FrontRunner Forward

North of American Fork Double Track Project

Biological Assessment

March 2026

The U.S. Fish and Wildlife Service concurs with your determination that the proposed action *may affect, and is not likely to adversely affect*:
Species: Ute ladies'-tresses (*Spiranthes diluvialis*),

June sucker (Chasmistes liorus)

Critical Habitat: None

The proposed action is expected to be:
Insignificant X___ Discountable X___ Beneficial ___

The U.S. Fish and Wildlife Service concurs with your determination that the action is *not likely to jeopardize the continuing existence of*:
Species: Monarch butterfly (*Danaus plexippus*); Suckley's cuckoo bumble bee (*Bombus suckleyi*)

GEORGE WEEKLEY Digitally signed by GEORGE WEEKLEY
Date: 2026.03.30 14:44:15 -06'00'

U.S. Fish and Wildlife Utah Field Supervisor

Office Code: 06E23000 Project Code: 2025-0111318

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Abbreviations

CE	categorical exclusion
CFR	*Code of Federal Regulations*
ESA	Endangered Species Act
FTA	Federal Transit Administration
GIS	geographic information systems
IPaC	Information, Planning, and Conservation System
ML	mainline
No.	number
Project	North of American Fork Double Track Project
spp.	multiple unknown or unspecified species within a genus
SWPPP	stormwater pollution prevention plan
TCE	temporary construction easement
UDOT	Utah Department of Transportation
UDWR	Utah Division of Wildlife Resources
UP	Union Pacific Railroad
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTA	Utah Transit Authority

Introduction

The Utah Transit Authority (UTA) and the Utah Department of Transportation (UDOT) are constructing a second track along about 8 miles of existing single track on the FrontRunner commuter rail line from UTA milepost 26 S south to UTA milepost 34 S in the cities of American Fork, Lehi, and Lindon in Utah County, Utah. The North of American Fork Double Track Project is one of many projects under the FrontRunner Forward Program (also known as the FrontRunner 2X project), which includes double tracking and realigning certain sections of FrontRunner and constructing a new infill station.

This biological assessment analyzes the expected effects of the Project on listed species and/or their designated and proposed critical habitat under the provisions of the federal Endangered Species Act (ESA). The Project is receiving funds from the Federal Transit Administration (FTA) and requires Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS).

Project Description

The anticipated track work consists of constructing 41,900 track-feet of a new FrontRunner UTA mainline (ML) number (No.) 2 west of the existing UTA ML No. 1, shifting about 5,500 track-feet of the existing UTA ML No. 1, removing two No. 20 power-operated turnouts, installing one No. 20 double crossover, constructing 9,200 track-feet of retaining walls, constructing a new bridge over the American Fork River, constructing a new box culvert at the Waste Ditch, extending multiple culverts to accommodate the widened track bed, relocating utilities including a signal house adjacent to 5750 West in American Fork and a signal house north of 2100 North in Lehi, and widening the existing track bed. Both permanent right-of-way acquisition and temporary construction easements (TCEs) would be required for the Project.

The additional length of double track would further improve reliability and reduce delays on FrontRunner between the existing Lehi and Orem Central Stations.

Construction Schedule

The Project would be constructed in phases between about December 2026 and September 2029.

Conservation Measures

Conservation measures for the Project will consist of the following:

- Removing vegetation could introduce noxious species into the surrounding areas. To prevent further, permanent effects, UTA and UDOT will minimize temporary impacts to vegetation once construction is complete and no further disturbance is anticipated.
- All fill materials brought onto the construction site will be required to be free of contamination from chemical or petroleum products per UDOT's *Standard Specifications for Road and Bridge Construction* (UDOT's Standard Specifications; UDOT 2025), Section 02056, Embankment, Borrow, and Backfill. Topsoil for landscaping must also be free of weeds and other undesirable plants that have germinated and are actively growing per UDOT's Standard Specifications, Section 02912, Topsoil.
- All disturbed areas will be revegetated with species native to the area and non-native species or seed mixtures approved by the action agency and USFWS. Seed mixtures may include approved non-native species that are not likely to invade other areas or persist long-term in the habitat. If

appropriate for the site, biological soil crusts are recommended to be incorporated into the reclamation process in addition to native seeds.

- Compacted soils will be ripped, stabilized, and reseeded.
- The contractor will be required to follow noxious weed mitigation and control measures identified in the most recent version of UDOT's Standard Specifications, Section 02924, Noxious Weed Control.
- Because more than 1 acre of ground would be disturbed by the Project, the Project would require a Utah Pollutant Discharge Elimination System (UPDES) General Stormwater Discharge Permit and a stormwater pollution prevention plan (SWPPP) consistent with UDOT's Standard Specifications, Section 01355, Environmental Compliance, Part 1.13, Stormwater Management Compliance. The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. Restoration efforts will also be monitored to ensure successful revegetation as typically required by an SWPPP.
- Construction near the American Fork River will occur outside the June sucker spawning avoidance period from April 15 to July 31.
- Construction would generate fugitive dust from demolition, excavation, pile driving, paving, and other construction activities. When controlling dust is necessary to protect motorists or area residents as well as vegetation communities, UTA and UDOT, or their contractor, will take measures to reduce fugitive dust generated by construction. Dust-suppression techniques such as watering or chemical stabilization of exposed soil, conducting opacity observations and checks, washing vehicle tires, or using other dust-minimization techniques approved by the Utah Division of Air Quality will be applied by UTA and UDOT, or their contractor, during construction in accordance with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.10, Fugitive Emissions and Fugitive Dust, and Standard Specification 01572, Dust Control and Watering (UDOT 2025). Only water (no chemicals, reclaimed production water, or oil field brine) will be used for dust-abatement measures near suitable habitat. Dust abatement will occur throughout the flowering season (late July to early September).
- Project design will avoid alterations to site hydrology and concentrating water flows or sediments into occupied habitat.
- UTA and UDOT will conduct 3 more years of clearance surveys for Ute ladies'-tresses. All surveys will be conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a).
- Potentially suitable Ute ladies'-tresses habitat identified adjacent to the rail corridor and project footprint will be flagged and protected. Construction crews will be provided information about the importance of containing all work activities to the rail corridor and project footprint and will be instructed that no disturbance can occur outside the project footprint or in areas flagged for protection.

On January 7, 2025, USFWS issued a proposed rule to remove Ute ladies'-tresses from the Federal List of Endangered and Threatened Plants. If the species is delisted, the future planned surveys will still be required or conducted, because this would support the post-delisting monitoring plan for the species. Ute ladies'-tresses conservation measures will also still apply during the Project.

Project Action Area

The ESA regulations define the action area as all areas that would be affected directly or indirectly by the federal action (50 *Code of Federal Regulations* [CFR] Section 402.02). In this biological assessment, specific action areas are defined for federally listed plants, fish, wildlife, and insects because not all impacts from construction and operation would occur equally across these taxa. The action areas for the plants, fish, birds, and insects evaluated in the following sections are described below.

- *Plants.* The *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) stipulates that a 300-foot buffer be applied to a project footprint to account for potential indirect impacts to plants. Therefore, the action area for plants consists of the Project's footprint plus a 300-foot buffer.
- *Fish.* The action area for fish consists of streams and other surface waters in the Project's footprint.
- *Birds.* The action area for birds consists of the Project's footprint plus a 0.5-mile buffer.
- *Insects.* The action area for insects consists of the Project's footprint.

The action areas are located in the Moist Wasatch Front Footslopes subregion of the Central Basin and Range Ecoregion (Woods and others 2001). The subregion supports most of Utah's population and commercial activity and is fed by perennial streams and aqueducts that originate in the Wasatch Range. The action areas are in the Utah Lake watershed, hydrologic unit code 16020201 (USGS 2025). The American Fork River crosses the project area at about 430 South in American Fork.

The action areas consist primarily of existing UTA FrontRunner and Union Pacific Railroad (UP) tracks, disturbed upland areas, commercial and residential development, several small wetlands, and a riparian community adjacent to the American Fork River. Common plant species observed in the upland areas include common reed (*Phragmites australis*), Woods' rose (*Rosa woodsii*), narrowleaf willow (*Salix exigua*), Russian olive (*Elaeagnus angustifolia*), whitetop (*Cardaria draba*), rubber rabbitbrush (*Ericameria nauseosa*), cheatgrass (*Bromus tectorum*), and other upland grass species.

Dominant species observed in the wetland areas include broadleaf cattail (*Typha latifolia*), hardstem bullrush (*Schoenoplectus acutus*), Virginia creeper (*Parthenocissus quinquefolia*), common reed, mountain rush (*Juncus arcticus littoralis*), saltgrass (*Distichlis spicata*), Canada thistle (*Cirsium arvense*), and reed canarygrass (*Phalaris arundinacea*). The riparian community adjacent to the American Fork River includes boxelder (*Acer negundo*), Fremont cottonwood (*Populus fremontii*), crack willow (*Salix fragilis*), and narrowleaf willow.

Federally Listed Species Considered

USFWS's Information, Planning, and Conservation System (IPaC) website was used to obtain a list of federally threatened, endangered, or candidate species that might occur in the action areas and/or might be affected by the Project (USFWS 2025a). The IPaC report is provided as Appendix A, *IPaC Report*.

The IPaC report identified three federally listed species that might occur in the action areas and/or might be affected by the Project: one bird species, yellow-billed cuckoo (*Coccyzus americanus*); one fish species, June sucker (*Chasmistes liorus*); and one plant species, Ute ladies'-tresses. The IPaC report also identified two insect species that are proposed to be listed under the ESA: monarch butterfly (*Danaus plexippus*) and Suckley's cuckoo bumble bee (*Bombus suckleyi*). The action areas do not include designated or proposed critical habitat for any of these species.

Table 1 describes the preferred habitat for each species. Biologists conducted field surveys for wildlife; vegetation; rare, threatened, and endangered species; and aquatic resources on May 19 and August 9, 2024, and May 23 and November 26, 2025. There is no suitable habitat in the action area for yellow-billed cuckoo. Potentially suitable habitat exists in the action areas for Ute ladies'-tresses, June sucker, monarch butterfly, and Suckley's cuckoo bumble bee.

Species Dismissed from Further Consideration

Yellow-billed cuckoo was eliminated from further evaluation because habitat surveys found no suitable habitat for this species in the action area for birds. Consequently, the Project would have **no effect** on yellow-billed cuckoo.

Potentially suitable habitat for monarch butterfly was identified in the action area for insects; however, the proposed critical habitat for this species is outside this action area. For this reason, the Project would not jeopardize the continued existence of monarch butterflies.

Potentially suitable nesting and foraging habitat for Suckley's cuckoo bumble bee was identified in the action area for insects. However, critical habitat has not been proposed for this species, and it has not been observed in the United States since 2016 (USFWS 2024). Given the broad nature of potentially suitable nesting and foraging habitat, the lack of observations in the United States, and the fact that critical habitat has not been proposed, the Project would not jeopardize the continued existence of Suckley's cuckoo bumble bees.

Species Carried Forward for Evaluation

Potentially suitable habitat for June sucker was identified in the action area for fish, and potentially suitable habitat for Ute ladies'-tresses was identified in the action area for plants. Therefore, these species have the potential to occur in or near the project area and are carried forward for evaluation in this biological assessment.

