

**Final
Environmental Assessment
For
Proposed Habitat Conservation Plan and Incidental Take
Permit**

**Keystone XL Pipeline
South Dakota and Nebraska**

U.S. Fish and Wildlife Service

January 2021

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and Producing this EA is \$327,400

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
°F	degrees Fahrenheit
ABB	American burying beetle (<i>Nicrophorus americanus</i>)
APE	Area of Potential Effects
BA	Biological Assessment
Basin Electric	Basin Electric Power Cooperative
BLM	Bureau of Land Management
BO	Biological Opinion
CMRP	Construction Mitigation and Reclamation Plan
CFR	Code of Federal Regulations
CO ₂	carbon dioxide
dBA	A-weighted decibel
DOS	U.S. Department of State
DOT	Department of Transportation
EA	Environmental Assessment
EO	Executive Order
ERM	Environmental Resources Management
ERPPD	Elkhorn Rural Public Power District
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FSEIS	Final Supplemental Environmental Impact Statement
FTA	Federal Transit Administration
HCP	Habitat Conservation Plan
HDD	horizontal directional drill
ITP	Incidental Take Permit
Keystone	TransCanada Keystone Pipeline, L.P.
MLV	intermediate mainline valve
NDEQ	Nebraska Department of Environmental Quality
NEPA	National Environmental Policy Act
NGPC	Nebraska Game and Parks Commission
NHPA	National Historic Preservation Act
NPPD	Nebraska Public Power District
NRHP	National Register of Historic Places
PHMSA	Pipeline Hazardous Material Safety Administration
Project (as referred to in this EA)	The portion of the proposed Keystone XL Pipeline Project within the Plan Area
PS	Pump Station
ROI	region of interest
Rosebud Electric	Rosebud Electric Cooperative Inc.
ROW	right-of-way
SDGFP	South Dakota Game, Fish and Parks
Service	U.S. Fish and Wildlife Service
SHPO	State Historic Preservation Office
THPO	Tribal Historic Preservation Officer
USACE	U.S. Army Corps of Engineers
USC	United States Code
Wildwood	Wildwood Environmental Credit Company, LLC

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1. INTRODUCTION, PURPOSE AND NEED, AND DECISION TO BE MADE

The U.S. Fish and Wildlife Service (Service) prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321 et seq.), its implementing regulations in the Code of Federal Regulations (CFR) at 40 CFR 1500-1508 (1978) and 43 CFR 46.300-46.325 in effect at the time the Draft EA was published on August 17, 2020, and Section 10(a)(1)(B) of the Endangered Species Act (ESA) of 1973, as amended (16 USC 1531 et seq.). This EA evaluates the impacts of and alternatives to the issuance of Incidental Take Permits (ITPs) and implementation of the Keystone XL Pipeline Habitat Conservation Plan (HCP).

This chapter introduces the proposed Keystone XL Pipeline Project (proposed Project) as it relates to the HCP. This chapter also provides a regulatory background, including other environmental analyses related to the Project, describes the scope of this EA, defines the purpose and need, and defines the decision to be made.

1.1. INTRODUCTION

TransCanada Keystone Pipeline, L.P., (Keystone) proposes to construct, operate, and maintain a crude oil pipeline and ancillary facilities, referred to as the Project, from the U.S.-Canada border east of Morgan, Montana, to an existing pipeline in Steele City, Nebraska. In addition to the pipeline, Keystone would construct permanent and temporary construction access roads, temporary facilities (contractor yards, pipe yards, construction camps, and rail sidings), and permanent aboveground facilities (pump stations, delivery facilities, and mainline valves). The pipeline would involve a 110-foot-wide temporary construction right-of-way (ROW) and a 50-foot-wide permanent ROW in Montana, South Dakota, and Nebraska. Electrical power infrastructure, including substations and transmission and distribution lines necessary to provide power to the proposed Project's pump stations, would be constructed and operated by entities other than Keystone. During operation, Keystone would use the proposed Project to transport up to 830,000 barrels per day of crude oil from the Western Canadian Sedimentary Basin and the Bakken Shale Formation in the United States to the Gulf Coast region.

Construction activities would involve vegetation clearing, excavation and trenching, pipe stringing and assembly, pipe and valve installation, special crossing techniques under some roads and waterbodies, trench backfilling, surface grading and revegetation, and the construction of permanent aboveground facilities. Material storage, heavy traffic, and surface modifications would also occur at temporary facilities. Electrical power infrastructure construction activities would involve clearing and grading substation sites, constructing substations, trimming or felling trees in select areas, installing pole structures, and installing wires.

Ground-disturbing activities have the potential to result in incidental take of the American burying beetle (*Nicrophorus americanus*) (ABB) in South Dakota and Nebraska. As of November 16, 2020, the ABB is listed as a threatened species under the ESA and is protected by an ESA Section 4(d) rule that prohibits the take of ABB by ground-disturbing activities in South Dakota and Nebraska. Therefore, Keystone has

submitted an HCP to analyze and mitigate potential impacts of the proposed Project and non-federal activities related to the proposed electrical power infrastructure within the range of the ABB.

Keystone submitted the HCP to the Service on April 22, 2020; subsequently revised on December 7, 2020, the HCP discusses the potential impacts of construction and operation of the proposed pipeline and associated infrastructure within the HCP Plan Area. The Plan Area is defined as all of Tripp County, South Dakota, all of Keya Paha, Boyd, Holt, and Antelope counties in Nebraska, and a portion of Cherry County, Nebraska, in which Keystone proposes to preserve undeveloped lands as mitigation (Figure 1). The Plan Area includes all areas in which the requested permitted take and/or mitigation would occur. The geographic scope of this EA is the same as the HCP Plan Area. Within the Plan Area, the proposed Project would include approximately 176 miles of pipeline and approximately 3,277 acres of pipeline ROW (permanent and temporary) and ancillary facilities. Within the Plan Area, electrical power infrastructure necessary to operate the proposed pipeline's pump stations would be constructed and operated by four other entities (Rosebud Electric Cooperative Inc. [Rosebud Electric], Basin Electric Power Cooperative [Basin Electric], Elkhorn Rural Public Power District [ERPPD], and Nebraska Public Power District [NPPD]). The HCP Permit Area is a subset of the Plan Area and is defined as all locations where the requested permitted take would occur (Figure 1) (see Section 2.2.1).

The HCP contains proposed conservation measures to avoid and minimize effects on listed species. It also contains a proposal for mitigation of effects on the ABB, specifically by providing funds to preserve suitable ABB habitat.

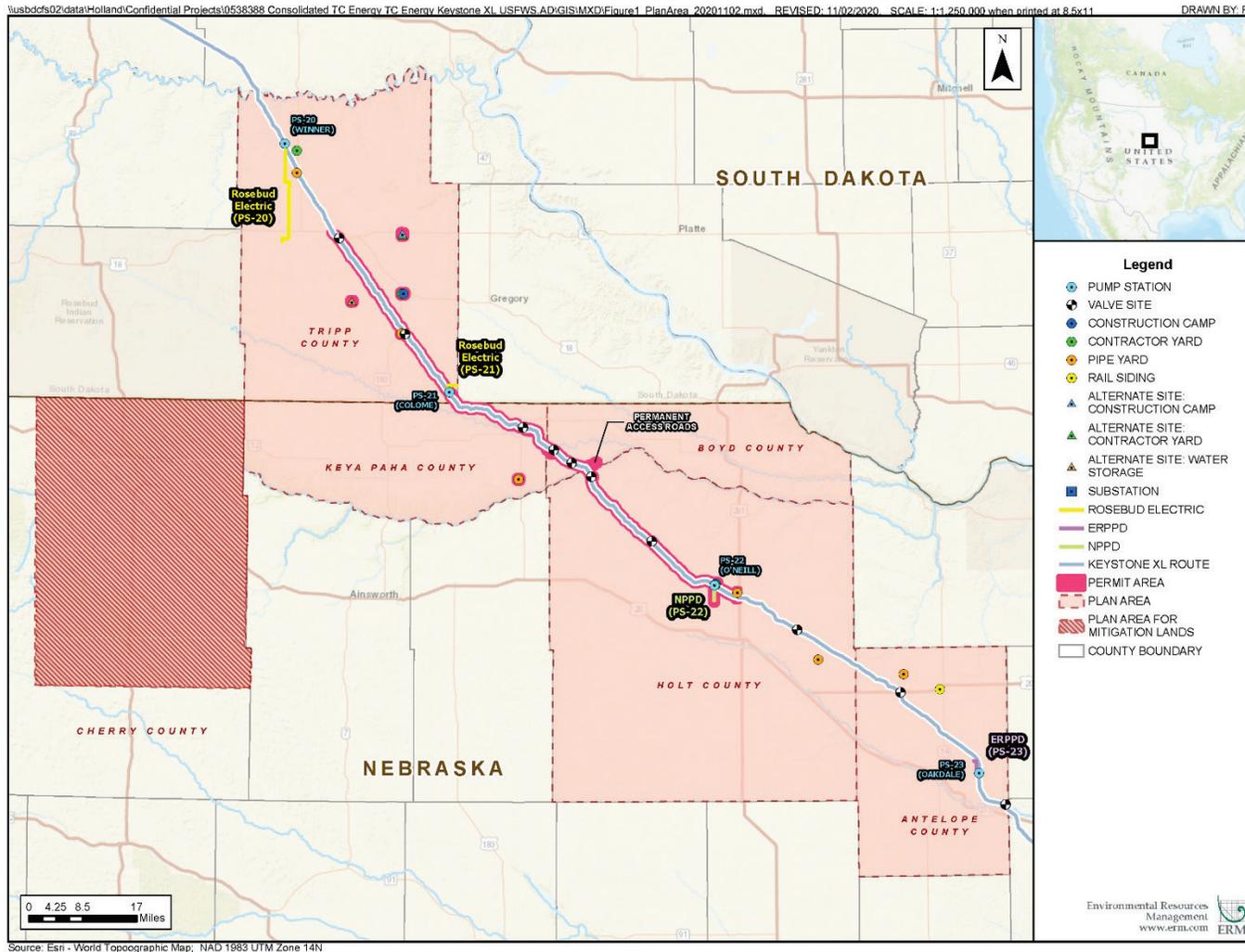


Figure 1. Map of Plan Area and Permit Area

1.1.1. Regulatory Background and Context

The proposed Project and non-federal activities related to the proposed electrical power infrastructure would likely result in prohibited incidental take of ABB. Section 10(a) of the ESA provides a mechanism for non-federal entities to request a permit for incidental take; this request must be accompanied by a conservation plan. Accordingly, Keystone has submitted an application for an ITP to cover incidental take related to its proposed activities. Keystone prepared the HCP to address incidental take of ABB from Keystone, Basin Electric, and NPPD's construction and operation of the proposed pipeline and associated infrastructure necessary to operate the proposed pipeline. At the time of publication of this document, neither Basin Electric nor NPPD had submitted an ITP application; however, the HCP and this EA evaluate the activities of those entities, including the effects of those activities on the ABB. Basin Electric and NPPD may choose to submit ITP applications at a later date seeking Section 10 coverage for their activities. If they do, the Service may use this EA to evaluate the consequences of issuing those ITPs. Keystone has committed to provide all mitigation lands required by the HCP, but each party (i.e., Keystone, Basin Electric, and NPPD) would be responsible for implementing the relevant conservation measures described in the HCP for their actions.

The Service must review the HCP and the ITP applications to determine if they meet the criteria for issuance of a permit listed in Section 10(a)(2)(B) of the ESA. The Service considers issuance of an ITP a federal action subject to the requirements of NEPA (42 USC 4321–4327). Accordingly, the Service has prepared this Final EA to evaluate the impacts of and alternatives to the issuance of ITPs and implementation of the HCP.

Other aspects of the proposed Project have undergone previous environmental reviews. A Final Environmental Impact Statement (FEIS) was issued by the U.S. Department of State (DOS) in 2011 with a Biological Assessment (BA), followed by a Final Supplemental Environmental Impact Statement (FSEIS) issued in 2014 with an amended BA and a Service-issued Biological Opinion (BO). On March 29, 2019, the President of the United States issued a new Presidential Permit, authorizing the proposed Project to cross the U.S.-Canada border; subsequently, the previous BA and BO were withdrawn. The Bureau of Land Management (BLM) submitted a new BA to the Service on November 26, 2019, DOS published another FSEIS on December 20, 2019, and the Service provided the BLM a new BO on December 23, 2019; this BO included federal actions associated with the proposed Project for BLM, the Rural Utilities Service, the Western Area Power Administration, and the U.S. Army Corps of Engineers (USACE).

This EA does not repeat previous environmental reviews of the proposed Project; rather, it evaluates potential impacts on the human and natural environment resulting from the denial or issuance of the ITPs, which would include implementation of the proposed HCP. Potential impacts of the proposed Project and associated infrastructure outside of the HCP Plan Area have already been evaluated in detail in the 2011 FEIS, the 2014 FSEIS, the 2019 BA, the 2019 BO, and the 2019 FSEIS. This EA incorporates by reference the existing FEIS and FSEISs and utilizes their analyses per 43 CFR 46.120.

1.1.2. Informal Scoping

The scope of this EA was determined through an informal scoping process. This process was informed by previous environmental reviews of the proposed Project, including multiple rounds of feedback from several agencies, including BLM, DOS, the USACE, and the Service. This process also considered agency feedback on preliminary working drafts of the proposed HCP. Public comments submitted in the course of preparing the 2011 FEIS, the 2014 FSEIS, and the 2019 FSEIS were also considered in the informal scoping process.

1.2. PURPOSE AND NEED FOR ACTION

The Service's purpose in considering the proposed action is to fulfill its authority under the ESA Section 10(a)(1)(B). Non-federal applicants, whose otherwise lawful activities may result in take of ESA-listed wildlife, can apply to the Service for incidental take authority so their activities may proceed without potential violations of ESA Section 9. To carry out these responsibilities, the Service must comply with a number of environmental laws and regulations, Executive Orders (EOs), and agency directives and policies. As the Service fulfills these responsibilities and obligations, it will:

- Ensure that the issuance of the ITPs and implementation of the HCP achieve long-term species and ecosystem conservation objectives at ecologically appropriate scales, and
- Ensure that the conservation actions approved with issuance of the ITPs occur within an area capable of supporting species mitigation projects over the long-term.

The Service's need relative to the proposed federal action derives from Section 10 of the ESA, which specifically directs the Service to issue ITPs to non-federal entities for take of endangered and threatened species when the criteria in Section 10(a)(2)(B) are satisfied by the applicant. Once the Service receives an application for an ITP, the Service needs to review the application to determine if it meets issuance criteria. The Service also needs to ensure that issuance of the ITPs and implementation of the HCP comply with all applicable laws and regulations.

The Service received an application from Keystone for an ITP under the authority of Section 10(a)(1)(B) of the ESA. At the time of publication of this document, neither Basin Electric nor NPPD had submitted an ITP application; however, the HCP evaluates the activities as those entities may choose to submit ITP applications seeking Section 10 coverage for their activities. If one or more applications are approved and the Service issues one or more permits, the ITP(s) would authorize the applicant(s) to take ABB as a result of their construction and operation of the proposed Project and associated infrastructure over 50 years. The Service prepared this EA to (1) inform the public of the proposed action and the effects of the proposed action and its alternatives, (2) seek information from the public, and (3) use information collected and analyzed to make better-informed decisions concerning these ITP applications.

1.3. DECISION TO BE MADE

The proposed action—or decision to be made—evaluated in this EA is the issuance of the requested ITPs by the Service that would authorize take of ABB incidental to the construction and operation of the proposed Project and associated infrastructure, as well as implementation of the conservation plan in the associated HCP, in accordance with the statutory and regulatory requirements of the ESA.

2. ALTERNATIVES

The NEPA and associated regulations require federal agencies to analyze and publicly disclose the social, economic, and environmental effects associated with major federal actions. This requires federal agencies to study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources (42 USC 4332). This EA analyzes and compares the effects of the “no action” alternative and the proposed action of issuing the requested ITPs and implementation of the HCP.

2.1. NO ACTION ALTERNATIVE

Under the no action alternative, the Service would not issue the requested ITPs and the HCP would not be implemented. Keystone, NPPD, and Basin Electric would not construct the proposed Project and associated infrastructure in ABB habitat. According to the Draft HCP, under this alternative Keystone would not construct the Keystone XL Pipeline as it is currently proposed. The HCP states that not constructing the Keystone XL Pipeline in ABB habitat could result in the increased transportation of oil supplies by rail, barge, truck, and/or a different entity proposing a pipeline to move the supplies to market, as previously analyzed in the 2014 FSEIS and the 2019 FSEIS. Because no modification of approximately 1,259 acres of ABB habitat or take of any listed species would occur under this alternative, no mitigation for loss of habitat would be needed, and a minimum of approximately 1,082 acres (or the proposed 1,200 acres of mitigation lands proposed by Keystone as described in Section 4.7.4) of suitable ABB habitat would not be preserved.

2.2. PROPOSED ALTERNATIVE: ISSUANCE OF INCIDENTAL TAKE PERMITS BASED ON THE DRAFT HABITAT CONSERVATION PLAN

The proposed action evaluated by this EA is the issuance of ITPs by the Service that would authorize take of ABB incidental to the “covered activities” described below under Section 2.2.2, and implementation of the conservation plan in the associated HCP, in accordance with the statutory and regulatory requirements of the ESA.

2.2.1. Plan Area and Permit Area

The HCP Plan Area is defined as all of Tripp County, South Dakota, and all of Keya Paha, Boyd, Holt, and Antelope counties in Nebraska, and a portion of Cherry County, Nebraska, in which Keystone proposes to preserve undeveloped lands as mitigation (Figure 1). The Plan Area includes all counties in which the requested permitted take and/or compensatory mitigation would occur. Within the Plan Area, the proposed Project pipeline would include approximately 176 miles of pipeline and approximately 3,277 acres of pipeline ROW and ancillary facilities. Within the Plan Area, electrical power infrastructure would be constructed and operated by Basin Electric, ERPPD, and NPPD, including 25.5 miles of power line within 173.3 acres of ROW, an approximately 7.8-acre expansion of an existing substation, and a new switching station assumed to occupy 3.5 acres. The HCP Permit Area is a subset of the Plan Area and is defined as all locations where the requested permitted take would occur. This includes all areas of potentially suitable ABB habitat in which construction and/or operation activities by Keystone or NPPD would occur that would not be covered for take under Section 7 of the ESA (see BLM 2019 and Service

2019d). The extent of the Permit Area would include approximately 92.3 miles of pipeline, 1,770 acres of pipeline ROW and ancillary facilities, 2.6 miles of power line within 15.4 acres of ROW, and 7.8 acres for the expansion of the existing substation. The range of the ABB within the Plan Area (see Figure 1) extends approximately from U.S. Highway 18 near Winner, South Dakota, to U.S. Highway 281 near O'Neill, Nebraska.

The proposed Project pipeline would enter the Plan Area after crossing underneath the White River into Tripp County, South Dakota. The pipeline would cross primarily agricultural lands, passing outside of the cities of Winner, South Dakota, and O'Neill, Nebraska, before exiting the Plan Area at the Antelope-Madison county line near Tilden, Nebraska. The major land use is agriculture, either as rangeland or as cultivated cropland. The proposed Project would also cross small areas of deciduous forest, several small streams, and the White, Keya Paha, Niobrara, and Elkhorn rivers.

2.2.2. Covered Activities

2.2.2.1. Elements to be built

Within the Plan Area, the proposed Project would include approximately 176 miles of pipeline: approximately 60 miles in South Dakota and approximately 116 miles in Nebraska. The proposed Project would include approximately 3,277 acres of land, all of which could be affected during construction, and approximately 1,122 acres of which could also be affected during operations.

Installation of the new 36-inch diameter pipeline would occur within a 110-foot-wide construction ROW, reduced to a 50-foot permanent ROW during operations. The construction ROW would be reduced to 85 feet in certain areas, which could include some wetlands, cultural sites, residential areas, and commercial/industrial areas. In addition to the typical construction ROW, Keystone has identified various types of additional temporary workspace areas that would be required. These include locations requiring special construction techniques (e.g., river, wetland, and road/rail crossings; horizontal directional drill (HDD) entry and exit points; steep slopes; and rocky areas) and construction staging areas. Additional construction facilities covering about 635 acres would be required during construction of the proposed Project in the Plan Area to serve as pipe storage sites, railroad sidings¹, construction camps, water storage sites, and contractor yards. Pipe storage yards along the pipeline route typically have been sited in proximity to railroad sidings. Keystone would use existing commercial/industrial sites or sites previously used for construction if they exist close to the ROW. Existing public or private roads would be used to access each yard. Pipe storage yards and contractor yards would be used on a temporary basis and would be restored, as appropriate, upon completion of construction.

The proposed Project would use existing public and private roads to provide access to most of the construction ROW. Paved roads are not likely to require improvement or maintenance prior to or during construction. Gravel roads and dirt roads may require maintenance during the construction period due to high use. Road improvements such as blading and filling generally would be restricted to the existing road footprint. Widening of roads is also required in some locations where existing road curvature does not support larger construction equipment. Private roads and any new temporary access roads would be

¹ Small stretches of railroad track used to store rolling stock or enable trains to pass through on the same line.

used and maintained only with permission of the landowner or applicable land management agency. Most access roads would be temporary, although some would be permanent.

Keystone would install 10 intermediate mainline valves (MLVs) within the permanent pipeline ROW within the Plan Area. Intermediate MLVs would be constructed within a fenced 40- by 50-foot site located within the permanent easement. MLVs would be located at major river crossings, other surface water features over 100 feet wide, and where required by regulation or permit conditions. These remotely operated valves can be activated to shut down the pipeline in the unlikely event of a spill. Four Pump Stations (PSs) would be constructed on approximately 5- to 15-acre sites intersecting the permanent pipeline ROW. Each PS typically would consist of up to six pumps driven by electric motors, an electrical equipment shelter, a variable frequency drive equipment shelter, an electrical substation, a sump tank, a remotely operated MLV, a communication tower, a small maintenance building, and a parking area for station maintenance personnel. PSs would operate on locally purchased electric power and would be fully automated for unmanned operation. Each PS would have an uninterruptable power supply (battery backup) on all communication and on specific control equipment in the case of a power failure. Communication towers at the PSs generally would be approximately 33 feet high. However, antenna height at select PSs, as determined upon completion of a detailed engineering study, may be taller, but in no event would exceed a maximum height of 190 feet. Communication towers would be constructed without guy wires. The pipe entering and exiting the PS would be located below grade. The pipe manifold would be aboveground. Keystone would use down-shielding of exterior lights and install a security fence around the entire PS site. Inspection and maintenance personnel would access the PS through a gate that would be locked when no one is present.

The proposed electrical power infrastructure for which incidental take coverage may be requested by Basin Electric and NPPD consists of a 115-kilovolt transmission line, a new switching station, and an expansion of an existing substation. Specifically, NPPD would construct, operate, and maintain a new switching station and transmission line to deliver electrical power to PS-22 in Holt County, Nebraska, and Basin Electric would expand the existing Witten substation in Tripp County, South Dakota, to accommodate the electric power load of PS-20 (see Table 1). The expansion area totals about 7.8 acres.

Table 1. Proposed Electrical Power Infrastructure within the Plan Area

Owner / Operator	Serving PS	State	County	ROW (miles)		ROW (acres)		Substation Area (acres)	
				Plan Area ^a	Permit Area ^a	Plan Area ^a	Permit Area ^a	Plan Area ^a	Permit Area ^a
Basin Electric	PS-20	South Dakota	Tripp	0	0	0	0	7.8	7.8
Rosebud Electric	PS-20	South Dakota	Tripp	17.2	0	104.5	0	0	0
Rosebud Electric	PS-21	South Dakota	Tripp	2.7	0	16.4	0	0	0
NPPD	PS-22	Nebraska	Holt	2.6	2.6	15.4	15.4	3.5	0
ERPPD	PS-23	Nebraska	Holt	3.1	0	37.0	0	0	0
Total				25.6	2.6	173.3	15.4	11.3	7.8

ERPPD = Elkhorn Rural Public Power District; NPPD = Nebraska Public Power District; PS = Pump Station;
ROW = right-of-way

a. The Permit Area is a subset of the Plan Area. Activities in the Permit Area are covered activities. Activities in the Plan Area but outside of the Permit Area are not covered activities, but are evaluated in this EA.

In addition to the covered activities, Rosebud Electric would construct, operate, and maintain transmission lines to deliver electrical power to PS-20 and PS-21 in Tripp County, South Dakota; however, this is not included as a covered activity in the ITP applications or the HCP because take of ABB associated with this activity is covered under Section 7 of the ESA due to the involvement of the Rural Utilities Service and the Western Area Power Administration (see BLM 2019 and Service 2019d). The HCP also describes proposed activities of the ERPPD, none of which would occur within ABB habitat or have the potential to cause take of listed species. Thus, activities of the ERPPD are not included in the covered activities in the ITP applications or the HCP. However, the potential impacts of those activities by the ERPPD related to PS-23 and of Rosebud Electric related to PS-20 and PS-21 are evaluated in this EA because those activities would occur within the Plan Area.

2.2.2.2. Procedures

The proposed facilities would be designed, constructed, tested, and operated in accordance with all applicable requirements included in the U.S. Department of Transportation (DOT) regulations at 49 CFR 195, *Transportation of Hazardous Liquids by Pipeline*, other applicable federal and state regulations, and in accordance with the Project-specific special conditions recommended by Pipeline Hazardous Material Safety Administration (PHMSA) and agreed to by Keystone (Appendix Z of the 2014 FSEIS).

Standard pipeline construction is composed of specific activities, including survey and staking of the ROW, clearing and grading, pipe stringing, bending, trenching, welding, lowering in, backfilling, hydrostatic testing, and cleanup. Normal construction activities would be conducted during daylight hours, with certain exceptions specified in the HCP. Before starting construction at a specific site, acquisition of ROW easements and any necessary acquisitions of property in fee would then be completed. Engineering surveys of the ROW and additional temporary workspace areas would be finalized as needed, and the boundaries would be staked. A clearing crew would then clear the work area of vegetation and obstacles (e.g., trees, logs, brush, rocks). Typical agricultural implements would be used on agricultural lands, and typical machinery used for timber clearing would be used in forested lands. Grading would be conducted where necessary to provide a reasonably level work surface. The trench would be excavated to a depth that provides sufficient cover over the pipeline after backfilling. Typically, the open trench would be 7 to 8 feet deep and 4 to 5 feet wide in stable soils. After installation, the depth of cover for the pipeline would be a minimum of 48 inches, except in areas of consolidated rock, in which the minimum depth of cover would be 36 inches. Prior to or following trenching, sections of pipe would be transported by truck over public roads and along authorized private access roads to the ROW and placed or “strung” along the ROW. After the pipe sections are strung along the trench and before joints are welded together, individual sections of pipe would be bent to conform to the contours of the trench by a track-mounted, hydraulic pipe-bending machine. After pipe sections are bent, joints would be welded together into long “strings” and placed on temporary supports until welding, inspections, and surface coating are completed. The pipeline would then be lowered into the trench. The trench would then be backfilled using the excavated material. Alternatively, the trench bottom could be filled with padding material (e.g., sand, subsoil, or gravel) to protect the pipeline. Topsoil would be returned to its original horizon after subsoil is backfilled in the trench. The pipeline would be hydrostatically tested in sections of approximately 30 to 50 miles to ensure the system can withstand the operating pressure for which it is designed. The hydrostatic test would be conducted in accordance with 49 CFR 195. Water for hydrostatic

testing generally would be obtained from larger rivers and streams and municipal sources near the pipeline and in accordance with federal, state, and local regulations. After hydrostatic testing, the water would be tested to ensure compliance with the National Pollutant Discharge Elimination System discharge permit requirements, treated if necessary, and discharged within the same water basin from which it was withdrawn. Following successful hydrostatic testing and inspection, test manifolds would be removed and the final pipeline tie-in welds would be made and inspected. The pipeline would then be prepared for service by filling the line with crude oil.

Cleanup and restoration would involve removing debris, regrading to restore original contours as closely as possible, spreading topsoil, and installing permanent erosion controls. Subsequently, all disturbed work areas except cultivated fields would be seeded to restore native vegetation, subject to specific landowner requirements. The ROW would be inspected after the first growing season to gauge the success of re-vegetation and noxious weed control. Eroded areas would be repaired and areas that were not successfully re-vegetated would be reseeded by Keystone, or Keystone would compensate the landowner for reseeded. Weed management plans for each state, prepared with input from weed boards and state experts, would be used to control noxious weeds on the ROW.

In addition to standard pipeline construction methods, special construction techniques would be used where warranted by site-specific conditions. These special techniques would be used when constructing across rugged terrain, surface water features, wetlands, paved roads, highways, and railroads. In general, all major paved roads, primary gravel roads, highways, and railroads would be crossed by boring underneath them. Perennial streams would be crossed using either the open-cut method or HDD. Wetland crossings would be completed in accordance with Keystone's Construction Mitigation and Reclamation Plan (CMRP), conditions within the Clean Water Act Section 404/Rivers and Harbors Act Section 10 Permit, as appropriate, and any additional conditions imposed by the USACE, but would otherwise be similar to typical upland construction procedures, with modifications where necessary to reduce the potential for affecting wetland hydrology and soils. Explanations of these special construction techniques, as well as further detail regarding standard pipeline construction, can be found in Appendix C of the HCP, in the 2014 FSEIS, and in the 2019 FSEIS.

Construction activities at each PS would consist of clearing and grading, installing foundations for the buildings, and erecting structures to support the pumps and/or associated facilities.

The operating pipeline would be used to transport up to 830,000 barrels per day of crude oil. This would present a small risk of inadvertent releases (i.e., spills or leaks). An inadvertent release of oil, fuel, or other hazardous material during construction or operation is not a covered activity; however, the potential consequences of inadvertent releases are evaluated in this EA. The risk of inadvertent releases and activities related to abnormal pipeline operations and emergency responses are described in the 2014 FSEIS, the 2019 FSEIS Chapter 5, and the HCP, and these descriptions are incorporated by reference into this EA.

Normal operation of the pipeline would add heat to the surrounding soil. The intensity and extent of heating are described in the 2019 BA Appendix E and the 2019 FSEIS Chapter 4.

The pipeline would be inspected regularly via aerial and ground surveillance at a frequency consistent with 49 CFR 195 and the Project-specific special conditions. Woody vegetation along the pipeline

permanent easement would be periodically cleared, and vegetation not on agricultural lands would be mowed periodically to a height of not less than 8 inches. Keystone estimates that it would be required to conduct 10 inspections of the pipeline over the 50-year life of the permit, per PHMSA regulations. Over the course of those inspections, Keystone estimates that excavation would be required 0.05 times per mile. Over the 92.3 miles of pipeline within the Permit Area, this equates to approximately five locations excavated per inspection. The size of each excavation location is nominally estimated to be 0.13 acre, for a total of 6.5 acres of excavation over the 50-year period. Keystone conservatively rounded this to 10 acres to account for varying sizes of excavations and/or number of locations per year.

Covered activities related to electrical power infrastructure involve the construction and operation of one transmission line, an associated new switching station, and an expansion of an existing substation. Construction of the new switching station would consist of site acquisition, clearing and grading, graveling, installing foundations and support structures, installing electrical equipment, and installing fencing; expansion of the existing substation would consist of the same activities except for site acquisition and clearing. Construction of transmission lines would involve ROW acquisition, trimming or felling trees in select areas, installing pole structures, and installing wires. Pole structure installation would involve excavating holes with a truck-mounted auger, directly embedding the wooden poles into the ground, and anchoring as necessary. Pulling or tensioning areas would be needed to operate the truck-mounted equipment used for installing the wires.

The activities necessary to operate the electrical power infrastructure would be primarily limited to inspections on foot or by vehicle. Periodic vegetation removal would be minimal and only required in areas with woody vegetation. No herbicides would be sprayed along the ROW, although applications to cut stumps may be necessary. Inspection and repair of substation equipment or power line elements may become necessary, but are not included in the list of covered activities because they are not expected to result in take of covered species.

Further detail regarding construction techniques for electrical power infrastructure can be found in the HCP, the 2019 BA, and Chapter 6 of the 2019 FSEIS.

