



Larimer County Analysis – Technical Memorandum No. 7 Wildlife Conservation Plan

Prepared for:
Larimer County

Prepared by:
**Northern Integrated Supply Project
Water Activity Enterprise**

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Memorandum

Date: February 17, 2020
To: Christie Coleman, Northern Colorado Water Conservancy District
From: Brandee Anderson, Biologist – Pinyon Environmental, Inc.
Project: Northern Integrated Supply Project
Subject: Larimer County 1041 Permit: Wildlife Conservation Plan

Introduction

The memorandum (memo) presents the 1041 Permit Wildlife Conservation Plan (Plan) developed for the Northern Integrated Supply Project's (NISP or the Project) use in the NISP Water Activity Enterprise's (WAE) 1041 Permit application to Larimer County. In accordance with Larimer County Land Use Code requirements, the purpose of this Plan is to document impacts to wildlife; identify strategies for avoiding, minimizing, mitigating, and enhancing wildlife; propose a plan to implement those strategies; and confirm that applicable requirements will be followed.

Furthermore, the purpose of this Plan is to document the Project's extensive coordination efforts and commitments to avoid, minimize, mitigate, and enhance wildlife that would be impacted by the Project in unincorporated Larimer County, Colorado in accordance with *Larimer County Land Use Code, 8.2.7. Wildlife Conservation Plans* (Larimer County, 2019). NISP WAE is the permittee and the entity that will implement identified mitigation measures.

The NISP WAE has already undergone an extensive planning process in coordination with Colorado Parks and Wildlife (CPW) and private stakeholders in order to avoid, minimize, and mitigate impacts to fish and wildlife and enhance wildlife habitat. These measures are outlined in the Project's *Fish and Wildlife Mitigation and Enhancement Plan* (FWMEP) (Northern Water, 2017). The provisions of the FWMEP are enforceable through an Intergovernmental Agreement executed between the State and applicant. The FWMEP has already been developed in coordination with CPW to address impacts to fish and wildlife through the development of detailed mitigation and enhancement measures. A link to the FWMEP is available online [here](#). Sections of the FWMEP applicable to Larimer County Land Use Code Requirements are summarized in the report below.

Project Overview

Northern Colorado Water Conservancy District (Northern Water), acting by and through the NISP WAE, has contracted Pinyon Environmental, Inc. (Pinyon), to provide environmental compliance services during the pre-construction phase of the Project. The Project will provide a new reliable water supply to Northern Colorado and consists of constructing the following in Larimer County:

- Glade Reservoir Complex, which includes Poudre Valley Canal and Monroe Canal improvements, and construction of the forebay area, the dam structure (including intake and release structures), a pump station, and recreation areas located adjacent to the new reservoir
- A realigned portion of U.S. Highway 287
- New pipeline conveyance systems, which include the Northern Tier, Poudre Intake, Glade Release, and County Line Alignments

The purpose of the Project is to meet a portion of the NISP Participants' (15 towns and water districts in Larimer, Weld, Morgan, and Boulder Counties) current and projected future water supply needs. The overall goal of the Project is to provide 40,000 acre-feet of new, annual water to the NISP Participants.

This Plan covers work associated with Glade Reservoir, including appurtenant facilities and recreation area, and the NISP pipeline conveyance system in unincorporated Larimer County (Figure 1). Larimer County 1041 Permit Requirements do not apply to Colorado Department of Transportation (CDOT) highway relocations. As a result, the scope and effects of the realignment of U.S. Highway 287 will be evaluated per Larimer County requirements as a separate process. Therefore, the U.S. Highway 287 realignment is not discussed further in this Plan unless specific measures relating to the realignment of U.S. Highway 287 also contribute to avoidance, minimization, mitigation, and/or enhancement measures for wildlife at Glade Reservoir.

8.4.1. – Purpose

The *Larimer County Land Use Code, 8.4. Standards for All Development – Wildlife* obligates developers to:

“...maintain and enhance the diversity of wildlife species and habitat in [unincorporated] Larimer County and to plan and design land uses to be harmonious with wildlife habitat and the species that depend on that habitat for economic, recreational, and environmental benefit of county residents and visitors (Larimer County, 2019).”

NISP is required to obtain numerous federal and state permits, licenses, and approvals. The primary regulatory processes, as they relate to *Larimer County Land Use Code, 8.4. Standards for All Development – Wildlife*, include:

- *Endangered Species Act*. Section 7(a)(2) of the Endangered Species Act requires that federal agencies consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that effects of actions that the federal agencies authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species or adversely modify designated critical habitat. The U.S. Army Corps of Engineers (USACE) submitted a biological assessment to the USFWS for the NISP proposed action and has consulted with the USFWS under Section 7 (USACE, 2007). The USFWS issued a biological opinion on NISP on October 5, 2007 (USFWS, 2007). That opinion will be updated prior to issuance of a Record of Decision by the USACE.
- *Colorado Revised Statute (C.R.S.) 37-60.122.2*. This state law requires the creation of a FWMEP by the applicant in coordination with the CPW Commission, which is similar to the Larimer County 1041 process. In order to create the FWMEP, NISP WAE underwent an extensive planning process in coordination with CPW and private stakeholders. The FWMEP methodically outlines the project-related impacts to fish and wildlife and the applicant's commitments to avoid, minimize, mitigate, and enhance fish and wildlife impacted by the Project (Northern Water, 2017). The measures outlined in the FWMEP appropriately compensate for wildlife impacts resulting from a project with the size and scope of NISP. The FWMEP was approved in 2017 by the CPW Commission and the Colorado Water Conservation Board and represents the official State position on the mitigation actions required of the applicant.
- *Clean Water Act Section 404 Permit*. Section 404 regulates the discharge of dredged or fill material into waters of the U.S., including jurisdictional wetlands. This means the Project will take all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the U.S., which will also avoid and minimize impacts to aquatic wildlife.
- *National Environmental Policy Act (NEPA) Review*. A Final Environmental Impact Statement (FEIS) (dated July 2018) has been prepared by the USACE in accordance with NEPA and applicable NEPA implementation regulations (43 U.S.C. § 4321 *et. seq.*; 40 CFR 1500, as amended; 33 CFR 325) (USACE, 2018). Through this impact statement, the Project's impacts to fish and wildlife were analyzed and documented.

8.4.2. – Applicability

Larimer County Land Use Code Wildlife regulations apply to all applications for subdivisions, conservation developments, planned land divisions, special reviews, rezonings, special exceptions, and site plan reviews. This section also applies to any minor land division that will result in a new, vacant building site. NISP will comply with *Larimer County Land Use Code, Section 8.4.2. Applicability* as required.

8.4.3. – Wildlife habitat database

The wildlife habitat information sources specified in *Larimer County Land Use Code, Section 8.4.3. Wildlife habitat database* (CPW habitat maps for Larimer County, Colorado Natural Heritage Program maps, etc.) were used during the planning phase of the Project in order to create the Draft EIS, Supplemental Draft EIS, and associated technical analyses, and were used as the basis to assess wildlife impacts and determine appropriate avoidance, minimization, mitigation, and enhancement as outlined in the FWMEP and the FEIS. The species identified by CPW during the coordination process as requiring further evaluation moved forward into the analysis in the FWMEP.

The species addressed in the FWMEP and FEIS were refined using a number of factors to develop the list of species for Larimer County. This list of species was provided to Larimer County for approval on January 7, 2020, and are the species discussed in this Plan (see Table I, included as an attachment). Many of the species that were excluded from this Plan do not have habitat in unincorporated Larimer County or will not be affected by project-related activities in unincorporated Larimer County. The species excluded are not noted as contributing to the economic or recreational value of Larimer County. Impacts to the excluded species are still addressed in the FEIS and the FWMEP. Because of that, the Project's wetland mitigation, mitigation measures implemented as part of the Project's Stormwater Management Plan, and other best management practices (BMPs) for the Project will also mitigate for impacts to the species excluded from this Plan.

8.4.4. – Review procedures

This Plan may be submitted to Larimer County by the applicant in support of the Larimer County 1041 process, including the application and review procedure.

8.4.5. – Wildlife development standards

The standards outlined in section 8.4.5. have already been considered and included in the Project design. Throughout the development of NISP, from the initial NISP concepts through the designs now being analyzed, NISP WAE has incorporated design and operational components that are intended to avoid and minimize environmental effects. These actions are a result of more than 30 years of planning and reflect the more recent conceptual design and analysis of the NISP alternatives, including analyses performed during the FEIS.

Key avoidance and minimization measures described in the FWMEP include NISP design commitments that avoid and minimize adverse impacts to aquatic habitat and water quality effects. These measures include construction BMPs that avoid and minimize effects on wildlife and plant communities, including noxious weed management. Compensatory mitigation is also outlined that mitigates certain effects of NISP. The FWMEP includes:

- Development of a stream channel and habitat improvement plan for the Cache la Poudre River (Poudre River).
- Implementing stream channel, habitat, and riparian vegetation improvements in certain reaches of the Poudre River.

- Commitments to avoid diversions when stream water temperatures approach or exceed standards that are designed to protect fish as described in section 5.2.2.7 of the FWMEP.
- Implementing wildlife protection measures into the design and construction of the U.S. Highway 287 realignment.
- Conserving land around Glade Reservoir for wildlife habitat.
- Protection of special status wildlife species during and after construction.
- Replacing existing recreation and public access facilities at Glade Reservoir.

An Enhancement Plan is included as part of the FWMEP that addresses issues raised by CPW and other stakeholders regarding the current conditions of the aquatic environment on the Poudre River, and includes enhancement measure to enhance fish and wildlife resources over and above levels existing without NISP. The Enhancement Plan was developed in response to discussions with CPW staff, discussions with other regional governmental and non-governmental agencies, and review of comments on the Draft EIS and Supplemental Draft EIS.

Key components of the Enhancement Plan include:

- Commitments to adaptive management programs for the Poudre River and recreation areas surrounding Glade Reservoir.
- Multi-objective diversion structure retrofits at existing diversion structures on the Poudre River (i.e. installation of facilities that allow fish passage and measure bypassed flow).
- Protecting additional lands west of Glade Reservoir for wildlife habitat.
- Participation in the Coalition for the Poudre River Watershed.

8.4.6. – Wildlife development review criteria

The Project is completing this Wildlife Conservation Plan as outlined in Larimer County's Land Use Code in order to document the Project's commitments to avoid, minimize, and mitigate impacts to wildlife and enhance wildlife habitat.