Table 1. Federally listed species that might occur in the action areas and/or might be affected by the Project

Common Name[a] (Scientific Name)	Federal Status	Preferred Habitat[b]	Critical Habitat Present?[c]	Potentially Suitable Habitat Present?
Birds				
Yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	Yellow-billed cuckoos prefer to nest in tall cottonwood and willow riparian woodland with dense understory foliage. They prefer patches of at least 25 acres of dense riparian forest with a canopy cover of at least 50% in both the understory and overstory. USFWS's suitable habitat guidelines for this species for Utah require patches of multilayered vegetation that are at least 12 acres in extent and at least 100 meters (328 feet) wide by 100 meters long (USFWS 2017b).	Final critical habitat has been designated for this species. The action area for birds is outside the critical habitat.	There is no suitable habitat in the action area for birds. The existing riparian vegetation does not meet habitat size requirements.
Fish				
June sucker (*Chasmistes liorus*)	Threatened	June suckers are endemic to Utah Lake and the lower reaches of its tributaries, which are the primary spawning habitat for the species (primarily the Provo River, but also Hobble Creek and, to a lesser extent, the Spanish Fork River and the American Fork River). A refuge population was established in Red Butte Reservoir in Salt Lake County, Utah.	Final critical habitat has been designated for this species. The action area for fish is outside the critical habitat.	Potentially suitable habitat exists in the action area for fish in the American Fork River. Suitable habitat is also available downstream in Utah Lake.
Insects				
Monarch butterfly (*Danaus plexippus*)	Proposed[d] Threatened	In the spring, summer, and early fall, monarch butterflies can be found wherever there are milkweeds in fields, meadows, and parks. They overwinter in the cool, high mountains of central Mexico and woodlands in central and southern California. Milkweed (*Asclepias* spp.) is an essential feature of quality monarch habitat. Female monarch butterflies lay their eggs on the underside of young leaves or flower buds of milkweed. Common places milkweed occurs include short- and tall-grass prairies, livestock pastures, agricultural margins, roadsides, wetland and riparian areas, sandy areas, and gardens. In addition to milkweed, other nectar sources, trees for roosting, and close proximity to water are key components of monarch habitat (Western Association of Fish and Wildlife Agencies 2019).	There is proposed critical habitat for this species. The action area for insects is outside the critical habitat.	Potentially suitable habitat exists in the action area for insects. Milkweed plants were observed growing in the action area for insects.

(*Continued on next page*)

Table 1. Federally listed species that might occur in the action areas and/or might be affected by the Project

Common Name[a] (Scientific Name)	Federal Status	Preferred Habitat[b]	Critical Habitat Present?[c]	Potentially Suitable Habitat Present?
Suckley's cuckoo bumble bee (*Bombus suckleyi*)	Proposed[d] Endangered	Suckley's cuckoo bumble bee is an obligate parasitic species that is entirely dependent on the workers of host colonies to raise their young. Suckley's cuckoo bumble bee has two confirmed hosts, the western bumble bee (*Bombus occidentalis*) and the Nevada bumble bee (*Bombus nevadensis*); the western bumble bee is the most widely known host. Western bumble bees are known to nest primarily in underground cavities and abandoned animal burrows more often than they do in aboveground structures. Suckley's cuckoo bumble bee has a broad distribution across North America, primarily in the western half of the United States and the Yukon of Canada. It has been found between 6 and 10,500 feet in elevation in various habitat types including prairies, grasslands, meadows, woodlands, forests, croplands, and urban areas from 6 to 10,500 feet in elevation. Suckley's cuckoo bumble bees require a diversity of native floral resources (pollen and nectar) for nutrition (USFWS 2024).	Critical habitat has not been designated for this species.	Potentially suitable habitat exists in the action area for insects. The area offers potential nesting sites and diverse native floral resources for foraging.
Plants				
Ute ladies'-tresses (*Spiranthes diluvialis*)	Threatened	This white-flowered orchid is found below 7,000 feet in elevation in moist to very wet meadows, along streams, in abandoned stream meanders, and near springs, seeps, and lake shores where competition for light, space, water, and other resources is normally kept low by periodic or recent disturbance. Ute ladies'-tresses are also known to occur in seasonally flooded river terraces, subirrigated or spring-fed abandoned stream channels and valleys, and lake shores. Populations have also been observed along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands (Fertig and others 2005).	Critical habitat has not been designated for this species.	A total of 6.02 acres of potentially suitable habitat were identified in wetlands at the south end of the action area for plants (Area A), in pastures southeast of the American Fork River in the action area for plants (Area B), and in a pasture near the center of the action area for plants (Area C).

[a] Source: Species list from USFWS 2025a

[b] Sources: Audubon, no date; Cornell Lab of Ornithology 2019; NatureServe, no date; UDWR, no date; Utah Native Plant Society, no date; and recovery plans found in the USFWS Environmental Conservation Online System (USFWS 2025b)

[c] "Critical habitat" is a term defined in the ESA (Section 3(5)(A)); it refers to specific areas that contain physical or biological features that are essential to the conservation of a species and that might need special management or protection.

[d] A "proposed" species is any species that USFWS has determined is likely to become endangered within the foreseeable future throughout all or a significant portion of its range or is in danger of extinction throughout all or a significant portion of its range, and USFWS has proposed a draft rule to list the species as threatened or endangered. Proposed species are not protected by the take prohibitions of Section 9 of the ESA until the rule to list is finalized. Under Section 7(a)(4) of the ESA, "Federal agencies must confer with the [USFWS] if their action will jeopardize the continued existence of a proposed species" (USFWS 2025c).

Environmental Baseline

June Sucker Biology

Description

June suckers are a large long-lived lake sucker species endemic to Utah Lake. They weigh an average of 5 pounds, are generally between 17 and 24 inches long, and have a round head with a hump on the snout (86 *Federal Register* 192). June suckers congregate near the mouth of Utah Lake's tributaries in April and May, preparing to swim upstream from Utah Lake to spawn, usually in May and June. Spawning is usually completed within 5 to 8 days, after which larvae drift downstream to rear in shallow vegetated habitats near tributary mouths in Utah Lake, eventually returning to Utah Lake (86 *Federal Register* 192–194).

Status and Trends

June suckers were listed as endangered with critical habitat under the ESA on April 30, 1986 (51 *Federal Register* 10851–10857). The lower 4.9 miles of the Provo River were designated as critical habitat. It was suspected that there were less than 1,000 adult individuals at the time of listing. The decline in abundance of June suckers was attributed to habitat modification (water diversions), reduced water quality, competition and predation from exotic species, commercial fishing, and death of adult fish during spawning.

Due to recovery efforts, including captive rearing and stocking and restoration of tributary spawning habitat, the adult spawning population has grown since the time of listing (51 *Federal Register* 10851–10857; Landom and others 2013), so much so that USFWS reclassified June suckers from endangered to threatened on February 3, 2021 (86 *Federal Register* 192–212). Despite recovery efforts, June suckers still face competition and predation from exotic species, and altered tributary flows and lake water levels, poor water quality, and river channelization have reduced the amount of spawning and rearing habitat, thereby reducing the survival of June suckers during early life stages.

Habitat

June suckers are endemic to Utah Lake and the lower reaches of its tributaries, which are the primary spawning habitat for the species (primarily the Provo River, but also Hobble Creek and, to a lesser extent, the Spanish Fork River and the American Fork River). These streams are typically snowmelt-fed and exhibit substantial year-to-year variability in flow and water quality due to snowpack fluctuations, irrigation withdrawals, and urban runoff. Spawning habitat consists of moderately deep runs and riffles in slow to moderate currents. The substrate for spawning habitat is composed of coarse gravel or small cobble that is free of silt and algae. June sucker larvae rear in shallow vegetated areas in Utah Lake near the mouths of tributaries. Juvenile fish migrate into Utah Lake and use aquatic vegetation for cover, whereas adult fish are distributed throughout the lake (86 *Federal Register* 194).

Ute Ladies'-tresses Biology

Description

Ute ladies'-tresses are a perennial, terrestrial orchid with erect stems that are 4 to 23 inches tall and arise from tuberous, thickened roots. Basal leaves are narrow, linear, and about 11 inches long, with leaves that become progressively smaller up the stem (Fertig and others 2005; USFWS 1992). Flowers consist of 3 to 15 small, white or ivory-colored flowers clustered into a 1-to-6-inch spike at the top of the stem. The plants typically bloom from early July through late October (Fertig and others 2005). Ute ladies'-tresses are thought to reproduce exclusively by seed. The life cycle of Ute ladies'-tresses consists of four stages: seedling, dormant, vegetative, and reproductive (flowering or fruiting) (Fertig and others 2005).

Status and Trends

Ute ladies'-tresses were listed as threatened under the ESA on January 17, 1992 (57 *Federal Register* 2048). At the time of listing, the species was reported from 10 existing populations and 7 historic locations known in Colorado, Nevada, and Utah. The species was considered vulnerable to extinction from habitat loss and modification, small population size, and low reproductive rate. Since 1992, the known range has expanded to include Idaho, Montana, Nebraska, Washington, and Wyoming and includes nearly 100 different locations (Fertig and others 2005).

At the time of listing, existing populations of Ute ladies'-tresses in Utah were found in Daggett, Duchesne, Garfield, Uintah, Utah, and Wayne Counties, and historical occurrences were known from Salt Lake, Tooele, and Weber Counties (Fertig and others 2005). These populations were dispersed across 10 different watersheds (Duchesne, Escalante, Fremont, Jordan, Lower Green, Lower Weber, Southern Great Salt Lake Desert, Spanish Fork, Upper Green–Flaming Gorge Reservoir, and Utah Lake). Since 1992, a dozen new sites have been documented for this species along the Wasatch Front and in the Uinta Basin. These sites extend the known range of Ute ladies'-tresses into Wasatch County and the Ashley-Brush, Provo, and Strawberry watersheds (Fertig and others 2005).

A draft recovery plan was written for this species in 1995 but has not been finalized (USFWS 1995). USFWS has recommended Ute ladies'-tresses be delisted as of August 2023 (USFWS 2023a).

Habitat

The *Species Status Assessment Report for Ute Ladies'-tresses (Spiranthes diluvialis)* (USFWS 2023b) describes adequate soil moisture, direct sunlight, pollinators, and mycorrhizae as critical needs for Ute ladies'-tresses. Adequate soil moisture can come from surface or subsurface water, but it needs to provide a year-round hydrologic regime that supplies consistent soil moisture without prolonged inundation. Direct sunlight is also a critical need for Ute ladies'-tresses in aboveground life stages. An open canopy, characteristic of early to mid-seral stage successional habitats, is needed to provide direct sunlight. Habitat maintained in an early to mid-seral successional stage is typically achieved by some sort of disturbance such as flooding, livestock grazing, and/or agricultural mowing; however, overly frequent disturbance is detrimental to Ute ladies'-tresses.

Additionally, because Ute ladies'-tresses flower for only a short time and in unpredictable numbers each year, the species needs to be part of a larger flowering plant community to maintain pollination needs. Finally, the presence of soil mycorrhizae is a critical need for Ute ladies'-tresses. Little is known about

the appropriate species of fungi needed to form mycorrhizal associations with Ute ladies'-tresses, but they likely depend on specific soil types, soil moisture, and the surrounding plant community.

Ute ladies'-tresses are known to grow in moist meadows associated with perennial stream terraces, alluvial banks, floodplains, and oxbows where vegetation cover is relatively open and not overly dense, overgrown, or overgrazed (Fertig and others 2005; USFWS 1992). A few populations are found in riparian woodlands, but the orchid seems generally intolerant of shade and prefers open, grass- and forb-dominated sites (USFWS 1995). Associated vegetation typically falls into the facultative wetland vegetation classification category (USFWS 2017a). Facultative wetland plants usually grow in wetlands but can grow in non-wetlands (Lichvar and others 2012). Ute ladies'-tresses populations can be found at elevations up to 7,000 feet in Utah (Fertig and others 2005; USFWS 2017a).

Over one-third of all known Ute ladies'-tresses populations are found on perennial stream features including alluvial banks, point bars, floodplains, or oxbows. These sites are subject to periodic floods that rework stream features and create early successional conditions that are beneficial to the establishment and persistence of Ute ladies'-tresses. Most streamside populations are dominated by perennial graminoids and forbs, particularly creeping bentgrass (*Agrostis stolonifera*), quackgrass (*Elymus repens*), mountain rush, and smooth horsetail (*Equisetum laevigatum*) (Fertig and others 2005).

Ute ladies'-tresses are also known to grow on seasonally flooded river terraces, in subirrigated or spring-fed abandoned stream channels and valleys, and on lake shores. Populations have also been observed along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands (Fertig and others 2005).

