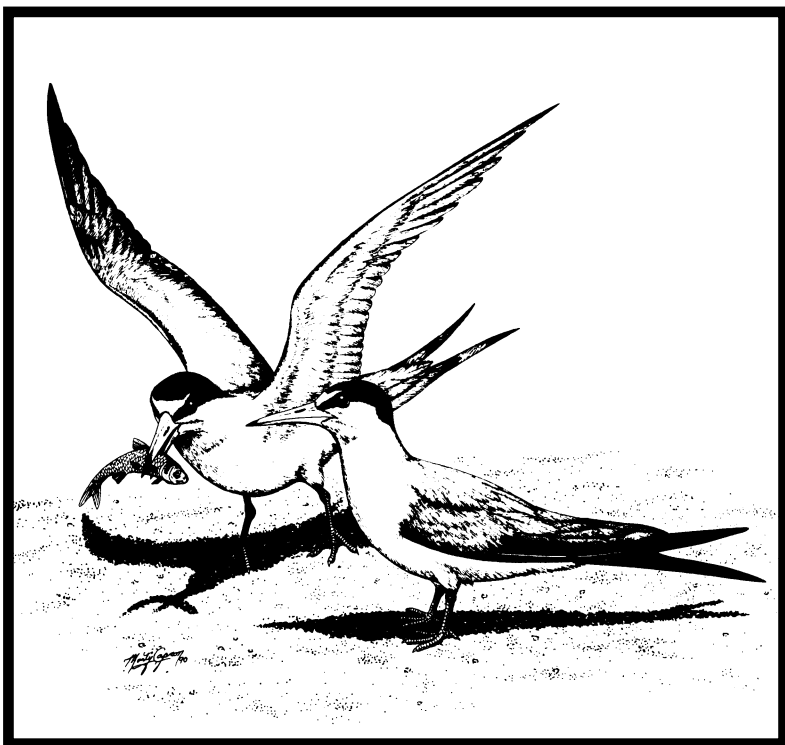


# CHEYENNE BOTTOMS

## Driving Tour



Funded in part by your hunting  
license dollars and the federal  
excise tax on sporting arms and  
ammunition for wildlife restoration

# CHEYENNE BOTTOMS DRIVING TOUR

## Stop 1. The Entrance

*Distance to next stop: about 0.5 mile*

Welcome to Cheyenne Bottoms, one of the world's most important wildlife areas. In the fall of 1988, Cheyenne Bottoms was designated a "Wetland of International Importance" under a worldwide treaty.

You are starting this driving tour at the southeast corner of the area. The tour will take you through the marsh in about 45 minutes. Please take your time and enjoy the astonishing array of animals and plants that make the Bottoms so important to wildlife and people alike. This tour will help you enjoy and understand Cheyenne Bottoms—its shorebirds, waterfowl, mammals, reptiles, amphibians and insects...and the factors that will determine its future.

### VOCABULARY:

**wildlife** – living things that are not tame

**marsh** – an area of wet soils and water plants, sometimes covered with water

**shorebirds** – wading birds usually found in marshes or coastal areas  
*(examples: sandpipers, plovers)*

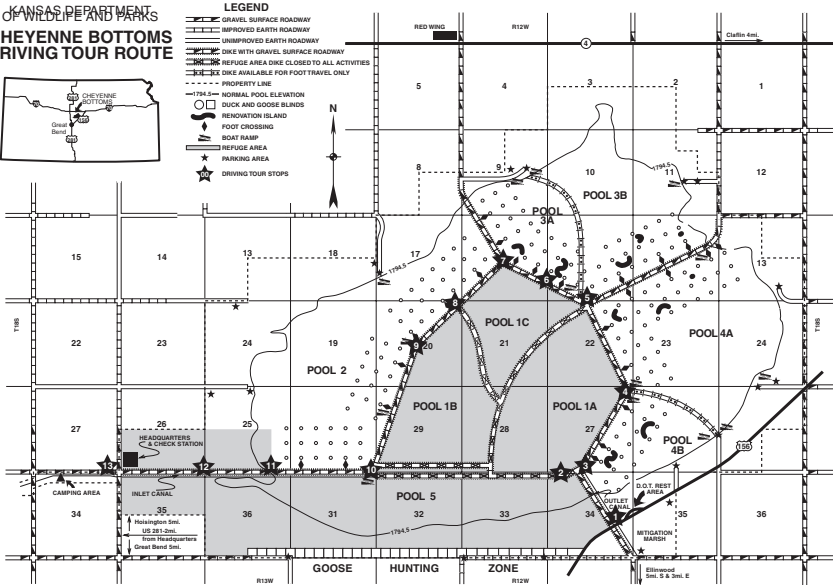
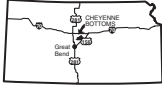
**waterfowl** – swimming and diving birds  
*(examples: ducks, geese, grebes)*

