

Prepared for:
Keystone Pipeline Project



**A Phone Survey for Potentially Suitable
Greater Prairie Chicken Habitat within
the Proposed Keystone Mainline Project
Right-Of-Way in Audrain County,
Missouri**

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1.0 Executive Summary

Seventeen landowners and 21 land tracts were identified as having potentially suitable greater prairie chicken (*Tympanuchus cupido*) habitat along the proposed Keystone Mainline right-of-way in Audrain County, Missouri. Private landowners were contacted during January 2007 to determine if greater prairie chickens have been observed on private lands within the past 5 years. Fifteen of the landowners were available for comment. A telephone questionnaire (Appendix A), developed by ENSR Corporation (ENSR), in cooperation with Missouri Department of Conservation (MDC), was used to contact landowners. No greater prairie chickens or greater prairie chicken signs were identified by landowners within the past 5 years. The results of the telephone surveys are provided in **Table 2**. Based on the outcome of this survey, it is unlikely that the proposed Keystone Pipeline Project will impact the greater prairie chicken.

2.0 Purpose

As requested by the MDC during a meeting on July 19, 2006, ENSR conducted a desktop habitat assessment and contacted landowners to determine the potential for occurrence of greater prairie chickens along the proposed Keystone Mainline Project route in Audrain County, Missouri.

2.1 Relevant Life History

Prime habitat for greater prairie chickens consists of large, unbroken expanses of native tallgrass prairie and other grassland habitats with few trees taller than 15 feet. In Missouri, habitat available for greater prairie chickens is typically limited to grassland/prairie fragments interspersed with cropland, woodland, and forest (MDC 2006).

The breeding season begins in early spring and extends until June. Cocks occupy the "booming grounds" or "leks" in the early morning and late afternoon where males display to establish territories. Lek sites tend to remain at the same location from year to year. At the height of the breeding season, hens visit the booming grounds and mating occurs.

Greater prairie chickens are ground nesters. Nests are simple, saucer-shaped structures, about 7 inches in diameter and 2 to 3 inches deep. Nests are usually located in high, arching clumps of grass but sometimes are built in weedy areas. The average clutch contains about a dozen eggs. Incubation requires about 3 weeks. The peak of the hatching period comes in late May to early June, depending on weather conditions. The chicks remain with the hen for 8 to 10 weeks, and then the brood disperses (MDC 2004).

3.0 Methods

Potential habitat locations for greater prairie chickens were determined based on species habitat association and agency correspondence (e.g., U.S. Fish and Wildlife Service, MDC, and Natural Heritage Program/NatureServe), in combination with aerial habitat surveys, wetland/waterbody field surveys, U.S. Geological Survey Land Use Land Cover data, and aerial photography. The MDC documented that Audrain County, Missouri, was the only Missouri county along the proposed Keystone Mainline route that had any historic occurrence records of greater prairie chickens.

For the Keystone Mainline, ENSR originally identified 22 properties and 17 landowners in Audrain County, Missouri with potentially suitable greater prairie chicken habitat. ENSR submitted the list of these properties to the MDC for approval (Appendix B). Due to small deviations from the originally identified route, twenty of these properties and one later identified property are currently identified as properties with potentially suitable habitat for the greater prairie chicken along the Keystone mainline. These properties are shown in **Table 1**.

Table 1 Potential Greater Prairie Chicken Habitat Locations

Approximate Keystone MP	Keystone Tract ID
904.3	ML-MO-AU-4512
908.3 – 908.8	ML-MO-AU-4539
908.9 – 909.2	ML-MO-AU-4541
913.9 – 914.6	ML-MO-AU-4553, ML-MO-AU-4554, ML-MO-AU-4555
914.7	ML-MO-AU-4558
914.8	ML-MO-AU-4557
914.9 – 915.2	ML-MO-AU-4559
915.2 – 915.5	ML-MO-AU-4560
915.8 – 916.1	ML-MO-AU-4561
917.0 – 917.3	ML-MO-AU-4566
917.6 – 917.8	ML-MO-AU-4569
917.6 – 917.8	ML-MO-AU-4571
917.8 – 918.4	ML-MO-AU-4570
917.8 – 918.4	ML-MO-AU-4571
918.6	ML-MO-AU-4572
918.8 – 919.1	ML-MO-AU-4573
919.1 – 919.4	ML-MO-AU-4574
919.6	ML-MO-AU-4576
928.6	ML-MO-AU-4607

