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Proposed Survey Schedule For [Missouri]

2006 Surveys					
Species & Status	Approximate Survey Dates	Specific Survey Areas (by County & MP)	Survey Description	Surveyor	Comments
Indiana Bat <i>Myotis sodalist</i> FE; MO-E	Habitat assessment: 15-August to tree leaf-off Occurrence surveys: 15-May to 15-August	Survey areas to be provided by Russ Rommé, Indiana Bat expert.	Habitat evaluations will be conducted within the construction ROW to characterize habitat quality for potential roosting habitat for this species.	Qualified ENSR biologist and/or contractor.	Occurrence survey areas will be refined based on the 2006 habitat assessment. See attached study plan and survey protocol.
Greater prairie chicken <i>Tympanuchus cupido</i> MO-E	Late Summer/Fall	Audrain: 890.3-926.7. No field work will occur in 2006.	Contact land owners to determine whether this species has been observed within the project area.	ENSR	Potential surveys would be based on observation information from land owners.
King Rail <i>Rallus elegans</i> MO-E	Late-Summer/Fall	Buchanan: data pending. Carroll: data pending. Chariton: data pending. Lincoln: data pending. St.Charles: data pending. No field work will occur in 2006. <i>Data pending from wetland delineations.</i>	A desk top habitat evaluation will be conducted to determine functionally intact or extensive wetland complexes.	Qualified ENSR biologist.	Habitat field evaluations will be based on desktop analysis. See attached survey protocol.
Massasauga <i>Sistrurus catanatus</i> FC; MO-E Western fox snake <i>Elaphe vulpine vulpine</i> MO-E	Late Summer/Fall	Buchanan: 743.4-743.6, 745.2-745.8, 745.0-745.7 (Missouri River, Muskrat Lake, Horseshoe Lake). Carrol: Data Pending Chariton: 835.4-836.0, 852.4-852.5, 857.2-857.3, 862.8-863.2, 866.5-866.7 (Grand River, Mussel Fork Brush Creek, Chariton River, M.F. Little Chariton, E.F. Little Chariton). St. Charles: 980.5-1016.6 (Missouri/Mississippi River Floodplain)	Habitat evaluations will be conducted within the construction ROW to identify potential habitat for these species.	Qualified ENSR biologist and/or contractor.	Potential surveys areas will be refined based on habitat surveys. See attached survey protocol.

CONFIDENTIAL

		<i>Data pending from wetland delineations.</i>			
Topeka shiner <i>Notropis Topeka</i> FE; MO-E	Late-Summer/Fall	Clinton: 767.7, 769.1, 770.0 775.7, 776.6, 780.4, 781.2 (Castile Creek, Little Platte River, Shoal Creek). Caldwell: 789.3, 789.9, 790.3, 791.1, 796.1, 796.5, 799.3, 799.5 (Log Creek, Brush Creek, Crabapple Creek). Chariton: 866.5 (East Fork Chariton River) Randolph: N/A (Route doesn't appear to cross any tributaries to Perche Creek)	Habitat surveys will be conducted to document habitat suitability; intermittent/perennial flow; and spawning habitat.	Topeka shiner expert and ENSR biologist.	See attached survey protocol.

2007 Surveys					
Species & Status	Approximate Survey Dates	Specific Survey Areas (by County & MP)	Survey Description	Surveyor	Comments
Indiana Bat <i>Myotis sodalist</i> FE; MO-E	Occurrence surveys: 15-May to 15-August	Survey areas to be provided by Russ Rommé, Indiana Bat expert. <i>(Occurrence survey areas will be refined based on the 2006 habitat assessment)</i>	Complete habitat evaluations within the construction ROW to identify potential habitat for these species, if needed. Conduct occurrence surveys/ mist netting activities within identified survey areas for this species.	Qualified contractor.	See attached study plan and survey protocol.
Massasauga <i>Sistrurus catanatus</i> FC; MO-E Western fox snake <i>Elaphe vulpina vulpina</i>	Survey period: April, May, June, and October. <i>(Push for October surveys to determine if den sites occur within</i>	Buchanan: 743.4-743.6, 745.2-745.8, 745.0-745.7 (Missouri River, Muskrat Lake, Horseshoe Lake). Carrol: N/A Chariton: 835.4-835.5, 852.4-852.5, 857.2-857.3, 862.9, 866.5 (Grand River, Mussel Fork Brush Creek, Chariton River, M.F. Little Chariton, E.F. Little	Complete habitat evaluations within the construction ROW to identify potential habitat for these species. Surveys will be	Qualified ENSR biologist and/or contractor.	See attached survey protocol. <i>(2008 pre-construction surveys would only be required in areas where this species was observed in 2007)</i>