Ute Ladies'-tresses Survey Methodology

Habitat Suitability Surveys

Habitat Evaluation

Geographic information systems (GIS) software was used to develop potentially suitable habitat polygons for Ute ladies'-tresses in the action area for plants. Biologists used tablets equipped with the ESRI data-collection application ArcGIS Field Maps for both field navigation and data entry. ArcGIS Field Maps included data layers for aerial images, the action area for plants, and the USFWS Ute ladies'-tresses range map. All areas where the USFWS range map and the action area overlap were visually inspected to confirm whether these areas displayed characteristics consistent with the Ute ladies'-tresses suitable habitat criteria described above in the section *Habitat* and with the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a). The following habitat types do not qualify as Ute ladies'-tresses habitat (USFWS 2017a):

- Sites above 7,000 feet in elevation
- Sites that are highly disturbed or modified, such as highway rights-of-way built on compacted soils or rock fill, rock or soil fills with steep back slopes, active construction sites, or landscaped bluegrass lawns
- Upland sites
- Sites entirely inundated by standing water
- Sites composed entirely of heavy clay soils

- Very saline sites such as dense monospecific stands of saltgrass (*Distichlis spicata*)
- Sites composed entirely of dense stands of reed canarygrass (*Phalaris arundinacea*), tamarisk (*Tamarix* species), greasewood (*Sarcobatus vermiculatus*), teasel (*Dipsacus sylvestris*), or common reed (*Phragmites australis*)

Polygons were mapped around areas that met the criteria for potentially suitable habitat for Ute ladies'-tresses. The habitat evaluation was conducted in May and June 2024 and in May and November 2025. Three smaller areas within the action area for plants were identified as having potentially suitable habitat. These areas are referred to as:

- *Area A:* potentially suitable habitat that was identified in the wetlands at the south end of the action area
- *Area B:* habitat identified in pastures southeast of the American Fork River in the action area
- *Area C:* potentially suitable habitat that was identified in a pasture near the center of the action area

Areas A, B, and C are described more in the sections below. Detailed information about the methodology used to identify potentially suitable habitat for Ute ladies'-tresses is provided in Appendix B, *Ute Ladies'-tresses Habitat Evaluation and Survey Report*.

Clearance Surveys

After identifying and mapping the potentially suitable habitat, biologists performed clearance surveys to determine whether Ute ladies'-tresses were present or absent in the potentially suitable habitat polygons in the action area for plants. The clearance surveys were conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a).

Botanical surveys must be conducted in a manner that will maximize the likelihood of finding the target species. Many target species are difficult to see except when they are flowering because the flowers make a target species stand out from the surrounding plants. The flowering period for Ute ladies'-tresses across its range is early July through late October, but most plants bloom between July 20 and August 31 (USFWS 2017a). Before proceeding with clearance surveys, biologists coordinated with USFWS to confirm that reference populations of Ute ladies'-tresses were flowering or otherwise identifiable.

Systematic belt transects were established every 5 feet to cover 100% of the potentially suitable habitat mapped in the action area for plants.[1] To achieve a 100% visual inspection of the ground surface, biologists conducted the surveys by walking the transects to determine whether Ute ladies'-tresses were present. Field data were collected according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011). Clearance surveys were conducted on August 9, 2024, and August 28, 2025, in Area A and on August 28, 2025, in Area C.[2] Detailed information about the

[1] Proposed survey times and transect widths are those specified by USFWS (2011).

[2] A clearance survey has not been conducted in the habitat that was identified in November 2025.

methodology used to conduct clearance surveys is provided in Appendix B, *Ute Ladies'-tresses Habitat Evaluation and Survey Report*.

In addition, Ute ladies'-tresses might not flower every year. Therefore, in drainages where Ute ladies'-tresses are known to occur, USFWS recommends that surveys be conducted annually for 3 consecutive years (USFWS 2017a). The survey results presented in this biological assessment are for the first 2 years of surveys for Area A and for the first year of surveys for Area C. The habitat identified in Area B was identified in November 2025 and has not received a clearance survey. One more year of survey is planned for Area A (to be performed in 2026), 2 more years of surveys are planned for Area C (to be performed in 2026 and 2027), and 3 years of surveys are planned for Area B (to be performed in 2026, 2027, and 2028).

Ute Ladies'-tresses Survey Results

Habitat Suitability Surveys

A total of 4.15 acres of potentially suitable Ute ladies'-tresses habitat were identified in May and June 2024 in Area A, a total of 1.14 acres were identified in May 2025 in Area C, and a total of 0.73 acre was identified in November 2025 in Area B. All of the potentially suitable habitat identified is outside the project footprint. Figure 1 provides an overview map of the action area for plants, Figure 2 provides a map of Area A, Figure 3 provides a map of Area B, and Figure 4 provides a map of Area C.

The wetlands identified in Area A are located on both sides of the existing UTA and UP tracks. These wetlands are dominated by mountain rush and common spikerush (*Eleocharis palustris*), which are two plant species commonly associated with Ute ladies'-tresses across its range in Utah. This habitat receives adequate soil moisture through shallow groundwater, the habitat has an open canopy, and additional flowering plants are present to attract pollinators, all of which are critical needs for Ute ladies'-tresses. Figure 5 and Figure 6 provide representative photos of the mapped potentially suitable habitat identified in these wetlands.

The pastures identified in Area B are located north of the existing UTA and UP tracks and just east of 5750 West and south of 7300 North in American Fork. Potentially suitable habitat was identified and mapped in two different polygons in the pastures. The northern polygon is dominated by mountain rush, timothy (*Phleum pratense*), and tufted hairgrass (*Deschampsia cespitosa*), and the southern polygon is dominated by tufted hairgrass, clustered field sedge (*Carex praegracilis*), and showy milkweed (*Asclepias speciosa*), all of which are species commonly associated with Ute ladies'-tresses across its range in Utah. This habitat receives adequate soil moisture through shallow groundwater, the habitat has an open canopy, and additional flowering plants are present to attract pollinators, all of which are critical needs for Ute ladies'-tresses. Ute ladies'-tresses were observed in these pastures in the past, but no recent surveys have been conducted to confirm their current presence. Figure 7 and Figure 8 provide representative photos of the mapped potentially suitable habitat identified in these pastures.

The pasture identified in Area C is located south of the existing UTA tracks and south of 8020 North in Lehi. The part of the pasture identified with potentially suitable Ute ladies'-tresses habitat was dominated by mountain rush, a plant species commonly associated with Ute ladies'-tresses across its range in Utah. This habitat receives adequate soil moisture through shallow groundwater, the habitat has an open canopy, and additional flowering plants are present to attract pollinators, all of which are

critical needs for Ute ladies'-tresses. Figure 9 provides a representative photo of the mapped potentially suitable habitat identified in this pasture.

Figure 1. Overview map of the action area for plants and the USFWS Ute ladies'-tresses habitat range

