



3.0 Fisheries, Vegetation, and Wildlife

Resource Report 3 – Fisheries, Vegetation, and Wildlife FERC Environmental Checklist

Part 380-Appendix A Minimum Filing Requirements for Environmental Reports	Company Compliance or Inapplicability of Requirement
<input type="checkbox"/> Classify the fishery type of each surface waterbody that would be crossed, including fisheries of special concern. (§380.12 (e)(1)).	<i>Section 3.1</i>
<input type="checkbox"/> Describe terrestrial and wetland wildlife and habitats that would be affected by the Project. (§ 380.12 (e)(2)).	<i>Section 3.3</i>
<input type="checkbox"/> Describe the major vegetative cover types that would be crossed and provide the acreage of each vegetative cover type that would be affected by construction. (§ 380.12 (e)(3)).	<i>Section 3.2</i>
<input type="checkbox"/> Describe the effects of construction and operation procedures on the fishery resources and proposed mitigation measures. (§ 380.12 (e)(4)).	<i>Section 3.1.3</i>
<input type="checkbox"/> Evaluate the potential for short-term, long-term, and permanent impact on the wildlife resources and state-listed endangered or threatened species caused by construction and operation of the Project and proposed mitigation measures. (§ 380.12(e)(4)).	<i>Section 3.3.2 and 3.4.3</i>
<input type="checkbox"/> Identify all Federally listed or proposed endangered or threatened species that potentially occur in the vicinity of the Project and discussion results of consultations with other agencies. (§ 380.12 (e)(5)).	<i>Section 3.4</i>
<input type="checkbox"/> Identify all Federally listed essential fish habitat (EFH) that potentially occurs in the vicinity of the Project and the results of abbreviated consultations with NMFS, and any resulting EFH assessments. (§ 380.12(e)(4 & 7)).	<i>3.1.2</i>
<input type="checkbox"/> Describe any significant biological resources that would be affected. Describe impact and any mitigation proposed to avoid or minimize that impact. (§ 380.12 (e)(4 & 7)).	<i>Section 3.1, 3.2, 3.3, and 3.4</i>
<input type="checkbox"/> Provide copies of all survey reports, written correspondence, and records of telephone communications with the USFWS, NMFS, and respective state agencies regarding Federally listed or proposed and state listed endangered or threatened species. (Clearance letters must be less than 1 year old.)	<i>Appendix G</i>
<input type="checkbox"/> If requested by FERC, provide for each non-jurisdictional facility all information related to Federally listed or proposed endangered or threatened species as described above.	<i>N/A</i>

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3.0 RESOURCE REPORT 3 – FISHERIES, VEGETATION, AND WILDLIFE

Texas Eastern Transmission, LP (Texas Eastern) is seeking authorization from the Federal Energy Regulatory Commission (FERC or Commission) pursuant to Sections 7(b) and 7(c) of the Natural Gas Act for the abandonment of certain facilities and the construction and operation of the Texas Eastern Appalachia to Market 2014 Project (TEAM 2014 Project or the Project) located in Pennsylvania, West Virginia, Ohio, Kentucky, Tennessee, Alabama, and Mississippi. The TEAM 2014 Project is designed to deliver critically needed natural gas supplies that will meet immediate and future supply and load growth requirements in diverse markets in the Northeast, Midwest, Southeast, and Gulf Coast.

Resource Report 3 addresses aquatic life, fisheries, essential fish habitat (EFH), wildlife, sensitive wildlife habitat, vegetation, and rare, threatened, and endangered (T&E) species associated with construction and operation of the Project. The following sections provide data collected from field reconnaissance, review of available technical literature, and consultation with various Federal and state regulatory authorities.

All information within each section is presented in order from the westernmost segment to the easternmost segment of the Pennsylvania expansion facilities followed by the bi-directional flow modifications. For a detailed description of each segment, see Section 1.2 of Resource Report 1.

3.1 Fisheries Resources

This section identifies and discusses the fishery resources present along the proposed Project. Details about waterbody crossings in these areas were obtained through a review of the appropriate U.S. Geological Survey (USGS) topographic maps, aerial photographs, and field surveys completed by CH2M HILL. Fishery classifications, timing restrictions, and other general information regarding the surface waterbodies crossed by the pipeline route were obtained from the National Marine Fisheries Service (NMFS), Pennsylvania Fish and Boat Commission (PFBC) and Pennsylvania Department of Environmental Protection (PADEP). Detailed information pertaining to waterbody resources identified during the field surveys is included in Resource Report 2, including the fishery classifications within Table 2.2-1.

3.1.1 Fishery Classification and Existing Resources

The PADEP designates fishery resources according to the following categories: aquatic life, water supply, recreation and fish consumption, special protection, and other (navigation). Those surface waters classified for aquatic life are divided into four subcategories (Pennsylvania Code, 2009):

- *Cold Water Fishes (CWF)* - Maintenance or propagation, or both, of fish species including the family *Salmonidae* and additional flora and fauna, which are indigenous to a coldwater habitat. The CWF classification is a state aquatic use designation that does not confer a special protection use to the waterway (nor does it confer any state designated seasonal timing restrictions).
- *Warm Water Fishes (WWF)* - Maintenance and propagation of fish species and additional flora and fauna, which are indigenous to a warm water habitat.
- *Migratory Fishes (MF)* - Passage, maintenance and propagation of anadromous and catadromous fishes and other fishes, which ascend to flowing waters to complete their life cycle.

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- *Trout Stocking (TSF)* - Maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and additional flora and fauna, which are indigenous to a warm water habitat. No construction timing restrictions are associated with the TSF designation.

The Project crosses streams classified as CWF, WWF, High-Quality CWF, MF, and Approved Trout Water. For a detailed account of all sensitive surface waters, refer to Section 2.2.4 in Resource Report 2.

Table 3.1-1 contains information on the common fish species known to occur within the proposed Project area. Fish species are typically limited to perennial streams within the Project area. The PFBC defines fish habitat by water temperature – coldwater, coolwater, and warmwater. Coldwater fishes thrive and reproduce in water temperatures less than 70 degrees Fahrenheit (°F); the preferred temperature range for these fishes is between 50 and 65 °F. Coolwater fishes are in water temperatures less than 80 °F but warmer than 60 °F; the preferred temperature range is between 65 and 70 °F. Warmwater fishes are in water temperatures warmer than 80 °F; the preferred temperature range is between 70 and 85 °F (PFBC, 2000).

TABLE 3.1-1 COMMON FISH SPECIES KNOWN TO OCCUR WITHIN THE PROPOSED PROJECT AREA		
Common Name	Scientific Name	Habitat
American shad	<i>Alosa sapidissima</i>	coolwater transition
Northern pike	<i>Esox lucius</i>	coolwater
Muskellunge	<i>Esox masquinongy</i>	coolwater
Chain pickerel	<i>Esox niger</i>	coolwater transition
Common carp	<i>Cyprinus carpio</i>	warmwater
Saugeye	<i>Sander canadensis x Sander vitreus</i>	coolwater transition
Walleye	<i>Sander vitreus</i>	coolwater transition
Channel catfish	<i>Ictalurus punctatus</i>	warmwater
Flathead catfish	<i>Pylodictis olivaris</i>	warmwater
Rainbow trout	<i>Oncorhynchus mykiss</i>	coldwater
Brown trout	<i>Salmo trutta</i>	coldwater
Brook trout	<i>Salvelinus fontinalis</i>	coldwater
Sauger	<i>Sander canadensis</i>	coolwater transition
White perch	<i>Morone Americana</i>	coolwater
White bass	<i>Morone chrysops</i>	coolwater
Striped bass	<i>Morone saxatilis</i>	coolwater transition
Rock bass	<i>Ambloplites rupestris</i>	coolwater transition
Redbreast sunfish	<i>Lepomis auritus</i>	coolwater transition
Pumpkinseed	<i>Lepomis gibbosus</i>	warmwater
Bluegill	<i>Lepomis macrochirus</i>	warmwater
Smallmouth bass	<i>Micropterus dolomieu</i>	coolwater transition

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TABLE 3.1-1
COMMON FISH SPECIES KNOWN TO OCCUR WITHIN THE PROPOSED PROJECT AREA

Common Name	Scientific Name	Habitat
Largemouth bass	<i>Micropterus salmoides</i>	warmwater
White crappie	<i>Pomoxis annularis</i>	warmwater
Black crappie	<i>Pomoxis nigromaculatus</i>	warmwater
Yellow perch	<i>Perca flavescens</i>	coolwater

Sources: PFBC, 2012a and PFBC, 2012b

Texas Eastern has minimized impacts to fishery resources through looping of the pipeline segments along existing maintained right-of-way (ROW), use of existing access roads wherever possible, and Texas Eastern’s proposes to use dry crossing techniques for all waterbodies. Descriptions of the existing fisheries resources within the proposed Project are included below. Further information on existing fishery resources can be found in Section 2.2.4 and Table 2.2-1 of Resource Report 2.

Holbrook Loop

The Holbrook Loop is in Fayette County, Pennsylvania. Field investigations identified 30 waterbody segments (17 ephemeral, 9 intermittent, and 4 perennial) within the environmental study corridor. All of the proposed crossings are classified as WWFs. There are no high-quality (HQ) or exceptional value waters. No Essential Fish Habitat (EFH) was identified.

Perulack West Loop

The Perulack West Loop is in Perry County, Pennsylvania. Field investigations identified 11 waterbody segments (five intermittent and six perennial) and one pond within the environmental study corridor. The nine unnamed tributaries to Bowers Run, as well as the connected pond, are classified as HQ-CWF-MF waters. The two unnamed tributaries to Shermans Creek are classified as HQ-CWF. No EFH was identified.

Perulack East Loop

The Perulack East Loop is in Perry County, Pennsylvania. Field investigations identified nine waterbody segments (three ephemeral, two intermittent, and four perennial) within the environmental study corridor. These waterbodies include two unnamed minor tributaries connected to Cisna Run classified as WWF-MF; Bixler Run and its five unnamed tributaries classified as CWF-MF; and an unnamed tributary to Muddy Run classified as WWF-MF. No EFH was identified.