CONFIDENTIAL

MO-E	<i>construction ROW)</i>	Chariton). St. Charles: 980.5-1016.6 (Missouri/Mississippi River Floodplain) <i>Data pending from wetland delineations.</i> <i>(Survey areas will be refined based on the 2006/2007 habitat surveys)</i>	conducted to determine presence of this species within the construction ROW.		
Topeka shiner <i>Notropis Topeka</i> FE; MO-E	Spawning season: 15-May to 31-July	Clinton: 767.7, 769.1, 770.0 775.7, 776.6, 780.4, 781.2 (Castile Creek, Little Platte River, Shoal Creek). Caldwell: 789.3, 789.9, 790.3, 791.1, 796.1, 796.5, 799.3, 799.5 (Log Creek, Brush Creek, Crabapple Creek). Chariton: 866.5 (East Fork Chariton River) Randolph: N/A (Route doesn't appear to cross any tributaries to Perche Creek)	One sampling survey to determine species presence at stream crossings, if needed.	Qualified ENSR biologist and/or contractor.	See attached survey protocol.
Decurrent false aster <i>Boltonia decurrens</i> FT; MO-E	Flowering period: Late August - September 30. <i>(but flowering has been documented from July – October 31)</i>	St.Charles: 977.0-991.3, 1016.6-1016.7; data pending.	One survey will be conducted during the flowering period to determine presence within the construction ROW.	Qualified ENSR biologist and/or contractor	See attached survey protocol. <i>(2008 pre-construction surveys would only be required in areas where this species was observed in 2007)</i>
Running buffalo clover <i>Trifolium stoloniferum</i> FE; MO-E	Flowering period: Mid April to May 31. <i>(Flower heads are normally found in May)</i>	Buchanan: 743.4-743.6 (Missouri River). Chariton: 835.4-835.5, 857.2-857.3 (Grand River, Chariton River). Randolph: 862.9, 866.5 (M.F. Little Chariton River, E.F. Little Chariton River). Lincoln: 950.3, 967.3-967.4 (W.F. Cuivre River, Cuivre River). St. Charles: 980.5-1016.6 (Missouri/Mississippi River Floodplain).	One survey will be conducted during the flowering period to determine presence within the construction ROW.	Qualified ENSR biologist and/or contractor	See attached survey protocol. <i>(2008 pre-construction surveys would only be required in areas where this species was observed in 2007)</i>

CONFIDENTIAL

2008 Surveys (Pre-construction)					
Species & Status	Approximate Survey Dates	Specific Survey Areas (by County & MP)	Survey Description	Surveyor	Comments
Bald eagle <i>Haliaeetus leucocephalus</i> FT; MO-E	Nesting period: 1-Jan to 15-July. Winter roosting period: 15-Nov. to 1-March.	Buchanan: 743.4-743.6 (Missouri River). Chariton: 835.4-835.5, 857.2-857.3, 862.9, 866.5 (Grand River, Chariton River, M.F. Little Chariton River, E.F. Little Chariton River). Lincoln: 950.3, 967.3-967.4 (W.F. Cuivre River, Cuivre River). St. Charles: 980.5-1016.6 (Missouri/Mississippi River Floodplain).	One ground survey or aerial survey prior to construction. Survey will be conducted 1-mile from the construction ROW.	Qualified ENSR biologist and/or contractor.	This survey will not be required if construction occurs outside of the breeding/winter roost seasons for this species. See attached survey protocol.
Barn owl <i>Tyto alba</i> MO-E	Nesting period: 1-March to 31-July.	All barns and other old buildings that would be directly impacted by construction.	Surveys will be conducted at old buildings and barns that are in the path of the pipeline, for presence of adults and/or nests/young.	Qualified ENSR biologist and/or contractor.	This survey will not be required if construction occurs outside of the breeding season for this species. See attached survey protocol.
Northern harrier <i>Circus cyaneus</i> MO-E	Nesting period: 1-March to 31-July.	Audrain: data pending. Buchanan: data pending. Caldwell: data pending. Carroll: 810.7-834.7, data pending. Chariton: data pending. Clinton: data pending. Randolph: data pending. Include grasslands, marshes, or other open, grassy habitats. <i>(Data pending for marshland habitat)</i>	Surveys will be conducted within grasslands, marshes, or other open, grassy habitats for presence of adults and/or nests/young.	Qualified ENSR biologist and/or contractor.	This survey will not be required if construction occurs outside of the breeding season for this species. See attached survey protocol.
Massasauga <i>Sistrurus catanatus</i> FC; MO-E Western fox snake <i>Elaphe vulpine</i>	Survey period: April, May, June, and October.	Buchanan: 743.4-743.6, 745.2-745.8, 745.0-745.7 (Missouri River, Muskrat Lake, Horseshoe Lake). Carroll: N/A Chariton: 835.4-835.5, 852.4-852.5, 857.2-857.3, 862.9, 866.5 (Grand River, Mussel Fork Brush Creek,	Surveys will be conducted to determine presence of this species within the construction ROW.	Qualified ENSR biologist and/or contractor.	See attached survey protocol. <i>(No pre-construction surveys would be required in 2008 if surveys are completed in</i>