**mammals** – animals with backbones, hair and milk glands  
*(examples: deer, muskrats, and mice)*

**reptiles** – animals with short legs or no legs, scales and lungs  
*(examples: snakes, turtles, and lizards)*

**amphibians** – animals that have water-living young and land-living adults  
*(examples: frogs, toads, and salamanders)*

KANSAS DEPARTMENT  
OF WILDLIFE AND PARKS  
**CHEYENNE BOTTOMS  
DRIVING TOUR ROUTE**



**Stop 2. Controlling The Water**

*Distance to next stop: about 50 feet*

These large metal gates control water from Pool 1 (ahead), Pool 4 (right) and Pool 5 (left). If you face the center of the gate area, the gate immediately to your left lets water flow out of the Bottoms through the outlet canal. Before the canal was built, there was no channel for water to leave the natural marsh basin. During floods, water once spread many miles in every direction. Now the outlet canal carries water east into Little Cheyenne Creek, then into Cow Creek near Lyons, and finally into the Arkansas River near Hutchinson. But even the outlet canal cannot always carry water away fast enough to prevent flooding during heavy rains.

**VOCABULARY:**

**canal** – a ditch constructed to carry water

## Stop 3. A Grand View of Cheyenne Bottoms

*Distance to next stop: about 1.1 miles*

From the top of the observation tower you can get a bird's eye view of the 41,000-acre Cheyenne Bottoms basin. Cheyenne Bottoms Wildlife Area includes about 20,000 acres of this basin, about 12,000 acres of which are generally covered with shallow water.

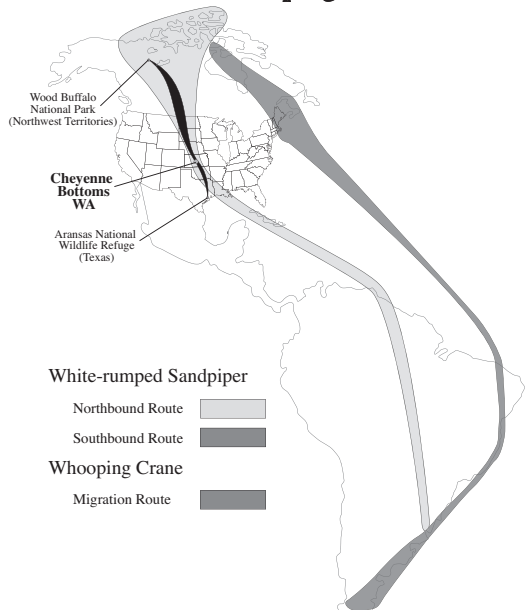
This observation tower was erected with monies from the state Chickadee Checkoff income tax donation program. **WATCH FOR ICE ON THE STEPS DURING COLD WEATHER, AND ALWAYS USE THE HAND RAILS!**

You are now at the southeast edge of a huge dish in the Earth's surface. Great movements in the crust caused this sink about 100 million years ago. Geologists believe the shifts also caused the Smoky Hill River to change its route and flow to the east, rather than south to Cheyenne Bottoms. On the Bottoms' north side are 100-foot-high rock bluffs. On the south are also high bluffs and 40-foot deep alluvial deposits.

Many wetlands help to refill and purify groundwater reserves by allowing water to slowly filter downward. The soil beneath Cheyenne Bottoms doesn't allow much water to pass through, however. The Bottoms, like all wetlands, also filters out pollutants as the water flows through.

There were once 12 large marshes in central Kansas. Most of these have been destroyed for farming and other developments. Only Quivira, Jamestown, Slate Creek, McPherson Wetlands and Cheyenne Bottoms remain today.

