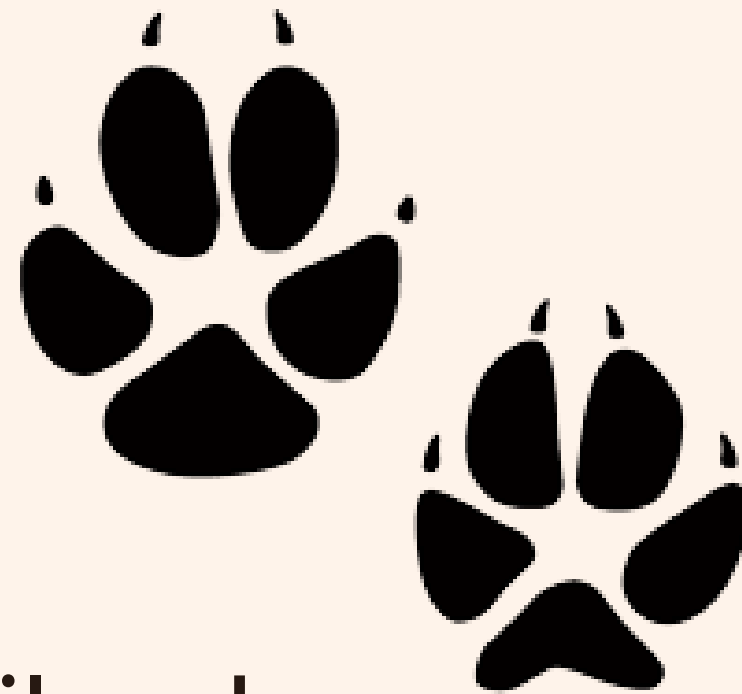
- Distinct “V” shaped ridge (sagittal crest)
- Narrower and longer than a domestic dog
- Similar to coyote

- **Pelt**

- Red/orange
- Bushy, thick tail
- Black tips on feet, tail and ears

- **Track**

- Small, oval print with four toes
- Walk in a perfectly straight line
- Distinctive claw marks





# River Otter (*Lontra canadensis*)

- **Skull**

- Broad, flattened skull
- Short, wide snout
- Small eye sockets

- **Pelt**

- Streamlined
- Brownish colored
- Long, rudder-like tail

- **Track**

- Five toes with claw marks
- Large C-shaped heel pad
- Partial webbing
- Characteristic slides and tail drags are very common alongside prints





# Striped Skunk (*Mephitis mephitis*)

- **Skull**

- Small, conical shape
- PRominent sagittal crest
- Heart-shaped nasal opening



- **Pelt**

- Striped
- Black and white distinctive colors
- Small, bushy tail

- **Track**

- Five toes on both front and back feet
- Long claw marks
  - Resembles badger track
- Small, mini bear-like feet