Shermans Dale Loop

The Shermans Dale Loop is in Dauphin County, Pennsylvania. Field investigations identified 45 waterbody segments (4 ephemeral, 29 intermittent, and 12 perennial) and one pond within the environmental study corridor. Stony Creek, as well as the 13 unnamed tributaries connected to it, are classified as CWF-MF. The two Fishing Creek crossings and the 29 unnamed tributaries connected to it are classified as WWF-MF. No EFH was identified.

Grantville West Loop

The Grantville West Loop is in Lebanon County, Pennsylvania. Field investigations identified 11 waterbody segments (four ephemeral, two intermittent, and five perennial) and four ponds within the environmental study corridor. Swatara Creek, as well as its unnamed tributaries, are classified as WWF-MF. No EFH was identified.

Grantville East Loop

The Grantville East Loop is in Lebanon County, Pennsylvania. Field investigations identified 18 waterbody segments (three ephemeral, nine intermittent, and six perennial) and one pond within the environmental study corridor. Little Swatara Creek and its unnamed tributaries are classified as WWF-MF. No EFH was identified.

Bernville Loop

The Bernville Loop is in Berks County, Pennsylvania. Field investigations identified five waterbody segments (one ephemeral, two intermittent, and two perennial) and one pond within the environmental study corridor. The Schuylkill River and its three unnamed tributaries are classified as WWF-MF. Laurel Run is classified as CWF-MF. No EFH was identified.

Uniontown Compressor Station

The Uniontown Compressor Station is in Fayette County, Pennsylvania. Field investigations identified five ephemeral waterbody segments within the environmental study area. The five unnamed tributaries to Cove Run are classified as WWFs.

Delmont Compressor Station

The Delmont Compressor Station is in Westmoreland County, Pennsylvania. Field investigations identified two waterbody segments (one intermittent and one perennial) and one pond. The perennial stream, Beaver Run, and its unnamed tributary are classified as HQ-CWF waters.

Armagh Compressor Station

The Armagh Compressor Station is in Indiana County, Pennsylvania. Field investigations identified two ephemeral waterbody segments within the environmental study area. Both unnamed tributaries to East Branch Richards Run are classified as CWFs.

Entriken Compressor Station

The Entriken Compressor Station is in Huntingdon County, Pennsylvania. Field investigations identified six waterbody segments (five ephemeral and one intermittent) within the environmental study area. All unnamed tributaries to Great Trough Creek are classified as TSF-MF waters.

National Pike Wareyard

Field investigations identified two ephemeral waterbody segments and three ponds within the environmental study area. Both unnamed tributaries to Fourmile Run are classified as WWF.

Highway 119 Wareyard

No waterbodies were identified.

Flea Market Wareyard

Field investigations identified five waterbody segments (two ephemeral and three intermittent). The unnamed tributaries to Tuscarora Creek are classified as CWF-MF.

Stone Quarry Wareyard

No waterbodies were identified within the Stone Quarry Wareyard.

Bottom Road Wareyard

No waterbodies were identified within the Bottom Road Wareyard.

Highway 22-1 Wareyard

Field investigations identified one pond, which holds no special classification.

Highway 22-2 Wareyard

Field investigations identified one pond, which holds no special classification.

Highway 61 Wareyard

Field investigations identified one ephemeral waterbody, an unnamed tributary to Willow Creek, classified as a WWF-MF.

Doughten Road Wareyard

No waterbodies were identified within the Doughten Road Wareyard.

Prescott Drive Wareyard

No waterbodies were identified within the Prescott Drive Wareyard.

Bi-Directional Flow Facilities

Field investigations identified 50 (35 ephemeral, 4 intermittent, and 11 perennial) waterbody segments within the environmental study areas of the bi-directional flow facilities surveyed in Pennsylvania, Ohio, West Virginia, Kentucky, Tennessee, Alabama, and Mississippi. All bi-directional flow modifications will take place entirely within Texas Eastern's ROW or within the boundaries of existing facilities avoiding impacts to waterbodies, with one exception, a new pipeline crossover installation located on the existing pipeline ROW north of the Kosciusko Compressor Station.

Field delineations identified four (two ephemeral and two perennial) waterbodies at the Kosciusko Pipeline Crossover. The unnamed tributaries to Conehama Creek are classified as WWFs.

3.1.2 Fisheries of Special Concern

Fisheries of special concern include surface waters that possess any or all of the following characteristics: exceptional recreational value, assignment of state fishery management regulations, or implementation of stocking programs.

Federally listed EFH is also identified as of special concern. EFH is comprised of habitats essential to the long-term survival and health of our nation's fisheries. EFH can consist of both the water column and the underlying surface of a particular area. EFH includes those habitats that support the different life stages of each managed species to support breeding, spawning, nursery, feeding, and protection functions. EFH encompasses those habitats necessary to ensure healthy fisheries now and in the future. No EFH is present in or near the Project areas (May, 2012, personal communication).

In addition to the FERC construction time windows of June 1 through September 30 for CWF and June 1 through November 30 for CWFs and WWFs, the PFBC trout water classifications include construction-timing restrictions. The PFBC classifies some Pennsylvania streams, lakes, ponds, and reservoirs according to trout water management and protection (PFBC, 2012a).

- Approved Trout Waters are stocked with trout and significant sections are open to the public for fishing during the extended season. The waters are closed to all fishing from March 1 until trout season opening day as determined by PFBC. Construction blackout dates from March 1 to June 15 apply to all direct impacts to approved trout waters unless specified otherwise by the PFBC. The approved trout water timing restrictions only apply to the stocked portions of the waterbody and any unnamed tributaries within 0.5 mile of the stocked portions.
- Waters classified as Wild Trout Waters are intended to protect and promote native trout fisheries. Construction blackout dates from October 1 to December 31 apply to the entire reach of any stream within the designated watershed unless specified otherwise by the PFBC.

Pipeline Facilities

The Holbrook Loop, Perulack East Loop, and Shermans Dale Loop contain PFBC classified trout waters. Within the Holbrook Loop, 20 streams are classified as Approved Trout Waters. Within the Perulack East Loop, six waterbodies are classified as Approved Trout Waters; none is classified as a Wild Trout Water. Within the Shermans Dale Loop, 14 waterbodies are classified as Approved Trout Waters; none is classified as a Wild Trout Water.

At the Flea Market Wareyard, five streams are Approved Trout Waters; none is a Wild Trout Water. At Highway 61 Wareyard, an unnamed tributary to Willow Creek is an Approved Trout Water and a tributary to a Class A Wild Trout Stream; it is not recognized as a Wild Trout Stream.

None of the waters identified within the Perulack West, Grantville West, Grantville East, and Bernville Loops are Approved Trout Waters or Wild Trout Waters. At the Uniontown Compressor Station, Delmont Compressor Station, Armagh Compressor Station, Enriken Compressor Station and National Pike Wareyard none of the waters are Approved Trout Waters or Wild Trout Waters. No waterbodies were identified at Highway 119 Wareyard, Stone Quarry Wareyard, Bottom Road Wareyard, Doughten Road Wareyard, and Prescott Drive Wareyard. The

Highway 22-1 Wareyard and Highway 22-2 Wareyard each contained a pond with no special classification.

Bi-Directional Flow Facilities

All bi-directional flow modifications will take place entirely within Texas Eastern's ROW or within the boundaries of existing facilities avoiding impacts to waterbodies, with one exception, a new pipeline crossover installation located on the existing pipeline ROW north of the Kosciusko Compressor Station.

None of the waters identified at the Kosciusko Pipeline Crossover meet any sensitive surface water classifications. Based on conversations with the NMFS, the Project will have no direct impact on living marine resources (Thompson, 2013, personal communication).

3.1.3 Potential Impacts and Mitigation

This section summarizes potential impacts to fishery resources resulting from construction of the proposed Project. In total, 84 ephemeral streams, 67 intermittent streams, 51 perennial streams, and 18 ponds were identified among the Project pipeline segments, compressor stations, wareyards, and bi-directional flow facilities. Of those streams identified, 175 were minor waterbodies, 24 were intermediate waterbodies, and 3 were major waterbodies.

Temporary construction workspace has been minimized wherever possible at waterbody crossings. Temporary workspace will be allowed to revert to original conditions and revegetate. Disturbance will be reduced to the maximum extent practicable at all waterbody crossings. Construction at waterbodies will be conducted using two principal crossing methods, a dry crossing and a modified dry crossing with the exception of the three major crossings. In-stream timing restrictions based on the PFBC's fishery classifications will be observed for those streams identified as Approved Trout Streams and confirmed by the PFBC (Appendix G).

Effects on fisheries, such as sedimentation and turbidity, removal of stream cover, introduction of water pollutants, or entrainment of fish, could result during construction activities. Texas Eastern sited the Project to minimize the effects on fisheries to the extent practical. In-stream construction and removal of riparian vegetation may cause a temporary increase in turbidity levels, which can increase the sedimentation rate immediately downstream of the CWA. Temporary habitat alteration and substrate disturbance could also occur and some invertebrate species could be lost. Loss of riparian vegetation in forested areas could affect fish populations that may be present downstream of construction activities by reducing shade and cover, and increasing water temperature. Refueling of construction equipment and storage of fuel oil or other hazardous materials near waterbodies creates a potential for contamination if a spill were to occur, and therefore, refueling is restricted within 100 feet of these resources. Surface water intakes for hydrostatic testing could entrain fish. Texas Eastern's construction activities across these waterbodies should only result in limited, short-term impacts to aquatic life.