### Migration Routes of the White-rumped Sandpiper and Whooping Crane

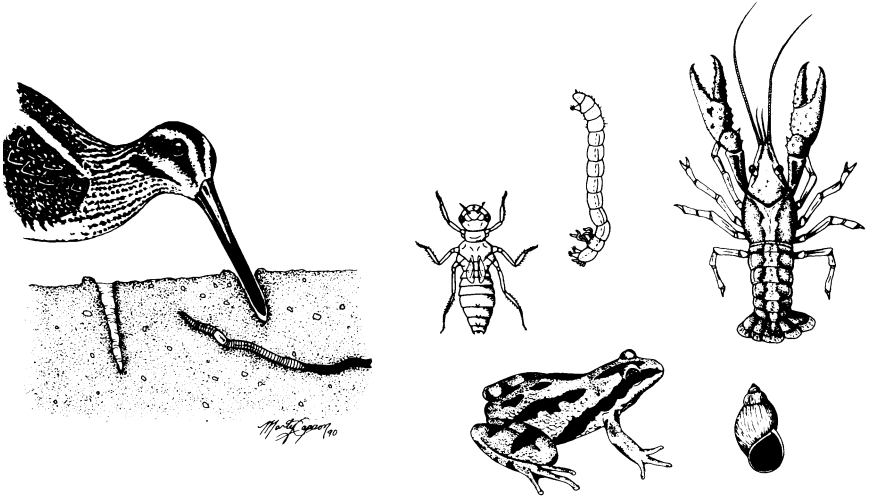


## VOCABULARY:

**migration** – seasonal travel between nesting and wintering areas  
(*example: geese flying south in winter and north in summer*)

**sink** – a low place in the land surface  
(*examples: ducks, geese, grebes*)

**alluvial deposit** – soil, sand, gravel and other material dropped by moving water



### Stop 4. A Place for Food and Rest

*Distance to next stop: about 2.1 miles*

Cheyenne Bottoms, like all wetlands, provides migrating birds with the huge amounts of special foods they need to survive long flights. It's easy to see how shorebirds are specially adapted to probing the rich march bottom mud for insects and other small animals. Avocets, for example, sweep their long up-curved bills through the shallows to catch beetles, dragon fly nymphs and other larvae. The larvae of midge flies (called chironomids) are among the most important shore-bird foods. Long-billed and short-billed dowitchers find many of the same foods by probing the mud. The white-faced ibis uses its down-curved bill to catch snails, insects, leeches, worms, frogs, fish and crayfish. The common snipe's unique bill is soft, pliable (except the tip is hard) and sensitive to the touch. The snipe plunges its bill straight down into the mud and "feels" for insects, worms, snails and insect larvae.

## Stop 5. Getting Water Where it's Needed

*Distance to next stop: about 0.5 mile*

On your left is Pool 1. You will continue to drive around it counter-clockwise until you reach Stop 10 (about four miles). The huge propane-fueled engines on your right turn giant pumps that move water from Pools 3 and 4 into Pool 1, where it is stored for use during drought. These machines can move enough water in about one minute to fill an average in-ground home swimming pool.

When available, water from Pool 1 is sometimes used to drown out pest plants, especially the narrow leaf cattails you see all around the Bottoms. The cattails die after being submerged where sunlight and oxygen can't reach them for long periods.

Cattails, like most other marsh plants, provide food and shelter for many wetland birds and other animals. But uncontrolled, they can spread over an entire marsh, choking out the open water spaces that are important to marsh wildlife.

### VOCABULARY:

**drought** – a long period without rain or snow

**cattails** – tall marsh plants with thin leaves



## Stop 6. Homes for Marsh Mammals

*Distance to next stop: about 0.6 miles*

Cheyenne Bottoms is most important to ducks, geese and shore-birds, but other animals live here, too. Mammals found here include beaver, mink and many small rodents. The mammal most often seen at the Bottoms is the muskrat. These large rat-shaped creatures are important because they help clear the water of cattails. You may be able to see their large cattail-pile houses. Cattails are also part of the muskrat's diet.

Beavers, large rodents, are plant eaters too. They feed mainly on small, tender tree branches. They do not eat bark. Beavers at Cheyenne Bottoms live in dens beneath the shoreline soil.