ENSR attempted to contact landowners by telephone using the questionnaire template found in Appendix A. This template also was approved by the MDC. All telephone conversations were documented.

4.0 Results

ENSR was able to make contact with 15 landowners for the telephone questionnaire. The results of the telephone questionnaire are listed in **Table 2**. No greater prairie chickens or signs of greater prairie chickens were identified by landowners within the last 5 years.

One of the landowners did observe three individual greater prairie chickens and one nest on his property approximately 6 to 7 years ago, but has not seen or heard any prairie chickens since that time.

5.0 Discussion

Greater prairie chickens were not observed in the last 5 years by any of the private landowners as documented in **Table 2**. Therefore, based on the accumulated information from the telephone questionnaires, it is unlikely that pipeline construction would have any foreseeable negative affect on the greater prairie chicken in Audrain County, Missouri. ENSR will consult with the MDC to confirm that no additional surveys are required.

6.0 References

Missouri Department of Conservation (MDC). 2006. Email correspondence with Andrew Forbes (MDC Ornithologist) with Patti Lorenz (ENSR) on 10/18/06.

_____. 2004. Missouri Department of Conservation Website. 2004.
<http://www.mdc.mo.gov/nathis/birds/chickens/>. Accessed by ENSR on 10/13/06.

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Table 2 Greater Prairie Chicken Telephone Questionnaire Responses

MP	Tract ID	Date Called	Greater Prairie Chickens Observed		Comments
			Yes	No	
904.3	ML-MO-AU-4512	1/2/2007			No answer – ENSR left a voicemail message.
				X	The landowner called ENSR back at 2:50 p.m. The landowner has never observed a greater prairie chicken or signs on his property but was aware of what they looked like.
908.3-908.8	ML-MO-AU-4539	1/2/2007		X	The landowner was not aware of what a greater prairie chicken looked like. After describing greater prairie chicken's the landowner said that he had never seen anything like that on his land. No signs of greater prairie chickens had been seen either.
908.92-909.19	ML-MO-AU-4541	1/2/2007			No answer – ENSR left a voicemail message.
		1/3/2007		X	The landowner called back at 2:30 p.m. He said that he had a nest on the property 6 to 7 years ago near the proposed pipeline route. He had seen three individual greater prairie chickens the spring before he found the nest. The nest was predated and the eggs were destroyed. At the time he also had seen greater prairie chickens about 5 miles north of his property. He used to be able to hear them booming. He hasn't seen or heard any since. He keeps cattle on his property and they have grazed down all of the native tallgrass prairie. He wished he still had them around but said that there were too many owls and no habitat left.
913.95-914.65	ML-MO-AU-4553 ML-MO-AU-4554 ML-MO-AU-4555	1/3/2007		X	The landowner has owned the land since 1991. The property has deer and turkey. She stated that Audrain County is not known to have had greater prairie chicken in over 40 years. The landowner is 85 years old. More than 80 years ago there used to be a booming ground about 3 miles from where she grew up in eastern Audrain County. The farm crossed by the proposed route of the pipeline is in western Audrain County. The farm is slight rolling hillsides whereas eastern Audrain County was flat prairie. She has never seen a greater prairie chicken on her land.
914.75	ML-MO-AU-4556	1/2/2007			No answer – ENSR left a voicemail message.
		1/3/2007			The landowner called back and left a message to return his call. No answer – ENSR left a voicemail message.
		1/5/2007		X	The landowner called back and said that he had never seen any greater prairie chickens on his property. He was not aware of what they looked liked but after ENSR described their appearance, he responded by saying that he had never seen anything like that. The landowner has had the property for approximately 1.5 years and has never seen a greater prairie chicken.