8.4.7. – Wildlife conservation plans

8.4.7.1. A description of the ownership, location, type, size, and other attributes of the wildlife habitat on the site

Information	Glade Reservoir	NISP Conveyance			
		Northern Tier Alignment	Poudre Intake Alignment	County Line Alignment	Glade Release Alignment
Ownership	<ul style="list-style-type: none"> Northern Colorado Water Conservancy District Poudre River State Land Board Public Access Program Bureau of Land Management Private landowners 	<ul style="list-style-type: none"> Colorado State Land Board City of Thornton Private landowners 	<ul style="list-style-type: none"> City of Fort Collins Private landowners 	<ul style="list-style-type: none"> Colorado State Land Board City of Thornton Private landowners 	<ul style="list-style-type: none"> City of Greeley Private landowners
Nearest Town/City (distance in miles)	Bellvue (2.3 miles southeast)	Eastern Terminus: Fort Collins: (5 miles southwest) Western Terminus: Bellvue (3.8 miles south-southeast)	Eastern Terminus: Timnath (3.4 miles southwest) Western Terminus: Fort Collins (0 miles, in town)	Southern Terminus: Mead (3.6 miles northwest) Northern Terminus: Fort Collins (5 miles southwest)	Eastern Terminus: Bellvue (2.6 miles southeast) Western Terminus: Bellvue (3.3 miles southeast)
County	Larimer	Larimer	Larimer	Larimer and Weld	Larimer
Section, Township, Range¹	Multiple Sections; Townships 8 and 9 North; Ranges 69 and 70 West	Multiple Sections; Township 8 North; Ranges 68, 69 and 70 West	Multiple Sections, Township 7 North, Ranges 68 and 69 West	Multiple Sections, Townships 3, 4, 5, 6, 7, and 8 North, Ranges 67 and 68 West	Sections 14 and 15, Township 8 North, Range 70 West
US Geological Survey (USGS) 7.5-minute Quadrangle	Laporte	Timnath Cobb Lake Wellington Laporte	Timnath Fort Collins	Gowanda Johnston Windsor Timnath	Laporte

Location of Project in Decimal Degrees (WGS84) Latitude, Longitude²	Approximate Centroid: 40.696582°, -105.177240°	Eastern Terminus: 40.624301°, -104.944075° Western Terminus: 40.681422°, -105.190478°	Eastern Terminus: 40.566478°, -104.943976° Western Terminus: 40.582858°, -105.059237°	Southern Terminus: 40.211723°, -104.941684° Northern Terminus: 40.624301°, -104.944075°	Eastern Terminus: 40.663988°, -105.190371° Western Terminus: 40.663084°, -105.212353°
Wildlife Habitat	Project related impacts to wildlife will occur at Glade Reservoir, which currently provides habitat for federally and state listed species, migratory birds and raptors, big and small game, and aquatic life (see section 8.4.7.2.).	Because the NISP pipeline conveyance system will be constructed primarily in and adjacent to existing road rights-of-ways and previously developed land, limited wildlife habitat occurs along the conveyance systems and only temporary impacts to wildlife are anticipated. The main places where wildlife habitat is prevalent is at the Poudre, Big Thompson, and Little Thompson river crossings (see section 8.4.7.2.).			
<p>Notes:</p> <p>Portions of the pipeline conveyance systems occur in unincorporated Larimer County; however, significant portions of the conveyance systems also occur in incorporated Larimer County and Weld County.</p> <p>¹ 6th Principal Meridian</p> <p>² World Geodetic System of 1984 (WGS84)</p> <p>Sources: Various USGS 7.5-minute Quadrangle Topographic Maps, refer to References section</p>					

8.4.7.2. A description of the populations of wildlife species that inhabit or use the site, including a qualitative description of their spatial distribution and abundance

8.4.7.3. An analysis of the potential adverse impacts of the proposed development on wildlife and wildlife habitat on or off-site

8.4.7.4. A list of proposed mitigation measures and an analysis of the probability of success of such measures

(Note section 8.4.7.2. through 8.4.7.4. have been combined into one discussion below.)

Only the species identified by CPW as warranting further attention during the coordination process moved forward into the analysis in the FWMEP, and subsequently this Wildlife Conservation Plan. The list of these species was provided to Larimer County for approval on January 7, 2020 and includes the following:

- **Federally Listed Species:** Preble's meadow jumping mouse (*Zapus hudsonius preblei*); downstream species (named below); and Ute ladies'-tresses orchid (*Spiranthes diluvialis*)
- **State Listed Species:** black-tailed prairie dog (*Cynomys ludovicianus*) (state listed birds are included in the *Migratory Birds and Raptors* section)
- **Migratory Birds and Raptors:** Burrowing Owl (*Athene cunicularia*), Bald Eagle (*Haliaeetus leucocephalus*), and Golden Eagle (*Aquila chrysaetos*)
- **Big Game Species:** mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), and elk (*Cervus canadensis*)
- **Aquatic Life:** plains topminnow (*Fundulus sciadicus*) and common shiner (*Luxilus cornutus*)

Project related impacts identified in the FEIS and preceding reports were used as the basis for mitigation outlined in the FWMEP (USACE, 2008; USACE, 2015; USACE, 2018). Fish and wildlife impacts from infrastructure construction and project operations occur at and near the Glade Reservoir site, which is adjacent to state lands that provide big game and small game hunting opportunities. Construction associated with the NISP conveyance system will not have permanent impacts to wildlife because the NISP conveyance system will be constructed primarily in existing road rights-of-ways and previously developed land and will be returned to pre-construction conditions. Temporary pipeline construction impacts will be managed through surveys and with minimization measures developed through the outcome of wildlife surveys.

Key avoidance and minimization measures described in the FWMEP include NISP design commitments that avoid and minimize adverse impacts to aquatic habitat and water quality, and construction BMPs that avoid and minimize effects on wildlife and plant communities. Mitigation and enhancement measures for unavoidable impacts were developed in the FWMEP, which are summarized below. Finally, an adaptive management plan will provide monitoring and feedback processes that will provide a mechanism to make adjustments that ensure the measures, once implemented, meet the mitigation and enhancement goals.

A summary of the species that inhabit or use the site (including description of their spatial distribution and abundance), an analysis of potential impacts of the Project on each species, and a list of proposed avoidance, minimization, mitigation, and enhancement measures for each species is described in detail below. FEIS figures are included for reference.

(Note: Some of the FEIS figures depict study areas outside of unincorporated Larimer County. Portions of the Poudre Intake alignment have been slightly modified; however, the changes are not significant at this scale. Additionally, swift fox [*Vulpes velox*] and pronghorn [*Antilocapra americana*], were not assessed as part of this

plan. Swift fox was not assessed because they are not anticipated to occur in the study area and pronghorn were not assessed because they are unlikely to occur in the study area.)

Federally Listed Species

Preble's Meadow Jumping Mouse

8.4.7.2. Two adult Preble's meadow jumping mouse individuals were captured on August 10, 2004 southwest of the Glade Reservoir area along Owl Creek (Figure 3-37 from the FEIS). Additionally, Preble's meadow jumping mouse are known to occur along portions of the Poudre River three miles south of the Glade Reservoir area. No mapped habitat is located along the conveyance system, although in some areas, mapped habitat is located nearby (Figure 3-38 from the FEIS).

8.4.7.3. Based on the FEIS impact analysis, the Project is anticipated to result in a permanent loss of 43 acres of known Preble's meadow jumping mouse habitat and a temporary disturbance of 30 acres of habitat at Glade Reservoir; a permanent loss of 1 acre (from lining the Poudre Valley Canal [PVC]); and a temporary disturbance of 5 acres of habitat along the pipeline conveyance systems. There is the potential for disturbance of Preble's meadow jumping mouse behavior due to an increase in noise and human presence and physical harm to individual Preble's meadow jumping mouse from construction machinery. Changes in flow to the Poudre River are unlikely to affect Preble's meadow jumping mouse habitat.

8.4.7.4. The biological opinion issued by the USFWS in 2007 concludes that the NISP proposed action is *not likely to jeopardize the continued existence* of the threatened Preble's meadow jumping mouse, because 1) permanent and temporary impacts to available habitat are not likely to preclude recovery of the species; and 2) NISP WAE would implement proposed compensatory mitigation measures through enhancement of existing habitat and creation of new habitat. The opinion also authorizes incidental take and identifies reasonable and prudent measures, terms and conditions, and reporting requirements for such take. A mitigation plan for Preble's meadow jumping mouse has been drafted and submitted to the USFWS for review (Pinyon, 2019).

Ute Ladies'-tresses Orchid

8.4.7.2. Although Ute ladies'-tresses orchid (federally listed as threatened) is a plant, it is included in this Plan because it is a federally listed species. Although limited habitat is present, the species was documented in 2019 surveys at the PVC-Hanson Channel and Riparian Improvements site along the Poudre River southwest of Glade Reservoir and has a potential to occur in the Glade Reservoir study area. Potential habitat for Ute ladies'-tresses orchid may occur where the pipeline conveyance systems cross the active floodplain of perennial drainages. No Ute ladies'-tresses orchid individuals were found during 2019 surveys of the Glade Reservoir study area and no known populations occur along the pipeline conveyance systems.

8.4.7.3. Prior to construction, Ute ladies'-tresses orchid habitat assessments and/or final surveys would be conducted for potentially impacted suitable habitat not previously evaluated. Changes in flow in the Poudre River are unlikely to affect Ute ladies'-tresses orchid.

8.4.7.4. The Project will conduct surveys for Ute ladies'-tresses orchid for two years prior to construction and implement conservation measures developed in coordination with the USFWS, if needed. Conservation measures could include avoiding impacts by establishing a "no-work" zone or, in the event of unavoidable impacts, protecting or enhancing adjacent or off-site habitat. (See *Ute Ladies'-tresses Orchid* [SS-04], page 84 of the FWMEP [2017].)

Downstream Species

8.4.7.2. The following downstream species, Whooping Crane (*Grus americana*), Interior Least Tern (*Sterna antillarum*), Eskimo Curlew (*Numenius borealis*), Piping Plover (*Charadrius melodus*), pallid sturgeon (*Scaphirhynchus albus*), American burying beetle (*Nicrophorus americanus*), and Western prairie fringed orchid (*Platanthera praeclara*), are included in the Plan because depletions to the Poudre River associated with the Project have the potential to affect these federally listed species and designated critical habitat for the Whooping Crane in Nebraska. (Although the Western prairie fringed orchid is a plant, it has been included since it is a federally listed species.)

8.4.7.3. Historical and new depletions (anticipated as part of this Project) to the South Platte River Basin *may adversely affect* Whooping Crane, Interior Least Tern, Piping Plover, pallid sturgeon, and Western prairie fringed orchid and designated critical habitat for the Whooping Crane along the Platte River in central Nebraska. The USFWS Supplemental Programmatic Biological Opinion has determined that the Project will have *no effect* on the Eskimo Curlew (believed extirpated in Nebraska; no confirmed sightings since 1926) and that the Project *may effect, but is not likely to adversely affect* the American burying beetle.

8.4.7.4. The Project will offset water depletions through membership in South Platte Water Resources Activities Program (SPWRAP). The approximate implementation cost of this commitment from the Project to SPWRAP is currently \$1,550,000 (FWMEP, 2017). (See *Platte River Target Species [SS-05]*, page 85 of the FWMEP.)

State Listed Species

Black-tailed Prairie Dog

8.4.7.2. Black-tailed prairie dogs are included in the Plan because a one-acre prairie dog colony occurs on the northeastern side of the Glade Reservoir area and they are likely located in numerous areas along the conveyance system (Figures 3-37 and 3-38 from the FEIS). Although black-tailed prairie dogs are state species of special concern (which are not a statutory category), their colonies could provide habitat for Burrowing Owl, which are a state threatened species and are also protected by the Migratory Bird Treaty Act (MBTA).

8.4.7.3. Most of the impacts identified in the FEIS that are anticipated to occur to black-tailed prairie dog habitat are not anticipated in unincorporated Larimer County. However, 1 acre of permanent impact and 11 acres of temporary impacts are anticipated at Glade Reservoir and along the conveyance system, respectively. To facilitate determining adequate mitigation measures, an assessment of habitat quality and number of individual black-tailed prairie dogs will be conducted for colonies that will be directly affected by NISP construction.