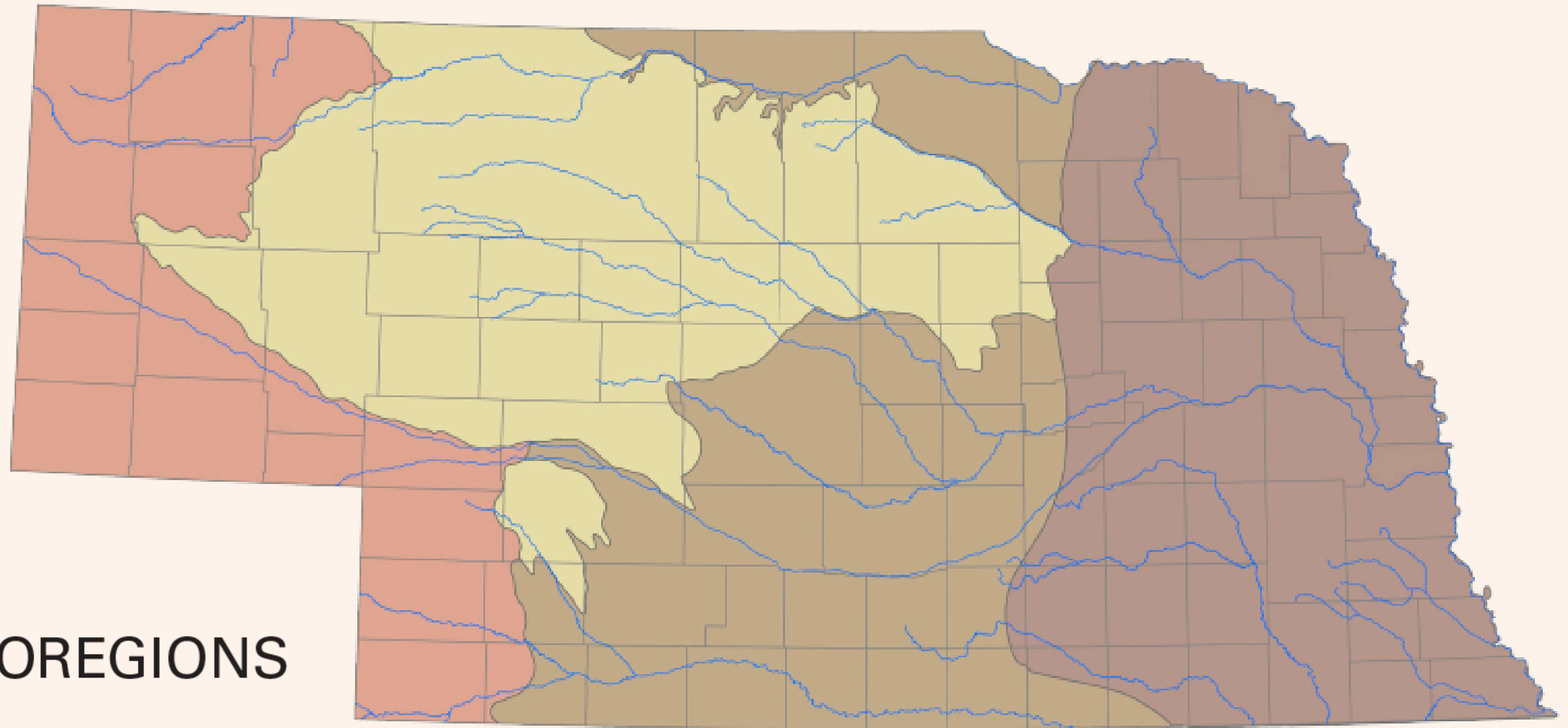






# ECOREGIONS



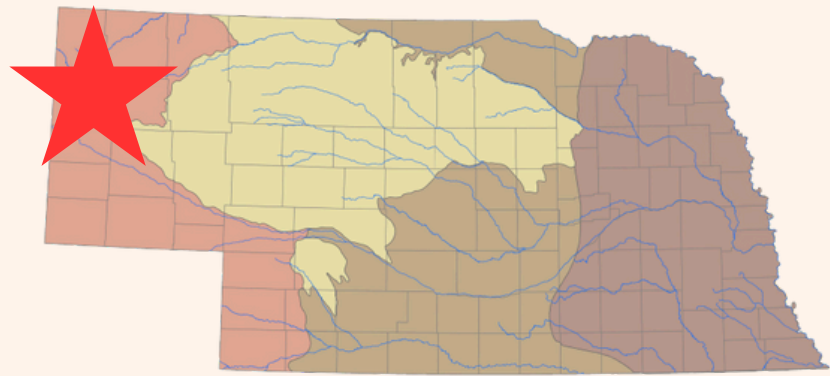


## NEBRASKA ECOREGIONS

-  Mixed-grass prairie
-  Sandhills
-  Shortgrass Prairie
-  Tallgrass Prairie

**As we tour through the ecoregions, be thinking about how the amphibians found here may differ from each other - what adaptations do they have to survive and thrive there?**





# SHORTGRASS PRAIRIE

## Notable Features

Sandsage prairies

Rocky outcrops

Riparian

woodlands

Pine woodlands

Badlands



Short-grass prairies are dominated by grasses such as buffalo grass and blue grama. Semi-arid climate with hot summers and cold winters, receiving an average of 12-17 inches of rainfall annually. Features diverse terrain including rocky escarpments, sandsage prairies, sand prairies and pine woodlands.