Applicable sections of Texas Eastern's Erosion and Sedimentation Control Plan (E&SCP) (Appendix E) will be implemented as they pertain to standard and special construction or operation techniques at stream crossings. Texas Eastern will minimize impact on fishery resources crossed by the proposed Project by adhering to the waterbody crossing measures in the E&SCP and summarized in Resource Report 2. Texas Eastern will follow the procedures outlined in the E&SCP to minimize introduction of water pollutants into waterbodies and to minimize impacts on aquatic resources. Impacts from construction-related sedimentation and turbidity will

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be limited to short-term, temporary disturbances by following these guidelines. No long-term impacts are anticipated after restoration of stream bottoms and re-growth of stream bank and aquatic vegetation. Once construction is complete, Texas Eastern will restore streambeds and banks to pre-construction conditions to the fullest extent possible, thus minimizing long-term impacts on fisheries. Operation and routine maintenance of Texas Eastern's pipeline and pertinent facilities will not affect fishery resources within the proposed Project area.

3.2 Vegetation

3.2.1 Existing Resources

Plant species known to occur within the proposed Project areas are listed below with the vegetative habitat type. Table 3.2-1 quantifies the vegetative habitat types affected by the Project. Table 3.2-2 quantifies the vegetative habitat types affected by the Project at the Kosciusko Pipeline Crossover. These table and the following sections do not include any non-vegetative cover types, such as industrial, residential, or commercial, as these areas do not represent a distinct vegetative community, with the exception of the Total Construction ROW totals column, which includes all work areas. The tables and the following sections also do not include agricultural areas, which generally include cropland (active and fallow fields). Refer to Resource Report 8 for Land Use information.

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TABLE 3.2-1
 VEGETATION COVER TYPES AFFECTED BY CONSTRUCTION OF THE PROJECT (IN ACRES)

Facility	County, State	Upland						Wetland						Total		Total Construct. ROW ²
		Grassland		Broad-Leaved Deciduous Forest		Coniferous Forest		Palustrine Scrub/Shrub		Palustrine Emergent		Palustrine Forested		Vegetation Cover		
		Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	
Holbrook Loop	Fayette County, PA	36.4	9.1	18.2	2.4	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	55.2	11.7	109.8
Perulack West Loop	Perry County, PA	9.8	1.4	15.2	4.8	0.0	0.0	<0.1	0.0	0.2	0.0	0.0	0.0	25.3	6.3	44.6
Perulack East Loop	Perry County, PA	17.9	3.0	4.9	2.2	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	25.1	5.6	97.3
Shermans Dale Loop	Dauphin County, PA	50.1	8.3	44.8	9.1	0.0	0.0	<0.1	<0.1	0.8	0.0	0.8	0.2	96.6	17.7	130.8
Grantville West Loop	Lebanon County, PA	8.0	0.9	3.3	0.3	0.0	0.0	0.0	0.0	0.6	0.0	1.5	0.8	13.4	2.1	54.6
Grantville East Loop	Lebanon County, PA	4.0	0.8	5.7	2.3	0.0	0.0	0.1	<0.1	1.2	0.0	1.4	0.5	12.2	4.3	69.6
Bernville Loop	Berks County, PA	30.8	5.0	22.6	5.9	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	53.4	10.9	116.7
TOTAL		157.0	28.5	114.7	27.0	0.0	0.0	0.1	<0.1	5.7	0.0	3.7	1.5	281.2	58.6	623.4
National Pike Wareyard	Fayette County, PA	11.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7	0.0	17.7
Highway 119 Wareyard	Fayette County, PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1
Flea Market Wareyard	Juniata County, PA	32.8	0.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.6	0.0	56.4

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TABLE 3.2-1
 VEGETATION COVER TYPES AFFECTED BY CONSTRUCTION OF THE PROJECT (IN ACRES)

Facility	County, State	Upland						Wetland						Total		Total Construct. ROW ²	
		Grassland		Broad-Leaved Deciduous Forest		Coniferous Forest		Palustrine Scrub/Shrub		Palustrine Emergent		Palustrine Forested		Vegetation Cover			
		Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹		
Stone Quarry Wareyard	Franklin County, PA	0.5	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	14.3
Bottom Road Wareyard	Perry County, PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.7
Highway 22-1 Wareyard	Lebanon County, PA	12.6	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	0.0	13.4
Highway 22-2 Wareyard	Lebanon County, PA	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
Highway 61 Wareyard	Berks County, PA	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	9.1
Doughten Road Wareyard	Cumberland County, PA	1.6	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	7.9
Prescott Drive Wareyard	Lebanon County, PA	29.6	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.7	0.0	33.9
TOTAL		88.7	0.0	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	104.1	0.0	190.5

¹ These acreages refer to the vegetation cover within new operation or permanent ROW only.
² Total construction ROW represents all work area including non-vegetative cover types such as industrial, residential, or commercial land use, which are not shown in this table. It also does not include agricultural areas, which generally include cropland (active and fallow fields).

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TABLE 3.2-2
 VEGETATION COVER TYPES AFFECTED BY CONSTRUCTION OF THE PROJECT (IN ACRES) – KOSCIUSKO PIPELINE CROSSOVER

Facility	County, State	Upland						Wetland						Total		
		Grassland		Broad-Leaved Deciduous Forest		Coniferous Forest		Palustrine Scrub/Shrub		Palustrine Emergent		Palustrine Forested		Total Vegetation Cover Type Affected		
		Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Temp ROW	Perm ROW ¹	Total Construct. ROW ²
Kosciusko Pipeline Crossover	Attala County, MS	0.65	0.40	0.20	0.05	0.0	0.0	0.0	0.0	0.07	0.03	0.0	0.0	0.92	0.48	0.92

The various habitats within the Project areas support a variety of widespread and tolerant plant species. The vegetative habitat types along the proposed workspaces fall into the following seven categories.

- *Grasslands* - Grasslands generally include undeveloped non-forested areas, and scrub-shrub land. Uncultivated grasslands, pasture, scrub-shrub land, and maintained ROW may support herbaceous and low-level woody vegetation, offering protective cover and forage food sources. Grasslands may function as travel corridors where adjacent land is forested or developed. Common vegetative species found in these areas included orchard grass (*Dactylis glomerata*), multiflora rose (*Rosa multiflora*), which is considered to be a noxious weed in Pennsylvania (USDA, 2013a), Virginia creeper (*Parthenocissus quinquefolia*), white clover (*Trifolium repens*), and red clover (*Trifolium pratense*).
- *Broadleaf Deciduous Forests* – Broadleaf deciduous forest areas generally consist of upland hardwood forests. Forested areas exhibit a more complex structure than grasslands and generally provide a higher quality vegetative habitat. Large, unfragmented tracts of forested land can provide important habitat for overstory, understory, and ground cover vegetation. Some common vegetative species found throughout the Project within broadleaf deciduous forests include northern red oak (*Quercus rubra*), red maple (*Acer rubrum*), sassafras (*Sassafras albidum*), poison ivy (*Toxicodendron radicans*), greenbrier (*Smilax* sp.), and American beech (*Fagus grandifolia*).
- *Coniferous Forests* – Coniferous forest areas generally consist of upland forests. Forested areas exhibit a more complex structure than grasslands and generally provide a higher quality vegetative habitat. Large, unfragmented tracts of forested land can provide important habitat for overstory, understory, and ground cover vegetation. Some common vegetative species found throughout the Project within coniferous forests include eastern hemlock (*Thuja Canadensis*), pitch pine (*Pinus rigida*), eastern red cedar (*Juniperus virginiana*), multiflora rose, which is considered to be a noxious weed in Pennsylvania (USDA, 2013a), and greenbrier.
- *Palustrine Emergent Wetland Areas* – Palustrine emergent wetland (PEM) generally consist of hydrologic areas adjacent to waterbodies within a riparian zone. PEM areas can provide habitat to a diverse vegetative population. Common vegetative species found within these wetland areas throughout the project included jewelweed (*Impatiens capensis*), skunk cabbage (*Symplocapus foetidus*), sedge species (*Carex* sp.), and rush species (*Juncus* sp.).
- *Palustrine Scrub Shrub Wetland Areas* – Palustrine scrub shrub wetland (PSS) areas generally consist of hydrologic areas adjacent to waterbodies within a riparian zone. PSS areas can provide habitat to a diverse vegetative population, and some high-quality habitats are present within some of the Project areas. Common vegetative species found within these wetland areas throughout the project included roundleaf greenbrier (*Smilax rotundifolia*), skunk cabbage, high bush blueberry (*Vaccinium corymbosum*), and jewelweed.
- *Palustrine Emergent Wetland Areas* – Palustrine emergent wetland areas affected by the Project generally consist of hydrologic areas adjacent to waterbodies within a riparian zone. Palustrine emergent wetland areas can provide habitat to a diverse vegetative population. Common vegetative species found within these wetland areas throughout the project included jewelweed, skunk cabbage, sedge species, and rush species.
- *Palustrine Forested Wetland Areas* – Palustrine forested wetland (PFO) areas generally consist of hydrologic areas adjacent to waterbodies within a riparian zone. PFO areas can

provide habitat to a diverse vegetative population. Common vegetative species found within these wetland areas throughout the project included roundleaf greenbrier, skunk cabbage, high bush blueberry, red maple, pin oak (*Quercus palustris*), and green ash (*Fraxinus pennsylvanica*).

Texas Eastern has selected the proposed Project locations and routes to minimize impacts to vegetative resources.

The vegetative habitat type most impacted by the Project is grassland, followed by deciduous forest. Temporary impacts to grassland are larger than that to deciduous forest; permanent impacts are similar. Grassland consists of the maintained ROW, pastureland, and other open vegetated areas. Vegetation would be mainly comprised of common grass and weed species including: sweet vernal grass (*Anthoxanthum odoratum*), bull thistle (*Cirsium vulgare*), orchard grass, Queen Anne's lace (*Daucus carota*), goldenrod species (*Solidago* sp.), red clover, poison ivy, and white clover (*Trifolium repens*). Deciduous forests are typically dominated by red maple, tulip poplar (*Liriodendron tulipifera*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), American beech, and black locust (*Robinia pseudoacacia*). Descriptions of the existing vegetation resources within the proposed Project areas are included below.

Holbrook Loop

The Holbrook Loop is predominantly located within grassland, followed by deciduous forest. Identified wetland sites consist of PEMs. Resource Report 2 contains detailed descriptions of each wetland feature identified, including dominant vegetation.