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Table 2 Greater Prairie Chicken Telephone Questionnaire Responses

MP	Tract ID	Date Called	Greater Prairie Chickens Observed		Comments
			Yes	No	
914.85	ML-MO-AU-4571	1/2/2007		X	The landowner has never seen a greater prairie chicken or its sign on his property. He was aware of what they look like from pictures in magazines. His neighbor hit one on the road a few years ago about 10 miles south of Mexico, Missouri.
914.95-915.2	ML-MO-AU-4559	1/2/2007		X	The landowner has never seen a greater prairie chicken or its sign on his property. He was aware of what they look like. He said they used to be observed in fields just east of Mexico, Missouri. He has seen their breeding behaviors. He would like to see them come back to the area and asked if it would be possible for the MDC to stock them.
915.2-915.5	ML-MO-AU-4560	1/2/2007			ENSR talked with the respondent. The landowner is deceased and the respondent handles the management of that land. He can be reached at (phone number withheld). ENSR left a voice message for the respondent.
		1/3/2007		X	The landowner called back and left a message to call him. ENSR called him at 11:15 a.m. and he stated that he was aware of what a greater prairie chicken looked like and that he had never seen one on the property. He has walked a lot of his land and has kicked up a bunch of different birds but has never seen a greater prairie chicken.
915.75-916.1	ML-MO-AU-4561	1/2/2007			No answer – ENSR left a voicemail message.
		1/3/2007		X	ENSR spoke with the landowner at 5:12 pm. He stated that there haven't been greater prairie chickens in his area in 50 years. He stated there were some 10 to 15 miles east of his property in Rafael.
917.0-917.3	ML-MO-AU-4566	1/2/2007		X	The landowner has never seen a greater prairie chicken or signs of greater prairie chickens on his property. He was aware of what they look like.
917.6-917.85 917.85-918.4	ML-MO-AU-4569 ML-MO-AU-4570	1/2/2007			The respondent (receptionist for the landowner) is answering all calls regarding the pipeline projects. She will contact the farm manager and the landowner to see if they have ever seen a greater prairie chicken on the land. She has never seen a greater prairie chicken and doesn't think anyone else on the property has either. She is familiar with what they look like. She will call ENSR back with a response.
		1/3/2007		X	The respondent (receptionist for the landowner) called back and left a voicemail message saying that no one has ever seen a greater prairie chicken on Yellowstone Farms, LLC.
918.4-918.45	ML-MO-AU-4571	1/2/2007			No answer – ENSR left a voicemail message.
		1/3/2007			ENSR left a message.
		1/8/2007		X	The landowner was not aware of what a greater prairie chicken looked like. After greater prairie chickens were described, he stated that he had never seen anything like that on

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Table 2 Greater Prairie Chicken Telephone Questionnaire Responses

MP	Tract ID	Date Called	Greater Prairie Chickens Observed		Comments
			Yes	No	
					the property or in his life. He has owned the land for 6 years and has been planting a warm season mix for 3 years to reestablish native habitat. In those 3 years, he has seen an increase in quail but no greater prairie chickens.
918.8-919.1	ML-MO-AU-4573	1/2/2007		X	The landowner indicated that she doesn't have any greater prairie chickens on her land. She has never observed the prairie chicken or its sign on her property. She was aware of what greater prairie chicken looked like. She is from South Dakota and is familiar with quail and pheasant. Her family hunts deer on the property and no one has ever seen a greater prairie chicken or its sign.
919.1-919.4	ML-MO-AU-4574	1/2/2007			ENSR spoke with respondent (granddaughter of property owner). Her grandparents are failing and she would prefer any pipeline representatives to contact her or another respondent with any questions or concerns. The respondent will look into the greater prairie chicken issue. She will ask those who hunt on the land, friends, and family members if they have ever seen greater prairie chicken's on the land. She will call back with a reply.
				X	ENSR spoke with the respondent. She spoke with everyone on and around the property and asked if they have ever seen a greater prairie chicken. No one has ever seen a prairie chicken on the property.
919.42-919.55	ML-MO-AU-4576	1/2/2007			No answer – ENSR left a voicemail message.
		1/3/2007			ENSR left a message.
		1/4/2007			The landowner called back and left a message. ENSR returned call at 3:25 p.m. There was no answer.
		1/11/2007		X	Although the landowner has never seen a greater prairie chicken on the land, he is aware of what they look like. He does not live on the land but has owned the land for 4 to 5 years and is confident that there are no greater prairie chicken on that property. He has spoken with many of the farmers in the area, and they have never seen a greater prairie chicken.