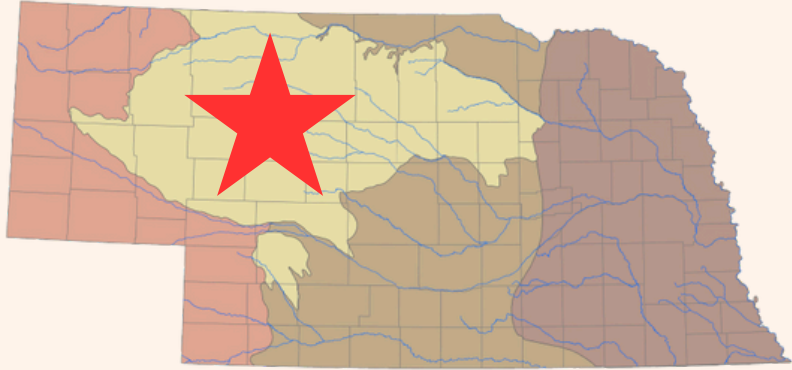


# Noticeable Species in this Ecoregion

- 300 species of birds
- Variety of mammals- ungulates (hoofed) dominate
- Numerous fish species
- Many species of reptiles and amphibians
- Noticeable species
  - Bighorn sheep
  - Mountain Lions
  - Pronghorn
  - Elk
  - Swift Fox
  - Greater Short-horned lizard
  - Ferruginous Hawks







# THE SANDHILLS

## Notable Features

Prairie Dunes

Valley Wetlands



The Sandhills stretch across north-central Nebraska, mostly north of the Platte and North Platte rivers, with the Niobrara River forming part of its northeastern boundary. The region covers about 19,300 square miles, making it the largest stabilized sand dune formation in the Western Hemisphere. The area is home to over a million acres of wetlands, including lakes, marshes, and fens, which are fed by the underlying Ogallala Aquifer.

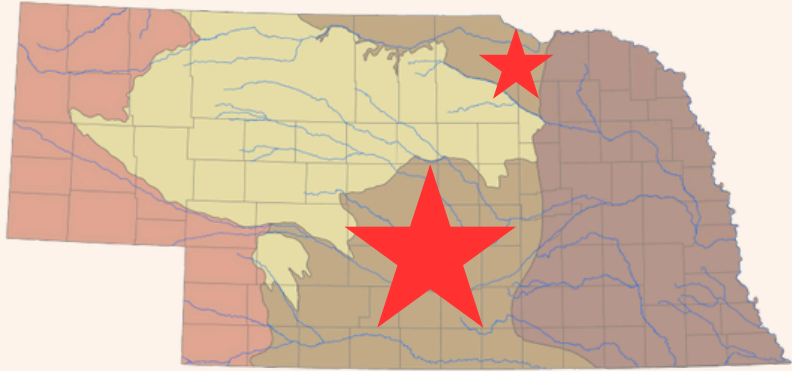


# Noticeable Species in this Ecoregion

- 300 species of birds
- 55 mammal species
- 75 fish
- 27 species of reptiles and amphibians
- Many insects
- Noticeable species
  - Trumpeter Swan
  - Finescale Dace
  - American Burying Beetle
  - Ornate Box Turtle
  - Western Prairie Fringed Orchid
  - Blanding's Turtle
  - Blowout Penstemon
  - Kangaroo Rat







# THE MIXEDGRASS PRAIRIE

## Notable Features

Shortgrass to the West

Tallgrass to the East

Wet meadows

Semiarid



Primarily in central Nebraska, situated between the tallgrass prairie to the east and the shortgrass prairie to the west. A mix of tall and short grasses, including species like little bluestem, sideoats grama, and blue grama. The prairie is also home to wildflowers like purple coneflower. A semi-arid climate with annual precipitation ranging from 20 to 28 inches. Summers are hot and dry, and winters are cold, with periodic droughts and floods. Serves as a vital transition zone and habitat for numerous species, supporting biodiversity through a mix of plants and animals from neighboring ecoregions.

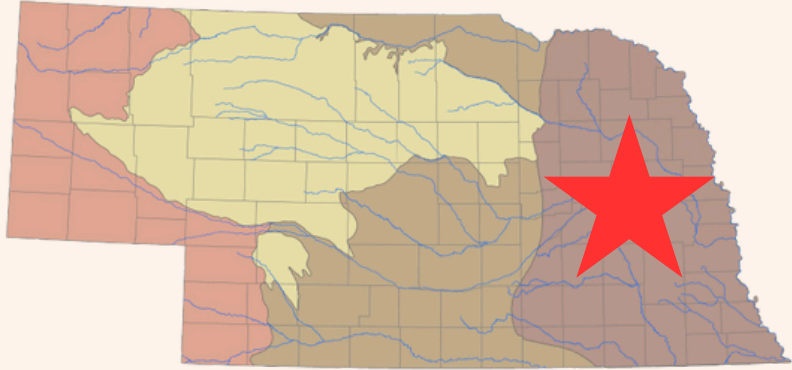


# Noticeable Species in this Ecoregion

- 350 species of birds
- Many mammals
- Reptiles and amphibians
- Diversity of fish species
- Little known about regions invertebrates
- Noticeable Species
  - Northern River Otter
  - Greater Prairie Chicken
  - Burrowing Owl
  - Whooping Crane
  - Platte River Caddisfly
  - Plains Topminnow
  - Interior Least Tern