Perulack West Loop

The Perulack West Loop is predominantly located within grassland and deciduous forest. Identified wetland sites consist of PEM, PSS, and PFO. Resource Report 2 contains detailed descriptions of each wetland feature identified, including dominant vegetation.

Perulack East Loop

The Perulack East Loop is predominantly located within grassland. There is also some deciduous forest. Identified wetland sites consist of PEM. Resource Report 2 contains detailed descriptions of each wetland feature identified, including dominant vegetation.

Shermans Dale Loop

The Shermans Dale Loop is predominantly located within grassland and deciduous forest. Identified wetland sites consist of PEM, PSS, and PFO. Resource Report 2 contains detailed descriptions of each wetland feature identified, including dominant vegetation.

Grantville West Loop

The Grantville West Loop is predominantly located within grassland. There is also some deciduous forest. Identified wetland sites consist of PEM and PFOs. Resource Report 2 contains detailed descriptions of each wetland feature identified, including dominant vegetation.

Grantville East Loop

The Grantville East Loop is mostly located within grassland, followed by deciduous forest. Identified wetland sites consist of PEM, PEM/PFO, and PEM/PSS/PFOs. Resource Report 2 contains detailed descriptions of each wetland feature identified, including dominant vegetation.

Bernville Loop

The Bernville Loop Project Segment is predominantly located within grassland, followed by deciduous forest. Identified wetland sites are PEMs. Resource Report 2 contains detailed descriptions of each wetland feature identified, including dominant vegetation.

Pipeyards and Wareyards

Work at the pipeyards and wareyards will occur within open and disturbed land.

Aboveground Facilities

The Uniontown, Delmont, Armagh, and Entriken Compressor Stations are existing industrial facilities with some open land within the station property and typically surrounded by deciduous forests.

Bi-Directional Flow Facilities

As previously discussed, modifications and maintenance of existing facilities are proposed within existing compressor station sites, meter station sites, and pig launcher and receiver sites along Texas Eastern's pipeline system between Pennsylvania and Mississippi to accommodate bi-directional flow of natural gas. Activities will take place entirely within Texas Eastern ROW or within the boundaries of existing facility sites, with the one exception of the pipeline crossover adjacent to the Kosciusko Compressor Station in Attala County, Mississippi. At the Kosciusko Pipeline Crossover, temporary workspace will be required outside of the existing facility property boundary. The temporary workspace required will be 0.92 acres, which includes 0.44 acres of existing permanent ROW. Aside from the Kosciusko Pipeline Crossover, no new or additional land use impacts will result from operation of the bi-directional flow modified facilities.

Access to existing Texas Eastern facilities for flow reversal modifications will be made using existing company access roads and access points, except to access the Kosciusko Pipeline Crossover. An existing access road will be extended and permanently modified including straightening the entry, upgrading a stream culvert and minimal tree clearing. This new permanent access road is within Texas Eastern property and will alter 0.40 acres of grassland, 0.05 acres of forest and 0.03 acres of emergent wetland. No other modifications or upgrades to existing access roads and access points will be necessary for the bi-directional flow modifications.

3.2.2 Potential Impacts and Mitigation

Texas Eastern minimized impacts to existing vegetation resources by co-locating the loop segments parallel to existing pipeline and utilizing existing compressor stations for compression upgrades. Pipeline loops that parallel existing pipeline (and thus follow existing forest edges) minimize the greater impacts that would be associated with clearing an entirely new ROW through a contiguously forested area. Existing vegetation resources at the pipeyards and

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wareyards, aboveground facilities, and bi-directional flow facilities are limited, and the proposed work will therefore result in minimal, temporary impacts at these locations.

Construction will necessitate the removal of surface vegetation from workspaces. The ground surface will be graded to facilitate pipeline installation and to allow safe operation of equipment. During grading, the root systems of herbs, shrubs, and small trees will be disturbed. Larger trees will be cut and their stumps left in place, unless the latter are in the trench-line or constitute a safety hazard for equipment.

Vegetation removal can increase wind and water erosion of exposed soil. It can also increase soil temperature and allow greater light penetration into fringing woodland where new workspace is cleared in forested areas. Changes in light and temperature regimes may influence the species profile of plant communities within and adjacent to the workspace. Texas Eastern will minimize soil erosion by adhering to the E&SCP (Appendix E).

Most impacts to vegetation are expected to be minor and short-term. In open areas with herbaceous cover, recolonization of disturbed ground by annual and perennial species is characteristically rapid and occurs within one growing season. Where necessary, Texas Eastern will develop area-specific revegetation and restoration plans in consultation with the appropriate Federal, state, and local agencies and private landowners. These plans will provide specifications for appropriate seed mixes. They will include measures to prevent the introduction of nuisance, exotic, or invasive plant species, and will comply with the revegetation guidelines listed in the E&SCP (Appendix E).

Clearing of woody shrubs and trees will have more significant, long-term impacts, because shrubs and trees take longer to re-establish than herbaceous vegetation. During recolonization, a shrub- or tree-dominated community will evolve through several successional stages before assuming its original profile.

Texas Eastern will minimize tree removal to the extent practicable, and replanting will be in accordance with Federal, state, and local agency requirements. The permanent workspace will be partly maintained with low vegetative cover to facilitate access, accommodate underground utilities in shared ROW, and comply with the safety requirements of 49 Code of Federal Regulations (CFR) 192 (USDOT, 2012).

In cropland, vegetation removal will entail crop harvesting if construction commences when crops are present. If construction takes place when crops are absent, vegetation removal will be limited to post-harvest stubble or ruderal weeds.

3.3 Wildlife Resources

Game and non-game wildlife species are regulated and protected under various legislation including the Federal *Fish and Wildlife Conservation Act of 1980* (16 U.S. Code [USC] 2901-2911) and the *Fish and Wildlife Coordination Act of 1958* (16 USC 661). The following sections identify and discuss the wildlife resources present along the existing maintained ROW, existing compressor stations, and adjacent previously undisturbed areas. Within the pipeline facilities, 35.8 percent of the Project area is existing ROW, 16.7 percent is proposed new ROW, and 47.5 percent is temporary workspace.

Wildlife species require adequate food, water, cover, and living space for the survival of individuals and to maintain population viability. Each vegetation cover type provides a range of habitat for certain groups of wildlife species. The Project area was examined regarding these resource requirements in order to determine potential impacts to wildlife.

3.3.1 Existing Resources

Discussions of the dominant habitat types and the representative wildlife associated with each habitat type are presented below. The various habitats within the Project areas support a variety of widespread and tolerant mammals, birds, reptiles, amphibians, and invertebrates. The wildlife habitat types along the proposed workspaces fall into the following four categories.

- *Grasslands* - Grasslands generally include undeveloped non-forested areas, and scrub-shrub land. Uncultivated grasslands, pasture, successional old fields, scrub-shrub land, and maintained ROW may support herbaceous and low-level woody vegetation, offering protective cover and forage food sources. Grasslands may function as travel corridors where adjacent land is forested or developed. Open, uncultivated areas may sustain abundant populations of small mammals, such as deer mouse (*Peromyscus maniculatus*) and meadow vole (*Microtus pennsylvanicus*); larger herbivorous mammals, such as woodchuck (*Marmota monax*) and eastern cottontail rabbit (*Sylvilagus floridanus*); and predatory omnivores or carnivores, such as opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), and red fox (*Vulpes vulpes*). Grasslands may provide suitable habitat for bird species, including red-winged blackbird (*Agelaius phoeniceus*), Canada goose, meadowlark (*Sturnella magna*), mourning dove (*Zenaidura macroura*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), common grackle (*Quiscalus quiscula*), and various sparrow species. Grasslands bordered by woodland habitats or hedgerows are of particular value to birds and other wildlife because of the nesting and refuge opportunities they afford. Reptiles and amphibians that frequent open grassy areas include the eastern garter snake (*Thamnophis sirtalis sirtalis*), blue racer (*Coluber constrictor foxii*), and American toad (*Bufo americanus*).
- *Forested Areas* - Forested areas generally consist of deciduous upland forests. Forested areas exhibit a more complex structure than grasslands and may provide a higher quality wildlife habitat. Large, unfragmented tracts of forested land can provide important habitat for territorial mammals (black bear [*Ursus americanus*]) and may provide habitat for migratory birds. Food sources from mature trees, as well as berries and other fruits from some understory shrubs and woody vines, are an important wildlife food source. Secondary canopy shrubs and saplings, brush piles, and fallen logs provide cover for various small- to medium-sized mammals.
- *Wetland or Waterbody Areas* – Wetland or waterbody areas generally consist of streams and wetlands, including emergent, scrub-shrub, and forested wetlands. Wetland or waterbody areas can provide habitat to a diverse wildlife population, and some high-quality habitats are present within some of the Project areas. A variety of wildlife (e.g., beaver [*Castor Canadensis*], muskrat [*Ondatra zibethicus*], and herons [*Ardea herodias*]) are dependent on wetland or waterbody habitats for food and shelter. Others (e.g., raccoon [*Procyon lotor*]) are less restricted but prefer to be close to water. Amphibians and many reptiles favor aquatic habitats; representative species include bullfrog (*Rana catesbeiana*) and northern water snake (*Norodea sipedon*).
- *Developed Areas* – Developed areas include industrial/commercial, residential, and sand and gravel areas. These areas contain minimal habitat for wildlife species.

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The vegetative habitat types affected by the individual components of the Project are described and quantified in Table 3.2-1. This table and the following sections do not include any non-vegetative cover types, such as industrial, residential, or commercial, as these areas do not represent a distinct vegetative community, with the exception of the Total Construction ROW column, which includes all work areas. In general, industrial, residential, and commercial areas consist of maintained turf grass and landscape trees and shrubs and typically provide little to no wildlife habitat. However, several opportunistic species (e.g., raccoon, gray squirrel [*Sciuridae*], American crow, American robin, European starling, common grackle, and various sparrows) have adapted well and can thrive in urban and suburban settings. The table and the following sections also do not include agricultural areas, which generally include cropland (active and fallow fields). Farm crops may serve as a food source for opportunistic species, including whitetail deer and Canada goose. Fallow agricultural areas bordered by woodland habitats or hedgerows are of particular value to birds and other wildlife because of the nesting and refuge opportunities they afford. For more information regarding agricultural areas, see Resource Report 8.