Appendix A

Telephone Questionnaire for the Greater Prairie Chicken

Telephone Questionnaire for the Greater Prairie Chicken

Hello Sir or Madam:

On behalf of the Rockies Express Pipeline-West (REX-West) Project, I am conducting a telephone questionnaire to address impacts to the greater prairie chicken. Could you please help us by taking a few minutes to answer some questions?

The reason for this telephone questionnaire is that the greater prairie chicken is endangered in the state of Missouri. Eighty percent of Missouri's remaining prairie chickens live on and around remnant native prairies. If prairie habitat and populations continue to decline at the present rate, the prairie chicken may disappear from Missouri in as little as 10 years. The population may fall so low that it cannot recover. If that happens, the species will be extirpated from the state (MDC 2004). REX-West would like to minimize impacts to this species. The questions are as follows:

1. Do you know what a greater prairie chicken looks like?

The prairie chicken is strongly barred brown and tan to white, especially on the under parts. The tail is short and square, dark brown in males, barred brown and tan in females. The legs are feathered down to the toes; nostrils are hidden by feathers. Orange-colored air sacs and eyebrows are conspicuous on males in the spring. Individuals are about 18 inches long and weigh about 2 pounds (MDC 2004).

Greater Prairie-Chickens may sometimes be confused with female Ring-necked Pheasants (an introduced game bird). Both are brown overall, have similar body sizes, and occur in similar habitats. However, Pheasants have a long, pointed tail as opposed to the Prairie-Chickens' short, rounded tail. Also, Prairie-Chickens are heavily barred above and below, whereas Pheasants have no barring underneath, and are more buffy brown overall with only some bars and spots on their upperparts.

2. Have you seen a prairie chicken on your property in the past 5 years?

3. Have you observed prairie chicken feathers or droppings on your property?

Prime habitat for Greater Prairie-Chickens consists of large, unbroken expanses of native tallgrass prairie and other grassland habitats with minimal trees above 15 feet. In Missouri, habitat available for Prairie-Chickens is typically limited to grassland/prairie fragments interspersed with cropland, woodland, and forest.

4. Have you observed or heard breeding prairie chickens or young on your property?

a. If yes, how many and when?

The breeding season begins in early spring and extends until June. Cocks make early morning and late afternoon visits to certain areas called "booming grounds" or "leks," which are used traditionally. Here the males dance, call and fight among themselves as they establish territories. At the height of the breeding season, hens visit the booming grounds and mating occurs (MDC 2004).

Greater prairie chicken are ground nesters. Nests are simple, flimsy structures of dead grass; they are saucer-shaped, about 7 inches in diameter and perhaps 2 to 3 inches deep. Nests are usually located in high, arching clumps of grass but sometimes are built in weedy areas (MDC 2004).

The average clutch contains about a dozen eggs. The eggs, only a little smaller than domestic chicken eggs, are dark olive-buff to grayish-olive with fine spots and occasional red flecks. Incubation requires about 3 weeks. The peak of the hatching period comes in late May to early June depending on weather conditions. The chicks remain with the hen for 8 to 10 weeks, and then the brood breaks up (MDC 2004).