2.2.3. Covered Species

The ITP applications and HCP cover one ESA-listed species: the ABB. The ABB is a carrion beetle that lives for 1 year and is active aboveground only during summer. The ABB is a habitat generalist with respect to vegetation and soil type, but it strongly prefers moist soils and strongly avoids cultivated cropland (Service 2019a). As of November 16, 2020, the ABB is listed as a threatened species under the ESA and is protected by an ESA Section 4(d) rule that prohibits the take of ABB by ground-disturbing activities in South Dakota and Nebraska. Based on surveys for the proposed Project and other surveys over the past 20 years, the range of ABB within the Plan Area extends approximately from U.S. Highway 18 near Winner, South Dakota, to U.S. Highway 281 near O'Neill, Nebraska. Keystone assessed and mapped ABB habitat quality in all potentially affected areas within this range. Further details on the natural history and status of the ABB are discussed below under Section 3.7. The ABB can be affected by ground-disturbing activities and activities that alter or eliminate suitable habitat.

2.2.4. Conservation Measures

Keystone, Rosebud Electric, NPPD, and ERPPD have proposed several conservation measures intended to avoid and minimize potential effects on ABB, other sensitive species, and other resources. Refer to the HCP (Section 7.3 and Appendices B and C), the 2019 BA (Chapter 3), the 2019 FSEIS (Chapter 8), and the 2014 FSEIS (Appendices G and I) for a complete description of avoidance and minimization measures. The Service, through its decision on the ITP applications and the HCP, has the ability to enforce conservation measures within the Plan Area and for activities included in the HCP. The remainder of this subsection highlights some prominent conservation measures.

2.2.4.1. General Conservation Measures

To manage construction impacts, Keystone would implement its CMRP provided in Appendix C of the HCP. The CMRP includes measures to minimize the impacts of herbicides and pesticides. Additionally, the HCP prohibits the use of herbicides in ABB habitat. To minimize the potential for harmful spills and leaks during construction, the construction contractor would develop one or more Spill Prevention, Control, and Countermeasure Plans following the template provided by Keystone in Appendix I of the 2014 FSEIS. Equipment refueling would be restricted to uplands more than 100 feet from streams and wetlands to avoid potential accidental releases from reaching aquatic habitats. Each construction crew and cleanup crew would have sufficient tools and materials on hand to stop leaks, including supplies of absorbent and barrier materials that allow for rapid containment and recovery of spilled materials.

To minimize impacts on livestock and wildlife movements during construction, Keystone would leave hard plugs (short lengths of unexcavated trench) or install soft plugs (areas where the trench is excavated and replaced with minimal compaction) to allow livestock and wildlife to cross the trench safely. Soft plugs would be constructed with a ramp on each side to provide an avenue of escape for animals that fall into the trench.

The proposed Project would cross the White, Keya Paha, Niobrara, and Elkhorn rivers using HDD, resulting in a pipeline burial depth of 25 feet or greater. Keystone would conduct pre-construction presence/probable absence surveys of pipeline crossings of potentially suitable habitat for western prairie fringed orchid (*Platanthera praeclara*), whooping crane (*Grus americana*), interior least tern (*Sternula antillarum athalassos*), and piping plover (*Charadrius melodus*), and would avoid disturbing any individuals found. Daily surveys for whooping crane, nesting interior least tern, and nesting piping plover would be conducted before constructing near potentially suitable habitat. Keystone and the power providers would comply with the northern long-eared bat 4(d) rule (50 CFR 17.40(o)).

To the extent practicable, construction would occur mostly during daytime hours and comply with any local noise regulations. Construction equipment would be properly equipped with mufflers to lessen noise impacts.

NPPD and ERPPD would mark new power lines using bird flight diverters within 1 mile of potentially suitable habitat within the whooping crane 95-percent migration corridor (see the 2019 BA and the 2019 BO). Keystone would develop a compliance monitoring plan that requires written confirmation that the power lines have been marked and that the markers are maintained in working condition.

To conserve cultural resources, including historic properties, Keystone would implement the existing Programmatic Agreement for the Keystone XL Pipeline along the proposed pipeline route and along new power lines to avoid, if possible, or mitigate any effects on historic properties. In 2020, the Service signed onto the 2020 amended Programmatic Agreement regarding the Keystone XL Pipeline Project (USACE 2020).

2.2.4.2. Conservation Measures for the ABB

Many of the general conservation measures listed in the HCP, the 2019 BA, the 2019 BO, and the 2019 FSEIS would help to avoid or minimize effects on the ABB and its habitat. Keystone has also proposed the following conservation measures designed specifically to avoid or minimize effects on the ABB and its habitat.

Keystone would mow the ROW in order to make the ROW less attractive to ABB before and during construction. Construction areas would be mowed to less than 8 inches 2 weeks prior to the commencement of ground disturbing activities that occur between March 15 and October 31. For winter construction activities (October 31 to March 31) mowing would occur by October 15. This short vegetation height would be maintained by mowing every 2 weeks, as necessary, for the duration of the active construction proposed project during the ABB overall active period (until October 31 or until construction is completed, whichever is earlier). Once mowed, clippings would be removed. If it is not possible to maintain vegetation under 8 inches in height, construction would avoid these areas until the vegetation can be mowed less than 8 inches in height. For power line construction, mowing would be done only in construction areas with soil disturbance (pole installation). Preemptive mowing would not occur in wetlands, streams, or forests.

Keystone would survey the ROW daily to remove carrion and make the work area less attractive to ABB during construction. This would minimize the chance of ABB feeding, burying carcasses, or reproducing where they could be affected by construction equipment. Carcass removal must occur from March 15 to October 31 or until construction is completed, whichever is earlier. For power line construction, carrion removal would be done only in construction areas with soil disturbance (pole installation) and areas with repetitive travel as temporary access roads.

Keystone would implement an education program for construction personnel engaged in the proposed Project. This would include a presentation focused on identifying the ABB and explaining its life history, its current range, and its habitat requirements. Keystone would provide education cards to all construction personnel and instruct construction personnel to report any sightings of ABB or brood chambers. Keystone would place signs at construction entrances identifying the area as potential ABB habitat.

To the degree possible, Keystone would minimize clearing of temporary work areas to minimize the temporary loss of ABB habitat. Estimates of affected areas presented in this EA likely represent the maximum area that would be disturbed by the covered activities.

During construction, Keystone would minimize the use of artificial lighting that could attract ABB. When lighting is necessary, it would be downshielded and consist of warm, amber colored lights with a color temperature of 3,000 kelvins or less and intensity no greater than 70,000 lumens.

At the end of construction, Keystone would restore habitats temporarily affected by soil compaction by ripping to a depth of 24 inches before replacing topsoil and then revegetating with native species, subject to individual landowner requirements. Immediately following construction, Keystone would temporarily stabilize disturbed areas by broadcasting cool-season species such as annual rye or wheat. Where necessary, Keystone would use weed-free straw as mulch to protect seed and retain soil moisture. The annual grasses would die off when temperatures warm during summer; they would not become permanently established. During the spring, Keystone would apply a mixture of native warm-season grasses within the ROW. In response to landowner requirements, Keystone would seed some portions of the ROW using non-native species such as smooth brome. This type of re-vegetation would likely be restricted to areas that are currently dominated by improved grass pastures and would therefore not lead to a reduction of habitat dominated by native species. In the limited circumstance where landowners request re-vegetation of previously native vegetation to non-native vegetation, Keystone would consider this as a permanent impact and provide appropriate mitigation for those impacts at that time. Keystone's CMRP provides further details with regard to restoration (see Appendix C of the HCP).

Keystone would use erosion control techniques such as silt fencing, hay bales, water bars, and other measures to prevent washing away of topsoil, formation of gullies, or other effects that could negatively impact ABB habitat through the action of surface water. Keystone's CMRP provides further details with regard to erosion control following construction (see Appendix C of the HCP).

Construction of electrical power infrastructure within the Permit Area would occur during the ABB inactive time (October 31 to March 31). The ROW would be mowed October 15, 2 weeks prior to the commencement of the inactive period, to make the habitat less attractive for ABB. Mowing would be done so that vegetation is at most 8 inches in height. Windrowing would be done to remove vegetation residue.

2.2.5. Mitigation

Keystone has proposed a conservation program in the HCP that is intended to avoid or minimize potential effects on the ABB during performance of the covered activities and to provide permanent mitigation of ABB effects not fully offset by other conservation measures. Avoidance and minimization measures are introduced above in Section 2.2.4, Conservation Measures, and are specified in detail in the HCP.

Prior to proposed Project effects, Keystone would protect in perpetuity a minimum of approximately 1,082 acres of ABB habitat in Nebraska by providing funds to a third party for: (1) purchase of a conservation easement to provide habitat for ABB; and (2) long-term management of the property. Easement acquisition for the benefit of the ABB would be determined in coordination with the Service offices in Nebraska and South Dakota as well as the Nebraska Game and Parks Commission (NGPC). The quantity of ABB habitat to be protected is based on the area that the proposed Project and associated infrastructure would affect permanently and/or temporarily, modified by mitigation ratios specific to mapped habitat quality (Table 2). Keystone has also included an additional area equal to 5 percent of the area proposed to be temporarily affected. If restoration failure occurs on more than 5 percent of temporarily affected areas, Keystone would provide additional mitigation to offset those areas in the same manner as for permanent effects. Refer to the HCP Section 9.3 for additional details. The environmental consequences of mitigation lands are characterized in this EA in Section 4.7.4, Mitigation Lands.

Table 2. Acreage of ABB Habitat Effects and Compensatory Mitigation

Permanent Effects ^a					
Habitat Rating	Marginal	Fair	Good	Prime	Total ^b
Ratio ^c	0.5	1	2	3	NA
Effects (acres)	35.21	35.90	69.51	91.44	232.06
Mitigation (acres)	17.60	35.90	139.03	274.33	466.86
Temporary Effects ^d					
Habitat Rating	Marginal	Fair	Good	Prime	Total ^b
Ratio ^c	0.125	0.25	0.5	0.75	NA
Effects (acres)	117.05	130.95	384.16	394.35	1,026.52
Mitigation (acres)	14.63	32.74	192.08	295.77	535.22
Potential Restoration Failure ^e					
Habitat Rating	Marginal	Fair	Good	Prime	Total ^b
Ratio ^c	0.5	1	2	3	NA
Effects (acres) ^e	5.85	6.55	19.21	19.72	51.33
Mitigation (acres)	2.19	4.91	28.81	44.36	80.27
Total Mitigation ^f					
Habitat Rating	Marginal	Fair	Good	Prime	Total ^b
Mitigation (acres)	34.42	73.55	359.92	614.46	1,082.35

ABB = American burying beetle (*Nicrophorus americanus*); NA = not applicable; NPPD = Nebraska Public Power District; ROW = right-of-way

a. Includes pump stations, permanent access roads, and the portion of the permanent ROW within 11 feet of the pipeline, which is considered to be heat-affected, as well as all effects associated with electrical power infrastructure, which were calculated as 12 square feet per pole with a pole every 250 feet.

b. Total acreage numbers may not equal the sum of the individual acreages in each habitat category due to rounding.

c. Ratios are conserved acres:affected acres (e.g., for each acre of prime habitat permanently affected, 3 acres would be conserved).

d. Includes temporary ROW, portions of the permanent ROW outside the heat-affected portion, construction camps, contractor yards, pipe and water storage areas, additional temporary work areas, and predicted maintenance excavations. It does not include temporary access roads, which already exist and do not require alteration of ABB habitat.

e. Affected acres are 5 percent of the total temporarily affected acres.

f. Acres already provided as mitigation for the 5 percent of temporary effects (prior to restoration failure) were removed from the mitigation total.

2.3. ALTERNATIVES ELIMINATED FROM FURTHER ANALYSIS

Alternatives considered but eliminated from further analysis came from several sources, including the HCP and/or previous environmental analyses (see Section 1.1.1, Regulatory Background and Context) and additional conservation measures considered by the Service to minimize take of ABB.

2.3.1. Alternative Routes

Previous environmental analyses considered several alternative routes (see the 2014 FSEIS Section 2.2.5 and the 2019 FSEIS Section 2.3). As discussed in the HCP Section 1.4, alternatives included re-routing the proposed Project east and west of the current proposed ROW.

2.3.1.1. Reasons for Elimination

Keystone proposed alternative routes in the Nebraska Public Service Commission process, and the Commission found that the route discussed in the HCP was the best alternative considering all factors (NE PSC 2017); the Commission declined to approve any other route. Similarly, the DOS dismissed the other alternatives, as they did not minimize impacts on environmentally sensitive areas (see the 2014 FSEIS Section 2.2.5 and the 2019 FSEIS Section 2.3).

In addition, the Service's permit decision is based on a determination of whether the HCP contains all conservation plan requirements specified in Section 10(a)(2)(A) of the ESA and meets all permit issuance criteria at Section 10(a)(2)(B) of the ESA. Section 10(a)(2)(B) further states that the [Service] *shall* (emphasis added) issue a permit if the permit application, including the HCP, meets all the permit issuance criteria and other Section 10 and general permit requirements. Although the Service may recommend that permit applicants consider route modifications during the planning process, the Service does not have the authority to require an applicant to alter a route or select a different one if the permit application meets all of the permit issuance criteria. The Service provided technical assistance and other guidance to TC Energy, the parent company of Keystone, during development of the proposed Project HCP to help ensure that the permit issuance criteria would likely be met.

2.3.2. Alternative Design

As discussed in the HCP Section 1.4, design alternatives such as elevating the pipeline could have removed some minor adverse impacts (especially soil heating). Alternative designs were considered in greater detail in the 2014 FSEIS Section 2.2.6.2.

2.3.2.1. Reasons for Elimination

According to the HCP Section 1.4, an elevated pipeline would not have significantly reduced ground disturbance associated with construction. Additionally, construction of an elevated pipeline could result in a greater area of permanent ABB habitat loss because of the placement of piers or other supports required to elevate the pipe.

2.3.3. Capture and Relocation Conservation Measures

Under this alternative, Keystone would apply additional conservation measures described in the joint Service and Nebraska Game and Parks Commission document, *Conservation Measures for the American*

Burying Beetle (Service and NGPC 2008). These conservation measures include the application of “capture and relocation” efforts followed by designated “maintaining clear” activities defined in the conservation measures document (Service and NGPC 2008). Maintaining clear activities include mowing vegetation to less than 8 inches and removing carrion at proposed disturbance areas after that area has been cleared of ABB.

2.3.3.1. Reasons for Elimination

Capture and relocation followed by maintaining clear activities is generally no longer recommended as an alternative to reduce take of the ABB because of the following:

- It is difficult to capture all individuals.
- Results of clearing efforts for other construction projects in Nebraska indicate that clearing ABB from some areas may not be achievable (for an area to be “cleared” of ABB, there must be no captures for three consecutive trap nights) (Service 2018).
- Capture and relocation of ABB is considered to be take of ABB, so all individuals captured and relocated must be included in the total take estimate, thus increasing the total overall take estimate substantially. ABB would be captured and relocated from an entire trap radius (500 acres), and would not be limited to those individuals that occur in the proposed disturbance areas.
- Relocating large numbers of ABB may increase resident beetle competition for limited availability of carrion resources at release sites.

3. AFFECTED ENVIRONMENT

The affected environment is the area and its resources potentially impacted by the proposed federal action and alternatives. The geographic scope of the analysis in this EA is the same as the HCP Plan Area, which is defined as all of Tripp County, South Dakota, and all of Keya Paha, Boyd, Holt, and Antelope counties in Nebraska, and a portion of Cherry County, Nebraska, in which Keystone proposes to preserve undeveloped lands as mitigation (see Section 2.2.1, Plan Area and Permit Area). For activities that would be highly localized, such as ground disturbance, the analysis focuses on the actual footprint proposed in the HCP, although the analysis is not limited to the Permit Area or to Covered Activities. Rather, it includes all activities described in the HCP that would occur anywhere within the Plan Area. The nature of the affected environment was described in detail in the 2014 FSEIS Chapter 3 and the 2019 FSEIS Chapters 3 and 6. The Plan Area is a subset of the areas analyzed in those documents, with the exception of areas within Cherry County, Nebraska, which was not evaluated previously; the existing conditions and potential impacts in Cherry County are discussed in Section 4.7.4, Mitigation Lands.

The Plan Area lies mostly within the Western Great Plains Range and Irrigated Region, according to the Natural Resources Conservation Service classification system (USDA NRCS 2006 p. 155). This zone is characterized as a piedmont plain, with gently rolling topography and rivers flowing east toward the Mississippi River. However, Antelope County, Nebraska, lies mostly within the Central Feed Grains and Livestock Region, which is characterized as a nearly level glaciated plain currently dominated by irrigated agriculture. Agriculture includes row crops and pastures, with native grasslands as well as

improved forage species. Human population density within the Plan Area is relatively low, but several small towns and a considerable number of farmsteads are present.

The footprint of the proposed activities within the Plan Area would include approximately 3,277 acres of land disturbance related to the pipeline ROW and related facilities, 184.6 acres of electrical power infrastructure ROW and substation site(s), and a minimum of approximately 1,082 acres of conservation land to be protected in perpetuity as habitat for the ABB. Within this footprint, take of covered species is anticipated in approximately 1,240.8 acres of proposed Project footprint, in approximately 7.8 acres at an expanded substation site, and in an estimated 10 acres² associated with pipeline repair excavations during the life of the Project. In addition to ABB, the main aspects of the environment that could be impacted by proposed Project activities within and outside of this footprint include geology and soils; air quality; noise and vibration; water resources; vegetation; fish and wildlife; other protected species; land use, recreation, and visual resources; socioeconomics and environmental justice; cultural resources; and greenhouse gases and climate change. Each of these is individually addressed in the sections below.

3.1. GEOLOGY AND SOILS

Existing geology and soil conditions were classified, mapped, and reviewed in detail in the 2014 FSEIS Sections 3.1 and 3.2 and the 2019 FSEIS Sections 3.3 and 6.4.1. In brief, surficial geology consists mostly of Quaternary alluvium, colluvium, and aeolian deposits atop shale and sandstone. No oil, gas, or coal extraction is occurring near the Plan Area, and the main extracted mineral resources are sand and gravel, which are mined at a few locations in Tripp, Keya Paha, Holt, and Antelope counties. Some paleontological resources (fossils) have been found in small localized areas. There is little to no risk of subsidence or seismic hazards, although landslide hazards are present near the Keya Paha and Niobrara rivers, where erosion and undercutting are more likely. For details, refer to the 2014 FSEIS Section 3.1.2 and the 2019 FSEIS Section 3.3.

Soils are in the order of Mollisols, grassland soils with a fertile, dark, surface horizon rich in organic matter. Across the Plan Area, soils vary in specific type. From central Tripp County to the South Dakota/Nebraska state line, clayey soils contain thick, dark, organically enriched layers of topsoil, and there are also transitional sandy soils that generally consist of aeolian sands, sandy alluvium, and lesser amounts of loess and glacial outwash. In southern Tripp County to the state line, soils grade into deep, sandy deposits. In Nebraska, Keya Paha, Boyd, and Holt counties exhibit generally sandy, very deep, and excessively drained to somewhat poorly drained soils, although some silty or sandy loam soils exist. In Antelope County, soils consist of deep loess deposits; in the northern portion of the county, the soils are sandy loams that are frequently layered with very fine-grained ash layers susceptible to erosion. In the general vicinity of the Plan Area, considerable portions of the surface soils are considered highly erodible, prone to compaction, and/or prime farmland. These categories are not mutually exclusive. Within the footprint of the proposed Project and associated infrastructure in the Plan Area, approximately 1,678 acres of soils are hydric and 1,363 acres are prime farmland (USGS 2019b). For details, refer to the 2014 FSEIS Section 3.1.2 and the 2019 FSEIS Section 3.3.

² The size of each excavation location is nominally estimated as 0.13 acre, for a total of 6.5 acres over the 50-year period. Keystone conservatively rounded this estimated impact to 10 acres to account for varying sizes of excavations and/or number of locations per year.

3.2. AIR QUALITY

Existing air quality conditions were reviewed in detail in the 2014 FSEIS Section 3.12 and the 2019 FSEIS Section 3.4. In brief, air quality in the Plan Area is in attainment with National Ambient Air Quality Standards. There are no Clean Air Act Class I areas within 62 miles of the Plan Area. Existing climatic conditions are described under Section 3.12, Greenhouse Gases and Climate Change.

Air permitting requirements vary by state. South Dakota does not require preconstruction air quality permits, while in Nebraska, the Nebraska Department of Environmental Quality (NDEQ) requires preconstruction air quality permits under the Nebraska Administrative Code, Title 129, Chapter 17, Subchapter 001, for sources that potentially emit above certain thresholds.

3.3. NOISE AND VIBRATION

Existing conditions were reviewed in detail in the 2014 FSEIS Section 3.12 and the 2019 FSEIS Section 3.5. Noise is any undesirable sound, and is often rated using the A-weighted decibel scale (dBA), which accounts for how the human ear responds to different frequencies and perceives sound. Audible sound extends across a broad range: the threshold of human sound perception is approximately 3 dBA, a very quiet rural or remote area typically exhibits background noise levels of 26 to 30 dBA, and a very noisy urban residential area typically exhibits background noise levels of 56 to 60 dBA (2019 FSEIS Section 3.5.1). Existing noise levels in the analysis area are estimated around 35 dBA (2014 FSEIS p. 3.12-23).

Although not binding as regulations, federal agency guidelines recommend limiting long-term noise levels from any project to approximately 55 dBA and to not increase noise levels by more than 10 dBA above background (USEPA 1974 p. 4; FTA 2018 pp. 218–219). For construction noise, local noise ordinances would apply. In the absence of standardized criteria for assessment of construction noise, the Federal Transit Administration (FTA) recommends the following for residential areas: construction noise levels at the sensitive receptor should not exceed an 8-hour average of 80 dBA during daytime (7 a.m. to 10 p.m.), an 8-hour average of 70 dBA during nighttime (10 p.m. to 7 a.m.), and a 30-day average of 75 dBA (FTA 2018 p. 179).

Vibration refers mostly to small movements of the ground and can be caused by heavy equipment, drilling, and earthmoving activities. The intensity of vibration can be expressed as peak particle velocity in inches per second. Buildings may be susceptible to damage from vibrations at or above 0.12 inch per second (FTA 2018 p. 186). Existing vibrations in the Plan Area are likely negligible.

Potentially sensitive receptors were identified using satellite imagery. Within 0.5 mile of the activities described in the HCP within the Plan Area, there are 194 residences and 90 structures or clusters of structures other than those associated with a residence.

3.4. WATER RESOURCES

Existing conditions for water resources were classified, mapped, and reviewed in detail in the 2014 FSEIS Sections 3.3 and 3.4 and the 2019 FSEIS Sections 3.6, 6.4.2, and 6.4.3 and include descriptions of surface and groundwater resources, floodplains, wetlands, and other water resources. The Plan Area contains a subset of the water resources analyzed in those documents.

The Plan Area contains numerous perennial, intermittent, and ephemeral streams. Major rivers include the White, Keya Paha, Niobrara, and Elkhorn rivers. Numerous lakes, reservoirs, marshes, and ponds are located within the Plan Area. Table 3 summarizes waterbody crossings for the proposed Project and associated infrastructure, based on features mapped on the National Hydrography Dataset (USGS 2019a).

Table 3. Number of Waterbody Crossings of the Proposed Project and Associated Infrastructure in the Plan Area

Waterbody Type	Count
Intermittent or Ephemeral Stream ^a	158
Perennial Stream	23
Artificial Path ^b	11
Lake/Pond	5
Swamp/Marsh	3
Connector ^c	1
Total	201

Source: USGS 2019a

- a. This dataset does not distinguish intermittent and ephemeral streams.
- b. Artificial Path is a surrogate for general flow direction in larger waterbodies.
- c. Connector represents a known, but nonspecific, invisible connection between two nonadjacent network segments.

Wetlands in the Plan Area include palustrine emergent, palustrine forested, palustrine open water, and riverine wetland types. Table 4 summarizes wetland crossings for the proposed Project and associated infrastructure in the Plan Area.

Table 4. Acres of Wetland Crossings of the Proposed Project and Associated Infrastructure in the Plan Area

Wetland Type	Acres ^a
Emergent	17.0
Riverine	12.4
Forested	1.4
Open Water	0.6
Total	31.5

Source: Service 2019c

- a. Acres of impacts on individual wetland types do not add up to the total impact amount due to rounding.

Information regarding groundwater and water supply wells is detailed in the 2014 FSEIS Section 3.3.2 and the 2019 FSEIS Section 3.6.1.1. The principal aquifer near the proposed Project is the Northern High Plains Aquifer. The main water-bearing formations include the Ogallala Formation, the Sand Hills unit, tablelands alluvium, and shallow alluvia associated with creeks and the Keya Paha and Niobrara rivers. The proposed Project would pass through the Colome Source Water Protection Area and within 1 mile of the public water supply well for Colome, South Dakota. The proposed Project would also pass within approximately 0.28 mile of the Tilden Wellhead Protection Area. There are no active registered private water wells within approximately 100 feet of the proposed Project centerline in the South Dakota portion of the Plan Area (SD DENR 2020). In the Nebraska portion of the Plan Area, there are three active registered wells within approximately 100 feet of the proposed Project; all of these wells are located

within center-pivot agricultural fields, are used for irrigation, and list static water levels of 30 to 52 feet below ground surface (NDNR 2020). Additional information and references are found in the 2014 FSEIS (Section 3.3.2.2, pp. 3.3-27 and 3.3-30) and the 2019 FSEIS (Section 3.6.1.1, pp. 3.6-1–3.6-5).

The proposed Project and associated infrastructure within the Plan Area would not cross any river segment designated under the Wild and Scenic Rivers Act, although the Niobrara National Scenic River segment is approximately 12 miles upstream of the proposed crossing of the Niobrara River, and the Missouri National Recreational River is approximately 46 miles downstream of the same crossing (2014 FSEIS p. 4.3-24).

3.5. VEGETATION

Existing vegetation conditions were reviewed in detail in the 2014 FSEIS Section 3.5 and the 2019 FSEIS Sections 3.7 and 6.4.4. The Plan Area contains a subset of the vegetation resources analyzed in those documents. The distribution of vegetation community types in the Plan Area is controlled by a variety of factors, such as geology, soils, slope, aspect, water availability, and land use. As described above, the Plan Area is dominated by cultivated crops and grasslands. The general land cover types as described in the National Land Cover Database crossed by the proposed Project and associated infrastructure are listed in Table 5. Vegetation communities of conservation concern crossed by the Project and associated infrastructure include native grasslands, riparian and bottomland hardwood habitats, and forest communities (Table 6).

Table 5. Acres of Land Cover Types Crossed by the Proposed Project and Associated Infrastructure in the Plan Area

Land Cover Type	Acres
Grassland/Herbaceous	1,684.4
Cultivated Crops	1,494.8
Developed, Open Space	125.1
Pasture/Hay	56.9
Developed, Low Intensity	22.6
Emergent Herbaceous Wetlands	18.3
Woody Wetlands	14.4
Developed, Medium Intensity	13.3
Developed High Intensity	13.2
Deciduous Forest	12.1
Shrub/Scrub	2.1
Open Water	2.0
Barren Land (Rock/Sand/Clay)	0.2
Evergreen Forest	0.2

Source: National Land Cover Data (USGS 2019b)

Table 6. Acres of Vegetation Communities Crossed by the Proposed Project and Associated Infrastructure in the Plan Area

Vegetation Community	Acres
Native Grasslands	1,452.9
Riparian Habitats ^a	36.3 ^b
Forest Communities	66.5 ^b

Source: USGS 2011

a. Riparian Habitats include wooded floodplains and wooded draws.

b. All Riparian Habitats quantified also meet the definition of Forest Communities and are included in that total.

Note: The U.S. Geological Survey Gap Analysis data set is different from the National Land Cover Data set presented in the previous table.

The Plan Area is located in several Level III Ecoregions, including the Northwestern Great Plains, the Northwestern Glaciated Plains, the Nebraska Sand Hills, and the Western Corn Belt Plains (USEPA 2013). The majority of the agricultural crops in the area are either hay or cultivated crop (e.g., corn, soybeans). Previously disturbed areas include residential, commercial, industrial, ROW corridors, and barren areas. Grassland/rangeland is composed of tallgrass prairie, mixed grass prairie, and sandy prairie community types, with species such as big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), sand bluestem (*Andropogon hallii*), blue grama (*Bouteloua gracilis*), prairie sandreed (*Calamovilfa longifolia*), and little bluestem (*Schizachyrium scoparium*). Upland forests are deciduous and include green ash (*Fraxinus pennsylvanica*), quaking aspen (*Populus tremuloides*), burr oak (*Quercus macrocarpa*), and hickory (*Carya* spp.). Wetlands and riparian habitats are limited mostly to incised landforms associated with drainages.

3.6. WILDLIFE AND FISHERIES

3.6.1. Wildlife

Construction of the proposed Project and associated infrastructure would result in disturbance of a variety of habitat types within the Plan Area (Table 5). However, habitats crossed by the proposed Project and associated infrastructure are dominated by grasslands and cultivated crops (Table 5). Croplands are not considered optimal habitat for native species that prefer natural habitats and vegetation native to the region (Avery 2006). Additionally, many of the native grassland habitats are actively grazed by livestock, potentially reducing use by native wildlife (Vavra 2005).

A comprehensive list of large game animals, small and medium game animals, waterfowl and game birds, and non-game animals that are present at the state level and may occur within the proposed Project area based upon habitat presence is provided in the 2014 FSEIS Section 3.6 and the 2019 FSEIS Sections 3.7 and 6.4.5. The 2014 FSEIS provides a comprehensive list of species potentially present along the proposed Project alignment, which includes all mammals, birds, reptiles, and amphibians that may be present due to the presence of potentially suitable habitat.

A subset of species identified in those analyses has the potential to occur within the Plan Area. These include five big game species, 29 species of medium and small game animals, 328 species of waterfowl and game birds, 38 species non-game mammals, 27 birds of conservation concern, 47 species of reptiles, 19 species of amphibians (see South Dakota and Nebraska information presented in the 2014 FSEIS

Tables 3.6-2 through 3.6-8), as well as thousands of invertebrates. Given that previous analyses include some species that occur anywhere in the states of South Dakota and/or Nebraska, some of the species included may not occur in the Plan Area.

3.6.2. Fisheries

A complete description of fisheries resources within the proposed Project area is provided in the 2014 FSEIS Section 3.7, including a discussion of water resources crossed by the Project and coldwater, coolwater, and warmwater fisheries that occur in them, as well as a discussion of crossing methods proposed. The 2014 FSEIS lists a total of 23 species of common fish with recreational or commercial value that are crossed by the proposed Project in South Dakota and Nebraska (see Table 3.7-1 in the 2014 FSEIS). Many of these species are native North American species that have been introduced into watersheds where they did not previously occur in order to provide for recreational fisheries, while the common carp (*Cyprinus carpio*) is an exotic Eurasian introduction. The 2014 FSEIS also includes a discussion of perennial streams that may support commercial and recreational fisheries (see Table 3.7-3 in the 2014 FSEIS); 23 stream crossings occur within the Plan Area. South Dakota classifies surface waters based on a waterbody's ability to support coldwater and warmwater fish presence and propagation (SD DENR 2012). Within the Plan Area in South Dakota, one stream is classified as a semi-permanent warmwater fishery, while two are classified generally as supporting fish propagation, with no warmwater or coldwater designation. Nebraska classifies surface waters based on their ability to support coldwater or warmwater fish and (1) as providing habitat for year-round maintenance of one or more identified key species (Class A), or (2) as providing habitat where the variety of warmwater biota is limited by water volume or flow, water quality, substrate composition, or other habitat conditions (Class B) (NDEQ 2018 pp. 6–7). Within the Plan Area in Nebraska, 12 warmwater streams would be crossed, of which 5 are Class A and 7 are Class B. A total of 10 Class B coldwater streams are crossed within the Plan Area in Nebraska (see Table 3.7-3 in the 2014 FSEIS and Table 3.7-2 in the 2019 FSEIS).