Table 3.3-1 lists representative wildlife species near the proposed Project based on species identified by the Pennsylvania Game Commission (PGC) as being common within the area. Significant wildlife habitats may include breeding or nesting areas, state game refuges, wildlife management areas, National Wildlife Refuges, and other unique or sensitive areas. The potential occurrence of high-quality habitats within the proposed Project areas was investigated during Texas Eastern’s concurrent wetland delineation and habitat surveys conducted during 2012. The overall habitat evaluation entailed observation and documentation of vegetation communities and wildlife. No intrusive aquatic sampling was undertaken. No significant habitat areas, other than those discussed in Section 3.4, Endangered and Threatened Species, were identified within the Project area.

The Project does not fall within any areas designated as core habitat by the Pennsylvania Natural Heritage Program (PANHP, 2012a). Core habitat refers to areas containing plant or animal species of concern at the state or federal levels, exemplary natural communities, or exceptional native diversity; they delineate essential habitat that cannot absorb significant levels of activity without substantial impact to the elements of concern (PANHP, 2012a).

TABLE 3.3-1
COMMON MAMMAL, AMPHIBIAN, AND BIRD SPECIES KNOWN TO OCCUR WITHIN
THE PROPOSED PROJECT AREA

Common Name	Scientific name	Habitat Type
American crow	<i>Corvus brachyrhynchos</i>	Grassland and forested areas
American kestrel	<i>Falco sparverius</i>	Grassland
American robin	<i>Turdus migratorius</i>	Grassland and developed areas
American woodcock	<i>Scolopax minor</i>	Grassland areas and forested areas
Barred owl	<i>Strix varia</i>	Forested areas
Beaver	<i>Castoridae spp.</i>	Water
Big brown bat	<i>Eptesicus fuscus</i>	Water, Grassland, forested, and developed areas
Black bear	<i>Ursus americanus</i>	Forested areas
Bobcat	<i>Felis rufus</i>	Forested areas
Northern Bobwhite	<i>Colinus virginianus</i>	Grassland

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TABLE 3.3-1
COMMON MAMMAL, AMPHIBIAN, AND BIRD SPECIES KNOWN TO OCCUR WITHIN
THE PROPOSED PROJECT AREA

Common Name	Scientific name	Habitat Type
Canada goose	<i>Branta canadensis</i>	Grassland and developed areas
Northern Cardinal	<i>Cardinalis cardinalis</i>	Forested areas and Grassland
Coyote	<i>Canis latrans</i>	Grassland, forested, and developed areas
Eastern bluebird	<i>Sialia sialis</i>	Grassland
Eastern chipmunk	<i>Tamias striatus</i>	Forested, and developed areas
Eastern cottontail	<i>Sylvilagus floridanus</i>	Grassland
Fox squirrel	<i>Sciurus niger</i>	Grassland and forested areas
Gray fox	<i>Urocyon cinereoargenteus</i>	Forested areas
Gray squirrel	<i>Sciururs carolinensis</i>	Forested areas
Great blue heron	<i>Ardea herodias</i>	Water
Great horned owl	<i>Bubo virginianus</i>	Grassland and forested areas
Little brown bat	<i>Myotis lucifugus</i>	Water and forested areas
Mallard	<i>Anas platyrhynchos</i>	Water
Muskrats	<i>Ondatra zibethicus</i>	Water
Opossum	<i>Didelphis marsupialis</i>	Grassland and forested areas
Peregrine falcon	<i>Falco peregrinus</i>	Grassland
Raccoon	<i>Procyon lotor</i>	Forested and developed areas
Red fox	<i>Vulpes vulpes</i>	Grassland and forested areas
Red-tailed hawk	<i>Buteo jamaicensis</i>	Grassland and forested areas
Ring-necked pheasant	<i>Phasianus colchicus</i>	Grassland
River otter	<i>Lutra canadensis</i>	Water
Ruby-throated hummingbird	<i>Archilochus colubris</i>	Grassland
Ruffed grouse	<i>Bonasa umbellus</i>	Forested areas
Snowshoe hare	<i>Lepus americanus</i>	Grassland and forested areas
Turkey vulture	<i>Cathartes aura</i>	Grassland and forested areas
White-tailed deer	<i>Odocoileus virginianus</i>	Forested areas and Grassland
Wild turkey	<i>Meleagris gallopavo</i>	Forested areas

Source: PGC, 2012

3.3.2 Migratory Birds

The U.S. Fish and Wildlife Service (USFWS) manages and protects the nation’s native migratory birds under the authorities of the *Migratory Bird Treaty Act* (MBTA; 16 USC 703-712), and the *Bald and Golden Eagle Protection Act* (BGEPA; 16 USC 668–668c). Further, Executive Order No. 13186 emphasizes the responsibilities of all Federal agencies, such as FERC, to plan and implement actions to conserve birds in the conduct of their other federally mandated

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responsibilities. To that end, FERC and the USFWS entered into a Memorandum of Understanding regarding the implementation of Executive Order 13186 that focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation (FERC, 2011).

Texas Eastern met with the USFWS on December 19, 2012 to discuss migratory bird species of special concern and to develop a Project-specific plan to minimize impacts to them. The pipeline segments of the project are all looping, co-located adjacent to existing maintained ROW. In addition, all but two of the access roads are existing and will only require grading and tree branch trimming for clearance. Consultation with the USFWS focused on potential health and safety concerns with clearing trees in the winter, limitations on installation of erosion and sediment controls during the winter, limitations and time delays with removal of trees that are cut, tree cutting versus vegetation removal, and other timing restrictions that may be required through agency consultations. The USFWS requested and received after the meeting detailed mapping data which depicts the co-location of the Project along an existing ROW and the limited nature of the impacts. Consultation regarding migratory bird protection is ongoing. Per USFWS recommendation, Texas Eastern consulted with the Pennsylvania Audubon Society to identify important bird areas (IBAs) that may occur within the Project area as well as more specific information regarding birds of conservation concern which are discussed further below.

The limited acreage of the Project area occurs within the much broader Allegheny Plateau and Ridge and Valley Physiographic Provinces. The Allegheny Plateau covers much of west-central Pennsylvania and unlike the Project area consists of extensively forested uplands. Some 180 birds have been documented as breeding within this expansive area. The Ridge and Valley extends throughout southeastern Pennsylvania. Some 175 bird species have been documented as breeding within this area. Of all these species only 16 (Table 3.3-2) are listed species identified as priorities for conservation action within the Project area. (Partners In Flight, 2003a and 2003b). These species were also identified as breeding within Pennsylvania (Wilson et al., 2012). Seven of the species listed prefer the open, shrub and early successional habitat that exists along the maintained ROW. Two of the species listed prefer lakes, which are not present in the Project area.

TABLE 3.3-2
 PRIORITY BIRD SPECIES KNOWN TO OCCUR WITHIN
 THE PROPOSED PROJECT AREA AND HABITATS

Common Name	Scientific Name	Local Status*	Physiographic Province	Habitat
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	B	Appalachian Plateau Ridge and Valley	Shrub-early successional
American Woodcock	<i>Scolopax minor</i>	R	Appalachian Plateau Ridge and Valley	Shrub-early successional
Field Sparrow	<i>Spizella pusilla</i>	R	Appalachian Plateau Ridge and Valley	Shrub-early successional
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	R	Ridge and Valley	Shrub-early successional
Henslow's Sparrow	<i>Ammodramus henslowii</i>	B	Appalachian Plateau Ridge and Valley	Agricultural/Grassland
Upland Sandpiper	<i>Bartramia longicauda</i>	B	Appalachian Plateau Ridge and Valley	Agricultural/Grassland

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TABLE 3.3-2
 PRIORITY BIRD SPECIES KNOWN TO OCCUR WITHIN
 THE PROPOSED PROJECT AREA AND HABITATS

Common Name	Scientific Name	Local Status*	Physiographic Province	Habitat
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	B	Appalachian Plateau Ridge and Valley	Agricultural/Grassland
Cerulean Warbler	<i>Dendroica cerulea</i>	B	Appalachian Plateau Ridge and Valley	Riparian-deciduous (oak-hickory) forest
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	B	Appalachian Plateau Ridge and Valley	Riparian-deciduous (oak-hickory) forest
Wood Thrush	<i>Hylocichla mustelina</i>	B	Appalachian Plateau Ridge and Valley	Riparian-deciduous (oak-hickory) forest
Louisiana Waterthrush	<i>Seiurus motacilla</i>	B	Appalachian Plateau Ridge and Valley	Riparian-deciduous (oak-hickory) forest
Canada Warbler	<i>Wilsonia canadensis</i>	B	Appalachian Plateau Ridge and Valley	Northern hardwood-mixed forest
Wood Thrush	<i>Hylocichla mustelina</i>	B	Appalachian Plateau Ridge and Valley	Northern hardwood-mixed forest
Eastern Wood-Pewee	<i>Contopus virens</i>	B	Ridge and Valley	Northern hardwood-mixed forest
American Black Duck	<i>Anas rubripes</i>	R	Appalachian Plateau Ridge and Valley	Freshwater wetland/lakes
King Rail	<i>Rallus elegans</i>	B	Appalachian Plateau Ridge and Valley	Freshwater wetland/lakes

Note: This list does not provide all bird species present.

* B = Species with breeding populations only

R = Species with at least part of the population found in the area year-round

Source: Partners In Flight, 2003a and 2003b; Wilson et al., 2012.

The USFWS *Birds of Conservation Concern 2008* report (USFWS, 2008) identifies migratory and non-migratory bird species that are priorities for conservation actions, beyond those species already designated as federally threatened or endangered. Without additional conservation action and proactive management, the USFWS has determined that these bird species are likely to become candidates for listing under the *Endangered Species Act of 1973*, which they would like to prevent. The Project area occurs within the Appalachian Mountains and Piedmont bird conservation regions. Table 3.3-3 lists 25 species identified as birds of conservation concern within these conservation regions (USFWS, 2008). These species were also identified as breeding within Pennsylvania (Wilson et al., 2012).