Reference

Missouri Department of Conservation Website. 2004. <http://www.mdc.mo.gov/nathis/birds/chickens/>. Accessed by ENSR on 10/13/06.

Appendix B

Correspondence with the Missouri Department of Conservation

Stribley, Sara

Subject: FW: Greater Prairie Chicken

Attachments: GPC.jpg

>>> "Lorenz, Patricia" <plorenz@ensr.aecom.com> 10/18/06 9:54 AM >>>

Great, thanks Andrew. The MDC website has a great link with GPC information. Could we distribute that information to landowners if they request additional information?

Patti

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

From: Andrew Forbes [<mailto:Andrew.Forbes@mdc.mo.gov>]

Sent: Wednesday, October 18, 2006 8:44 AM

To: Lorenz, Patricia

Cc: Barnes, Chad; Johnson, Charlie; Tillquist, Heidi; Ellis, Scott;

Patti, Scott; Stribley, Sara; Doyle Brown

Subject: Re: REX-West and Keystone Greater Prairie Chicken Information

Patti,

I've reviewed the questionnaires. They look fine to me overall. I would suggest the following changes to both versions-

er "Do you know what a Prairie-Chicken looks like", ADD to supplemental information:

Greater Prairie-Chickens may sometimes be confused with female Ring-necked Pheasants (an introduced game bird). Both are brown overall, have similar body sizes, and occur in similar habitats. However, Pheasants have a long, pointed tail as opposed to the Prairie-Chickens' short, rounded tail. Also, Prairie-Chickens are heavily barred above and below, whereas Pheasants have no barring underneath, and are more buffy brown overall with only some bars and spots on their upperparts.

Under "Have you observed prairie-chicken feathers or droppings on your property", CHANGE supplemental information to:

"Prime habitat for Greater Prairie-Chickens consists of large, unbroken expanses of native tallgrass prairie and other grassland habitats with minimal trees above 15'. In Missouri, habitat available for Prairie-Chickens is typically limited to grassland/prairie fragments interspersed with cropland, woodland, and forest."

Andrew Forbes

Ornithologist

Missouri Dept. of Conservation/Audubon Missouri

phone: 573-447-2249

573-447-2428

>>> "Lorenz, Patricia" <plorenz@ensr.aecom.com> 10/16/06 5:40 PM >>>

Andrew,

Attached is the information regarding greater prairie chicken telephone surveys that we spoke of on Friday 10/13/06. The attached document contains two sets of letters and telephone questionnaires in order to keep the projects separate. If you have any questions, please feel free to contact me at the number below. Again, thank you for your help.

Sincerely,

Patti Lorenz
ENSR
1601 Prospect Parkway
Fort Collins, CO 80525
T: (970) 493-8878 x179
F: (970) 493-0213

Stribley, Sara

From: Lorenz, Patricia
Sent: Monday, October 16, 2006 4:40 PM
To: Andrew.Forbes@mdc.mo.gov
Cc: Doyle Brown; Johnson, Charlie; Stribley, Sara; Patti, Scott; Barnes, Chad; Tillquist, Heidi; Ellis, Scott
Subject: REX-West and Keystone Greater Prairie Chicken Information
Attachments: Greater Prairie Chicken Information for MDC.PDF

Andrew,

Attached is the information regarding greater prairie chicken telephone surveys that we spoke of on Friday 10/13/06. The attached document contains two sets of letters and telephone questionnaires in order to keep the projects separate. If you have any questions, please feel free to contact me at the number below. Again, thank you for your help.