8.4.7.4. Black-tailed prairie dogs potentially impacted by construction of Glade Reservoir and the conveyance system will be relocated if possible (following a step-wise progression of relocation options), or as a last resort, euthanized, prior to construction following CPW and/or CDOT guidelines (CPW, 2020; CDOT, 2002; CDOT, 2009). Black-tailed prairie dogs would only be removed in areas where they might be directly affected, leaving them in the remainder of the construction right-of-way. In addition, some areas temporarily disturbed during construction would likely be recolonized by prairie dogs (See *Black-tailed Prairie Dog [SS-07]*, page 85 of the FWMEP.)

Migratory Birds and Raptors

The following applies to all migratory birds and raptors, which are protected by the MBTA.

8.4.7.2. The riparian and wetland habitat associated with Owl Creek, as well as the cliff faces and rock ledges of the Glade Reservoir area hogback formations, provide nesting and foraging habitat for a variety of raptor species. The wetland and riparian habitat associated with the Poudre, Big Thompson, and Little Thompson river crossings along the conveyance system provide nesting and foraging habitat for a variety of raptor species. In addition, trees, shrubs, and man-made structures may provide nest sites for smaller migratory birds at the Glade Reservoir area and along the conveyance system.

8.4.7.3. Based on the FEIS impact analysis, the Project is anticipated to result in a loss of the following habitat types that provide suitable nesting and foraging habitat for migratory birds and raptors: 43 acres of wetlands, 17 acres of aquatic habitat, 19 acres of riparian woodlands, 477 acres of upland native shrublands, 87 acres of other shrubland, 923 acres of native grassland, 67 acres of other grasslands, and 279 acres of agricultural land. Mortality and nest destruction could occur during construction. Temporary impacts include disturbance of vegetation and increased noise and human presence. Reductions in streamflow on the Poudre River is not anticipated to cause a loss of riparian and/or wetland habitat (which provides suitable nesting and foraging habitat for migratory birds and raptors).

8.4.7.4. The Project will survey and mark active nests to establish no-work zones during the breeding seasons in accordance with MBTA. Raptor surveys started in 2018 and are on-going. When possible, vegetation clearing will be conducted during the nonbreeding season, in accordance with the MBTA. The Project will follow CPW recommended buffer zones and seasonal restrictions within certain distances of nest sites for raptors in accordance with the MBTA (CPW, 2008). Additionally, the Project will follow MBTA regulations and acquire permits for incidental or unavoidable takes, if needed. (See *Migrating Birds and Raptors - Surveys and No Work Zones [TW-03]*, *Vegetation Clearing [TW-04]*, and *Buffer Zones [TW-05]* page 59 of the FWMEP [2017].)

Raptors that are provided additional protections at the state level (Burrowing Owl, state listed as threatened) and federal level (Bald and Golden Eagle, federally protected by the Bald and Golden Eagle Protection Act) are discussed further below.

Burrowing Owl

8.4.7.2. A black-tailed prairie dog colony, which is located northeast of the Glade Reservoir area, could provide habitat for Burrowing Owls, which are state listed as a threatened species and are also protected by the MBTA (Figures 3-37 from the FEIS). Suitable habitat may also be located in numerous locations along the conveyance system (where there are black-tailed prairie dog colonies) (Figure 3-38 from the FEIS).

8.4.7.3. Most of the impacts identified in the FEIS that are anticipated to occur to Burrowing Owl habitat are not anticipated in study areas located in unincorporated Larimer County. However, 1 acre of permanent impact and 11 acres of temporary impacts are anticipated at Glade Reservoir and along the conveyance system, respectively.

8.4.7.4. Black-tailed prairie dog colonies would be surveyed for Burrowing Owls prior to any work that would disturb them between March 15 and October 31. Where Burrowing Owls are present, black-tailed prairie dog removal would be scheduled to occur from November 1 to March 14. If Burrowing Owls are found within the construction footprint, nests would be left undisturbed during construction. If Burrowing Owls are found during preconstruction surveys, additional avoidance mitigation measures would be developed in coordination with the CPW. (See *Burrowing Owl [SS-09]*, page 86 of the FWMEP [2017].)

Bald and Golden Eagles

8.4.7.2. Bald and Golden Eagles are included in this 1041 Wildlife Conservation Plan because they are protected at the federal level by the Bald and Golden Eagle Protection Act and the MBTA, and suitable habitat occurs in

the Glade Reservoir area (Bald and Golden Eagle) and along portions of the conveyance system, especially in the riparian habitat associated with the Poudre, Big Thompson, and Little Thompson river crossings (Bald Eagle) (Figures 3-37 and 3-39 from the FEIS). Additionally, an active Bald Eagle nest has been noted southwest of Glade Reservoir and Bald Eagle roost sites occur along the Poudre River south of Glade Reservoir.

8.4.7.3. Based on the FEIS impact analysis, the Project is anticipated to permanently impact <1 acre and temporarily impact 15 acres of winter concentration area for Bald Eagle along the conveyance system. Additionally, 5 acres of nest buffer are anticipated to be permanently affected along the conveyance system and 8 and 10 acres temporarily affected along the Glade and conveyance system, respectively. Golden Eagle habitat has yet to be mapped by CPW, so anticipated impacts could not be quantified. However, impacts are anticipated to be less than for Bald Eagle. Pipeline construction impacts could result in eagle nest abandonment or decreased nesting success if conducted during sensitive breeding and nesting periods.

8.4.7.4. The Project will conduct surveys for Bald and Golden Eagles and their nests; meet CPW buffer requirements whenever possible; and take necessary actions according to the Bald Eagle and Golden Eagle Protection Act and the MBTA (CPW, 2008). Effects on Bald Eagle winter concentration areas would be minimized by narrowing the construction disturbance through quality habitat such as riparian woodlands. Bald and Golden Eagle surveys and nest surveys started in 2018 and are currently on-going. Additionally, the creation of Glade Reservoir could provide additional summer foraging habitat, especially if stocked with fish. (See *Bald Eagle* [SS-02], page 81 of the FWMEP [2017].)

Big Game Species

Mule Deer

8.4.7.2. The westernmost portion of the Glade Reservoir area includes a mule deer winter concentration area, mule deer winter range covers the entire Glade Reservoir area, and mule deer severe winter range covers the reservoir and dam site (Figure 3-32 from the FEIS). Mule deer winter range, mule deer severe winter range, and a mule deer winter concentration area occur along the conveyance system near Glade Reservoir. The conveyance system crosses mule deer winter range and mule deer severe winter range (Figures 3-32 and 3-34 from the FEIS).

8.4.7.3. Based on the FEIS impact analysis, the Project is anticipated to result in 2,068 acres of permanent impacts and 973 acres of temporary impacts to mule deer winter range (predominately occurring at Glade Reservoir). The Project will also result in 160 acres of permanent impacts and 138 acres of temporary impacts to mule deer winter concentration areas (also predominately occurring at Glade Reservoir). Potential impacts to migration in the area inundated by Glade Reservoir (and affected by U.S. Highway 287 realignment) are anticipated.

8.4.7.4. As mitigation for these identified impacts, the Project will construct one big-game underpass and identify other crossings associated with the relocation of U.S. Highway 287 that could potentially be designed to accommodate wildlife movement (\$500,000 estimated cost). Additionally, the Project will monitor road kills for 10 years and implement adaptive management actions as needed (\$280,000 committed). The Project will conserve approximately 1,080 acres of land owned or required for purchase surrounding Glade Reservoir as wildlife habitat using a conservation easement or other legal instrument (\$2,920,000 estimated cost). The Project will also acquire and conserve approximately 300 acres of additional land surrounding Glade Reservoir as wildlife habitat using a conservation easement or other legal instrument; engage in conserving additional land west of Glade Reservoir for big-game habitat; allow use of Glade Reservoir conserved land for Great Outdoors Colorado (GOCO) match; and consent to GOCO requirements (\$810,000 committed). (See *U.S. 287 - Big Game Underpass and Fencing* [TW-01] and *Big Game Movement Adaptive Management Plan* [TW-02] and *Wildlife*

Habitat - Glade Reservoir Conservation Mitigation [TW-06] and Glade Reservoir Conservation Enhancement [TW-07], pages 75, 78, 79, and 107 of the FWMEP [2017], respectively.)

White-tailed Deer

8.4.7.2. A white-tailed deer concentration area occurs along the Poudre River within the southern portion of the Glade Reservoir area, including the proposed forebay area (Figure 3-32 from the FEIS). The pipeline conveyance systems cross white-tailed deer winter range at the Big Thompson River, and white-tailed deer winter range occurs along the Little Thompson River (Figure 3-35 from the FEIS).

8.4.7.3. The Project is anticipated to result in 511 acres of permanent impacts and 482 acres of temporary impact to white-tailed deer winter range. Potential impacts to migration in the area inundated by Glade Reservoir (and affected by U.S. Highway 287 realignment) are anticipated.

8.4.7.4. The Project intends to acquire land in the Confluence Area (confluence of the Big Thompson and South Platte Rivers, Weld County) in order to compensate for the loss of white-tailed deer habitat (\$500,000 committed). NISP WAE will provide CPW assistance in securing this land, including pursuing additional funding opportunities and giving consideration to owning this additional land in fee-title for purposes of mitigation, wildlife habitat, and public recreation. (See *Land Acquisition in Confluence Area (RC-05)*, page 88 of the FWMEP [2017].) Additionally, the habitat areas created by the Project for Preble's meadow jumping mouse and wetland mitigation around the forebay area and Owl Creek will also create habitat beneficial for white-tailed deer.

Elk

8.4.7.2. The western portion of Glade Reservoir is elk winter range, and just to the west of the reservoir footprint is a resident elk population, winter concentration area, and elk severe winter range (Figures 3-33 and 3-36 from the FEIS).

8.4.7.3. Based on the FEIS impact analysis, the Project is anticipated to result in 2,066 acres of permanent impacts and 822 acres of temporary impact to overall elk range (predominately occurring at Glade Reservoir). Potential impacts to migration in the area inundated by Glade Reservoir (and affected by U.S. Highway 287 realignment) are anticipated.

8.4.7.4. As mitigation for these identified impacts, the Project will construct one big-game underpass and identify other crossings associated with the relocation of U.S. Highway 287 that could potentially be designed to accommodate wildlife movement (\$500,000 estimated cost). Additionally, the Project will monitor road kills for 10 years and implement adaptive management actions as needed (\$280,000 committed). The Project will conserve approximately 1,080 acres of land owned or required for purchase surrounding Glade Reservoir as wildlife habitat using a conservation easement or other legal instrument (\$2,920,000 estimated cost). The Project will also acquire and conserve approximately 300 acres of additional land surrounding Glade Reservoir as wildlife habitat using a conservation easement or other legal instrument; engage in conserving additional land west of Glade Reservoir for big-game habitat; allow use of Glade Reservoir conserved land for GOCO match; and consent to GOCO requirements (\$810,000 committed). (See *U.S. 287 - Big Game Underpass and Fencing [TW-01]* and *Big Game Movement Adaptive Management Plan [TW-02]* and *Wildlife Habitat - Glade Reservoir Conservation Mitigation [TW-06]* and *Glade Reservoir Conservation Enhancement [TW-07]*, pages 75, 78, 79, and 107 of the FWMEP [2017], respectively.)