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TABLE 3.3-3
 BIRDS OF CONSERVATION CONCERN -
 APPALACHIAN MOUNTAINS AND PIEDMONT BIRD CONSERVATION REGIONS

Common Name*	Scientific Name	Bird Conservation Region (BCR)
Bald Eagle (b)	<i>Haliaeetus leucocephalus</i>	Appalachian Mountains; Piedmont
Peregrine Falcon (b)	<i>Falco peregrinus</i>	Appalachian Mountains; Piedmont
Upland Sandpiper	<i>Bartramia longicauda</i>	Appalachian Mountains
Northern Saw-whet Owl (S. Appalachian breeding pop.)	<i>Aegolius acadicus</i>	Appalachian Mountains
Whip-poor-will	<i>Caprimulgus vociferus</i>	Appalachian Mountains; Piedmont
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Appalachian Mountains
Yellow-bellied Sapsucker (S. Appalachian breeding pop.)	<i>Sphyrapicus varius</i>	Appalachian Mountains
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Appalachian Mountains
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Appalachian Mountains; Piedmont
Black-capped Chickadee (S. Appalachian breeding pop.)	<i>Poecile atricapillus</i>	Appalachian Mountains
Sedge wren (nb)	<i>Cistothorus platensis</i>	Appalachian Mountains; Piedmont
Wood Thrush	<i>Hylocichla mustelina</i>	Appalachian Mountains; Piedmont
Blue-winged Warbler	<i>Vermivora pinus</i>	Appalachian Mountains; Piedmont
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Appalachian Mountains
Prairie warbler	<i>Dendroica discolor</i>	Appalachian Mountains; Piedmont
Cerulean Warbler	<i>Dendroica cerulea</i>	Appalachian Mountains; Piedmont
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	Appalachian Mountains
Swainson's Warbler	<i>Limothlypis swainsonii</i>	Appalachian Mountains; Piedmont
Louisiana Waterthrush	<i>Seiurus motacilla</i>	Appalachian Mountains
Kentucky Warbler	<i>Oporornis formosus</i>	Appalachian Mountains; Piedmont
Canada Warbler	<i>Wilsonia canadensis</i>	Appalachian Mountains
Henslow's Sparrow	<i>Ammodramus henslowii</i>	Appalachian Mountains; Piedmont
Red Crossbill (S. Appalachian pop.)	<i>Loxia curvirostra</i>	Appalachian Mountains
Black Rail	<i>Laterallus jamaicensis</i>	Piedmont
Short-eared Owl (nb)	<i>Asio flammeus</i>	Piedmont

Note:
 * (b) = ESA delisted
 (nb) = non-breeding in this BCR
 Source: USFWS, 2008; Wilson et al., 2012.

The Audubon Society maintains a list of IBAs, which are sites designated by the Pennsylvania Ornithological Technical Committee as the most critical regions for conserving bird population diversity and abundance within the state. Sites may have one or more of the following characteristics: an exceptional concentration or diversity of birds; a significant population of one or more species on Pennsylvania's special concern list; representative, rare, threatened, or unique

habitats with birds characteristic of those habitats; and/or ongoing long-term avian research or monitoring (National Audubon Society, 2012). IBAs are part of a conservation initiative designed to protect this core habitat. Conservation areas represent a buffer, or area surrounding the core IBA, which serves as a protective boundary or contains resources that do or could affect the quality of habitat or viability of bird populations in the core IBA (National Audubon Society, 2011). Shermans Dale Loop crosses two IBAs, and the Perulack West, Perulack East, Grantville West, and Grantville East Loops cross conservation areas.

The Flea Market Wareyard crosses an IBA and the Stone Quarry Wareyard, Bottom Road Wareyard, Highway 22-1 Wareyard, and Highway 22-2 Wareyard cross conservation areas. However, no tree clearing will be necessary for the wareyards.

3.3.3 Potential Impacts and Mitigation

Table 3.2-1 illustrates that the vegetative habitat type most impacted by the Project is grassland, followed by deciduous forest. Therefore, wildlife resources associated with grassland habitat and deciduous forest have the greatest potential for impacts.

However, long-term impacts to existing resources in the Project area are minimized by co-locating the loop segments parallel to existing pipeline and utilizing existing compressor stations for compression upgrades. Pipeline loops that parallel existing pipeline (and thus follow existing forest edges) minimize the greater impacts associated with fragmentation that would be associated with clearing an entirely new ROW through a contiguously forested area.

The habitat within the Project area supports a variety of widespread and tolerant mammals, birds, reptiles, amphibians, and invertebrates, likely at low densities. Direct and indirect impacts to wildlife resources are anticipated to be minor and limited mostly to temporary impacts on food, cover, and water resources during construction. Clearing and grading of the construction area will result in loss of vegetative cover and may result in the mortality of less mobile fauna, such as small rodents, reptiles, and invertebrates. Construction disturbance will likely cause the temporary displacement of more mobile wildlife from the construction workspace and adjacent areas. Disruption of habitat will be temporary in nature. Post-construction, the individuals will be able to utilize the area in subsequent seasons.

Areas cleared for the CWA that are not part of the permanent ROW will not be maintained post-construction and will revert to forested habitat over time. Areas of early successional habitat that are impacted by construction will naturally re-vegetate within one to two growing seasons to their pre-construction condition and cover type and eventually revert to forests. Long-term impacts to wildlife habitat due to construction and operation of the proposed Project will be limited to clearing of permanent ROW, which affects both grassland and deciduous forest habitats.

Texas Eastern does not anticipate adverse impacts to migratory bird populations and their habitats. Migratory bird consultations with the USFWS are ongoing. Texas Eastern will continue to work with the USFWS to develop appropriate measures to avoid or minimize adverse effects, and strengthen migratory bird conservation. The USFWS has provided conservation measures and best management practices pertaining to migratory birds including restricting tree clearing to times outside of bird nesting season, developing a habitat restoration plan, and minimizing disturbance to vegetation and habitat alterations (Riley, 2012, [personal communication](#); Appendix G).

Texas Eastern has minimized land and vegetation disturbance and reduced habitat fragmentation by co-locating the Project along an existing ROW and utilizing existing roads for access to the greatest

extent practicable. Routine maintenance of the permanent ROW will not occur between April 15 and August 1. As discussions continue with the USFWS, additional conservation measures may be implemented including tree clearing outside the main bird nesting seasons in select locations along the Project.

Plans will accommodate general and site-specific protective measures for any sensitive wildlife habitat and species identified during the course of the Project. Seasonal timing to account for reproductive and migratory patterns will be coordinated with state and Federal agencies. Texas Eastern will use construction procedures to minimize sedimentation, turbidity, and other impacts that may temporarily affect stream vegetation and wildlife, and restoration will follow procedures outlined in the E&SCP.

There are 17.5 miles of access roads proposed for use during construction of the pipeline loop portion of the Project including two new permanent access roads. There will also be one permanent access road constructed for the Kosciusko Pipeline Crossover. All access roads may require improvement that can include tree trimming, tree clearing, gravel placement, or path widening. Section 1.3-1 in Resource Report 1 discusses land use impacts resulting from the access roads. All temporary access roads utilized for construction will be restored in accordance with landowner agreements and any regulatory agency agreements.

3.4 Endangered and Threatened Species

The *Endangered Species Act of 1973* states that T&E plant and animal species are of aesthetic, ecological, educational, historic, and scientific value to the U.S., and protection of these species and their habitats is required (16 USC 1531-1543). The *Endangered Species Act of 1973* protects fish, wildlife, plants, and invertebrates that are Federally listed as endangered or threatened. A Federally endangered species is any species that is in danger of extinction throughout all or a significant portion of its range, with exceptions for certain insect pests. A Federally threatened species is any species that is likely to become endangered in the near future throughout all or a significant portion of its range. Species likely to become endangered or threatened in the near future may be listed as proposed endangered or threatened, or of special concern. In addition to protection of individual species, Federal regulatory protection is also afforded to certain rare, natural vegetation communities or critical habitats.

T&E species are characteristically in jeopardy because of ecosystem disruptions, including the destruction, alteration, or curtailment of habitats, over exploitation, and the effects of disease, pollution, and predation. An individual species may be both state and Federally listed.

Requests for information regarding the potential presence of state and Federally listed T&E species were sent to the USFWS, NMFS, PFBC, Pennsylvania Department of Conservation of Natural Resources (PADCNR), and PGC. In addition, each agency evaluated the potential for the Project to affect T&E species that may be present. In certain areas, T&E species may be present, but the effects have been determined to be insignificant. The following subsections provide the results of these inquiries. Federal and state-listed species of concern that are potentially present and potentially affected by the project are presented in Table 3.4-1.