# THE TALLGRASS PRAIRIE

## Notable Features

Rich soils

Deciduous woodlands

Saline Wetlands

Increased rainfall

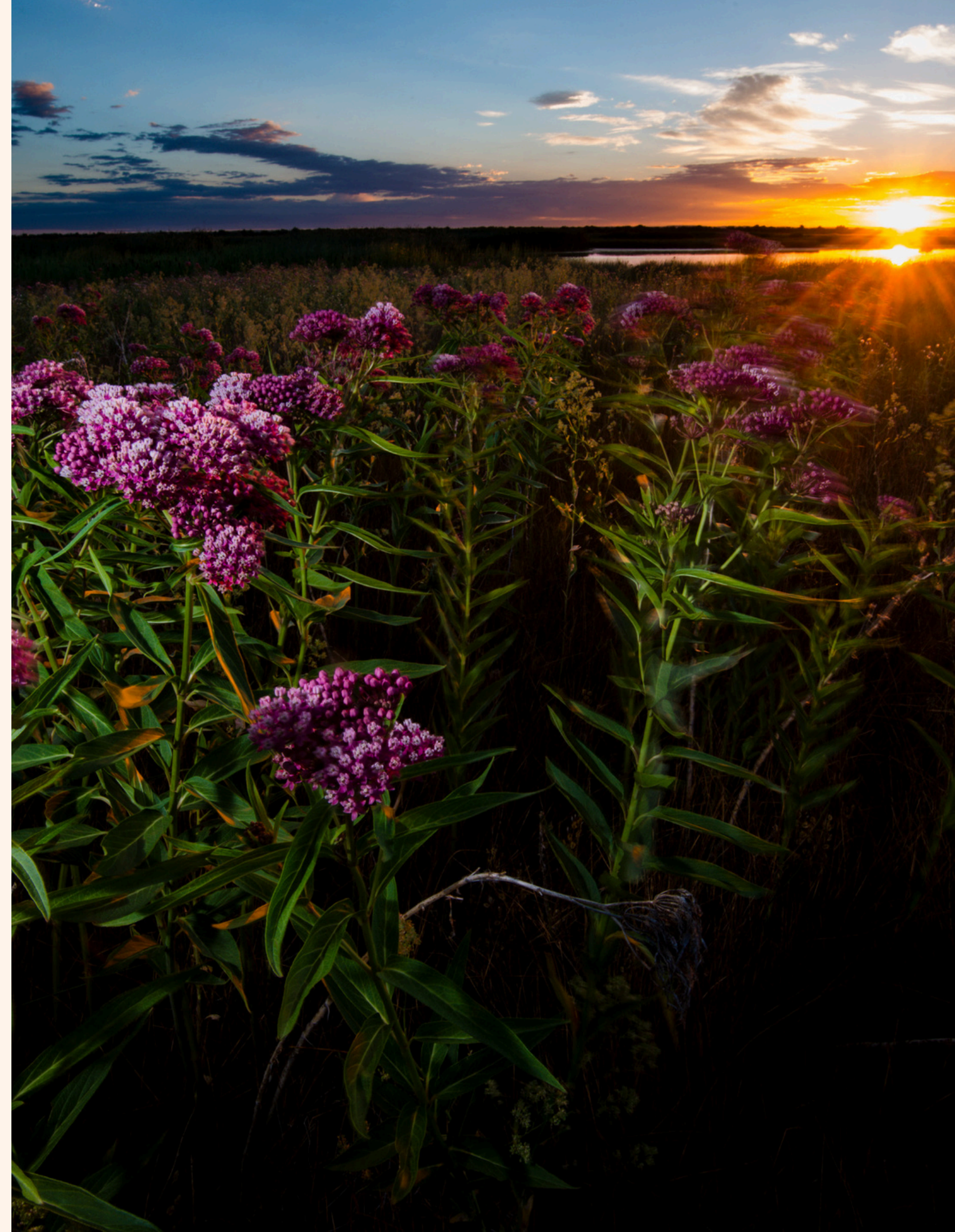


Ecoregion is dominated by tall grasses like big bluestem, indiangrass, and switchgrass. Supports hundreds of species of wildflowers as well. The region features deep, fertile soils derived from glacial till and windblown loess, which made it ideal for conversion into farmland. This region receives 25-36 inches of annual rainfall, the wettest in the state. Historically, the ecosystem was maintained by natural forces like wildfires and grazing by large herbivores (such as bison).