Aquatic Life

Plains Topminnow and Common Shiner

8.4.7.2. Plains topminnow (state listed as endangered) and common shiner (state listed as threatened) are included in this Plan because they have the potential to occur in the Poudre, Big Thompson, and Little Thompson rivers along the conveyance system crossings. Although both species have been previously documented in Larimer County, the plains topminnow is not widespread throughout Colorado and the common shiner is very rare throughout Colorado (Woodling, 1985).

8.4.7.3. Impacts to these species at proposed pipeline conveyance systems river crossing will be temporary, as pipelines will be buried, and the construction site will be restored to pre-construction conditions.

8.4.7.4. The Project has made a number of flow commitments that are specifically described in the FWMEP. These address avoidance of Munroe Canal Diversions, curtailment of diversions for non-consumptive water rights, summer and winter diversion curtailments, conveyance refinement (\$24,520,000 estimated cost), peak flow operations program, and ramping of NISP diversions at PVC. These flow commitments are designed to avoid and minimize the effects of NISP operations on aquatic life. (See *Avoid Munroe Canal Diversions [FW-01]*, *Curtail Diversions for Non-Consumptive Water Rights [FW-02]*, *Summer and Winter Diversion Curtailments [FW-03]*, *Conveyance Refinement – Poudre River Intake [FW-04]*, *Peak Flow Operations Program (FW-08)*, and *Ramp NISP Diversions at PVC (FW-09)*, see pages 37, 39, 46, and 57 of the FWMEP [2017], respectively).

Additionally, the Project is committed to enhancing water quality through the multi-level outlet tower for Glade Reservoir releases (\$1,000,000 estimated cost), Glade Reservoir release structure (\$200,000 estimated cost), streamflow and water quality monitoring (\$2,310,000 estimated cost), donations to the Coalition for the Poudre River Watershed (\$750,000 estimated cost), temperature mitigation, and mercury bioaccumulation monitoring (\$220,000 committed). (See *Multi-level Outlet Tower for Glade Reservoir Releases (WQ-01)*, *Glade Reservoir Release Structure (WQ-02)*, *Streamflow and Water Quality Monitoring (WQ-04)*, *Coalition for the Poudre River Watershed (WQ-05)*, *Temperature Mitigation (WQ-06)*, and *Mercury Bioaccumulation Monitoring (WQ-07)*, page 32, 35, 69, 105, 53, and 74 of the FWMEP [2017], respectively.)

The Project will also mitigate and enhance aquatic resources with a Stream Channel and Habitat Improvement Plan (\$1,000,000 committed) and Stream Channel and Habitat Improvements (\$1,800,000 estimated cost), which will result in enhanced channel restoration, aquatic habitat, riparian vegetation, riverine special status species, temperature and dissolved oxygen concentration. The Project will create the Poudre River Adaptive Management Program (\$5,930,000 committed), as well as reconstruct the Poudre Valley Canal diversion structure (\$300,000 estimated cost) and retrofit multi-objective diversion structures on the Poudre River (\$1,200,000 estimated cost) to include fish passage. (See *Stream Channel and Habitat Improvement Plan [AG-01]*, *Stream Channel and Habitat Improvements [AG-02]*, *Poudre River Adaptive Management Program (AG-03)*, *Poudre Valley Canal Diversion Structure Reconstruction [AG-04]*, and *Multi-objective Diversion Structure Retrofits (AG-05)*, see pages 60, 61, 95, 30, and 97 of the FWMEP [2017], respectively.)

8.4.7.5. A plan for implementation, maintenance and monitoring of mitigation measures

Implementation measures for each species are included with discussion of those species listed above. Maintenance and monitoring of mitigation measures will be implemented as part of adaptive management programs outlined in the FWMEP. Adaptive management, the process of implementing and adapting management strategies based on current knowledge and continued monitoring, allows land managers to adjust management practices as needed to best suit a site and reach desired outcomes. Such programs would be implemented pursuant to the parameters outlined in earlier sections of this document.

8.4.7.6. A plan for any relevant enhancement or restoration measures

Enhancement or restoration measures for each species are included with discussion of those species as listed above.

8.4.7.7. A demonstration of fiscal, administrative, and technical competence of the applicant or other relevant entity to successfully execute the plan

As outlined in the FWMEP, the NISP WAE assumes financial responsibility for all compensatory mitigation and enhancement measures identified in the FWMEP, which are summarized in this document. Northern Water's NISP WAE is a permanent entity with access to adequate funds to cover mitigation monitoring and any necessary remedial actions. Northern Water's past performance under other similar water development projects demonstrates its commitment to assure that projects approved, including compensatory mitigation and enhancement measures, will be fully implemented and maintained by the Enterprise.

8.4.8. – Waivers and modifications

Impacts to fish and wildlife associated with NISP have been thoroughly identified and analyzed as part of the Project's Draft EIS, Supplemental Draft EIS, and FEIS. The Project's FWMEP, as summarized here, provides mitigation and enhancement measures to offset those impacts to the maximum extent practicable. The FWMEP was reviewed by and developed in cooperation with CPW and is the official State position on the mitigation actions required of the applicant.

The efforts summarized in this Plan have been designed to mitigate impacts to wildlife for the construction of the Glade Reservoir Complex and associated conveyance system for the NISP. These efforts satisfy the requirements as identified in Larimer County Land Use Code section 8.2.1. These efforts also satisfy the requirements set forth in the Larimer County Land Use Code, 8.2. Standards for All Development – Wildlife (Larimer County, 2019). The mitigation boundaries as described may change if the reservoir area or conveyance system area is modified from what is shown. However, the types and amounts of mitigation areas will remain the same. Changes in impacts or subsequent updates to the mitigation of wildlife for the NISP will be forwarded to Larimer County, if needed.

Attachments

Table 1. Summary List of Species to be Discussed or Left out of the Wildlife Conservation Plan

Figure 1. Project Location

Figure 3-37. Overview of Threatened and Endangered Species and Bald Eagle Habitat in the Glade Reservoir Study Areas (from the FEIS)

Figure 3-38. Prairie dog, Preble's, and Swift Fox Habitat in the Study Areas (from the FEIS)

Figure 3-39. Bald Eagle Habitat in the Study Areas (from the FEIS)

Figure 3-32. Deer Habitat at Glade Reservoir and U.S. 287 Realignment Study Areas (from the FEIS)

Figure 3-34. Mule Deer Habitat in Study Areas (from the FEIS)

Figure 3-35. White-tailed Deer Habitat in the Study Areas (from the FEIS)

Figure 3-33. Elk and Pronghorn Habitat at Glade Reservoir and U.S. 287 Realignment Study Areas (from the FEIS)

Figure 3-36. Elk and Pronghorn Habitat in the Study Areas (from the FEIS)

References

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Attachments

Table I

The purpose of this summary list is to identify the species that will be analyzed as part of the Larimer County 1041 permit Wildlife Conservation Plan (plan) (and associated maps) for the Northern Integrated Supply Project (NISP). This summary list includes species from Colorado Parks and Wildlife (CPW) wildlife habitat maps and Colorado Natural Heritage Program (CNHP) maps as called for in Larimer County Land Use Code Section 8.4.3 and was assembled from information contained in the project's Final Environmental Impact Statement (FEIS).

Table 1. Summary List of Species to be Discussed or Left out of the Wildlife Conservation Plan

Species	Included?	Justification	Source
Wildlife (includes wildlife that do not have a special status)			
Raptors	Yes	<p>Raptors are included in the plan because they are protected at the federal level by the Migratory Bird Treaty Act (MBTA) and suitable habitat occurs in the study area.</p> <p>The riparian and wetland habitat associated with Owl Creek, as well as the cliff faces and rock ledges of the hogback formations, provide nesting and foraging habitat for a variety of raptor species. The wetland and riparian habitat associated with the Poudre, Big Thompson, and Little Thompson river crossings along the conveyance systems provide nesting and foraging habitat for a variety of raptor species.</p>	Final Environmental Impact Statement, p. 3-136 through 3-139
Mule Deer (<i>Odocoileus hemionus</i>)	Yes	<p>Mule deer are included in the plan because they provide economic and recreational value to Larimer County residents and visitors and suitable habitat occurs in the study area.</p> <p>The westernmost portion of the Glade Reservoir study area includes a mule deer winter concentration area, mule deer winter range covers the entire Glade Reservoir study area, and mule deer severe winter range covers the reservoir and dam site.</p> <p>Mule deer winter range, mule deer severe winter range and a mule deer winter concentration area occur along the conveyance pipelines near Glade. The conveyance systems cross mule deer winter range and mule deer severe winter range, and white-tailed deer winter range at the Big Thompson. White-tailed deer winter range occurs along the Little Thompson River.</p>	
White-tailed Deer (<i>Odocoileus virginianus</i>)	Yes	White-tailed deer are included in the plan because they provide economic and recreational value to Larimer County residents and visitors and suitable habitat occurs in the study area.	

Species	Included?	Justification	Source
		A white-tailed deer concentration area occurs along the Poudre River within the southern portion of the Glade Reservoir study area, including the entire proposed forebay. The conveyance systems cross white-tailed deer winter range at the Big Thompson and white-tailed deer winter range occurs along the Little Thompson River.	
Pronghorn (<i>Antilocapra americana</i>)	No	Although the eastern edge of Glade Reservoir is pronghorn winter range and severe winter range, pronghorn is unlikely to occur in the study area and they are not protected at the state or federal level. Therefore, they are not included in the plan. Additionally, mitigation measures implemented for other big game species will also mitigate for any impacts anticipated to pronghorn habitat.	
Elk (<i>Cervus canadensis</i>)	Yes	Elk are included in the plan because they provide economic and recreational value to Larimer County residents and visitors and suitable habitat occurs in the study area. The western portion of Glade Reservoir is elk winter range, and just to the west of the reservoir footprint is a resident elk population, winter concentration area, and elk severe winter range.	
Amphibians	No	Although the Glade Reservoir study area contains areas of wetland habitat suitable for breeding amphibians, they are not included in the plan because all of Colorado's listed amphibians are state species of concern except for the boreal toad (<i>Bufo boreas boreas</i>), which does not have the potential to occur in the study area. Colorado state species of special concern are not a statutory category and therefore no further action or permitting is required for these species at the state level. Impacts to these species and associated mitigation are addressed in the FEIS and the CPW approved Fish and Wildlife Mitigation and Enhancement Plan (FWMEP). Additionally, the project's wetland mitigation, mitigation measures implemented as part of the project's Stormwater Management Plan (SWMP), and other Best Management Practices (BMPs) will also mitigate for impacts to these species' habitat. Finally, these animals are not noted as contributing to the economic or recreational value of Larimer County.	
Reptiles	No	Although the Glade Reservoir study area contains suitable habitat for several reptile species (common gartersnake [<i>Thamnophis sirtalis</i>], western hognose snake [<i>Heterodon nasicus</i>], plains milk snake [<i>Lampropeltis triangulum gentilis</i>], western rattlesnake [<i>Crotalus viridis</i>], eastern fence lizard [<i>Sceloporus undulatus</i>], and short-	