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TABLE 3.4-1 THREATENED, ENDANGERED, AND SPECIAL CONCERN PLANTS AND ANIMALS POTENTIALLY AFFECTED BY THE PROPOSED PROJECT				
Common Name	Scientific Name	Federal Status	State Status/ Proposed Status *	Field Survey Status
Holbrook Loop				
None				
Perulack West Loop				
Timber Rattlesnake	<i>Crotalus horridus</i>	--	PC/CA	Surveys to be conducted in spring 2013 Coordination with PFBC ongoing
Eastern Small-footed Myotis	<i>Myotis leibii</i>	--	PT/PT	Habitat surveys completed Coordination with PGC ongoing
Allegheny Woodrat	<i>Neotoma magister</i>	--	PT/PT	Habitat surveys completed Trapping in spring 2013 Coordination with PGC ongoing
Perulack East Loop				
None				
Shermans Dale Loop				
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	Seasonal tree clearing Coordination with USFWS ongoing
Timber Rattlesnake	<i>Crotalus horridus</i>	--	PC/CA	Habitat assessment completed Surveys to be completed in spring 2013 Coordination with PFBC ongoing
Eastern Small-footed Myotis	<i>Myotis leibii</i>	--	PT/PT	Habitat surveys completed Coordination with PGC ongoing
Allegheny Woodrat	<i>Neotoma magister</i>	--	PT/PT	Habitat surveys completed Trapping in spring 2013 Coordination with PGC ongoing
Grantville West Loop				
Bog Turtle	<i>Clemmys muhlenbergii</i>	Threatened	PE/PE	Phase 1 Habitat Assessment completed Coordination with USFWS ongoing
Grantville East Loop				
Bog Turtle	<i>Clemmys muhlenbergii</i>	Threatened	PE/PE	Phase 1 Habitat Assessment completed Phase 2 surveys in spring 2013 Coordination with USFWS ongoing
Bernville Loop				
Bog Turtle	<i>Clemmys muhlenbergii</i>	Threatened	PE/PE	Phase 1 Habitat Assessment completed Coordination with USFWS ongoing
Eastern Small-footed Myotis	<i>Myotis leibii</i>	--	PT/PT	Habitat surveys completed Coordination with PGC ongoing
Uniontown Compressor Station				
Categorical Exclusion				
Delmont Compressor Station				
None				

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TABLE 3.4-1 THREATENED, ENDANGERED, AND SPECIAL CONCERN PLANTS AND ANIMALS POTENTIALLY AFFECTED BY THE PROPOSED PROJECT				
Common Name	Scientific Name	Federal Status	State Status/ Proposed Status *	Field Survey Status
Armagh Compressor Station				
None				
Entriiken Compressor Station				
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	No further survey required Seasonal tree clearing
Highway 119 Wareyard & National Pike Wareyard				
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	No further survey required Seasonal tree clearing
All Other Wareyards				
No impacts anticipated. Pennsylvania Natural Diversity Inventory searches indicated that Highway 61 and Bottom Road Wareyards required additional consultation. When consulted directly, the respective agencies indicated that no impacts are anticipated.				
* CA = Candidate at Risk PC = Pennsylvania Candidate; PE = Pennsylvania Endangered; PT = Pennsylvania Threatened.				
Sources: May, 2012, personal communication Rohrbaugh, 2012, personal communication PANHP, 2012b Urban, 2012, personal communication Havens, 2012, personal communication Riley, 2012, personal communication				

3.4.1 Existing Resources

The potential occurrence of high-quality habitat within the proposed Project areas was investigated during Texas Eastern's concurrent wetland delineation and habitat surveys, conducted between May 2012 and January 2013. The overall habitat evaluation entailed observation and documentation of vegetation communities and wildlife.

Federally Listed Species

As noted, requests were sent to NMFS and USFWS to confirm documented occurrences of Federally listed T&E species or habitat potentially suitable for such species within areas proposed for disturbance. No threatened or endangered species under NMFS jurisdiction are expected to occur in the Project area (May, 2012, personal communication). However, the USFWS identified the following Federal special status species as having potential to be affected by Project disturbance (see Table 3.4-1).

- **Bog turtle** (*Clemmys muhlenbergii*). The bog turtle is a Federally threatened (and state-threatened species) that inhabits shallow, spring-fed fens, sphagnum bogs, swamps, marshy meadows and soft muddy bottomed, clear, cool pastures with slow flowing water often forming a network of rivulets (Riley, 2012, personal communication). It is identified by the USFWS as a species that could be impacted at the Grantville and Bernville Loops. The PFBC has delegated all state review of impacts to this species to the USFWS (Urban, 2012, personal communication).

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- Indiana bat (*Myotis sodalis*). The Indiana bat is a Federally endangered (and Pennsylvania endangered) species. They hibernate during winter in caves or abandoned mines. During the summer, they roost under the peeling bark of dead and dying trees. The USFWS indicated that the Shermans Dale Loop, Entriken Compressor Station upgrades, and the National Pike and Highway 119 wareyards have the potential to affect Indiana bat (Riley, 2012, personal communication). The PGC has delegated all state review of impacts to this species to the USFWS (Havens, 2012, personal communication).

State-Listed Species

Requests were sent to PGC, PADCNr, and PFBC to confirm documented occurrences of state-listed T&E species and species of special concern, or habitat potentially suitable for such species within areas proposed for disturbance.

PGC identified two state listed mammals potentially impacted by the Project, the eastern small-footed myotis and the Allegheny wood rat (Havens, 2012, personal communication).

- Eastern small-footed myotis (*Myotis leibii*). The eastern small-footed myotis is a Pennsylvania threatened species. They hibernate during winter in caves or abandoned mines. During the summer, they roost in rock wall crevices, hollow trees, or under the peeling bark of dead and dying trees. The PGC indicated that the Perulack West, Shermans Dale, and Bernville Loops have the potential to affect eastern small-footed myotis habitat (Havens, 2012, personal communication).
- Allegheny woodrat (*Neotoma magister*). The Allegheny woodrat is a Pennsylvania threatened species. Allegheny woodrats inhabit steep rocky/talus slopes, boulder fields, or caves in a forest interior matrix in the Appalachian mountain areas of Pennsylvania. The PGC indicated that the Perulack West and Shermans Dale Loops have the potential to affect Allegheny woodrat habitat (Havens, 2012, personal communication).

PADCNR completed a Pennsylvania Natural Diversity Inventory Review to assess potential impact to species and resources of special concern under the PADCNr jurisdiction, which includes plants, natural communities, terrestrial invertebrates, and geologic features. DCNR has determined that no impact is likely to occur to species of special concern (Rohrbaugh, 2012, , personal communication).

PFBC completed a review of the Project area to assess potential impact to fish, reptiles, and amphibians under the jurisdiction of the PFBC (Urban, 2012, personal communication).

- Timber rattlesnake (*Crotalus horridus*). The timber rattlesnake is a Pennsylvania candidate species. Timber rattlesnakes occur in forested, mountainous regions that encompass mainly the central and northeast region of Pennsylvania. The PFBC indicated that the Perulack West and Shermans Dale Loops have the potential to affect timber rattlesnakes (Urban, 2012, personal communication).

Holbrook Loop

In a letter dated May 23, 2012, the USFWS indicated that the Holbrook Loop was not likely to affect the Indiana bat due to the segment's limited impacts to forested areas. (Riley, 2012, personal communication; Appendix G). No species of special concern, or habitat potentially suitable for such species were identified by the Pennsylvania agencies for the Holbrook Loop.

Perulack West Loop

In a letter dated May 23, 2012, the USFWS indicated that the Perulack West Loop was not likely to affect the Indiana bat due to the segment's limited impacts to forested areas. (Riley, 2012, personal communication; Appendix G).

In a letter dated August 21, 2012, the PGC identified portions of the Perulack West Loop that have the potential to affect the habitat of the eastern small-footed myotis and Allegheny woodrat (Havens, 2012, personal communication; Appendix G). PGC requested habitat surveys for both species.

Habitat surveys for Allegheny woodrat were completed in October 2012 by qualified biologists. Seven potential habitat sites were identified along the Perulack West Loop. At all but one site, no fresh woodrat signs were observed. Sites where there were no woodrat signs are not expected to be currently occupied by woodrats. However, to confirm this conclusion, trapping will be conducted in late spring or early summer 2013. Six of the potential habitat sites along the Perulack West Loop have been combined into one large habitat area. This large area will be considered occupied woodrat habitat by PGC. A preliminary woodrat survey report has been submitted to the PGC and included in Appendix G. Coordination between Texas Eastern and PGC is ongoing.

Habitat surveys for small-footed myotis were completed in October 2012 by qualified biologists. Potential habitat was identified along the Perulack West Loop. Coordination with the PGC is ongoing to minimize or mitigate the impacts to the potential small-footed myotis habitat.

In a letter dated August 15, 2012, the PFBC identified portions of the Perulack West Loop that have the potential to affect the timber rattlesnake (Urban, 2012, personal communication; Appendix G) and therefore requested presence-absence surveys of den habitat along portions of the Perulack West Loop. Potential denning habitat along the Perulack West Loops will be surveyed during the spring 2013 emergence. Coordination between Texas Eastern and PFBC is ongoing.

Perulack East Loop

In a letter dated May 23, 2012, the USFWS indicated that the Perulack East Loop was not likely to affect the Indiana bat due to the segment's limited impacts to forested areas. (Riley, 2012, personal communication; Appendix G). No species of special concern, or habitat potentially suitable for such species were identified by the Pennsylvania agencies for the Perulack East Loop.

Shermans Dale Loop

In a letter dated May 22, 2012, the USFWS indicated that the Shermans Dale Loop would affect Indiana bat habitat. Tree clearing activities during times when bats may be present has the potential to result in injury or death of Indiana bats. Therefore, the USFWS recommends that Texas Eastern restrict all clearing activities to times when bats are not likely to be present (October 15 to March 31) (Riley, 2012, personal communication; Appendix G).

In a letter dated August 21, 2012, the PGC identified portions of the Shermans Dale Loop that have the potential to impact the habitat of the eastern small-footed myotis and Allegheny woodrat. PGC has requested habitat surveys for both species. Coordination between Texas Eastern and PGC is ongoing.

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Habitat surveys for Allegheny woodrat were completed in October 2012 by qualified biologists. Four potential habitat sites were identified along the Shermans Dale Loop. None of the four potential habitat sites along the Shermans Dale Loop showed signs of woodrats. Although woodrats are not expected to be present at these sites, trapping to confirm woodrat presence or absence will occur in late spring or early summer 2013.

Habitat surveys for small-footed myotis were completed in October 2012 by qualified biologists. Potential habitat was identified along the Shermans Dale Loop. Coordination with the PGC is ongoing to minimize or mitigate the impacts to the potential small-footed myotis habitat.