# Noticeable Species in this Ecoregion

- 300 species of birds
- 55 mammal species
- 75 fish
- 53 species of reptiles and amphibians
- Many insects
- Noticeable species
  - Southern Flying Squirrel
  - Timber Rattlesnake
  - Massasauga Rattlesnake
  - Regal Fritillary
  - Pallid Sturgeon
  - Piping Plover
  - Saltwort (plant)







# **SPECIES BIOLOGICAL INFORMATION**



# Southern Flying Squirrel

- Known for their ability to "fly", but really, they glide
- Large eyes which makes them adapted to a nocturnal lifestyle
- Produce several vocalizations, some that are even above the frequency range of the human ear
- Can steer around branches or other obstacles when gliding
- Omnivores- eat mostly plant material, mostly tree nuts
- Threatened in Nebraska





# Northern River Otter

- Largest member of the weasel family in Nebraska
- Excellent swimmers, can dive up to 55 feet underwater
- Communicate using vocalizations like chirping, growling and screams, they also use scent glands at the base of their tails
- In Nebraska they can be found along all major river systems
- Fish make up the greatest portion of diet, followed by crayfish
- In 1904 river otters disappeared from Nebraska





# Pallid Sturgeon

- One of the largest freshwater fish in North America
- Very similar to Shovelnose Sturgeon, but paler in color
- Mouth is toothless and positioned under the snout for sucking food, they are bottom feeders
- Lack scales and bones that are found in more "modern fish"
- Males reach sexual maturity when they are 7-9 years old
- Very long lifespans- can live to be 50 or even 100 years old
- Listed as a Federally Endangered species in 1990





# Massasauga

- Nebraska's smallest pit viper
- Uses wet prairies in Southeastern Nebraska
- Breed either in early spring upon emergence from brumation or during summer
- Found only in Southeastern Nebraska in the Tallgrass prairie
- One of two threatened species of snakes in the state





# Salt Creek Tiger Beetle

- One of the world's rarest insects and is listed as a Federal and State Endangered species
- Larvae live underground, spends around 2 years as larva
- Needs saline (salt) wetlands to survive
- Carnivorous insects- feeding on various insects and spiders
  - Adults are sight predators, and are so extremely fast!





# Bats

- Bats are mammals- more closely related to humans rather than rodents or birds
- Only mammals in the world capable of "true flight"
- Nebraska has 13 species
- All bats in Nebraska as insectivores- meaning they ONLY eat insects
- Bats have been shown to reduce agricultural pests which in turn saves farmers billions of dollars annually
- Rabies- less than 1/2 of 1% of all bats captured have had rabies





# Sandhill Cranes

- Tall heavy-bodied birds with a long neck and long legs
- One of the world's oldest living birds
- Staple bird in Nebraska
- Birds are known for dancing skills
  - Stretch wings, pump their heads, bow and leap into the air





# Prairie Dogs

- Considered a keystone species- many species associated with prairie dog towns- raptors, burrowing owls, meadowlarks, snakes, toads, salamanders, jackrabbits, etc.
- Range today has been reduced to 90-95% of historic levels
- Vocabulary is more advanced than any other animal language (besides humans) ever decoded
- Black Footed Ferrets eat prairie dogs as primary food source





# Plain Pocketbook

- One of 30 species of freshwater mussels in Nebraska
- Once very widespread but now restricted to the upper Elkhorn River
- Habitats include small creeks to large rivers in mud, sand, and or gravel
- Super interesting life cycle- with fish!
- Mussels filter water- they're important
- NGPC reintroduction efforts- stocking into streams





# Snapping Turtle

- Nebraska's largest turtle
- Can be found really in any body of water
- As water recedes these animals migrate across grasslands, roads, and anything else in their way
- Use a "sit and wait" strategy to acquire food
- Name is given to them due to their "aggressive" behavior on land
- Have temperature dependent sex determination
- Do butt breathing- cloacal respiration





# Platte River Caddisfly

- One of the rarest insects in the world
- Adult females lay their eggs on the surface of the river after mating in September or October. The eggs sink to the bottom and then hatch into larvae
- Larval caddisfly feed on submerged plant material by “shredding.” Caddisfly shredding provides an important ecological service by expediting decomposition
- By May or June, larval caddisfly take to the land, seeking shelter along the riverbank. They are the only caddisfly to emerge from water so early in their life cycle. They mature in August and later emerge as adults whose mission is to create the next generation