3.7. AMERICAN BURYING BEETLE

The natural history of the ABB and the potential impact of the proposed Keystone XL pipeline system and associated infrastructure on the ABB and its habitat are detailed in the 2019 BA Section 3.2.6 and in the 2019 BO (entire), which are hereby incorporated by reference. Those two documents address the entire Plan Area and locations outside of the Plan Area.

A federally listed threatened species, the ABB is a large, annual, nocturnal beetle that is entirely dependent on small- to medium-sized animal carcasses for feeding and reproduction. After hiding underground or under vegetation and leaf litter during the day, the ABB emerges at night to search for suitable carcasses (generally 1.7 to 10.5 ounces, according to Service 2019b p. 13). When a male and female arrive at the same carcass, they burrow beneath the carcass to bury it, and they lay eggs on the carcass and tend the brood until the offspring emerge from the ground as young adults. By burying carcasses, the ABB and other carrion beetles contribute nutrients to the soil and compete with ants and flies that also utilize carcasses (Service 1991, pp. 1 and 16). At the end of summer, when nighttime air temperatures are consistently below 59 degrees Fahrenheit (°F), the young adult ABB bury into the soil to overwinter, whereas older adults reach the end of their natural life span (Service 2019b p. 13).

The ABB is a habitat generalist with respect to vegetation and soil type, but it strongly prefers moist, unsaturated soils and strongly avoids cultivated cropland (Service 2019a pp. 13–14). Some vegetation types conducive to use by ABB include native grasslands, forest, forest edge, riparian habitats, and wetland communities. Wet meadows in sandy soils with scattered cottonwood trees are an example of prime habitat in the Plan Area. The ABB can move between different habitats and does not appear to be limited by vegetation types as long as food, shelter, and moisture are available. The Service believes that preserving large areas of suitable habitat is a conservation strategy that contributes to maintaining viable ABB populations. For details, refer to the 2019 BO (pp. 20, 23) and the HCP (p. 23), and references therein.

The most recent ABB species status assessment divides the current range of the species into several “analysis areas” for analysis and management purposes, even though these units may not correspond to the biological definition of populations (Service 2019a Section 2.5.4). The Plan Area overlaps the Niobrara and the Sand Hills analysis areas. The Niobrara analysis area contains approximately 2.96 million acres of potential ABB habitat, and it also includes the greatest amount of protected lands of any ABB analysis area. The Service does not expect future land use changes in this area to impact the abundance of ABB. The Sand Hills analysis area contains approximately 8.63 million acres of potential ABB habitat, and this analysis area is estimated to contain the largest population of any ABB analysis area. In both of these analysis areas, the annual life cycle of the ABB leads to variability in population sizes based on the reproductive success of the previous year. For details, see Service (2019a Section 2.4 and pp. 65 and 119) and the 2019 BO (p. 23). Three of the main threats to the ABB include habitat loss (e.g., conversion to cropland), soil disturbance activities, and climate change (Service 2019a pp. 25–28, 37–50 and references therein).

Additional background information on this species can be found in Service (1989, 2014, 2019a, 2019b), the 2019 BA (Section 3.2.6), the 2019 BO (entire), and the HCP (Section 3).

Based on surveys for the proposed Project and other surveys over the past 10 years, the range of the ABB within the Plan Area extends approximately from U.S. Highway 18 near Winner, South Dakota, to U.S. Highway 281 near O’Neill, Nebraska (see the 2019 BA Section 3.2.6 and the 2019 BO pp. 23–25, and references therein). This range is the basis for defining the Permit Area. Keystone assessed and mapped ABB habitat quality across the entire Permit Area, rating all areas as either prime, good, fair, marginal, or poor. Areas rated poor are not considered potentially suitable habitat, and ABB are not expected to occur there. In addition, ABB are considered unlikely to be found in marginal habitat (see the 2019 BA p. 100). The footprint of the proposed Project within the Permit Area, including the estimated 10 acres of repairs over the life of the Project, overlaps approximately 485.8 acres of prime habitat, 453.7 acres of good habitat, 166.9 acres of fair habitat, and 144.5 acres of marginal habitat, for a total of 1,250.8 acres. In addition, the power infrastructure would overlap approximately 7.8 acres of marginal habitat.

3.8. OTHER PROTECTED SPECIES

A list of federal- and state-listed threatened and endangered species with the potential to occur in the Plan Area is provided in Table 7. Existing conditions were reviewed in detail in the 2014 FSEIS Section 3.8 and the 2019 FSEIS Sections 3.7 and 6.4.6.

Table 7. Federal and State Threatened and Endangered Species Potentially Present within the Plan Area

Species	Status			Occurrence and Habitat	Primary Threats
	Service	SD	NE		
Birds					
Interior Least Tern (<i>Sternula antillarum athalassos</i>)	E	E	E	Within the Plan Area, the species may occur during the breeding season (April 15–September 1) along the Niobrara and Elkhorn rivers in Nebraska. The species builds shallow nest scrapes on sparsely vegetated sand or gravel bars in wide, unobstructed river channels, or on salt flats along lake shores.	Alteration and destruction of riverine habitats resulting from channelization, irrigation, and reservoir construction are threats to the long-term survival of the species. The regulation of river flows via dams may also interrupt nesting or eliminate suitable nesting sites.
Piping Plover (<i>Charadrius melodus</i>)	E	T	T	Within the Plan Area, the species may occur during the breeding season along the Niobrara and Elkhorn rivers in Nebraska. This species builds shallow nest scrapes along sparsely vegetated shorelines of small alkali lakes, large reservoir beaches, river islands and adjacent sandpits, and shorelines associated with industrial ponds.	The creation of reservoirs, channelization of rivers, and modifications of river flow regimes have eliminated hundreds of river miles of nesting habitat along northern Great Plains rivers. Additionally, human-related disturbances in winter habitat are a threat to the continued existence of the species.
Rufa Red Knot (<i>Calidris canutus rufa</i>)	T		T	This species may occur throughout the Plan Area during spring and fall migration. The species is a long-distance migrant, with only a few records within the Plan Area. There do not appear to be any traditional stopover sites that are used annually. The species is considered to have casual or irregular occurrence within the Plan Area.	Historically, unregulated hunting was responsible for declines in population numbers. Recent declines in the species are thought to be related to horseshoe crab harvesting along the eastern U.S. coast, specifically in Delaware Bay, which is an important stopover location used by a large percentage of the population. Climate-related changes to breeding areas in the arctic tundra as well as changes to foraging areas as a result of rising sea levels are expected to continue to affect the species.
Whooping Crane (<i>Grus americana</i>)	E	E	E	The entire Plan Area is located within the 95 percent whooping crane migration corridor (see Pearse et al. 2018 [entire]), and the species may be present during spring (March–May) and fall (October–November) migration. During daily stops during migration, the species uses shallow, seasonally or semi-permanently flooded palustrine wetlands, broad river channels, and shallow portions of reservoirs for roosting, and various croplands and emergent wetlands for feeding.	The decline of whooping cranes has been attributed to habitat loss, direct disturbance and hunting, predation, disease, and collisions with man-made structures. Loss and alteration of grassland and wetland habitats continue to affect the species.

Species	Status			Occurrence and Habitat	Primary Threats
	Service	SD	NE		
Fish					
blacknose shiner (<i>Notropis heterolepis</i>)		E	E	Within the Plan Area, this species may occur within tributaries of the Keya Paha and Niobrara rivers in Keya Paha County, Nebraska, and Tripp County, South Dakota. The species inhabits cold and clear small streams and slow-moving rivers with extensive aquatic vegetation.	The main threat to this species is turbidity and siltation of stream bottoms, resulting in loss of aquatic and riparian vegetation. Additionally, loss of small vegetated backwaters and deep pools within streams has adversely affected the species.
finescale dace (<i>Phoxinus neogaeus</i>)		E	T	Within the Plan Area, this species may occur within the Keya Paha, Niobrara, and Elkhorn rivers in South Dakota and Nebraska. This species is found in small, slow-moving streams with clear water and prefers quiet headwaters, small marshes, and beaver ponds lined with sand and gravel as opposed to mud.	One of the primary threats to this species is groundwater withdrawals and resulting surface water depletions. Additionally, any increases in water turbidity adversely affect this fish's ability to capture prey. Additionally, the introduction of predatory fish (e.g., green sunfish and trout) has affected this species.
northern redbelly dace (<i>Phoxinus eos</i>)		T	T	Within the Plan area, this species may occur in Keya Paha and Niobrara rivers and tributaries in South Dakota and Nebraska. This species is found in small, slow-moving streams with clear water and prefers quiet headwaters, small marshes, and beaver ponds lined with sand and gravel as opposed to mud.	One of the primary threats to this species is groundwater withdrawals and resulting surface water depletions. Additionally, any increases in water turbidity adversely affect this fish's ability to capture prey.
northern pearl dace (<i>Margariscus nachtriebi</i>)		T		Within the Plan Area, this species may occur in cool tributaries of the Missouri and Niobrara rivers. It inhabits cool, clear, headwater streams, ponds, and small lakes with gravel substrates.	The primary threats to this species include beaver dam removal, habitat alteration/degradation, impoundments, channelization, conversion of natural habitats to agricultural production, and pollution. The species is also very vulnerable to climate change due to very specific habitat requirements.
sturgeon chub (<i>Macrhybopsis gelida</i>)		T	E	Within the Plan Area, this species is known to occur in the Missouri, White, Keya Paha, and Elkhorn rivers. Habitat is characterized by turbid water with moderate to strong currents over bottoms ranging from rocks and gravel to coarse sand. It spawns from June through July.	The primary threat to this species is changes in hydrology in large river systems, typically as a result of dam development. Dams increase siltation and prevent the maintenance of gravel or rocky substrates as well as influence temperature and flow rates, which also reduce the quality of the species habitat.

Species	Status			Occurrence and Habitat	Primary Threats
	Service	SD	NE		
Mammals					
northern long-eared bat (<i>Myotis septentrionalis</i>)	T	T	T	This species may be present throughout the Plan Area in Nebraska and South Dakota. The species inhabits forested habitat during the summer months and hibernates in mines and caves during the winter. Northern long-eared bats are insectivores and consume mostly leafhoppers, moths, beetles, flies, and caddisflies.	The main threat to this species is the fungal disease known as white nose syndrome. The disease is responsible for a 99% decline in some populations of northern long-eared bats. While other threats to the species exist, including loss of forested habitat, mortality associated with operational wind turbines, and disturbance during hibernation, these threats alone are not affecting the long-term viability of northern long-eared bat populations.
river otter (<i>Lontra canadensis</i>)		T	T	This species may occur throughout Plan Area in South Dakota and Nebraska. It inhabits rivers, streams, lakes, ponds, marshes, and swamps, feeding on a variety of prey, especially fish and crayfish.	Historically, unregulated trapping was responsible for river otter decline within the Plan Area in Nebraska and South Dakota. While populations are recovering, incidental mortality as a result of legal trapping continues. Additionally, stream degradation, seasonal variations in water levels, and loss of riparian habitat may threaten long-term population stability.
Plants					
small white lady's slipper (<i>Cypripedium candidum</i>)			T	Within the Plan Area, this species may occur in Keya Paha County, Nebraska. It typically inhabits relatively undisturbed grassland, wet meadow, and moist prairie habitats, though it has been documented in moderately disturbed sites such as roadside ditches.	The primary threat to this species is the conversion of tallgrass prairie habitat to crop production and urban development. Other concerns include livestock grazing, herbicide use, shading by woody vegetation, and the introduction of non-native species.
western prairie fringed orchid (<i>Platanthera praeclara</i>)	T		T	Within the Plan Area, this species may occur in Holt and Antelope counties, Nebraska. It can inhabit a variety of soil types, but all contain tallgrass prairie habitat with high soil moisture.	The primary threat to this species is the conversion of native grassland habitats to cropland. Additional threats include annual haying, non-native plants, development, herbicide use, and livestock overgrazing. Threats to the sphinx moth, which is the main pollinator, may also present threats to this plant.
blowout penstemon (<i>Penstemon haydenii</i>)	E		E	Within the Plan Area, this species may occur in Cherry County in Nebraska. In Nebraska, this species is primarily restricted to the Sandhills. The Service's 2012 5-year review (Service 2012) cites Stubbendieck's 2008 unpublished annual monitoring report for this species, which indicates that there were 32 known populations in the Sandhills. None of these populations occur within the Plan Area.	The primary threat to this species in Nebraska is the loss of blowout habitat due to stabilization of dunes. An additional threat is the lack of effective habitat management.

Source: NGP 2020a; SDGFP 2018

E = endangered; NE = Nebraska; SD = South Dakota; Service = U. S. Fish and Wildlife Service; T = threatened

3.9. LAND USE, RECREATION, AND VISUAL RESOURCES

The following sections describe the affected environment for land use, recreation, and visual resources. Existing conditions were reviewed in detail in the 2014 FSEIS Section 3.9 and the 2019 FSEIS Sections 3.2, 6.4.7, and 6.4.8.

3.9.1. Land Use

The five counties in the Plan Area cover 6,196 square miles of land area. The land is predominantly rangeland and agricultural land, comprising approximately 57 percent and 32 percent of the Plan Area, respectively, as indicated in Table 8. A small portion of the land—less than 3 percent—is developed. Most developed land has low intensity or open space use, including uses such as single family residences, parks, golf courses, and landscaped spaces. Relative proportions of land use vary among the five counties, but all share the predominance of rangeland and agriculture.

Most of the land in the Plan Area is privately owned. Publicly owned land includes state parkland and natural resource land, town or municipal parks, and government facilities.

Each county in the Plan Area has numerous towns and rural communities, most with population less than 1,000 people. The five largest towns, with populations between 1,000 and 3,600, are Winner in Tripp County, O’Neill and Atkinson in Holt County, and Neligh and Tilden in Antelope County (U.S. Census Bureau 2018). The proposed Project and associated infrastructure lie about 1.3 miles from Winner, about 8 miles from Atkinson, about 6 miles from O’Neill, about 5 miles from Neligh, and about 0.7 mile from Tilden. The proposed Project and associated infrastructure would also approach within 5 miles of five smaller towns or villages: Colome (Tripp County, about 2.6 miles away), Page (Holt County, about 0.4 mile away), Oakdale (Antelope County, about 3.3 miles away), Orchard (Antelope County, about 1.7 miles away), and Royal (Antelope County, about 1.8 miles away).

Table 8. Land Use as a Percent of Total Area within Plan Area Counties

Land Cover Type	Tripp County SD	Keya Paha County NE	Boyd County NE	Holt County NE	Antelope County NE	Total Plan Area ^a
Total Area (square miles)	1,618	773	535	2,413	857	6,196
Rangeland/Grassland	54.4%	74.7%	62.0%	65.0%	23.2%	57.4%
Agriculture	39.3%	8.4%	25.6%	24.1%	67.9%	32.3%
Wetlands ^b	2.4%	6.9%	2.5%	6.6%	2.5%	4.7%
Developed: Open Space or Low Intensity	2.6%	2.4%	2.8%	2.1%	3.4%	2.6%
Forest	0.3%	6.8%	4.8%	1.4%	2.1%	2.2%
Water	0.7%	0.5%	2.1%	0.7%	0.3%	0.7%
Developed: Medium or High Intensity	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%
Barren and Shrub/Scrub	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%

Source: National Land Cover Data (USGS 2019b)

a. Percentage may not add up to 100 percent due to rounding.

b. The designations in this table reflect mapping of actual use of the land surface. Some wetland areas that are part of (and used as) cultivated fields, forests, rangeland, or developed areas may not be included in the wetlands category.

3.9.2. Recreation

Public recreation opportunities within the Plan Area are provided by state parks and resource areas, rivers and lakes, and municipal parks within towns. Private campgrounds and outfitters also serve outdoor recreational needs.

The only state park within the Plan Area is the 360-acre Ashfall Fossil Beds State Historical Park in northwestern Antelope County, which incorporates an important paleontology site (NGP 2020b). The park is about 2.8 miles from the nearest portion of the proposed Project footprint. Each of the four Nebraska counties in the Plan Area has several state wildlife management areas available for hunting, fishing, camping, and hiking. Several of these areas include lakes where boating is permitted.

The Cowboy Trail, a 219-mile rail-trail suitable for walking, mountain biking and horseback riding, passes through central Holt and Antelope Counties parallel to the Elkhorn River (NGP 2020c; Rails to Trails Conservancy 2020). The trail parallels U.S. Route 20, 6 to 8 miles south of the Permit Area, in Holt County near the towns of Atkinson, Emmet, and O'Neill.

Rivers in the Plan Area provide for boating and fishing. The Niobrara River, which forms the southern boundary of Keya Paha and Boyd counties, is popular for canoeing and kayaking and, unlike most Nebraska rivers, it provides whitewater boating opportunities. A 76-mile portion of the river was designated in 1991 as a National Scenic River and is managed by the National Park Service. The National Scenic River section extends from the Borman Bridge west of the Plan Area to State Highway 137 in Keya Paha County. The Permit Area crosses the Niobrara River where it forms the boundary between Boyd and Holt Counties, approximately 11 miles east of the National Scenic River portion of that river.

The Missouri River along the northeastern boundary of Boyd County is part of the Upper Missouri River Trail (NGP 2020d and 2020e). The Elkhorn River, which passes through Holt and Antelope Counties, is used for fishing, boating, and tubing.

3.9.3. Visual Resources

Visual resources are the visible physical features of a landscape that have an aesthetic value to viewers. All land has inherent visual values that warrant different levels of management. Aesthetic judgment, especially related to landscape views, is often considered subjective.

The Plan Area encompasses a variety of landscapes, including grassland/rangeland, cropland, pastures, forest, wetlands, waterways, towns, and rural communities. The most common landscapes consist of rolling grasslands and agricultural land. As noted in the 2014 FSEIS Section 3.9.2.4, nighttime visual conditions are notable for the relative absence of manufactured sources of light, such as street lamps or the glow from major urban areas.

Recognized scenic resources in the Plan Area include the Niobrara National Scenic River and State Route 12 through Keya Paha and Boyd Counties, which forms about half of the "Outlaw Trail," a 231-mile Nebraska Scenic Byway recognized by the Nebraska Department of Transportation (Nebraska DOT 2020). The Permit Area crosses the Outlaw Trail Scenic Byway near the town of Mills in Keya Paha County.

3.10. SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Existing conditions were reviewed in detail in the 2014 FSEIS Section 3.10 and the 2019 FSEIS Sections 3.8 and 6.4.9. Following is a summary of social and economic conditions in the Plan Area.

3.10.1. Population and Economic Characteristics

Table 9 shows population and economic data for the counties within the Plan Area. The five counties are rural areas, sparsely populated except in towns, with an estimated total population of 24,919 in 2018. Population within the Plan Area declined by 3 percent from 2010 through 2018, while the state’s populations as a whole grew by 8 percent in South Dakota and 6 percent in Nebraska. Plan Area counties in Nebraska had median household incomes ranging from about \$48,700 in Antelope County to \$57,500 in Holt County, lower than the statewide median of \$59,100 in Nebraska. The median income in Tripp County was about \$51,000, lower than the South Dakota statewide median of \$56,500. Unemployment rates ranged between 0 and 2 percent in the Nebraska counties, and was 3.5 percent in Tripp County, generally lower than the statewide rates of 3.5 percent in both South Dakota and Nebraska.

Table 9. Population and Economic Characteristics

Jurisdiction	Population 2010	Population 2018	Median income (\$)	Civilian labor force	Unemployment rate
South Dakota	799,462	864,289	56,499	459,025	3.5%
Tripp County	5,644	5,468	51,027	2,885	3.5%
Nebraska	1,799,125	1,904,760	59,116	1,030,381	3.5%
Keya Paha County	824	792	49,688	457	0%
Boyd County	2,099	2,042	50,729	1,017	1.5%
Holt County	10,435	10,245	57,468	5,717	1.1%
Antelope County	6,685	6,372	48,716	3,297	2.0%
Total Plan Area	25,754	24,919	-	-	-

Source: U.S. Census Bureau 2010 and 2019

3.10.2. Public Services and Tax Revenues

Public service infrastructure is typically not as developed in rural areas as in urban areas. There are multiple law enforcement service providers in the Plan Area, including state patrols, county sheriff departments, and municipal police departments. The 2014 FSEIS found that the counties in the Plan Area were served by one to five law enforcement agencies, as well as between one and three fire departments, and each of the counties has one hospital (Table 3.10-16 in the 2014 FSEIS).

Major sources of local government revenue in South Dakota and Nebraska are property taxes, intergovernmental transfer, and income from state government liquor store operations (Table 3.10-17 in the 2014 FSEIS). In 2018, the property tax rate for the five Nebraska counties ranged from 0.8 to 1.2 percent (Nebraska Department of Revenue 2019).

3.10.3. Transportation

The Plan Area is well served by U.S. and state highways. The closest interstate highway is I-90, about 10 miles north of Tripp County, which extends from Wisconsin into Wyoming. Major north-south roads serving the Plan Area include U.S. Highways 183 and 281 and Nebraska State Highways 137 and 11.

Major east-west corridors serving the six counties include U.S. 18 in South Dakota, U.S. 20 in Nebraska and Nebraska State Highway 12. The proposed Project and associated infrastructure cross U.S. Highways 18, 183, and 281; and Nebraska State Highways 11 and 12/137.

3.10.4. Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. Based on Council on Environmental Quality guidance (CEQ 1997) and recommended methodologies for NEPA reviews (USEPA 2016), a minority or low-income population may be identified by any one of the following criteria:

- The minority population in the affected area exceeds 50 percent.
- The minority population of the affected area is “meaningfully greater” than the minority composition of the general population in a reference area.
- The proportion of low-income population is higher in the affected area than in a reference area.

This analysis uses the Census block group as the unit of analysis, as this is the smallest unit for which data are available in the Plan Area. The respective state population is used as the reference population. A “meaningfully greater” minority or low-income population is defined as a proportion of the population greater than 120 percent of the minority or low-income population in the state. This definition was also used in the 2014 FSEIS (see Section 3.10.2.4) and 2019 FSEIS (see Section 3.8.2). The 2014 FSEIS used the state as the reference population, while the 2019 FSEIS used the county. This analysis uses the state as a reference population, as the less populated counties in the Plan Area have from one to four block groups, providing an insufficient basis for comparison. Population data from the U.S. Census Bureau’s 2013–2017 American Community Survey were used to identify minority and low-income populations (USEPA 2019).

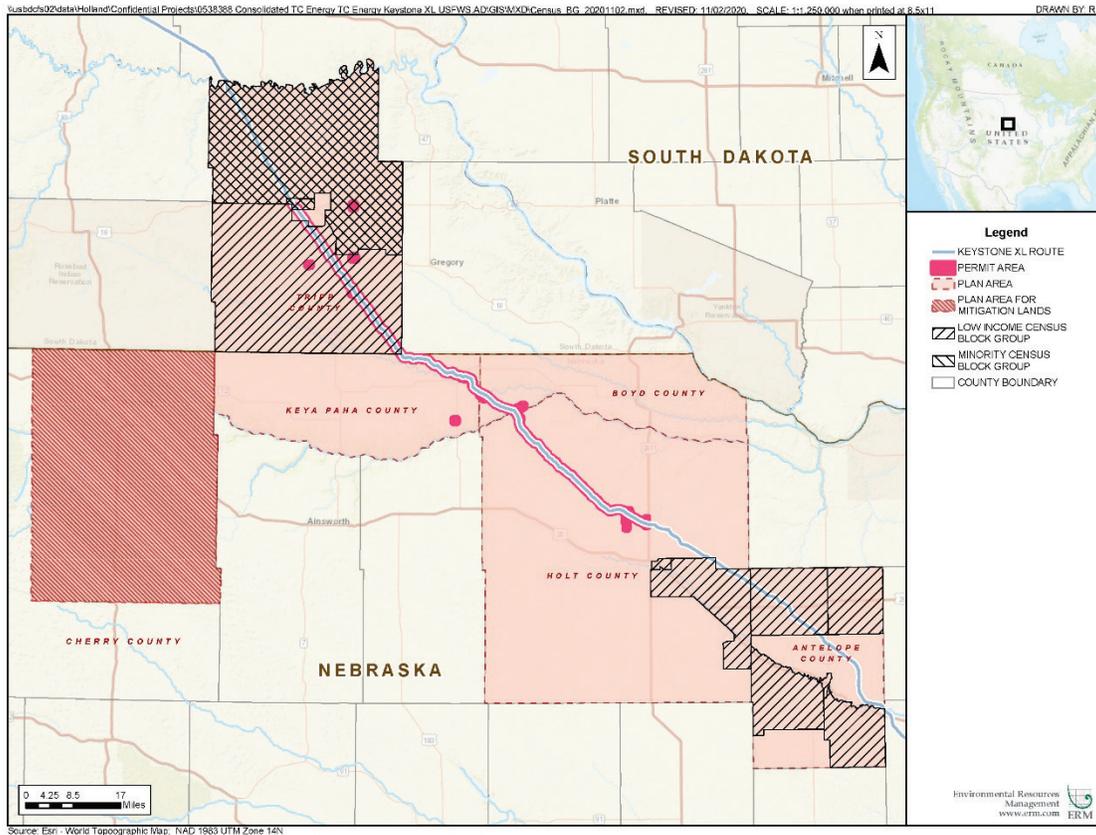
The Plan Area contains 23 block groups in five counties. None of the block groups had a minority population greater than 50 percent, but two block groups in Tripp County, South Dakota, had minority populations at least 120 percent of the state’s minority population. The minority population in these two block groups was 24 percent and 30 percent, as compared to the South Dakota minority population of 17 percent.

In 10 of the block groups, the proportion of low-income residents was at least 120 percent of the proportion in the respective state population. The block groups were compared to South Dakota’s low-income population comprising 32 percent of state residents, and Nebraska’s low-income population comprising 30 percent of state residents. The block groups with low-income populations at least 120 percent of the state percentage are quantified below by County:

- Three of the six block groups in Tripp County, South Dakota. The low-income population in these block groups was between 37 and 42 percent.
- Five of the eight block groups in Antelope County, Nebraska. Low-income residents comprised 38 to 51 percent of these block groups’ population.

- Two of the ten block groups in Holt County, Nebraska. Low-income residents comprised 42 percent of the population in each of these block groups.

See Figure 2 for locations of census tracts meeting the meaningfully greater criteria for environmental justice minority and low-income populations.



Source: USEPA 2019

Figure 2. Environmental Justice Populations in Plan Area by Census Block Group

As discussed in the 2019 FSEIS Section 3.8.2.4, the Plan Area includes lands subject to treaties between the United States and various tribes. All of the Plan Area to the north of the Niobrara River is subject to the 1851 and 1868 treaties of Fort Laramie. Different tribes, depending on their respective treaties, EOs, or congressional acts may assert different claims related to a multitude of issues pertaining to off-reservation hunting, fishing, water, and other resource rights.

3.11. CULTURAL RESOURCES

Existing conditions for cultural resources were reviewed in detail in the 2014 FSEIS Section 3.11 and the 2019 FSEIS Sections 3.9 and 6.4.10. The Plan Area contains a subset of the cultural resources analyzed in those documents. Several types of historic properties and prehistoric features are located in or near the

area potentially affected by the proposed Project and associated infrastructure (the Area of Potential Effects [APE]). Keystone and several state and federal agencies and other concurring parties have signed a National Historic Preservation Act (NHPA) Section 106 Programmatic Agreement regarding the Keystone XL Pipeline. In 2020, the Service signed onto the 2020 amended Programmatic Agreement (USACE 2020). This Programmatic Agreement requires any location to be surveyed for cultural resources before construction activities related to the proposed Project begin in that area. It also outlines the appropriate consultation procedures to be followed, that effects on historic properties are to be avoided to the greatest extent possible, and that effects are to be minimized and mitigated if complete avoidance is not possible.

The cultural resource inventory remains ongoing for the proposed Project to comply with the stipulation in the Programmatic Agreement that allows for a phased process of identifying and evaluating historic properties within the proposed Project APE. All of the proposed Project footprint in South Dakota, meaning all of the area where proposed Project activities would take place, and most of the footprint in Nebraska has been surveyed for cultural resources. While some areas in Nebraska have yet to be surveyed by Keystone primarily due to lack of landowner permissions, preliminary cultural assessments based on previous surveys and a literature review have been completed for these areas. Additionally, the Programmatic Agreement establishes an agreed-upon process for addressing as-yet unsurveyed areas going forward, including ongoing consultation with the Nebraska State Historic Preservation Office (SHPO). The Nebraska SHPO has confirmed that the process outlined in the Programmatic Agreement contains appropriate measures for handling unsurveyed locations (see the 2019 FSEIS p. 3.9-8). Keystone has completed additional cultural resources surveys since publication of the 2019 FSEIS; the results of these surveys where they apply to the APE of the proposed Project and associated infrastructure will be included as they are available in the final version of this EA.

Potential cultural resources identified in areas potentially affected by the proposed Project are listed in Table 10; this does not include the associated infrastructure, which is discussed below the table. In total, 69 sites were identified, 7 of which were already protected or were eligible to be listed in the National Register of Historic Places (NRHP), 59 were not eligible, and 3 were not evaluated for NRHP eligibility.

