

Johnson, Charlie

From: Davis, Nate [nated@wp.state.ks.us]
Sent: Thursday, August 10, 2006 9:44 AM
To: Johnson, Charlie
Subject: RE: Keystone Pipeline Project Meeting

We concur with the meeting notes.

thanks,

nd

Nate Davis

Ecologist;KDWP,Environmental Services Section;512 SE 25th Ave,Pratt,KS 67124

620.672.0795 (O)620.450.8311 (C),nated@wp.state.ks.us

http://www.kdwp.state.ks.us/news/other_services/threatened_and_endangered_species

----- Original Message -----

From: "Johnson, Charlie"

Sent: Tue, 8/8/2006 4:45pm

To: "Davis, Nate"

Cc: "Duncan, Scott" ; "Castle, Carla" ; "Dufresne, Doree" ; "Ellis, Scott"

Subject: Keystone Pipeline Project Meeting

Nate, attached please find a copy of the Keystone meeting minutes for your review, input, and concurrence. As these minutes are finalized, they will become part of the administrative and public record for the project. If you could please respond by Aug 11, it would be greatly appreciated.

Sincerely

Charles Johnson
Senior Wildlife Biologist
ENSR|AECOM
1601 Prospect Parkway
Fort Collins, CO 80525
(970) 493-8878
cjohnson@ensr.aecom.com

8/11/2006

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TransCanada – Keystone Pipeline Contact Summary Form

Location of Meeting ENSR

Date/Time of Meeting 8/9/06

Keystone Team Member(s) Sara Stribley

Contact Information:

Name	Robert Barbie
Title	Public Lands Supervisor
Organization	Kansas Department of Wildlife and Parks
Address	
County	
Phone	
E-mail address	

Meeting Information:

Type of Contact (phone, in-person, etc.): Phone

Issue: Milford Wildlife Area Crossing along Cushing Extension

Concern Level: High Moderate Low

Description:

Robert informed me that the KSDWP is only the managing agency of the Milford Wildlife Area and that the COE actually owns the land. I will need to contact the Kansas City District Office for additional information on easements and crossing the WMA. He did not have a contact name or number for the Kansas City District Office, but did have the number for the Milford lakes Project Office. That number is 785-238-5714.

Issue: Milford Wildlife Area Crossing along Cushing Extension

Concern Level: High Moderate Low

Description:

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Robert returned my call and informed me that the Milford WMA is owned by the COE out of Kansas City and that the KDWP's is only the managing entity. We will have to contact the COE Kansas City office for more information. Robert did not have a contact name or number to give me but did give me the Milford WMA number 785-238-5714.

Johnson, Charlie

From: Johnson, Charlie
Sent: Monday, July 31, 2006 12:25 PM
To: 'nated@wp.state.ks.us'
Cc: Duncan, Scott; Castle, Carla
Subject: FW: Keystone Pipeline Environmental Report

Nate - As discussed at the July 20 meeting for the Keystone Pipeline Project, since the Keystone Environmental Report is a Department of State (DOS) document, ENSR has little control over its distribution and the DOS would like to know who has a copy of the document. Consequently, in order for the KDWP to obtain a copy, please request a copy (s) directly from the DOS. Below is the contact information for the DOS lead. Please let me know if you have any problems.

Matthew T. McManus
Division Chief, Energy Producer Country Affairs
U. S. Department of State
2201 C Street, N.W.
EB/ESC/IEC
Room 7525
Washington, D.C. 20520
(202) 647-3423
McManusMT@State.gov

Charles Johnson
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Fort Collins, CO 80525
(970) 493-8878
cjohnson@ensr.aecom.com

8/11/2006

**Final: Kansas Department of Wildlife and Parks
Kansas Department of Wildlife and Parks, Pratt Operations Office, Pratt KS**

July 20, 2006. 09:00am – 11:30am

Attendees:

Jim Hays (KDWP – Section Chief)
Nate Davis (KDWP - Aquatic Ecologist)
Eric Johnson (Biologist)
Scott Duncan (ENSR)
Charles Johnson (ENSR)
Patti Grigsby (ENSR)
John Sellers (Universal/ENSCO)

Meeting Objectives

ENSR met with the KDWP to discuss issues pertaining to wildlife and special status species that could potentially occur along the Keystone Project route. The goal of this discussion was to verify ENSR's habitat assessment approach, species occurrence information, and to discuss required surveys.

ENSR and Universal discussed the proposed construction schedule that would likely begin in early 2008 and would continue through 2009, including possible winter construction.

Response Overview

State agencies have not had the opportunity to review the Environmental Report (ER) on the Keystone Pipeline Project since the Department of State (DOS) has not yet published their "Notice of Intent" to prepare an Environmental Impact Statement (EIS) for the Keystone Pipeline Project. ENSR told KDWP that they must formally request a copy of the document from the DOS in a letter request. ENSR will provide Nate Davis a DOS contact to request the ER.

The KDWP has no issues with winter construction. In fact, winter construction would be preferable over spring/summer, given that most species revolve around breeding/nesting/spawning seasons.

Cushing Extension

It was indicated that the Cushing Extension is being analyzed, and ENSR is currently gathering baseline information for the permitting process.

Stream Crossings

It was indicated that TransCanada has committed to crossing 7 river areas by Horizontal Directional Drill (HDD) including:

- Missouri River (2)
- Platte River (1)

- Chariton River (1)
- Cuivre (2)
- Mississippi (1)

KDWP generally encourages companies to HDD in areas where federal/state listed species occur. However, KDWP would be willing to discuss salvage-relocation of sensitive species, if open-cut would be the method of crossing.

The Keystone Project/REX Project

The Keystone project is proposed to begin construction in 2008 while the Rockies Express (REX) project would be constructed in 2007. The proposed Keystone and REX pipelines would generally be offset from each other by approximately 40 feet. These pipelines would follow the existing Platte Pipeline corridor.

KDWP is concerned about the cumulative effects from the permanent disturbance of 3 pipelines (approximately 270 feet), particularly where the pipelines would cross native grassland areas and riparian/wetland areas.

Riparian Habitat

Riparian areas are the main area of concern and mitigation for KDWP. The mainline route occurs in areas of highly erodible soils with extensive stream channelization. Any loss of upland and riparian/wetland habitat will require offsite mitigation.

The KDWP estimated that the project would disturb approximately 65 acres of riparian habitat along the mainline portion of the project.

Loss of riparian habitat (riparian woodlands) must be mitigated (e.g., re-planting, compensation). Compensation of habitat loss would be determined by the Kansas Alliance for Wetlands and Streams (KAWS) and/or KDWP. **Nate Davis will contact KAWS.**

Riparian buffer planning by watersheds through Farm Service Agreements (FSA), Natural Resources Conservation Service (NRCS), and local conservation agencies organized by county.

State Critical Habitat

Bald Eagle

The proposed pipeline route would cross state designated critical habitat for the bald eagle at the Missouri and Big Blue Rivers. A state permit will be required for the removal of potential nest and roost sites within critical habitat. On public and private lands in KS, critical habitat would extend approximately 100 yards on each side of the river.

Topeka Shiner

A state permit will be required for the Topeka shiner for the crossing at North Elm Creek.

State Action Permit

A State Action Permit would be required if the project could potentially affect special status species of state-designated critical habitat.

Submission and approval of a State Action Permit is generally a quick process, particularly if areas are restored to original contour/bed and bank/vegetation, etc.

Once an agreement on mitigation (e.g., compensation) has been finalized, KDWP indicated that they believe that 2 permits would be needed (one for the mainline route and one for the Cushing Extension). KDWP also believes that compensation for critical habitat disturbance can be wrapped into the Action Permit for the mainline portion of the project.

Recommended Seed Mixes

KDWP will provide a list of recommended seed mixes for the project.

Species In Need of Conservation (SINC)

ENSR informed the KDWP that potential impacts to SINC species will be evaluated in the EIS, but that no surveys are proposed for these species. The KDWP was in agreement with that approach.

Special Status Species

Table 1, Kansas Special Status Species, Habitat by County and Mainline Milepost (previously provided by ENSR to KDWP) was reviewed species by species to obtain KDWP concurrence on species of concern, habitats, and whether biological surveys would be required. The following is a summary of the results.

Eastern Spotted Skunk (KS-T)

No records for this species have been documented in KS for approximately 30 years. The KDWP would have no issues with this species if habitat is properly mitigated.

Bald Eagle (FT; KS-T/KS-Critical Habitat)

Potential nesting and winter roosting habitat would be limited to the Big Blue River and Missouri River. Surveys would be needed in these areas if construction occurs during the nesting and winter roosting season. As discussed above, a state permit would be required if potential bald eagle nesting and roosting habitat is disturbed within state designation critical habitat at the Big Blue River and Missouri River crossings.

Eskimo Curlew (FE; KS-E)

KDWP would defer to the USFWS. If documented during construction, immediately contact the USFWS and protection measures would be discussed.

Interior Least Tern (FE; KS-E), Piping Plover (FT; KS-T)

No concerns. Would not occur within the project area.

Peregrine Falcon (KS-E)

No concerns. Would be limited to migrating and foraging individuals.

Snowy Plover (KS-T)

No concerns. If documented during construction, immediately contact KDWP and protection measures would be discussed.

Whooping Crane (FE; KS-E)

No concerns. If documented during construction, immediately contact USFWS and protection measures would be discussed.

Chestnut Lamprey (KS-E), Pallid Sturgeon (FE; KS-E), Sicklefin Chub (KS-E), Sturgeon Chub (KS-T)

No issue. Would be limited to the Missouri River. The construction method at this river crossing would be HDD.

Flathead Chub (KS-T)

No issue. Would not occur within the project area.

Western Silvery Minnow (KS-T)

No concerns. Would not occur within the project area.

Topeka Shiner (FE; KS-T/KS-Critical Habitat)

North Elm Creek would be the only area along the mainline route that would be an issue relative to Topeka Shiner. As discussed above, a state permit would be required if potential Topeka shiner habitat is disturbed within state designation critical habitat at the North Elm Creek crossings. ENSR indicated the USFWS' position on Topeka shiner streams is that if drainages are dry during pipeline construction, it is permissible to open-cut the drainage for the crossing. If there is pooled or flowing water present, then the habitat would need to be evaluated for presence. If Topeka shiner is found to be present, then consult with the USFWS. Salvage and relocate may be an option if construction occurs if the crossing is wet (pooled or running). A permit from KS and the USFWS would be required if salvage and relocation is conducted. Construction would not be permitted during the spawning period (May 15 to July 31) if the crossing is wet.

Smooth Earth Snake (KS-T)

The KDWP would have no issues with this species if habitat is properly mitigated.

American Burying Beetle (FE; KS-E)

KSDWP concurs with USFWS that burying beetle would not be an issue along the mainline route. Continue consultation as the Cushing Extension is developed.

Wildlife

Greater Prairie Chickens (GPC)

This species could occur along the Cushing Extension. Contact Randy Rodgers (KDWP) to determine if GPC lek sites occur in the project vicinity. If present, a construction timing restriction may be implemented.

KDWP Action Item List

- Provide list of recommended seed mixes
- Coordinate with KAWS for mitigation of disturbance to riparian woodlands
- Contact Randy Rodgers to obtain GPC lek locations.
- Provide list of stream crossing locations of particular concern to KDWP.

ENSR Action Item List

- Provide Nate Davis a DOS contact to request the ER.
- Determine acres of riparian woodland habitat that would be disturbed by the project for mitigation
- Evaluate habitat and potential presence of Topeka Shiner at appropriate stream crossing locations with KDWP representative.
- Others?

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TransCanada – Keystone Pipeline Contact Summary Form

Location of Meeting ENSR

Date/Time of Meeting 7/06/06

Keystone Team Member(s) Sara Stribley

Contact Information:

Name	Nate Davis
Title	Aquatic Ecologist
Organization	Kansas Department of Wildlife and Parks
Address	512 Southeast 25th Avenue Pratt, KS 67124
County	
Phone	(620) 672-5911 ext 195
E-mail address	nated@wp.state.ks.us

Meeting Information:

Type of Contact (phone, in-person, etc.): E-mail

Issue: Sensitive Species Survey Protocols

Concern Level: High Moderate Low

Description:

Sara - sorry we've had difficulty contacting one another - I spend a lot of time away from the office so feel free to contact me on the cell at 620.450.8311 if you'd like, although I will be in tomorrow - some folks from your office are coming to Pratt in a couple weeks to talk about issues with wildlife & aquatic species.

Nate Davis
Aquatic Ecologist
KDWP, Environmental Services Section
nated@wp.state.ks.us
Phone: (620) 672-5911 ext 195
Fax: (620) 672-2972

----- Original Message -----

From: Stribley, Sara

To: Davis, Nate

Sent: Wednesday, June 28, 2006 4:09 PM

Hi Nate,

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I left a message for you at your office today and just thought I would follow up with an email. Thanks for returning my call, and I apologize for not getting back to you sooner! I had a few questions about some streams that you had mentioned in your letter to ENSR regarding the Keystone Pipeline Project. I also have a few additional questions regarding survey protocols for a few T&E species that we may need to survey for (Peregrine falcon, snowy plover, eastern spotted skunk, smooth earth snake). Thanks for your help!

Sincerely,
Sara

Sara Stribley
ENSR Corporation
1601 Prospect Pkwy
Fort Collins, CO 80525
970.493.8878 ext. 168

Issue: _____

Concern Level: High__Moderate__Low__.

Description:

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TransCanada – Keystone Pipeline Contact Summary Form

Location of Meeting	ENSR
Date/Time of Meeting	6/28/06
Keystone Team Member(s)	Sara Stribley

Contact Information:

Name	Nate Davis
Title	Aquatic Ecologist
Organization	Kansas Department of Wildlife and Parks
Address	512 Southeast 25th Avenue Pratt, KS 67124
County	
Phone	(620) 672-5911 ext 195
E-mail address	nated@wp.state.ks.us

Meeting Information:

Type of Contact (phone, in-person, etc.): E-mail

Issue: Sensitive Species Survey Protocols and Stream Classifications

Concern Level: High Moderate Low

Description:

Hi Nate,
I left a message for you at your office today and just thought I would follow up with an email. Thanks for returning my call, and I apologize for not getting back to you sooner! I had a few questions about some streams (Big Blue River and Walnut Creek) that you had mentioned in your letter to ENSR regarding the Keystone Pipeline Project. I also have a few additional questions regarding survey protocols for a few T&E species that we may need to survey for (Peregrine falcon, snowy plover, eastern spotted skunk, smooth earth snake). Thanks for your help!

