

Kankakee Sands Driving Tour

Welcome to the Efroymsen Restoration at Kankakee Sands, an 8,000-acre prairie restoration in Northwest Indiana, owned and managed by The Nature Conservancy.

The **Efroymsen Restoration at Kankakee Sands** connects four biologically significant prairie and savanna remnants: Willow Slough Fish and Wildlife Area, Beaver Lake Nature Preserve, Conrad Savanna, and Conrad Station Savanna. The Efroymsen Restoration is in the center of these four properties and provides additional habitat for the plants and animals of the area as well as a corridor along which plants and animals can travel from one protected area to another.

The Nature Conservancy made its first purchase at Kankakee Sands in Indiana in 1996. The first restoration of agricultural land planted to prairie at Kankakee Sands took place in 1998.

The following driving tour will take you around Kankakee Sands in Indiana, from the southern extreme to the northern edge and back around again. You will learn about the restoration work at the site as well as the plants and animals of the prairie, wetlands and savannas. You'll also learn about how we are using bison as a conservation tool to manage the prairie. Allow 1 - 2 hours for the tour. There is additional local history along the hiking trail at Conrad Station Savanna, which you will drive by on this tour.

Part 1: Begin the tour with Unit L

- Leave from the Kankakee Sands office at 3294 N US 41, Morocco, IN 47963.
- Drive south on US 41 then take the first left, turning east on CR 225 N.
- Just over the railroad tracks, pull into Parking Unit L on the north side of the road.

Unit L is at the southern extreme of the Kankakee Sands property. This is a low wet area that had a substantial horsetail (*Equisetum hymale*) infestation just a few years ago. Horsetail is a unique invasive species issue within the Kankakee Sands site. It is a native species, but it can form dense monocultures that exclude desired native plant diversity. With an intensive mowing, herbiciding, burning, and over-seeding regime, the horsetail has been dramatically reduced, and native prairie plants are recolonizing the area. Unit L has had over 8 different seed mixes planted on it over the years from 2000 to 2006; the planting mixes range from xeric short grass to wet prairie.

A NOTE ABOUT DRIVING



While at Kankakee Sands, please be aware that you are now in the home of the animals and insects. Therefore, please drive with caution. Please respect the animal and insect life on and near the roadways at Kankakee Sands. We suggest driving 40 mph or slower on county roads in order to allow animals to move away from your vehicle and to allow you time to avoid hitting any wildlife. Use your flashers to alert other traffic of your slower speed.