Table 10. Potential Cultural Resources in Areas Potentially Affected by the Proposed Project in the Plan Area

Site ID	Description	County	NRHP Determination	SHPO Concurrence
39TP0056	Historic isolate	Tripp	Not eligible ^a	Concur
39TP0057	Historic isolate	Tripp	Not eligible ^a	Concur
39TP0059	Historic isolate	Tripp	Not eligible ^a	Concur
39TP0060	Historic isolate	Tripp	Not eligible ^a	Concur
39TP0061	Historic isolate	Tripp	Not eligible ^a	Concur
39TP0062	Precontact isolate	Tripp	Not eligible ^a	Concur
39TP0068	Precontact isolate	Tripp	Not eligible ^a	Concur
39TP0069	Precontact isolate	Tripp	Not eligible ^a	Concur
25KP0349	Historic school house	Keya Paha	Not eligible ^a	Concur
25KP0350	Precontact lithic scatter	Keya Paha	Not eligible ^a	Concur
25KP0351	Historic dump site	Keya Paha	Not eligible ^a	Concur
25KP0352	Historic artifact scatter	Keya Paha	Not eligible ^a	Concur
C601KP001FS	Historic isolate	Keya Paha	Not eligible ^a	Concur

Site ID	Description	County	NRHP Determination	SHPO Concurrence
C601KP010FS	Historic dump site	Keya Paha	Not eligible ^a	Concur
KP00-103	Historic livestock feeder	Keya Paha	Not eligible ^a	Concur
KP00-104	Historic windmill and water tank	Keya Paha	Not eligible ^a	Concur
KP00-105	Historic cemetery	Keya Paha	Protected ^a	Concur
25BD0236	Precontact lithic scatter	Boyd	Not eligible ^a	Concur
25BD0237	Precontact lithic scatter	Boyd	Not eligible ^a	Concur
BD00-235	Historic windmill and cattle tank	Boyd	Not eligible ^a	Concur
BD00-236	Historic farmstead	Boyd	Not eligible ^a	Concur
C601BD001FS	Historic artifact scatter	Boyd	Not eligible ^a	Concur
C601BD004FS	Historic artifact scatter	Boyd	Not eligible ^a	Concur
C601BD006FS	Precontact isolate	Boyd	Not eligible ^a	Concur
C601BD008FS	Precontact isolate	Boyd	Not eligible ^a	Concur
25HT0052	Historic railroad	Holt	Eligible ^a	No concurrence
25HT0053	Historic railroad bed	Holt	Not eligible ^a	Concur
25HT0054/25HT0505	Commercial/industrial railroad buildings and structures	Holt	Unevaluated ^a	Pending
25HT0060	Precontact lithic scatter	Holt	Not eligible ^a	Concur
25HT0061	Historic dump	Holt	Not eligible ^a	Concur
25HT0062	Historic farmstead	Holt	Not eligible ^a	Concur
25HT0063	Multicomponent site	Holt	Not eligible ^a	Concur
C502HT004FS	Precontact isolate	Holt	Not eligible ^a	Concur
C502HT006FS	Precontact isolate	Holt	Not eligible ^a	Concur
C601HT002FS	Historic well pump	Holt	Not eligible ^a	Concur
C601HT003FS	Precontact lithic scatter	Holt	Not eligible ^a	Concur
HT00-288	Historic windmill and water tank	Holt	Not eligible ^a	Concur
HT00-289	Historic windmill and water tank	Holt	Not eligible ^a	Concur
HT13-001	Historic C&NW railway depot	Holt	Eligible ^a	Concur
HT13-040	Historic railway freight depot	Holt	Not eligible ^a	Concur
C801HT005FS	Petrified wood angular fragment	Holt	Not eligible ^b	Concur
25AP60	Prehistoric limited activity; historic farmstead/rural household	Antelope	Not eligible ^b	Unknown
25AP0074	Precontact artifact scatter	Antelope	Not eligible ^a	Concur
25AP0075	Historic farmstead/precontact isolate	Antelope	Not eligible ^a	Concur
25AP0076	Unknown historic site	Antelope	Not eligible ^a	Concur
25AP0077	Historic dump site	Antelope	Not eligible ^a	Concur
25AP0078	Historic dump site	Antelope	Not eligible ^a	Concur
25AP0079	Historic farmstead	Antelope	Not eligible ^a	Concur
25AP0080	Historic farmstead	Antelope	Eligible ^a	Concur

Site ID	Description	County	NRHP Determination	SHPO Concurrence
25AP0081	Historic farmyard/outbuilding	Antelope	Not eligible ^a	Concur
25AP0082	Historic farmstead	Antelope	Not eligible ^a	Concur
25AP0083	Historic farmstead	Antelope	Not eligible ^a	Concur
25AP0084	Historic dump site	Antelope	Not eligible ^a	Concur
25AP0085	Unknown historic site	Antelope	Not eligible ^a	Concur
25AP0086	Unidentified historic site	Antelope	Not eligible ^a	Concur
25AP0087	Precontact artifact scatter	Antelope	Not eligible ^a	Concur
25AP0088	Precontact field camp	Antelope	Not eligible ^a	Concur
25AP0089	Precontact camp/unidentified historic site	Antelope	Eligible ^a	Concur
25AP0090	Historic dump	Antelope	Not eligible ^a	Concur
25AP0092	Historic farmstead	Antelope	Not eligible ^a	Concur
25AP0093	Historic farmstead	Antelope	Eligible ^a	Concur
25AP99	Prehistoric lithic scatter	Antelope	Unevaluated ^b	Unknown
25AP100	Prehistoric lithic scatter	Antelope	Unevaluated ^b	Unknown
25AP101	Prehistoric lithic scatter	Antelope	Not eligible ^b	Unknown
25AP102	Historic farmstead/rural household	Antelope	Not eligible ^b	Unknown
AP00-000	Active railroad (BNSF Railway Company)	Antelope	Not eligible ^a	Concur
AP00-084	Historic windmill and water tank	Antelope	Not eligible ^a	Concur
AP00-299	Historic farmstead	Antelope	Not eligible ^a	Concur
AP00-300	Historic farmstead	Antelope	Eligible ^a	Concur

Note: This table covers the proposed Project footprint in the Plan Area, not the associated electrical power infrastructure.

NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office

a. Per the 2014 FSEIS

b. Per the 2019 FSEIS

Cultural resource surveys were also conducted along the APE of the proposed electrical power infrastructure. The results are detailed in the 2019 FSEIS Section 6.4.10. Findings are discussed below in relation to the PS that the associated infrastructure would serve.

For the APE of Rosebud Electric’s power line to PS-20, a Class III cultural resources field inventory identified three archaeological resources, including two isolated finds, one of which is prehistoric and the other historic, and a historic artifact scatter. All three sites were recommended as not eligible for listing in the National Register. Not all areas of the proposed route have been surveyed, and portions of the route have been rerouted, meaning that some originally identified sites may not be located within the current corridor. The remaining portions of the ROW would need to be surveyed prior to completing consultation with the South Dakota SHPO and initiating construction. In adherence to the Programmatic Agreement, Rosebud Electric conducted a database record search of any known cultural or historic resources. The record search found one archeological site and no recorded historic structures within 100 feet of the proposed line. The archeological site was documented as an isolated Euro-American find, and its eligibility for listing in the National Register is undetermined. Details can be found in the 2019 FSEIS (pp. 6-132–6-133).

For the APE of Rosebud Electric’s power line to PS-21 within the Plan Area, a Class III cultural resources field inventory along a proposed route identified one archaeological site and two isolated finds within the Plan Area (Salisbury et al. 2010 pp. 4-105–4-113). However, not all areas of the proposed route have been field surveyed, and portions of the route have been rerouted, meaning that some originally identified sites may not be located within the current corridor. The archaeological site and the isolated finds were determined not eligible for listing in the NRHP. In adherence to the Programmatic Agreement, Rosebud Electric conducted a database record search of any known cultural or historic resources for the portion of the transmission line route in Tripp County, South Dakota (SD SHPO 2011a and 2011b). The search found no recorded archeological sites or historic structures within 100 feet of the route. Details can be found in the 2019 FSEIS (p. 6-133).

The proposed power infrastructure associated with PS-22 would be constructed by NPPD and the proposed power infrastructure associated with PS-23 would be constructed by ERPPD. These routes have not been surveyed for cultural resources. However, according to the 2019 FSEIS (p. 6-134), the DOS, a signatory to the Programmatic Agreement, would consult with the Nebraska SHPO on compliance with Section 106 of the NHPA. A literature search would be conducted of any previously identified cultural resources or completed surveys near the proposed ROW. Once a route is confirmed, cultural resource surveys would be completed if it is determined there is a likelihood that cultural resources could be present.

Keystone, Rosebud Electric, NPPD, Basin Electric, ERPPD, and the Service have not identified any other significant scientific, cultural, or historical resources in or near the APE in the Plan Area.

Consistent with Section 106 of the NHPA, DOS has conducted government-to-government consultation with Indian tribes. These consultations are summarized in the 2014 FSEIS (Section 3.11.4) and the 2019 FSEIS (pp. 3.9-1–3.9-6 and 6-124). The Service sent letters dated March 10, 2020, to Indian tribes with potential historical, spiritual, or cultural interests within the Plan Area to invite government-to-government consultation on the Service’s proposed action. At the time of publication of this document, the Service has received a response only from the Rosebud Sioux Tribe, who requested government-to-government consultation.

Since receiving the Rosebud Sioux Tribe’s request for government-to-government consultation on April 13, 2020, the Service has attempted to schedule a consultation meeting with the Rosebud Sioux Tribal Council. The following outlines the Service’s actions associated with government-to-government consultation.

- April 21, 2020: Initial Response to Rosebud Sioux Tribal Historic Preservation Officer (THPO)
- April 24, 2020: Emailed THPO to schedule preliminary call about consultation
- April 27, 2020: Attempted call with THPO for preliminary call about consultation
- April 28, 2020: Completed call with THPO and made preliminary plans for consultation meeting between the Service and Rosebud Sioux Tribal Council (consultation meeting) in early May 2020
- April 29, 2020: Followed up with THPO to confirm May 2020 dates
- May 4, 2020: Received information from THPO that May 2020 dates would not work for Rosebud Sioux Tribal Council due to COVID-19 Pandemic Response

- May 28, 2020: Proposed potential consultation meeting dates in early June 2020 to THPO
- June 1, 2020: Discussed plans for consultation meeting with THPO
- June 3, 2020; June 9, 2020; and June 18, 2020: Reached out to Rosebud Sioux THPO about potential dates for consultation meeting
- June 22, 2020: Discussed with THPO the potential scheduling options for consultation meeting in second week of July 2020
- June 24, 2020: Confirmed with THPO the Service's availability for potential consultation meeting times in the second week of July 2020
- June 29, 2020; July 9, 2020: Reached out to THPO about potential consultation meeting times in July 2020
- July 9, 2020: Received news from THPO that all Rosebud Sioux Council meetings cancelled until July 22, 2020, due to deaths from COVID-19
- July 29, 2020; August 7, 2020: Reached out to THPO about potential consultation scheduling
- September 14, 2020: Shared *Federal Register* Notice of Availability for HCP and Draft EA on ABB for the Keystone XL Pipeline Project with Rosebud Sioux President Bordeaux
- September 16, 2020: Received letter from Rosebud Sioux submitted on Regulations.gov during public comment period
- October 5, 2020: Followed up with President Bordeaux on government-to-government consultation; Received confirmation of consultation meeting request from President Bordeaux and contact information for new Rosebud Sioux employees coordinating meeting scheduling
- October 7, 2020: Responded to Rosebud Sioux contacts, including Rosebud Sioux Coordinator, and provided previous history of consultation meeting discussions with THPO
- October 20, 2020: Contacted Rosebud Sioux Coordinator and provided background on discussions and typical process
- October 29, 2020: Followed up with Rosebud Sioux Coordinator on consultation meeting and received response that the Rosebud Sioux Tribe had enacted several shutdowns due to COVID-19 issues
- November 2, 2020: Phone conversation with Rosebud Sioux Coordinator about virtual consultation meeting and potential attendees
- November 5, 2020: Received request from Rosebud Sioux Coordinator requesting project overview and Service contacts
- November 10, 2020: Received email from Rosebud Sioux Coordinator indicating Rosebud Sioux Council availability on December 16, 17, or 18, 2020, with Council preference for December 16, 2020; Responded that December dates were available and provided requested Project overview and Service contacts to Rosebud Sioux Coordinator

- November 12, 2020: Received request from Rosebud Sioux Coordinator requesting Department leadership attendance to address Rosebud Sioux Leadership; Rosebud Sioux requested attendance by Service biologist knowledgeable on ABB downlisting from endangered to threatened
- November 13, 2020: Phone conversation with Rosebud Sioux Coordinator and received follow-up email regarding information related to the Rosebud Sioux Tribe's reference to locations with overlap of the pipeline corridor and tribal land ownership in September 20, 2020, letter from Rosebud Sioux Tribe to the Service
- November 16, 2020: Responded to email requesting further clarification on Service Department Leadership attendance of December Consultation meeting, and provided additional information on the Service's request for more information on Keystone pipeline crossing tribal owned or tribal trust lands.
- November 23, 2020: Confirmed the Service's ability to participate in a virtual consultation meeting on December 16, 2020 and requested confirmation of Rosebud Sioux Council availability.
- November 25, 2020: Requested confirmation of December 16, 2020, virtual consultation meeting.
- November 25, 2020: Received email from Rosebud Sioux Coordinator that the Rosebud Sioux Council was no longer available for a virtual consultation meeting on December 16, 2020, and requested the consultation meeting move to January 20, 21, or 22, 2021.

After having made a reasonable and good faith effort to provide a meaningful opportunity for government to government consultation, the Service concluded government to government consultation efforts with the Rosebud Sioux Tribe on December 16, 2020. On December 17, 2020, the Rosebud Sioux Tribe responded to the Service's request for information regarding the pipeline route in relation to Tribal Lands. The Service reviewed the information which included the location of multiple land parcels of interest identified by the Rosebud Sioux Tribe. The Service concluded that the parcels of land identified in the information do not occur within the Permit Area of the HCP.

3.12. GREENHOUSE GASES AND CLIMATE CHANGE

Existing conditions for greenhouse gases and climate change were reviewed in detail in the 2014 FSEIS Section 4.14 and the 2019 FSEIS Section 3.10. Fossil fuel combustion is the predominant source of greenhouse gas emissions in the United States (USGCRP 2018 p. 60). Rising greenhouse gas concentrations in the atmosphere affect a range of ongoing and predicted changes in global climate, including rising surface temperatures, changes in precipitation, rising sea levels, and an increase in extreme weather events. Annual average temperature over the contiguous United States increased by 1.8 °F since the beginning of the 20th century (USGCRP 2018 p. 73). Studies project that the northern Great Plains, presently susceptible to heat waves, floods, droughts, and severe storms, will experience more intense episodes of these conditions, threatening vulnerable communities and ecosystems throughout the region (USGCRP 2018 Chapter 22). Temperatures in the northern Great Plains are projected to increase 2 °F to 4 °F or more by 2050, resulting in an increase in the occurrences of drought and heat waves (USGCRP 2018 Chapter 22). These changes are likely to add stress to systems for providing water, to agriculture, to energy use, and to people.

The states of South Dakota and Nebraska do not have official state climate action plans. According to a February 2019 report by the U.S. Energy Information Administration, unadjusted energy-related carbon dioxide (CO₂) emissions from 2006 to 2016 increased by 12.8 percent in South Dakota and by 11.1 percent in Nebraska, while those in the nation as a whole decreased by 13.4 percent (EIA 2019 pp. 8–9). Over the same period, the carbon intensity of the state economies decreased by 10.2 percent in South Dakota and by 13.5 percent in Nebraska (EIA 2019 pp. 22–23). The fuel accounting for the largest share of energy-related CO₂ emissions in Nebraska was coal, whereas petroleum fueled the majority of energy-related emissions in South Dakota.

4. ENVIRONMENTAL CONSEQUENCES FROM CONSTRUCTION AND NORMAL OPERATIONS AND MAINTENANCE

This chapter describes the likely environmental impacts of each alternative retained for detailed analysis. It is organized by resource and corresponds to the organization of Chapter 3. This chapter evaluates direct, indirect, and cumulative impacts of the construction and normal operations and maintenance of the proposed Project and associated infrastructure within the Plan Area. Chapter 5 discusses the potential impacts of accidental releases.

As described in Section 2.1, No Action Alternative, the Service would not issue the requested ITP, the HCP would not be implemented, and the proposed Project and associated infrastructure would not be built. Under the proposed action, the Service would issue the requested ITP and Keystone would implement the HCP and construct and operate the proposed Project (and Basin Electric, Rosebud Electric, NPPD, and ERPPD would construct and operate the associated infrastructure) in the Plan Area in the manner described in the HCP. For each resource, the potential impacts of the proposed action are discussed first, followed by the likely impacts of the No Action Alternative, and then the cumulative impacts of the alternatives in combination with past, present, and reasonably foreseeable activities.

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure were analyzed in detail in the 2014 FSEIS Chapter 4 and in the 2019 FSEIS Chapters 4 and 6. The potential impacts of the Service's decision are a subset of the potential impacts discussed in those documents. All resources and impacts associated with the proposed Keystone XL pipeline system outside the Plan Area are addressed in the 2011 FEIS, the 2014 FSEIS, the 2019 FSEIS, the 2019 BA, and/or the 2019 BO. Potential impacts would be minimized by the conservation measures listed in Section 2.2.4, the HCP (Section 7.3 and Appendices B and C), the 2019 BA (Chapter 3), the 2019 FSEIS (Chapter 8), and the 2014 FSEIS (Appendices G and I).

4.1. GEOLOGY AND SOILS

4.1.1. Impacts of the Proposed Action

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure on geology and soils were analyzed in detail in the 2014 FSEIS Sections 4.1 and 4.2 and the 2019 FSEIS Sections 4.3 and 6.4.1. The potential impacts of the proposed action are a subset of the potential impacts discussed in those documents. In brief, vegetation clearing, topsoil segregation,

grading, excavation, the use of construction equipment, maintenance activities, and the presence of the pipeline and/or utility pole structures could affect geology and soils. Effects could include damage to paleontological resources; limitations on future access to sand, gravel, clay, stone, and paleontological resources located within the permanent ROW; and soil erosion, compaction, loss, mixing, and/or contamination. River and stream crossings using HDD or other methods could also affect bedrock and surficial geology. Heat released by the operating pipeline would increase soil temperatures. Although temporary impacts on soils would be apparent, these impacts would be highly localized; given the restoration measures proposed (see the HCP Section 7.3 and Appendix C, the 2019 BA Appendix C, and the 2014 FSEIS Appendix G), the primary permanent impacts would likely be limited to soil heating, the risk of damage to paleontological resources, and limitations on future access to resources located within the permanent ROW. Soil heating, as described in Appendix E of the 2019 BA, could result in soil temperature increases of approximately 10 °F at the surface during winter, possibly drying out the soil and affecting the biology of plants, microorganisms, and animals associated with the soil, including the ABB (see Section 4.7). The risk of damage to paleontological resources would be minimized by the measures proposed in the 2014 FSEIS Section 4.1.3.2. For details, refer to the 2014 FSEIS Sections 4.1 and 4.2 and the 2019 FSEIS Sections 4.3 and 6.4.1.

4.1.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on geology and soils because the No Action Alternative would not lead to any ground disturbance in the Plan Area. Under this alternative, Keystone would not construct the proposed Project within the Plan Area.

4.1.3. Cumulative Impacts

Cumulative impacts were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.2. Both of those analyses determined that cumulative impacts on this resource would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

4.2. AIR QUALITY

4.2.1. Impacts of the Proposed Action

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure on air quality were analyzed in detail in the 2014 FSEIS Section 4.12 and the 2019 FSEIS Section 4.4. The potential impacts of the proposed action are a subset of the potential impacts discussed in those documents. In brief, construction and maintenance of the proposed Project and associated infrastructure could lead to fugitive dust, emissions from internal combustion engines, open burning of vegetation, and vapors from fuels and welding. Effects would include a short-term, minor increase in air pollutant emissions during construction and a negligible increase in emissions during operations. Construction and operations emissions would not change air quality attainment status or violate air quality standards. For details, refer to the 2014 FSEIS Section 4.12 and the 2019 FSEIS Section 4.4.

4.2.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on air quality because the No Action Alternative would not lead to any fugitive dust or emissions of any type of air pollutant in the Plan Area. Under this alternative, Keystone would not construct the proposed Project within the Plan Area.

4.2.3. Cumulative Impacts

Cumulative impacts were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.3. Both of those analyses determined that cumulative impacts on this resource would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

4.3. NOISE AND VIBRATION

4.3.1. Impacts of the Proposed Action

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure were analyzed in detail in the 2014 FSEIS Section 4.12 and the 2019 FSEIS Section 4.5. The potential impacts of the proposed action are a subset of the potential impacts discussed in those documents. In brief, the proposed action would emit noise and vibration from construction equipment, earthmoving activities, vehicular traffic, HDD activities, and operating pump stations. Effects could include temporary annoyance of persons, temporary disturbance of livestock and wildlife (see Section 4.6, Wildlife and Fisheries), and minor permanent increases in noise from operating pump stations. Impacts on persons and livestock would likely be most prominent at and near residences and other built structures and would be most intense during construction. Table 11 compares the noise expected from various types of equipment to everyday noises. With the noise control measures proposed (see the HCP Section 7.3 and Appendix C, the 2019 BA Chapter 3, and the 2014 FSEIS Appendix G), noise and vibration would not exceed limits established by federal, state, and local laws. For details, refer to the 2014 FSEIS Section 4.12 and the 2019 FSEIS Section 4.5.

Table 11. Typical Noise Levels

Source of Noise	Typical Noise Level
Background in rural area	35 dBA ^a
Conversation	60 dBA ^a
Roadway	70 dBA ^b
Motor bus	80 dBA ^a
Excavator or backhoe	80 dBA ^c
Truck	84 dBA ^c
Dozer	85 dBA ^c
Jack hammer	88 dBA ^c
Pump station	119 dBA ^{d,e}

dBA = A-weighted decibel

a. Source: 2019 FSEIS pp. 3.5-2–3.5-3

b. Source: FTA 2018 p. 52

c. Source: FTA 2018 p. 176

d. One pump station with five pumps and motors operating concurrently. Keystone would implement a noise control plan to ensure that pump noise levels at nearby residences do not exceed noise standards. Applicable noise standards vary across locations in the Plan Area. See the 2019 FSEIS Section 4.12 for additional noise control information.

e. Source: 2014 FSEIS pp. 4.12-25–4.12-26

4.3.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on noise and vibration because the No Action Alternative would not cause any emissions of noise or vibration in the Plan Area. Under this alternative, Keystone would not construct the proposed Project within the Plan Area.

4.3.3. Cumulative Impacts

Cumulative impacts were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.4. Both of those analyses determined that cumulative impacts on this resource would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

4.4. WATER RESOURCES

4.4.1. Impacts of the Proposed Action

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure were analyzed in detail in the 2014 FSEIS Section 4.3 and the 2019 FSEIS Sections 4.6 and 6.4.2. The potential impacts of the proposed action are a subset of the potential impacts discussed in those documents. In brief, the proposed action would result in the following effects:

- Alterations to streambeds and banks at pipeline crossing locations.
- Temporary instream turbidity and sedimentation.
- Temporary to long-term loss of instream habitat.
- Temporary reductions in instream flow.
- Temporary alteration of drainage patterns and/or floodplains.

- Temporary to permanent alterations of wetlands.
- Temporary dewatering of excavation sites.
- Heating of shallow groundwater and wetlands immediately adjacent to the operating pipeline.
- Temporary disturbance of up to 31.5 acres of wetlands.
- Permanent conversion of approximately 0.8 acre of forested wetland to emergent wetland.

The proposed action may also result in the following effects, depending on local conditions and construction techniques used at any particular location:

- Long-term to permanent modification or loss of wetland areas as a result of excavation or the placement of fill.
- The contamination of groundwater or surface water by spills and leaks from supplies and equipment used in construction.
- HDD frac-out releasing nontoxic drilling fluids and cuttings into groundwater or surface water.
- Temporary depression of the water table at active wells.
- Long-term to permanent alteration of shallow groundwater flow along and across the pipe.

The proposed pipeline-waterbody crossings in the Plan Area would likely affect 197 waterbodies that would be crossed using traditional methods and may affect 4 rivers that would be crossed using HDD methods; such effects may be short-term to long-term and are expected to be minor.

Any or all of these effects could occur as a result of construction and normal operations and maintenance of the proposed Project and associated infrastructure. For details, refer to the 2014 FSEIS Section 4.3 and the 2019 FSEIS Sections 4.6, 6.4.2 and 6.4.3. Chapter 5 discusses the potential impacts of accidental releases. Measures to avoid, minimize, and/or mitigate impacts on water resources can be found in the HCP (Section 7.3 and Appendices B and C), the 2019 BA (Chapter 3), the 2019 FSEIS (Chapter 8), and the 2014 FSEIS (Appendices G and I).

Overall, the proposed action is expected to result in temporary minor impacts on water resources within the Plan Area, and it also has the potential to result in long-term to permanent minor impacts on water resources.

4.4.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on water resources because the No Action Alternative would not lead to any activity in or near waterbodies or wetlands in the Plan Area. Under this alternative, Keystone would not construct the proposed Project within the Plan Area.

4.4.3. Cumulative Impacts

Cumulative impacts were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.5. Both of those analyses determined that cumulative impacts on this resource would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

4.5. VEGETATION

4.5.1. Impacts of the Proposed Action

The nature, intensity and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure were analyzed in detail in the 2014 FSEIS Section 4.5 and the 2019 FSEIS Sections 4.7 and 6.4.4. The potential impacts of the proposed action are a subset of the potential impacts discussed in those documents. In brief, the proposed action would result in the temporary removal of native grasslands, cultivated crops, developed land, pasture, and wetland vegetation communities; the temporary to long-term disruption of riparian habitats; and the permanent conversion of forest communities to shrub/scrub and/or herbaceous communities. Soil heating as a result of pipeline operation may also influence the vegetation growing above the pipeline. Another possible result is the introduction of noxious weeds and/or invasive species.

Approximately 98 percent of the affected land in the Plan Area is covered with grassland/herbaceous, cultivated crops, developed open space, or pasture/hay land cover types, which are expected to recover completely after the proposed post-construction restoration activities (see the HCP Section 7.3 and Appendix C, the 2019 BA Chapter 3, and the 2014 FSEIS Appendix G), with the exception of areas permanently occupied by aboveground elements of the proposed Project and associated infrastructure. However, native grasslands may require several years to re-establish. Approximately 1 percent of the affected land is covered with shrub/scrub or various forest types, which are expected to be converted to herbaceous communities where they are not permanently occupied by aboveground elements of the proposed Project and associated infrastructure. However, areas of converted vegetation communities outside of the permanently maintained ROW may return to their original types over approximately 5 to 15 years. For details, refer to the 2014 FSEIS Section 4.5 and the 2019 FSEIS Sections 4.7.3.1 and 6.4.4.

4.5.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on vegetation because the No Action Alternative would not lead to any land clearing or construction in the Plan Area. Under this alternative, Keystone would not construct the proposed Project within the Plan Area.

4.5.3. Cumulative Impacts

Cumulative impacts were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.6. Both of those analyses determined that cumulative impacts on this resource would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

4.6. WILDLIFE AND FISHERIES

4.6.1. Impacts of the Proposed Action

4.6.1.1. *Wildlife*

Section 4.6 of the 2014 FSEIS and Sections 4.7 and 6.4.5.2 of the 2019 FSEIS detail the potential effects of the construction, operations, and routine maintenance of the Keystone XL pipeline system and associated infrastructure. The potential impacts of the proposed Project and associated infrastructure on wildlife are a subset of the potential impacts discussed in those documents. Construction would remove vegetation, including native grasses, shrubs, and trees, creating an unvegetated strip over the proposed pipeline trench and the adjacent construction areas. Direct and indirect temporary, short-term, long-term, and permanent impacts on wildlife resources could occur due to vegetation removal or conversion, obstructions to movement patterns, or the removal of native habitats that may be used for foraging, nesting, roosting, or other wildlife uses. Construction activities and noise could cause indirect mortality of species from stress or habitat avoidance during construction due to exposure from increased human activity. Increased noise levels from construction and human activity during the breeding season could also reduce breeding success. Short-term impacts on wildlife would occur during construction and may remain after construction activities cease. Some temporarily disturbed habitats (e.g., pasture, cropland, and grassy rangeland) may not return to former levels of functionality for up to 5 years following restoration efforts. Long-term impacts on wildlife could extend through the life of the proposed Project and possibly longer for certain habitats (e.g., forest, wetland, and native grassland) given the length of time needed for these communities to mature to pre-construction conditions (2014 FSEIS p. 4.6-3). Permanent impacts on forested habitats would occur within the 50-foot-wide permanent easement centered on the proposed pipeline, permanent power line and access road easements, and pump stations and substations within the Plan Area. In these areas, trees would be removed and would not be allowed to re-establish. Total habitat loss due to construction of the proposed Project and associated infrastructure would likely be small in the context of available habitat, both because of the linear nature of the proposed Project and because restoration would follow construction. During restoration, some portions of the ROW may be re-vegetated using non-native species, such as smooth brome, as directed by the landowner. This type of re-vegetation would likely be limited to areas that are currently dominated by improved grass pastures. As such, no overall reduction of habitat dominated by native species is anticipated. In the limited circumstance where landowners request re-vegetation of previously native vegetation to non-native vegetation, Keystone would consider this a permanent impact and provide appropriate mitigation for this impact. Such changes in vegetation could reduce suitable or preferred habitat for wildlife, but this conversion would represent only a small portion of the available habitat in the vicinity of the proposed Project.

The 2014 FSEIS and the 2019 FSEIS provide a list of procedures and measures, as outlined in the CMRP (Appendix G of the 2014 FSEIS) or required by the Service or other state or federal resource agencies that would be implemented to minimize adverse impacts on wildlife species and/or their habitats.

4.6.1.2. Fisheries

Potential impacts on fisheries and aquatic resources from the proposed Project and associated infrastructure could occur at and near locations where the pipeline would cross waterbodies. The potential impacts would vary depending on the waterbody crossing method, stream conditions, the duration of instream activities, and the application of impact reduction measures at each crossing. Additionally, should construction occur during spawning periods, additional impact on eggs and larvae could occur. Crossing techniques for waterbodies would depend on stream size, the presence of sensitive resources, protection status, classification of the waterbody, and permit requirements. The proposed Project would cross waterbodies using one of the following methods: non-flowing open cut, flowing open-cut, dry flume open-cut, dry dam-and-pump, or HDD. Keystone proposes to use HDD techniques at four river crossings and various open-cut methods at the remaining stream crossings within the Plan Area (see information relative to Tripp, Keya Paha, Boyd, Holt, and Antelope counties in the 2014 FSEIS Table 4.7-1).

Potential minor impacts on fisheries and aquatic resources from construction could include alteration of the streambed and bank structure, reduction or alteration of habitat, increased sediment, loss of riparian vegetation, increased water temperature, mortality, behavioral modifications, delays in movement, and introduction of non-native aquatic species (either plant or animal). To minimize impacts on fisheries and other aquatic species, the best management practices described in the CMRP (see Appendix G of the 2014 FSEIS) would be implemented, as well as any additional measures mandated by stream crossing permits issued by state and federal regulatory agencies. Measures specified in the CMRP include the following: expedited installation of sediment barriers, temporary slope breakers, maintaining a narrow ROW width, minimizing grading and grubbing along stream banks, prompt removal of plant debris or soil inadvertently deposited at or below the high water mark, and riparian vegetation restoration.

Potential impacts on fisheries and aquatic resources during the operational phase of the proposed Project and associated infrastructure include reduced riparian vegetation, increased water temperature, herbicide contamination, increased bank erosion, and sedimentation. However, these impacts would be expected to be inconsequential given the proposed measures to avoid and minimize these impacts, including aerial and ground surveillance to allow for early detection of bank stability problems and to minimize the potential for continued environmental impacts during pipeline operation, maintenance of non-forested vegetation, restrictions on herbicide use near waterbodies, use of licensed applicators for herbicides, and restoration and revegetation measures presented in the CMRP (see Appendix G of the 2014 FSEIS).

4.6.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on wildlife and fisheries resources because the No Action Alternative would not lead to any activity in the Plan Area. Under this alternative, Keystone would not construct the proposed Project within the Plan Area.

4.6.3. Cumulative Impacts

Cumulative impacts on wildlife and fisheries were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.6. Both of those analyses determined that cumulative impacts on this resource would be less than significant, and the present analysis of the alternatives leads to the same conclusion.

No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

4.7. AMERICAN BURYING BEETLE

4.7.1. Impacts of the Proposed Action

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure were analyzed in detail in the 2019 BA Section 3.2.6. The potential impacts of the proposed action on the ABB are very similar to those described in that document. This assessment of potential impacts on the ABB is limited to the Permit Area because the Service does not anticipate that the proposed activities would affect the ABB outside its current occupied range, which defines the northern and southern boundaries of the Permit Area. Potential impacts on the ABB resulting from activities involving other federal agencies (i.e., the Rural Utilities Service, which is involved in the power infrastructure associated with PS-20 and PS-21, and the Western Area Power Administration, which is involved in the power infrastructure associated with PS-21) are covered under the ESA Section 7 Incidental Take Statement (see the 2019 BA Section 3.2.6 and the 2019 BO [entire]), not under the ESA Section 10 ITP request considered in this EA.

The proposed action would authorize the issuance of an ITP, leading to the temporary and permanent alteration of ABB habitat and likely leading to harm to individual ABBs as a consequence of construction and operation of the proposed Project and associated infrastructure. During construction, ground-disturbing activities such as grading, pipeline trenching, and the installation of utility poles could directly harm or kill ABBs at the ground surface or buried underground; adults or offspring could be crushed or exposed, potentially leading to mortality.

Additionally, during operations, heat from the pipeline would warm the surrounding soil, potentially affecting any individual ABBs or brood chambers buried in the affected soil. According to estimates in the HCP (Section 6.2.2), heating could extend up to 11 feet from the pipeline. This heating may dry out soils, reducing their suitability for ABB, and could also increase the metabolic rate of overwintering ABBs, potentially causing the affected individuals to starve or to emerge too early, when prey may be scarce and nighttime temperatures may be unsuitable (see the HCP Section 6.2.2 and the 2019 BA pp. 116–118). Maintenance activities that break ground, such as utility pole replacement and pipeline excavation, could also harm or kill ABBs via crushing or exposure; Keystone has estimated this would affect 10 acres within the Permit Area over the life of the proposed Project and has included this area in the total area of temporary disturbance (see HCP Tables 14 and 24).

Other potential impacts on the ABB could include the following:

- Harm or mortality due to spills and leaks from supplies and equipment used in construction.
- Behavioral disruptions due to traffic, human activity, noise, and artificial lighting.
- Increased predation and competition for carrion due to increased edge habitat (see the HCP Section 6.2.2.3).