Sincerely,
Sara

Sara Stribley
ENSR Corporation
1601 Prospect Pkwy
Fort Collins, CO 80525
70.493.8878 ext. 168

ENSR

1601 Prospect Parkway, Fort Collins, Colorado 80525-9769
T 970.493.8878 F 970.493.0213 www.ensr.aecom.com

June 26, 2006

Nate Davis
Kansas Department of Parks and Wildlife
512 Southeast 25th Avenue
Pratt, KS 67124

Dear Mr. Davis:

Thank you for agreeing to meet with ENSR Corporation (ENSR) to discuss the proposed TransCanada Keystone Pipeline Project. To facilitate our meeting, ENSR is providing preliminary species tables and habitat information for your review to determine potential species survey requirements along the project route.

As discussed in the January 24, 2006 letter, TransCanada is planning to construct and operate a 1,830-mile-long interstate crude oil transmission system from an oil supply hub near Hardisty, Alberta, Canada to destinations in the Midwestern United States (U.S). The proposed Project would consist of approximately 1,070 miles of new pipeline constructed from the U.S.-Canada border in Pembina County, North Dakota to terminals and refineries in Salisbury (Chariton County), Missouri, Wood River (Madison County), and Patoka (Marion County), Illinois. Approximately 283 miles would parallel the proposed Rockies Express Pipeline - West (REX-West) Project in Kansas and Missouri. In addition, TransCanada is considering the construction of a 291-mile pipeline extension that would extend the Keystone Pipeline south from the Nebraska/Kansas border to Cushing, Oklahoma. TransCanada proposes to begin construction of the new pipeline in early 2008, with the system in-service by the end of 2009. The project also will require the construction of pump stations, valves, meters, and other ancillary facilities. The hydraulic characteristics of the pipeline will determine pump station and valve locations. Electrical powerlines and facility upgrades will be required in some locations to provide power for the new pump stations.

At this time, ENSR is providing information regarding the Keystone Mainline portion of the project. As the Cushing Extension portion of the project develops, we will provide additional information for your review and input.

Attached for your review are state-specific special status species tables (i.e., federally listed, proposed and candidate species; state listed species) (**Tables 1 and 2**) that include a brief description of species habitat, miles of potential habitat crossed by the project, and approximate mileposts where potential habitat has been preliminarily identified along the project route. **Table 3** provides potential species habitat by state and county. Habitat for special status species was determined based on species habitat association, known distribution, and agency correspondence (e.g., U.S. Fish and Wildlife Service [FWS], state wildlife agencies, and National Heritage Program/NatureServe), in combination with aerial habitat surveys, Land Use-Land Cover (LULC) data, and aerial photography. Survey data from the REX-West Project also was used to quantify potential habitat that would be crossed in Kansas and Missouri (Buchanan County through Randolph County).

Also attached for your review are 1:100,000-scale maps that identify areas along the pipeline route where potential grassland, wetland/riparian, and upland woodland/forests have been identified. Habitat data within these maps were obtained from LULC data and aerial photography. These preliminary habitat locations may be modified following further habitat analysis and consultations with federal and state agencies. In addition, some pipeline routing modifications continue to be developed and evaluated including those denoted by red "reroute" lines on the attached maps. As a result, habitat analysis and consultation will continue for these

Nate Davis
June 26, 2006
Page 2

routing adjustments as needed in the future. Habitat related to powerlines has not been evaluated at this time.

We look forward to our visit in July. If you have any questions regarding the enclosed materials, please contact me at (970) 493-8878 ext. 181 or email cjohnson@ensr.aecom.com.

Sincerely,



Charles Johnson
Senior Wildlife Biologist

CJ/sc

Ref: 10623-004

Enc. 1:100,000-scale maps
Tables 1 through 3

**Table 1
Kansas Special Status Species
Habitat by County and Mainline Milepost
Keystone Pipeline Project**

Species	Status	Habitat Association	Primary Habitat	County	Miles (mi) of Associated Habitat Crossed by Keystone Pipeline Project				Mainline Milepost(s)
					Grassland (mi)	Forests and Woodlands (mi)	Riparian (mi)	Nonforested Emergent Wetland (mi) ¹	
Eastern spotted skunk <i>Spilogale putorius</i>	KS-T	This species prefer forest edge and upland grassland prairie, especially if rock outcrops and shrubs are present. Their dens are located below ground in grassy banks, rocky crevices or along fence rows, as well as above ground in hay stacks, woodpiles, brushy heaps, hollow logs, and abandoned buildings or outbuildings. Young are born in May or June.	upland forests, grasslands, shrublands, agriculture edge	Brown Doniphan Marshall Nemaha	Brown: 4.9 Doniphan: 1.8 Marshall: 5.6 Nemaha: 4.7	Brown: 3.0 Doniphan: 2.4 Marshall: 1.3 Nemaha: 0.6			Brown: 699.2-722.9 Doniphan: 724.3-742.7 Marshall: 645.9-672.7 Nemaha: 675.6-695.6
Bald eagle <i>Haliaeetus leucocephalus</i>	FT; KS-T	This species typically occurs near large bodies of water that support suitable roosting and foraging habitat. Nest sites typically occur in proximity to open water and generally are found in mature heterogeneous stands of multi-storied trees, but also may nest on cliffs. Winter habitat typically includes areas of open water, adequate food sources, and sufficient diurnal perches and night roosts. Breeding season: January through July. Winter season: November 15 through March 15.	riparian forests/ open water	Brown Doniphan Marshall Nemaha				Brown: 0 Doniphan: 0.2 (Missouri River) Marshall: 0.1 (Big Blue River) Nemaha: 0	Brown: N/A Doniphan: 743.4 (Missouri River) Marshall: 653.7 (Big Blue River) Nemaha: N/A
Eskimo curlew <i>Numenius borealis</i>	FE; KS-E	This species is a rare spring migrant that feeds and rests in burned-over prairies, agricultural areas, wetlands, and marshes.	prairies, wetlands, agriculture	Brown Doniphan Marshall Nemaha	Brown: 4.9 Doniphan: 1.8 Marshall: 5.6 Nemaha: 4.7		data pending data pending data pending data pending		Brown: 699.5-720.2; data pending Doniphan: 724.3-737.2; data pending Marshall: 647.4-672.7; data pending Nemaha: 675.6-695.6; data pending
Interior least tern <i>Sterna antillarum athalassos</i>	FE; KS-E	Nesting habitat consists of sparsely vegetated sandy, gravelly, or silty, beaches and sandbars within wide, unobstructed river channels or salt flats along lake shorelines and irrigation reservoirs. Nest locations are generally away from the water's edge since nesting typically begins while river flows are high and relatively small amounts of sandy habitat is exposed. Breeding season: May 1 through August 15.	shorelines and sandbars of rivers, lakes, reservoirs	Brown Doniphan Marshall Nemaha			data pending data pending data pending data pending	Brown: 0 Doniphan: 0.2 (Missouri River) Marshall: 0.1 (Big Blue River) Nemaha: 0	Brown: data pending Doniphan: 743.4 (Missouri River) Marshall: 653.7 (Big Blue River) Nemaha: data pending
Peregrine falcon <i>Falco peregrinus</i>	KS-E	This species is found over a wide variety of habitats, but are generally located near open water or marshes that support high concentration of shorebirds or waterfowl. Nest sites occur on tall steep-walled cliffs, bridges, or buildings. Preferred foraging habitat includes lakes, rivers, and wet meadows. Breeding season: April 15 to July 15.	wetlands, lakes, open water	Brown Doniphan Marshall Nemaha		Brown: 0 Doniphan: 0.2 Marshall: 0.1 Nemaha: 0	data pending data pending data pending data pending		Brown: data pending Doniphan: 743.3-743.6 Marshall: 653.4-653.5 Nemaha: data pending

¹ Data pending; waiting on completion of wetland/waterbody surveys to determine total wetland habitat crossed by project

Table 1
Kansas Special Status Species
Habitat by County and Mainline Milepost
Keystone Pipeline Project

Species	Status	Habitat Association	Primary Habitat	County	Miles (mi) of Associated Habitat Crossed by Keystone Pipeline Project				Mainline Milepost(s)	
					Grassland (mi)	Forests and Woodlands (mi)	Riparian (mi)	Nonforested Emergent Wetland (mi) ¹		Open Water (mi) (habitat crossed or within 0.5 mi)
Piping plover <i>Charadrius melodus</i>	FT; KS-T	This species inhabits open sandy areas and saline flats with little vegetation along rivers, lakes, ponds, and marshlands. It nests on sandbars and sand and gravel beaches with short, sparse vegetation along inland lakes, on natural and dredge islands in rivers, on gravel pits along rivers, and on salt-encrusted bare areas on interior alkali ponds and lakes. Sparse clumps of grass or herbaceous vegetation are important habitat components. Breeding season: May 1 through August 15.	shorelines, sandbars, wetlands, rivers, lakes, ponds	Brown Doniphan Marshall Nemaha				data pending data pending data pending data pending	Brown: 0 Doniphan: 0.2 (Missouri River) Marshall: 0.1 (Big Blue River) Nemaha: 0	Brown: data pending Doniphan: 743.4 (Missouri River) Marshall: 653.7 (Big Blue River) Nemaha: data pending
Snowy plover <i>Charadrius alexandrinus</i>	KS-T	This species inhabits open alkaline flats, mudflats, sandy shorelines, sandbars with little vegetation along rivers, lakes, ponds, and marshlands. Nesting often occurs on white saline flats. Breeding season: May 1 through August 15.	shorelines, sandbars, wetlands, rivers, lakes, ponds	Brown Doniphan Marshall Nemaha				data pending data pending data pending data pending	Brown: 0 Doniphan: 0.2 (Missouri River) Marshall: 0.1 (Big Blue River) Nemaha: 0	Brown: data pending Doniphan: 743.4 (Missouri River) Marshall: 653.7 (Big Blue River) Nemaha: data pending
Whooping crane <i>Grus americana</i>	FE; KS-E	During migration, this species feeds and roosts in a variety of habitats including croplands, large and small freshwater marshes, the margins of lakes and reservoirs, and submerged sandbars in rivers. Spring and Fall migration through the project regions generally occurs from February through April and from October through November, respectively.	wetlands, riparian, agriculture	Marshall				data pending	Marshall: 0.1 (Big Blue River)	Marshall: 646.1-673.9 (Big Blue River)
Chestnut lamprey <i>Ichthyomyzon castaneus</i>	KS-T	This species is found in moderate-sized rivers and large creeks. Spawning occurs in smaller tributary streams in swift shallow riffles where the gravel is clean. Eggs are laid in a nest in the river bottom. Spawning period: spring or summer.	rivers and creeks	Doniphan					Doniphan: 0.2 (Missouri River)	Doniphan: 743.4 (Missouri River)
Flathead chub <i>Platygobio gracilis</i>	KS-T	This species occurs from the Rio Grande to the Arctic Circle in small creeks and the largest rivers that have turbid fluctuating water levels and unstable sand bottoms. This species relies on flood flows to spawn successfully. Spawning occurs after water levels have subsided after peak flows, when water temperatures are warmer and substrate is more stable. Relies on flood flows to spawn successfully. Spawns after rivers have subsided following peak flow.	creeks and rivers with turbid, fluctuating flow and sandy substrates	Nemaha Doniphan					Nemaha: South Fork Nemaha River Doniphan: 0.2 (Missouri River)	Nemaha: 684.7 (South Fork Nemaha River) Doniphan: 743.3 (Missouri River)

¹ Data pending; waiting on completion of wetland/waterbody surveys to determine total wetland habitat crossed by project

**Table 1
Kansas Special Status Species
Habitat by County and Mainline Milepost
Keystone Pipeline Project**

Species	Status	Habitat Association	Primary Habitat	County	Miles (mi) of Associated Habitat Crossed by Keystone Pipeline Project					Mainline Milepost(s)
					Grassland (mi)	Forests and Woodlands (mi)	Riparian (mi)	Nonforested Emergent Wetland (mi) ¹	Open Water (mi) (habitat crossed or within 0.5 mi)	
Pallid sturgeon <i>Scaphirhynchus albus</i>	FE; KS-E	This species is distributed from the headwaters of the Missouri River (Fort Benton-Great Falls, Montana) through the Mississippi River to New Orleans, Louisiana. It inhabits bottom areas of large turbid rivers that have strong current and a firm sandy substrate. They also may be found along sandbars and behind wing dikes. Spawning period: April through August.	large, turbid rivers, sand substrate	Doniphan					Doniphan: 0.2 (Missouri River)	Doniphan: 743.4 (Missouri River)
Sicklefin chub <i>Macrhybopsis meeki</i>	KS-E	This species requires continuously and heavily turbid waters of large rivers where it frequents areas of strong current flowing over sand or gravel substrate. Spawning period: spring (likely from late March and May).	large turbid rivers, sand/gravel substrate	Doniphan					Doniphan: 0.1 (Rock Creek), 0.2 (Missouri River)	Doniphan: 735.6 (Rock Creek), 743.3 (Missouri River)
Sturgeon chub <i>Macrhybopsis gelida</i>	KS-T	This species prefers large turbid sandy rivers over substrate of small gravel and coarse sand. It is often found in areas swept by currents especially at heads of islands or exposed sandbars. Spawning period: late spring to midsummer.	large sandy rivers, sand/gravel substrate	Doniphan					Doniphan: 0.2 (Missouri River)	Doniphan: 743.4 (Missouri River)
Topeka shiner <i>Notropis topeka</i>	FE; KS-T / CH	This species inhabits pool and run areas in the headwaters of small prairie streams with high water quality and cool temperatures. These streams generally exhibit intermittent flow during summer; however pools are maintained by spring or groundwater percolation. The substrate of these occupied streams consist mainly of clean gravel, however bedrock and clay hardpan overlain by a thin silt layer are not uncommon. Spawning period: late spring and summer.	small, cool, [often intermittent] prairie streams	Marshall Doniphan					Marshall: 0.3 (North Elm Creek) Doniphan: 0.2 (Missouri River)	Marshall: 654.0, 653.4, 661.7 (North Elm Creek) Doniphan: 743.4 (Missouri River)
Western silvery minnow <i>Hybognathus argyritis</i>	KS-T	This species prefers protected areas in large, turbid rivers and prairie streams. In streams they are typically found in water less than one foot deep and shallow shore water heavily vegetated with emergent grasses and reeds. In protected areas of larger rivers, they move in large schools of 50 to 100 individuals along the bottom in deep, quiet water. While little is known about spawning, this species probably scatters eggs on silt substrate in quiet water.	protected areas of rivers and streams	Nemaha Brown Doniphan					Nemaha: 0.1 (South Fork Nemaha River) Brown: 0.1 (Middle Fork Wolf River) Doniphan: 0.2 (Missouri River)	Nemaha: 684.7 (South Fork Nemaha River) Brown: 715.4 (Middle Fork Wolf River) Doniphan: 743.3 (Missouri River)
Smooth earth snake <i>Virginia valeriae</i>	KS-T	This species inhabits rocky hillsides in moist woodlands and woodland edges in river and stream valleys where they may be found on the slopes under leaf litter, rocks, or logs. During winter, it utilizes deep crevices on rocky hillsides. Mating begins in the spring after emergence from hibernation. Mating may also occur in the fall. Young hatch in August or September.	riparian woodland, upland forest	Doniphan		Doniphan: 2.4				Doniphan: 732.8-742.7