Sincerely,

Patti Lorenz
ENSR
1601 Prospect Parkway
Fort Collins, CO 80525
T: (970) 493-8878 x179
F: (970) 493-0213
plorenz@ensr.aecom.com

ENSR

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

October 16, 2006

Andrew Forbes
Missouri Department of Conservation/Audubon Missouri
P.O. Box 180
Jefferson City, MO 65102

**RE: Rockies Express Pipeline-West (REX-West) Project
Greater Prairie Chicken Telephone Questionnaire**

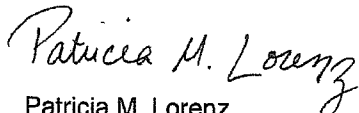
Dear Mr. Forbes:

Thank you for agreeing to review the material prepared by ENSR Corporation (ENSR) regarding a telephone questionnaire to determine the occurrence of greater prairie chickens (GPC) along the Rockies Express Pipeline-West (REX-West) Project in Audrain County, Missouri. As discussed during our phone conversation, the Missouri Department of Conservation (MDC) is requesting that ENSR conduct a telephone questionnaire with private land owners whose property could provide potential habitat for GPC in Audrain County.

Attached for your review is a preliminary table with potential GPC habitat locations along the REX-West route. Potential habitat locations for GPC were determined based on species habitat association and agency correspondence (e.g., U.S. Fish and Wildlife Service, Missouri Department of Conservation, and Natural Heritage Program/ NatureServe), in combination with aerial habitat surveys, wetland/waterbody field surveys, U.S. Geological Survey Land Use Land Cover data, and aerial photography. Also enclosed is a draft telephone questionnaire that will be used during phone surveys with private land owners for the REX-West Project. ENSR would appreciate any input regarding the questions that will be asked during these surveys.

Doyle Brown has been identified as the point of contact for the MDC for the project. He has been given maps of the proposed route through Missouri. If you have any questions regarding the enclosed materials or need any additional information, please contact me at (970) 493-8878 ext. 179 or email plorenz@ensr.aecom.com.

Sincerely,



Patricia M. Lorenz
Biologist

PL

Enc: GPC Habitat Table
GPC Telephone Questionnaire

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Potential Greater Prairie Chicken (GPC) Habitat Locations

Milepost (MP)	Tract ID
707.8	MO-AU-100
707.4-707.8	MO-AU-097
707.2-707.4	MO-AU-096
706.8	MO-AU-094
706.5-706.7	MO-AU-093
706.4	MO-AU-093.S14
706.3	MO-AU-093.S08
706.2-706.3	MO-AU-093
706.0-706.2	MO-AU-092
705.4-705.6	MO-AU-090
704.1-704.4	MO-AU-084
703.6-703.8	MO-AU-083
703.2-703.6	MO-AU-082
703.2	MO-AU-081
703.1	MO-AU-077
702.3-703.0	MO-AU-074, MO-AU-075, MO-AU-076
697.3-697.4	MO-AU-059
696.6-697.1	MO-AU-056
692.6	MO-AU-028.S01

Phone Questionnaire for Contract Land Staff (CLS) Agent:

Hello Sir or Madam:

On behalf of the Rockies Express Pipeline-West (REX-West) Project, I am conducting a telephone questionnaire to address impacts to the greater prairie chicken. Could you please help us by taking a few minutes to answer some questions?

The reason for this telephone questionnaire is that the greater prairie chicken is endangered in the state of Missouri. Eighty percent of Missouri's remaining prairie chickens live on and around remnant native prairies. If prairie habitat and populations continue to decline at the present rate, the prairie chicken may disappear from Missouri in as little as 10 years. The population may fall so low that it cannot recover. If that happens, the species will be extirpated from the state (MDC 2004). REX-West would like to minimize impacts to this species. The questions are as follows:

1. Do you know what a greater prairie chicken looks like?

The prairie chicken is strongly barred brown and tan to white, especially on the underparts. The tail is short and square, dark brown in males, barred brown and tan in females. The legs are feathered down to the toes; nostrils are hidden by feathers. Orange-colored air sacs and eyebrows are conspicuous on males in the spring. Individuals are about 18 inches long and weigh about 2 pounds (MDC 2004).

2. Have you seen a prairie chicken on your property in the past five years?

3. Have you observed prairie chicken feathers or droppings on your property?

Prime habitat for this species includes mid-grass and tall-grass prairies bordered by open oak woodlands, oak forests, and cropland. In Missouri, nesting habitat is limited to cropland and nearby prairies.