Species	Included?	Justification	Source
		horned lizard [<i>Sceloporus undulatus</i>]), only the common garter snake is considered a state species of concern. Reptiles are not included in the plan because Colorado state species of special concern are not a statutory category and therefore no further action or permitting is required for common garter snake at the state level. Impacts to these species and associated mitigation are addressed in the FEIS and the CPW approved FWMEP. Additionally, mitigation measures implemented as part of the project's SWMP and other BMPs will also mitigate for impacts to these species' habitat. Finally, these animals are not noted as contributing to the economic or recreational value of Larimer County.	
Mountain Lion (<i>Puma concolor</i>)	No	Although the Glade Reservoir study area contains habitat for mountain lion, they are not included in the plan because they are not protected at the state or federal level. Additionally, mitigation measures implemented for big game species will also mitigate for impacts to mountain lion habitat.	
Black Bear (<i>Ursus americanus</i>)	No	A small black bear summer and fall concentration area occurs south and west of the Glade Reservoir study area and north of the Poudre River and black bears may occasionally forage at the Glade Reservoir study area. However, black bears are not included in the plan because they are not protected at the state or federal level. Additionally, mitigation measures implemented for big game species will also mitigate for impacts to black bear habitat.	
Special Status Species			
Federally Listed			
Canada Lynx (<i>Lynx canadensis</i>)	No	Canada lynx is not included in the plan because no suitable habitat occurs in the study area.	Final Environmental Impact Statement, p. 3-149
Black-footed Ferret (<i>Mustela nigripes</i>)	No	Black-footed ferret is not included in the plan because no suitable habitat occurs in the study area.	
Preble's Meadow Jumping Mouse (<i>Zapus hudsonius preblei</i>)	Yes	Preble's meadow jumping mouse (Preble's) is included in the plan because it is known to occur in the study area. Two adult Preble's were captured on August 10, 2004, southwest of the Glade Reservoir study area along Owl Creek. Additionally, Preble's are known to occur along portions of the Poudre River 3 miles south of the Glade Reservoir study area.	
Mexican Spotted Owl (<i>Strix occidentalis lucida</i>)	No	Mexican Spotted Owl is not included in the plan because no suitable habitat occurs in the study area.	
Greenback Cutthroat Trout	No	Greenback cutthroat trout is not included in the plan because no suitable habitat occurs in the study area.	

Species	Included?	Justification	Source
(<i>Oncorhynchus clarkii stomias</i>)			
Downstream Species	Yes	The following downstream species, Whooping Crane (<i>Grus americana</i>), Least Tern (<i>Sterna antillarum</i>), Eskimo curlew (<i>Numenius borealis</i>), Piping Plover (<i>Charadrius melodus</i>), and pallid sturgeon (<i>Scaphirhynchus albus</i>) are included in the plan because depletions to the Poudre River associated with the project have the potential to affect these federally listed species and their designated critical habitat in Nebraska.	Final Environmental Impact Statement, p. 3-150
State Listed and Colorado Natural Heritage Program or Bureau of Land Management Sensitive Species (fish and mollusks are included in Aquatic Life section)			
<i>Mammals</i>			Final Environmental Impact Statement, p. 3-151 through 3-153
Black-tailed Prairie Dog (<i>Cynomys ludovicianus</i>)	Yes	Black-tailed prairie dogs are included in the plan because a one-acre prairie dog colony occurs on the northeastern side of the Glade Reservoir study area and they are likely located in numerous areas along the conveyance pipelines study areas. Although black-tailed prairie dogs are state species of special concern (which are not a statutory category), their colonies could provide habitat for Burrowing Owl (<i>Athene cunicularia</i>), which are a state threatened species and are also protected by the MBTA.	
Dwarf Shrew (<i>Sorex nanus</i>)	No	Dwarf shrew is not included in the plan because it is not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for impacts anticipated to this species habitat. Additionally, this animal is not noted as contributing economic or recreational value to Larimer County.	
Fringed Myotis (<i>Myotis thysanodes</i>)	No	Fringed myotis is not included in the plan because it is not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for any impacts to this species habitat. Additionally, this animal is not noted as contributing economic or recreational value to Larimer County.	
Little Brown Myotis (<i>Myotis lucifugus</i>)	No	Little brown myotis is not included in the plan because it is not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for impacts to this species habitat. Additionally, this animal is not noted as contributing economic or recreational value to Larimer County.	
Olive-backed Pocket Mouse (<i>Perognathus fasciatus</i>)	No	Olive-backed pocket mouse is not included in the plan because it is not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for impacts to this species habitat.	

Species	Included?	Justification	Source
		Additionally, this animal is not noted as contributing economic or recreational value to Larimer County	
Swift Fox (<i>Vulpes velox</i>)	No	Swift fox is not included in the plan because they are not anticipated to occur at Glade Reservoir. Additionally, swift fox is a Colorado state species of special concern, which is not a statutory category, and therefore no further action or permitting is required for this species at the state level. Impacts to this species and associated mitigation are addressed in the FEIS and the CPW approved FWMEP. Additionally, mitigation measures implemented as part of the project and other BMPs will also mitigate for impacts to this species habitat. Finally, this animal is not noted as contributing economic or recreational value to Larimer County.	
Townsend's Big-eared Bat (<i>Plecotus townsendii</i>)	No	Townsend's big-eared bat is not included in the plan because it is a Colorado state species of special concern, which is not a statutory category, and therefore no further action or permitting is required for this species at the state level. Additionally, the project is already implementing species-specific avoidance and minimization measures for this species. Surveys were conducted in 2019 and no Townsend's big-eared bats were noted. Additional surveys will occur in 2020. Finally, this animal is not noted as contributing economic or recreational value to Larimer County.	
Birds			
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Yes	Bald Eagle is included in the plan because it is protected at the federal level by the Bald and Golden Eagle Protection Act and the MBTA and suitable habitat occurs in the study area.	
Black-necked Stilt (<i>Himantopus mexicanus</i>)	No	Black-necked Stilt is not included in the plan because it is not protected at the state level. The project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection for this species.	
Brewer's Sparrow (<i>Spizella breweri</i>)	No	Brewer's Sparrow is not included in the plan because it is not protected at the state level. The project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection for this species.	
Burrowing Owl (<i>Athene cunicularia</i>)	Yes	A black-tailed prairie dog colony, which is located northeast of Glade Reservoir, could provide habitat for Burrowing Owl, which are a state threatened species and are also protected by the MBTA.	
Chestnut-collared Longspur (<i>Calcarius ornatus</i>)	No	Chestnut-collared Longspur is not included in the plan because it is not protected at the state level and it does not occur at Glade Reservoir. The project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection for this species.	

Species	Included?	Justification	Source
Ferruginous Hawk (<i>Buteo regalis</i>)	No	Ferruginous Hawk is not included in the plan because it is a Colorado state species of special concern, which is not a statutory category, and therefore no further action or permitting is required for this species at the state level. Impacts to this species and associated mitigation are addressed in the FEIS and the CPW approved FWMEP. Additionally, the project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection for this species.	
Golden Eagle (<i>Aquila chrysaetos</i>)	Yes	Golden Eagle is included in the plan because it is protected at the federal level by the Bald and Golden Eagle Protection Act and the MBTA and suitable habitat occurs in the study area.	
Lewis's Woodpecker (<i>Melanerpes lewis</i>)	No	Lewis's Woodpecker is not included in the plan because it is not protected at the state level. The project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection for this species.	
Long-billed Curlew (<i>Numenius americanus</i>)	No	Long-billed Curlew is not included in the plan because it is a Colorado state species of special concern, which is not a statutory category, and therefore no further action or permitting is required for this species at the state level. Also, it does not occur at Glade Reservoir. Additionally, the project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection to this species.	
McCown's Longspur (<i>Calcarius mccownii</i>)	No	McCown's Longspur is not included in the plan because it is not protected at the state level and it does not occur at Glade Reservoir. The project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection to this species.	
Mountain Plover (<i>Charadrius montanus</i>)	No	Mountain Plover is not included in the plan because it is a Colorado state species of special concern, which is not a statutory category, and therefore no further action or permitting is required for this species at the state level. Also, it does not occur at Glade Reservoir. Additionally, the project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection for this species.	
Peregrine Falcon (<i>Falco peregrinus</i>)	No	Peregrine Falcon is not included in the plan because it is a Colorado state species of special concern, which is not a statutory category, and therefore no further action or permitting is required for this species at the state level. Impacts to this species and associated mitigation are addressed in the FEIS and the CPW approved FWMEP. Additionally, the project will conduct pre-construction nest surveys in accordance with the MBTA, which will provide additional protection for this species.	

Species	Included?	Justification	Source
Reptiles			
Common Gartersnake (<i>Thamnophis sirtalis</i>)	No	Common garter snake is not included in the plan because Colorado state species of special concern are not a statutory category and therefore no further action or permitting is required for common garter snake at the state level. Impacts to this species and associated mitigation are addressed in the FEIS and the CPW approved FWMEP. Additionally, the project's wetland mitigation, mitigation measures implemented as part of the project's SWMP, and other BMPs will also mitigate for impacts to these species' habitat. Finally, this animal is not noted as contributing to the economic or recreational value of Larimer County.	
Amphibians			
Northern Leopard Frog (<i>Lithobates pipiens</i>)	No	Northern leopard frog is not included in the plan because Colorado state species of special concern are not a statutory category and therefore no further action or permitting is required for Northern Leopard Frog at the state level. Impacts to this species and associated mitigation are addressed in the FEIS and the CPW approved FWMEP. Additionally, the project's wetland mitigation, mitigation measures implemented as part of the project's SWMP, and other BMPs will also mitigate for impacts to these species' habitat. Finally, this animal is not noted as contributing to the economic or recreational value of Larimer County.	
Insects			
Arogros Skipper (<i>Atrytone arogos</i>)	No	Although suitable habitat may exist in the study area, these species are not included in the plan because they are not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for impacts to this species habitat. Additionally, these animals are not noted as contributing to the economic or recreational value of Larimer County.	
Crossline Skipper (<i>Polites origenes</i>)			
Dusted Skipper (<i>Atrytonopsis hianna</i>)			
Hops Feeding Azure (<i>Celastrina humulus</i>)			
Moss's Elfin (<i>Callophrys mossii</i>)			
Mottled Duskywing (<i>Erynnis martialis</i>)			
Ottoe Skipper (<i>Hesperia ottoe</i>)			
Regal Fritillary (<i>Speyeria idalia</i>)			
Rhesus Skipper			

Species	Included?	Justification	Source
(<i>Polites rhesus</i>)			
Simius Roadside Skipper (<i>Amblyscirtes simius</i>)			
Smoky-eyed Brown Butterfly (<i>Satyrodes eurydice fumosa</i>)			
Two-spotted Skipper (<i>Euphyes bimacula</i>)			
Aquatic Life			
Lake Chub (<i>Couesius plumbeus</i>)	No	Lake chub (state listed as endangered) is not included in the plan because no suitable habitat occurs in the study area.	Final Environmental Impact Statement, p. 3-152
Northern Redbelly Dace (<i>Chrosomus eos</i>)	No	Northern redbelly dace (state listed as endangered) is not included in the plan because it is not known to occur in the study area.	
Plains Topminnow (<i>Fundulus sciadicus</i>)	Yes	Plains topminnow (state listed as endangered) is included in the plan because it has a potential to occur in the study area.	
Suckermouth Minnow (<i>Phenacobius mirabilis</i>)	No	Suckermouth minnow (state listed as endangered) is not included in the plan because no suitable habitat occurs in the study area.	
Brassy Minnow (<i>Hybognathus hankinsoni</i>)	No	Brassy minnow (state listed as threatened) is not included in the plan because no suitable habitat occurs in the study area.	
Common Shiner (<i>Luxilus cornutus</i>)	Yes	Common shiner (state listed as threatened) is included in the plan because it has a potential to occur in the study area.	
Iowa Darter (<i>Etheostoma exile</i>)	No	Although the Iowa darter has the potential to occur in the study area, it is not included in the plan because Colorado state species of special concern are not a statutory category and therefore no further action or permitting is required for Iowa darter at the state level. Additionally, mitigation measures implemented as part of the project's SWMP and other BMPs will also mitigate for impacts to this species habitat.	
Orangespotted Sunfish (<i>Lepomis humilis</i>)	No	Orangespotted sunfish is not included in the plan because they are not protected at the state or federal level. Additionally, mitigation measures implemented as part of the project's SWMP and other BMPs will also mitigate for impacts to this species habitat.	
Cylindrical Papershell (<i>Anodontoides ferussacianus</i>)	No	Cylindrical papershell is not included in the plan because Colorado state species of special concern are not a statutory category and therefore no further action or permitting is required for cylindrical papershell at the state level. Additionally, no suitable habitat occurs in the study area.	