¹ Data pending; waiting on completion of wetland/waterbody surveys to determine total wetland habitat crossed by project

**Table 1
Kansas Special Status Species
Habitat by County and Mainline Milepost
Keystone Pipeline Project**

Species	Status	Habitat Association	Primary Habitat	County	Miles (mi) of Associated Habitat Crossed by Keystone Pipeline Project				Mainline Milepost(s)
					Grassland (mi)	Forests and Woodlands (mi)	Riparian (mi)	Nonforested Emergent Wetland (mi) ¹	
American burying beetle <i>Nicrophorus americanus</i>	FE; KS-E	This species inhabits upland grasslands or near the edge of grassland/forest. Sandy/clay loam soils and food (carion) availability are also important. The species appears to prefer loose soil in which to bury carion. Reproduction occurs from late April through mid August. Reproductive activity includes the burial of a carcass, building of a chamber, and laying eggs.	grasslands, upland forest	Brown Doniphan Marshall Nemaha	Brown: 4.9 Doniphan: 1.8 Marshall: 5.6 Nemaha: 4.7	Brown: 3.0 Doniphan: 2.4 Marshall: 1.3 Nemaha: 0.6			Brown: 699.2-722.9 Doniphan: 724.3-742.7 Marshall: 645.9-672.7 Nemaha: 675.6--695.6

¹ Data pending; waiting on completion of wetland/waterbody surveys to determine total wetland habitat crossed by project

Table 2
Keystone Special Status Species
Total Habitat Crossed by State

Species	Status	Habitat Association	Primary Habitat	Habitat by County and State, and Total Distance (mi) Crossed											
				ND		SD	NE	KS		MO		IL			
Mammals															
Gray bat <i>Myotis grisescens</i>	FE; MO-E; IL-E	This species forages primarily within forested areas along streams and lakes. Winter roosts are in deep vertical caves with domed halls. Large summer colonies utilize caves that trap warm air and provide restricted rooms or domed ceilings. Maternity roosts typically are in caves with stream flow and are separate from summer bachelor roosts.	Riparian woodlands, caves										Madison	6.7	
Indiana bat <i>Myotis sodalis</i>	FE; MO-E; IL-E	This species forages primarily in riparian forests and flood-plains, as well as in upland forests, low field, and pastures. Maternity roosts are located beneath loose bark of living and dead trees (especially oak and hickory spp.). Young are generally born in June. Winter hibernacula occur in caves and mines with 85% of this species population hibernating in Shannon, Washington, and Iron counties, MO.	Riparian woodlands, upland forests, pastures, caves									Audrain Buchanan Caldwell Carroll Chariton Clinton Lincoln Montgomery Randolph St. Charles	3.7 4.5 3.1 3.4 4.1 1.4 10.1 4.6 3.6 0.6	Bond Fayette Madison Marion	1.9 3.4 6.7 0.0
Gray wolf <i>Canis lupus</i>	FT; ND-SC	No particular habitat preference. Habitats may include: alpine, desert, conifer forest, hardwood forest, mixed forest, grasslands, savannas, shrubland/ chaparral, tundra, and woodlands.	Any	Cavalier Gmd Fks Nelson Pembina Sargent Walsh	0.0 0.0 0.2 2.9 8.4 1.7										
Fisher <i>Martes pennanti</i>	FC; ND-SC	This species inhabits upland and lowland forests, including coniferous, mixed, and deciduous forests. Fishers generally avoid areas with little forest cover or significant human disturbance and conversely prefer large areas of contiguous interior forest.	Forests and woodlands	Pembina	2.9										
Plains spotted skunk <i>Spilogale putorius interrupta</i>	SD-SC; MO-E	This species inhabits upland grassland prairie, brushy areas, cultivated land, and forests. Their dens are located below ground in grassy banks, rocky crevices or along fence rows, as well as above ground in hay stacks, woodpiles, hollow logs, trees, or on brushy heaps. Young are born from April to July.	Grasslands, shrublands, upland forests, agriculture edge									Chariton	17.0		
Eastern spotted skunk <i>Spilogale putorius</i>	KS-T; MO-E; SD-SC	This species prefers forest edge, prairie, brushy areas, and cultivated land, especially if rock outcrops and shrubs are present. Their dens are located below ground in grassy banks, rocky crevices or along fence rows, as well as above ground in hay stacks, woodpiles, brushy heaps, hollow logs, and abandoned buildings or outbuildings. Young are born in May or June.	Grasslands, shrublands, upland forests, agriculture edge									Brown Doniphan Marshall Nemaha	7.9 4.2 6.9 5.3	St. Charles	1.1

¹ Data pending; waiting on completion of wetland/waterbody surveys to determine total habitat crossed (mi); totals likely to change.

Table 2
Keystone Special Status Species
Total Habitat Crossed by State

Species	Status	Habitat Association	Primary Habitat	Habitat by County and State, and Total Distance (mi) Crossed											
				ND		SD		NE		KS		MO		IL	
River otter <i>Lontra Canadensis</i>	IL-E	Key habitats are rivers, streams, lakes, ponds, marshes, estuaries, and beaver flowages, especially near waterbodies with wooded shorelines or nearby wetlands. When inactive, occupies hollow logs, spaces under roots, logs, or overhangs, abandoned beaver lodges, dense thickets near water, or burrows of other animals; such sites also are used for rearing young	rivers, streams, lakes, ponds, marshes, wetlands					Colfax Stanton	0.5 0.2					Bond Fayette	0.1 3.1
Birds															
Least bittern <i>Ixobrychus exilis</i>	MO-SC; IL-T	Nest in freshwater wetlands with dense, tall growths of emergent vegetation (particularly <i>Typha</i> spp., <i>Carex</i> spp., <i>Scirpus</i> spp., or <i>Phragmites australis</i>) interspersed with some woody vegetation and open, fresh water. In the north-central U.S., breeding and nesting may occur from May-July. Incubation lasts for 17-20 days; young usually leave nest by the 13 th -15th day.	Wetlands, lakes, open water											Fayette Madison	0.0 ¹ 0.0 ¹
Bald eagle <i>Haliaeetus leucocephalus</i>	FT; ND-SC; SD-T; NE-T; KS-T; MO-E; IL-T; OK-T	This species typically occurs near large bodies of water that support suitable roosting and foraging habitat. Nest sites are located in proximity to open water and generally are found in mature heterogeneous stands of multi-storied trees, but also may nest on cliffs. Winter habitat typically includes areas of open water, adequate food sources, and sufficient diurnal perches and night roosts. Breeding season: January through July. Winter season: November 15 through March 15.	Riparian forests, open water	Barnes Cavalier Grnd Fks Nelson Pembina Ransom Sargent Steele Walsh	0.0 0.0 0.0 0.0 0.1 0.2 0.0 0.0 0.3	Beadle Clark Day Hanson Hutchinson Kingsbury Marshall McCook Miner Yankton	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.1	Butler Cedar Colfax Gage Jefferson Platte Saline Seward Stanton Wayne	0.0 0.2 0.5 0.0 0.0 0.0 0.2 0.1 0.2 0.0	Brown Doniphan Marshall Nemaha	0.0 0.2 0.1 0.0	Buchanan Carroll Chariton Clinton Lincoln Montgomery St. Charles	0.2 0.0 0.7 0.0 0.2 0.0 0.3	Bond Fayette Madison	0.1 3.1 1.1
Peregrine falcon <i>Falco peregrinus</i>	IL-T; NE-SC; KS-E	This species is found over a wide variety of habitats, but are generally located near open water or marshes that support high concentration of shorebirds or waterfowl. Nest sites occur on tall steep-walled cliffs, bridges, or buildings. Preferred foraging habitat includes lakes, rivers, and wet meadows. Breeding season: April 15 to July 15.	Wetlands, lakes, open water							Brown Doniphan Marshall Nemaha	0.0 ¹ 0.0 ¹ 0.0 ¹ 0.0 ¹			Madison	2.1 ¹
Greater Prairie-chicken <i>Tympanuchus cupido</i>	MO-E; ND-SC	Prime habitat for this species includes mid-grass and tall-grass prairies bordered by open oak woodlands, oak forests, and cropland. In western Kansas, they nest in sand-sage prairie and forage in corn and wheat fields. In Missouri, nesting habitat is limited to cropland and nearby prairies mainly on the Osage Plains. Breeding season: March through July.	Shortgrass, tallgrass, upland forest, agriculture									Audrain Carroll	5.9 13		
King rail <i>Rallus elegans</i>	MO-E; NE-SC	This species inhabits fresh and brackish wetlands. King rails prefer wetlands with abundant grasses, sedges, rushes and cattails. Nest sites occur in herbaceous cover over shallow water in river floodplains. The adult King Rail molts completely after nesting and is flightless for nearly a month. Breeding season: April-June	Wetlands									Carroll Lincoln St. Charles	0.0 ¹ 0.0 ¹ 0.0 ¹		

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Table 2
Keystone Special Status Species
Total Habitat Crossed by State

Species	Status	Habitat Association	Primary Habitat	Habitat by County and State, and Total Distance (mi) Crossed											
				ND		SD		NE		KS		MO		IL	
Whooping crane <i>Grus americana</i>	FE; ND-SC; SD-E; NE-E; OK-E; KS-E	During migration, this species feeds and roosts in a variety of habitats including croplands, large and small freshwater marshes, the margins of lakes and reservoirs, and submerged sandbars in rivers. Spring and Fall migration through the project regions generally occurs from February through April and from October through November, respectively.	Wetlands, riparian, agriculture	Barnes Cavalier Nelson	0.0 ¹ 0.0 ¹ 0.2 ¹	Beadle Clark Kingsbury Yankton	0.0 ¹ 0.0 ¹ 0.0 ¹ 0.1 ¹	Colfax Saline Seward Stanton	0.5 ¹ 0.2 ¹ 0.1 ¹ 0.2 ¹	Brown Doniphan Marshall Nemaha	0.0 ¹ 0.2 ¹ 0.1 ¹ 0.0 ¹				
Snowy plover <i>Charadrius alexandrinus</i>	KS-T	This species inhabits open alkaline flats, mudflats, sandy shorelines, sandbars with little vegetation along rivers, lakes, ponds, and marshlands. Nesting often occurs on white saline flats. Breeding season: May 1 through August 15.	Shorelines, sandbars, wetlands, rivers, lakes, ponds							Brown Doniphan Marshall Nemaha	0.0 ¹ 0.2 ¹ 0.0 ¹ 0.0 ¹				
Piping plover <i>Charadrius melodus</i>	FT; ND-SC; SD-T; NE-T; KS-T	This species inhabits open sandy areas and saline flats with little vegetation along rivers, lakes, ponds, and marshlands. It nests on sandbars and sand and gravel beaches with short, sparse vegetation along inland lakes, on natural and dredge islands in rivers, on gravel pits along rivers, and on salt-encrusted bare areas on interior alkali ponds and lakes. Sparse clumps of grass or herbaceous vegetation are important habitat components. Breeding season: May 1 through August 15.	Shorelines, sandbars, wetlands, rivers, lakes, ponds	Sargent		Clark Day Kingsbury Yankton	0.0 ¹ 0.0 ¹ 0.4 ¹ 0.1 ¹	Butler Cedar Colfax Gage Jefferson Platte Saline Seward Stanton	0.0 ¹ 0.2 ¹ 0.5 ¹ 0.0 ¹ 0.0 ¹ 0.0 ¹ 0.2 ¹ 0.1 ¹ 0.2 ¹	Brown Doniphan Marshall Nemaha	0.0 ¹ 0.2 ¹ 0.1 ¹ 0.0 ¹				
W. kimo curlew <i>Numenius borealis</i>	FE; SD-E; KS-E	This species is a nearly extinct spring migrant that feeds and rests in burned-over prairies, agricultural areas, wetlands, and marshes.	Prairies, wetlands, agriculture			Clark	4.5 ¹			Brown Doniphan Marshall Nemaha	4.9 ¹ 1.8 ¹ 5.6 ¹ 4.7 ¹				
Interior least tern <i>Sterna antillarum athalassos</i>	FE; SD-E; NE-E; MO-E; OK-E; KS-E	Nesting habitat consists of sparsely vegetated sandy, gravelly, or silty beaches and sandbars within wide, unobstructed river channels or salt flats along lake shorelines and irrigation reservoirs. Nest locations are generally away from the water's edge since nesting typically begins while river flows are high and relatively small amounts of sandy habitat is exposed. Breeding season: May 1 through August 15.	Shorelines and sandbars or rivers, lakes, reservoirs			Clark Yankton	0.0 ¹ 0.1 ¹	Butler Cedar Colfax Gage Jefferson Platte Saline Seward Stanton	0.0 ¹ 0.2 ¹ 0.5 ¹ 0.0 ¹ 0.0 ¹ 0.0 ¹ 0.2 ¹ 0.1 ¹ 0.2 ¹	Brown Doniphan Marshall Nemaha	0.0 ¹ 0.2 ¹ 0.1 ¹ 0.0 ¹	Chariton St. Charles	0.7 ¹ 0.3 ¹		
Barn owl <i>Tyto alba</i>	MO-E; IL-E	This cavity-nesting species is primarily a bird of open country - residential and agricultural areas, old fields and woodland edges. Nests in buildings, tree cavities, caves, cliff crevices, and cut bank burrows Breeding season: late winter, spring, and/or early summer.	Grasslands, woodlands, agriculture									St. Charles	1.7	Fayette Marion	0.0 0.0
Loggerhead shrike <i>Lanius ludovicianus</i>	MO-SC; IL-T	This species is found in open areas with mixed shrub/brush hedgerows and scattered thorny trees. Thorny plant species (osage orange, honey locus, multiflora rose, wild crabapple) are important for impaling prey. In MO and IL, nesting peaks in late April, with a second peak in late May in MO.	Shrublands, uplands											Bond Fayette Marion	2.1 0.0 0.0