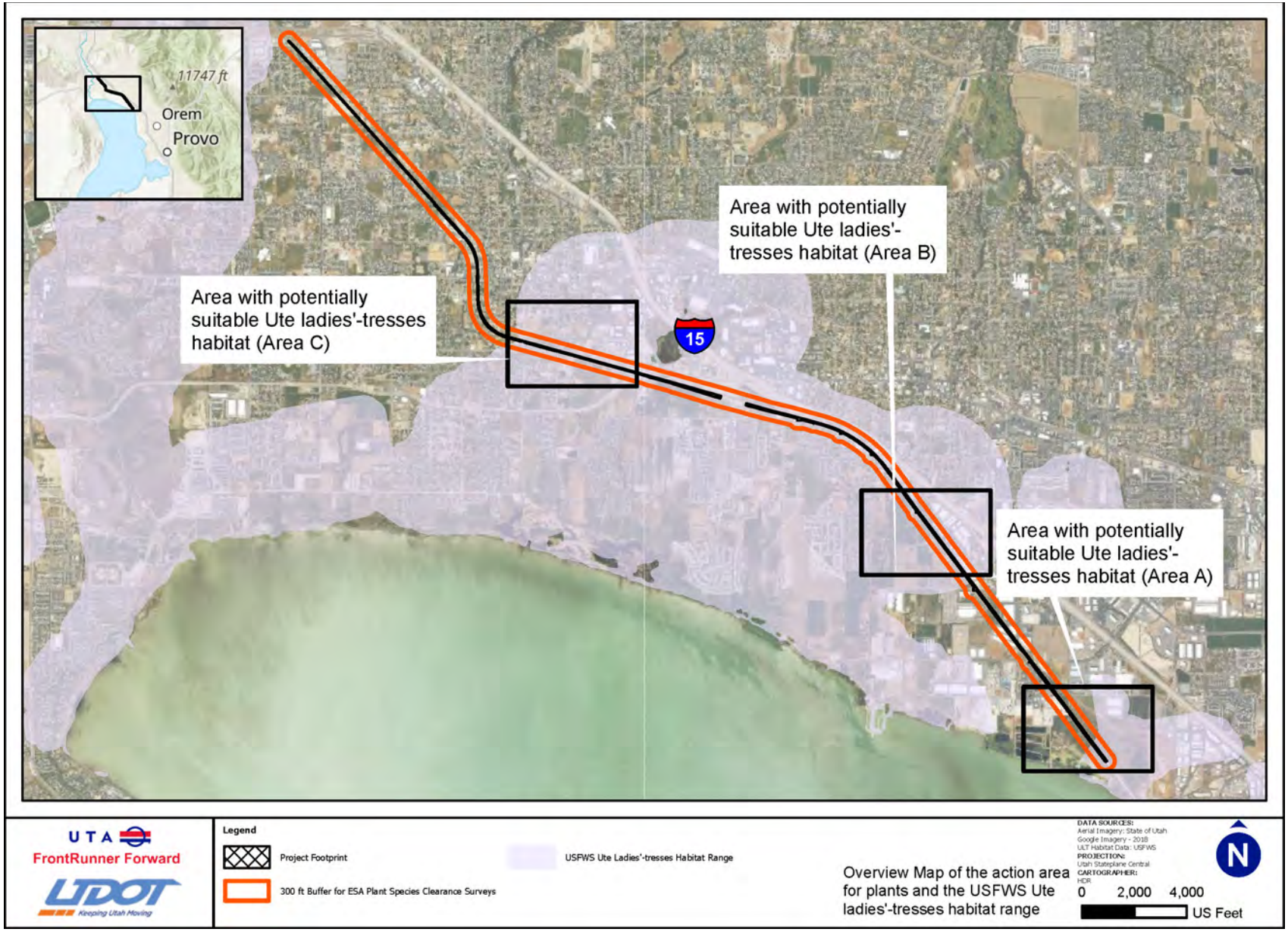

Figure 2. Area A

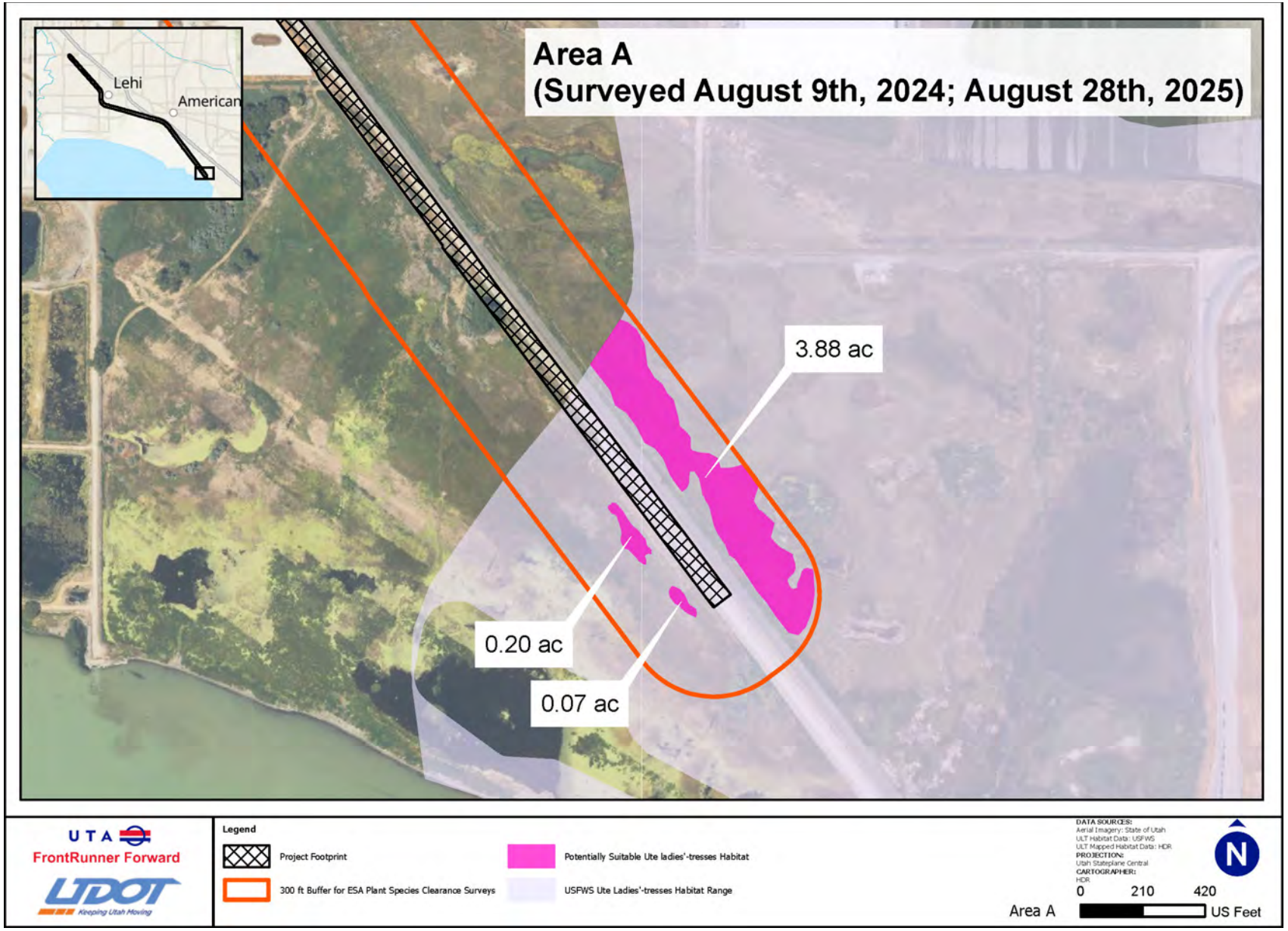

Figure 3. Area B

Figure 4. Area C

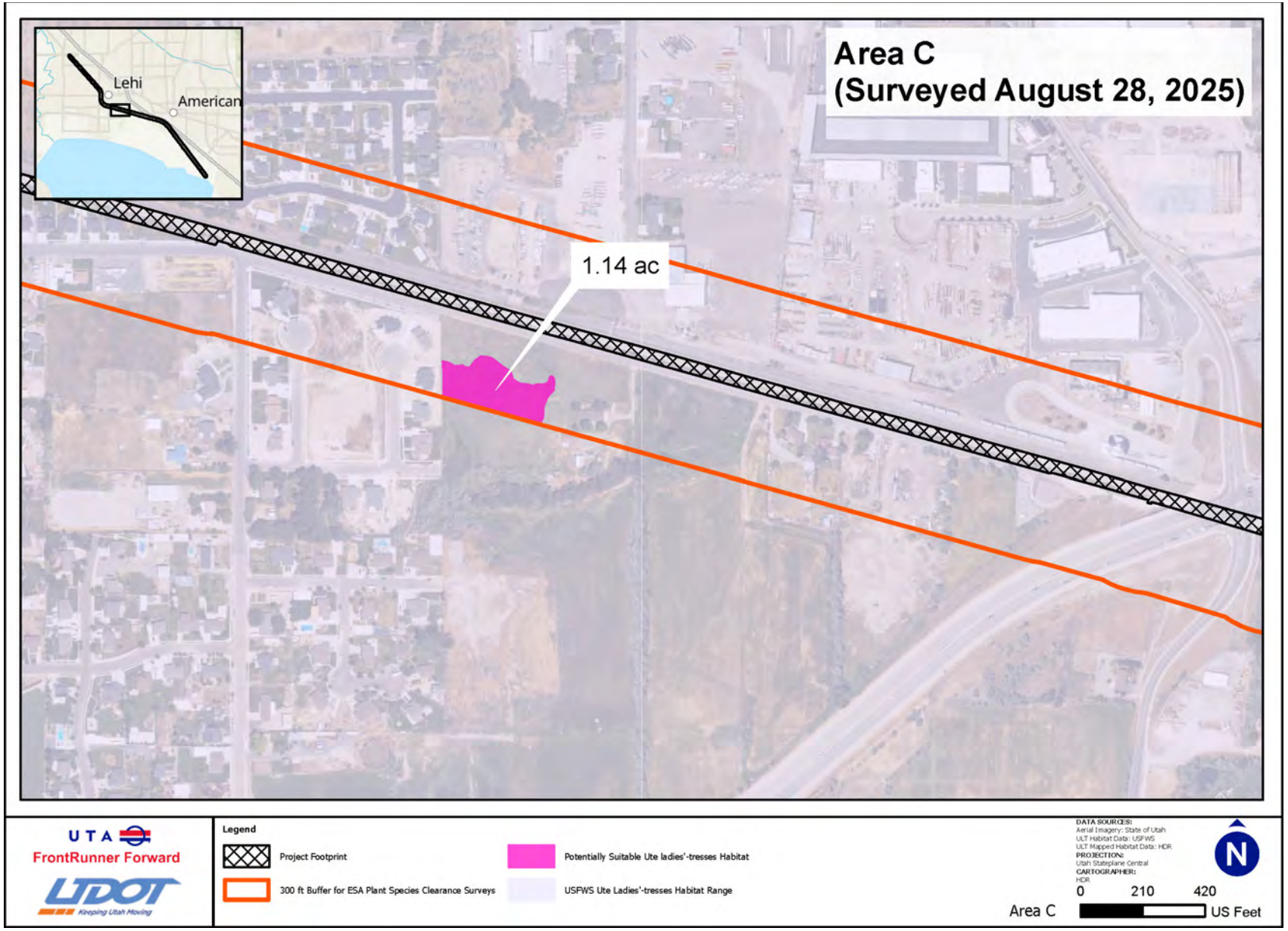

Figure 5. Potentially suitable Ute ladies'-tresses habitat in Area A (east side of the existing UTA and UP tracks)

Figure 6. Potentially suitable Ute ladies'-tresses habitat in Area A (west side of the existing UTA and UP tracks)

Figure 7. Potentially suitable Ute ladies'-tresses habitat in Area B (northern polygon)

Figure 8. Potentially suitable Ute ladies'-tresses habitat in Area B (southern polygon)

Figure 9. Potentially suitable Ute ladies'-tresses habitat in Area C (south of UTA tracks)

Clearance Surveys

Clearance surveys were conducted on 4.15 acres of potentially suitable Ute ladies'-tresses habitat that were identified in Area A. These clearance surveys did not identify any Ute ladies'-tresses individuals. Because USFWS recommends that Ute ladies'-tresses surveys be conducted annually for 3 consecutive years (USFWS 2017a), 1 more year of clearance surveys will be conducted on these 4.15 acres in 2026. Clearance surveys conducted on the 1.14 acres of potentially suitable Ute ladies'-tresses habitat that were identified in Area C did not identify any Ute ladies'-tresses individuals. Two more years of clearance surveys will be conducted on these 1.14 acres in 2026 and 2027. Additionally, 3 years of clearance surveys will be conducted on the 0.73 acre of potentially suitable Ute ladies'-tresses habitat that was identified in Area B in 2026, 2027, and 2028.

Effects Analysis

Direct Effects

June Sucker

Potentially suitable habitat for June sucker was identified in the American Fork River in the action area for fish. However, UTA and UDOT do not anticipate that the American Fork River would be disturbed during work that would be performed on the American Fork River bridge that carries UTA's commuter rail line over the American Fork River. The north and south bridge abutments located west of the existing bridge over the American Fork River were constructed to accommodate a future rail line. The bridge and abutments were inspected on June 23, 2024, and were found to have minor defects that do not diminish the capacity of the structures. See Appendix C, *UTA FrontRunner American Fork River Bridge Inspection Memo*.

Work that would be performed on these structures would occur within the floodplain of the American Fork River, but this work is not anticipated to disturb the river channel that includes potential June sucker habitat. The minor defect repair work can be performed without entering the American Fork River, and equipment access for work on the bridge would be from above the river. Additionally, the proposed critical habitat for June sucker is outside the action area for fish, and the American Fork River is not a significant portion of June sucker spawning habitat (spawning in the American Fork River depends on streamflow, and streamflow in the American Fork River is not available most years) (86 *Federal Register* 200). There would be no direct effects on June sucker individuals or potentially suitable habitat.

Ute Ladies'-tresses

Potentially suitable Ute ladies'-tresses habitat in the action area for plants is located outside the project footprint. Construction activities would be restricted to the footprint; therefore, construction and operation of the Project would not result in clearing, excavating, filling, or altering any potentially suitable Ute ladies'-tresses habitat in this action area. There would be no direct effects on Ute ladies'-tresses plants or potentially suitable habitat.

Indirect Effects

June Sucker

Construction could affect June sucker adults, larvae, or potentially suitable habitat as a result of stormwater runoff occurring from earthwork near the American Fork River. Stormwater from the construction site would be managed to control sediment discharges to the stream, thereby protecting water quality and reducing indirect effects on the species.

Additionally, to minimize potential indirect impacts during the spawning avoidance period, any construction in the action area for fish would occur outside the June sucker avoidance window of April 15 through July 31 (Wright 2025).

Ute Ladies'-tresses

A total of 6.02 acres of potentially suitable Ute ladies'-tresses habitat were identified in the action area for plants but outside the project footprint. Construction could affect Ute ladies'-tresses plants or potentially suitable habitat as a result of fugitive dust emissions and the introduction and/or spread of noxious and invasive weeds.

The operation of construction equipment would generate fugitive dust from loose soil. Accumulation of fugitive dust on Ute ladies'-tresses plants or potentially suitable habitat near the project footprint could restrict plant growth by inhibiting photosynthesis. However, any potential for dust-induced effects would be temporary and would be minimized by implementing fugitive-dust-control measures during construction.

Construction would remove vegetation and could introduce noxious and invasive weeds into the surrounding areas. Noxious and invasive weeds introduced or spread during construction activities would compete with native vegetation, including Ute ladies'-tresses plants, resulting in altered vegetation structure, a reduction in plant species richness, and an overall decline in potentially suitable habitat. The potential for introducing or spreading invasive species would be minimized during construction by implementing the mitigation measures specified in the section *Conservation Measures*.

Drainage work would start near the 1.14 acres of potentially suitable Ute ladies'-tresses habitat that were identified in Area C in December 2026, before 3 years of clearance surveys would be completed for this area. However, the drainage work would be confined to the existing drainage area between the existing UTA tracks and 8020 North in Lehi, and the conservation measures described on pages 1 and 2 would be applied. Additionally, construction would begin near the 0.73 acre of potentially suitable Ute ladies'-tresses habitat that was identified in Area B in January 2027, before 3 years of clearance surveys would be completed for this area. The conservation measures described on pages 1 and 2 would be applied.

Interrelated and Interdependent Effects

Interrelated activities are those that are part of a proposed project and depend on the proposed action for their justification, and interdependent activities are those that have no independent utility apart from a proposed project. There are no interrelated or interdependent actions associated with this project; therefore, there would be no anticipated interrelated or interdependent effects.

Cumulative Effects

The ESA regulations define *cumulative effects* as those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action areas of the federal action subject to consultation (50 CFR Section 402.02). No state or private activities that would contribute to cumulative effects have been identified for this project.

Determination of Effects Findings

June Sucker

All construction and operations activities would occur outside the American Fork River and would not result in any direct impacts to potentially suitable June sucker habitat. Construction crews will be provided information about the importance of restricting work activities to the project footprint and will be instructed that no disturbance can occur in the American Fork River.

Additionally, mitigation measures have been developed to minimize potential indirect effects to June sucker individuals and potentially suitable habitat. Any indirect effects from implementing the Project would be considered insignificant and discountable, and there are no reasonably foreseeable interrelated, interdependent, or cumulative effects of the Project.

Based on the evaluation of direct, indirect, interrelated, interdependent, and cumulative effects presented in this biological assessment, FTA has determined that the Project **may affect, but is not likely to adversely affect** June sucker.

Ute Ladies'-tresses

All construction and operations activities would be restricted to the project footprint and would not result in any direct impacts to potentially suitable Ute ladies'-tresses habitat. Potentially suitable habitat adjacent to the project footprint will be flagged and protected. Construction crews will be provided information about the importance of restricting all work activities to the project footprint and existing roadway and will be instructed that no disturbance can occur outside of that, nor in areas flagged for protection.

Additionally, mitigation measures have been developed to minimize potential indirect effects to Ute ladies'-tresses plants and potentially suitable habitat. Any indirect effects from implementing the Project would be considered insignificant and discountable, and there are no reasonably foreseeable interrelated, interdependent, or cumulative effects of the Project.

Based on surveys completed to date and the evaluation of direct, indirect, interrelated, interdependent, and cumulative effects presented in this biological assessment, FTA has determined that the Project **may affect, but is not likely to adversely affect** Ute ladies'-tresses.