Species	Included?	Justification	Source
Macroinvertebrates	No	Macroinvertebrates are not included in the plan because they are not protected at the state or federal level. Additionally, mitigation measures implemented as part of the project's SWMP and other BMPs will also mitigate for impacts to these species' habitat.	Final Environmental Impact Statement, p. 3-166 through 3-167
Other Fish Species	No	Other fish species are not included in the plan because they are not protected at the state or federal level. Additionally, mitigation measures implemented as part of the project's SWMP and other BMPs will also mitigate for any impacts anticipated to these species' habitat.	Final Environmental Impact Statement, p. 3-165
Rare Plants (although plants are not wildlife, they are included since they enhance wildlife habitat)			
Colorado Butterfly Plant (<i>Oenothera coloradensis</i>)	No	Colorado butterfly plant (previously federally listed as threatened) is not included in the plan because, although limited habitat is present, the species is unlikely to occur, and it was not found during vegetation surveys of the Glade Reservoir study area.	Final Environmental Impact Statement, p. 3-149
Ute Ladies'-tresses Orchid (<i>Spiranthes diluvialis</i>)	Yes	Ute ladies'-tresses orchid (federally listed as threatened) is included in the plan because, although limited habitat is present, the species was documented in 2019 surveys at the PVC-Hanson Channel and Riparian Improvements site along the Poudre River southwest of Glade Reservoir.	
Western Prairie Fringed Orchid (<i>Platanthera praeclara</i>)	Yes	The following downstream species, the western prairie fringed orchid, is included in the plan because depletions to the Poudre River associated with the project have the potential to affect this federally listed threatened species and its designated critical habitat in Nebraska.	Final Environmental Impact Statement, p. 3-150
American Currant (<i>Ribes americanum</i>)	No	American currant is not included in the plan because it is not protected at the state or federal level and Glade Reservoir is not included as a possible occurrence location for them. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for any impacts anticipated to this species habitat.	Final Environmental Impact Statement, p. 3-153
American Yellow Lady's Slipper (<i>Cypripedium calceolus</i> ssp. <i>parviflorum</i>)	No	Although historical (before 2000) observations were recorded in or in proximity to the Glade Reservoir, American yellow lady's slipper is not included in the plan because it is not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for any impacts anticipated to this species habitat.	

Species	Included?	Justification	Source
Bell's Twinpod (<i>Physaria bellii</i>)	No	Bell's twinpod is not included in the plan because it is not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for any impacts anticipated to this species habitat.	
Dwarf Milkweed (<i>Asclepias uncialis</i> ssp. <i>uncialis</i>)	No	Dwarf milkweed is not included in the plan because it is not protected at the state or federal level and Glade Reservoir is not included as a possible occurrence location for them. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for any impacts anticipated to this species habitat.	
Lavender Hyssop (<i>Agastache foeniculum</i>)	No	Although historical (before 2000) observations were recorded in or in proximity to the Glade Reservoir, lavender hyssop is not included in the plan because it is not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for any impacts anticipated to this species habitat.	
Rocky Mountain Sedge (<i>Carex saximontana</i>)	No	Although potential habitat may be present in or in proximity to the Glade Reservoir, Rocky Mountain Sedge is not included in the plan because it is not protected at the state or federal level. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for any impacts anticipated to this species habitat.	
Slim-pod Venus' Looking Glass (<i>Triodanis leptocarpa</i>)	No	Slim-pod Venus' looking glass is not included in the plan because it is not protected at the state or federal level and Glade Reservoir is not included as a possible occurrence location for them. Mitigation measures implemented as part of the project and other BMPs will also help mitigate for any impacts anticipated to this species habitat.	

Notes:

This species summary list was compiled from the species discussed in the NISP FEIS.

Figures

Glade Reservoir
170,000 acre-feet

U.S. Highway 287
Realignment

Wellington

Poudre Valley Canal



Galeton Reservoir
45,600 acre-feet

Horsetooth Reservoir

Fort Collins

NISP Delivery Pipeline

Ault

Galeton Pipeline

Larimer & Weld Canal

Severance

Eaton

Windsor

New Cache Canal

Loveland

Greeley

Cache la Poudre River

Big Thompson River

South Platte River

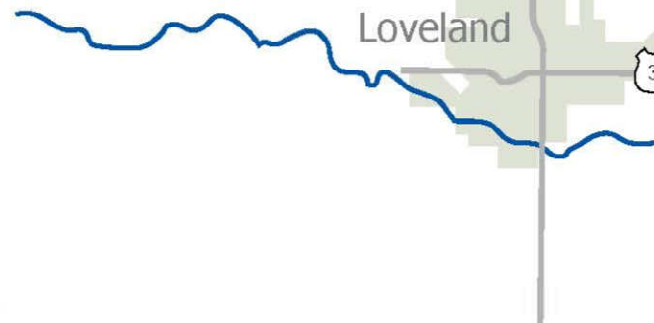


Figure 3-32. Deer Habitat at Glade Reservoir and U.S. 287 Realignment Study Areas.

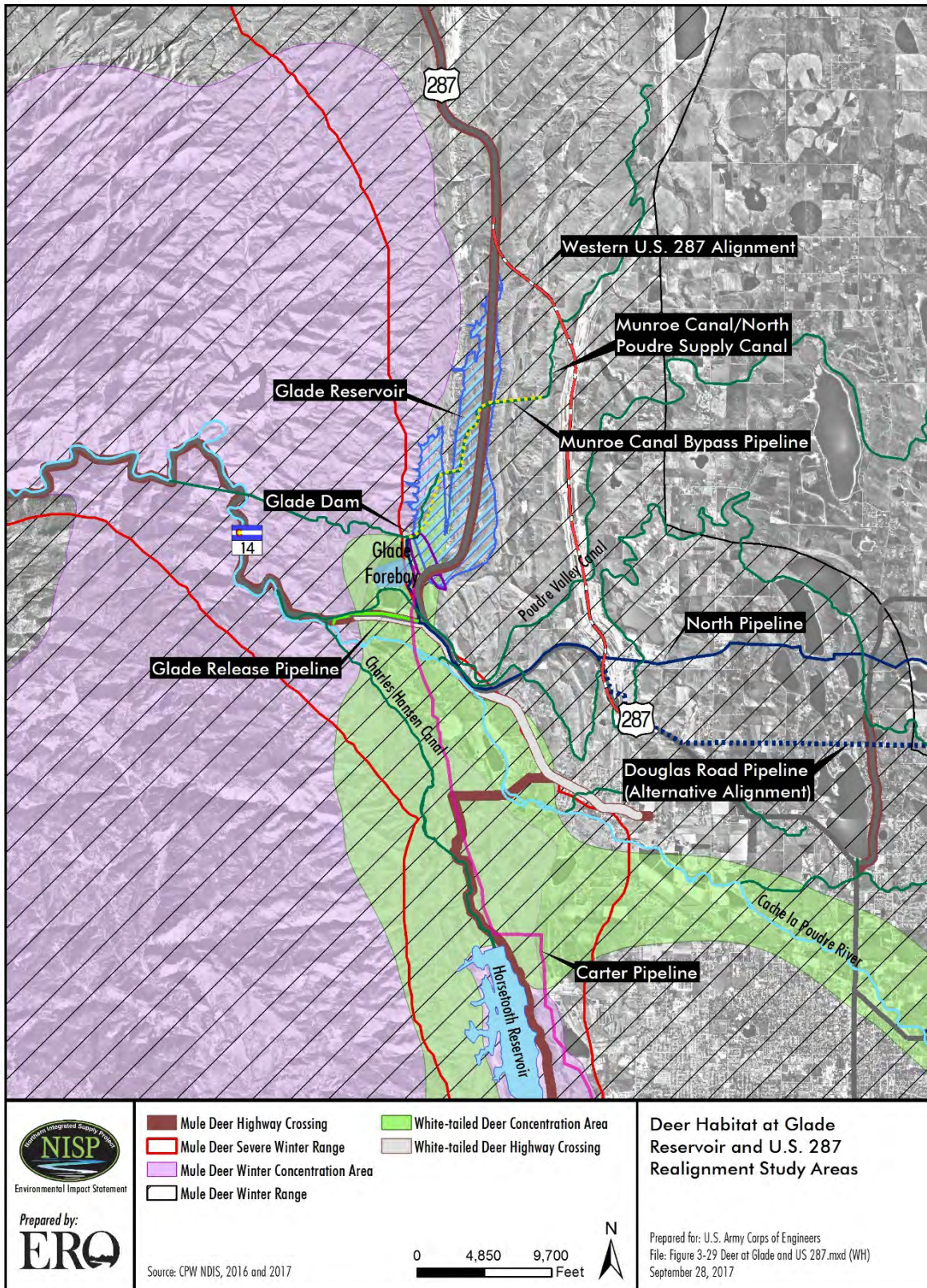


Figure 3-33. Elk and Pronghorn Habitat at Glade Reservoir and U.S. 287 Realignment Study Areas.