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Table 2
Keystone Special Status Species
Total Habitat Crossed by State

Species	Status	Habitat Association	Primary Habitat	Habitat by County and State, and Total Distance (mi) Crossed							
				ND	SD	NE	KS	MO	IL		
Henslow's sparrow <i>Ammodramus henslowii</i>	KS-SC; MO-SC; IL-E	This species breeds in a variety of grassland habitats with tall, dense grass and herbaceous vegetation. Meadows, open grasslands and weedy and abandoned fields, all with wet areas, dense grass-forb mosaics and scattered small woody growths appear to be essential. Breeding season: April-July.	Grasslands, meadows, shrublands							Madison	1.6
Yellow-crowned night heron <i>Nyctanassa violacea</i>	IL-E	This species nests on barrier islands, dredge spoil islands, and bay islands that contain forested wetlands or scrub/shrub thickets. Colonies may be located in dense shrubby thickets, forests with an open understory. They use similar habitat types for nesting and roosting, avoiding areas with insufficient cover. They hunt along the shores of tidal creeks and tide pools within salt and brackish marshes dominated by salt marsh cordgrass.	wetlands, scrub-shrub thickets,							Fayette	3.4 ¹
Pied-billed grebe <i>Podilymbus podiceps</i>	IL-T	This species breeds on seasonal or permanent ponds with dense stands of emergent vegetation, bays and sloughs. Uses most types of wetlands in winter.	ponds, wetlands, sloughs							Fayette	6.5 ¹
Northern Harrier <i>Circus cyaneus</i>	MO-E	This species breeds in marshes, meadows, grasslands, and cultivated fields. Perches on ground or on stumps or posts. Nests on the ground, commonly near low shrubs, in tall weeds or reeds, sometimes in bog; or on top of low bush above water, or on knoll of dry ground, or on higher shrubby ground near water, or on dry marsh vegetation.	marshes, meadows, grasslands, cultivated fields					Carroll	13.0 ¹		
Fish											
Chestnut lamprey <i>Ichthyomyzon castaneus</i>	KS-T	This species is found in moderate-sized rivers and large creeks. Spawning occurs in smaller tributary streams in swift shallow riffles where the gravel is clean. Eggs are laid in a nest in the river bottom. Spawning period: spring or summer.	Rivers and creeks					Doniphan: Missouri River			
Pallid sturgeon <i>Scaphirhynchus albus</i>	FE; SD-E; NE-E; KS-E; MO-E; IL-E	This species is distributed from the headwaters of the Missouri River (Fort Benton-Great Falls, Montana) through the Mississippi River to New Orleans, Louisiana. It inhabits bottom areas of large turbid rivers that have strong current and a firm sandy substrate. They also may be found along sandbars and behind wing dikes. Spawning period: April through August.	Large, turbid rivers, sand substrate		Yankton: James River Missouri River	Cedar: Missouri River Colfax: Platte River	Doniphan: Missouri River	Buchanan: Missouri River St. Charles: Mississippi River		Madison: Mississippi River Fayette: Kaskaskia River	
Lake sturgeon <i>Acipenser fulvescens</i>	NE-T; MO-E; IL-E	This species is generally bottom dwelling and occurs in large rivers and shallow areas of large lakes. They are most often associated with silt-free deep run and pool habitats of rivers (i.e., >5 ft deep), and generally avoid aquatic vegetation. Gravelly tributary streams of rivers and lakes serve as spawning habitat, although rocky, wave-swept areas near lake shores and islands serve as spawning habitat when preferred habitats are unavailable. Spawning period: late-spring.	Large rivers and lakes, gravelly substrate		Yankton: Missouri River	Cedar: Missouri River		St. Charles: Mississippi River			

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**Table 2
Keystone Special Status Species
Total Habitat Crossed by State**

Species	Status	Habitat Association	Primary Habitat	Habitat by County and State, and Total Distance (mi) Crossed					
				ND	SD	NE	KS	MO	IL
Flathead chub <i>Platygobio gracilis</i>	KS-T	This species occurs from the Rio Grande to the Arctic Circle in small creeks and the largest rivers that have turbid fluctuating water levels and unstable sand bottoms. This species relies on flood flows to spawn successfully. Spawning occurs after water levels have subsided after peak flows, when water temperatures are warmer and substrate is more stable. Relies on flood flows to spawn successfully. Spawns after rivers have subsided following peak flow.	Creeks and rivers with turbid, fluctuating flow and sandy substrates				Nemaha: S.F. Nemaha River Doniphan: Missouri River		
Sturgeon chub <i>Macrhybopsis gelida</i>	NE-E; KS-T MO-SC SD-T	This species prefers large turbid sandy rivers over substrate of small gravel and coarse sand. It is often found in areas swept by currents especially at heads of islands or exposed sandbars. Spawning period: late spring to midsummer.	Large sandy rivers, sand/gravel substrate		Yankton: Missouri River	Cedar: Missouri River Colfax County: Platte River	Doniphan: Missouri River	Buchanan: Missouri River	
Sicklefin chub <i>Macrhybopsis meeki</i>	NE-SC; KS-E MO-SC SD-E	This species requires continuously and heavily turbid waters of large rivers where it frequents areas of strong current flowing over sand or gravel substrate. Spawning period: spring (likely from late March and May).	Large turbid rivers, sand/gravel substrate		Yankton: Missouri River	Colfax: Platte River	Doniphan: Rock Creek Missouri River	Buchanan: Missouri River	
Western silvery minnow <i>Hybognathus tyritis</i>	KS-T; MO-SC	This species prefers protected areas in large, turbid rivers and prairie streams. In streams they are typically found in water less than one foot deep and shallow shore water heavily vegetated with emergent grasses and reeds. In protected areas of larger rivers, they move in large schools of 50 to 100 individuals along the bottom in deep, quiet water. While little is known about spawning, this species probably scatters eggs on silt substrate in quiet water.	Protected areas of rivers and streams				Nemaha: S.F. Nemaha River Doniphan: Missouri River	Buchanan: Missouri River	
Blacknose shiner <i>Notropis heterolepsis</i>	ND-SC; NE-E; MO-SC	This species prefers clean weedy lakes and streams.	Lakes, streams			Cedar: Missouri River Stanton: Elkhorn River	Doniphan: Missouri River		
Topeka shiner <i>Notropis topeka</i>	FE; SD-SC; KS-T; MO-E	This species inhabits pool and run areas in the headwaters of small prairie streams with high water quality and cool temperatures. These streams generally exhibit intermittent flow during summer; however pools are maintained by spring or groundwater percolation. The substrate of these occupied streams consist mainly of clean gravel, however bedrock and clay hardpan overlain by a thin silt layer are not uncommon. Spawning period: late spring and summer.	Small, cool (often intermittent) prairie streams		Miner: Wolf Creek Hanson: Wolf Creek Hutchinson: Wolf Creek Yankton: James River Missouri River	Cedar: Missouri River Saline: W.F. Big Blue River	Marshall: N. Elm Creek Doniphan: Missouri River	Clinton: Castile Creek Little Platte River Shoal Creek Caldwell: Log Creek Crush Creek Crabapple Creek	
Northern redbelly dace <i>rosomus eos</i>	NE-T	This species occurs in a variety of habitats ranging from streams to bog lakes.	Streams to bog lakes			Cedar: Missouri River			
Finnescale dace <i>Phoxinus neogaeus</i>	NE-T	This species occurs a variety of habitats ranging from streams to bog lakes.	Streams to bog lakes			Cedar: Missouri River			

¹ Data pending; waiting on completion of wetland/waterbody surveys to determine total habitat crossed (mi); totals likely to change.

**Table 2
Keystone Special Status Species
Total Habitat Crossed by State**

Species	Status	Habitat Association	Primary Habitat	Habitat by County and State, and Total Distance (mi) Crossed						
				ND	SD	NE	KS	MO	IL	
Western sand darter <i>Ammocrypta clarum</i>	IL-E	This species occurs in medium and large rivers; most commonly in slight to moderate currents over sandy bottoms. It is known to inhabit areas of gravel or silt. The species has also been recorded from quiet margins of drainage canals and shallow backwaters, usually where there is enough current to keep the bottom largely free of silt. Buries in sand.	Medium to large rivers, sandy substrate							Fayette: Kaskaskia River
Reptiles										
Western fox snake <i>Elaphe vulpina vulpina</i>	MO-E	This species inhabits cultivated fields, along wooded stream valleys and in natural prairies that adjoin marshes. It is active between late April and October. Small mammal burrows and brush piles are used as den sites during winter hibernation. Mating begins in April and females lay eggs under logs or leaf litter in May or June. Young hatch in August or September.	Agriculture, riparian woodlands, prairies, wetlands						St. Charles	1.7 ¹
Smooth earth snake <i>Virginia valeriae</i>	KS-T	This species inhabits rocky hillsides in moist woodlands and woodland edges in river and stream valleys where they may be found on the slopes under leaf litter, rocks, or logs. During winter, it utilizes deep crevices on rocky hillsides. Mating begins in the spring after emergence from hibernation. Mating may also occur in the fall. Young hatch in August or September.	Riparian woodland, upland forest				Doniphan	2.4		
Eastern massasauga <i>Sistrurus catenatus catenatus</i>	FC; MO-E; IL-E	This subspecies prefers marshy and swamp areas dominated by cordgrass, sedges, and bulrushes, as well as lowland areas along river and lakes. The snakes hibernate singly in mammal burrows, crayfish burrows, and in crevices or rock piles close to water. Courtship and mating occurs in spring and young are born in late July through early September.	Wetland, riparian						Chariton	0.7 ¹
Western massasauga <i>Sistrurus catenatus tergeminus</i>	NE-T; MO-E	This subspecies is found in open sagebrush prairie, rocky prairie hillsides, and prairie marsh habitats, usually near a water source. The snakes hibernate singly in rodent burrows. Courtship and breeding occur both in the Spring and Fall. Young are born during July or August.	Sagebrush, shrubland, wetland			Gage Jefferson	0.0 ¹ 3.4 ¹		Chariton	12.9 ¹
False map turtle <i>Graptemys pseudogeo-graphica</i>	SD-T	This species inhabits slow to swift current rivers and streams, river sloughs, oxbow lakes, ponds, impoundments, and backwaters. They are devoted baskers, often resting just below the surface on submerged branches from fallen trees and projecting logs.	Rivers, streams, sloughs, ponds, backwaters, impoundments		Yankton	0.1				
Kirtland's snake <i>Clonophis kirtlandi</i>	IL-T	This species inhabits prairie wetlands, wet meadows, and grassy edges of creeks, ditches, and ponds, usually in association with crayfish burrows. It also has been found in damp habitat remnants in vacant lots of urban settings. Secretive and nocturnal, it shelters beneath logs and surface debris, or in crayfish burrows, by day.	Wetlands						Fayette	0.0 ¹

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Table 2
Keystone Special Status Species
Total Habitat Crossed by State

Species	Status	Habitat Association	Primary Habitat	Habitat by County and State, and Total Distance (mi) Crossed										
				ND		SD		NE		KS		MO		IL
Amphibians														
Illinois chorus frog <i>Pseudacris strecheri illino</i>	IL-T	Sand prairies and remnants such as sandy agricultural fields and waste areas. Burrows in sand and emerges after heavy, early spring rains to breed in nearby flooded fields, ditches, and other vernal ponds	Sand prairies									Madison	0.6	
Invertebrates														
Dakota skipper <i>Hesperia dacotae</i>	FC; SD-SC, ND-SC	This species is considered an obligate of undisturbed native prairie. The butterfly inhabits wet lowland prairie dominated by bluestem grasses and dry upland prairie dominated by mixed bluestem and needle stem grasses. Both habitat types contain an abundance of flowering plants and have alkaline soils. Adults emerge in mid-June to early July, and mate during a flight period that lasts for about three weeks.	Lowland and upland prairie	Barnes Ransom Sargent	0.0 0.0 8.4	Clark Day Marshall Yankton	4.5 6.7 5.1 2.1							
American burying beetle <i>Nicrophorus americanus</i>	FE; KS-E	This species inhabits upland grasslands or near the edge of grassland/forest. Sandy/clay loam soils and food (carrion) availability are also important. The species appears to prefer loose soil in which to bury carrion. Reproduction occurs from late April through mid August. Reproductive activity includes the burial of a carcass, building of a chamber, and laying eggs.	Grasslands, upland forests					Brown Doniphan Marshall Nemaha	7.9 4.2 6.9 5.3					
Blueshell mussel <i>Leptodea leptodon</i>	FE; SD-SC; NE-E	Occurs in riffles with moderate to high gradients in creeks to large rivers. Typically associated with riffles, relatively strong currents, and substrate of mud, sand, or assemblages of gravel, cobble, and boulder. Restricted to rivers with relatively good water quality in stretches with stable channels. Little is known concerning the reproduction of this species.	Creeks and rivers with good water quality and stable channels			Yankton	0.2	Cedar	0.2					
Higgins' eye pearlymussel <i>Lampsilis higginsii</i>	FE; SD-SC	Found in substrates of mud with a mixture of gravel and stones. Prefers rapidly flowing water. The exact breeding season is unknown.	Fast flowing creeks and rivers, mud substrate			Yankton	0.2	Cedar	0.2					
Winged mapleleaf <i>Quadrula gragosa</i>	FE; SD-SC	The species is found in riffles with clean gravel, sand, or rubble bottoms.	Rivers, streams			Yankton	0.1							
Plants														
Decurrent false aster <i>Boltonia decurrens</i>	FT; MO-E; IL-T	The species grows in open muddy bottomlands and is dependent upon disturbance from cyclical flooding to maintain the habitat suitable for its survival. Historically, it was found on the shores of lakes and the banks of streams. Currently, it is most common in disturbed lowland areas where human-caused disturbance provides adequate habitat. Flowers: July-October.	Riparian floodplains and muddy bottomlands subject to flooding								St. Charles	0.0 ¹	Madison	2.0 ¹
Small white lady's-slipper <i>Cypripedium candidum</i>	NE-T	This species is found in wetland prairie habitats: mesic blacksoil prairie, wet blacksoil prairie, glacial till hill prairie, sedge meadow, calcareous fen, glade. Found on calcareous soils. Flowering occurs May-June.	Wetland prairie					Butler Cedar Colfax Stanton Wayne	0.0 ¹ 4.3 ¹ 0.8 ¹ 1.5 ¹ 1.3 ¹					

¹ Data pending; waiting on completion of wetland/waterbody surveys to determine total habitat crossed (mi); totals likely to change.