In addition to potential effects on individuals, the proposed action would also permit the temporary and permanent alteration of potentially suitable ABB habitat. Based on estimates in the HCP Section 6.3,

construction activities would temporarily render the footprint of the proposed Project unsuitable as habitat for the ABB. The electrical power infrastructure would eliminate ABB habitat only where utility poles, the new substation, and the substation expansion would occupy the land surface. The proposed Project would also result in permanent habitat loss where permanent aboveground facilities would exist; furthermore, Keystone also considers the soil heating described above to result in the permanent loss of ABB habitat for the operational life of the pipeline. Outside of permanent impact areas, Keystone would restore vegetation in ABB habitat after construction. The footprint of the proposed Project within the Permit Area overlaps approximately 485.8 acres of prime habitat, 453.7 acres of good habitat, 166.9 acres of fair habitat, and 144.5 acres of marginal habitat, for a total of 1,250.8 acres³ of potentially suitable ABB habitat. The associated power infrastructure within the Permit Area would alter approximately 7.8 acres of marginal habitat. For details on the nature, intensity and duration of potential impacts, refer to the 2019 BA Section 3.2.6.

Based on the estimates in the HCP of areas affected (Sections 6.1 and 8.6), the proposed action would authorize the take of up to 552 ABB. Of this total, approximately 65.7 ABB would be harmed as a result of the disturbance of approximately 1,250.8 acres of potentially suitable habitat during pipeline construction, which includes up to 10 acres during maintenance, approximately 485.3 ABB would be harmed by heat from the operating pipeline over a 46-year period, and approximately 0.7 ABB would be harmed by construction of the electrical power infrastructure.

4.7.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on the ABB, because none of the requested take would be permitted. Under this alternative, Keystone would not construct the proposed Project within the Plan Area and would not provide for the permanent conservation of mitigation lands (see Section 4.7.4, Mitigation Lands). Therefore, neither the take nor the intended beneficial impacts of the mitigation lands would occur.

4.7.3. Cumulative Impacts

Cumulative impacts on the ABB were analyzed in detail in the 2014 FSEIS Section 4.15, the 2019 FSEIS Section 7.4.6, the 2019 BA Section 3.2.6.4, and the 2019 BO pp. 35–37. All of those analyses determined that cumulative impacts on the ABB would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

Any other future projects built in potential ABB habitat would need to work with the Service to comply with the ESA. While the Service does not know of any particular projects in the Plan Area with sufficient detail to describe the amount, location, and type of effect, reasonably foreseeable activities that may occur within the Plan Area include pipelines, power infrastructure, residential and commercial development, road projects creating new disturbed land or additional lighting, conversion of forested habitat to agricultural land, and the conversion of range lands or undeveloped lands to row crop agriculture (see the

³ These totals include an estimated 10 acres that may be disturbed within this footprint as part of required repair excavations over the life of the Project.

2019 BA p. 122). Based on historic land use changes in ABB habitat, the conversion of lands to row crop agriculture is likely to have the largest effect on the ABB (see the 2019 BO p. 35). While future projects have the potential to impact ABB habitat, the intensity of impacts on the ABB would depend on the number and type of projects built, presence or absence of ABB at the site, geographic location, and other site and project-specific characteristics. Impacts would also depend on the number and types of avoidance, minimization, and mitigation measures that would be implemented for each project.

4.7.4. Mitigation Lands

The proposed action would also result in the permanent preservation of at least approximately 1,082 acres of suitable ABB habitat as mitigation for the effects of the proposed Project and associated infrastructure on existing ABB habitat. This mitigation is intended to benefit the conservation of the ABB. The mitigation land would be managed to preserve ABB habitat, and future activities that would result in adverse effects on the ABB would be prohibited on that land. The Service believes that preserving large areas of suitable habitat is a conservation strategy that contributes to maintaining viable ABB populations.

Within the Plan Area in Cherry County, Nebraska, Keystone has identified a 1,200-acre parcel of land for a mitigation site that would exceed the required acreage. The Service has determined that the parcel would satisfy the mitigation obligations for take of ABB. The land consists of unaltered prairie with wet meadows, sandhills habitats, riparian habitats, and areas used for managed grazing. The current owner owns the land in title, with no known easements or other pre-existing rights that would affect use of the property. The parcel has no active management or protections that would interfere with the conservation of ABB, and ABB presence has been documented on the parcel.

Keystone has contracted Wildwood Environmental Credit Company, LLC (Wildwood) to develop and manage this permittee-responsible mitigation site. Wildwood would place a conservation easement on the 1,200 acres of mitigation lands to be held by Nebraska Land Trust. Wildwood would manage the land according to a conservation plan that would be developed in cooperation with the Service in order to maintain the property in its current state of native prairie so that the land provides habitat for ABB in perpetuity. Funding for land management activities would come from a permanent stewardship endowment established by Keystone and held by a third-party 501(c)(3) non-profit entity. The endowment would be used for all site management requirements and monitoring required by the Service and/or state agencies. Keystone would retain and fund Wildwood to develop and implement an ABB monitoring program to assure that the provisions of the HCP and of Section 10 of the ESA are met with regard to these mitigation lands. Management and monitoring plans would take effect once the land is placed under the conservation easement.

The ABB population that overlaps the proposed mitigation lands is part of the “Sandhills analysis area,” which is predicted to be the most resilient analysis area in the Great Plains under future climate conditions and land use changes (Service 2019a, pp. 170 and 171). The proposed mitigation lands are near the Valentine National Wildlife Refuge, which “is the only large block of protected lands in this analysis area with relatively good numbers of ABBs” (Service 2019a, p. 95). These factors support the Service’s determination that the HCP, including the proposed mitigation actions, would advance long-term species and ecosystem conservation objectives at ecologically appropriate scales and would occur within an area capable of supporting species mitigation projects over the long-term.

The preservation and management of native habitats on the mitigation land may have minor incidental impacts on other resources. However, mitigation lands would not require habitat restoration or other changes to land use or land cover, or any potentially impactful changes to existing conditions or activities. Therefore, the Service expects that establishment of the mitigation land would have no impact on geology and soils, air quality, noise and vibration, water resources, vegetation, cultural resources, or greenhouse gases and climate change. Wildlife and fisheries may experience minor beneficial impacts from the preservation of the land and the management of a natural grassland community. Other protected species, if present on or near the mitigation lands, could likewise experience minor incidental benefits.

The mitigation land could impact land use and recreation, both positively and negatively. While current land use would likely not change on the parcels involved in the mitigation land, future land uses would be restricted in that the property could never be developed in the future for industrial, commercial, agricultural, or residential use. Recreation, however, could benefit if the mitigation land were open to the public as a natural area available for low-impact outdoor recreation such as hiking or bird watching.

Establishment of the mitigation land could impact socioeconomics—if the mitigation land involves property currently subject to property taxes—by reducing the total assessed value of land subject to property taxes for the county in which the mitigation land is located. However, the parcels that Keystone intends to purchase are not in an area currently developed for intensive agriculture or other human uses, and therefore the impact on the property tax base would be negligible. In contrast, a stewardship endowment would periodically add money into the county or regional economy through expenditures in the course of managing and monitoring the mitigation lands.

4.8. OTHER PROTECTED SPECIES

4.8.1. Impacts of the Proposed Action and Cumulative Impacts

The 2014 FSEIS concluded that the proposed Keystone XL pipeline and associated infrastructure would be not likely to adversely affect any federally listed species other than the ABB. The 2014 FSEIS also provided a discussion of potential impacts on state threatened and endangered species and species of conservation concern as a result of construction and operation of the proposed Keystone XL pipeline and associated infrastructure. The analyses provided in the 2019 FSEIS, the 2019 BA, and the HCP are consistent with the original determinations provided in the 2014 SEIS. Of the species analyzed in those documents, a total of 14 state and federally protected species have the potential to occur within the Plan Area. A summary of direct, indirect, and cumulative impacts on these species within the Plan Area is provided in Table 12 below. In addition to a discussion of the potential impacts on state and federally listed species, those documents also provided a list of species-specific conservation measures to avoid and minimize impact on these species (see Section 4.7.3 and Tables 8-3 and 8-4 in the 2019 FSEIS, Sections 3.2 and 3.3 in the 2019 BA, and Sections 7.1 and 7.2 in the HCP).

4.8.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on protected species because the No Action Alternative would not lead to any construction within the Plan Area, and no species or habitat would be affected. Under this alternative, Keystone would not construct the proposed Project within the Plan Area.

Table 12. Summary of Potential Direct, Indirect, and Cumulative Impacts of the Proposed Action in the Plan Area on Federal and State Protected Species

Species	Impact Description
Birds	
Interior Least Tern (<i>Sternula antillarum athalassos</i>)	Direct and indirect impacts on this species would be minimized by avoiding the areas of potentially suitable habitat within the Plan Area along the Niobrara and Elkhorn rivers through the use of HDD crossing techniques. Additionally, the commitment to conduct pre-construction surveys and to halt construction should nesting individuals be identified would further avoid impacts on the species. No direct or indirect impacts on the species as a result of interactions with proposed power lines would be expected, as none of the proposed power lines in the Plan Area would overlap potentially suitable habitat. Additional conservation measures listed in the 2019 FSEIS, the 2019 BA, and the HCP would be employed to further avoid and minimize impacts on the species during construction and operation of the proposed Project. Given the implementation of these species-specific conservation measures, no direct or indirect impacts on the species are expected. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.
Piping Plover (<i>Charadrius melodus</i>)	Direct and indirect impacts on this species would be minimized by avoiding areas of potentially suitable habitat within the Plan Area along the Niobrara and Elkhorn rivers through the use of HDD crossing techniques. Additionally, the commitment to conduct pre-construction surveys and to halt construction should nesting individuals be identified would further avoid impacts on the species. No direct or indirect impacts on the species as a result of interactions with proposed power lines would be expected, as none of the proposed power lines in the Plan Area would overlap potentially suitable habitat. Additional conservation measures listed in the 2019 FSEIS, the 2019 BA, and the HCP would be employed to further avoid and minimize impacts on the species during construction and operation of the proposed Project. Given the implementation of these species-specific conservation measures, no direct or indirect impacts on the species are expected. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.
Rufa Red Knot (<i>Calidris canutus rufa</i>)	Given the extremely limited occurrence of this species within the Central Flyway and the absence of records of the species or potentially suitable stopover habitat within 1 mile of the proposed Project and associated infrastructure, no direct or indirect impacts on the species are expected to occur. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.

Species	Impact Description
<p>Whooping Crane (<i>Grus americana</i>)</p>	<p>During spring (March–May) and fall (October–November) migration, construction of the proposed Project and associated infrastructure within the Plan Area may temporarily disturb and displace migrating whooping cranes, though these direct impacts would not be expected to be biologically significant. Potentially suitable foraging and roosting habitat used by cranes during migration is widespread throughout the Plan Area. To minimize potential impacts, daily pre-construction surveys for roosting and/or foraging whooping cranes would be conducted during spring and fall migration prior to commencing work. Should a whooping crane be identified, all human and equipment activity would be delayed until the bird has left the area. During the operations phase of the proposed Project and associated infrastructure, some potential exists for migrating cranes to encounter the proposed power lines. A detailed collision risk assessment concluded that, while some collision risk exists, a whooping crane collision with a proposed power line is not reasonably certain to occur (see Section 3.2.3.4 in the 2019 BA). No indirect impacts on whooping cranes due to habitat alteration are expected, as whooping cranes appear to have low site fidelity to previously used stopover sites during migration, and potentially suitable roosting and foraging stopover habitat is widely available within the Plan Area. Conservation measures listed in the 2019 FSEIS, the 2019 BA, and the HCP would be employed to further avoid and minimize impacts on the species during construction and operation of the proposed Project. Future projects in the Plan Area have the potential to incrementally contribute to disturbance and displacement of individual migrating whooping cranes, if conducted without Project-specific coordination with applicable resource agencies and incorporation of approved conservation measures specific to whooping cranes. Given the lack of site fidelity in this species, quantifying when and where individuals would be disturbed cannot be predicted. However, any disturbance would likely result in individuals temporarily leaving the construction area; this would not be expected to be biologically significant. In the aggregate, future electric power line projects in the Plan Area would incrementally increase the potential collision risk for whooping cranes, particularly for projects sited between roosting and foraging habitat. Specific numbers of new or anticipated projects are difficult if not impossible to quantify. According to the collision risk assessment discussed in Section 3.2.3.4 of the 2019 BA, an increase in the quantity of power lines within the whooping crane migration corridor has not resulted in a corresponding increase in collision-related mortality; Keystone subsequently updated this risk assessment with new information and included it in the HCP. The updated risk assessment estimated that less than 0.01 additional whooping crane mortality over 50 years could be attributed to the proposed power lines. Considering the negligible to minor effects due to habitat alteration, disturbance of individuals, and collision risk, cumulative impacts on the whooping crane are also expected to be minor.</p>

Species	Impact Description
Fish	
blacknose shiner (<i>Notropis heterolepis</i>)	<p>Within the Plan Area, a total of 11 streams have been identified as providing potentially suitable habitat for the blacknose shiner. If this species is present in streams crossed by the proposed Project, open-cut crossing methods that affect hydrology, water quality, stream banks, and riparian vegetation could result in direct and indirect impacts on this species. Increased suspended sediment may lead to temporary displacement, reduced foraging efficiency, or mortality. While water quality impacts would be temporary, re-deposition of suspended sediment may alter stream bottoms and degrade habitat quality over a longer period. Additionally, changes to riparian vegetation could also degrade habitat quality for the species. Should construction occur during the spawning period for this species (June to July), additional impacts on eggs and juveniles could occur. While water withdrawals can entrain fish, larvae and eggs, all proposed water sources are large streams that do not provide suitable habitat for this species. Conservation measures listed in the HCP (Section 7.2.2.2) would be employed to further avoid and minimize impacts on this species during construction and operation of the proposed Project. Specifically, pre-construction surveys for this species would be conducted in suitable habitat crossed by the proposed Project within the Plan Area. If the blacknose shiner is documented at stream crossings in South Dakota, construction activities would be restricted during the spawning season (as determined by South Dakota Game, Fish and Parks [SDGFP]), individuals would be relocated, or alternative crossing methods would be utilized. If the species is documented at stream crossings in Nebraska, Keystone would coordinate with the NGPC to identify additional conservation measures to avoid and minimize impacts of the proposed Project. Given Keystone's commitment to conduct pre-construction surveys and to implement species-specific conservation measures if this species is observed during surveys, no biologically significant direct or indirect impacts would be expected to occur. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.</p>
finescale dace (<i>Phoxinus neogaeus</i>)	<p>Within the Plan Area, a total of 11 streams have been identified as providing potentially suitable habitat for the finescale dace. If this species is present in streams crossed by the proposed Project, open-cut crossing methods that affect hydrology, water quality, stream banks, and riparian vegetation could result in direct and indirect impacts on this species. Increased suspended sediment may lead to temporary displacement, reduced foraging efficiency, or mortality. While water quality impacts would be temporary, re-deposition of suspended sediment may alter stream bottoms and degrade habitat quality over a longer period. Additionally, changes to riparian vegetation could also degrade habitat quality for the species. Should construction occur during the spawning period for this species (April–early June), additional impacts on eggs and juveniles could occur. While water withdrawals can entrain fish, larvae and eggs, all proposed water sources are large streams that do not provide suitable habitat for this species. Conservation measures listed in the HCP (Section 7.2.3.2) would be employed to further avoid and minimize impacts on this species during construction and operation of the proposed Project. Specifically, pre-construction surveys for this species would be conducted in suitable habitat crossed by the proposed Project within the Plan Area. If the finescale dace is documented at stream crossings in South Dakota, construction activities would be restricted during the spawning season (as determined by SDGFP), individuals would be relocated, or alternative crossing methods would be utilized. If the species is documented at stream crossings in Nebraska, Keystone would coordinate with the NGPC to identify additional conservation measures to avoid and minimize impacts of the proposed Project. Given Keystone's commitment to conduct pre-construction surveys and to implement species-specific conservation measures if this species is observed during surveys, no biologically significant direct or indirect impacts would be expected to occur. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.</p>

Species	Impact Description
northern redbelly dace (<i>Phoxinus eos</i>)	<p>Within the Plan Area, a total of 11 streams have been identified as providing potentially suitable habitat for the northern redbelly dace. If this species is present in streams crossed by the proposed Project, open-cut crossing methods that affect hydrology, water quality, stream banks, and riparian vegetation could result in direct and indirect impacts on this species. Increased suspended sediment may lead to temporary displacement, reduced foraging efficiency, or mortality. While water quality impacts would be temporary, re-deposition of suspended sediment may alter stream bottoms and degrade habitat quality over a longer period. Additionally, changes to riparian vegetation could also degrade habitat quality for this species. Should construction occur during the spawning period for this species (April–early June), additional impacts on eggs and juveniles could occur. While water withdrawals can entrain fish, larvae and eggs, all proposed water sources are large streams that do not provide suitable habitat for this species. Conservation measures listed in the HCP (Section 7.2.4.2) would be employed to further avoid and minimize impacts on the species during construction and operation of the proposed Project. Specifically, pre-construction surveys for this species would be conducted in suitable habitat crossed by the proposed Project within the Plan Area. If the northern redbelly dace is documented at stream crossings in South Dakota, construction activities would be restricted during the spawning season (as determined by SDGFP), individuals would be relocated, or alternative crossing methods would be utilized. If the species is documented at stream crossings in Nebraska, Keystone would coordinate with the NGPC to identify additional conservation measures to avoid and minimize impacts of the proposed Project. Given Keystone’s commitment to conduct pre-construction surveys and to implement species-specific conservation measures if this species is observed during surveys, no biologically significant direct or indirect impacts would be expected to occur. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.</p>
northern pearl dace (<i>Margariscus nachtriebi</i>)	<p>Within the Plan Area, a total of 11 streams have been identified as providing potentially suitable habitat for the northern pearl dace. If this species is present in streams crossed by the proposed Project, open-cut crossing methods that affect hydrology, water quality, stream banks, and riparian vegetation could result in direct and indirect impacts on this species. Increased suspended sediment may lead to temporary displacement, reduced foraging efficiency, or mortality. While water quality impacts would be temporary, re-deposition of suspended sediment may alter stream bottoms and degrade habitat quality over a longer period. Additionally changes to riparian vegetation could also degrade habitat quality for this species. Should construction occur during the spawning period for this species (April–early June), additional impacts on eggs and juveniles could occur. While water withdrawals can entrain fish, larvae and eggs, all proposed water sources are large streams that do not provide suitable habitat for this species. Conservation measures listed in the HCP (Section 7.2.5.2) would be employed to further avoid and minimize impacts on this species during construction and operation of the proposed Project. Specifically, pre-construction surveys for this species would be conducted in suitable habitat crossed by the proposed Project within the Plan Area. If the northern pearl dace is documented at stream crossings in South Dakota, construction activities would be restricted during the spawning season (as determined by SDGFP), individuals would be relocated, or alternative crossing methods would be utilized. If the species is documented at stream crossings in Nebraska, Keystone would coordinate with the NGPC to identify additional conservation measures to avoid and minimize impacts of the proposed Project. Given Keystone’s commitment to conduct pre-construction surveys and to implement species-specific conservation measures if this species is observed during surveys, no biologically significant direct or indirect impacts would be expected to occur. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.</p>

Species	Impact Description
sturgeon chub (<i>Macrhybopsis gelida</i>)	<p>The range of the sturgeon chub in the Plan Area is very restricted in Nebraska and is generally limited to the mainstem of the Missouri River. As there is no proposed Project footprint in or near the Missouri River, no direct or indirect impacts on the species would occur in Nebraska. In South Dakota, the species is known to be present in the White River and some of its tributaries. The White River would be crossed by HDD methods, so direct impacts are unlikely, barring an accidental release of HDD fluids. In the case of an accidental release, drilling fluids would be deposited on the river bottom and some may be suspended in the water column. Water quality impacts and resulting impacts on the species would not be expected to be biologically significant, as the species typically inhabits highly turbid habitat with low visibility. The White River is slated for use as a water source for both HDD and hydrostatic testing. Water withdrawals can entrain fish, larvae, and eggs, resulting in mortality, and can alter stream flows, which can degrade habitat quality. Pursuant to state agency permit requirements, all proposed water withdrawals would be screened to minimize the potential for entrainment. Additionally, water would be withdrawn at a rate of less than 10 percent of baseline daily flows to minimize the potential for habitat degradation. Conservation measures listed in the HCP (Section 7.2.6.2) would be employed to further avoid and minimize impacts on this species during construction and operation of the proposed Project. Given implementation of these conservation measures, no biologically significant direct or indirect impacts would be expected to occur. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.</p>
Mammals	
northern long-eared bat (<i>Myotis septentrionalis</i>)	<p>Direct and indirect impacts on the northern long-eared bat could occur as a result of removal of forested roosting habitat during construction. Much of this habitat occurs as riparian forest along larger streams. Habitat removal in these areas may be avoided due to the use of HDD crossing methods. In compliance with the Service’s final 4(d) rule for the northern long-eared bat, no tree clearing associated with the proposed Project would occur within 0.25 mile of a known occupied hibernaculum or within 150 feet of a known occupied maternity roost tree. Further, tree clearing activities are expected to occur from November to April, when the species is hibernating in caves and mines and is not present on the landscape, thus eliminating the potential for direct impacts on this species. The proposed Project and associated infrastructure would result in the long-term loss of approximately 17.6 acres of forested roosting habitat (which would be cleared during pipeline construction but could regrow) and the permanent loss of approximately 22.4 acres of forested roosting habitat (which would be cleared during construction of the pipeline and power lines and maintained free of trees during operations) within the Plan Area, likely resulting in negligible indirect impacts on this species, considering the limited amount of habitat loss in any given location and the fact that ongoing development and forest conversion has not been shown to have significant negative impacts on northern long-eared bat populations. Conservation measures listed in the 2019 FSEIS, the 2019 BA, and the HCP would be employed to ensure compliance with the Service’s final 4(d) rule, and as such, incidental take of northern long-eared bats, if any, would not be prohibited by the ESA. As stated above, the proposed Project and associated infrastructure are not expected to result in incidental take or direct impacts on this species, but they are expected to result in negligible indirect impacts through habitat loss. Impacts from the proposed action and ongoing development and forest conversion would be expected to result in less than significant cumulative impacts on the northern long-eared bat, as the Service has recognized that, “...all other (non-WNS) threats cumulatively were not impacting the species at the population level” (81 FR 1900, p. 1907).</p>

Species	Impact Description
river otter (<i>Lontra canadensis</i>)	<p>The river otter is a semi-aquatic species, and therefore direct and indirect impacts on this species within the Plan Area, if any, would be expected to occur at waterbody crossings. Temporary displacement could occur during construction, but no biologically significant impacts would be expected, considering the large home ranges typical of this species. Should construction occur in proximity to denning locations from March to September, adverse impacts could occur. However, with the proposed pre-construction surveys and Keystone’s commitment to avoid construction activity within 0.25 miles of observed dens, no direct or indirect impacts on this species would be expected. This species is most likely to be found in larger waterbodies, which would be crossed via HDD methods. As such, no direct or indirect impacts would be expected to occur, barring an accidental release of drilling fluid. An accidental release in these waterbodies could have adverse impacts on fish and aquatic macroinvertebrate prey of the river otter, resulting in reduced prey availability. There would also be a risk of mortality to individual otters during construction, due to increased vehicular traffic. Conservation measures listed in the HCP (Section 7.2.7.2), would be employed to further avoid and minimize impacts on this species during construction and operation of the proposed Project. The risks of mortality and of accidental releases are low, and therefore direct and indirect impacts on this species, if any, are expected to be negligible. Past, present, and reasonably foreseeable future activities in the Plan Area that would alter otter habitats have the potential to result in impacts on river otters. However, given the otter’s mobility, use of a variety of habitats, and large home ranges, these impacts would be expected to be negligible. Therefore, overall cumulative impacts on the river otter within the Plan Area would be expected to be negligible.</p>
Plants	
small white lady’s slipper (<i>Cypripedium candidum</i>)	<p>Direct impacts on this species are not likely to occur, given that no individuals or populations have been identified in the proposed Project footprint within the Plan Area. However, a total of approximately 116 acres within the proposed Project footprint within the Plan Area may provide habitat for this species and approximately 65.6 acres have not been evaluated for potential habitat. If this species is present in these areas, direct impacts could occur during clearing and grading activities. Additionally, if this species is present, indirect impacts resulting from non-native invasive species introductions and modification of adjacent habitat may occur during construction and subsequent revegetation. However, conservation measures listed in the HCP would reduce the potential for direct and indirect impacts on this species. Further, surveys for this species would be conducted, and identified individuals would be avoided to the extent practicable and/or allowed by the landowner. Given Keystone’s commitment to conduct pre-construction surveys and to implement species-specific conservation measures if this species is observed during surveys, no biologically significant direct or indirect impacts would be expected to occur. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species. Preserving mitigation lands for the ABB could have incidental benefits for this species.</p>

Species	Impact Description
western prairie fringed orchid (<i>Platanthera praeclara</i>)	Direct impacts on this species are not likely to occur given that no individuals or populations have been identified in the proposed Project footprint within the Plan Area. However, a total of approximately 253 acres within the proposed Project footprint within the Plan Area may provide habitat for this species and approximately 65.6 acres have not been evaluated for potential habitat. Construction of the proposed Project would affect approximately 116 acres of identified habitat. If this species is present in these areas, direct impacts could occur during clearing and grading activities due to removal of individuals located within the proposed Project footprint, and indirect impacts could occur due to non-native species introductions and modification of adjacent habitat. However, conservation measures listed in the HCP would reduce the potential for direct and indirect impacts on this species. In particular, surveys for this species would be conducted, and the Project alignment would be adjusted to avoid identified individuals to the greatest extent practicable and/or approved by landowners. Additionally, implementation of a noxious weed control program and additional species-specific habitat related conservation measures as outlined in the HCP would avoid and minimize potential impacts on the species during construction and operation of the proposed Project. Given the implementation of species-specific conservation measures listed above, no biologically significant direct or indirect impacts on this species would be expected to occur. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species. Preserving mitigation lands for the ABB could have incidental benefits for this species.
blowout penstemon (<i>Penstemon haydenii</i>)	Considering that the only portion of the Plan Area in which the blowout penstemon may occur is the portion where mitigation lands would be established, the proposed action would have no impact on the blowout penstemon. Therefore, the proposed action is not expected to contribute to cumulative impacts on this species.

BA = Biological Assessment; ESA = Endangered Species Act; FSEIS = Final Supplemental Environmental Impact Statement; HCP = Habitat Conservation Plan; HDD = horizontal directional drill; NGPC = Nebraska Game and Parks Commission; SDGFP = South Dakota Game, Fish and Parks; Service = U.S. Fish and Wildlife Service; WNS = White-nose Syndrome

4.9. LAND USE, RECREATION, AND VISUAL RESOURCES

4.9.1. Impacts of the Proposed Action

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure on land use, recreation, and visual resources were analyzed in detail in the 2014 FSEIS Section 4.9 and the 2019 FSEIS Sections 4.2, 6.4.7, and 6.4.8. The potential impacts of the proposed action are a subset of the potential impacts discussed in those documents.

Construction of the proposed Project and associated infrastructure would have temporary, minor impacts on land use, while operation of the proposed Project and associated infrastructure would have negligible to minor adverse impacts (2014 FSEIS 4.9.3.1 and 2019 FSEIS 4.2.3 and 6.4.7). Potential construction and operations impacts related to land use would include changes to vegetative cover, including potential loss of forest cover; temporary loss of agricultural productivity within the ROW; potential damage to agricultural features such as drain tiles and fences during construction; temporary exposure of nearby residences to construction noise and dust; and longer-term impacts due to restrictions on construction within the permanent ROW.

Most of the affected land within the Plan Area is used for agriculture or rangeland. The 2014 FSEIS Section 4.9.3.2 estimates that disturbed pastures, croplands, and grassy rangelands may take up to 5 years to recover to preconstruction conditions, while some herbaceous vegetation, prairie grasses, and low shrubs may take longer to recover. During operations, crops and pasture would be permitted within the 50-foot-wide permanent easement, but periodic maintenance would remove woody vegetation and trees. In developed areas, easement agreements would prohibit structures and certain other improvements within the permanent ROW. Easement agreements would typically include monetary compensation to landowners for land use losses, including crop or forage loss, and would also address restoration of land or compensation for unavoidable construction-related damage. Land use impacts would be mitigated through procedures included in the CMRP (Appendix G of the 2014 FSEIS), including:

- General best management practice measures, including worksite appearance, maintenance, and noise and dust control;
- Specific procedures that would be followed during construction within agricultural, forest, pasture, rangeland, grasslands, wetland crossings, waterbodies, and riparian lands; and
- Measures to avoid or minimize potential damage to drain tile systems.

Construction of the proposed Project and associated infrastructure would have temporary, minor impacts on recreational use, and operation would have negligible adverse impacts (2014 FSEIS Section 4.9.3.3 and 2019 FSEIS Sections 4.2.3 and 6.4.7). Potential construction and operations impacts related to recreation include temporary restrictions on access to recreational resources, noise and visual impacts on recreational resources from construction and vegetation clearing, and minor noise and visual impacts from operation of pump stations and other aboveground facilities. Within the Plan Area, construction activities would temporarily affect designated recreational resources where the proposed ROW crosses the Cowboy Trail and state-designated recreational waterbodies, which include the Keya Paha, Elkhorn, and Niobrara rivers and tributaries (Table 3.9-6 in the 2014 FSEIS). The proposed Project route would not cross the

National Scenic River segment of the Niobrara River. Waterbodies with recreationally and/or commercially valuable fish species would be crossed using site-specific waterbody crossing plans designed to reduce impacts.

Construction of the proposed Project would have temporary, minor to moderate impacts on visual resources, while operation would have minor impacts (2014 FSEIS Section 4.9.3.3 and 2019 FSEIS Sections 4.2.3 and 6.4.8). Construction impacts would affect primarily the construction ROW. Upon completion of construction, the ROW would be restored to its previous condition, except in currently forested areas along the permanent ROW, and vegetative buffers would be planted around pump stations to reduce the visual impact. Long term, perceptible changes resulting from operation may be briefly visible to travelers along portions of roads crossed by or adjacent to the proposed Project within the Plan Area, including the state-designated Outlaw Scenic Byway (State Route 12). The electric infrastructure to be constructed within the Plan Area would include four power lines that were determined in the 2019 FSEIS to have minor visual impacts (Section 6.4.8).

4.9.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on land use, recreation, or visual resources because the No Action Alternative would not lead to any construction or operations within the Plan Area. Under this alternative, Keystone would not construct the proposed Project within the Plan Area.

4.9.3. Cumulative Impacts

Cumulative impacts were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.1. Both of those analyses determined that cumulative impacts on land use, recreation, and visual resources would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

4.10. SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.10.1. Impacts of the Proposed Action

4.10.1.1. Social and Economic Impacts

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure on socioeconomics were analyzed in detail in the 2014 FSEIS, Section 4.10 and the 2019 FSEIS, Sections 4.8.3 and 6.4.9. The potential impacts of the proposed action are a subset of the potential impacts discussed in those documents. The proposed action would have a beneficial impact on the economic base during construction by supporting jobs in the Plan Area, generating labor income and other economic output. The construction impacts on population, housing, public services, and traffic would be short term and minor due to the temporary minor increase in population, demand for temporary housing and public services, and use of public roads. No impacts would occur to property tax revenues during construction.

Operation of the proposed Project and associated facilities would have negligible impacts on population, housing, public services, and traffic or transportation. The impact on the economic base and tax revenues would be beneficial due to the support for a modest number of jobs in the proposed Project area, increased property tax revenue generated by the proposed pipeline and associated facilities, and ability for local electrical cooperatives to increase their revenues through the sale of power for pipeline operations. Potential percentage increases in property tax revenues in Plan Area counties during the first year of operations as estimated in the 2014 FSEIS are listed in Table 13 below. The property tax revenue generated during operations would vary by year because of the many factors that determine how much a pipeline company must pay in local property taxes. In Nebraska, the property tax revenue from the proposed Project would likely decline each year because more than 98 percent of the valuation is classified as personal property eligible for annual depreciation allowances.