UTA and UDOT plan to complete additional clearance surveys for Ute ladies'-tresses during the 2026, 2027, and 2028 growing seasons. If plants are found before constructing the Project or if there is any loss of occupied habitat, Section 7 consultation would be reinitiated.

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Wright, Jen

2025 Email from Jen Wright, wildlife biologist with the Bear River Migratory Bird Refuge, to Robyn Kullas, Environmental Protection Specialist with FTA, regarding the UTA FrontRunner North of American Fork biological assessment. September 18.

Appendix A

IPaC Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
Phone: (801) 975-3330 Fax: (801) 975-3331

In Reply Refer To: 06/18/2025 18:51:06 UTC
Project Code: 2025-0111318
Project Name: UTA FrontRunner American Fork

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
(801) 975-3330

PROJECT SUMMARY

Project Code: 2025-0111318
Project Name: UTA FrontRunner American Fork
Project Type: Railroad - Maintenance/Modification
Project Description: UTA FrontRunner American Fork
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.35607495,-111.78795397440882,14z

Counties: Utah County, Utah

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

FISHES

NAME	STATUS
June Sucker *Chasmistes liorus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4133	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

FLOWERING PLANTS

NAME	STATUS
Ute Ladies'-tresses *Spiranthes diluvialis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2159	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information

on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

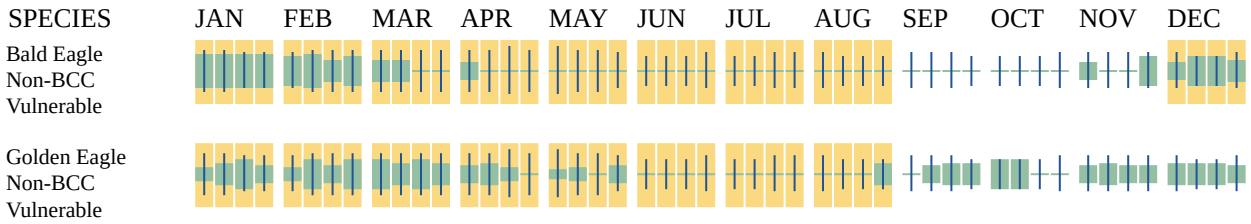
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

■ probability of presence ■ breeding season | survey effort – no data



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Avocet *Recurvirostra americana* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11927	Breeds Apr 21 to Aug 10

NAME	BREEDING SEASON
American White Pelican *pelecanus erythrorhynchos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6886	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black Rosy-finch *Leucosticte atrata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9460	Breeds Jun 15 to Aug 31
Black Tern *Chlidonias niger surinamenisis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Broad-tailed Hummingbird *Selasphorus platycercus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11935	Breeds May 25 to Aug 21
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10955	Breeds Mar 1 to Jul 31
Calliope Hummingbird *Selasphorus calliope* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9526	Breeds May 1 to Aug 15
Cassin's Finch *Haemorhous cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10575	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9465	Breeds May 15 to Aug 10

NAME	BREEDING SEASON
Forster's Tern *Sterna forsteri* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11953	Breeds Mar 1 to Aug 15
Franklin's Gull *Leucophaeus pipixcan* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10567	Breeds May 1 to Jul 31
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Northern Harrier *Circus hudsonius* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8350	Breeds Apr 1 to Sep 15
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere

NAME	BREEDING SEASON
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Red Knot *Calidris canutus roselaari* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8880	Breeds elsewhere
Rufous Hummingbird *Selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Sage Thrasher *Oreoscoptes montanus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10
Virginia's Warbler *Leiothlypis virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10669	Breeds Apr 20 to Aug 5

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

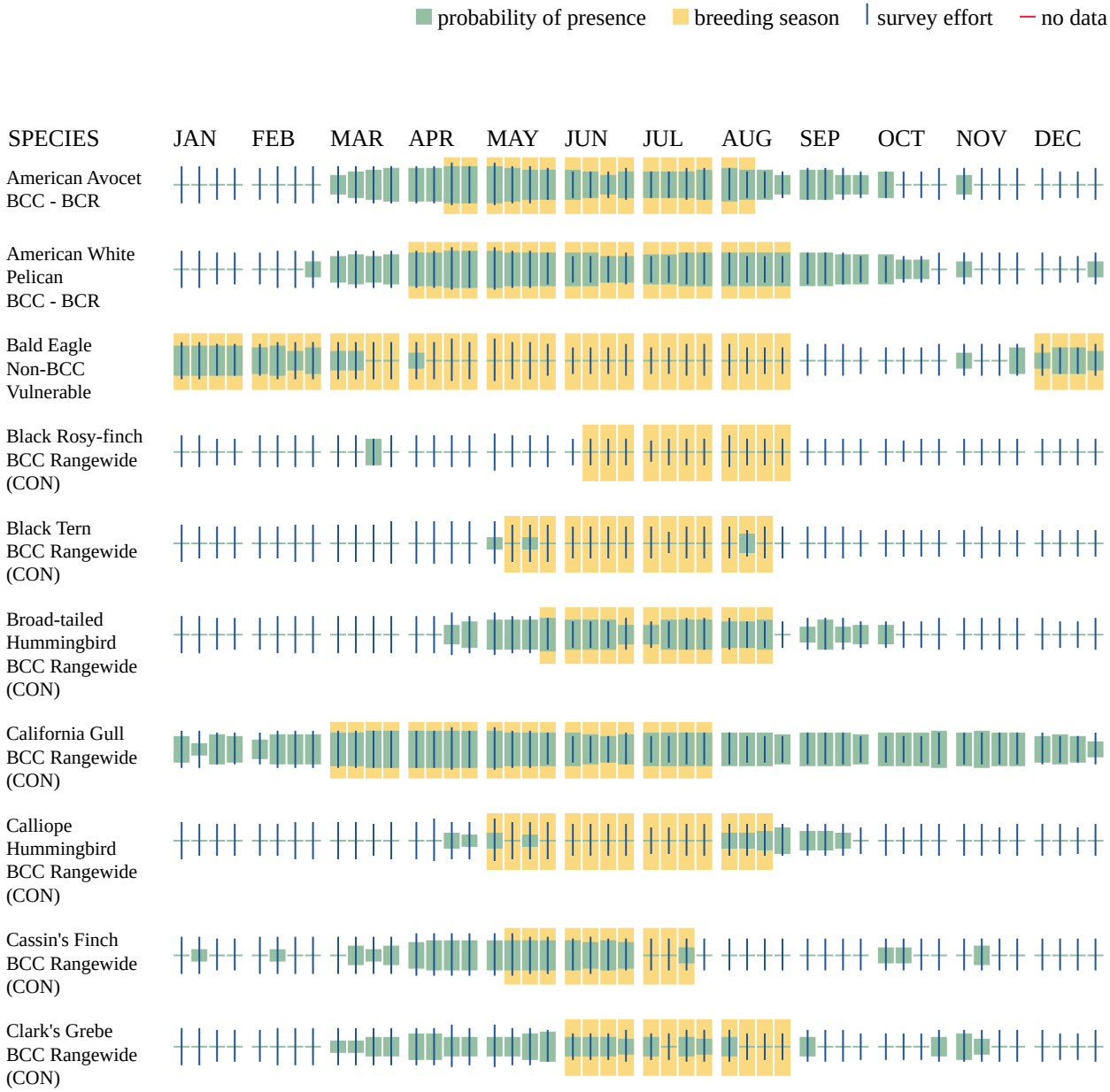
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

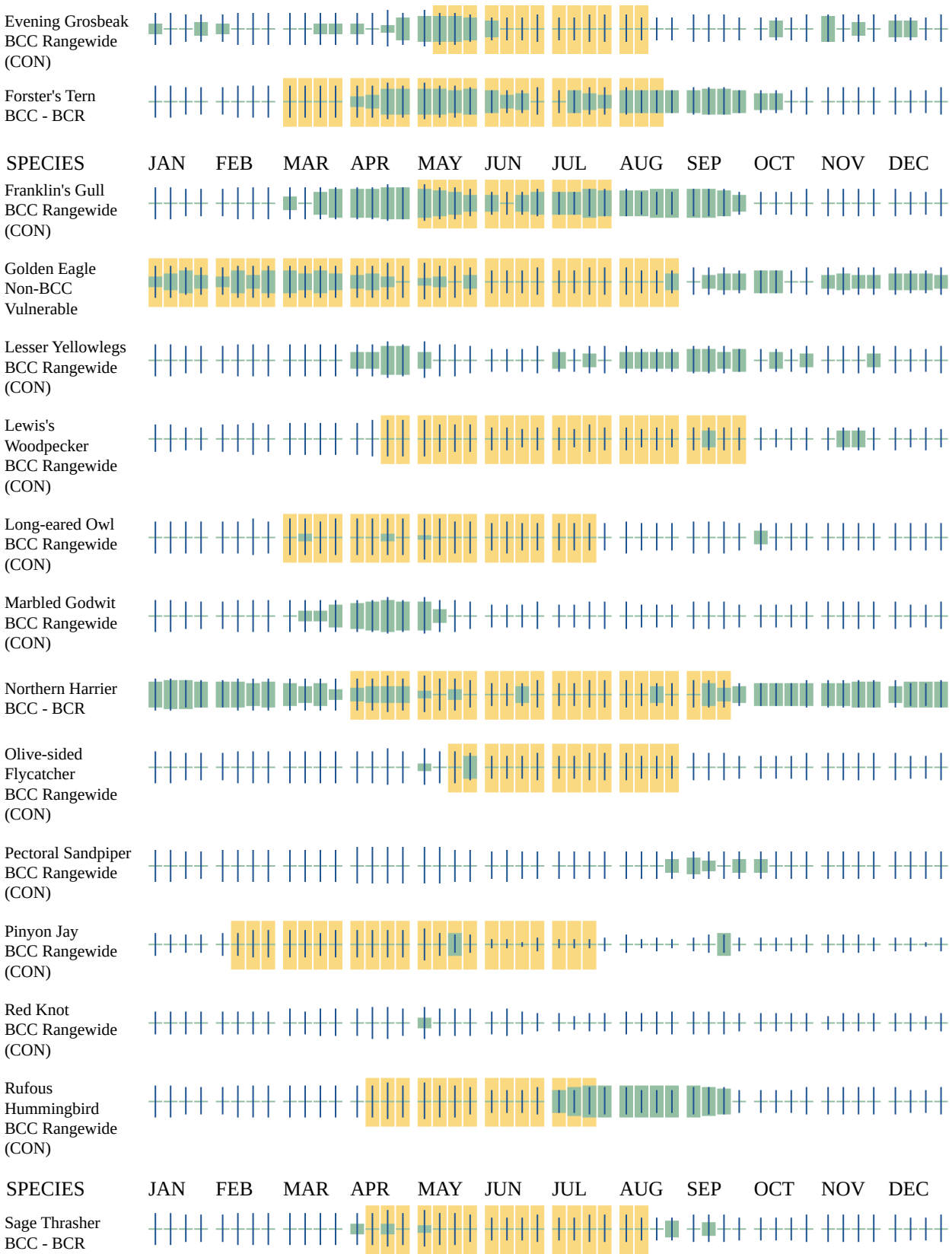
Breeding Season (■)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.