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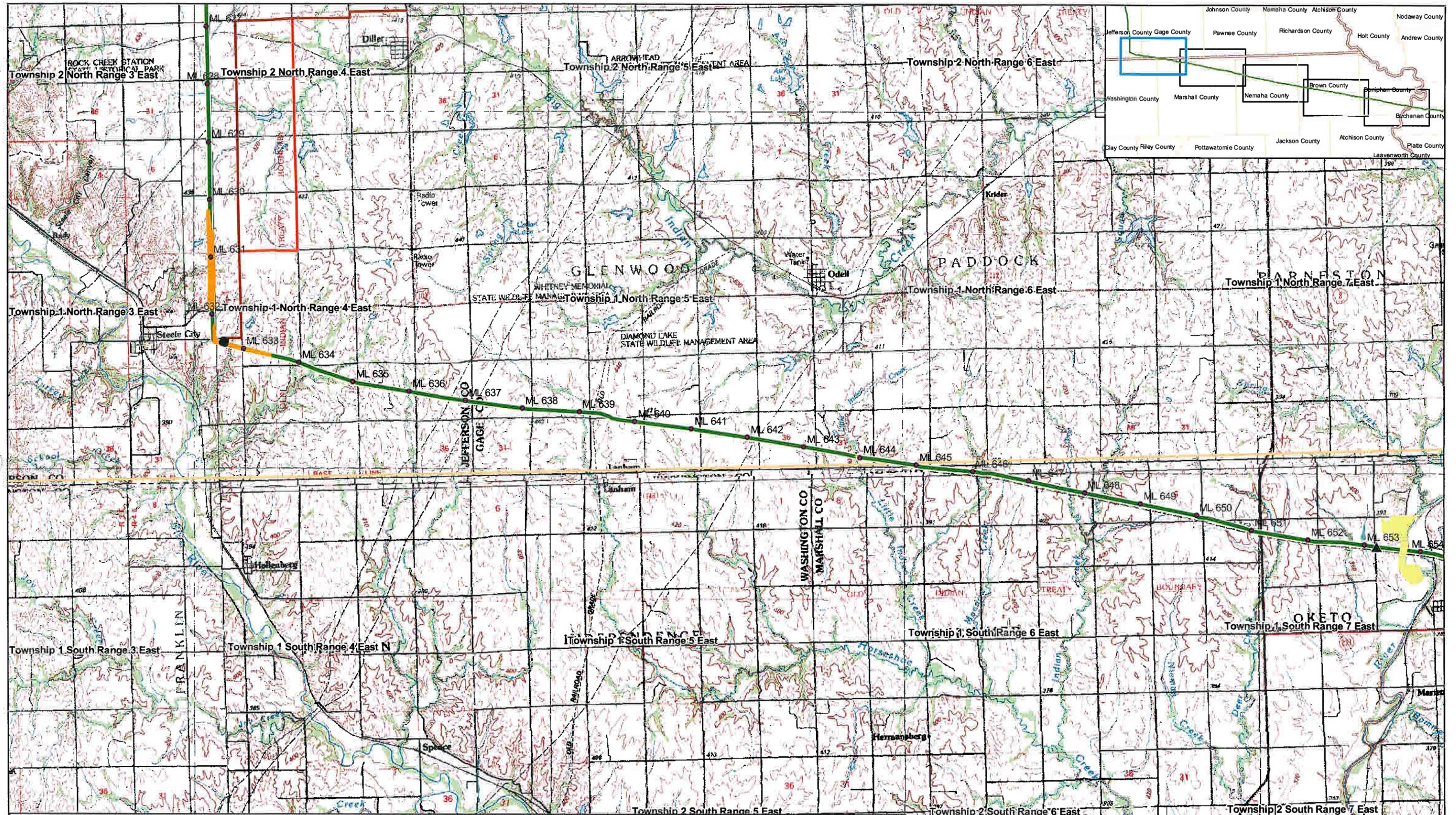
Table 2
Keystone Special Status Species
Total Habitat Crossed by State

Species	Status	Habitat Association	Primary Habitat	Habitat by County and State, and Total Distance (mi) Crossed												
				ND		SD		NE		KS		MO		IL		
Eastern prairie fringed orchid <i>Platanthera leucophaea</i>	FT; IL-E	Mesic-wet calcareous tallgrass sand or silt loam prairie. May also be found in open graminoid portions of lake margins, sedge, meadows, and marshes, wet prairie or open swamps, or bogs and shores. Flowering begins late June to early July. Flowers do not appear annually.	Mesic-wet tallgrass prairie												Bond	0.0 ¹
															Fayette	0.0 ¹
															Madison	0.0 ¹
															Marion	0.0 ¹
Western prairie fringed orchid <i>Platanthera praeclara</i>	FT; ND-SC; SD-SC; NE-T	Occurs in mesic upland tallgrass prairie in the southern part of its range, often in swales, and wet-mesic tallgrass prairie and sedge meadows in the northern part of its range. Also known from prairies and swales in sand dune complexes that are fed by shallow underground water. Flowers June-July.	Tallgrass prairie, dune complexes	Ransom	0.0	Clark	4.5 ¹	Butler	0.0 ¹							
						Day	6.7 ¹	Cedar	4.3 ¹							
						Yankton	2.1 ¹	Colfax	0.8 ¹							
								Gage	0.0 ¹							
								Jefferson	3.4 ¹							
								Platte	0.0 ¹							
								Saline	0.3 ¹							
								Seward	0.0 ¹							
								Stanton	1.5 ¹							
								Wayne	1.3 ¹							
Prairie bush-clover <i>Lespedeza leptostachya</i>	FT; IL-E	In Illinois, this species is generally found on dry gravel prairies and dry-mesic prairies. It is often found on north-facing prairie slopes. On these slopes, it typically occurs either in thin soil at the margins of rocks or in gravelly loamy soil. Flowers in July, August.	Prairie												Bond	0.8
															Fayette	0.0
															Madison	0.6
															Marion	0.0
Running buffalo clover <i>Trifolium stoloniferum</i>	FE; MO-E	This species is commonly found in areas of rich soils in the ecotone between open forest and prairie; and moist, partially shaded woodlands- sometimes along stream or river terraces. Also found in areas disturbed by grazing or mowing. This species historically grew along bison trails. Flowers: April-June.	Riparian areas, woodland/prairie ecotones									Lincoln	11.7 ¹			
Royal Catchfly <i>Silene regia</i>	IL-E	This species is found in habitats that include mesic black soil prairies, openings in upland forests, savannas, scrubby barrens, and open areas along roadsides and railroads	Prairies, upland forests, savannas, open roadsides												Madison	1.6
Prairie Spiderwort <i>Tradescantia bracteata</i>	IL-T	Common spiderwort likes sandy soils and seems to be most abundant where grazing is light to moderate. Dry typical prairie and dry sand prairies	Grazed prairies, sandy soils												Madison	0.6
Spring Ladies' Tresses <i>Spiranthes vernalis</i>	IL-E	This species is typically found in upland dry to mesic forests, dry to mesic prairies, and successional cultured fields.	Upland/mesic forests												Madison	2.0 ¹

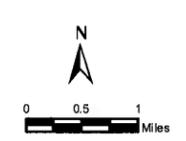
¹ Data pending; waiting on completion of wetland/waterbody surveys to determine total habitat crossed (mi); totals likely to change.

Table 3
 Kansas Special Status Species Listed By County and Habitat Type

County	Grassland	Forests And Woodlands	Riparian	Emergent Wetland	Open Water
Brown	Eastern Spotted Skunk, Eskimo Curlew	Eastern Spotted Skunk	Peregrine Falcon	Eskimo Curlew, Interior Least Tern, Peregrine Falcon, Piping Plover, Snowy Plover	Bald Eagle, Interior Least Tern, Piping Plover, Snowy Plover
Doniphan	Eastern Spotted Skunk, Eskimo Curlew	Eastern Spotted Skunk	Peregrine Falcon	Eskimo Curlew,*Interior Least Tern, Peregrine Falcon, Piping Plover, Snowy Plover	Bald Eagle, Interior Least Tern, Piping Plover, Snowy Plover, Chestnut Lamprey, Flathead Chub, Pallid Sturgeon, Sicklefin Chub, Sturgeon Chub, Topeka Shiner
Marshall	Eastern Spotted Skunk, Eskimo Curlew	Eastern Spotted Skunk	Peregrine Falcon	Eskimo Curlew, Interior Least Tern,*Peregrine Falcon, Piping Plover, Snowy Plover, Whooping Crane	Bald Eagle, Interior Least Tern, Piping Plover, Snowy Plover, Topeka Shiner
Nemaha	Eastern Spotted Skunk, Eskimo Curlew	Eastern Spotted Skunk	Peregrine Falcon	Eskimo Curlew, Interior Least Tern, Peregrine Falcon, Piping Plover, Snowy Plover	Bald Eagle, Interior Least Tern, Piping Plover, Snowy Plover, Flathead Chub, Topeka Shiner

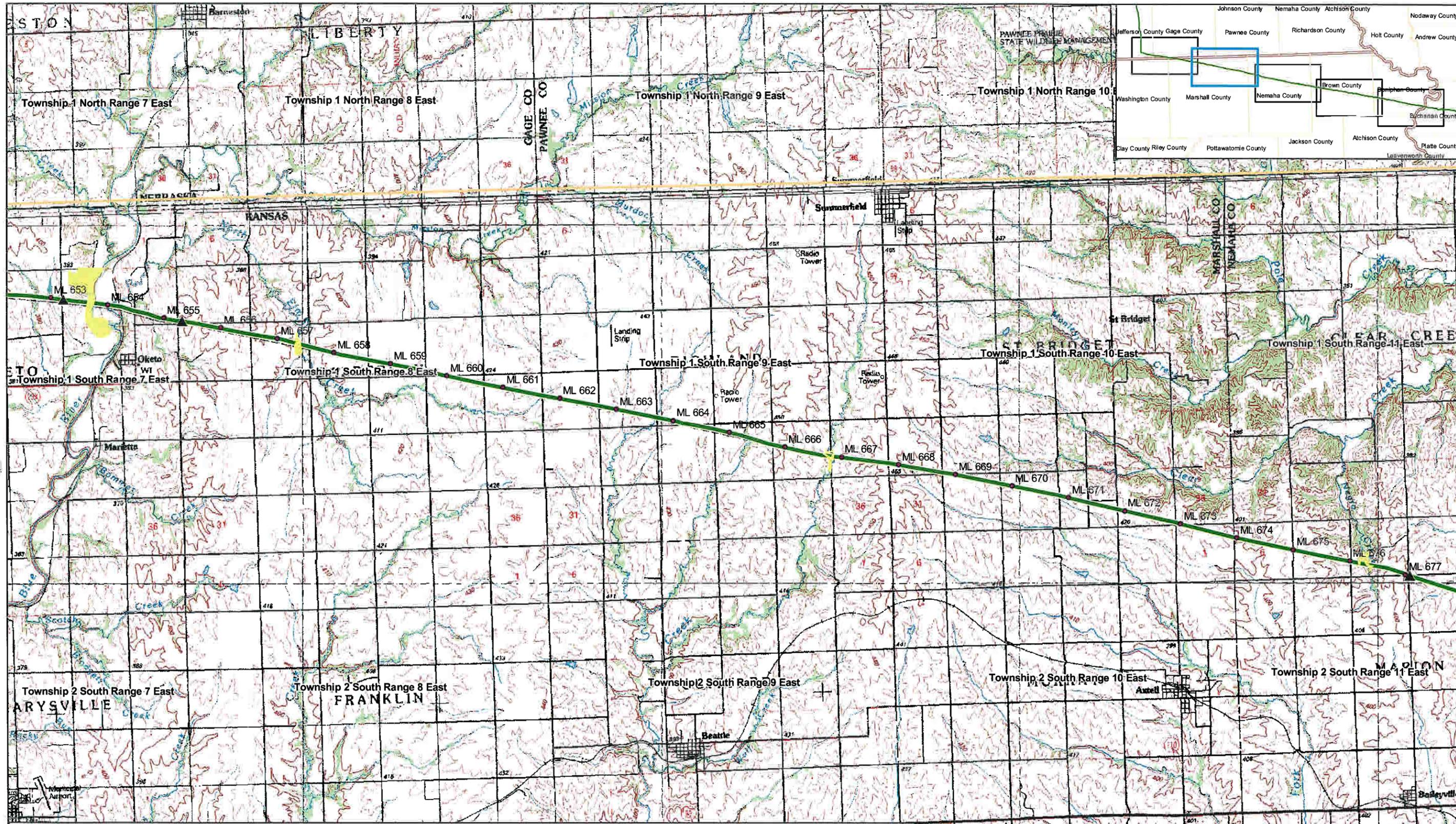


- DOS Filing Route
- ▲ Valve
- Pump station
- Powerline preferred route
- Powerline alternative route
- Mainline milepost
- Riparian
- Forests and Woodland
- Grassland
- Open Water
- Non-forested Emergent Wetland