Table 13. Estimated First Year Property Tax Revenues from the Proposed Project

County	Projected Property Taxes (2014 estimates)	Projected Property Tax Revenues from Proposed Project as a Percent of Total 2010 Property Tax Revenue
Tripp	\$3,357,000	45%
Keya Paha	\$449,000	14%
Boyd	\$288,000	7%
Holt	\$3,049,000	12%
Antelope	\$2,348,000	13%

Source: 2014 FSEIS Figure 4.10.1-4 and Table 4.10-11

Although job estimates specifically for the Plan Area are not provided, the FSEIS (Section 4.10.1) estimated that Keystone Pipeline construction would generate 3,500 jobs in South Dakota and 4,400 jobs in Nebraska (including direct, indirect, and induced jobs), and that operations would require about 50 full-time jobs across Montana, South Dakota, and Nebraska.

4.10.1.2. Environmental Justice

As stated in Section 3.10.4, the Plan Area includes 23 Census block groups; 10 of these 23 block groups meet criteria as environmental justice communities due to the presence of a higher proportion of minority and/or low-income residents than in South Dakota or Nebraska as a whole. The impacts of the Proposed Action must be reviewed based on their potential to cause adverse and disproportionate environmental, economic, social, or health impacts on minority or low-income populations.

As evaluated in Section 4.10.3 of the 2014 FSEIS and Sections 4.3.8 and 6.4.9 of the 2019 FSEIS, construction of the pipeline and associated facilities would result in temporary and minor adverse effects on environmental justice populations, with less than significant impacts. Minority and low-income populations would experience minor, temporary impacts from noise and air emissions, and the temporary influx of construction workers could increase competition for medical or health services. Impacts would be temporary and dispersed along proposed Project length and would not result in disproportionately high and adverse impacts on populations within the Plan Area. Certain Plan Area counties were identified in the 2014 FSEIS (Table 4.10-10) and 2019 FSEIS (Section 6.4.9.2) as having shortages of primary care health services. While construction workers in these areas could marginally increase the competition for

medical or health services, impacts would be temporary, modest, and not concentrated in any specific area.

As discussed in the 2019 FSEIS Sections 4.8 and 5.5.8.2, tribes and tribal members could be disproportionately negatively impacted by the proposed Project because they could have a greater dependence on natural resources than non-tribal members. Various treaties define the rights of tribes and tribal members to use certain resources, such as water, vegetation, wildlife and fisheries; the EA discusses the potential consequences of the proposed Project on those resources in Sections 4.4, 4.5, and 4.6, respectively, as well as in Section 5.3.

Operations and maintenance would have negligible adverse effects on environmental justice populations within the Plan Area, consistent with the 2014 FSEIS and 2019 FSEIS conclusions that operational impacts on environmental justice would be less than significant. Impacts from maintenance activities would not be disproportionately high and adverse and would be similar to, but of less intensity and duration, than those described for construction of the proposed Project.

4.10.2. Impacts of the No Action Alternative

Under the No Action Alternative, Keystone would not construct the proposed Project in the Plan Area, and no changes to the existing socioeconomic conditions within the Plan Area would occur as a result of the Service's decision. The potential beneficial socioeconomic impacts due to increased employment during construction of the proposed Project and increased property tax revenues during operations would not be realized.

4.10.3. Cumulative Impacts

Cumulative impacts were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.7. Both of those analyses determined that cumulative impacts on socioeconomics and environmental justice would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts beyond what was analyzed in those earlier documents.

4.11. CULTURAL RESOURCES

4.11.1. Impacts of the Proposed Action

According to Section 106 of the NHPA, adverse impacts on historic properties would occur if an activity “may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, setting, materials, workmanship, feeling or association.” (36 CFR 800.5(a)(1)). Under this definition, the proposed action could lead to adverse impacts on historic properties.

The nature, intensity and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure on historic properties and other cultural resources were analyzed in detail in the 2014 FSEIS Section 4.11 and the 2019 FSEIS Sections 4.9 and 6.4.10.2. The potential impacts of the proposed action are a subset of the potential impacts discussed in those documents. In brief, the proposed

action could lead to damage or destruction of cultural resources; temporary loss of access to cultural resources; temporary visual impacts on cultural resources; and temporary increases in traffic, dust, noise, and vibration in the vicinity of cultural resources. During operations of the proposed Project and associated infrastructure, permanent facilities would be unlikely to adversely affect the setting or feeling of historic properties, due to the distance separating them; similarly, periodic increases in noise, vibration and dust created by vehicular traffic conducting operations and maintenance activities would be unlikely to adversely affect historic properties (2019 FSEIS Sections 4.9.3.2 and 6.4.10.2). Thus, any impacts would likely occur during the construction phase.

Keystone, NPPD, and ERPPD would avoid and minimize impacts on cultural resources to the extent practicable, as discussed in the 2014 FSEIS Section 4.11 and the 2019 FSEIS Sections 4.9 and 6.4.10.2. The existing Programmatic Agreement would be implemented along the entire proposed Project. If impacts on NRHP-eligible historic properties could not be avoided, the consulting parties would review mitigation plans following the protocols outlined in the amended Programmatic Agreement. If an adverse effect cannot be avoided, Keystone would draft a comprehensive Treatment Plan for each adversely affected historic property. The Treatment Plan would describe the measures to minimize and mitigate the adverse effect of proposed activities on historic properties, the manner in which these measures would be carried out, and a schedule for their implementation.

The cultural resource inventory remains ongoing. Consistent with 40 CFR 1502.22, Incomplete or Unavailable Information, the Service understands that historic properties or other cultural resources could be present within unsurveyed areas. All areas within the APE would be surveyed for cultural resources before construction begins. Direct contact, possibly including an unanticipated discovery of a previously unknown cultural resource during construction, could have a permanent impact on that resource. Should any unanticipated discoveries of cultural resources be made during construction or operation of the pipeline, the terms of the Unanticipated Discoveries Plan would be followed. Typically, construction activities within a 100-foot radius (including traffic) would be immediately halted, the Keystone Environmental Inspector would be notified, and interim measures would be placed to protect the discovery from looting or vandalism. The appropriate federal, state, local, or tribal authorities would be notified of discovery within 48 hours of the initial find, and construction would not proceed within the discovery area until all mitigation measures defined in the Programmatic Agreement are concluded and Keystone receives approval from the appropriate agencies that construction may resume. Should a historic property be discovered, appropriate additional mitigation measures would be considered, as feasible and appropriate, consistent with the terms of the Programmatic Agreement. For details, refer to the 2014 FSEIS Section 4.11, the 2019 FSEIS Section 4.9, and Appendix E of the 2014 FSEIS.

Rosebud Electric proposes to mark the boundary of each identified site within Rosebud Electric's APE, regardless of whether the site is eligible for listing on the NRHP. These sites would be avoided during construction. Prior to construction, any remaining unsurveyed areas would be surveyed and consultation with the South Dakota SHPO would be completed. The provisions for unanticipated discoveries in the Programmatic Agreement would be implemented to ensure minimization of impacts on unknown historic properties that may be inadvertently encountered during construction or operation of the proposed infrastructure. Given the protective and avoidance measures, it is expected that there would be negligible impacts, if any, to historic properties from the construction and operation of this power infrastructure. Details can be found in the 2019 FSEIS (pp. 6-132–6-133).

If historic properties are identified in the APE of NPPD or ERPPD, then NPPD or ERPPD would minimize impacts on the sites to the extent possible by marking the historic properties with flagging so that they can be avoided during construction activities. An Unanticipated Discovery Plan would be implemented to minimize impacts on unknown historic properties that may be inadvertently encountered during construction or operation of the proposed power infrastructure. Given the proposed infrastructure is sited within agricultural fields and previously disturbed ROWs, the likelihood of cultural resources in the ROW is expected to be low, and through adherence to the Programmatic Agreement and consultation with the Nebraska SHPO, any impacts would be avoided or mitigated to the extent possible. Therefore, any impacts on historic properties would likely be negligible. Details can be found in the 2019 FSEIS (p. 6-134).

The risk to cultural resources in the event of an accidental release is discussed in Chapter 5.

4.11.2. Impacts of the No Action Alternative

The No Action Alternative would cause no impact on cultural resources because the No Action Alternative would not lead to any ground disturbance or construction in the Plan Area. Under the No Action Alternative, Keystone would not construct the proposed Project in the Plan Area.

4.11.3. Cumulative Impacts

Cumulative impacts on cultural resources were analyzed in detail in the 2014 FSEIS Section 4.15 and the 2019 FSEIS Section 7.4.8. Both of those analyses determined that cumulative impacts on cultural resources would be less than significant, and the present analysis of the alternatives leads to the same conclusion. No changes to the proposed activities or to present and reasonably foreseeable activities are expected to substantially change cumulative impacts on cultural resources beyond what was analyzed in those earlier documents.

4.12. GREENHOUSE GASES AND CLIMATE CHANGE

4.12.1. Impacts of the Proposed Action

The nature, intensity and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure were analyzed in detail in the 2014 FSEIS Section 4.14 and the 2019 FSEIS Section 4.10.

With regard to greenhouse gases and climate change, the potential impacts of the construction and operation of the proposed Project and associated infrastructure within the Plan Area would be a subset of the potential impacts discussed in the 2014 FSEIS Section 4.14 and the 2019 FSEIS Section 4.10. In brief, a short-term increase in greenhouse gas emissions would occur during construction, estimated to be approximately 42,671 metric tons of CO₂ equivalents. Operation of the proposed Project would cause a long-term increase in direct and indirect greenhouse gas emissions, estimated to be approximately 288,671 metric tons of CO₂ equivalents per year, almost all of which is due to electricity generation to run the pump stations. These estimates of greenhouse gas emissions are based on emissions estimates for the proposed Project as analyzed in the 2014 FSEIS Section 4.14 (Tables 4.14-1 and 4.14-2), adjusting for pipeline length, acres disturbed, and the numbers of pump stations and construction camps within the Plan

Area. See Section 4.14.2 of the 2014 FSEIS for details on sources and activities that would generate greenhouse gas emissions during construction and operation of the proposed Project. In addition, the conversion of vegetated areas to permanently developed areas could affect natural CO₂ sequestration rates; however, the effect on net greenhouse gas emissions from the area affected in this way within the Plan Area (approximately 77 acres) would likely be negligible compared to the construction- and operations-related emissions. For a discussion of potential indirect lifecycle emissions of greenhouse gases, including emissions from the production and consumption of crude oil under various oil delivery, displacement, and global price scenarios, refer to the 2014 FSEIS Section 4.14 and the 2019 FSEIS Section 4.10.4. Emissions from construction and operations of the associated electrical power infrastructure in the Plan Area would likely be negligible.

4.12.2. Impacts of the No Action Alternative

Under the No Action Alternative, Keystone would not construct the proposed Project in the Plan Area, and according to the HCP, Keystone would not construct the Keystone XL Pipeline. According to the 2014 FSEIS Section 1.4 and the 2019 FSEIS Section 1.4, if the Keystone XL Pipeline is not built, it is likely that alternative transport infrastructure would be used to accommodate increasing production of crude oil from the Western Canadian Sedimentary Basin and the Bakken Formation. Greenhouse gas emissions associated with various alternative crude oil transport and supply scenarios under the No Action Alternative are described in those documents.

4.12.3. Cumulative Impacts

Approval or denial of the requested ITPs and HCP would not significantly alter the trajectory of global climate change. However, by contributing to an increase in global greenhouse gas emissions, the proposed action would add incrementally to atmospheric greenhouse gas concentrations and the resulting climate change impacts. Cumulative impacts on this resource would be similar to existing conditions. Greenhouse gas emission impacts are additive, as these gases accumulate in the atmosphere; impacts would likely be long-term because of the long atmospheric lifetimes of most greenhouse gases (typically decades to centuries). The CO₂ emissions of the proposed pipeline operations in the Plan Area, combined with all other energy-related CO₂ emissions in South Dakota and Nebraska (based on 2016 data from EIA 2019 p. 9), would likely be less than 64 million metric tons of CO₂ equivalents per year. That rate is approximately 0.5 percent higher than the rate in the absence of the proposed action, and would contribute to a 0.006 percent increase in the rate for the United States (EIA 2019 p. 9).

4.13. RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

The proposed action could affect long-term productivity or use of resources. Impacts on long-term productivity or use of resources could occur as a result of the approval and implementation of an action that could reduce the flexibility of pursuing other options in the future, or from assigning a specific area or resource to a certain use that would not allow other uses to occur at a later date. Specifically, the mitigation measure contained in the HCP (i.e., the perpetual preservation of at least 1,082 acres of ABB habitat) would limit potential uses of this land area in the future. The preserved area would no longer be available for use in agriculture or for other human development. Similarly, the potential uses of land

within the permanent ROW of the pipeline and of the power lines would also be limited; much of the ROW could still be used for agriculture, but it could not be used for building any aboveground or belowground structures or for growing trees. Given the low human population density in the Plan Area and the amount of available land, the proposed action is not likely to have a considerable influence on the long-term productivity of land and resources in the Plan Area. The preservation of mitigation lands, however, is intended to help maintain the long-term productivity of the ABB population, and could have other incidental benefits as described in Section 4.7.4, Mitigation Lands.

4.14. UNAVOIDABLE ADVERSE IMPACTS OF THE PROPOSED ACTION

Table 14 lists the potential unavoidable adverse impacts of the proposed action. Adverse impacts that can be minimized or mitigated but not avoided entirely are considered unavoidable. The preceding subsections of this chapter provide additional details on the impacts listed below.

Table 14. Unavoidable Adverse Impacts of the Proposed Action in the Plan Area

Resource	Unavoidable Impacts in the Plan Area
Geology and soils	<ul style="list-style-type: none"> • Limitations on future access to mineral and paleontological resources located within the permanent ROW • Increased soil temperatures around the operating pipeline
Air quality	<ul style="list-style-type: none"> • Increased emissions of air pollutants during construction
Noise and vibration	<ul style="list-style-type: none"> • Noise and vibration from construction activities and operating pump stations
Water resources	<ul style="list-style-type: none"> • Alterations to streambeds and banks at pipeline crossing locations • Temporary instream turbidity and sedimentation • Temporary to long-term loss of instream habitat • Temporary reductions in instream flow • Temporary alteration of drainage patterns and/or floodplains • Temporary to permanent alterations of wetlands • Temporary dewatering of excavation sites • Heating of shallow groundwater and wetlands immediately adjacent to the operating pipeline • Temporary disturbance of wetlands • Permanent conversion of less than 1 acre of forested wetland to emergent wetland
Vegetation	<ul style="list-style-type: none"> • Temporary removal of native grasslands, cultivated crops, developed land, pasture, and wetland vegetation communities • Temporary to long-term disruption of riparian habitats • Permanent conversion of forest communities to shrub/scrub and/or herbaceous communities • Permanent vegetation removal at aboveground elements of the proposed Project and associated infrastructure
Wildlife and fisheries	<ul style="list-style-type: none"> • Temporary removal of native habitats • Permanent conversion and fragmentation of native habitats • Indirect and direct mortality of individuals during proposed Project construction • Temporary reduced survival and reproductive success due to habitat avoidance and human disturbance • Temporary water quality impacts during construction
ABB	<ul style="list-style-type: none"> • Permitted take of ABB • Temporary and permanent alteration of ABB habitat

Resource	Unavoidable Impacts in the Plan Area
Other protected species	<ul style="list-style-type: none"> • Increased risk of causing disturbance, displacement, habitat degradation, and potential injury or mortality to other protected species, although these impacts are not certain to occur • Long-term to permanent loss of forested roosting and/or foraging habitat for the northern long-eared bat
Land use, recreation, and visual resources	<ul style="list-style-type: none"> • Temporary loss of vegetation and agricultural productivity • Temporary damage to agricultural features such as drain tiles and fences • Temporary visual impacts, noise, and dust • Temporary restrictions on access to recreational resources • Permanent noise impacts of operating pump stations • Permanent visual impacts of pump stations, utility poles and wires, and forest clearing along permanent ROW • Loss of forest and restrictions on future land uses in permanent ROW
Socioeconomics and environmental justice	<ul style="list-style-type: none"> • Temporary increase in demand for housing and public services • Temporary increase in traffic
Cultural resources	<ul style="list-style-type: none"> • The proposed action is not certain to lead to unavoidable impacts on cultural resources.
Greenhouse gases and climate change	<ul style="list-style-type: none"> • Temporary increase in greenhouse gas emissions during construction • Permanent increase in direct and indirect greenhouse gas emissions due to operations

ABB = American burying beetle (*Nicrophorus americanus*); ROW = right-of-way

5. ENVIRONMENTAL CONSEQUENCES OF ACCIDENTAL RELEASES

This chapter addresses the potential for accidental releases of crude oil from operations of the proposed Keystone XL pipeline and presents adverse effects that could occur to various resources from those releases, with a focus on the potential consequences that could occur to the resources along the 176 miles of pipeline within the Plan Area. This analysis incorporates by reference the 2019 FSEIS accidental release analysis, which provides a detailed discussion of the methodologies used to calculate pipeline incident probabilities, including pipeline accident data by spill size (see Table 15), pipeline incident causes, and incident analysis for TC Energy, the parent company of Keystone, compared to industry averages. This analysis also considers the characteristics of crude oil, release type, and response and remediation of crude oil discussions contained within the 2019 FSEIS to determine the type of adverse effects an accidental release of crude oil could have on resources. It should be noted that accidental releases are not a Covered Activity in the HCP or the ITP application, nor is Keystone proposing any accidental releases. The Service is not contemplating any type of approval for accidental releases, and any accidental releases that do occur may result in claims under the Comprehensive Environmental Response, Compensation, and Liability Act; Oil Pollution Act; Clean Water Act; or other statutes. However, this EA assesses the consequences of accidental releases as potential indirect consequences of the Service’s decision. Table 15 presents key terms and definitions used in this chapter.

Table 15. Key Terms

Types of Releases	
Release	A <i>release</i> is a loss of integrity of a container (i.e., pipeline or its associated components) that results in a failure to contain liquid as designed.
Spill	A <i>spill</i> is a volume of liquid that escapes a containment system and enters the environment.
Categories of Spill Sizes	
Small Spills	<i>Small spills</i> range from greater than 0.1 barrel (5 gallons) to less than or equal to 50 barrels (2,100 gallons).
Medium Spills	<i>Medium spills</i> range from greater than 50 barrels (2,100 gallons) to less than or equal to 1,000 barrels (42,000 gallons).
Large Spills	<i>Large spills</i> range from greater than 1,000 barrels (42,000 gallons) to less than or equal to 10,000 barrels (420,000 gallons).
Catastrophic Spills	<i>Catastrophic spills</i> release more than 10,000 barrels (420,000 gallons).

Source: 42 USC 9601 et seq.

5.1. METHODOLOGY

To evaluate the potential effects of accidental releases of products that could be transported along the proposed pipeline within the HCP Area, this EA considers the range of potential consequences that could result if a release were to occur. The analysis of spill risk includes the 2019 FSEIS accidental release probabilities based on historical pipeline accident data presented in Section 5.3 of that document, and it includes the four spill sizes characterized in Table 15 above (small, medium, large, and catastrophic).

The region of interest (ROI) for this analysis is the area susceptible to a release of crude oil along the 176 miles of proposed pipeline route occurring within the Plan Area. The analysis assumes the ROI is the estimated distance crude oil would spread over land, as well as the additional distances that crude oil and its dissolved components could travel upon reaching a water feature based on the 2019 FSEIS analysis.

5.2. INCIDENT ANALYSIS FOR TC ENERGY AND ITS SUBSIDIARIES

This analysis uses information compiled in PHMSA accident data sets for accidents occurring between 2010 and 2019 to calculate the frequency of spills from U.S. onshore pipelines carrying crude oil (see Table 16). As shown in Table 16, the industry average incident rate for small spills is more than double TC Energy’s incident rate, and the industry average rate of medium spills is more than four times that of TC Energy. TC Energy’s rate of large spills is higher, while the rate of catastrophic spills (i.e., zero) is less than the industry average.

Table 16. Incident Rate Summary (2010–2019)

Pipeline Operator	Incident Rate Per 1,000 Miles of Onshore Crude Oil Pipeline ^a				Total Volume Spilled (bbl)
	Small Spills	Medium Spills	Large Spills	Catastrophic Spills	
Industry Average ^b	2.52	0.49	0.07	0.01	333,690
TC Energy and subsidiaries	0.98	0.12	0.12	0.00	16,579

Source: PHMSA 2019, 2020

bbl = barrel

a. The incident rate analysis includes additional 2019 data, which was not available during publication of the 2019 FSEIS.

b. Not including TC Energy.

5.3. IMPACTS OF RELEASES

A crude oil spill could result in impacts on the various resources discussed in Chapter 3, Affected Environment. As demonstrated in the 2019 FSEIS, the likelihood of a spill affecting any given resource is low. The nature and extent of impacts would depend on many factors, including the size of the release, the proximity of the release to sensitive resources, the proximity to features that would promote the transport and migration of the crude oil, and weather conditions that could affect the mobility of the oil and accessibility of areas for response actions. Table 17 summarizes the potential effects a spill could have by resource within the ROI in the absence of any conservation or mitigation measures, although such measures would be employed in the event of a release. The remainder of this section provides additional information, as necessary, regarding the types of impacts that could occur from spills based on the resources present within the ROI and conservation measures identified in the 2019 FSEIS accidental release analysis for protection of a resource.

Table 17. Potential Effects from a Crude Oil Release in the Plan Area

Geology and Soils (also see Section 5.3.1)	
Direct Effects	Indirect Effects
Contamination of hydric soils.	Adverse impacts on wetlands (see Water Resources).
Contamination of coarse-textured soils.	Infiltration to groundwater (see Water Resources).
Contamination of prime farmland soils.	Reduced soil productivity. Restricted farming or grazing (see Land Use).
Air Quality (also see Section 5.3.2)	
Direct Effects	Indirect Effects
Air quality degradation resulting from volatilization of hydrocarbons.	Temporary adverse effects on human health related to inhalation of hydrocarbons. Temporary adverse effects on birds and mammals related to inhalation of hydrocarbons.
Air quality degradation resulting from accidental or purposeful burning of crude oil.	Temporary adverse effects on human health related to inhalation of hydrocarbons and particulate matter. Temporary adverse effects on birds and mammals related to inhalation of hydrocarbons and particulate matter. Temporary adverse effects on recreational activities.
Noise and Vibration (also see Section 5.3.3)	
Direct Effects	Indirect Effects
Short-term noise impacts; primarily during response, restoration and remediation activities	Disruption to sensitive noise receptors during response, restoration, and remediation activities. Stress, avoidance of feeding and decreased breeding success of wildlife in proximity to response, restoration, and remediation activities.
Water Resources (also see Section 5.3.4)	
Direct Effects	Indirect Effects
Contamination of groundwater by free product and dissolved hydrocarbons.	Water quality degradation downgradient of spill site. Temporary closure of groundwater wells resulting in disruption of municipal water service. Temporary human health hazards resulting from short-term ingestion or exposure to dissolved hydrocarbons.
Contamination of open waters by free product and dissolved hydrocarbons.	Water quality degradation downstream of spill. Adverse impacts on aquatic ecosystem. Water quality degradation to previously impaired waters resulting in more severe impairment.

Contamination of wetland soils and damage to wetland vegetation.	Temporary human health hazards resulting from short-term ingestion or exposure to dissolved hydrocarbons. Degradation of wetland habitat and function. Stress of vegetation and wildlife and species mortality. Impacts during remediation and restoration from excavation and the removal of contaminated hydric soils.
Vegetation^a (also see Section 5.3.5)	
Physical Effects	Chemical Effects
Coating leaves could inhibit gas exchange and respiration.	Coating soil could inhibit nutrient uptake. Uptake of dissolved toxic compounds.
Fish and Wildlife^a (also see Section 5.3.6)	
Physical Effects	Chemical Effects
Short- or long-term loss of habitat. Coated fur or skin could lead to loss of insulation or buoyancy, as well as reduced respiration through the skin in amphibians. Transfer of oil to eggs or young. Physical abnormalities and poor health caused by direct exposure.	Toxicological impacts through consuming contaminated food or ingesting product while cleaning feathers or fur. Effects on eggs laid in contaminated water or substrates leading to death or physical abnormalities.
Land Use, Recreation and Visual Resources (also see Section 5.3.8)	
Direct Effect	Indirect Effect
Physical coating of vegetation (see Vegetation).	Contaminated forage for livestock. Loss of commercial crops.
Contaminated water (see Water Resources).	Contaminated water for livestock. Contaminated irrigation water. Restricted access for boating, swimming, fishing, etc. Adverse visual effects from physical coating and contamination.
Contamination of prime farmland soils (see Geology and Soils).	Reduced soil productivity.
Physical and toxicological effects on fish (see Fish and Wildlife).	Short- or long-term loss of fishing areas or fish consumption restriction.
Socioeconomics and Environmental Justice (also see Section 5.3.9)	
Direct Effect	Indirect Effect
Physical covering or contamination of residential or commercial property by crude oil.	Evacuation of affected residences and businesses during response and remedial activity. Restricted access or impeded travel to residences, schools, and businesses for the duration of remedial activity. Loss of business revenues and employee salaries during commercial closures. Adverse impact on property value. Noise, nuisance odors, and visual effects.
Physical covering or contamination of recreational or economic resource by crude oil.	Restricted access to recreational resource area for the duration of remedial activity. Loss of business revenues associated with the resource. Loss of revenues from affected farmland, hunting, or fishing resources. Potential permanent effect on recreational resources from residual contamination or perceived stigma.
Destruction of property during physical cleanup, including grading, excavation, and dredging.	Accidental or intentional destruction of property during response and remedial efforts. Loss of residential property.

	Loss of business revenues. Adverse economic impacts for the municipal jurisdiction. Beneficial effects for some businesses (remediation firms, lodging providers, food and service businesses).
Cultural Resources (also see Section 5.3.10)	
Direct Physical Effects	Other Direct Effects
Contamination of historic properties (surface soils and subsurface features/artifacts) from crude oil.	Restricted access to historical properties such as limiting use of historic structures and landscapes. Damage to or deterioration of historic properties. Noise, nuisance odors, and visual effects surrounding historic properties.
Physical covering of site by crude oil.	Restricted access preventing contaminated historic properties from being experienced or properly researched and documented. Inability to use radiocarbon dating.
Disturbance to historic properties from physical cleanup, including grading, excavation and dredging, in situ burning and water flushing.	Accidental or intentional destruction of historic properties during cleanup efforts.
Greenhouse Gases and Climate Change (also see Section 5.3.11)	
Direct Effects	Indirect Effects
Fugitive emissions of greenhouse gases.	Greenhouse gas emissions from vehicles and equipment used in spill response and remediation.
Greenhouse gas emissions from potential fire caused by spontaneous ignition or explosion during spill incident.	Greenhouse gas emissions from fire intentionally ignited for spill containment.

Source: DOS 2019

a. Section 5.3.7 contains a discussion of potential effects on federally protected species from a release within the HCP Area.

5.3.1. Geology and Soils

No known seismic faults or oil, natural gas, or coal mining operations exist along the proposed pipeline route; therefore, a release of crude oil is not anticipated to adversely affect the underlying geology. Prime farmland soils are prevalent within the ROI. Contamination of prime farmland soils could adversely affect soil productivity, and the use of the land for farming or grazing would be restricted during remediation of a spill and potentially after remediation is complete. Remediation may require the excavation and removal of contaminated soils, which would result in a permanent loss of prime farmland soils. Vehicles and equipment used to respond to and remediate a spill may increase the potential for soil disturbance (e.g., rutting, compaction, and erosion). It is also possible that wind or water erosion could carry contaminated soils off site and adversely affect prime farmland soils in areas beyond the spill location.

5.3.2. Air Quality

The most notable impacts related to air quality are adverse effects on human health. Human health impacts arise from inhalation of the hydrocarbons (organic molecules made of hydrogen and carbon atoms) that make up crude oil. Similar adverse health effects could be experienced by terrestrial wildlife at the site of a release or directly downwind of remediation activities. In addition, degraded air quality and visual obstructions caused by smoke from burning of crude oil during emergency response activities can disrupt professional and/or recreational activities in affected areas, negatively affecting the aesthetic and economic value of affected regions.

5.3.3. Noise and Vibration

An accidental release of crude oil along the proposed pipeline route could result in short-term noise impacts within the ROI, primarily during response, restoration, and remediation activities. Potential impacts from noise would likely be associated with the equipment and vehicles used for site access, cleanup, and restoration efforts. These impacts would be similar to those of a construction site, but the activities could occur at all hours of the day and night. Large spills would be more likely to result in elevated noise levels across a larger area and for a longer duration. Conversely, small spills would be more localized and less likely to affect noise receptors. Similar to human sensitive receptors, wildlife can experience impacts from exposure to noise and vibration resulting from human activities during response, restoration, and remediation activities. These impacts on wildlife species could include stress, avoidance of feeding, and decreased breeding success.

5.3.4. Water Resources

Principal groundwater aquifers underlying the proposed pipeline route include alluvial aquifers and the Northern High Plains and the Lower Cretaceous Aquifers. Shallow (surficial) aquifers, particularly those overlain by hydric and coarse-textured soils, would be more susceptible to impacts than confined or deep aquifers because of their susceptibility to infiltration from the surface. Aquifers within the HCP Area are primarily used for irrigation purposes.

Coarse-textured soils, or sandy or gravelly soils, allow for easier percolation of liquid through the soils to reach groundwater. If a spilled product reached these soils, infiltration rates could be greater than in other areas. Because the infiltration rate of the product into the underlying soil controls vertical migration, rapid emergency response measures to control the release, contain it, and collect the released product would mitigate the potential for groundwater contamination. Released crude oil would become more viscous in the environment as the lighter hydrocarbons volatilize. Cooling of the product after its release would increase its viscosity, particularly in the cooler months of the year. Increasing viscosity tends to reduce vertical migration rates in soil profiles and infiltration into the shallow groundwater table. If crude oil were to infiltrate into the soil and encounter groundwater, the oil would tend to form a distended layer above and slightly below the water table, largely based on the size and duration of the spill and the associated vertical hydraulic pressure. The crude oil plume would then spread horizontally, primarily in the downgradient direction, until reaching a steady state based on the crude oil hydraulic pressure, groundwater flow rate, and soil characteristics. This local contamination would not be anticipated to affect the entire aquifer.

Small releases into or close to a surface waterbody could result in minor short-term degradation of surface water quality, particularly for small waterbodies with low flow energy. Toxicity impacts in larger waterbodies would be unlikely or last for relatively short periods because of the high dilution volume in these lakes or rivers, as well as, the rapid evaporation of most of the potentially toxic lighter hydrocarbons. However, in surface waters with high energy (e.g., turbulent river flows and/or high sediment deposition), sunken oil may become buried under or mixed within stream sediment and soil along streambanks, where it may become trapped and remain for an extended duration. Surface waters contaminated with dissolved hydrocarbons could also cause indirect impacts on groundwater resources in instances where surface waters recharge these resources. The connection between surface water and

groundwater is dynamic throughout the region because of the presence of shallow aquifers and coarse-textured soils. Most groundwater recharge occurs from the percolation of rainwater through surficial soils and from lakes and streams into shallow aquifers. In these areas, the potential exists for dissolved hydrocarbons from surface water to migrate to groundwater through the process of groundwater recharge.

In wet or saturated soil, water partially or completely fills the pores between the soil particles, leaving little or no room for the less dense oil to move downward. A lack of downward movement generally leads to a spill that covers a larger horizontal area. In these scenarios, shallow portions of the aquifer would be impacted, while deeper portions of the aquifer would not. As described in the 2014 FSEIS, available studies and reports indicate that, in general, impacts from farming operations are present in areas of shallow groundwater. Shallow groundwater within the Northern High Plains Aquifer and alluvial aquifers in the state exhibit low concentrations of total dissolved solids, making the water in the shallow aquifers generally suitable for irrigation, potable, and industrial uses.