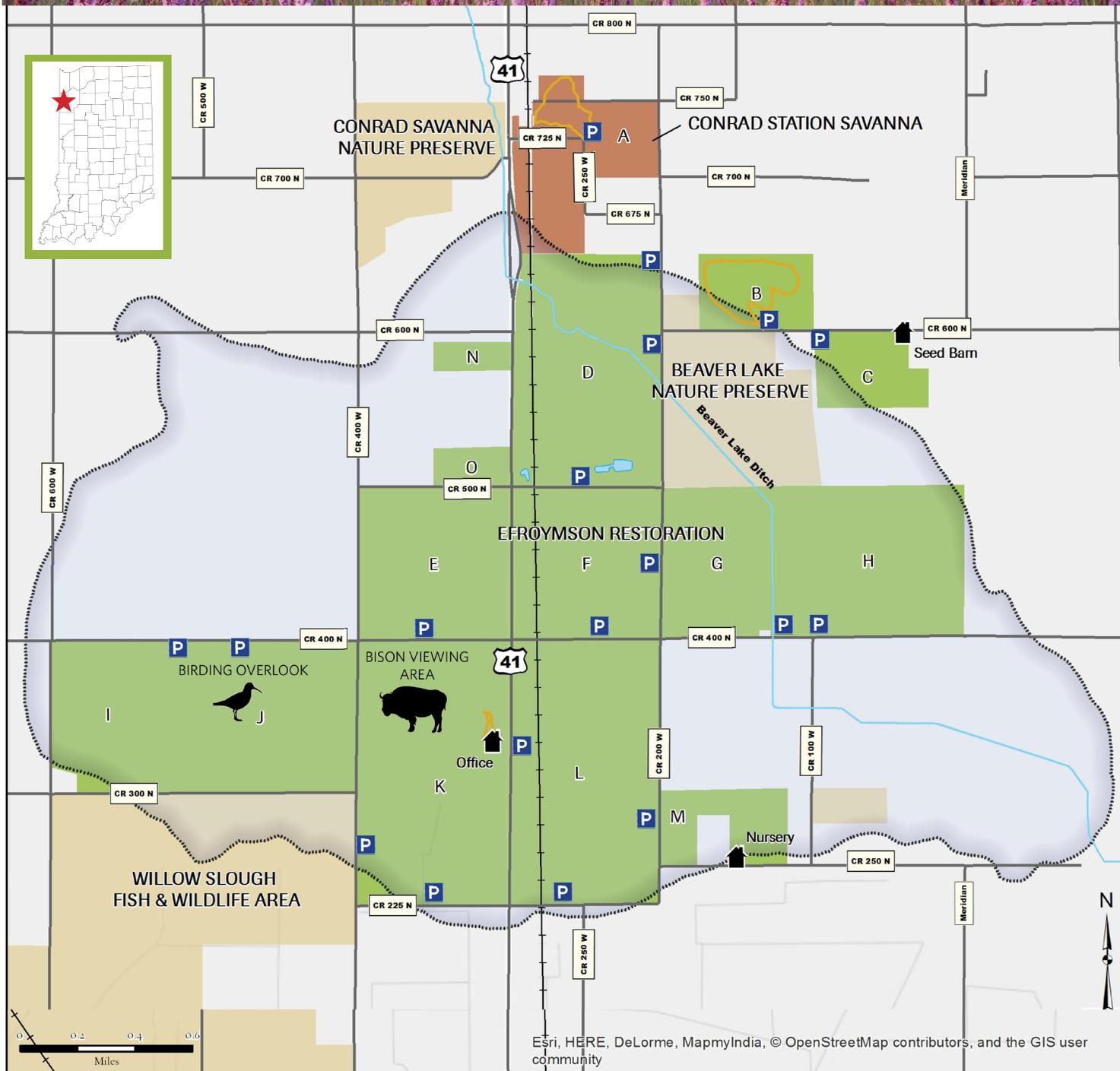
ABOUT US



The Nature Conservancy is a leading conservation organization working around the world to protect ecologically important lands and waters for nature and people. To date, the Conservancy and its more than one million members have been responsible for the protection of more than 119 million acres of land and 5,000 miles of rivers worldwide. In Indiana, the Conservancy has worked for 60 years at over 195 sites to protect more than

Kankakee Sands

NEWTON COUNTY, INDIANA



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Prepared by F.Becker TNC-INFO March 2016

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| P Parking | Trails | The Nature Conservancy | Department of Natural Resources |
| Beaver Lake Ditch | Railroad | Efroymsen Restoration | Beaver Lake Nature Preserve |
| Buildings | Ponds | Conrad Station Savanna | Willow Slough Fish & Wildlife Area |
| Beaver Lake Historic Footprint | | | |



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It is a challenge to conduct prescribed fire in the restorations of Unit L due to its proximity to US 41 and the amount of water it holds every spring. You can see the results of this infrequent burn history in the amount of small trees scattered throughout the prairie. It takes a combination of mowing and herbicide application to keep the tree population at a low level.

Part 2: Native Plant Nursery

- From Parking Unit L, continue driving east. The road will curve to the north.
- Turn east on CR 250N. North Newton High School is on the south side of the road. The nursery is 0.5 mile further down the road.
- Turn in to the nursery parking lot on the north side of the road.

The **Kankakee Sands Native Plant Nursery** is an 80-acre seed production nursery, created in 1999 when Kankakee Sands was in its infancy. The Nursery was created to ensure that Kankakee Sands would have enough local genotype native plant seed to cover roughly 500 acres per year and to do high quality restoration plantings. Seed stock used to create the beds at the Nursery was harvested with permission from private and public properties within a 50-mile radius of the Kankakee Sands site.

More than 160 perennial plant species native to Newton County are planted and managed in plots at the Nursery. Plugs were grown in our greenhouse and then planted to start new beds or add to old ones. Some of the beds are as old as Kankakee Sands itself!

When the seeds in the plots are ripe, we harvest them by hand or with mechanized equipment depending on the amount of seed. An additional 50 annual native plant species “volunteer” at the Nursery each year, meaning they were not planted by us, but have been present in the soils since prairie once covered the county. We opportunistically harvest this seed for use in our restorations as well. The Nursery grows wildflowers, grasses and sedges that are appropriate for the soils and hydrology of Kankakee Sands.