# Tiger Salamander

- Depending on the location in Nebraska, they can exhibit two different color variants
- Often purchased as bait species- many times species atypical for a region are found here
- Found in nearly any permanent or semi-permanent body of water
- Inhabit prairie dog burrows in the sandhills and western Nebraska
- After hatching they become voracious predators and feed on anything they can catch- including other salamander larvae





# American Burying Beetle

- Largest member of the carrion beetle family in North America
- They use dead animals for food and reproduction
- They feed and lay eggs on dead animals
- Small populations in only 6 states- Sandhills and the Loess Canyons are critical habitat for them in Nebraska
- Listed as both a Federal & State Endangered species in 1989





# Ornate Box Turtle

- Nebraska's only native terrestrial turtle
- Single hinge- which allows the animal to draw its body almost completely into its shell, like a box
- Males have red irises, females have yellow or maroon
- Grassland turtle can be found in short, mixed, and tallgrass prairies
- Omnivorous meaning they eat both plant and animal materials
- Females can retain sperm and lay eggs the following season after breeding- sexual maturity not reached until age 10





# Greater Prairie Chicken

- Can be found in Tallgrass prairie and other places, but highest density is the eastern portion of the Sandhills
- Leks are hotbeds of social activity and eventually breeding areas for Greater prairie chickens
- Said to "boom" as the deep calls made by lekking males are drum-like in nature
- The bright orange sacs will inflate and deflate as well





# Blanding's Turtle

- Semi-aquatic species of turtle that loves marshy areas
- Nebraska is the only state where their population is secure
- Doing well in the Sandhills
- Can live more than 70 years don't reach sexual maturity until 20 years of age
- Have a large dome-shaped shell
- In May and June, the females travel as much as 1 mile away from the marsh to each lay about a dozen eggs, and that is when they are most vulnerable to becoming roadkill





# Swift Fox

- Smallest wild canine in North America
- Color varies with seasons
- Swift meaning it can reach speeds up to 25 mph
- Only found in 44% of its historic range
- Require shortgrass prairies with few shrubs and trees
- Technically they are omnivores, but majority of diet is meat
- Increase in agriculture has led to a decrease in the shortgrass prairie (their habitat)





# Pronghorn

- Sometimes referred to as antelope, or pronghorn antelope, nope!
- Fastest hoofed animal in North America, can reach speeds up to 60 mph, although not as fast as cheetahs, they can maintain that fast speed for a longer period of time
- Indicator of healthy sagebrush systems
- Females and males have horns- females are mostly just bumps
- Excellent vision- will raise white rump hairs, this is an alert to other pronghorn of danger





# Mountain Lion

- Native to Nebraska and returned through natural expansions, not NGPC releasing them in helicopters under the cover of night
- Extirpated in the 1890s and first confirmation since then was in 1991
- Scat surveys are done every 2 years
- Currently NGPC has mountain lions collared to learn more about movements





# Bighorn Sheep

- Mostly people think of these sheep climbing steep rugged mountain terrain, but they are in fact native to the plains and bluffs of western Nebraska
- Named for the large curved horns on the heads of the males (rams) females (ewes) also have them, but they tend to be shorter and a less pronounced curve
- When mating season comes they engage in a headbutting behavior, the winner earns the right to mate with a female
- In 1981 NGPC reintroduced Rocky Mountain bighorn sheep







# VOCABULARY



# Know These!

- Limiting Factor
- Extirpated
- Endemic
- Native
- Non-native
- Introduced
- Carrying Capacity
- Succession
- Invasive
- Carnivore
- Herbivore
- Fossorial
- Phototrophic
- Crepuscular
- Monotypic
- Insectivore
- Omnivore
- Piscivore
- Ungulate
- Density  
Dependent  
Factors
- Zoonotic







**“HOT TOPICS”**



# Know These!

- Pollinators
- White-nose syndrome
- Epizootic Hemorrhagic Disease (EHD)
- Climate Change
- Mountain Lions
- Invasive Species
- Prescribed Fire
- Threatened & Endangered Species
- Monarchs
- Wildlife Diseases
- For more visit:  
[OutdoorNebraska.gov](http://OutdoorNebraska.gov)





**THANKS EVERYONE!**

**QUESTIONS?**

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**NEBRASKA**