Evening Grosbeak
BCC Rangewide
(CON)
Forster's Tern
BCC - BCR
SPECIES
JAN
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NOV
DEC
Franklin's Gull
BCC Rangewide
(CON)
Golden Eagle
Non-BCC
Vulnerable
Lesser Yellowlegs
BCC Rangewide
(CON)
Lewis's
Woodpecker
BCC Rangewide
(CON)
Long-eared Owl
BCC Rangewide
(CON)
Marbled Godwit
BCC Rangewide
(CON)
Northern Harrier
BCC - BCR
Olive-sided
Flycatcher
BCC Rangewide
(CON)
Pectoral Sandpiper
BCC Rangewide
(CON)
Pinyon Jay
BCC Rangewide
(CON)
Red Knot
BCC Rangewide
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Rufous
Hummingbird
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SPECIES
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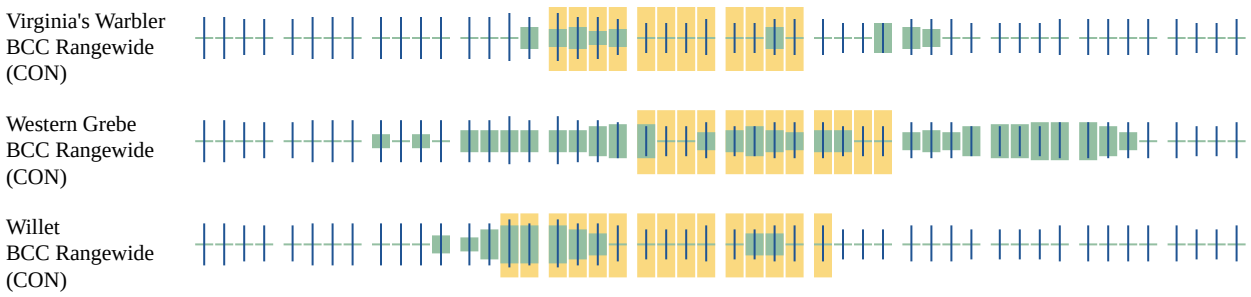
BCC - BCR



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

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LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Transit Administration

Appendix B

Ute Ladies'-tresses Habitat Evaluation and Survey Report

FrontRunner Forward

North of American Fork Double Track Project

Ute Ladies'-tresses Habitat Evaluation and Survey Report

January 2026

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Attachments

Abbreviations

ESA	Endangered Species Act
GIS	geographic information systems
ssp.	subspecies
UDOT	Utah Department of Transportation
UP	Union Pacific Railroad
USC	United States Code
USFWS	United States Fish and Wildlife Service
UTA	Utah Transit Authority
var.	variety

Introduction

The Utah Transit Authority (UTA) and the Utah Department of Transportation (UDOT) are constructing a second track along about 8 miles of existing single track on the FrontRunner commuter rail line from UTA milepost 26 S south to UTA milepost 34 S in the cities of American Fork, Lehi, and Lindon in Utah County, Utah. The North of American Fork Double Track Project is one of many projects under the FrontRunner Forward Program (also known as the FrontRunner 2X project), which includes double tracking and realigning certain sections of FrontRunner and constructing a new infill station.

This report describes the habitat evaluation and clearance surveys conducted for Ute ladies'-tresses (*Spiranthes diluvialis*), a plant species listed as threatened under the Endangered Species Act (ESA), for the proposed project.

Regulatory Setting

The ESA (ESA; 16 *United States Code* [USC] Sections 1531–1544) establishes a framework to protect and conserve species listed as threatened or endangered and their habitats. The ESA prohibits the "take" of endangered species except when the take is incidental to, and not the purpose of, carrying out an otherwise lawful activity, or when the take is for scientific purposes, or to enhance the propagation or survival of the species.

What is take of a listed species?

The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect an individual of a species listed as threatened or endangered (16 USC Section 1532).

Under Section 7 of the ESA, federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) before taking any action that will likely affect a federally listed threatened or endangered species or designated critical habitat for an endangered species. In addition, federal agencies must ensure that their actions are not likely to jeopardize the continued existence of any listed species or to destroy or adversely modify any designated critical habitat.

Ute Ladies'-tresses Biology

Description

Ute ladies'-tresses are a perennial, terrestrial orchid with erect stems that are 4 to 23 inches tall and arise from tuberous, thickened roots. Basal leaves are narrow, linear, and about 11 inches long, with leaves that become progressively smaller up the stem (Fertig and others 2005; USFWS 1992). Flowers consist of 3 to 15 small, white or ivory-colored flowers clustered into a 1-to-6-inch spike at the top of the stem. The plants typically bloom from early July through late October (Fertig and others 2005). Ute ladies'-tresses are thought to reproduce exclusively by seed. The life cycle of Ute ladies'-tresses consists of four stages: seedling, dormant, vegetative, and reproductive (flowering or fruiting) (Fertig and others 2005).

Status and Trends

Ute ladies'-tresses were listed as threatened under the ESA on January 17, 1992 (57 *Federal Register* 2048). At the time of listing, the species was reported from 10 existing populations and 7 historic locations known in Colorado, Nevada, and Utah. The species was considered vulnerable to extinction from habitat loss and modification, small population size, and low reproductive rate. Since 1992, the

known range has expanded to include Idaho, Montana, Nebraska, Washington, and Wyoming and includes nearly 100 different locations (Fertig and others 2005).

At the time of listing, existing populations of Ute ladies'-tresses in Utah were found in Daggett, Duchesne, Garfield, Uintah, Utah, and Wayne Counties, and historical occurrences were known from Salt Lake, Tooele, and Weber Counties (Fertig and others 2005). These populations were dispersed across 10 different watersheds (Duchesne, Escalante, Fremont, Jordan, Lower Green, Lower Weber, Southern Great Salt Lake Desert, Spanish Fork, Upper Green–Flaming Gorge Reservoir, and Utah Lake). Since 1992, a dozen new sites have been documented along the Wasatch Front and the Uinta Basin. These sites extend the known range of Ute ladies'-tresses into Wasatch County and the Ashley-Brush, Provo, and Strawberry watersheds (Fertig and others 2005).

A draft recovery plan was written for this species in 1995 but has not been finalized (USFWS 1995). USFWS has recommended Ute ladies'-tresses be delisted as of August 2023 (USFWS 2023a).

Habitat

The *Species Status Assessment Report for Ute Ladies'-tresses (Spiranthes diluvialis)* (USFWS 2023b) describes adequate soil moisture, direct sunlight, pollinators, and mycorrhizae as critical needs for Ute ladies'-tresses. Adequate soil moisture can come from surface or subsurface water, but it needs to provide a year-round hydrologic regime that supplies consistent soil moisture without prolonged inundation. Direct sunlight is also a critical need for Ute ladies'-tresses in aboveground life stages. An open canopy, characteristic of early to mid-seral stage successional habitats, is needed to provide direct sunlight. Habitat maintained in an early to mid-seral successional stage is typically achieved by some sort of disturbance such as flooding, livestock grazing, and/or agricultural mowing; however, overly frequent disturbance is detrimental to Ute ladies'-tresses. Additionally, because Ute ladies'-tresses flower for only a short time and in unpredictable numbers each year, the species needs to be part of a larger flowering plant community to maintain pollination needs. Finally, the presence of soil mycorrhizae is a critical need for Ute ladies'-tresses. Little is known about the appropriate species of fungi needed to form mycorrhizal associations with Ute ladies'-tresses, but they likely depend on specific soil types, soil moisture, and the surrounding plant community.

Ute ladies'-tresses are known to grow in moist meadows associated with perennial stream terraces, alluvial banks, floodplains, and oxbows where vegetation cover is relatively open and not overly dense, overgrown, or overgrazed (Fertig and others 2005; USFWS 1992). A few populations are found in riparian woodlands, but the orchid seems generally intolerant of shade and prefers open, grass- and forb-dominated sites (USFWS 1995). Associated vegetation typically falls into the facultative wetland vegetation classification category (USFWS 2017). Facultative wetland plants usually grow in wetlands but can grow in non-wetlands (Lichvar and others 2012). See Table 1 for a complete list of plant species commonly associated with Ute ladies'-tresses across its range in Utah (Fertig and others 2005). Ute ladies'-tresses populations can be found at elevations up to 7,000 feet in Utah (Fertig and others 2005; USFWS 2017).

Over one-third of all known Ute ladies'-tresses populations are found on perennial stream features including alluvial banks, point bars, floodplains, or oxbows. These sites are subject to periodic floods that rework stream features and create early successional conditions that are beneficial to the establishment and persistence of Ute ladies'-tresses. Most streamside populations are dominated by perennial graminoids and forbs, particularly creeping bentgrass (*Agrostis stolonifera)*, quackgrass (*Elymus repens)*,

mountain rush (*Juncus arcticus* ssp. *littoralis)*, and smooth horsetail (*Equisetum laevigatum)* (Fertig and others 2005).

Ute ladies'-tresses are also known to grow on seasonally flooded river terraces, in subirrigated or spring-fed abandoned stream channels and valleys, and on lake shores. Populations have also been observed along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands (Fertig and others 2005).

Table 1. Plant species commonly associated with Ute ladies'-tresses across its range in Utah

Scientific Name[a]	Common Name[a]	Scientific Name[a]	Common Name[a]
Achillea millefolium	common yarrow	*Lepidium latifolium*	broadleaved pepperweed
Agrostis stolonifera	creeping bentgrass	*Lonicera involucrata*	twinberry honeysuckle
Alnus incana	gray alder	*Lycopus americanus*	American water horehound
Ambrosia psilostachya	Cuman ragweed	*Maianthemum stellatum*	starry false lily of the valley
Apocynum cannabinum	Indianhemp	*Malva neglecta*	common mallow
Arctium minus	lesser burdock	*Medicago lupulina*	black medick
Asclepias speciosa	showy milkweed	*Medicago sativa*	alfalfa
Astragalus cicer	chickpea milkvetch	*Melilotus officinalis*	sweetclover
Betula occidentalis	water birch	*Mentha arvensis*	wild mint
Bidens frondosa	devil's beggartick	*Mentha spicata*	spearmint
Calamagrostis canadensis	bluejoint	*Muhlenbergia asperifolia*	scratchgrass
Carduus nutans	nodding plumeless thistle	*Oenothera elata*	Hooker's evening primrose
Carex aquatilis	water sedge	*Parnassia palustris*	marsh grass of Parnassus
Carex aurea	golden sedge	*Phalaris arundinacea*	reed canarygrass
Carex nebrascensis	Nebraska sedge	*Phleum pratense*	timothy
Carex pellita	woolly sedge	*Phragmites australis*	common reed
Carex rostrata	beaked sedge	*Platanthera hyperborea*	northern green orchid
Castilleja minor	lesser Indian paintbrush	*Poa pratensis*	Kentucky bluegrass
Cicuta maculata	spotted water hemlock	*Populus angustifolia*	narrowleaf cottonwood
Cirsium arvense	Canada thistle	*Populus fremontii*	Fremont cottonwood
Cirsium vulgare	bull thistle	*Prunella vulgaris*	common selfheal
Cornus sericea	redosier dogwood	*Pseudognaphalium stramineum*	cottonbatting plant
Dactylis glomerata	orchardgrass	*Ranunculus cymbalaria*	alkali buttercup
Deschampsia cespitosa	tufted hairgrass	*Rhus aromatica*	fragrant sumac
Descurainia sophia	herb sophia	*Rosa woodsii*	Woods' rose
Elaeagnus angustifolia	Russian olive	*Salix boothii*	Booth's willow
Eleocharis palustris	common spikerush	*Salix exigua*	narrowleaf willow
Eleocharis rostellata	beaked spikerush	*Salix lucida*	shining willow
Elymus canadensis	Canada wildrye	*Salix lutea*	yellow willow
Elymus repens	quackgrass	*Schoenoplectus acutus*	hardstem bulrush
Epilobium ciliatum	fringed willowherb	*Shepherdia argentea*	silver buffaloberry

(*Continued on next page*)

Table 1. Plant species commonly associated with Ute ladies'-tresses across its range in Utah

Scientific Name[a]	Common Name[a]	Scientific Name[a]	Common Name[a]
Equisetum arvense	field horsetail	*Sisyrinchium demissum*	stiff blue-eyed grass
Equisetum hyemale	scouringrush horsetail	*Solidago canadensis*	Canada goldenrod
Equisetum laevigatum	smooth horsetail	*Sonchus arvensis*	field sowthistle
Erigeron lonchophyllus	shortray fleabane	*Spartina pectinata*	prairie cordgrass
Erodium cicutarium	redstem stork's bill	*Spiranthes romanzoffiana*	hooded lady's tresses
Euthamia occidentalis	western goldentop	*Stachys palustris* var. *pilosa*	hairy hedgenettle
Geum macrophyllum	largeleaf avens	*Symphyotrichum frondosum*	short-rayed alkali aster
Glaux maritima	sea milkwort	*Symphyotrichum lanceolatum*	white panicle aster
Glyceria grandis	American mannagrass	*Toxicodendron rydbergii*	western poison ivy
Glycyrrhiza lepidota	American licorice	*Tragopogon dubius*	yellow salsify
Helianthus annuus	common sunflower	*Trifolium pratense*	red clover
Helianthus nuttallii	Nuttall's sunflower	*Trifolium repens*	white clover
Hordeum jubatum	foxtail barley	*Triglochin maritima*	seaside arrowgrass
Juncus arcticus ssp. *littoralis*	mountain rush	*Typha latifolia*	broadleaf cattail
Juncus ensifolius	swordleaf rush	*Verbascum thapsus*	common mullein
Juncus torreyi	Torrey's rush		

Source: Fertig and others 2005

[a] Naming convention according to U.S. Department of Agriculture Natural Resources Conservation Service Plants Database (https://plants.usda.gov).