We use several methods to maintain the Nursery, including mowing, herbicide and hand weeding. Generally, any native plant that doesn't pose a threat to the health of the bed is left to grow and set seed.

As seeds are harvested from the Nursery beds, they are taken to the Seed Barn for drying and processing. You will visit the Seed Barn later on this tour.

Like all of Kankakee Sands, the Nursery is open to public foot travel at all times. Feel free to walk the Nursery and enjoy the wild prairie that the Nursery has become over time. Because we are not limited for space, these old and declining beds are still used for seed production today.

Workdays are held in the spring and fall at the Nursery and Seed Barn. Activities include transplanting seedlings in the greenhouse, harvesting seeds in the Nursery and cleaning seeds in the Seed Barn. To find out more about upcoming workdays, visit nature.org/kankakeesands, or visit our kiosk at the main office for more information.

Part 3: Unit F and Unit G

- After visiting the nursery, drive back west on CR 250N.
- At the stop sign, turn north on CR 200W.
- Continue north to the stop sign at the intersection of CR 200W and CR 400N.
- Go through the intersection and then after 0.5 mile pull into Parking Unit F and G (west side of the road).

To the west is **Unit F**, which spans the gamut hydrologically from dry upland to wet ponds. It is a botanically rich site with many of the 580+ species documented at Kankakee Sands present here in this unit. The sedges and short grasses, such as copper shouldered oval sedge and the panic grass, create an understory below the canopy of prairie flowers. The understory plants provide habitat as well as fuel for fire. After a fire, when the ground is cleared of vegetation, pocket gopher mounds are visible over the drier areas of Unit F. Though the mounds are visible, pocket gophers are rarely seen, as they spend the majority of their lives underground in complex tunnel systems. Pocket gophers are Species of Special Concern in Indiana and one of the mammals we manage for at Kankakee Sands.

To the east is **Unit G**, where the patch burn grazing takes place. Patch burn grazing is a method of using cattle to decrease the height of plants and the density of plants in an area. In 1998, Unit G was planted with a large amount of tall grass seed of Big Bluestem, Indian grass and Switch grass. In just a few years, the Unit G restoration became tall and thick with grasses; it lacked flowers and had few open spaces. So in 2007 we began the patch burn grazing program in Unit G. As part of the program, 1/3 of Unit G is burned each year. In theory, cows should prefer the tender, tasty and nutritious new leaves of grass that resprout after a fire and therefore spend more time grazing the burned section. The burning creates a sort of invisible fence, naturally containing the animals and reducing the overall density of vegetation in the prairie. An Indiana University research team has been monitoring the effects of the cattle grazing on the prairie in Unit G.

Since 2004, we have reduced the amount of tall grass seed in all of our Kankakee Sands restoration plantings. The result is more plant diversity and more open spaces that many reptiles and grassland birds prefer over dense, rank stands of vegetation.

Many of the previous winter volunteer workdays have been spent on the East side of Unit G. One of the management goals of Unit G is to have scattered honey locust savanna. Honey locusts play an integral role in the ecology of loggerhead shrikes, which use the thorns to impale insects on as they eat them! Our workdays have focused on removing exotic shrub cover that threatens to turn sparse honey locust savannas into brushy thickets unusable by other prairie plants and animals. Between the work invested by volunteers and the high fire frequency Unit G receives these areas are really coming back.

Part 4: Beaver Lake Nature Preserve

- From the Unit F parking lot, continue north on CR 200W.

As you cross the intersection with CR 500N, on the east is **Beaver Lake Nature Preserve**. Note the openness of the savanna. The IN-DNR (Indiana Department of Natural Resources) owns this preserve and manages it with regular fire. They have begun to cut and girdle the non-desirable trees growing in the savanna.

Cross over Beaver Lake Ditch. This is the ditch that ultimately drained the shallow 36,000 acre Beaver Lake and marshy backwaters.

- Turn east on CR 600N. Pull into the DNR parking area on the south side of the road, just a few feet from the turn.

Beaver Lake Nature Preserve is on the north and south side of the road. If the prairie was burned last year, come August, there will be a spectacular bloom of marsh blazing star (*Liatris spicata*). Fire consumes old vegetation, diseases, and insects; it leaves black ash on the soil surface that warms quickly in the spring; and it creates open spaces on the ground. These three factors lead to increased seed germination and plant vigor in our native prairies.