Trees are scarce in the Bottoms, because the water beneath the soil is quite salty. When trees become large enough for their roots to reach the salt water, they die. The marsh bottom soils are salty because evaporating water leaves behind its salt and minerals. Only a small amount of water leaks downward from the Bottoms and contributes to the saltiness of the groundwater. Much of the groundwater salt comes from natural salt deposits deep below the surface.

The only trees that thrive in these conditions are salt cedars, which are not valuable to many wild animals. Controlling these invaders may involve burning and flooding them.



### VOCABULARY:

**cover** – plants in which animals take shelter from predators and severe weather

**salt cedar** – a short, bushy tree that grows in salty soils

**evaporating** – water turning into vapor and entering the air

**groundwater** – water naturally found beneath the earth's surface

## Stop 7. When Water was Abundant

*Distance to next stop: about 1.4 miles*

If you turned right here, you would be driving on the dike that divides Pools 2 and 3. Pool 2, covering almost 3,000 acres on the Bottoms' northwest side, occasionally received water from Blood Creek and Deception Creek. These two small streams were once the natural suppliers of Cheyenne Bottoms water.

Blood Creek is said to be so named because the Cheyenne Indians once battled a rival tribe on its banks. The fight, presumably for hunting rights, was so fierce that the creek reportedly flowed red with the warriors' blood.

A system of dams and canals now carries water to the Bottoms from Wet Walnut Creek and the Arkansas River. When first constructed, the system brought ample water to the marsh. Today, because area streams and ground water are overused, little or no water reaches the Bottoms through the inlet system.

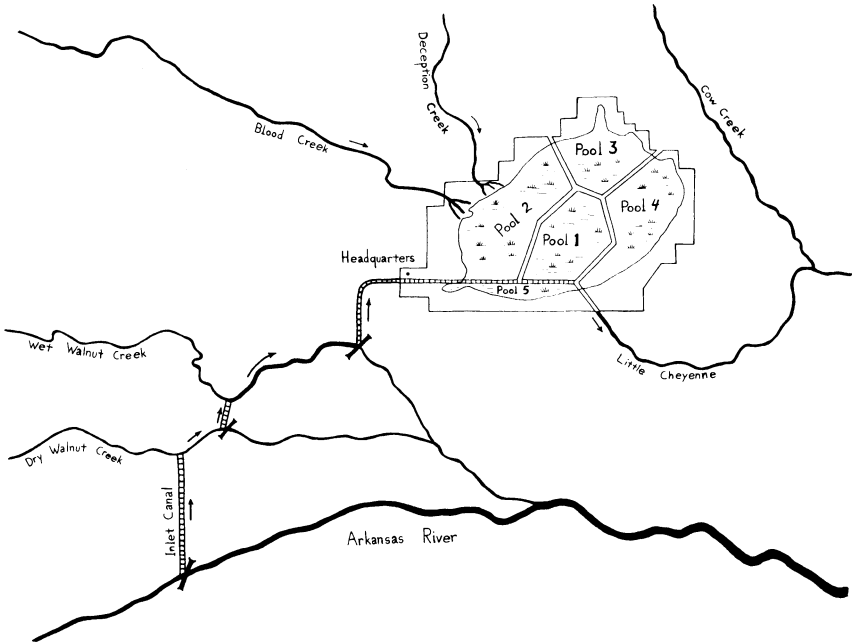
### VOCABULARY:

**dike** – an artificial wall to control water

**dam** – a wall constructed to hold back water in a stream

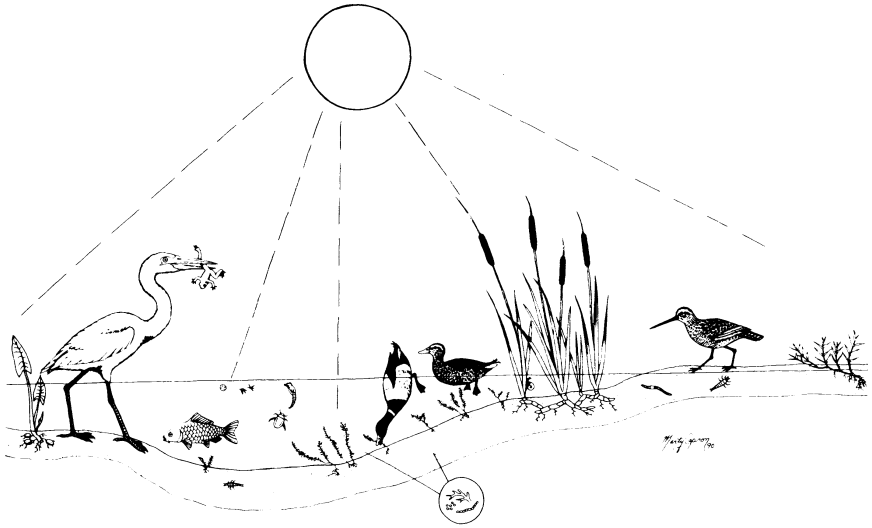
## Stop 8. Threatened Ecosystem

*Distance to next stop: about 0.6 miles*



You are looking southeast across Pool 1. This part of Cheyenne Bottoms is a 3,300-acre refuge where no disturbance of wildlife is allowed. This protection encourages shorebirds and waterfowl to stay at the Bottoms while replenishing energy reserves necessary for migration. This great bird gathering attracts birdwatchers from all over the world.

Like other marshes, Cheyenne Bottoms offers food and shelter to many wild animals. Its wet soils support unique plants and animals generally not found in lakes or uplands. Its shallow waters allow the sun's energy to reach the fertile marsh bottom. This causes rapid plant growth and provides the food needed by insects, crustaceans, fish, amphibians, reptiles, birds and mammals that inhabit Cheyenne Bottoms.



The variety and abundance of wildlife found in marshes is among the greatest of any type of habitat. Sadly, more than half of the North American wetlands that once existed have been destroyed for farming, highways and growing cities and towns. Every year in the United States about 300,000 more wetland acres are destroyed.

#### VOCABULARY:

**refuge** – a place where wildlife is not hunted or disturbed

**birdwatcher** – a person who identifies and studies wild birds

**upland** – land that is not normally wet  
(examples: prairie hills, mountain forests)

**insect** – often used as a slang word for very small animals that live in the marsh soil and water  
(examples: worms, beetles, centipedes)

**crustacean** – animal with jointed body, hard covering and antennae  
(example: crayfish)

**habitat** – the land, water and plants that provide wildlife with food and cover

**ecosystem** – a community consisting of animals, plants and their local environment  
(example: marsh ecosystem, woodland ecosystem)



## Stop 9. A Place for Hunting

*Distance to next stop: about 0.9 miles*

The concrete boxes you can see on the small islands in this pool are hunting blinds, built in the 1950s. They have been used by thousands of sportsmen, who come to Cheyenne Bottoms to enjoy the area's fine duck and goose hunting. Blinds have also been built in Pool 3 and Pool 4.

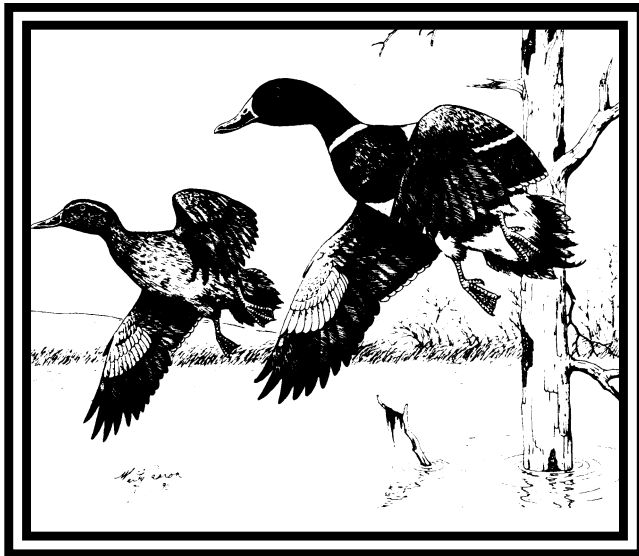
During the early 1900s, market hunters hauled ducks from Cheyenne Bottoms to large cities, where the birds were prized table fare. Often, hundreds of ducks were shot with huge shotguns, mounted on small wooden boats. A dozen canvasback ducks were worth eight dollars in the Chicago markets in the early 1900s.