4. Have you observed or heard breeding prairie chickens or young on your property?

a. If yes, how many and when?

The breeding season begins in early spring and extends until June. Cocks make early morning and late afternoon visits to certain areas called "booming grounds" or "leks", which are used traditionally. Here the males dance, call and fight among themselves as they establish territories. At the height of the breeding season, hens visit the booming grounds and mating occurs (MDC 2004).

GPC are ground nesters. Nests are simple, flimsy structures of dead grass; they are saucer-shaped, about 7 inches in diameter and perhaps 2 to 3 inches deep. Nests are usually located in high, arching clumps of grass but sometimes are built in weedy areas (MDC 2004).

The average clutch contains about a dozen eggs. The eggs, only a little smaller than domestic chicken eggs, are dark olive-buff to grayish-olive with fine spots and occasional red flecks. Incubation requires about three weeks. The peak of the hatching period comes in late May to early June depending on weather conditions. The chicks remain with the hen for 8-10 weeks, then the brood breaks up (MDC 2004).

Reference:

Missouri Department of Conservation Website. 2004. <http://www.mdc.mo.gov/nathis/birds/chickens/>. Accessed by ENSR on 10/13/06.

ENSR

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

October 16, 2006

Andrew Forbes
Missouri Department of Conservation/Audubon Missouri
P.O. Box 180
Jefferson City, MO 65102

RE: Keystone Pipeline Project Greater Prairie Chicken Telephone Questionnaire

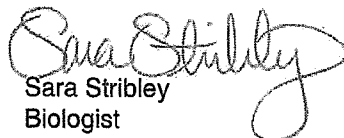
Dear Mr. Forbes:

Thank you for agreeing to review the material prepared by ENSR Corporation (ENSR) regarding a telephone questionnaire to determine the occurrence of greater prairie chickens (GPC) along the Keystone Pipeline Project (Keystone) in Audrain County, Missouri. As requested by the Missouri Department of Conservation (MDC), ENSR is conducting a telephone questionnaire with private land owners whose property could provide potential habitat for GPC in Audrain County.

A total of 22 areas have been identified as having potential GPC habitat along the project route in Audrain County. Of the 22 areas, 21 of the areas are co-located with the REX-West Pipeline. As a result, these 21 GPC areas will be covered under the REX-West Pipeline Project (contacted by a REX-West land agent). The remaining potential GPC habitat area that is not co-located with the REX-West pipeline occurs between mileposts 928.0-928.2 (Tract Number: ML-MO-AU-4607; Property Owner: William Deimke). This land owner will be contacted separately by a Keystone land agent. Potential habitat locations for GPC were determined based on species habitat association and agency correspondence (e.g., U.S. Fish and Wildlife Service, Missouri Department of Conservation, and Natural Heritage Program/ NatureServe), in combination with aerial habitat surveys, wetland/waterbody field surveys, U.S. Geological Survey Land Use Land Cover data, and aerial photography. Also enclosed is a draft telephone questionnaire that will be used during the phone survey with the private land owner for the Keystone Project. ENSR would appreciate any input regarding the questions that will be asked during these surveys.

Doyle Brown has been identified as the point of contact for the MDC for the project. He has been given maps of the proposed route through Missouri. If you have any questions regarding the enclosed materials or need any additional information, please contact me at (970) 493-8878 ext. 168 or email sstribley@ensr.aecom.com.

Sincerely,


Sara Stribley
Biologist

SS

Enc: GPC Telephone Questionnaire

Phone Questionnaire for Ellis & Associates Land Staff Agent:

Hello Sir or Madam:

On behalf of the Keystone Pipeline Project, I am conducting a telephone questionnaire to address impacts to the greater prairie chicken. Could you please help us by taking a few minutes to answer some questions?