Life History

Ute ladies'-tresses are long-lived perennial forbs that are thought to reproduce exclusively by seed. The life cycle of Ute ladies'-tresses consists of four stages: seedling, dormant, vegetative, and reproductive (flowering or fruiting) (Fertig and others 2005).

Seedling Stage. Fruits are produced in late August or September, and seeds are shed shortly after. Ute ladies'-tresses seeds are microscopic and readily dispersed by wind or water. It is thought that germinated seedlings require a symbiotic relationship with mycorrhizal soil fungi to survive, the absence of which might be a limiting factor in establishing new populations. Seedlings likely develop slowly into larger, dormant mycorrhizal roots or grow directly into above-ground vegetative shoots, but neither has been confirmed in the wild.

Dormant Stage. No data are available regarding the number of years required for Ute ladies'-tresses roots to reach sufficient size to develop above-ground leafy shoots. Long-term monitoring studies have shown that vegetative or reproductive Ute ladies'-tresses plants can revert to dormancy for one to four or more growing seasons before re-emerging with new above-ground shoots.

Vegetative Stage. New vegetative shoots are produced in October and persist through the winter as small rosettes. These rosettes resume growth in the spring and develop into leafy plants. These plants might remain in this state all summer or develop flowers. Vegetative individuals die back in the winter to subterranean roots or persist as winter rosettes. Monitoring studies show that plants can remain in the

vegetative stage for 2 or more years or transform to dormant or reproductive condition in subsequent years.

Reproductive Stage. Across its range, Ute ladies'-tresses typically bloom from early July to late October. Bees, particularly solitary bees, are the species' primary pollinator. Individual flowers are arranged in a spiral.

Methodology

Survey Area

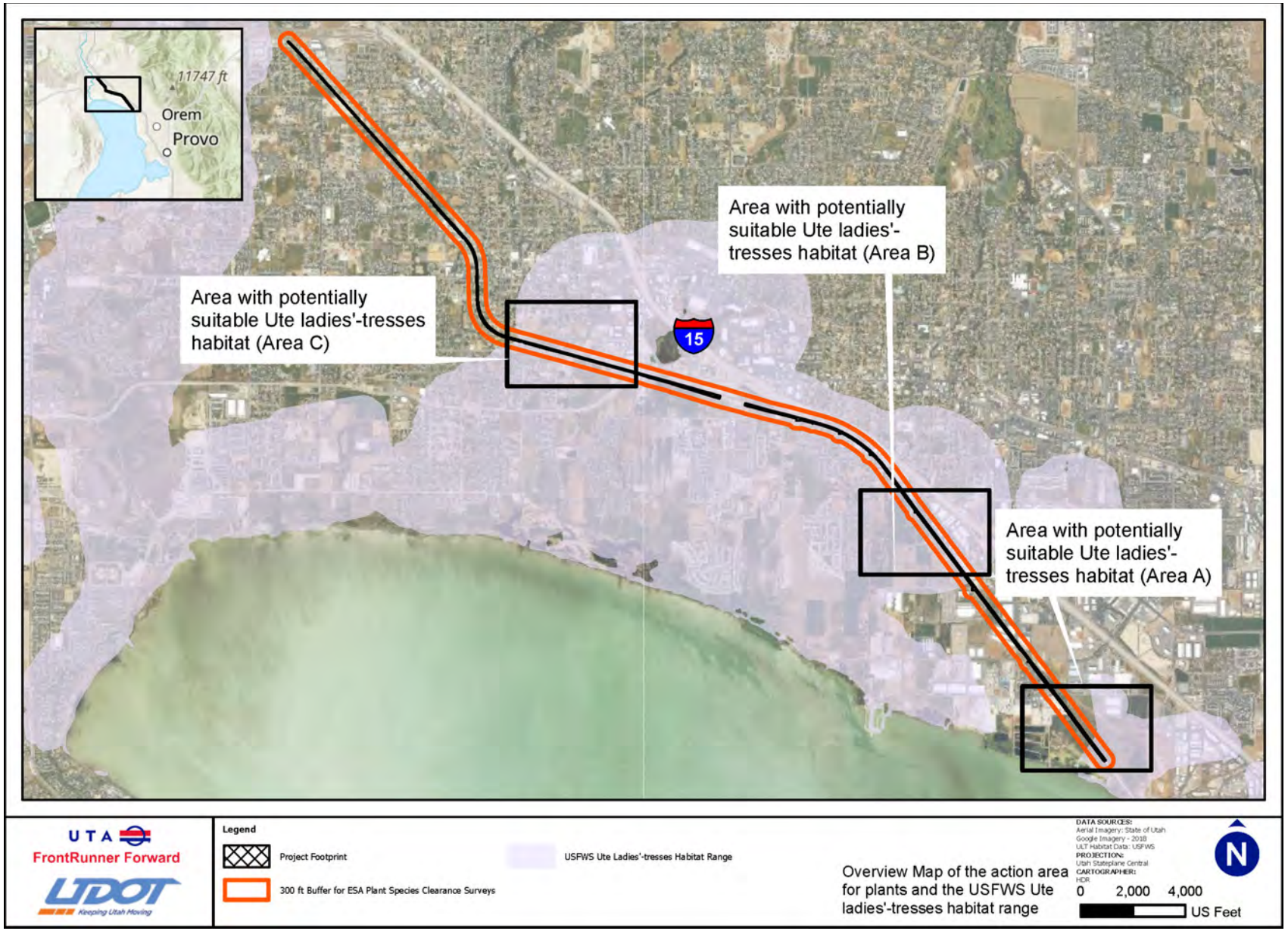
The survey area for the North of American Fork Double Track Project is in Utah County. The survey area is about 54.22 acres and ranges in elevation from about 4,450 to 4,575 feet above mean sea level. Figure 1 provides an overview of the survey area.

U.S. Fish and Wildlife Service Botanical Clearance Survey Area

The USFWS Utah Field Office has established guidelines for the minimum standards for conducting botanical surveys for plant species listed under the ESA in Utah (USFWS 2011). Clearance surveys, which are used to document compliance with the provisions of Section 7 of the ESA, are one type of survey described in these guidelines. Clearance surveys cover 100% of a project area to determine whether a target species is present. "Project area" is the area in which a target species might be impacted by a proposed activity. Clearance surveys also determine species distribution and abundance before ground-disturbing activities begin. Clearance surveys must include an assessment of all potential habitat in the project area, as well as a buffer. The standard buffer for clearance surveys is 300 feet from the project area.

In accordance with the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants* (USFWS 2011), a 300-foot buffer was applied to the survey area. Figure 1 shows the USFWS clearance survey buffer area in relation to the survey area.

Figure 1. Overview map of the survey area and the USFWS Ute ladies'-tresses habitat range



Habitat Evaluation

Geographic information systems (GIS) software was used to develop potentially suitable habitat polygons for Ute ladies'-tresses in the survey area and buffer area. Biologists used tablets equipped with the ESRI data-collection application, ArcGIS Field Maps, for both field navigation and data entry. ArcGIS Field Maps included data layers for aerial images, the project survey area plus the 300-foot buffer for USFWS botanical surveys, and the USFWS Ute ladies'-tresses range map. All areas where the USFWS range map and the survey area plus the 300-foot buffer overlap were visually inspected to confirm whether these areas displayed characteristics consistent with the Ute ladies'-tresses suitable habitat criteria described above in the section *Habitat*, and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017). The following habitat types do not qualify as Ute ladies'-tresses habitat (USFWS 2017):

- Sites above 7,000 feet in elevation
- Sites that are highly disturbed or modified, such as highway rights-of-way built on compacted soils or rock fill, rock or soil fills with steep back slopes, active construction sites, or landscaped bluegrass lawns
- Upland sites
- Sites entirely inundated by standing water
- Sites composed entirely of heavy clay soils
- Very saline sites such as dense monospecific stands of saltgrass (*Distichlis spicata*)
- Sites composed entirely of dense stands of reed canarygrass (*Phalaris arundinacea*), tamarisk (*Tamarix* species), greasewood (*Sarcobatus vermiculatus*), teasel (*Dipsacus sylvestris*), or common reed (*Phragmites australis*)

Polygons were mapped around areas that met the Ute ladies'-tresses suitable habitat criteria. The habitat evaluation was conducted in May and June 2024 and May and November 2025. Three smaller areas within the survey area and buffer area were identified as having potentially suitable habitat. These areas are referred to as:

- *Area A:* potentially suitable habitat that was identified in the wetlands at the south end of the action area
- *Area B:* habitat identified in pastures southeast of the American Fork River in the action area
- *Area C:* potentially suitable habitat that was identified in a pasture near the center of the action area

Areas A, B, and C are described more in the sections below.

Clearance Surveys

After identifying and mapping the potentially suitable habitat, biologists performed clearance surveys to determine whether Ute ladies'-tresses were present or absent in the potentially suitable habitat polygons in the survey area and buffer area. The clearance surveys were conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants* (USFWS 2011) and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017).

Botanical surveys must be conducted in a manner that will maximize the likelihood of finding the target species. Many target species are difficult to see except when they are flowering because the flowers make a target species stand out from the surrounding plants. The flowering period for Ute ladies'-tresses across its range is early July through late October, but most plants bloom between July 20 and August 31 (USFWS 2017). Before proceeding with clearance surveys, biologists coordinated with USFWS to confirm that reference populations of Ute ladies'-tresses were flowering or otherwise identifiable.

Systematic belt transects were established every 5 feet to cover 100% of the potentially suitable habitat mapped in the survey area.[1] To achieve a 100% visual inspection of the ground surface, biologists conducted the surveys by walking the transects to determine whether Ute ladies'-tresses were present. Field data were collected according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011). Clearance surveys were conducted on August 9, 2024, and August 28, 2025, in Area A and on August 28, 2025, in Area C.[2] Attachment A, *Surveyor Qualifications*, provides the names and qualifications of the personnel who conducted the clearance surveys.

In addition, Ute ladies'-tresses might not flower every year. Therefore, in drainages where Ute ladies'-tresses are known to occur, USFWS recommends that surveys be conducted annually for 3 consecutive years (USFWS 2017). The survey results presented in this biological assessment are for the first 2 years of surveys for Area A and for the first year of surveys for Area C. The habitat identified in Area B was identified in November 2025 and has not received a clearance survey. One more year of survey is planned for Area A (to be performed in 2026), 2 more years of surveys are planned for Area C (to be performed in 2026 and 2027), and 3 years of surveys are planned for Area B (to be performed in 2026, 2027, and 2028).

Results

Habitat Evaluation

A total of 4.15 acres of potentially suitable Ute ladies'-tresses habitat were identified in May and June 2024 in Area A, a total of 1.14 acres were identified in May 2025 in Area C, and a total of 0.73 acre was identified in November 2025 in Area B. Figure 1 provides an overview map of the survey area and buffer area, Figure 2 provides a map of Area A, Figure 3 provides a map of Area B, and Figure 4 provides a map of Area C.

The wetlands identified in Area A are located on both sides of the existing UTA and Union Pacific Railroad (UP) tracks. These wetlands are dominated by mountain rush and common spikerush (*Eleocharis palustris*), which are two plant species commonly associated with Ute ladies'-tresses across its range in Utah. This habitat receives adequate soil moisture through shallow groundwater, the habitat has an open canopy, and additional flowering plants are present to attract pollinators, all of which are critical needs for Ute ladies'-tresses. Figure 5 and Figure 6 provide representative photos of the mapped potentially suitable habitat identified in these wetlands.

[1] Proposed survey times and transect widths are those specified by USFWS (2011).

[2] A clearance survey has not been conducted in the habitat that was identified in November 2025.

The pastures identified in Area B are located north of the existing UTA and UP tracks and just east of 5750 West and south of 7300 North in American Fork. Potentially suitable habitat was identified and mapped in two different polygons in the pastures. The northern polygon is dominated by mountain rush, timothy (*Phleum pratense*), and tufted hairgrass (*Deschampsia cespitosa*), and the southern polygon is dominated by tufted hairgrass, clustered field sedge (*Carex praegracilis*), and showy milkweed (*Asclepias speciosa*), all of which are species commonly associated with Ute ladies'-tresses across its range in Utah. This habitat receives adequate soil moisture through shallow groundwater, the habitat has an open canopy, and additional flowering plants are present to attract pollinators, all of which are critical needs for Ute ladies'-tresses. Ute ladies'-tresses were observed in these pastures in the past, but no recent surveys have been conducted to confirm their current presence. Figure 7 and Figure 8 provide representative photos of the mapped potentially suitable habitat identified in these pastures.