Market hunting is no longer allowed. Today, ducks, geese and other game animals are hunted only under strict laws that keep wildlife populations healthy. Money from hunting license and duck stamp sales helps to pay for work that benefits wildlife at Cheyenne Bottoms and elsewhere. Cheyenne Bottoms Wildlife Area was originally purchased with these funds.

Many of the funds for rebuilding and protecting Kansas wetlands come from the sale of duck stamps. The Kansas state duck stamp, first issued in 1987, has provided nearly \$300,000 to benefit marshes. Waterfowlers are also required to purchase federal duck stamps, which provide millions of dollars annually to protect and rebuild wetlands.

### VOCABULARY:

- sportsman** – a responsible person who hunts, traps or fishes and obeys the laws, behaves properly in the field and helps to protect wildlife habitat
- blind** – a camouflaged place where a hunter waits for game
- market hunter** – a person who hunted animals to sell for profit
- game animal** – wildlife that can legally be hunted, trapped or fished
- wildlife population** – the animals of one species, or particular kind, in a certain area
- duck stamp** – a stamp sold to raise money to improve waterfowl habitat



## Stop 10. Rare and Endangered Animals

*Distance to next stop: about 0.9 miles*

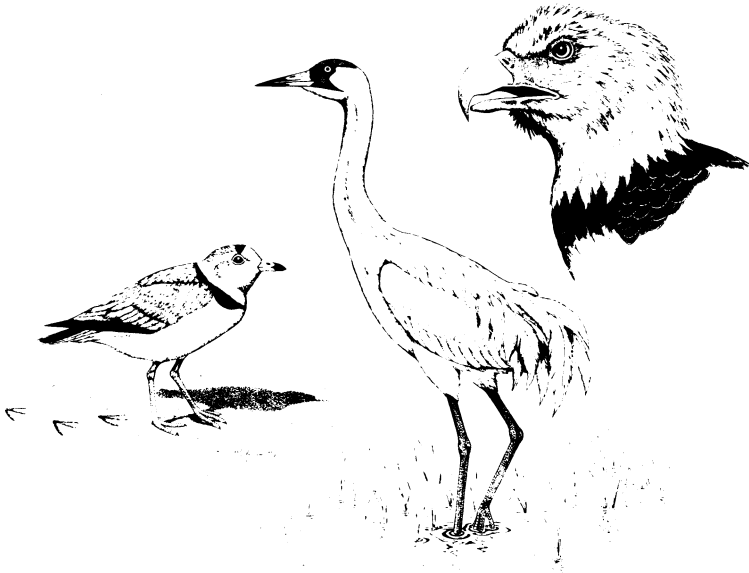
You are looking south across the inlet canal and into Pool 5. Many threatened and endangered species depend on the marsh during their spring and fall migrations. Bald eagles, interior least terns, piping plovers and whooping cranes are among the endangered animals you might see at the Bottoms.

Many of the world's whooping cranes migrate through central Kansas. In fact, U.S. Fish and Wildlife Service officials have designated the Bottoms as critical habitat for the cranes. They are most likely to be here in late October and early November. When whooping cranes are present, parts of Cheyenne Bottoms are closed to visitors to allow the birds to rest and feed without disturbance. During the 1940s, there were only about 16 whooping cranes left in the world. Today, thanks partly to protection of marshes like Cheyenne Bottoms, more than 175 of these huge white birds survive.

### VOCABULARY:

**threatened** – so few in number as to almost be endangered

**endangered** – so few in number that almost none are left in the wild



## Stop 11. A Long History of Water

*Distance to next stop: about 0.7 miles*

This canal was built in the early 1950s to bring water 23 miles from the Arkansas River into the Bottoms.. Other canals and dams have also been built to help get water from smaller streams to the marsh. The streams that once supplied the Bottoms seldom flow today. Irrigation and other human activities have lowered the levels of groundwater that once kept them flowing. The future of Cheyenne Bottoms and other ecosystems is threatened by this dangerous and growing water shortage.

Early attempts to develop Cheyenne Bottoms included plans for a huge lake and a water wheel driven by a man-made waterfall. These ideas were abandoned, mainly because they were too costly. Other developers even wanted to drain the great marsh so it could be farmed.

Wetlands lose large amounts of water through evaporation and through plant leaves (a process called transpiration). Cheyenne Bottoms loses about 60 inches of water to evaporation annually. Only about 24 inches of rain falls here each year.