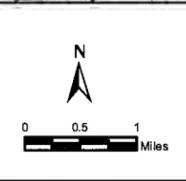


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Map 1 of 5
 Non-agricultural
 Habitat
 (Kansas)



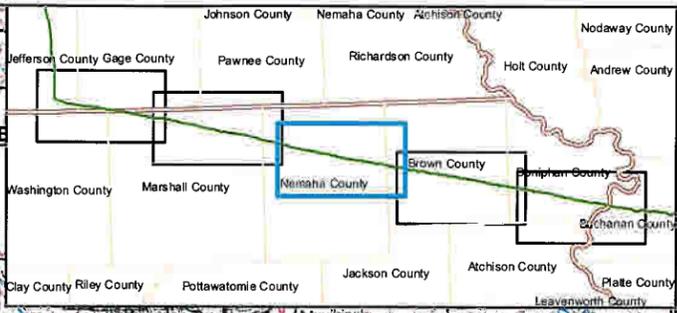
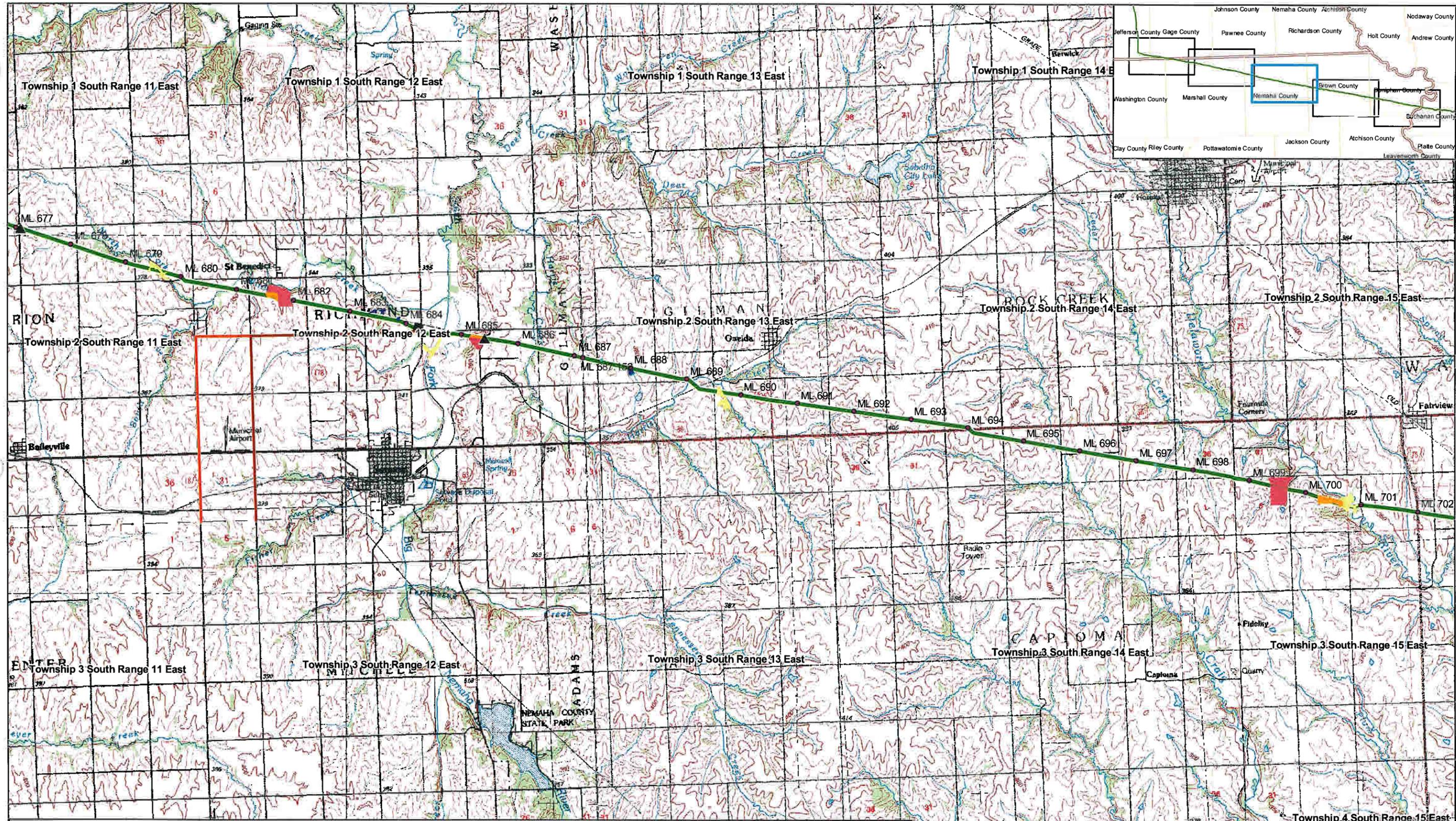
- DOS Filing Route
- Valve
- Pump station
- Powerline preferred route
- Powerline alternative route
- Mainline milepost
- Riparian
- Forests and Woodland
- Grassland
- Open Water
- Non-forested Emergent Wetland



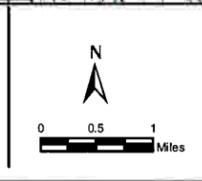
Keystone Pipeline Project

TransCanada
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Map 2 of 5
Non-agricultural
Habitat
(Kansas)

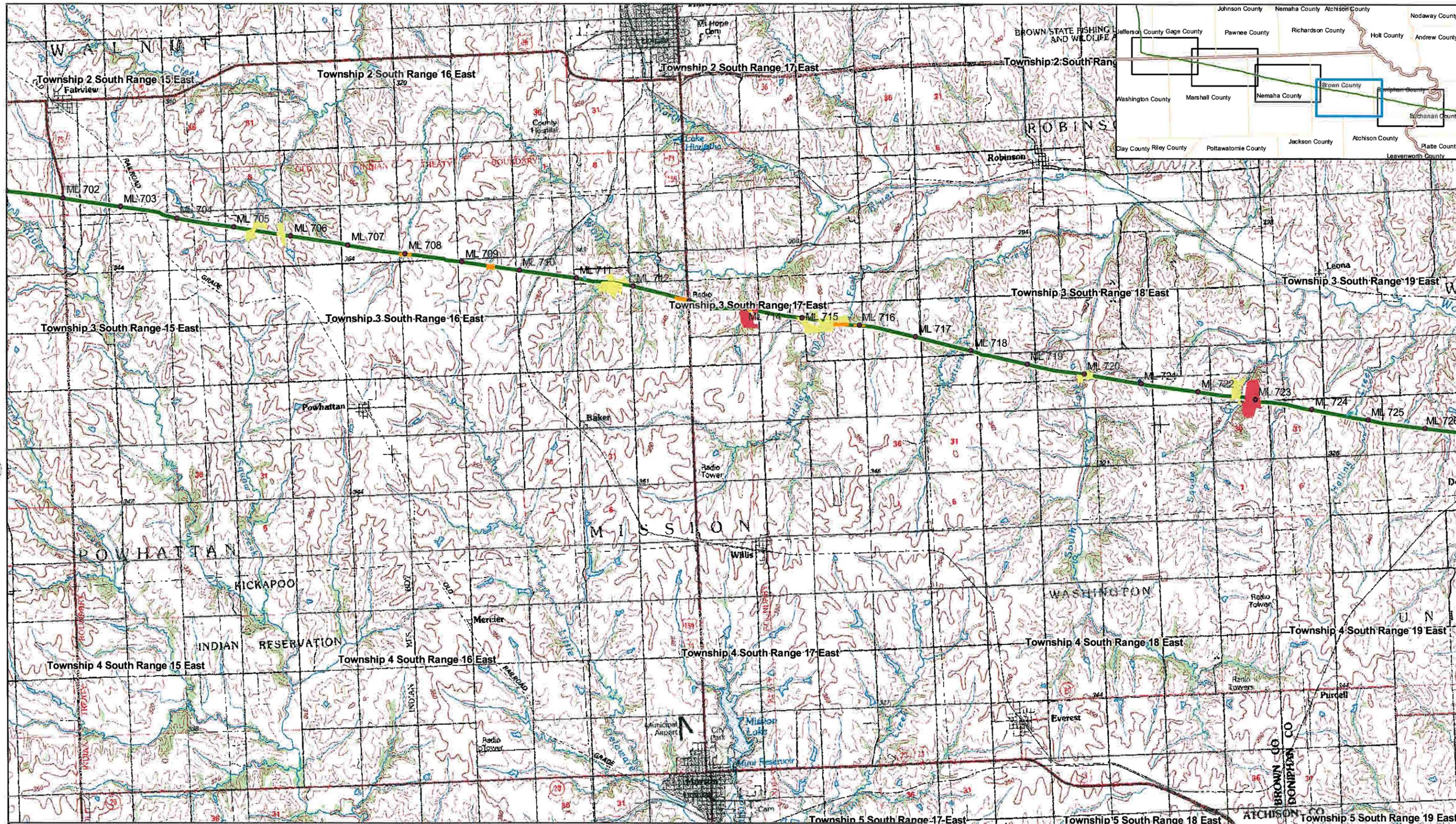


- | | |
|-----------------------------|-------------------------------|
| DOS Filing Route | Riparian |
| Valve | Forests and Woodland |
| Pump station | Grassland |
| Powerline preferred route | Open Water |
| Powerline alternative route | Non-forested Emergent Wetland |
| Mainline milepost | |

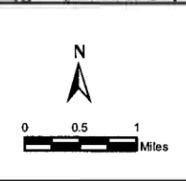


Keystone Pipeline Project

Map 3 of 5
Non-agricultural
Habitat
(Kansas)



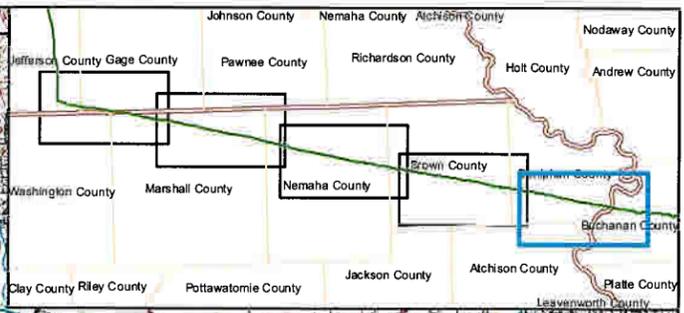
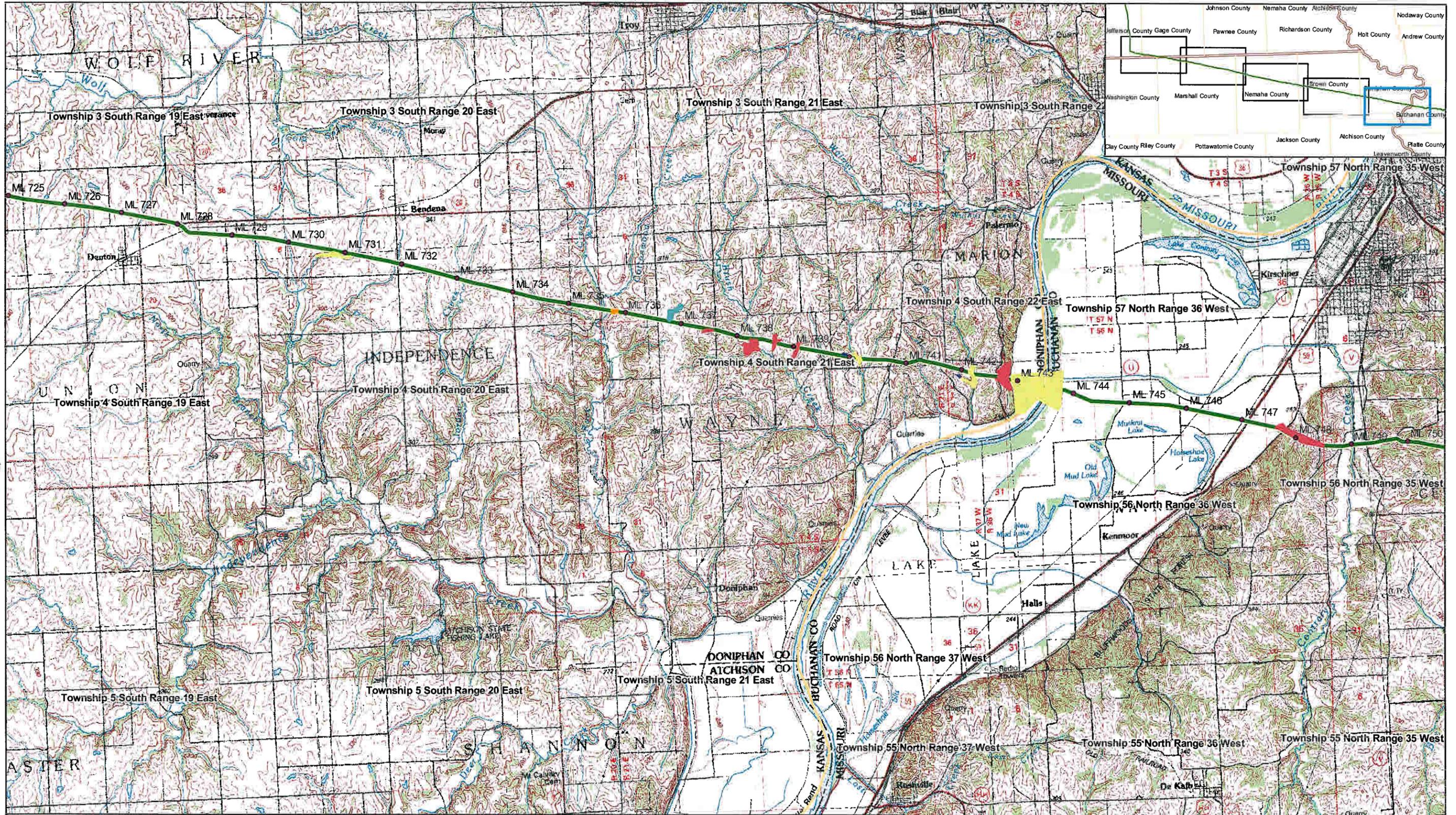
- DOS Filing Route
- Valve
- Pump station
- Powerline preferred route
- Powerline alternative route
- Mainline milepost
- Riparian
- Forests and Woodland
- Grassland
- Open Water
- Non-forested Emergent Wetland