Keystone would maintain an Integrity Management Program required for pipelines that could affect high consequence areas, which include surface water unusually sensitive areas and groundwater unusually sensitive areas identified for their potential as a drinking water resource (49 CFR 195.6 and 195.450). Keystone has also committed to a number of measures beyond spill cleanup measures, which are addressed in Appendix B of the 2014 FSEIS (DOS 2014). In the event that a spill contaminates water supplies used for industrial, municipal, or irrigation purposes, Keystone has committed to temporarily provide an alternate water supply for any users of wells or irrigation intakes where water quality is affected by a spill until the water supply is restored or provide appropriate compensation for those facilities impacted, as agreed upon among the affected parties and Keystone.

5.3.5. Vegetation

In addition to the direct physical and chemical effects related to a release outlined in Table 17, cleanup efforts could also generate impacts on terrestrial vegetation, including disturbance and the inadvertent spread of invasive species. Response activities create disturbances through movement of vehicles and personnel and through the implementation of cleanup methods, including excavation, dredging, and in situ burning. Creating a disturbance may remove existing native vegetation or alter the landscape, which could enable non-native species to become invasive or spread to new areas. The movement of vehicles and equipment from one area to another in support of spill response and remediation activities also increases the opportunity to transport species into new areas. The implementation of appropriate preventive measures or monitoring regimes could reduce the impact of invasive species.

5.3.6. Fish and Wildlife

Toxicological impacts arising from fish or wildlife ingestion of petroleum products could include direct and acute mortality; sub-acute interference with feeding or reproductive capacity; disorientation or confusion; reduced resistance to disease; tumors; reduced or lost sensory perceptions; interference with metabolic, biochemical and genetic processes; and many other acute or chronic effects.

In general, the potential impacts on aquatic species would be lower in larger waterbodies and much lower under flood conditions since the water would rapidly dilute toxic hydrocarbon concentrations. In smaller streams, a spill could create direct aquatic toxicity in the water column because of the lower relative

volume and rate of water flow. Therefore, there would be a higher likelihood of direct contact between the biota and the dispersed product in smaller streams.

A spill that reaches the aquatic environment could also reduce concentrations of dissolved oxygen in the water. Because surficial petroleum slicks are less permeable to oxygen than water, spilled material that reaches wetlands, ponds, or small lakes could lower dissolved oxygen concentrations caused by a decreased influx of atmospheric oxygen. Dissolved oxygen can also be lowered by bacteria that degrade components of the spilled oil. A reduced dissolved oxygen concentration results in a lower sustainable capacity for aquatic life, thus reducing the overall waterbody population. Decreases in dissolved oxygen levels would be negligible in most cases but may be greater in large spills that cover much of the water surface for a day or more.

Spill response activities may disturb and/or remove soil and vegetation or temporarily relocate local species. This impact would be more severe if the species use specialized habitats or if they were disturbed during sensitive periods, such as nesting.

5.3.7. Protected Species

5.3.7.1. Federally Protected Species

Significant impacts on federally protected species are unlikely due to the likelihood that most spills would be small in size, the low probability as presented in the 2019 FSEIS of a spill contacting suitable habitat, and the low probability of the spill coinciding with the presence of individuals of any protected species discussed within this EA. Table 18 summarizes potential effects on federally protected species.

Potential for adverse impacts would be further minimized at major river crossings, which are subject to an intensive integrity management program stipulated by the U.S. DOT (Integrity Management Rule, 49 CFR 195) and require heavier wall pipe to be used for the HDD method. The use of HDD would result in a burial depth of 25 feet or more below river bottoms. In addition, federal agencies have developed a general process for protecting listed species and critical habitat during spill planning and response activities (U.S. Coast Guard et al. 2002).

Table 18. Federally Listed Species Potentially Affected by an Oil Spill in the Plan Area

American Burying Beetle
An accidental release of crude oil in ABB habitat could adversely affect the ABB. Direct contact with oil or contaminated soil could result in toxicological impacts. Some components of the released oil may bioaccumulate and result in potential toxicological impacts if ABBs consume contaminated carrion. The 2019 BA (p. 119) determined that, "...spills resulting from the proposed pipeline would be likely to result in effects on approximately four American burying beetles over the life of the proposed Project." However, there is uncertainty related to the amount, location, and timing of effects on the ABB resulting from a crude oil spill from the pipeline; the uncertainty is due to the low probability of a spill and low probability of a spill coinciding with the presence of ABBs. Although effects could be caused by oil spills, it is the Service's opinion that effects from an oil spill are not reasonably certain to occur (see the 2019 BO p. 31). If a spill were to occur in ABB habitat, it would be dealt with through a separate process of Natural Resource Damage Assessment.
Interior Least Tern, Piping Plover, Rufa Red Knot, and Whooping Crane
Depending on the oil spilled, some components of the released oil may bioaccumulate and result in potential toxicological impacts if species consumes contaminated prey. While the most toxic components of crude oil do not bioaccumulate to high degrees, this species could still experience direct physical or toxicological adverse impacts from an oil spill due to ingesting oil while preening. Direct physical impacts could result from oiling, leading to loss of water repellency and insulative capacity of feathers or transfer of crude oil to eggs, which at this stage could cause mortality, reduced hatching success, or potential deformities in young. Any of these effects would be highly unlikely due to the low probability of a spill occurring near suitable habitat during a time of year when the habitat could be occupied and the low probability of the spill coinciding with the presence of individuals.
Pallid Sturgeon and Topeka Shiner
Depending on the oil spilled, some components of the released oil may bioaccumulate and result in potential toxicological impacts if either species consumes contaminated prey. However, the most toxic components of crude oil do not bioaccumulate to high degrees. Direct toxicological effects could result from physical oiling, although the likelihood of such impacts on pallid sturgeon are lower due to their preferred habitat in flowing rivers, which would dilute and disperse spilled product. Indirect effects could result from sunken product smothering benthic habitat, leading to a reduced ability to forage or decreased reproductive success.
Northern Long-eared Bat
The northern long-eared bat may experience adverse toxicological impacts from ingestion of contaminated water. Depending on the oil spilled, some components of the released oil may bioaccumulate and result in potential toxicological impacts if northern long-eared bats consume contaminated prey. However, the most toxic components of crude oil do not bioaccumulate to high degrees, and this species would not experience direct physical or toxicological adverse impacts from an oil spill. Adverse effects on northern long-eared bat would be unlikely due to the low probability of a spill and low probability of a northern long-eared bat contacting the spilled crude oil.
Western-fringed Prairie Orchid
Impacts could occur because of direct physical oiling of plants or supporting soils or through increased human and vehicle traffic during spill response activities. Adverse effects on western prairie fringed orchid would be unlikely due to the low probability of a spill and the low probability of the spill coinciding with western prairie fringed orchid populations.

ABB = American burying beetle (*Nicrophorus americanus*); BA = Biological Assessment; BO = Biological Opinion

5.3.7.2. State-listed Species

Similar to federally protected species, significant impacts on state-listed species are unlikely due to the likelihood that most spills would be small in size, the low probability of a spill contacting suitable habitat, and the low probability of the spill coinciding with the presence of individuals of any state-listed species discussed within Section 3.8, Other Protected Species. Measures discussed in Section 5.3.7.1, Federally Protected Species, would also serve to minimize the potential for adverse effects on state-listed species in the event of an accidental release. Table 19 summarizes potential effects on state-listed species.

Table 19. State-listed Species Potentially Affected by an Oil Spill in the Plan Area

Interior Least Tern, Piping Plover, Rufa Red Knot, and Whooping Crane
Refer to Table 18.
Blacknose Shiner, Finescale Dace, Northern Redbelly Dace, Northern Pearl Dace, and Sturgeon Chub
Depending on the oil spilled, some components of the released oil may bioaccumulate and result in potential toxicological impacts if the species consumes contaminated prey. However, the most toxic components of crude oil do not bioaccumulate to high degrees. Direct toxicological effects could result from physical oiling if released product entered inhabited waterways, but impacts would be lower in flowing rivers, which would dilute and disperse spilled product. Indirect effects could result from sunken product smothering benthic habitat, leading to a reduced ability to forage or decreased reproductive success.
Northern Long-eared Bat
Refer to Table 18.
River Otter
The river otter may experience adverse toxicological impacts from ingestion of contaminated water. Depending on the oil spilled, some components of the released oil may bioaccumulate and result in potential toxicological impacts if river otters consume contaminated prey (e.g., fish and crayfish). Depending on the spill location, impacts could occur to shoreline habitats potentially used by denning river otters. However, the most toxic components of crude oil do not bioaccumulate to high degrees, and this species would not experience direct physical or toxicological adverse impacts from an oil spill. Adverse effects on the river otter would be unlikely due to the low probability of a spill and low probability of a river otter contacting the spilled crude oil.
Small White Lady’s Slipper and Western-fringed Prairie Orchid
Impacts could occur because of direct physical oiling of plants or supporting soils or through increased human and vehicle traffic during spill response activities. Adverse effects would be unlikely due to the low probability of a spill and the low probability of the spill coinciding with small white lady’s slipper and western prairie fringed orchid populations.

5.3.8. Land Use, Recreation, and Visual Resources

Cultivated farmland represents the dominant land use within the Plan Area, including corn, alfalfa, winter wheat, oats, grain sorghum, soybeans, and hay. Short-term disruption in local agricultural production could result from a spill that enters agricultural lands or wild lands used by grazing livestock. In some cases, including large-scale removal of contaminated soils during spill remediation, soil productivity would not likely return to prior levels.

Keystone has committed to a number of measures beyond spill cleanup measures, which are addressed in Appendix B of the 2014 FSEIS (DOS 2014). In the event that a spill contaminates water supplies used for industrial, municipal, or irrigation purposes, Keystone may provide either an alternate supply of water or appropriate compensation for those facilities impacted.

5.3.9. Socioeconomics and Environmental Justice

As stated in Section 5.3.8, the predominant land use in the Plan Area is farming; the effects of a spill on agricultural production could result in a loss of revenue to farmers by the destruction of crops or the contamination of grazing lands. Depending upon the timing of an incident during the growing cycle and the acreage affected, a year’s production could be lost, and in some cases, losses in agricultural revenues could extend to subsequent growing seasons for the farmland affected. In the event that a spill would require extensive response and remediation efforts, additional cleanup workers and police, fire and medical services could be present throughout the duration of these activities. Depending upon the size and location of the spill, as well as the corresponding size of the response team, temporary stresses to police,

fire, and medical services could occur. Crop loss as a result of a spill that was not covered by a farmer's liability insurance would involve a third-party claim that would have to be directed to Keystone for review and payment.

Regarding environmental justice populations discussed in Section 3.10, as it is not possible to predict the location of a release, it is not possible to determine whether a disproportionately high and adverse impact would occur for minority or low-income populations from an accidental release potentially occurring along the proposed pipeline route. Depending on the location and extent of a spill, minority or low-income populations could be more vulnerable to health impacts associated with a crude oil release because of reduced access to health care services. This could result in disproportionately high and adverse impacts on minority and low-income populations in the event of a large release.

5.3.10. Cultural Resources

In addition to the information in Table 17, the 2019 FSEIS Section 5.5.9 discusses the nature, intensity, and duration of potential impacts of releases on cultural resources, primarily the physical contamination of historic properties by crude oil and disturbances to historic properties during cleanup activities. The consequences of such impacts, and potential mitigation measures, would be similar to those discussed in Section 4.11.1. In the case of an accidental release that may present imminent and substantial danger to public health or welfare, a federal on-scene coordinator would be present to make emergency response decisions regarding historic properties and would consider cultural resource information before authorizing actions that might affect such properties, as required under 40 CFR 300.

5.3.11. Greenhouse Gases and Climate Change

The 2019 FSEIS Section 5.5.10 details the potential impacts of releases on greenhouse gases and climate change. A release of crude oil could contribute to greenhouse gases from fugitive emissions from spilled crude oil, from combustion of fuel in vehicles and equipment used for spill response and remediation actions, and from combustion of spilled crude oil in the event of a fire.

6. CONSULTATION AND COORDINATION

The following agencies and organizations were involved in the development of the 2019 FSEIS and/or the Draft HCP:

- U.S. Army Corps of Engineers
- Bureau of Land Management
- U.S. Department of State
- Western Area Power Administration
- Rural Utilities Service
- South Dakota Game, Fish and Parks
- Nebraska Game and Parks Commission

The Western Area Power Administration provided feedback on the Draft EA. In accordance with NEPA, this Final EA has been circulated for public review and comment. Appendix C discusses the comments received and provides responses.

APPENDIX A—LIST OF PREPARERS

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APPENDIX B—REFERENCES

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APPENDIX C—RESPONSE TO PUBLIC COMMENTS

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
ABB	American burying beetle (<i>Nicrophorus americanus</i>)
BA	Biological Assessment
BLM	U.S. Bureau of Land Management
BO	Biological Opinion
°C	Degrees Celsius
CFR	Code of Federal Regulations
CO ₂	carbon dioxide
DOS	U.S. Department of State
EA	Environmental Assessment
ESA	Endangered Species Act
FR	<i>Federal Register</i>
FSEIS	Final Supplemental Environmental Impact Statement
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
Keystone	TransCanada Keystone Pipeline, L.P.
N/A	not applicable
NEPA	National Environmental Policy Act
NGO	non-governmental organization
NPPD	Nebraska Public Power District
PHMSA	Pipeline and Hazardous Materials Safety Administration
ROW	right-of-way
RUS	Rural Utilities Service
SCADA	Supervisory Control and Data Acquisition
SEIS	Supplemental Environmental Impact Statement
Service	U.S. Fish and Wildlife Service
U.S.	United States

C.1 INTRODUCTION

The U.S. Fish and Wildlife Service (Service) published the Draft Environmental Assessment (EA) for the Keystone XL Proposed Habitat Conservation Plan (HCP) and Incidental Take Permit (ITP) on August 17, 2020. The EA relies on the Department of State's (DOS) 2014 Final Supplemental Environmental Impact Statement (SEIS) for the Keystone XL Project (DOS 2014) and 2019 Final Supplemental Environmental Impact Statement (FSEIS) for the Keystone XL Project (DOS 2019), and also relies upon previous analyses in the Bureau of Land Management's (BLM) 2019 Biological Assessment (BA) for the Keystone XL Project (BLM 2019) and the Service's 2019 Biological Opinion (BO) for the Keystone XL Project (Service 2019b).

The Final EA evaluates the impacts of and alternatives to the issuance of ITPs and implementation of the Keystone XL Pipeline HCP. On September 14, 2020, the Council on Environmental Quality finalized the revised National Environmental Policy Act (NEPA) Implementing Regulations 40 Code of Federal Regulations (CFR) 1500-1508. The revised regulations apply to environmental analysis commencing after September 14, 2020. This Final EA continues to use the previous NEPA regulations rather than the September 14, 2020, revised regulations.

The Service will use the analysis of the EA, among other information, in consideration of its decision whether to issue the requested ITPs that would authorize take of American burying beetle (*Nicrophorus americanus*) (ABB) incidental to the construction and operation of the proposed Keystone XL Pipeline Project (proposed Project) and associated infrastructure, as well as implementation of the conservation plan in the associated HCP, in accordance with the statutory and regulatory requirements of the Endangered Species Act (ESA).

The Service received an HCP on April 22, 2020, that was subsequently revised. Consistent with NEPA, the Service solicited public comments on the Draft EA during a 30-day public comment period beginning August 17, 2020, and closing September 16, 2020. The Service considered comments received during the public comment period in the Final EA document.

This Response to Public Comments summarizes the public review process for this EA and provides information on and responses to the comments received during the public comment period. This Response to Public Comments is organized as follows.

- **Section C.2** presents an overview of the public review and comment process initiated by the Service by announcing the availability of the Draft EA and soliciting public comments. It also presents the number of comments submitted during the public comment period by entity, submission method, and disposition of comment (either in support, against, or neutral to the proposed action); and describes the processing and delineation of comments received.
- **Section C.3** outlines the major themes associated with comments received during the comment period.
- **Section C.4** provides the Service's responses to the major themes outlined in Section C.3.
- **Section C.5** lists the references cited in this appendix.

All comment submissions are available for viewing at www.regulations.gov by searching ID FWS-R6-ES-2020-0014.

C.2 AGENCY AND PUBLIC REVIEW AND COMMENT PROCESS

C.2.1 Notifications

The Service published a Notice of Availability in the *Federal Register* (FR) (85 FR 50043) on August 17, 2020, to announce availability of the Draft EA and HCP and to solicit public comments over a 30-day period. Along with the FR notification, the Service sent letters dated March 10, 2020, to Indian tribes with potential historical, spiritual, or cultural interests within the Plan Area to invite government-to-government consultation on the Service’s proposed action.

C.2.2 Comment Submission Summary

The Service has considered all comments received from the Draft EA public comment period in the Final EA document. During the public comment period, the Service received comments by means of handwritten comments mailed to the Service and comments submitted electronically via www.regulations.gov.

The public comment period closed on September 16, 2020. The Service considers each individual’s or entity’s submittal as one comment submission. Table C-1 summarizes the number of comment submissions received by entity type (i.e., federal agency, private industry, tribal government, non-governmental organization [NGO] or advocacy group, or the general public) and the type of submission (i.e., written or electronic). Of the 14 submissions, 2 were in support of the proposed action, 11 were against, and 1 was neutral.

Table C-1. Comment Submission Method

Entity	Method	
	Written	Regulations.gov
Federal Agency	0	1
Private Industry	0	1
Tribal Government	0	2
NGO/Advocacy Group	0	3
General Public	1	6
Total	1	13

NGO = non-governmental organization

NGOs and advocacy groups submitted campaigns that involved a single submission backed by numerous signatories. Table C-2 provides the NGO and advocacy group names and the number of signatories for each campaign. There were 5,925 signatories against the proposed action. No campaigns were received in support of the proposed action.

Table C-2. Non-Governmental Organizations and Advocacy Groups

Group Name	Number of Signatories
Bold Nebraska	5,918
Indigenous Environmental Network and North Coast Rivers Alliance	2
The Center for Biological Diversity, Natural Resources Defense Council, Friends of the Earth, the Sierra Club, and Bold Alliance	5
Total Signatories	5,925

C.2.3 Processing and Delineation of Comments

As indicated in Table C-1, the Service received a total of 14 comment submissions. The Service first processed the comments by recording the commenter name and organization, date of submission, and method of submission. The Service reviewed each submission to determine its general tone or disposition (in support, against, or neutral). The Service continued to process each submission by delineating individual or unique substantive comments contained within the submission. For example, if a member of the public submitted one letter regarding the Draft EA that contained one comment on the public comment period, three comments on the accidental release methodology, and two comments on conservation of the ABB, the submission was found to contain six unique substantive comments. Therefore, the total number of substantive comments when delineated by topic received on the Draft EA is greater than the number of submissions, as many submissions include multiple unique comments. A total of 124 substantive comments were identified from the 14 submissions. Section C.3 provides a discussion of the major topics (themes) and sub-themes received during the Draft EA comment period.

C.3 MAJOR COMMENT THEMES

Based on a review of all the comment submissions, the Service developed “major comment themes” to facilitate an effective way to respond to the comments with detailed information and a focused discussion without redundancy.

Table C-3 presents the major themes and sub-themes in which the Service received substantive comments. This table also provides the location(s) in the EA where the topic is discussed. As shown in Table C-3, the Service further divided some themes into sub-themes to assist in organizing and responding to the range of comments received under the theme specified. Section C.4 of this document includes detailed responses to each of the themes and sub-themes identified.

Table C-3. Major Comment Themes

Theme	EA Location	Sub-Themes
Purpose and Need	Chapter 1	None
TC Energy ^a	Chapter 1	None
Alternatives	Chapter 2	None
ABB Conservation	Sections 3.7 and 4.7	<ul style="list-style-type: none"> • General ABB Conservation • Time Scale of Impacts on the ABB • Climate Change Impacts on the ABB • Risk of Crushing ABB • ABB Density Estimates
ESA Process	N/A	<ul style="list-style-type: none"> • Lack of Evidence That ESA Requirements Are Met

Theme	EA Location	Sub-Themes
		<ul style="list-style-type: none"> • Other Alleged Violations of the ESA
Factual Corrections or Clarifications	Chapters 1, 2 and 3	None
Fossils Fuels Generally	N/A	None
Greenhouse Gases and Climate Change	Sections 3.12 and 4.12	None
Mitigation Lands	Section 4.7.4	None
NEPA Process	N/A	None
Other Ecological Matters	N/A	None
Accidental Releases	Chapter 5	None
Tribal Concerns	Sections 3.10 and 4.10	<ul style="list-style-type: none"> • Sovereignty and Treaty Rights • Traditional Knowledge and Values • Consultation with Tribes • Tribal Lands
Water Resources	Sections 3.4 and 4.4	None
Eminent Domain	N/A	None

ABB = American Burying Beetle; EA = Environmental Assessment; ESA = Endangered Species Act; N/A = not applicable; NEPA = National Environmental Policy Act

^a Formerly known as TransCanada

C.4 THEMATIC COMMENT RESPONSES

This section provides a summary of each major comment theme or sub-theme identified in Table C-3 and provides the Service’s response to each. Responses include references to relevant information presented in the EA and document any changes incorporated into the Final EA as a result of the comments. In addition, all comment submissions are available for viewing at www.regulations.gov by searching ID FWS-R6-ES-2020-0014.

C.4.1 Purpose and Need

Synopsis:

One commenter stated that the HCP and ITP would not achieve the purpose and need identified in the EA. In particular, the EA does not demonstrate ITP issuance and HCP implementation would achieve long-term species and ecosystem conservation objectives at ecologically appropriate scales, nor does it demonstrate that the conservation actions approved with issuance of the ITPs would occur within an area capable of supporting species mitigation projects over the long-term.

Response:

The Service’s purpose in considering the proposed action is to fulfill its responsibilities within its authority under the ESA Section 10(a)(1)(B). The Service’s need relative to the proposed federal action derives from Section 10 of the ESA, which specifically directs the Service to issue ITPs to non-federal entities for take of endangered and threatened species when the criteria in Section 10(a)(2)(B) are satisfied by the applicant. When the Service receives an application for an ITP, the Service needs to review the application and determine whether it meets issuance criteria in a set of permit findings and recommendations.

The ABB population that overlaps the proposed mitigation lands is part of the “Sand Hills analysis area,” which is predicted to be the most resilient analysis area in the Great Plains under future climate conditions and land use changes (Service 2019a, pp. 170 and 171). The proposed mitigation lands are near the Valentine National Wildlife Refuge, which “is the only large block of protected lands in this analysis area with relatively good numbers of ABBs” (Service 2019a, p. 95). These factors support the Service’s determination that the HCP, including the proposed mitigation actions, would advance long-term species and ecosystem conservation objectives at ecologically appropriate scales and would occur within an area capable of supporting species mitigation projects over the long-term.

C.4.2 TC Energy

Synopsis:

One commenter suggested that the actions of TC Energy (the parent company of TransCanada Keystone Pipeline, L.P. [Keystone], and formerly known as TransCanada) with regard to the Keystone XL Project do not demonstrate a pattern of legal compliance and an ability to implement conservation plans and keep government agencies informed about Project activities. Other comments questioned whether a foreign entity could obtain an ITP.

Response:

The commenter did not provide evidence of TC Energy not demonstrating a pattern of legal compliance. Prior to issuance of any ITP, the Service is required to determine if the ITP request meets issuance criteria. This review also includes 50 CFR 13.21(b)-(c), which describes factors that disqualify a person from receiving an ITP. The requested ITP, if issued, would only remain valid while Keystone and its contractors comply with all terms and conditions of the ITP, while the activities undertaken remain within those described in the HCP, and while the permittee complies with the mitigation provisions described in the HCP. Appendix E of the HCP documents that Keystone and TC Energy have the necessary financial resources to implement the HCP.

Regarding the comment about foreign entities holding an ITP, Section 2.1.7.2 (Pipeline Construction Procedures, TransCanada-Keystone Pipeline) of the 2014 Keystone XL FSEIS (DOS 2014) details that Keystone is a limited partnership organized under the laws of the state of Delaware.

C.4.3 Alternatives

Synopsis:

Commenters stated that the Service failed to consider any alternative other than the proposed action and the No Action Alternative. Commenters stated that the EA should consider route changes to minimize impacts to the ABB, and suggested that the ESA does not allow the Service to defer consideration of possible route changes to the decisions of an applicant or a state agency, such as the Nebraska Public Service Commission.

Response:

Regulations for implementing NEPA require that federal agencies evaluate reasonable alternatives to a proposed action, including no action. In addition, agencies must identify any alternatives eliminated from

detailed study and discuss the reasons for eliminating them (40 CFR 1502.14). Reasonable alternatives include those that are practical or feasible from a technical, economic, and environmental standpoint and employ common sense, rather than simply being desirable from the standpoint of an applicant (40 CFR 1500–1508). In addition to being technically and economically practical or feasible, a reasonable alternative must meet the purpose and the need for the agency action (43 CFR 46.420(b)). The agency must also consider the needs and goals of the applicant (43 CFR 46.420(a)). While the Service acknowledges that it has no authority over routing, it does have jurisdiction over permitting incidental take of the ABB; therefore, the Service did examine other potential routing options, but eliminated these from detailed consideration, as explained in Section 2.3.1 of the Final EA.

Keystone proposed alternative routes in the Nebraska Public Service Commission process, and the Commission found that the route discussed in the HCP was the best alternative considering all factors (NE PSC 2017); the Commission declined to approve any other route. Similarly, DOS dismissed the other alternatives as they did not minimize impacts on environmentally sensitive areas (see the 2014 Keystone XL FSEIS [DOS 2014] Section 2.2.5 and the 2019 Keystone XL FSEIS [DOS 2019] Section 2.3). In the present analysis of whether to grant the requested ITP, the Service is constrained by the ESA Section 10(a)2(B) requirement that “the Secretary shall issue the permit” as long as the other requirements of Section 10(a) are satisfied. Any information that the NEPA process may provide with respect to alternatives, such as other routes for the proposed pipeline and power lines, cannot constitute a sufficient basis for the Service to decline to issue the requested ITP. Therefore, the Service did not give detailed consideration to alternative routes.

C.4.4 ABB Conservation

C.4.4.1 General ABB Conservation

Synopsis:

Many commenters expressed a general desire to protect the ABB and its habitat, as well as requests for greater levels of avoidance, minimization, and mitigation. Comments indicated that the ABB helps return nutrients to the soil and competes with ants and flies that depend on carcasses. One commenter suggested that construction and pesticides are a threat to the species. One commenter questioned why the ABB would not be relocated out of harm’s way.

Response:

The Service acknowledges these concerns and is committed to supporting the recovery of the ABB. Issues regarding mitigation are discussed under the theme of Mitigation Lands and in Final EA Section 4.7.4. In the absence of suggestions from the commenter for specific changes to avoidance and minimization measures, the Service will determine in the Findings and Recommendations document whether the avoidance and minimization measures in the HCP and the Final EA meet issuance criteria. Section 3.7 of the EA has been revised to consider the role of the ABB in nutrient cycling and competition with other insects. Although pesticides can affect the ABB, agricultural applications are not expected to present a substantial threat given that land covered with row crop agriculture is not suitable habitat (Service 2019a, pp. 27, 48). Keystone’s Construction, Mitigation, and Reclamation Plan (included as HCP Appendix C, Section 2.13) discusses the use of herbicides for vegetation control in the proposed Project’s right-of-way

(ROW) and ancillary facilities and includes best management practices to reduce impacts of pesticides and herbicides on wildlife. Additionally, the HCP prohibits the use of herbicides in ABB habitat. The threat posed by construction projects was discussed in Draft EA Section 4.7, which has been retained in the Final EA with no further revision necessary. The reasons why the ABB would not be relocated were discussed in the Draft EA Section 2.3.3.1, which has been retained and is the same section number in the Final EA with no further revision necessary.

C.4.4.2 Time Scale of Impacts on the ABB

Synopsis:

Comments suggested that displacement of individual ABB and the disturbance of ABB habitat would affect the ABB for a longer time than contemplated in the Draft EA, and perhaps permanently.

Response:

Considering the difficulty of estimating and/or monitoring the number of individuals affected by the proposed Covered Activities, the HCP and the EA uses the area of habitat impacted and an ABB density estimate to calculate take of individual ABB. See the sub-theme of ABB Density Estimates, below, for additional information. Using this method, the HCP effectively assumes that all ABB within potentially suitable habitat overlapping the proposed Project footprint in the Plan Area would be harmed during construction; the estimated number of ABB affected by this factor is approximately 65.4. The HCP and the EA then assume that after habitat restoration, the ABB would recolonize the affected habitats that are not permanently occupied by aboveground facilities. However, the analyses then state that heat from the operating pipeline could harm any ABB that encounter the area affected by heat from the operating pipeline; the estimated number of ABB affected by this factor is approximately 485.3. Therefore, the estimate of take is more conservative (i.e., higher) than it would be if one assumed that disturbance of suitable habitat resulted in a permanent loss of habitat. Suitable habitat could potentially be converted to unsuitable habitat after disturbance if that disturbance caused the soil to become more compact or drier, or if that disturbance changed the vegetation from grassland, meadow, or savannah to cropland or vegetation less than 8 inches in height. However, none of these changes are proposed or expected, given the conservation measures included in the proposed Project.

Regardless of the duration of the proposed Project's impacts on the ABB, the HCP proposes to protect and manage suitable ABB habitat in perpetuity. For a discussion of the long-term viability of the proposed mitigation, see the sub-theme of Climate Change Impacts on the ABB, below.

C.4.4.3 Climate Change Impacts on the ABB

Synopsis:

One comment claimed that the HCP and the EA did not adequately discuss the impacts of climate change on the ABB, nor did they adequately discuss the contribution of the proposed Project to climate change. Another comment suggested that the intensity and extent of foreseeable climate change impacts on the ABB are not compatible with a 50-year ITP with "no surprises assurances", and suggested an ITP should be of shorter duration (e.g., 10 to 15 years) or provide for adaptive management and additional mitigation, as appropriate.

Response:

The 2019 Keystone XL BO (Service 2019b), which the Draft EA and Final EA incorporate by reference in its entirety, lists climate change among the threats to the ABB and provides a detailed discussion on pages 26 and 27.

The contribution of the proposed Project to climate change is discussed under the theme of Greenhouse Gases and Climate Change and in EA Section 4.12. As discussed in the 2019 FSEIS, climate change is a result of global greenhouse gas emissions and not solely a cumulative effect of the proposed Project and other projects considered within the cumulative effects analysis. Although approval or denial of any individual project would result in an incremental contribution to projected climate change, these actions would not substantially alter anticipated climate change-related effects. Therefore, the EA does not quantify the specific climate change effects that could occur as result of the proposed action, including potential impacts on the ABB.

The ABB population that overlaps the proposed mitigation lands is part of the “Sand Hills analysis area,” which is predicted to be the most resilient analysis area in the Great Plains under future climate conditions and land use changes (Service 2019a, pp. 170 and 171). The proposed mitigation lands are near the Valentine National Wildlife Refuge, which “is the only large block of protected lands in this analysis area with relatively good numbers of ABBs” (Service 2019a, p. 95).

Applicants usually request a permit duration that spans the entire length of their planned activities. The 50-year duration of the requested ITP is based on the duration of the covered activities, which in this case include heat from the operating pipeline, which could affect the ABB throughout the operational life of the pipeline system. The HCP duration is consistent with the *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* (Service and NMFS 2016, Section 12.9). These factors support the analysis indicating that the proposed mitigation would advance long-term species and ecosystem conservation objectives at ecologically appropriate scales and would occur within an area capable of supporting species mitigation projects over the duration of the permit.

C.4.4.4 Risk of Crushing ABB

Synopsis:

One commenter questioned the HCP’s analysis of the risk of crushing ABB, suggesting that individual ABB may occupy shallower soil depths than those used in the cited study of crushing risk. One commenter expressed concern that off-road vehicle use could affect this species periodically during operations and maintenance.

Response:

The study mentioned in the HCP (Willemsens 2015) found the following (p. 95):

“Driving over soil in areas that may be occupied by buried *N. americanus* beetles appears to present little risk as *N. americanus* beetles burrowed to 20 cm in laboratory trials and all tested species were able to dig out of highly compacted (>4.5 kg/cm²) soils as long as there was an area of uncompacted soil around the beetle. Thus, the nocturnal *N. americanus* should be able to escape the following

night from areas that receive daytime compaction from most normal-sized vehicles (pickup truck, tractor).”