There is a reproducing population of regal fritillary butterflies at Beaver Lake Nature Preserve. One of the goals for Kankakee Sands is to provide good habitat for this

globally rare species. The caterpillars feed solely on violet plants, so we have been growing and planting violets at Kankakee Sands over the past 10 years to increase the area, size and resiliency of the regal fritillary population. Regal fritillary butterflies are now seen flying all over the restorations at Kankakee Sands. Success!

Part 5: Grace Teninga Discovery Trail in Unit B

- Continue east on CR 600N for 0.5 miles. Park in the Grace Teninga Discovery Trail parking lot on the north side of the road.

Unit B is the home of the **Grace Teninga Discovery Trail**, a 2 mile hiking trail with 12 points of interest along a mowed path. The trail will take you to the top of the sand dune and you will experience an excellent example of a xeric short stature planting. Look for the native, prickly pear cactus along the trail.

We had an infestation of the non-native plant bird's foot trefoil (*Lotus corniculatus*) in this unit. Bird's foot trefoil is extremely difficult to control. After years of trying unsuccessfully to eradicate the invasive weed using herbicide, we made the difficult decision to return the restoration to agriculture for several years. Traditional farming will eradicate the plants and exhaust the seeds from the soil. In a few years' time, we will replant the southeast corner of the unit back to prairie.

Part 6: Unit C

- Continue east, pull into the Unit B and C parking area on the south side of the road.

Unit C is on the south side of the road. Prescribed fire has been integral to the success of the restoration planting in Unit C. Fire is used for a variety of purposes here at KS. At the Eastern end of the Central Tallgrass Prairie, we receive enough annual rainfall to support tree growth. Fire is one of the most important ecological processes present here that keeps our prairies open and tree-less. Fires also have numerous other benefits from aiding our invasive management strategies to increasing the productivity of our native species.

Disturbance - too much, too little, just right. Prairies require just the right amount of disturbance to remain prairie. Fire, grazing, pocket gophers, wind, precipitation, and water all work together to create, manage, and maintain the dynamic Prairie. Without these, the eastern tallgrass prairie would become a woodland or forest. Or with too much disturbance (such as fragmentation or over grazing) the prairie would become a degraded, infested meadow.

Part 7: Seed Barn

- Continue east on CR 600N towards the Seed Barn. Turn into the Kankakee Sands Seed Barn parking lot on the south side of the road.

The metal barn and grain bin were here when we purchased the property in 1996. We have modified the structures, and now we use them for drying, preparing and storing the seeds we use to restore prairies and wetlands at Kankakee Sands.

Each year at the Seed Barn, we handle over 400 native plant species and about 2,000 pounds of seed.

We generate all of our own seed at Kankakee Sands. We collect (harvest) seed from our nursery as well as from the wild, with permission from property owners. We collect seeds from May through November as they ripen.

The south half of the seed barn is where the seed dries in bags, on screen racks, or in electric drier boxes. The metal grain silo is used in the late fall as a space to dry “fluffy” seeds of such species as asters and goldenrods.

Once the seed heads are dry (usually about 2 weeks after harvest,) we transfer them to the north room. This is where we thresh and sift the plant material in order to separate the seed from the stems, leaves and chaff. We use a hammer mill, a stationary thresher and fanning mills to do this work. We sift smaller quantities by hand with brass soil sieves. After the seed is dried, sifted, weighed and labeled, it is stored in a climate controlled cooler room until planting time, where the cool and dry conditions keep more of the seeds alive and viable and ready to germinate once they are planted.

Seeds are spread on the restoration fields during the winter months. Planting in December may sound odd, but for native plants, exposure to the cold and moist conditions of winter triggers the seeds to germinate in the spring.

Part 8: Unit D

- Retrace your steps and drive back west on CR 600N towards CR 200W. Stop at the stop sign and turn north.
- Pull into Unit D parking lot $\frac{3}{4}$ mile down the road on the west side.

Looking to the west is **Unit D**, some of the driest prairie at Kankakee Sands. Non-native sweet clover became established here while the field was fallowed for a few years prior to being planted with native prairie seeds. We mow the sweetclover to prevent new seeds from forming.