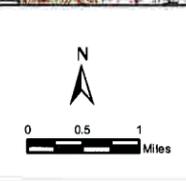
Keystone Pipeline Project

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Map 4 of 5
Non-agricultural
Habitat
(Kansas)



- DOS Filing Route
- Valve
- Pump station
- Powerline preferred route
- Powerline alternative route
- Mainline milepost
- Riparian
- Forests and Woodland
- Grassland
- Open Water
- Non-forested Emergent Wetland



Keystone Pipeline Project
 TransCanada
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Map 5 of 5
Non-agricultural
Habitat
(Kansas)

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FOR INTERNAL KEYSTONE PROJECT USE ONLY

TransCanada – Keystone Pipeline Contact Summary Form

Location of Meeting ENSR
Date/Time of Meeting 6/06/06
Keystone Team Member(s) Sara Stribley

Contact Information:

Name	Nate Davis
Title	Aquatic Ecologist
Organization	Kansas Department of Wildlife and Parks
Address	512 Southeast 25th Avenue Pratt, KS 67124
County	
Phone	(620) 672-5911 ext 195
E-mail address	nated@wp.state.ks.us

Meeting Information:

Type of Contact (phone, in-person, etc.): Phone

Issue: Clarification on Sensitive Species Inhabiting Big Blue River and Walnut Creek

Concern Level: High___Moderate___Low___

Description:

I left a message for Nate requesting some clarification on the Big Blue River and Walnut Creek. These two waterbodies were listed in his consultation letter that was sent to ENSR; however, it is unclear what sensitive species inhabit these two streams.

Issue: _____

Concern Level: High___Moderate___Low___

Description:



Correspondence Summary Sheet

By: Sara Stribley

Date: 4/27/06

Talked With: Nate Davis

Project Number: 10623-004-701

Title: Aquatic Ecologist

Project Name: Keystone

Of: Kansas Department of Wildlife and Parks

Subject: Sensitive species consultation letter follow-up

Telephone Number:

Facsimile Number:

Email or Internet Address (if applicable):

Supplemental Information Attached?

YES

NO

Indicate Documentation Type: Telephone

Facsimile

Internet

Email

Nate Davis called in regards to a few previous email correspondences we had. He had been having trouble viewing the shapefiles we had sent with out T&E species consultation letter. I gave him Todd White and Scott Mackinnon's phone numbers to call if he had problems again. Nate also asked if I had any information on streams in Kansas that were going to be directionally drilled, or how stream crossings were to be handled. He also requested information on how TransCanada was going to mitigate/reclaim sensitive habitat areas such as the scrub-oak forests in the northeast, or large riparian corridors and native grasslands. He also requested that the next time a representative from ENSR was in Kansas, that he could set up a meeting to discuss these issues. I told him I would try and talk to one of the project managers and see if I could get him more information on these issues and get back to him with some answers. See the attached email to Nate for my response.

FILE NAME- SS_ND_KDWP_042706.doc

Signature

Distribution: (1) File

(2) Self

(3) Report

Stribley, Sara

From: Stribley, Sara
Sent: Wednesday, April 26, 2006 3:27 PM
To: 'Nate Davis'
Cc: Caddis, Karen; Johnson, Charlie; Duncan, Scott
Subject: Keystone T&E Species/Habitat Concerns

Hi Nate,

I spoke with one of the project managers for the Keystone project about some of the concerns you brought up in our conversation! Unfortunately, I still don't have a lot more information for you. At this point TransCanada's reclamation procedures for areas of special concern along the Keystone pipeline are fairly preliminary. Additionally, the list of streams that will be directionally drilled along the route has not yet been finalized. Due to these circumstances, any input you can provide on mitigation/reclamation for sensitive habitats/species, required surveys, and any other general concerns or recommendations on biological resources along the Cushing extension would be greatly appreciated. Scott Duncan, from our office, is the Keystone state coordinator for Kansas. He may possibly be in Kansas in May, so if you would like to meet with someone from ENSR, I would suggest giving Scott a call to try and set up a meeting time (970-493-8878). I have also included a few paragraphs from the Keystone Cushing extension consultation letter we sent in February for your review (see below)! Thanks again for your call and discussing some of your concerns! Hopefully we can provide you with some answers in the near future. Feel free to give me a call with any other questions, and I'll do my best to try and get you the answers!

Sincerely,
Sara Stribley

Sara Stribley
Staff Specialist
ENSR Corporation
1601 Prospect Pkwy
Fort Collins, CO 80525
970.493.8878 ext. 168
sstribley@ensr.com

"On behalf of TransCanada, ENSR would like to again provide an opportunity for Kansas Department of Parks and Wildlife (KDPW) biologists and botanists to identify prominent terrestrial and aquatic resource issues or concerns that may occur within or adjacent to the project area, focusing on species that are either sensitive (e.g., state-listed), have high economic value (e.g., big game, waterfowl), or are considered important by the state (e.g., raptors, bats). Please forward this request to the applicable specialists (e.g., fisheries and/or wildlife biologists, habitat biologists, botanists, etc.) so they may provide information and input. Resource information provided by the KDPW will be reflected in the environmental baseline description pertaining to the project. If applicable, please send electronic files for our environmental analysis to: kcaddis@ensr.aecom.com.

Where it appears that possible or probable concerns relative to sensitive species or habitats may occur, please indicate whether surveys might be required, as well as the preferred methodology and level of effort you would consider acceptable for the surveys."

4/28/2006



KANSAS

DEPARTMENT OF WILDLIFE AND PARKS

KATHLEEN SEBELIUS, GOVERNOR

3-27-06

Mr. Charles Johnson
ENSR International
1601 Prospect Parkway
Fort Collins, CO 80525-9769

Track: 20060054
BR, BU, CL, CY,
DK, DP, MN,
MS, NM, WS

Ref: D5.0101

Dear Mr. Johnson:

We have reviewed the information you sent regarding the Keystone Pipeline Project, a 1,830 mile interstate crude oil transmission pipeline that will transect Kansas through west to east in Marshall, Nemaha, Brown and Doniphan Counties AND the Cushing Extension, a 295 mile portion of interstate pipeline transecting Kansas north to south through Washington, Clay, Dickinson, Marion, Butler and Cowley counties. The project was reviewed for potential impacts on crucial wildlife habitats, current state-listed threatened and endangered wildlife species, and public recreation areas for which this agency has some administrative authority.

Several streams in the project counties are designated as critical habitat for state and federally listed species. Of primary concern for the Keystone project are North Elm Creek and the Big Blue River in Marshall County, South Fork Big Nemaha River and its perennial tributaries in Nemaha County, Walnut Creek and its associated tributaries in Brown County, and the Wolf River and its tributaries and the Missouri River in Doniphan County. Streams of major concern for the Cushing Extension include Carry Creek, West Branch Lyon's Creek and its tributaries (Dickinson co.), the Cottonwood Rive (Marion), and the Arkansas River (Cowley). You will need to provide information on how perennial stream crossings will be constructed. We recommend utilizing directional boring to avoid impacts to these streams. If trench cut method is proposed, a permit from the KS Department of Wildlife & Parks may be necessary to insure conditions and mitigative actions are in place to protect state-listed species.

In addition, the Bald Eagle is listed by the state of Kansas as (T). Impacts to mature riparian areas bordering the Big Blue, Smokey Hill, Cottonwood, Arkansas and Missouri Rivers will need to obtain a permit from KDWP to restore and protect perch or nesting trees. You should contact the USFWS to determine current nesting locations for Eagles in Kansas.

Since the proposed route is expected to have a width of disturbance up to 110 feet, several species listed as SINC (in-need-of-conservation) may be impacted along the route as well, although impacts will likely be limited dependant upon habitat characteristics encountered. Restoration of disturbed areas should occur by reclamation of in-kind habitats. Of particular importance is the avoidance and mitigation of disturbances to crucial wildlife habitats including riparian woodlands, wetlands, oak-hickory forestlands, and native bluestem prairie. Acre calculations of various crucial habitats along with qualitative assessments should occur to determine the amount of off-site mitigation measures, if necessary. We strongly encourage the Keystone pipeline share right-of-way with the Rocky Mountain Express natural gas pipeline proposed to parallel the Keystone route through NE Kansas. Please feel

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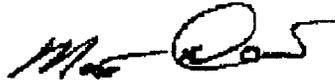
free to work closely with KDWP's Environmental Service Section to assist in impact accounting and mitigation options.

The Cushing Extension may intersect Milford Wildlife Area, near Broughton, KS (Clay co.). You should contact Region 2 public lands supervisor John Silovsky at 785.273.6740 to determine what if any public lands may be affected.

Please provide information on how stream crossings will be constructed, and mitigative actions proposed (reclamation of disturbed areas & how the 60' permanent ROW will be maintained). We have had difficulty utilizing the GIS files emailed to our office, therefore, we request a hard copy of aerial photographs and topographic maps for the Cushing Extension.

Because the project involves potential impact to a state listed threatened or endangered species and/or its designated critical habitat, a separate action permit may be needed from our agency to be in compliance with regulations pursuant to the Kansas Nongame and Endangered Species Conservation Act. The project sponsor should insure compliance with this statute as part of the Pre-Filing Process. Thank you for the opportunity to provide these comments and recommendations. We look forward to working with you in the protection of natural resources for the State of Kansas.

Sincerely,



Nate Davis, Aquatic Ecologist (nated@wp.state.ks.us)
Environmental Services Section

xc: KDWP Reg Sup, Wolfe, Swan, Silvosky
KDWP DWB, Whiteaker
KDHE, Mueldener, Michael Parhomek (Bur. Air & Radiation)
USFWS, LeValley
USEPA, Mulder
TransCanada, Greg Moffatt
Counsel of Gov. Public Affairs, Don Schnacke
ENSR, Scott Duncan

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Kansas Natural Heritage Inventory
March 10, 2006
Review letter: Cushing Extension of Keystone Pipeline project in Kansas

March 10, 2006

Karen Caddis
ENSR International
1601 Prospect Parkway
Fort Collins, CO 80525-9769

RE: Request for Environmental Information
Cushing Extension to Keystone Pipeline Project in Kansas

Dear Ms. Caddis:

I have reviewed the Kansas Natural Heritage Inventory database for records of state and federal threatened, endangered, and special concern species at the referenced site. I have enclosed an ArcView shapefile containing records of rare species occurring within approximately 5 miles of the proposed pipeline. Keep in mind that the state of Kansas has not been comprehensively surveyed for rare species and absence of records should not be interpreted as an indication that rare species do not occur in any particular area. Also, no surveys for natural communities have been conducted in the project area.

These data are provided for your internal use only and are not to be distributed outside your company. Data presented in reports, maps, and other printed or digital formats must be buffered to mask their actual locations. Please see the enclosed document GIS data ENSR_TransCanada.doc for further information on this dataset.

All lands and waters within 5 air miles of public lands on Milford Reservoir are designated as critical habitat for the Bald eagle (*Haliaeetus leucocephalus*). The main stem of the Republican and Smoky Hill rivers also are designated as critical habitat for this species. There are many small streams in Dickinson and Marion Counties that are designated as critical habitat for the Topeka shiner (*Notropis Topeka*). The Arkansas River in Cowley County is designated as critical habitat for the Speckled chub (*Macrhybopsis aestivalis tetranemus*) and the Arkansas River shiner (*Notropis girardi*). The Arkansas River and its perennial spring-fed reaches in Cowley County are designated as critical habitat for the Arkansas darter (*Etheostoma cragini*). Please contact the Kansas Department of Wildlife and Parks for consultation regarding potential impacts of the project to these species.

Please give me a call at 785-864-1538 if I can be of further assistance.

Sincerely,

Jennifer M. Delisle
Information Manager
Kansas Natural Heritage Inventory

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Caddis, Karen

From: Delisle, Jennifer Marie [jdelisle@ku.edu]
Sent: Friday, March 10, 2006 10:00 AM
To: Caddis, Karen
Subject: Cushing line project review

Attachments: ENSR_Cushing_extension.doc; GIS data_ENSR_Trans_Canada.doc;
cushing_line_species.dbf; cushing_line_species.sbn; cushing_line_species.sbx;
cushing_line_species.shp; cushing_line_species.shx



ENSR_Cushing_ext
ension.doc (23...
GIS
:NSR_Trans_Canada
cushing_line_specie
s.dbf (39 K...
cushing_line_specie
s.sbn (3 KB...
cushing_line_specie
s.sbx (512 ...
cushing_line_specie
s.shp (2 KB...
cushing_line_specie
s.shx (792 ...

Please

find attached these files:

ENSR_Cushing_Extension.doc: Review letter for the Cushing Extension of the Keystone Pipeline project in Kansas.

GIS Data ENSR_Trans_Canada.doc: Information about the digital data provided for this project.

Cushing_line_species.shp: An ArcView shapefile showing locations of rare species within 5 miles of the Cushing Line route.

<<ENSR_Cushing_extension.doc>>

<<GIS_data_ENSR_Trans_Canada.doc>>

<<cushing_line_species.dbf>> <<cushing_line_species.sbn>> <<cushing_line_species.sbx>>
<<cushing_line_species.shp>> <<cushing_line_species.shx>>

Please let me know if you have any questions about this information.