The Service has analyzed impacts to the ABB from HCP Covered Activities in an intra-Service BO prior to potential issuance of an ITP.

C.4.4.5 ABB Density Estimates

Synopsis:

Comments questioned whether the available information was adequate to estimate the expected take of ABB. Commenters questioned whether the actual take might be higher than estimated given that this species is effectively annual and that ABB density is cyclical, that the survey efforts were limited, and that surveys from previous years are invalid for purposes of determining occupancy of an area. Comments also suggested that adverse environmental conditions in recent years might have caused ABB populations to be low at the times of the surveys used to estimate ABB density. Commenters compared the Draft EA’s take estimate methodology to that used in the 2018 R-Project HCP, which estimated density based on the 99th percentile of the available data, and questioned why the methodology had changed. Commenters also questioned the survey protocol itself and expressed concern with a lack of scientific support or citations for how the survey results were used in the HCP to estimate abundance.

Response:

Considering the difficulty of estimating and/or monitoring the number of individuals affected by the proposed Covered Activities, the HCP and the EA use habitat as a proxy for take of individual ABB. Multiple ABB HCPs have used this approach (Service 2005; Atkins 2011; Enercon Services, Inc. 2012; Service 2014; NPPD 2018). However, courts have held that “Congress wanted incidental take to be stated in number of animals where practical, not in terms of habitat markers” (Miccosukee Tribe of Indians of Florida vs. United States, 566 F.3d 1257, 1274 [11th Cir. 2009]). Therefore, this approach is centered on establishing how many individual ABB are equivalent to an acre of suitable habitat.

Although ABB survey data from past years are not valid for determining whether a particular area is currently occupied, accepted methods for using habitat as a proxy for take of individual ABB use multiple years of survey data whenever they are available (Service 2005; Atkins 2011; Enercon Services, Inc. 2012; Service 2014; NPPD 2018). Along the proposed Project’s ROW, numerous years of ABB surveys were conducted and habitat quality was assessed. The HCP and EA’s use of survey data from Boyd and Keya Paha counties over a 6-year period provides some protection against the possibility of estimating ABB density based on surveying at times of low abundance. Survey data within 1 mile of the proposed pipeline route in Holt County, Nebraska, and Tripp County, South Dakota, are available for 1 year each. As stated in the 2019 Keystone XL BO (Service 2019b, p. 39), the take calculation is based on the density of ABBs at the time that surveys were conducted.

The methodology used to estimate ABB density for the 2018 R-Project HCP (NPPD 2018) assigned a value for ABB density based on a specific percentile of the available data, which in that case included 167 or 299 survey results, rather than using the mean of the survey results. Unlike the proposed Project, habitat quality within the R-Project ROW was not assessed and available for the HCP and Service’s

decision documents. Therefore, a conservative approach was used to calculate the maximum amount of take, assuming all of the R-Project ROW occurred within prime habitat for the ABB.

In comparison, the data available to estimate ABB density near the proposed Project include 40 survey results in Nebraska (15 in Holt County and 25 in Boyd and Keya Paha counties) and 29 survey results in South Dakota; the lower sample size and the distributions of the data precluded calculation of a specific percentile. Because the proposed Project has extensive habitat quality assessments, the conservative approach of take calculation has not been deemed necessary. Therefore, the Service believes both the R-Project and proposed Project HCPs, like the 2019 Keystone XL BA (BLM 2019) and 2019 Keystone XL BO (Service 2019b), used the best scientific and commercial data available for estimating ABB density along each proposed project route.

Differences in habitat quality likely contribute to real differences in ABB densities among the locations evaluated. The ABB population that overlaps the R-Project is part of the “Sand Hills analysis area,” and the R-Project is also located in the Nebraska Sand Hills Ecoregion, a region with little human development and abundant high-quality ABB habitat. In contrast, the Covered Activities proposed in the HCP would occur partly in the Sand Hills analysis area (though not in the Nebraska Sand Hills Ecoregion), but mostly in the Niobrara River analysis area, which differs from the Sand Hills analysis area in terms of ABB habitat and population characteristics (Service 2019a, pp. ES-5, 55, 63–65).

All of the surveys that were used to estimate ABB density near the proposed Project were conducted by individuals possessing a valid Federal Fish & Wildlife Permit [Recovery Permit] for scientific research and recovery of the ABB, were reported to the Service, and complied with the ABB Range-wide Presence/Absence Survey Guidance (Service 2011, 2015, 2018). These guidance documents state that a standard trap’s effective radius is 0.5 mile, corresponding to an area of 500 acres. Butler (2011, p. 82) found that five nights of trapping captures approximately 90 percent of ABB in the surveyed area, necessitating a correction factor for estimating ABB densities. Brood sizes, as discussed in the 2019 Keystone XL BO (Service 2019b), which the EA incorporates by reference, are typically around 15 offspring per two adults (Service 2019a, p. 19). These parameters used to estimate ABB density are consistent with those used for the 2018 R-Project HCP (NPPD 2018) and the best scientific information available.

C.4.5 ESA Process

C.4.5.1 Lack of Evidence That ESA Requirements Are Met

Synopsis:

Comments stated that the Draft HCP does not satisfy the requirements in ESA Section 10(a)(2)(A) with respect to the impact of the taking of ABB, minimization and mitigation, and alternatives considered. In addition, comments stated that there has been no demonstration that the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild. Commenters also suggested that the purpose of the ESA would not be advanced by issuing an ITP in this case, and some suggested that the take would not be incidental.

Response:

Prior to issuance of any ITP, the Service is required to determine whether the ITP application and associated HCP meet issuance criteria in a set of permit findings and recommendations.

The 2019 Keystone XL BO (Service 2019b, p. 37), which the EA incorporates by reference in its entirety, found that the contemplated loss of 552 ABB is not likely to appreciably reduce the likelihood of the survival and recovery of the species in the wild. Additionally, prior to any issuance of an ITP, the Service completes an intra-Service Section 7 consultation on the Service's potential action of the issuance of an ITP, and concluded similarly to the 2019 Keystone XL BO (Service 2019b) that the anticipated take of ABB from the proposed activities and the Service's action of permit issuance would not appreciably reduce the likelihood of survival and recovery of the species in the wild.

The Service is unaware of any take associated with the permit application that would result from intentional or negligent actions, rather than incidental to, but not the purpose of, the carrying out of an otherwise lawful activity.

For detailed technical analysis of specific issues related to covered species, refer to the theme of ABB Conservation and to EA Section 4.7. Also, refer to the theme of Purpose and Need for a discussion of long-term species conservation objectives.

C.4.5.2 Other Alleged Violations of the ESA

Synopsis:

With reference to Section E of Keystone's ITP Application, comments stated that the applicant has not obtained tribal government approvals to conduct the proposed activity. One commenter claimed that TC Energy has commenced construction activities in ABB habitat in violation of ESA Section 7(d).

Response:

The Service has invited tribal governments to participate in government-to-government consultation regarding the Service's proposed action of ITP issuance. Section 3.11 of the Final EA describes the government-to-government consultation history with tribal governments. The Service is currently unaware of specific tribal government approvals required for the proposed Project.

Keystone confirmed to the Service on October 6, 2020, that no construction activities have commenced in ABB habitat on the ROW, access roads, or any ancillary sites associated with the Project. Keystone has supported some improvements to existing public roads within the Plan Area, some of which are within the range of the ABB. However, the work does not expand, widen, or increase the footprint of any existing road.

C.4.6 Factual Corrections or Clarifications

Synopsis:

Comments suggested various clarifications to the description of the proposed pipeline and electrical power infrastructure. Specific topics included the parties involved, the extent of areas affected, and how restoration and mitigation would be accomplished.

Response:

Sections 1.1 and 2.2 of the EA were revised where appropriate considering the suggested clarifications along with other sources of information. Most of these changes expanded on specific information and analysis presented in the Draft EA, provided different and clearer ways of presenting the information already in the Draft EA, and/or were editorial in nature.

C.4.7 Fossil Fuels Generally

Synopsis:

Comments expressed concern with the use of fossil fuels in general and with the construction and operation of any oil pipeline. Comments stated the Service should promote renewable energy alternatives and conservation efforts instead of encouraging development of fossil fuel infrastructure. Comments stated that fossil fuels will become obsolete, whereas renewables are increasingly becoming a viable option for energy. Commenters also expressed their general belief that the value of an oil pipeline and the oil it could transport is less than the value of the species and ecosystems disturbed by the creation of a new oil pipeline.

Response:

The 2014 Keystone XL FSEIS (DOS 2014) and the 2011 Keystone XL FEIS (DOS 2011) included consideration of the use of alternative energy sources and energy conservation. The 2019 FSEIS (DOS 2019) also considered policies, federal programs, and sustainable technologies within the updated market analysis in Section 1.4.1.2. The Final EA was conducted in support of the Service fulfilling its statutory obligations under Section 10 of the ESA in response to Keystone's request for an ITP. For this reason, the development of broader energy conservation initiatives and programs and the government's commitment to renewables and alternative fuels are outside the scope of the present analysis.

C.4.8 Greenhouse Gases and Climate Change

Synopsis:

Commenters expressed concerns that a new oil pipeline would likely result in increased greenhouse gas emissions and thus contribute to global climate change. Commenters also mentioned the need to leave fossil fuels unburned in the ground to achieve needed greenhouse gas reductions that would avoid the worst effects of climate change. Commenters felt that the greenhouse gas and climate change analysis in the 2019 FSEIS was inadequate, and requested that the EA consider the compounding effect of the Project's greenhouse gas emissions year after year. One commenter expressed concern that destruction of habitat and loss of species could lead to reduced rates of natural carbon dioxide (CO₂) sequestration.

Response:

The Service acknowledges these concerns. The 2019 FSEIS (DOS 2019) provides a comprehensive discussion and analysis of the potential greenhouse gas emissions resulting from the proposed Keystone XL Pipeline system, including direct and indirect greenhouse gas emissions that could potentially occur over the crude oil lifecycle. As discussed in the Draft EA Section 4.12.1, which has been retained in the Final EA with no further revision necessary, the potential impacts of the construction and operation of the

proposed Project and associated infrastructure within the Plan Area would be a subset of the potential impacts discussed in the 2014 FSEIS Section and the 2019 FSEIS. The Draft EA Section 4.12.3, which has been retained in the Final EA with no further revision necessary, acknowledged that, by contributing to an increase in global greenhouse gas emissions, the proposed action would add incrementally to atmospheric greenhouse gas concentrations and the resulting climate change impacts, and it also acknowledges that greenhouse gas emission impacts are additive, as these gases accumulate in the atmosphere, and that impacts would likely be long-term. However, as discussed in the 2019 FSEIS, climate change is a result of global greenhouse gas emissions and not solely a cumulative effect of the proposed Project and other projects considered within the cumulative effects analysis. Although approval or denial of any individual project would result in an incremental change to projected climate change impacts, these actions would not substantially alter anticipated climate change-related effects. Therefore, the EA does not quantify the specific climate change effects that could occur as result of the proposed action.

Regarding the effect of land use change on CO₂ sequestration rates, the conversion of vegetated areas to developed areas where aboveground facilities would exist could affect natural CO₂ sequestration rates; however, the effect on net greenhouse gas emissions from the modest area affected in this way within the Plan Area would likely be negligible compared to the construction- and operations-related emissions discussed in EA Section 4.12. The proposed action would not result in the loss or increased risk of loss of any species or ecosystem.

C.4.9 Mitigation Lands

Synopsis:

Commenters requested additional information on the specific mitigation lands proposed and questioned the adequacy of the proposed approach, including requests that mitigation lands meet the Service's criteria for ABB Conservation Priority Areas. Comments questioned whether the area of mitigation lands would be sufficient and why the mitigation ratios differ from those in the 2018 HCP for the R-Project transmission line in Nebraska. In addition, comments questioned whether the proposed parcels contain sufficient amounts and quality of ABB habitats to provide adequate mitigation. Comments also questioned whether preservation of existing ABB habitat that is not at risk of degradation would provide any real benefit to the ABB.

Response:

The Service has not identified ABB Conservation Priority Areas in Nebraska. However, ABB Conservation Priority Areas in Oklahoma "include areas with recent (within 10 years) documented ABB presence that the Service believes are likely to contain important elements for ABB conservation, such as documented presence over multiple years, relatively high density populations, suitable breeding, feeding, and sheltering habitat, and carrion resources." (Service 2014, p. 7). Based on the information presented to the Service during development of the HCP, the Service believes that the proposed mitigation lands meet these criteria.

The recent HCP for the R-Project (NPPD 2018, p. 121) included mitigation ratios of 3 acres conserved for 1 acre of ABB habitat permanently affected and, effectively, 0.3 acre conserved for 1 acre of ABB habitat

temporarily affected; Nebraska Public Power District (NPPD) assumed that all disturbed acres were high-quality ABB habitat (NPPD 2018, p. 121). The present HCP uses the same mitigation ratio for permanent impacts on high-quality ABB habitat as did NPPD (2018) and uses a more conservative ratio (0.75 acre conserved for 1 acre temporarily affected) for temporary impacts to high-quality ABB habitat than NPPD (2018). Unlike NPPD (2018), Keystone determined that ABB habitat along the proposed pipeline and power line routes was not exclusively of high quality, and Keystone provided data supporting the rating of each route segment as prime, good, fair, marginal, or poor ABB habitat. The Service considers it reasonable to assume that lower-quality habitat may, over long periods of time, support fewer individual ABBs than higher-quality habitat, and therefore allows discounted mitigation ratios for habitat that is demonstrated to be less than high quality. As shown in Table 2 of the EA, using the proposed mitigation ratios, Keystone would be required to preserve at least 1,082 acres of high-quality ABB habitat to mitigate the proposed take. Keystone's HCP proposes to preserve 1,200 acres, which is more than the proposed mitigation ratio calculation.

The *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* states that "The statutory standard of minimizing and mitigating the impacts of the take 'to the maximum extent practicable' under ESA Section 10(a)(2)(B)(ii) will always be met if the applicant demonstrates that the impacts of the taking will be fully offset by the measures incorporated into the plan" (Service and NMFS 2016, p. 9-28). The Service will determine in the Findings and Recommendations document whether the proposed mitigation in the HCP and the Final EA meet issuance criteria.

The ABB population that overlaps the proposed mitigation lands is part of the "Sand Hills analysis area," which is predicted to be the most resilient analysis area in the Great Plains under future climate conditions and land use changes (Service 2019a, pp. 170 and 171). The proposed mitigation lands are near the Valentine National Wildlife Refuge, which "is the only large block of protected lands in this analysis area with relatively good numbers of ABBs" (Service 2019a, p. 95). These factors support the Service's determination that the HCP, including the proposed mitigation actions, would advance long-term species and ecosystem conservation objectives at ecologically appropriate scales and would occur within an area capable of supporting species mitigation projects over the long-term.

In its findings and recommendations, the Service has determined that the applicant would, to the maximum extent practicable, minimize and mitigate impacts of the takings.

C.4.10 NEPA Process

Synopsis:

Commenters expressed that the level of significance of the impacts on the ABB necessitates an Environmental Impact Statement (EIS), not an Environmental Assessment (EA). One commenter expressed frustration with the time required to obtain federal approvals for the proposed pipeline. Other comments expressed opposition to or support for the proposed pipeline without providing additional information to consider in the EA.

Response:

The EA and public processes comply with NEPA and ESA procedural requirements. Federal analysis of the proposed Keystone XL Pipeline system began in 2008, with subsequent NEPA analyses and field

studies occurring over an 11-year span. As detailed in the 2019 Keystone XL FSEIS (DOS 2019) Table 1-1, DOS published a Final EIS in August of 2011 (DOS 2011) and an FSEIS in January of 2014 (DOS 2014), and the BLM published an FEIS in December of 2019 (DOS 2019). The Service participated as a cooperating agency in the preparation of the 2019 FSEIS (DOS 2019). Pursuant to Section 7 of the ESA, the BLM, in cooperation with other federal agencies, consulted with the Service on the proposed Keystone XL Pipeline system's effects on threatened and endangered species, resulting in the publication of the BLM's 2019 Keystone XL BA (BLM 2019) and the Service's 2019 BO (Service 2019b). The EA incorporates by reference these previously conducted analyses, and the Service has determined that an EA is appropriate for evaluating those consequences of the proposed action that have not been evaluated previously. According to 43 CFR 46.140(c), "An environmental assessment may be prepared, and a finding of no significant impact reached, for a proposed action with significant effects, whether direct, indirect, or cumulative, if the environmental assessment is tiered to a broader environmental impact statement which fully analyzed those significant effects." The 2014 FSEIS (DOS 2014) found that the potential impacts as a result of construction of the Keystone XL Pipeline would not likely adversely affect any federally or state protected species other than the ABB. Subsequent analyses in the 2019 FSEIS (DOS 2019), the 2019 Keystone XL BA (BLM 2019), the 2019 BO (Service 2019b), the 2019 Draft HCP, and the 2020 HCP are all consistent with this finding. In light of these analyses, the EA was completed with the best available data in coordination with appropriate resource agencies responsible for managing protected species, and the EA meets agency requirements for NEPA and ESA compliance.

Regarding comments in opposition to and in favor of the Project, the Service understands the opposing viewpoints on whether this Project should proceed and appreciates public input in the NEPA process.

C.4.11 Other Ecological Matters

Synopsis:

Commenters expressed belief in the inherent value of all species and biodiversity, and expressed that various members of an ecosystem, including humans, are dependent on other members of the ecosystem. Commenters also suggested that these factors should be given more value than a pipeline. Commenters also expressed concern about current rates of extinction, insect population declines, and biodiversity loss.

Response:

The Service affirms the value of all species, and our mission is to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Potential issuance of the ITP would serve to help ensure the conservation of the ABB, as required by the ESA.

C.4.12 Accidental Releases

Synopsis:

Commenters expressed concern that accidental releases during pipeline operations could negatively impact wildlife, soils, and water, resulting in economic damages and environmental harm, including to ABB. Commenters stated that, by relying upon the 2019 Keystone XL FSEIS (DOS 2019), the EA underestimates the likelihood and severity of accidental releases. Specifically, commenters expressed

concern about leaks that would go undetected by the proposed leak detection systems and about leaks that may not result in readily observable visible signs because they are underground, underwater, or under snow or ice. Furthermore, commenters also questioned how far an accidental release could travel down a major river, stating that the estimate in the 2019 Keystone XL FSEIS (DOS 2019) was based on incorrect assumptions.

Response:

The Draft EA assessed the potential impacts of accidental releases on various resources in Chapter 5, which has been retained in the Final EA with no further revision necessary. It should be noted that accidental releases are not a Covered Activity in the HCP or the ITP application, nor is Keystone proposing any accidental releases. The Service is not contemplating any take authorization for accidental releases, and any accidental releases that do occur may result in claims under the Comprehensive Environmental Response, Compensation, and Liability Act; Oil Pollution Act; Clean Water Act; ESA; or other statutes. Should an accidental release occur, emergency Section 7 ESA consultation on actions associated with cleanup would be conducted consistent with 50 CFR 402.05. However, the EA assesses the consequences of accidental releases as potential indirect consequences of the Service's decision. Additional detail can be found in the 2019 FSEIS, specifically in Chapter 5 and Appendix D, Section D.4.12.

The likelihood and severity of accidental releases are mentioned in the EA Chapter 5, which has been retained in the Final EA with no further revision necessary, and which considers how the accidental release probabilities from the 2019 Keystone XL FSEIS (DOS 2019) would apply to the portion of the proposed Keystone XL Pipeline system in the Plan Area; detailed analyses can be found in the 2019 Keystone XL FSEIS (DOS 2019), specifically in Chapter 5 and in Appendix D, Section D.4.12. In the 2019 Keystone XL FSEIS (DOS 2019), DOS and the BLM applied an approach consistent with the consideration of accidental releases under NEPA following guidance developed by the U.S. Department of Energy (2002). The 2014 Keystone XL FSEIS (DOS 2014), Section 4.13.6, Additional Mitigation, addressed additional measures recommended to increase safety and reduce the severity and likelihood of a spill. Increased levels of protection are provided by implementing the PHMSA Special Conditions discussed in the 2014 Keystone XL FSEIS (DOS 2014), Section 4.13.6.1, PHMSA Special Conditions. These measures provide for an additional safety factor on the proposed Project that exceeds those typically applied to a domestic oil pipeline projects. If a spill occurred, pre-defined and systematic plan response actions can take effect to mitigate the impact quickly. The 2014 Keystone XL FSEIS (DOS 2014), Section 4.13.6.2, Safety and Spill Response (see subsection Response Actions), describes the written procedures that Keystone has identified and prepared to address a response action.

Regarding small leaks, in addition to Supervisory Control and Data Acquisition (SCADA) detection methods capable of detecting leaks as small as 1.5 percent of flow in 2 hours, TC Energy would conduct inspection activities, including smart ball inspections (identified in the 2014 Keystone XL FSEIS; DOS 2014) and aerial and ground patrols, and would support third-party reporting and a landowner awareness program. Furthermore, independent of all other detection methods, computational mass balances would be capable of detecting a release rate as low as 28 barrels per day. The 2019 FSEIS Sections 5.4.3.2 and 5.5.6.2 addressed impacts related to spills in frozen waterways. TC Energy would include response procedures in its Facility Response Plan specific to responding to spills in ice-covered waterways. This

would help to ensure that TC Energy's response team is ready to respond to spills to waterways, even when they are covered with ice.

Comments questioned whether the 40 river-mile maximum reasonable transport distance used to establish the region of influence extends far enough to support the analysis of potential impacts. As discussed in the 2019 Keystone XL FSEIS (DOS 2019), DOS and the BLM determined the maximum reasonable transport distance for the purpose of assessing potential downstream effects based on the results of Project-specific modeling data from a worst-case analysis of a release on the Missouri River, information from and the characteristics of other major oil spills including construction techniques and pipeline age, and characteristics and safety measures integrated into the design and operation of the proposed Project. Based on this review, the Service considers a maximum reasonable transport distance of 40 river miles to be within the rule of reason for the Keystone XL pipeline and the potential for effects beyond this distance to be unlikely. Furthermore, the major rivers within the Plan Area are the White, Keya Paha, Niobrara, and Elkhorn rivers. According to U.S. Geological Survey stream gage data, mean discharges of the major rivers in the Plan Area are one to two orders of magnitude lower than the mean discharge of the Missouri River observations used in the development of the 40-river-mile limit. Maximum discharges of the major rivers in the Plan Area range from approximately 9 percent to approximately 43 percent of the maximum discharge of the Missouri River observations used in the development of the 40-river-mile limit. The much smaller discharges of the major rivers in the Plan Area compared to those of the Missouri River suggest that velocities, and therefore the distances that spills may travel, are lower in the major rivers in the Plan Area than in the Missouri River. Therefore, the 40-river-mile limit is conservative when applied to the Plan Area. Commenters also noted that the 6-hour response time would not necessarily be enough time to stop the downstream movement of a spill. The commenters argued that the risk analysis wrongly concluded that a 6-hour response time would be appropriate for calculating the downstream flow distance for a spill since other spills have taken much longer to detect and initiate response efforts. As mentioned earlier, the DOS used a number of factors to identify the downstream distance region of influence, including the Missouri River analysis and a review of spill report data for several other spills to surface waters. In all of those cases, observations beyond 40 miles were limited to sheen and sporadic presence of globules. Furthermore, as mentioned above, the much smaller size of rivers in the Plan Area compared to the Missouri River and other major rivers in which spills have occurred lends further support to the conservative nature of the 40-river-mile limit when applied to the Plan Area.

C.4.13 Tribal Concerns

C.4.13.1 Consultation with Tribes

Synopsis:

Commenters requested that the Service engage in meaningful government-to-government consultation with American Indian tribes. Comments claimed that tribes were not officially consulted through the protocols established by the tribes and Secretarial Order 3206, and that the ITP should not be issued until all tribal consultation has been completed.

Response:

The federal government has engaged federally recognized American Indian tribes in government-to-government consultation. The federal government initiated consultation with tribes as part of the original application that culminated in the August 2011 Final EIS (DOS 2011) and continued this consultation through the development of the 2014 Keystone XL FEIS (DOS 2014) and the 2019 FSEIS (DOS 2019). Regarding the Service's proposed action evaluated in the present EA, the Service sent letters dated March 10, 2020, to Indian tribes with potential historical, spiritual, or cultural interests within the Plan Area to invite government-to-government consultation on the Service's proposed action. The Service has received a response only from the Rosebud Sioux Tribe, who requested government-to-government consultation. Section 3.11 of the Final EA describes the government-to-government consultation history. After having made a reasonable and good faith effort to provide a meaningful opportunity for government-to-government consultation, the Service concluded government-to-government consultation efforts with the Rosebud Sioux Tribe on December 16, 2020.

C.4.13.2 Tribal Lands

Synopsis:

Commenters stated that the proposed pipeline would cross lands in Tripp County, South Dakota, held in trust for the Rosebud Sioux Tribe, and that the EA did not consider this subject.

Response:

As discussed in the 2019 Keystone XL FSEIS (DOS 2019), the proposed pipeline route avoids tribal lands and tribal trust lands. TC Energy and the Service re-confirmed this finding on October 6, 2020. Also as discussed in the 2019 Keystone XL FSEIS (DOS 2019), legal plats of ownership indicate that the proposed electrical power infrastructure would also fall outside of tribal lands and tribal trust lands. On November 16, 2020, the Service requested additional information from the Rosebud Sioux Tribe on potential pipeline crossings of Rosebud Sioux Tribal lands held in trust. On December 17, 2020, the Rosebud Sioux Tribe responded to the Service's request for information regarding the pipeline route in relation to tribal lands. The Service reviewed the information, which included the location of multiple land parcels of interest identified by the Rosebud Sioux Tribe. The Service concluded that the parcels of land identified in the information do not occur within the HCP Permit Area.

C.4.13.3 Sovereignty and Treaty Rights

Synopsis:

Comments suggested that the Draft EA failed to assess adequately the potential impacts on tribal rights. Comments stated that the 1851 and 1868 treaties of Fort Laramie established certain tribal rights and U.S. government obligations, including the obligation of the U.S. government to protect tribal resources from depredations and to obtain the consent of the tribe before building a pipeline, taking an endangered species, or taking any wildlife on tribal trust land. Comments also stated that activities on tribal trust lands are under the jurisdiction of tribal laws, and that the proposed pipeline would pose risks to resources important to tribes and their members.

Response:

As discussed above under the sub-theme of Tribal Lands, although the proposed pipeline and electrical power infrastructure would intersect lands subject to the 1851 and 1868 treaties of Fort Laramie, they would not intersect tribal lands or tribal trust lands. The 2019 Keystone XL FSEIS (DOS 2019), which the present EA incorporates by reference, discussed tribal rights and resources in Section 3.8 and analyzed potential impacts to those resources both in Section 4.8 and Chapter 5. The Final EA Sections 3.10.4 and 4.10.1.2 have been updated to discuss potential impacts on treaty rights. Fishing, hunting, and collecting plants are important tribal activities within the proposed Plan Area, providing food and medicinal supplies, personal income, and the continuance of cultural customs and traditions. With the exception of limited forested areas cleared within the permanent ROW, biological communities would be restored following construction to specified landowner agreements and federal agency ROW terms and conditions. These effects are discussed in Section 4.8.3 of the 2019 FSEIS. Additionally, the 2019 Keystone XL FSEIS (DOS 2019) Section 5.5.8.2 discusses impacts of the proposed pipeline on tribal rights in the event of a spill. It is recognized that Indian tribes and tribal members could be disproportionately impacted negatively by the proposed Project because they could have a greater dependence on natural resources in a spill-impacted area than non-tribal members. Refer to the theme of Accidental Releases in Section C.4.12 for details on spill avoidance and mitigation measures.

C.4.13.4 Traditional Knowledge and Values

Synopsis:

Comments indicated that traditional values emphasize care for all living things and that the destruction of the ABB or other species is not compatible with such values. Comments also indicated that tribes possess traditional knowledge about species, ecosystems, and Traditional Cultural Properties that could be useful to the analysis. Comments also indicated that Dakota/Lakota/Nakota lifeways are related to insects, animals, plants, and ecosystems.

Response:

The Service appreciates the traditional knowledge and values of tribes and seeks to utilize traditional knowledge to inform its actions. The Service cannot issue a permit for any action that would appreciably reduce the likelihood of the survival and recovery of any listed species. Thus, while individual animals and plants would be incidentally affected by the proposed Project, the proposed action would not result in the destruction or increased risk of destruction of any species or ecosystem.

The federal government has always recognized the tribal expertise in identifying places of cultural significance to tribes that may be affected by the proposed Project. In 2009, the DOS invited the tribes to conduct studies to identify properties of religious and cultural significance, otherwise referred to as Traditional Cultural Properties, in proximity to the proposed pipeline route. Eight tribes conducted Traditional Cultural Property studies from 2009 to 2011. The results of these studies were mapped in relation to the Project ROW and added to the list of places to be monitored by tribal members during construction. The tribal monitoring plan was developed in consultation with tribes and was included as Attachment E to the 2011 Programmatic Agreement. The tribal monitoring plan was carried over to the amended Programmatic Agreement in 2013, and the list of areas/locations to be monitored has since been

expanded. In the spring of 2018, Keystone developed a cultural resources research design to guide cultural resources inventory of the Mainline Alternative Route. In July, 2018 three tribes conducted approved Traditional Cultural Property studies within the Mainline Alternative Route (Omaha Tribe of Nebraska, the Santee Sioux Nation, and the Fort Belknap Indian Community). In 2020, the Service signed onto the 2020 amended Programmatic Agreement regarding the Keystone XL Pipeline Project. The federal government continues to recognize the places identified by the tribes as culturally sensitive. These places would be monitored by the tribes during construction to ensure that previously unidentified historic properties are not affected.

C.4.14 Water Resources

Synopsis:

Comments expressed concerns that the Keystone XL pipeline could harm wetlands, waterways, groundwater, aquifers, and drinking water supplies both during construction and through accidental releases, specifically oil leaks during pipeline operation.

Response:

The nature, intensity, and duration of potential impacts of the proposed Keystone XL pipeline system and associated infrastructure were analyzed in detail in the 2014 FSEIS (DOS 2014) Section 4.3 and the 2019 FSEIS (DOS 2019) Sections 4.6 and 6.4.2. The potential impacts of the proposed action are a subset of the potential impacts discussed in those earlier documents; EA Section 4.4.1 discusses the potential construction impacts on water resources and EA Section 5.3.4 discusses the potential impacts of accidental releases on water resources. Refer to the theme of Accidental Releases for details on avoidance and mitigation measures for spills and leaks.

C.4.15 Eminent Domain

Synopsis:

Comments expressed concern with the use of eminent domain on private U.S. citizens' lands for corporate profits.

Response:

Regarding eminent domain, Section 2.1.7.2 (Pipeline Construction Procedures, TransCanada-Keystone Pipeline) of the 2014 Keystone XL FSEIS (DOS 2014) details that Keystone is a limited partnership organized under the laws of the state of Delaware. To construct, operate, and maintain the proposed Project, Keystone would be responsible for acquiring easement rights from landowners along the entire route in each state. Easement agreements would list the conditions to which both the landowner and Keystone agree, including financial compensation to the landowners in return for granting easements. Compensation would also be made for loss of use during construction, crop loss, loss of non-renewable or other resources, and restoration of any unavoidable damage to personal property during construction. The Service expects Keystone to negotiate fairly, honestly, and respectfully with landowners when they negotiate an easement; however, those negotiations and final agreements are private business concerns between the landowners and Keystone.

If Keystone obtains all necessary permits and approvals and an easement negotiation cannot be completed in a manner suitable to both parties, Keystone may attempt to use state eminent domain laws to obtain easements needed for pipeline construction, maintenance, and operation. State laws dictate the circumstances and legal entities under state law in which eminent domain may be used and define the eminent domain process and level of compensation within a given state. The Service has no authority over negotiations of easement agreements and has no legal status to enforce the conditions of an easement agreement. A landowner who considers Keystone to be out of compliance with an easement agreement would need to discuss the matter with Keystone or local law enforcement officials or initiate legal consultation.

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