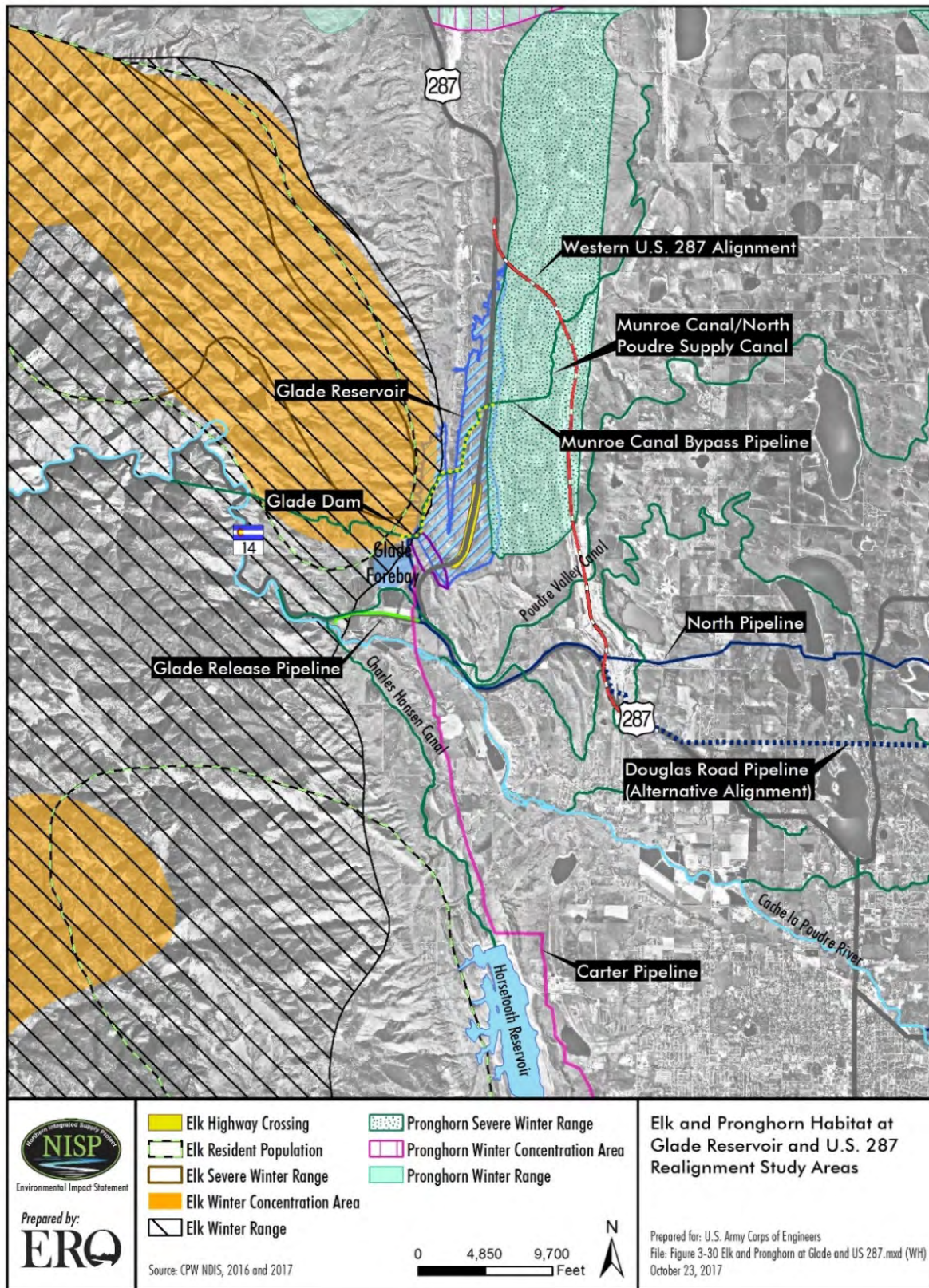


Figure 3-34. Mule Deer Habitat in Study Areas.

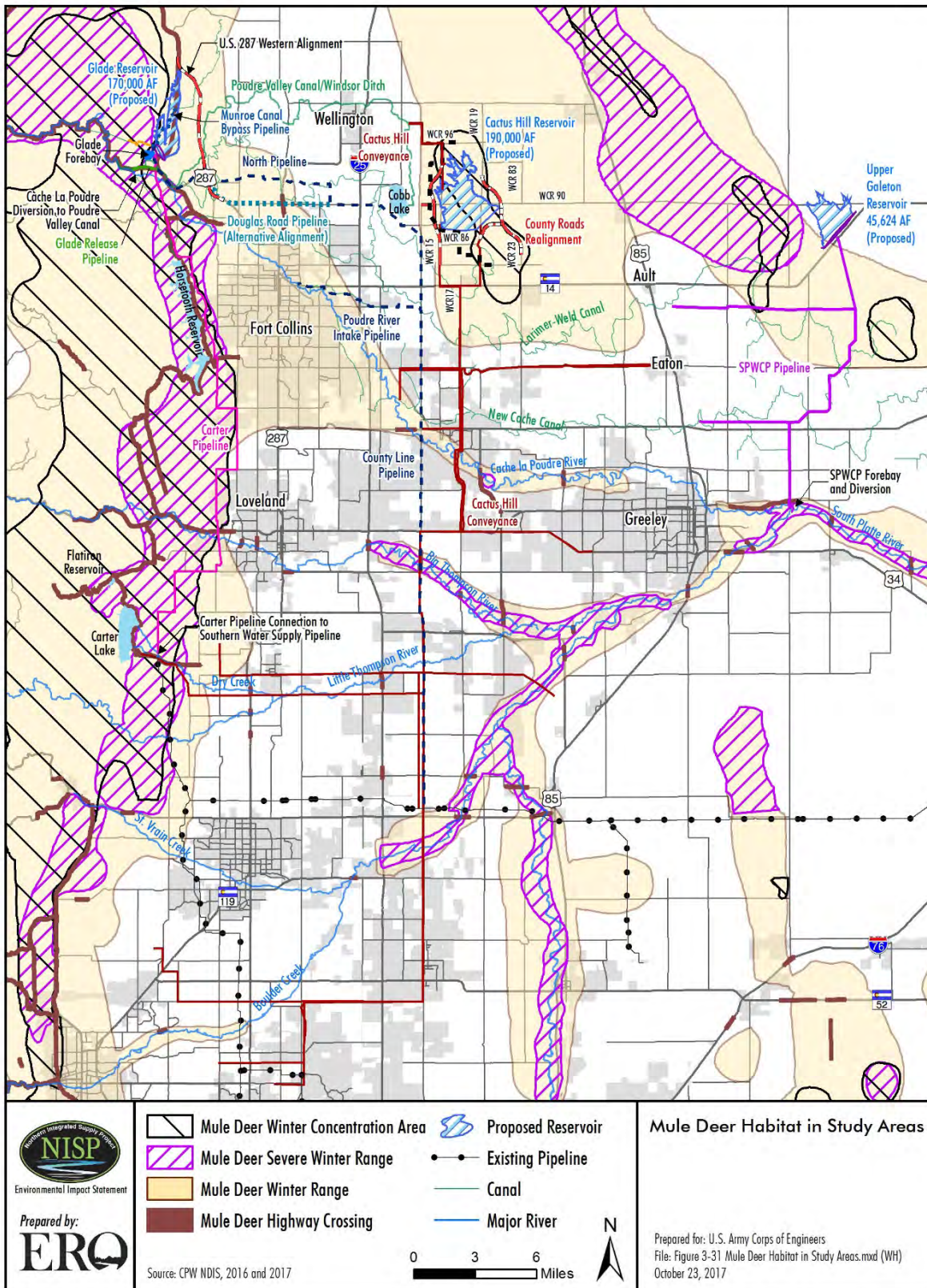


Figure 3-35. White-tailed Deer Habitat in the Study Areas.

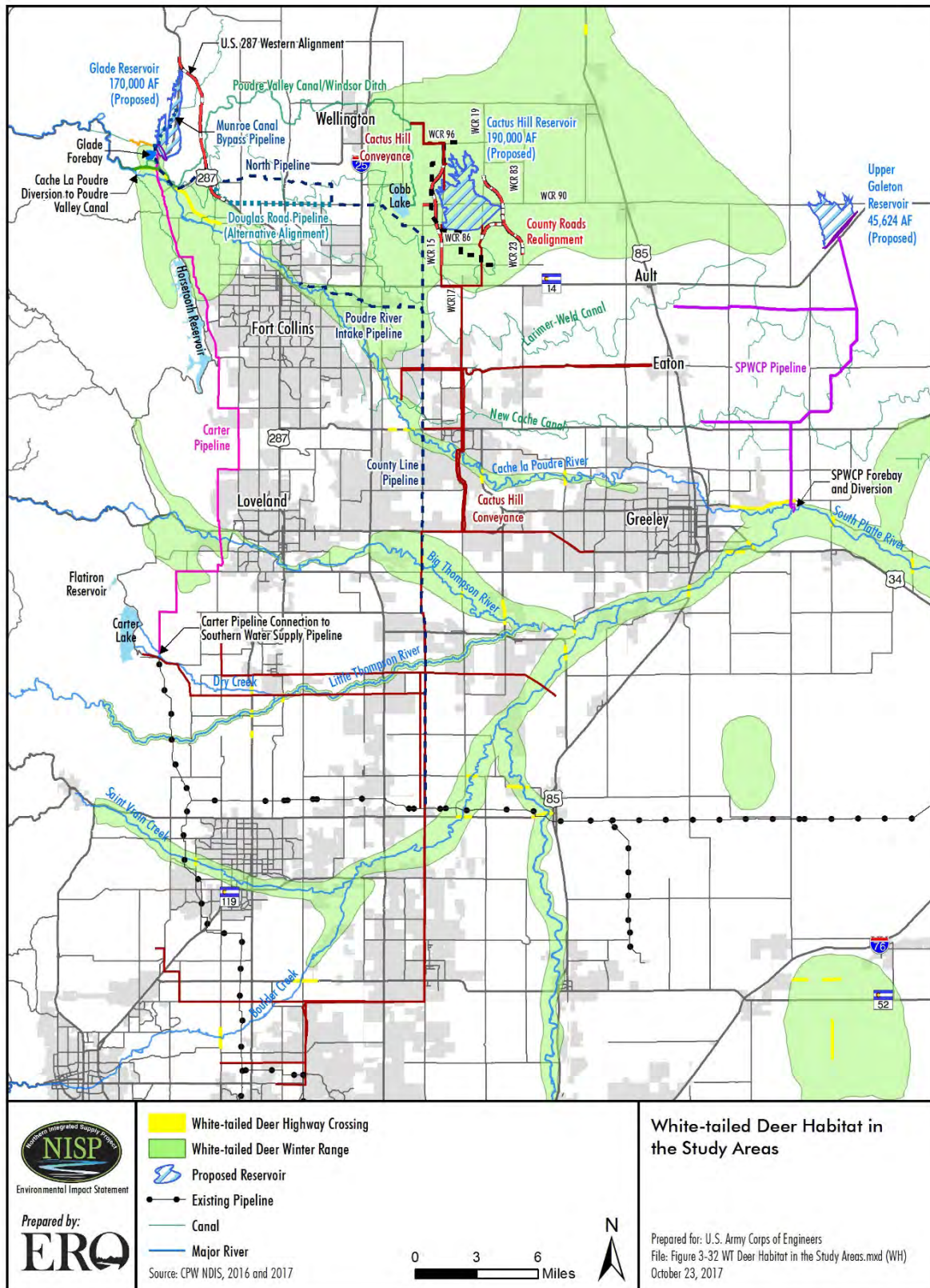


Figure 3-36. Elk and Pronghorn Habitat in the Study Areas.