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<p><i>vulpine</i></p> <p>MO-E</p>		<p>Chariton River, M.F. Little Chariton, E.F. Little Chariton).</p> <p>St. Charles: 980.5-1016.6 (Missouri/Mississippi River Floodplain)</p> <p><i>Data pending from wetland delineations.</i></p>			<p>2007)</p>
<p>Topeka shiner <i>Notropis Topeka</i></p> <p>FE; MO-E</p>	<p>Spawning season: 15-May to 31-July</p>	<p>Clinton: 767.7, 769.1, 770.0 775.7, 776.6, 780.4, 781.2 (Castile Creek, Little Platte River, Shoal Creek). Caldwell: 789.3, 789.9, 790.3, 791.1, 796.1, 796.5, 799.3, 799.5 (Log Creek, Brush Creek, Crabapple Creek). Chariton: 866.5 (East Fork Chariton River) Randolph: N/A (Route doesn't appear to cross any tributaries to Perche Creek)</p>	<p>One sampling survey to determine species presence at stream crossings, if needed.</p>	<p>Topeka shiner expert and ENSR biologist.</p>	<p>If stream section is dry, no surveys would be required. If stream is wet, consult with state and federal agencies.</p> <p>Construction would not be permitted during the spawning period (May 15 to July 31) if the crossing is wet.</p> <p>Obtain necessary permits from the state and federal agencies if salvage and relocation is conducted prior to construction.</p>
<p>Decurrent false aster <i>Boltonia decurrens</i></p> <p>FT; MO-E</p>	<p>Flowering period: Late August - September 30.</p> <p><i>(but flowering has been documented from July – October 31)</i></p>	<p>St.Charles: 977.0-991.3, 1016.6-1016.7; data pending.</p> <p><i>(Surveys will only occur in areas where this species was observed in 2007, prior to construction)</i></p>	<p>One survey will be conducted during the flowering period to determine presence within the construction ROW.</p>	<p>Qualified ENSR biologist and/or contractor</p>	<p>See attached survey protocol.</p>
<p>Running buffalo clover <i>Trifolium stoloniferum</i></p> <p>FE; MO-E</p>	<p>Flowering period: Mid April to May 31.</p> <p><i>(Flower heads are normally</i></p>	<p>Buchanan: 743.4-743.6 (Missouri River). Chariton: 835.4-835.5, 857.2-857.3 (Grand River, Chariton River). Randolph: 862.9, 866.5 (M.F. Little Chariton River,</p>	<p>One survey will be conducted during the flowering period to determine presence within the construction</p>	<p>Qualified ENSR biologist and/or contractor</p>	<p>See attached survey protocol.</p>

CONFIDENTIAL

	<i>found in May)</i>	E.F. Little Chariton River). Lincoln: 950.3, 967.3-967.4 (W.F. Cuivre River, Cuivre River). St. Charles: 980.5-1016.6 (Missouri/Mississippi River Floodplain). <i>(Surveys will only occur in areas where this species was observed in 2007, prior to construction)</i>	ROW.		
Migratory Birds (including raptors)	TBD based on John Cochnar's correspondence with USFWS meeting with USFWS Special Agents and MBTA Office.	TBD	TBD	TBD	TBD