As the planting matures, the trees between the road and dune are being selectively managed for oak barrens establishment. Trees and shrubs that are not oaks are cut or sprayed while the fire adapted oaks are encouraged to grow.

There are two ponds directly north of the Unit D parking area located on the gravel road CR 500 N. The ponds are open to public fishing. Stop in at the Kankakee Sands office for a fishing permit.

Part 9: Conrad Station Savanna

- Pull out again onto CR 200W and continue north.
- Turn west, at the gravel road CR 675N.
- Continue west and follow the road as it curves north.
- Pull into the parking area by the large wooden Conrad Station Savanna sign, located at the corner where the road curves back to the west again.

Look to the east and you will see the **Conrad Station Restoration** planted in 1997. Sadly, the restoration was nearly overgrown with cottonwoods by 2005. Manually cutting and spraying the cut stumps with herbicide wasn't fast enough to keep up with the rapidly growing cottonwood seedlings. So in 2008, a contractor was hired to mow the cottonwoods, and on-site Kankakee Sands staff sprayed the re-sprouting cottonwood trees. A little money went a long way here. The prairie is back!

Conrad Station Savanna serves as a small representation of the black oak barrens/savanna that once spread across the dunes on the north boundary of Beaver Lake. Unfortunately, much of Conrad no longer resembles the savanna that once existed. The lack of fire or other disturbance has contributed to trees growing too densely. The Nature Conservancy is committed to restoring Conrad to its original state, which includes restoring both the vertical structure and biodiversity that once existed. A healthy oak savanna system should have a ground covered in grasses and flowers and just a few trees per acre to offer a little bit of shade.

Unlike the rest of the Kankakee Sands Project, most of Conrad is not restored through collecting and planting seed. We count on the preserve having a viable seed bank in the soil and being able to reseed itself as we open up the canopy and send in more light. As you walk along the trail, you will see areas where the herbaceous layer has responded very well to the restoration work completed over the years.

Prescribed fire plays an important part in savanna management, just as with the prairie. Fire is able to help us to maintain an open tree structure as well as encourage the grasses, sedges, and flowers to bloom and set seed.

From this parking area, there is the Conrad Station 1.6 mile loop trail along a mowed path. The trail takes you through a woodland that is being managed for savanna and through the old platted town of Conrad with several intact foundations. Along the trail you will find two interpretive signs, one on savanna management and the other on the historic town of Conrad.

Part 10: Conrad Savanna

- Continue west towards US 41.
- Cross the northbound lane of US 41, and travel south along US 41. Be careful, the semi-trucks drive fast through this section.

As you begin to travel south on US 41, look to your right as you pass CR 700N. You will see a small historic iron bridge over Beaver Lake ditch. In order to drain Beaver Lake, they had to cut the ditch through the dune on your west.

Beyond the bridge is **Conrad Savanna Nature Preserve**, owned and managed by IN-DNR. The Nature Conservancy originally owned this high quality property and transferred it to the DNR in 1992.

Part 11: Beaver Lake

- Continue to travel south on US 41. Drive slowly. Consider putting on your flashers and continue to read the below paragraphs.

Kankakee Sands is on the east side of the road. Isn't it lovely?! In the summer and fall, you will notice the tall wispy grass called Sand reed (*Calamovilfa longifolia*), which is not really a reed but a grass, that loves to grow in dry sand.

At the northeast corner of the intersection with CR 500N, there is a pond used exclusively by the 4-H sport fishing members of Newton County.

On the west side of the road, across from the small dune with trees is a sign created by the Newton County Historical Society about **Beaver Lake**. The lake was the largest lake by area in Indiana at the time of European settlement—about 36,000 acres. It covered most of the property that the Conservancy owns today at Kankakee Sands and was part of the extensive Grand Kankakee Marsh wetland complex.

Part 12: Unit K and Bogus Island

- Turn west on CR 400N. In 0.5 miles, pull into the Unit K parking lot on the north side of the road.

Kankakee Sands **Unit K** is on the south side. The low hills with trees that you see about 1/2 mile to the south are the remnants of **Bogus Island**. What is higher ground today was an island in Beaver Lake. In the 1800s, counterfeiters used the isolated island, protected by marshy ground, to print fake money, hence the name Bogus Island. Our restoration work includes removing the cherry trees and fostering native plants that tolerate the very

dry conditions, such as penn sedge (*Carex pensylvanica*) and New Jersey tea (*Ceanothus americanus*). If you were to continue west on CR 400 N, you would cross into Illinois in just 4 miles. Just across the state line, the Illinois Chapter of The Nature Conservancy and Friends of the Kankakee are managing properties that have intact, high-quality oak savanna ecosystems.