The reason for this telephone questionnaire is that the greater prairie chicken is endangered in the state of Missouri. Eighty percent of Missouri's remaining prairie chickens live on and around remnant native prairies. If prairie habitat and populations continue to decline at the present rate, the prairie chicken may disappear from Missouri in as little as 10 years. The population may fall so low that it cannot recover. If that happens, the species will be extirpated from the state (MDC 2004). Keystone would like to minimize impacts to this species. The questions are as follows:

1. Do you know what a greater prairie chicken looks like?

The prairie chicken is strongly barred brown and tan to white, especially on the underparts. The tail is short and square, dark brown in males, barred brown and tan in females. The legs are feathered down to the toes; nostrils are hidden by feathers. Orange-colored air sacs and eyebrows are conspicuous on males in the spring. Individuals are about 18 inches long and weigh about 2 pounds (MDC 2004).

2. Have you seen a prairie chicken on your property in the past five years?

3. Have you observed prairie chicken feathers or droppings on your property?

Prime habitat for this species includes mid-grass and tall-grass prairies bordered by open oak woodlands, oak forests, and cropland. In Missouri, nesting habitat is limited to cropland and nearby prairies.

4. Have you observed or heard breeding prairie chickens or young on your property?

a. If yes, how many and when?

The breeding season begins in early spring and extends until June. Cocks make early morning and late afternoon visits to certain areas called "booming grounds" or "leks", which are used traditionally. Here the males dance, call and fight among themselves as they establish territories. At the height of the breeding season, hens visit the booming grounds and mating occurs (MDC 2004).

GPC are ground nesters. Nests are simple, flimsy structures of dead grass; they are saucer-shaped, about 7 inches in diameter and perhaps 2 to 3 inches deep. Nests are usually located in high, arching clumps of grass but sometimes are built in weedy areas (MDC 2004).

The average clutch contains about a dozen eggs. The eggs, only a little smaller than domestic chicken eggs, are dark olive-buff to grayish-olive with fine spots and occasional red flecks. Incubation requires about three weeks. The peak of the hatching period comes in late May to early June depending on weather conditions. The chicks remain with the hen for 8-10 weeks, then the brood breaks up (MDC 2004).

Reference:

Missouri Department of Conservation Website. 2004. <http://www.mdc.mo.gov/nathis/birds/chickens/>. Accessed by ENSR on 10/13/06.

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Potential Greater Prairie Chicken (GPC) Habitat Locations

MP		Tract ID	
REX-West	Keystone	REX-West	Keystone
707.8	919.6	MO-AU-100	ML-MO-AU-4576
707.4-707.8	919.1-919.3	MO-AU-097	ML-MO-AU-4574
707.2-707.4	918.9-919.1	MO-AU-096	ML-MO-AU-4573
706.8	918.6	MO-AU-094	ML-MO-AU-4572.1
706.5-706.7	918.2-91804	MO-AU-093	ML-MO-AU-4571
706.4	N/A	MO-AU-093.S14	N/A
706.3	917.8	MO-AU-093.S08	ML-MO-AU-4570
706.2-706.3	917.7-917.8	MO-AU-093	ML-MO-AU-4571
706.0-706.2	917.5-917.7	MO-AU-092	ML-MO-AU-4569
705.4-705.6	917.0-917.2	MO-AU-090	ML-MO-AU-4566
704.1-704.4	915.4-916.0	MO-AU-084	ML-MO-AU-4561
703.6-703.8	915.2-915.4	MO-AU-083	ML-MO-AU-4560
703.2-703.6	915.0-915.2	MO-AU-082	ML-MO-AU-4559
703.2	914.8	MO-AU-081	ML-MO-AU-4557
703.1	914.7	MO-AU-077	ML-MO-AU-4558
702.3-703.0	913.9-914.6	MO-AU-074, MO-AU-075, MO-AU-076	ML-MO-AU-4553, ML-MO-AU-4554, ML-MO-AU-4555
697.3-697.4	909.0-909.1	MO-AU-059	ML-MO-AU-4541
696.6-697.1	908.2-908.7	MO-AU-056	ML-MO-AU-4539
692.6	904.2	MO-AU-028.S01	ML-MO-AU-4512