In a letter dated August 15, 2012, the PFBC identified portions of the Shermans Dale Loop that may have the potential to impact the timber rattlesnake (Urban, 2012, personal communication; Appendix G). PFBC requested additional information in order to determine potential affects. An assessment of the Shermans Dale Loop was completed by qualified biologists in January 2013 for timber rattlesnake denning and gestating habitat per the PFBC request for additional information. The PFBC specifically mentioned Blue Mountain and Second Mountain as requiring more information. The results of the assessment indicate that the portion of the Shermans Dale Loop that crosses Blue Mountain is not adequate timber rattlesnake denning habitat. Second Mountain does have potential denning habitat within the limits of disturbance. This potential denning habitat will be surveyed for actual timber rattlesnake denning during the spring 2013 emergence. Coordination between Texas Eastern and PFBC is ongoing.

Grantville West Loop

In a letter dated May 22, 2012, the USFWS indicated that the Grantville West Loop is within the known range of the bog turtle, and therefore requested Phase 1 surveys to determine if habitat is present (Riley, 2012, personal communication; Appendix G). Phase 1 surveys were performed by qualified biologists in May 2012. Two wetlands (GW_W01 and GW_W02) share hydrology with an offsite wetland that contains bog turtle habitat. However, wetlands GW_01 and GW_W02 will be avoided because they are located along existing access roads that will not require any modifications. A preliminary bog turtle survey report has been submitted to the USFWS and included in Appendix G.

Grantville East Loop

In a letter dated May 22, 2012, the USFWS indicated that the Grantville East Loop is within the known range of the bog turtle, and therefore, requested Phase 1 surveys to determine if habitat is present (Riley, 2012, personal communication; Appendix G). Phase 1 surveys were performed by qualified biologists in May 2012. Two wetlands (GE_W04 and GE_W06) did contain bog turtle habitat. Wetlands GE_W04 and GE_W06 will receive Phase 2 surveys during spring 2013. Coordination with the USFWS for these investigations is ongoing. A preliminary bog turtle survey report has been submitted to the USFWS and included in Appendix G.

Bernville Loop

In a letter dated May 23, 2012, the USFWS indicated that the Bernville Loop is within the known range of the bog turtle, and therefore requested Phase 1 surveys to determine if habitat is present (Riley, 2012, personal communication; Appendix G). Phase 1 bog turtle habitat surveys were completed in May 2012 by a qualified biologist. No potential bog turtle habitat was identified within the Project area of the Bernville Loop. A preliminary bog turtle survey report has been submitted to the USFWS and included in Appendix G.

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In a letter dated August 21, 2012, the PGC identified portions of the Bernville Loop that have the potential to impact the habitat of the eastern small-footed myotis and requested habitat surveys along certain portions of the Bernville Loop. Habitat surveys for small-footed myotis were completed in October 2012 by qualified biologists. Potential habitat was identified along the Bernville Loop. Coordination between Texas Eastern and PGC is ongoing to minimize or mitigate the impacts to the potential small-footed myotis habitat.

Uniontown Compressor Station

Upgrades at the Uniontown Compressor Station for the Project will be limited to previously disturbed areas within the existing facility. These modifications are covered by the categorical exclusion between Texas Eastern and the Pennsylvania Regional Office of the USFWS. Additionally the Pennsylvania Natural Diversity Inventory online review tool was utilized for the station (Appendix G). No further consultation was requested.

Delmont Compressor Station

In a letter dated May 23, 2012, the USFWS indicated that the Delmont Compressor Station upgrades were not likely to affect the Indiana bat due to the limited impacts to forested areas (Riley, 2012, personal communication; Appendix G). No species of special concern, or habitat potentially suitable for such species were identified by the Pennsylvania agencies for the Delmont Compressor Station.

Armagh Compressor Station

In a letter dated May 22, 2012, the USFWS indicated that the Armagh Compressor Station upgrades were not likely to affect the Indiana bat due to the limited impacts to forested areas (Riley, 2012, personal communication; Appendix G). No species of special concern, or habitat potentially suitable for such species were identified by the Pennsylvania agencies for the Armagh Compressor Station.

Entriiken Compressor Station

In a letter dated May 23, 2012, the USFWS indicated that Entriiken Compressor station is in close proximity to a know Indiana bat hibernacula. Therefore, the USFWS recommends that Texas Eastern restrict all clearing activities at the Entriiken Compressor Station to times when bats are not likely to be present (October 15 to March 31). Texas Eastern will restrict tree clearing to the USFWS requested dates at the Entriiken Compressor Station; therefore, no further surveys are required (Riley, 2012, personal communication; Appendix G). No species of special concern, or habitat potentially suitable for such species were identified by the Pennsylvania agencies for the Entriiken Compressor Station.

Wareyards and Access Roads

The Pennsylvania Natural Diversity Inventory online review tool was utilized for the pipeyards and wareyards. Of the 10 proposed pipeyards and wareyards, four indicated a need for further review with the USFWS, PGC, or PFBC. When consulted directly, the respective agencies indicated that no impacts are anticipated at these pipeyard and wareyard locations. Furthermore, tree clearing will be restricted at the National Pike and Highway 119 Wareyards where potential Indiana Bat habitat may be present.

Bi-Directional Flow Facilities

One new pipeline crossover will be constructed to connect two existing and parallel line systems north of the existing Kosciusko Compressor Station in Attala County, Mississippi. The new Kosciusko Pipeline Crossover header pipe will be located within the existing Texas Eastern mainline easement. Workspace outside of the existing easement will be required for staging and an access road. An existing access road will be permanently modified including straightening the entry, upgrading a stream culvert and minimal tree clearing. A categorical exclusion from the USFWS Regional Field Office in Mississippi will be utilized for all construction activities occurring within the existing Texas Eastern ROW. Consultation with the USFWS field office in Mississippi is ongoing for T&E clearance of the additional temporary workspace outside of the existing ROW.

All other bi-directional flow modifications will occur at facilities that are pre-existing and in operation, and no additional CWA will be needed outside of the existing company facilities and property. Categorical exclusions established between Texas Eastern and USFWS Regional Field offices will be utilized for these other bi-directional flow facilities.

3.4.2 Potential Impacts and Mitigation

No direct impacts to Federally- or state-listed species are anticipated. Impacts to critical habitat of Federally- or state- listed species is expected to occur in limited areas. Surveys have been conducted and further surveys are planned in spring/early summer 2013 to confirm that potential habitats have been avoided to the extent possible.

Surveys to identify the Federal (and state) listed bog turtle have been completed in potentially suitable habitats by a qualified biologist. Seasonal tree clearing will be implemented for Project facilities within areas of concern for the Indiana bat. Coordination between Texas Eastern and USFWS is ongoing. All appropriate measures will be taken to avoid adverse impacts to all identified Federal T&E species.

Due to seasonal constraints, some of the requested surveys could not be completed during the summer 2012 season. Should Federal- or state-listed T&E species be positively identified within the construction workspace during the remaining surveys or at any point throughout the life of the Project, Texas Eastern would:

- Avoid or minimize wherever it is feasible;
- Stage construction to limit disturbance during sensitive periods;
- Assign environmental inspectors to monitor for specific species during periods of active construction; or
- Orchestrate the temporary removal of the species by an approved scientist following established protocols.

Texas Eastern has successfully used these approaches in the past to mitigate construction-related impacts.

3.5 Cumulative Impacts

The Project has been sited to avoid or minimize impacts to resources wherever possible. The Project will be co-located within, or parallel to, existing, previously disturbed, and maintained ROWs. All work at the compressor station sites will be done within the fence line of existing facilities. No significant fishery, vegetation, or wildlife resources will be impacted at the proposed pipeyards or wareyards.

Temporary impacts to fisheries may occur at proposed stream crossings throughout the Project. Stream crossing methods will be determined by individual stream conditions. Applicable sections of Texas Eastern's E&SCP (Appendix E) will be implemented as they pertain to standard and special construction or operation techniques at stream crossings. Impact on fishery resources crossed by the proposed Project will be minimized by adhering to the waterbody crossing measures in the E&SCP and summarized in Resource Report 2. Texas Eastern will follow the procedures outlined in the E&SCP to minimize introduction of water pollutants into waterbodies and to minimize impacts on aquatic resources. Impacts from construction-related sedimentation and turbidity will be limited to short-term, temporary disturbances by following these guidelines. No long-term impacts are anticipated after restoration of stream bottoms and regrowth of stream bank and aquatic vegetation. Once construction is complete, streambeds and banks will be restored to pre-construction conditions to the fullest extent possible, thus minimizing long-term impacts on fisheries. Operation and routine maintenance of Texas Eastern's pipeline and pertinent facilities will not affect fishery resources within the proposed Project area.

In addition to the measures listed in the E&SCP, Texas Eastern will adhere to construction blackout dates from March 1 to June 15 for all direct impacts to approved trout waters as advised by the PFBC.

Construction disturbance will likely cause the temporary displacement of wildlife from the construction workspace and adjacent areas. After construction, wildlife is expected to return to post-construction habitats. No permanent or long-term impacts to wildlife resources are anticipated.

The Project will accommodate general and site-specific protective measures for any sensitive vegetation or wildlife habitat and species identified during the course of the Project. No direct impacts to Federal listed or state-listed plant species or critical habitat are anticipated. Seasonal timing to account for reproductive and migratory patterns will be coordinated with state and Federal agencies. Texas Eastern will use construction procedures to minimize sedimentation, turbidity, and other impacts that may temporarily affect stream vegetation and wildlife. Texas Eastern will continue to work with local, state, and Federal agencies, landowners, and soil conservation authorities so that construction and mitigation procedures are compatible with both site-specific and regional environmental protection objectives.

As discussed in Resource Report 1, Section 1.4, Texas Eastern identified proposed development projects in the Project area. Texas Eastern does not anticipate a cumulative adverse impact on fisheries, wildlife, and vegetation resources from the implementation of the Project with other known planned developments.

Minor permanent impacts to fisheries, wildlife, and vegetation associated with the Project would be associated with the establishment of new ROW. However, the Project will be co-located with existing, previously disturbed, and maintained ROWs. By locating these new looping portions

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outside of significant habitats and adjacent to existing maintained ROWs, operation and maintenance impacts to fisheries, vegetation, and wildlife is expected to be minimized.

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