Part 13: Unit J and Birding Overlook

- Continue driving west on CR 400N for 1.5 miles.
- Turn into the Birding Overlook area on the south side of the road.

To the south is **Unit J**, the site of our more recent restoration efforts. The amphibian population has already exploded here, with toads jumping at every step. Unit J is one of the few parts of Kankakee Sands with mucky soils. The topography is low and is surely one of our wettest units at Kankakee Sands. The **overlook platform** constructed in 2014 for bird watching and marsh observation was made possible by a donation by members of the Gen C Giving Tree, the Conservancy's young professionals group.

Part 14: Bison Overlook Area

- Drive back east. At the intersection with CR 400 W, turn south.
- Drive for 0.5 miles. The entrance to the Bison Overlook Area will be on the east side of the road.
- Drive slowly and carefully along the narrow gravel lane and park in the gravel parking lot.

You have arrived at the Bison Overlook Area. From this parking lot, bison may be visible in the 315-acre north pasture, which is north of the parking area, or the 745-acre south pasture, which is south of the parking area. Hike the trails to the top of Bogus Island for great views of Kankakee Sands and also to read about Kankakee Sands and bison on the informational signs.

Bison arrived at Kankakee Sands in the fall of 2016. Bison are here to help us manage the prairie. They graze on the grasses and sedges and tree saplings of the prairie, which will in turn make way for more wildflowers. With more wildflowers should come a greater number and diversity of insects. And with a reduction in the height of the prairie grasses, we should see a greater number of grassland birds.

Prior to the arrival of the bison, we began vegetation and bird surveys in the bison pasture and outside of the bison pasture. We want to monitor the changes that bison are making in Unit K as compared to the other restorations. We will continue to monitor the vegetation and birds for years to come, and our findings guide our management practices.

Thanks to our donors, as well as the Department of Natural Resources and the National Resources Conservation Service, who made it possible for us to have a bison herd at Kankakee Sands.

Part 15: Unit K and Willow Slough

- Drive back to CR 400 W and turn south.
- In 0.25 miles, turn left (east) into the parking area.

The open prairie of **Unit K** is on the east and the wooded IN-DNR property of **Willow Slough Fish and Wildlife Area** is on the west. Willow Slough became a state property in 1949. It is nearly 10,000 acres in size with a 1,000-acre lake, JC Murphy Lake. Willow Slough has camping, hunting, and fishing opportunities. Willow Slough FWA manages the hunting program for most of Kankakee Sands, excluding Conrad Station Savanna, Unit J, the Nursery, and the northwest portion of Unit K.

Part 16: South Side of Kankakee Sands

- Continue south on CR 400W.
- Turn east on CR 225N, a gravel road, and drive back towards US 41.
- In 0.5 mile, pull into the Unit K parking area on the north side of the road

You are at the south end of Unit K and of Kankakee Sands, a popular site for many birders and also amphibian lovers. The land to the south of the road is private property farmed for agriculture. It is also utilized by shorebirds in the spring and fall because it stays wet for long periods of time and is nearly devoid of vegetation.

Part 17: Back to the Kankakee Sands Office

- Continue east toward U.S. 41.
- When you reach US 41, turn north and drive back to the Kankakee Sands office.

The Driving Tour ends at the Kankakee Sands Office, right where it began. If you are finished with this paper copy of the Driving Tour, feel free to refold it and put back into the brochure box at the Visitor Kiosk for another visitor to use.

From the parking lot, there is a short 0.6 mile Wet Prairie trail which is the perfect length to stretch your legs after your long drive around Kankakee Sands! The trail is open seasonally and is closed when the bison are in the north pasture.

We hope you enjoyed your visit to Kankakee Sands!

Please visit www.nature.org/KankakeeSands or call (219) 285-2184 for more information.



Demand for the Driving Tour Guide is high, and we often run out. If you are finished with your Driving Tour Guide and do not wish to keep it, you can return it to the visitor pavilion for others to use. Thank you for helping us save paper and resources!