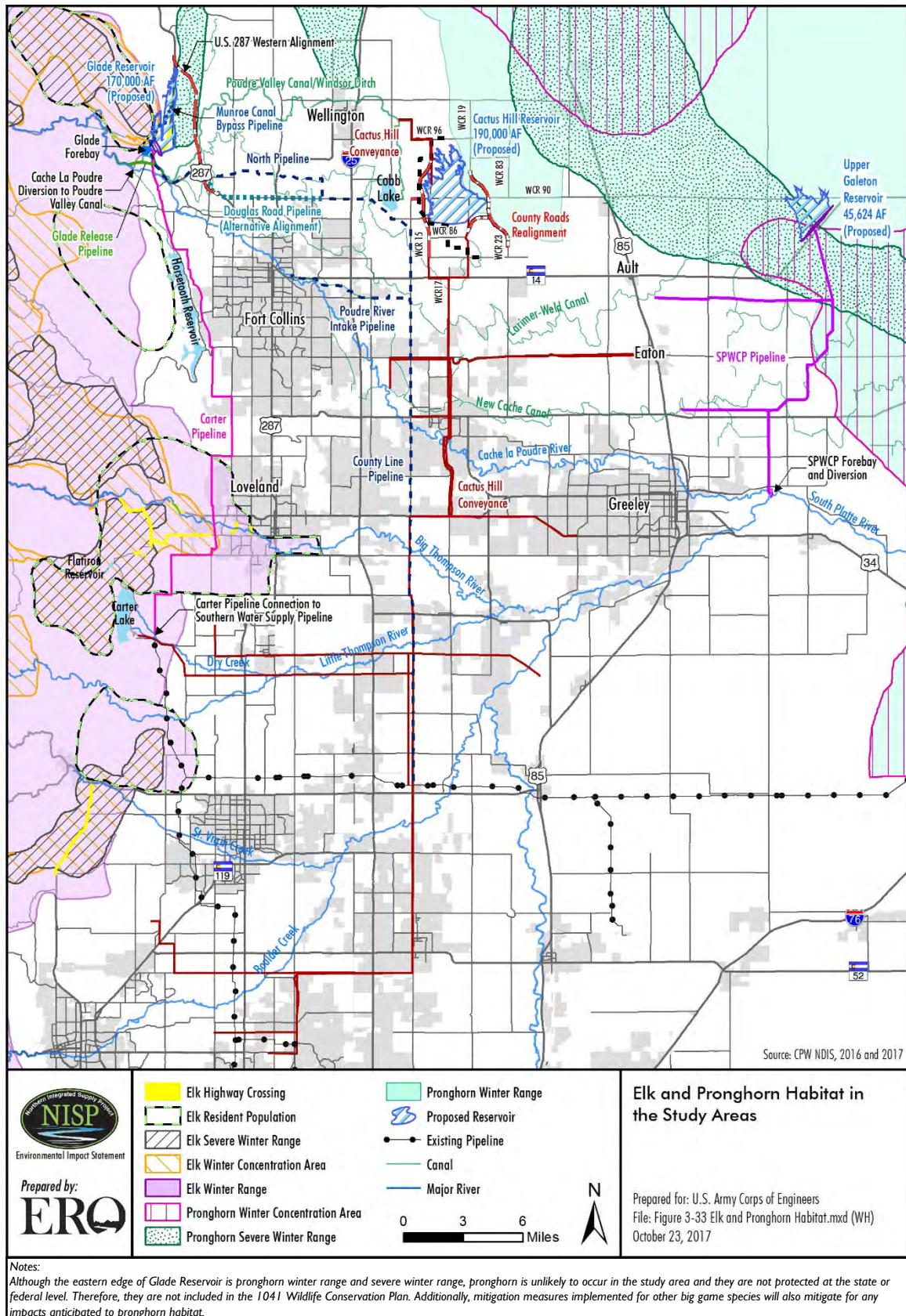


Figure 3-37. Overview of Threatened and Endangered Species and Bald Eagle Habitat in the Glade Reservoir Study Area.

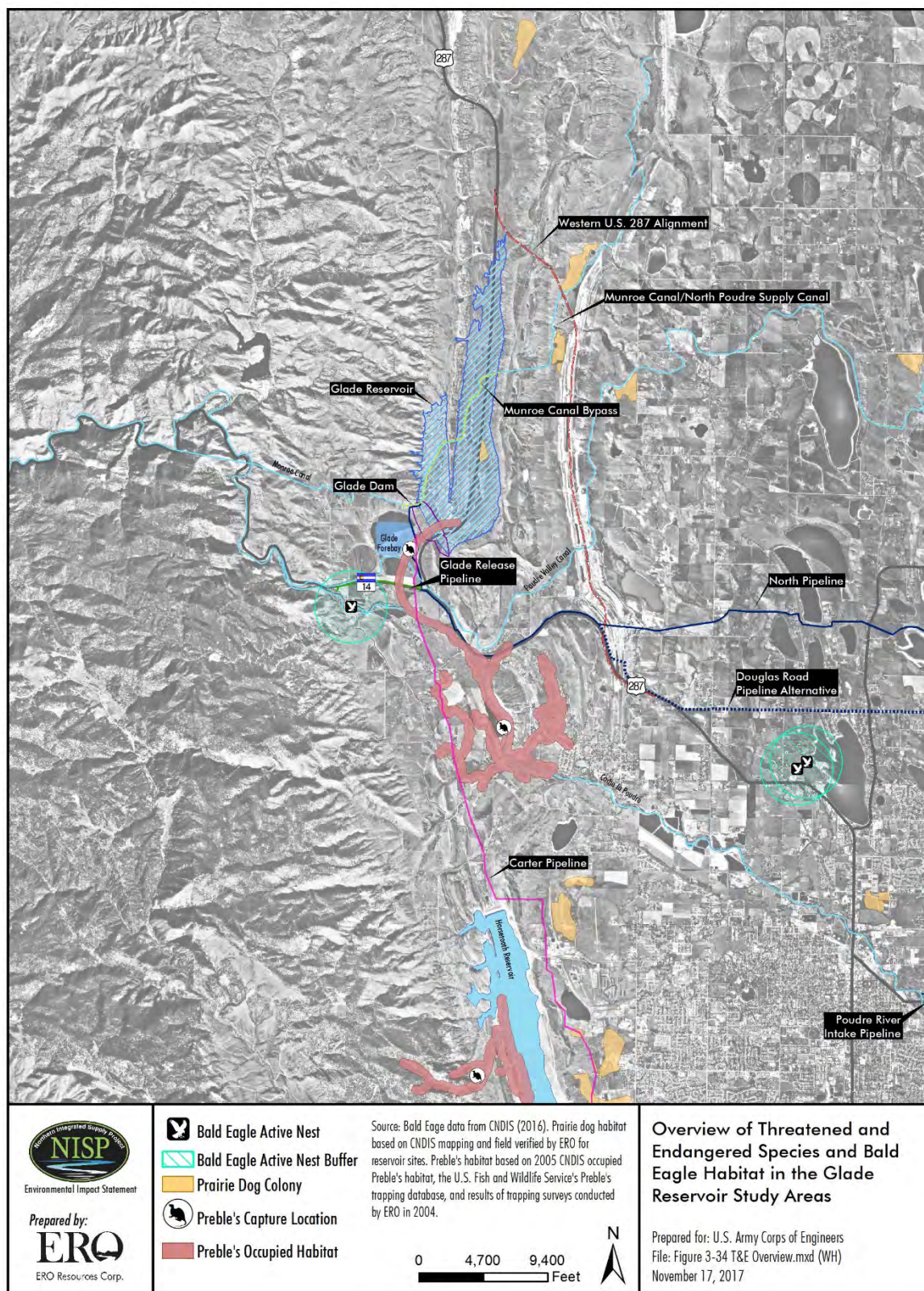


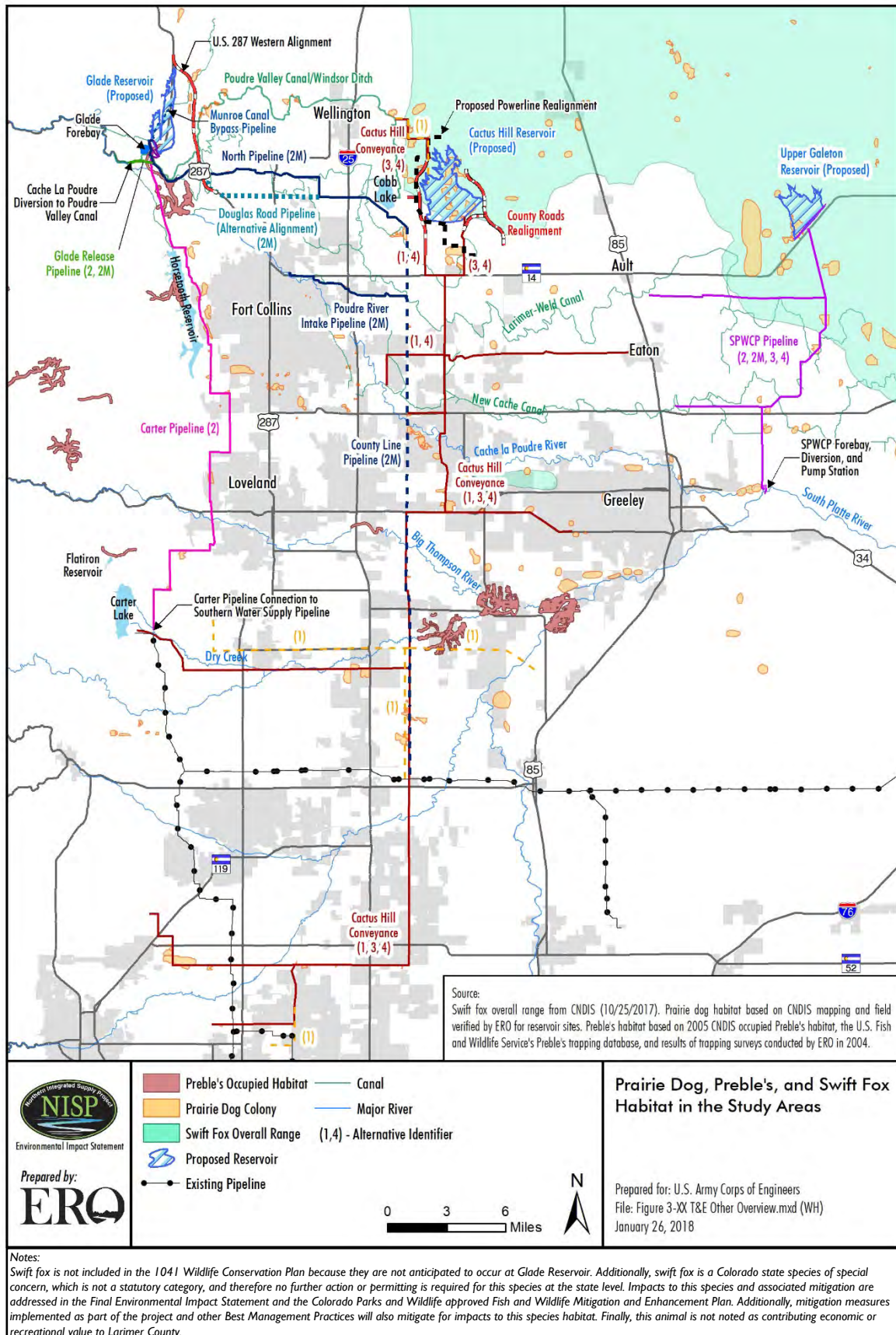
Figure 3-38. Prairie dog, Preble's, and Swift Fox Habitat in the Study Areas.

Figure 3-39. Bald Eagle Habitat in the Study Areas.