The Kansas Department of Wildlife & Parks began purchasing land for the Cheyenne Bottoms Wildlife Area in 1942. The internal dikes were constructed in the mid 1940s. Totalling more than 20 miles long, the dikes help to control and conserve water. More than 50 miles of channels also help to move water. A floating backhoe, purchased with license money and funds from Ducks Unlimited and Chickadee Checkoff, is used to maintain the canals and other water control structures.

### VOCABULARY:

**irrigation** – artificially watering land in order to grow crops

**conserve** – to use something from nature wisely without wasting it

**erosion** – the movement of soil by water or wind

**siltation** – the depositing of fine soil due to erosion

## Stop 12. Making Habitat

*Distance to next stop: about 1.4 miles*

Looking south here, you can see a dike that surrounds several small islands. These were built to provide nesting places for endangered interior least terns and other shorebirds. The terns, like many wetland birds, need open sand bars for nesting. Least terns are endangered, in part, because many wetland and stream sand bars have been destroyed or seriously damaged by human activities.

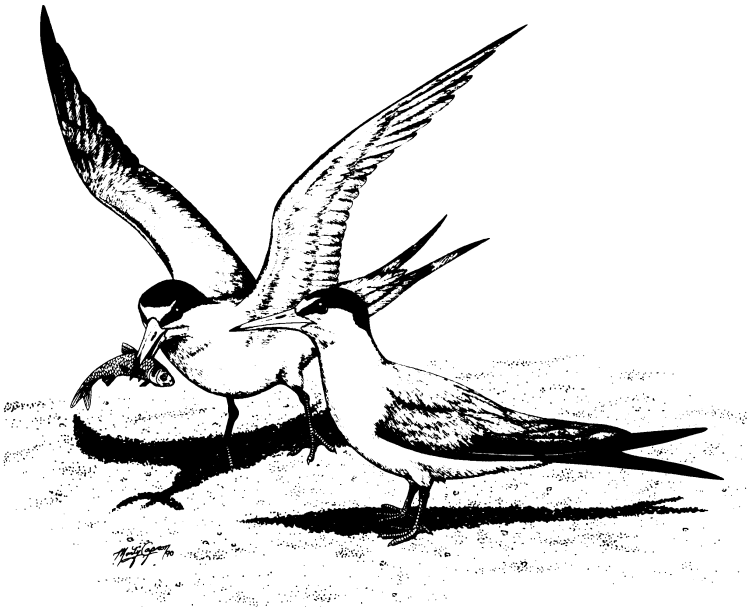
Other examples of artificial habitat you might see at Cheyenne Bottoms include duck and goose nesting baskets supported on metal poles. Brush piles placed on the dikes are the homes of many rabbits, raccoons and other small animals. Sunning “logs” for turtles, snakes and other cold-blooded animals have been made by extending wooden poles from the shore into the water.

### VOCABULARY:

**sand bar** – a deposit of sand usually left by moving water

**cold-blooded** – animal type with body temperature the same as its surroundings

*(examples: reptiles and amphibians)*



## Stop 13. The End / The Beginning

*Distance to next stop: about one-half mile*

This concludes your driving tour of one of the world's most important wildlife habitat areas. Let this be a beginning of your knowledge of Cheyenne Bottoms and other wetlands. There is much more to know. You can learn more about this and other great marshes by reading *Kansas Wildlife & Parks* magazine, visiting your public library or contacting the Department of Wildlife & Parks, Cheyenne Bottoms or Pratt office.

Cheyenne Bottoms' future can be bright only if you support it. Come and visit the Bottoms often, but don't stop there. Tell your government representatives that wetlands are important to you. Support local and state conservation organizations. Work to change farming and other land use practices that destroy wetlands. Support policies that protect water for wildlife. Adopt a lifestyle that protects wildlife habitat and the environment in general. Contribute to the Chickadee Checkoff, and buy state and federal duck stamps.

Cheyenne Bottoms is a valuable part of your great wildlife heritage.



Equal opportunity to participate in and benefit from programs described herein is available to all individuals without regard to race, color, national origin, sex, religion, age or disability. Complaints of discrimination should be sent to Office of the Secretary, Kansas Department of Wildlife and Parks, 1020 S Kansas Ave. Suite 200, Topeka, KS 66612-1327

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