Sincerely,

Jennifer M. Delisle, Information Manager
Kansas Natural Heritage Inventory
Kansas Biological Survey
Takeru Higuchi Bldg.
2101 Constant Ave.
Lawrence, KS 66047
785-864-1538
jdelisle@ku.edu

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Kansas Natural Heritage Inventory
February 1, 2006
GIS data ENSR_TransCanada.doc

INFORMATION PERTAINING TO ELECTRONIC DATA

Data compiled from a variety of sources and exported on January 27, 2006.

Datasets are not to be distributed to third parties. Location records must be buffered in documents, maps, and other products made available to the public. Please contact the Kansas Natural Heritage Inventory for more information.

Coordinate System: UTM Zone 15, NAD 1983

SELECTED DEFINITIONS:

EOCODE: This is a unique identifier assigned to each record. Please reference this code when asking questions about a specific database record.

GRANK

- G1 Critically Imperiled - Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. Typically 5 or fewer occurrences or very few remaining individuals (<1,000) or acres (<2,000) or stream miles (<10).
- G2 Imperiled - Imperiled globally because of rarity or because of some factor(s) making it very vulnerable to extinction. Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000) or acres (2,000 to 10,000) or stream miles (10 to 50).
- G3 Vulnerable - Vulnerable globally either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extinction. Typically 21 to 100 occurrences or between 3,000 and 10,000 individuals.
- G4 Apparently Secure - Uncommon but not rare, and usually widespread. Possibly cause for long-term concern. Typically more than 100 occurrences and more than 10,000 individuals.
- G5 Secure - Common, typically widespread and abundant. Typically with considerably more than 100 occurrences and more than 10,000 individuals.
- GX Presumed Extinct - Believed to be extinct throughout its range. Not located despite intensive searches of historic sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
- GH Possibly Extinct - Known from only historical occurrences. Still some hope of rediscovery.
- G? Unranked - Global rank not yet assessed.

SRANK

- S1 Critically Imperiled - Critically imperiled in the state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals or acres.
- S2 Imperiled - Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. Typically 6 to 20 occurrences or few remaining individuals or acres.
- S3 Vulnerable - Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences.
- S4 Apparently Secure - Uncommon but not rare, and usually widespread in the state. Usually more than 100 occurrences.
- S5 Secure - Demonstrably widespread, abundant, and secure in the state, and essentially ineradicable under present conditions.
- SX Extirpated - Element is believed to be extirpated from the state.
- SH Historical - Element occurred historically in the state with expectation that it may be rediscovered.

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Kansas Natural Heritage Inventory
February 1, 2006
GIS data ENSR_TransCanada.doc

Breeding Status Qualifiers

- B Breeding - Basic rank refers to the breeding population of the Element in the state.
- N Non-breeding - Basic rank refers to the non-breeding population of the Element in the state.

Other Qualifiers

- ? Denotes inexact or uncertain numeric rank.
- Q Questionable Taxonomy - Taxonomic status is questionable; numeric rank may change with taxonomy.

FEDERAL STATUS (Assigned by the U.S. Fish and Wildlife Service)

LE = Endangered

LT = Threatened

STATE STATUS (Assigned by the Kansas Department of Wildlife and Parks)

E = Endangered

T = Threatened

C = Species in Need of Conservation

PRECISION

S = Seconds: accuracy of locality mapped to within a radius of approximately 250 ft.

M = Minute: accuracy of locality mapped to within a radius of approximately 1.5 miles.

G = General: accuracy of locality mapped to within a radius of approximately 5.0 miles.

LASTOBS

The last date the species was observed at this location. An older LASTOBS date does not indicate that the species no longer occurs at the site, but merely that the site has not been visited since that date.

DATA

Data about the element. If this field is blank then no information other than the presence of the species is available. If the site was visited more than once an entry for each date will be included. A 12-character code may reference the information source.

CONFIDENTIAL

Kansas Natural Heritage Inventory
February 1, 2006
ENSR_Keystone_Pipeline.doc

February 1, 2006

Charles Johnson
ENSR International
1601 Prospect Parkway
Fort Collins, CO 80525-9769

RE: Request for Environmental Information
Keystone Pipeline Project in Kansas

Dear Mr. Johnson:

I have reviewed the Kansas Natural Heritage Inventory database for records of state and federal threatened, endangered, and special concern species at the referenced site. I have enclosed an ArcView shapefile containing records of rare species occurring within approximately 5 miles of the proposed pipeline. Keep in mind that these counties have not been surveyed for rare species and absence of records should not be interpreted as an indication that rare species do not occur in any particular area. These data are provided for your internal use only and are not to be distributed outside your company. Data presented in reports, maps, and other printed or digital formats must be buffered to mask their actual locations. Please see the enclosed document GIS data ENSR_TransCanada.doc for further information on this dataset.

No surveys for natural communities have been conducted in Marshall, Nemaha, Brown, and Doniphan Counties.

Wolf River in Doniphan and Brown Counties is designated as critical habitat for the Western silvery minnow (*Hybognathus argyritis*). The South Fork Big Nemaha River in Nemaha County is designated as critical habitat for the Western silvery minnow and the Flathead chub (*Platygobio gracilis*). In Marshall County, North Elm Creek and its tributaries are designated as critical habitat for the Topeka Shiner (*Notropis Topeka*).

The stretch of the Missouri River that the proposed pipeline will cross is designated as critical habitat for the Bald eagle (*Haliaeetus leucocephalus*), Western silvery minnow, Pallid sturgeon (*Scaphirhynchus albus*), Sicklefin chub (*Macrhybopsis meeki*), Silverband shiner (*Notropis shumardi*), and Chestnut lamprey (*Ichthyomyzon castaneus*). These GIS data layers can be downloaded from: <http://gisdasc.kgs.ku.edu/kgcc/catalog/coredata.cfm>. Please contact the Kansas Department of Wildlife and Parks for consultation regarding potential impacts of the project to these species.

Please give me a call at 785-864-1538 if I can be of further assistance.

Sincerely,

Jennifer M. Delisle
Information Manager
Kansas Natural Heritage Inventory

CONFIDENTIAL

January 24, 2006

ENSR
1601 Prospect Parkway
Fort Collins, CO 80525
tel 970.493.8878
fax 970.493.0213
email cjohnson@ensr.aecom.com
web www.transcanada.com

Jennifer Delisle
Database Manager
Kansas Natural Heritage Inventory
Kansas Biological Survey
2102 Constant Ave.
Lawrence, KS 66047

Dear Ms. Delisle:

TransCanada is planning to construct and operate a 1,830-mile-long interstate crude oil transmission system from an oil supply hub near Hardisty, Alberta, Canada to destinations in the Midwestern United States (U.S.). ENSR Corporation (ENSR) has been retained by TransCanada to prepare an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) for the proposed Keystone Pipeline Project (Project) within the U.S. In the U.S., the proposed Project would consist of approximately 1,070 miles of new pipeline constructed from the U.S.-Canada border in Pembina County, North Dakota to terminals and refineries in Salisbury (Chariton County), Missouri, Wood River (Madison County), and Patoka (Marion County), Illinois. TransCanada would construct the new pipeline within a temporary 110-foot-wide construction right-of-way (ROW). After construction and reclamation, the ROW would revert to a 60-foot-wide permanent ROW. TransCanada proposes to begin construction in the spring of 2008, with the system in-service by the end of 2009.

The Project also will require the construction of pump stations, valves, meters, and other ancillary facilities. The hydraulic characteristics of the pipeline will determine pump station and valve locations. The Project will meet all federal, state and local regulatory requirements and will implement an Integrity Management Program to help ensure public safety and to protect the environment. Flow meters and delivery metering stations will measure the amount of product transported and delivered to terminals. Electrical powerlines and facility upgrades will be required in some locations to provide power for the new pump stations and motor operated valves (MOVs) located along the pipeline route. Local power providers will be responsible for obtaining the necessary approvals and authorizations for any such construction.

National Environmental Policy Act Process

The Department of State governs the issuance of Presidential Permits for crude oil pipelines across U.S. borders and will be the federal lead for the NEPA process. In evaluating the Presidential Permit application (including an EA), the Department of State will solicit the views of other federal agencies, including the Department of Interior. Based on public and agency input, the Department of State will review the EA to determine whether a Finding of No Significant Impact (FONSI) is appropriate or whether an Environmental Impact Statement must be prepared with respect to potential



Jennifer Delisle
January 24, 2006
Page 2

significant environmental impacts within the U.S. In addition to the NEPA process, the Department of State must comply with other requirements and regulations, including the Endangered Species Act.

Information Request

Enclosed is an overview map of the entire proposed route that traverses parts of North Dakota, South Dakota, Nebraska, Kansas, Missouri, and Illinois. In Kansas, the Project will cross portions of Marshall, Nemaha, Brown, and Doniphan counties (see attached Overview Map and CD with the Electronic Centerline).

In order to address potential impacts to aquatic and terrestrial plant and animal species, we are requesting occurrence data for:

- Federally listed, proposed, and candidate species;
- Designated critical habitat of federally listed species;
- State listed or state sensitive species; and
- Unique ecosystems or sensitive communities.

Because of the mobility of wildlife species, ENSR would like to request sensitive wildlife information 5 miles beyond the Project boundary. We also would like to request sensitive plant data 3 miles beyond the Project boundary. If applicable, please send electronic files for our environmental analysis to: cjohnson@ensr.aecom.com.

ENSR also is contacting the U.S. Fish and Wildlife Service and Kansas Department of Parks and Wildlife to request sensitive species information and to obtain input regarding the proposed Project route in Kansas. If you have any questions regarding this request, please call me at (970) 493-8878. You also may direct project-related questions to the ENSR project manager, Scott Ellis, at the same number. Thank you in advance for your prompt response to this request.

Sincerely,

Charles Johnson
Senior Wildlife Biologist

CJ/

Ref: 10623-004

Enc. Overview Project Map
CD

CONFIDENTIAL

January 24, 2006

ENSR
1601 Prospect Parkway
Fort Collins, CO 80525
tel 970.493.8878
fax 970.493.0213
email cjohnson@ensr.aecom.com
web www.transcanada.com

Nate Davis
Kansas Department of Parks and Wildlife
512 Southeast 25th Avenue
Pratt, KS 67124

Dear Mr. Davis:

TransCanada is planning to construct and operate a 1,830-mile-long interstate crude oil transmission system from an oil supply hub near Hardisty, Alberta, Canada to destinations in the Midwestern United States (U.S.). ENSR Corporation (ENSR) has been retained by TransCanada to prepare an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) for the proposed Keystone Pipeline Project (Project) within the U.S. In the U.S., the proposed Project would consist of approximately 1,070 miles of new pipeline constructed from the U.S.-Canada border in Pembina County, North Dakota to terminals and refineries in Salisbury (Chariton County), Missouri, Wood River (Madison County), and Patoka (Marion County), Illinois. TransCanada would construct the new pipeline within a temporary 110-foot-wide construction right-of-way (ROW). After construction and reclamation, the ROW would revert to a 60-foot-wide permanent ROW. TransCanada proposes to begin construction in the spring of 2008, with the system in-service by the end of 2009.

The Project also will require the construction of pump stations, valves, meters, and other ancillary facilities. The hydraulic characteristics of the pipeline will determine pump station and valve locations. The Project will meet all federal, state and local regulatory requirements and will implement an Integrity Management Program to help ensure public safety and to protect the environment. Flow meters and delivery metering stations will measure the amount of product transported and delivered to terminals. Electrical powerlines and facility upgrades will be required in some locations to provide power for the new pump stations and motor operated valves (MOVs) located along the pipeline route. Local power providers will be responsible for obtaining the necessary approvals and authorizations for any such construction.

National Environmental Policy Act Process

The Department of State governs the issuance of Presidential Permits for crude oil pipelines across U.S. borders and will be the federal lead for the NEPA process. In evaluating the Presidential Permit application (including an EA), the Department of State will solicit the views of other federal agencies, including the Department of Interior. Based on public and agency input, the Department of State will review the EA to determine whether a Finding of No Significant Impact (FONSI) is appropriate or whether an Environmental Impact Statement must be prepared with respect to potential significant environmental impacts within the U.S. In addition to the NEPA



Nate Davis
January 24, 2006
Page 2

process, the Department of State must comply with other requirements and regulations, including the Endangered Species Act.

Information Request

Enclosed is an overview map of the entire proposed route that traverses parts of North Dakota, South Dakota, Nebraska, Kansas, Missouri, and Illinois. In Kansas, the Project will cross portions of Marshall, Nemaha, Brown, and Doniphan counties (see attached Overview Map and CD with the Electronic Centerline).

On behalf of TransCanada, ENSR would like to provide an opportunity for Kansas Department of Parks and Wildlife (KDPW) biologists and botanists to identify prominent terrestrial and aquatic resource issues or concerns that may occur within or adjacent to the project area, focusing on species that are either sensitive (e.g., state-listed), have high economic value (e.g., big game, waterfowl), or are considered important by the state (e.g., raptors, bats). Please forward this request to the applicable specialists (e.g., fisheries and/or wildlife biologists, habitat biologists, botanists, etc.) so they may provide information and input. Resource information provided by the KDPW will be reflected in the environmental baseline description pertaining to the project. If applicable, please send electronic files for our environmental analysis to: cjohnson@ensr.aecom.com.

Where it appears that possible or probable concerns relative to sensitive species or habitats may occur, please indicate whether surveys might be required, as well as the preferred methodology and level of effort you would consider acceptable for the surveys.

ENSR also is contacting the U.S. Fish and Wildlife Service and State Natural Heritage Program to request sensitive species information and to obtain input regarding the proposed Project route in Kansas. If you have any questions regarding this request, please call me at (970) 493-8878. You also may direct project-related questions to the ENSR project manager, Scott Ellis, at the same number. Thank you in advance for your prompt response to this request.

Sincerely,

Charles Johnson
Senior Wildlife Biologist

CJ/

Ref: 10623-004

Enc. Overview Project Map
CD