The pasture identified in Area C is located south of the existing UTA tracks and south of 8020 North in Lehi. The part of the pasture identified with potentially suitable Ute ladies'-tresses habitat was dominated by mountain rush, a plant species commonly associated with Ute ladies'-tresses across its range in Utah. This habitat receives adequate soil moisture through shallow groundwater, the habitat has an open canopy, and additional flowering plants are present to attract pollinators, all of which are critical needs for Ute ladies'-tresses. Figure 9 provides a representative photo of the mapped potentially suitable habitat identified in this pasture.

Clearance Surveys

Clearance surveys were conducted on 4.15 acres of potentially suitable Ute ladies'-tresses habitat that were identified in Area A. These surveys did not identify any Ute ladies'-tresses individuals. Because USFWS recommends that Ute ladies'-tresses surveys be conducted annually for 3 consecutive years (USFWS 2017), 1 more year of clearance surveys will be conducted on these 4.15 acres in 2026. Clearance surveys conducted on the 1.14 acres of potentially suitable Ute ladies'-tresses habitat that were identified in Area C did not identify any Ute ladies'-tresses individuals. Two more years of clearance surveys will be conducted on these 1.14 acres in 2026 and 2027. Additionally, 3 years of clearance surveys will be conducted on the 0.73 acre of potentially suitable Ute ladies'-tresses habitat that was identified in Area B (to be performed in 2026, 2027, and 2028).

Figure 2. Area A

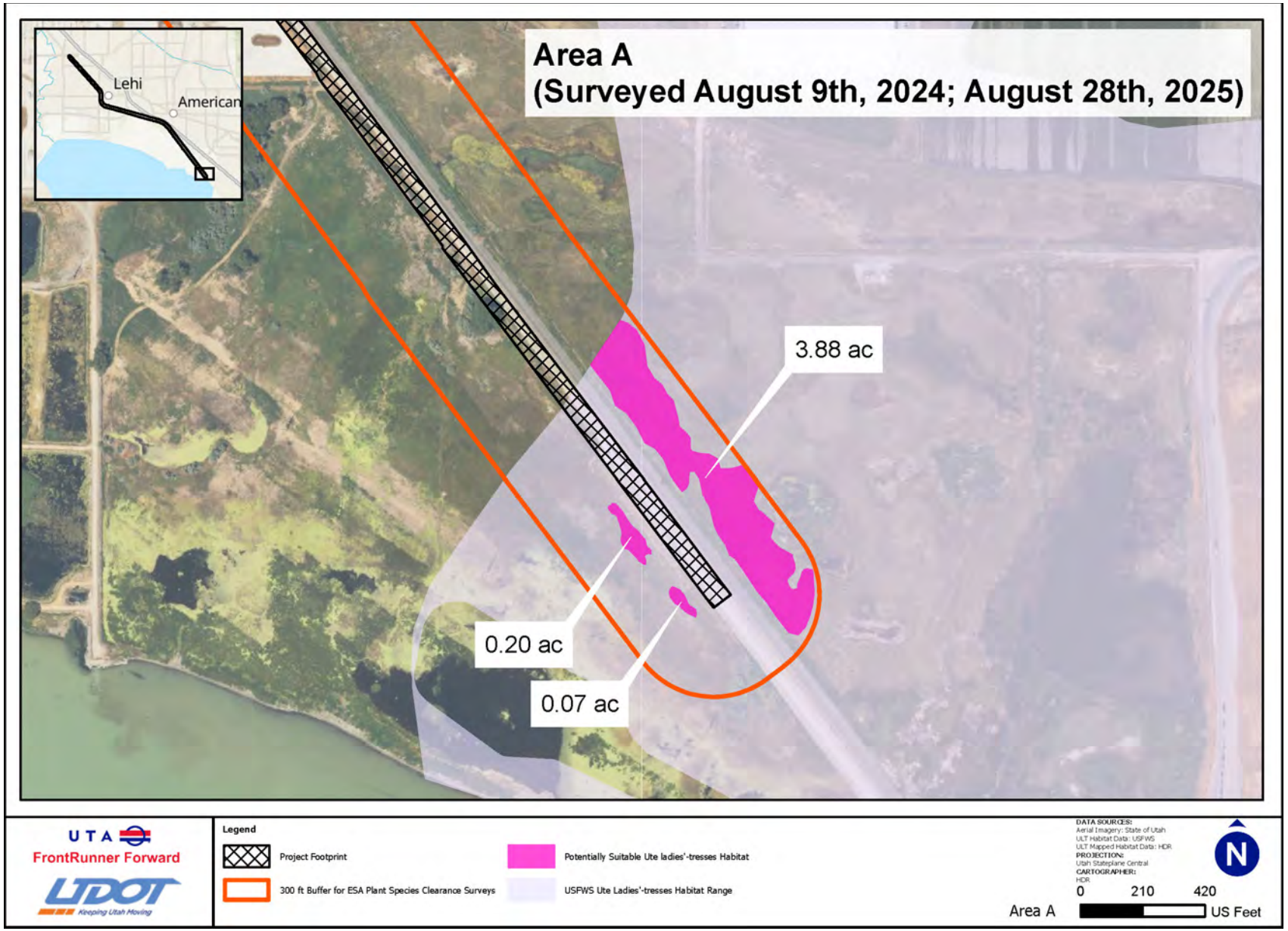


Figure 3. Area B

Figure 4. Area C

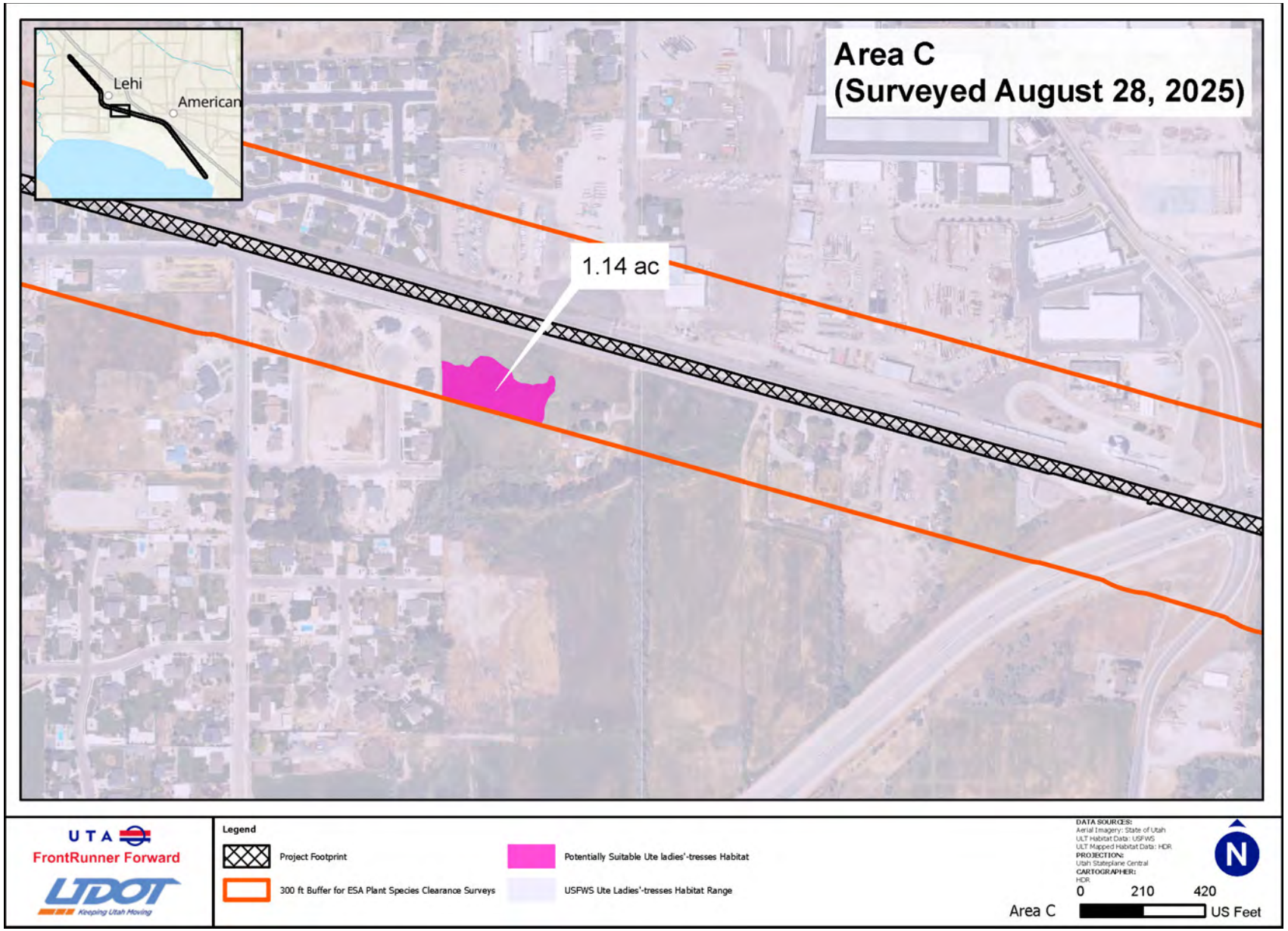


Figure 5. Potentially suitable Ute ladies'-tresses habitat in Area A (east side of the existing UTA and UP tracks)

Figure 6. Potentially suitable Ute ladies'-tresses habitat in Area A (west side of the existing UTA and UP tracks)

Figure 7. Potentially suitable Ute ladies'-tresses habitat in Area B (northern polygon)

Figure 8. Potentially suitable Ute ladies'-tresses habitat in Area B (southern polygon)

Figure 9. Potentially suitable Ute ladies'-tresses habitat in Area C (south of UTA tracks)

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FRONTRUNNER
POINT IMPROVEMENTS UTA UDOT

Attachment A

Surveyor Qualifications

Michael Perkins – Senior Biologist

Michael earned a Bachelor of Arts in Biology from the University of Utah in 2001 and a Master of Science in Environmental Science from the same institution in 2004. He brings 25 years of experience in environmental services, specializing in biological sciences, environmental planning, permitting, mitigation, and compliance. His extensive fieldwork includes surveys and monitoring for special-status species such as rare plants, greater sage-grouse, raptors, and other migratory birds. He also performs jurisdictional wetland delineations and functional assessments, vegetation surveys, and environmental compliance monitoring. Since 2001, Michael has conducted surveys for ULT, including reconnaissance surveys for suitable habitat and presence/absence surveys during the blooming season in Utah, Idaho, Colorado, and Wyoming. Additionally, he has conducted canyon-wide population counts and monitored demography plots for ULT in Diamond Fork Canyon, Utah.

Katherine Wollman – Environmental Scientist

Katherine earned a Bachelor of Arts in Biology and Environmental Science from Northern State University (Aberdeen, SD) in 2016 and a Master of Science in Fisheries Science from South Dakota State University in 2019. She has over 6 semester hours in biology, entomology and botany courses, including Plant Structures & Function, and 6.5 years of industry experience specializing in water quality, environmental planning, permitting, mitigation, and compliance. Her fieldwork experience includes surveys and monitoring for water quality, freshwater mussels, macroinvertebrates, and endangered species. She also performs jurisdictional wetland delineations and functional assessments, vegetation surveys, and environmental compliance monitoring. Since 2024, Katherine has conducted surveys for ULT, including reconnaissance survey for suitable habitat and presence/ absence surveys during the blooming season in Utah.

Appendix C

UTA FrontRunner American Fork River Bridge Inspection Memo

Memo

Date:	Tuesday, November 12, 2024
Project:	FrontRunner Point Improvements
To:	UTA/UDOT
From:	Nash G. Wilson, P.E. (HDR)
Subject:	American Fork River Bridge (MP S31.57)

On June 23, 2024, HDR performed a routine bridge inspection on the American Fork River Bridge on the FrontRunner South line located at milepost 31.57. This bridge carries UTA's commuter rail over the American Fork River near 10 West 450 South in American Fork.

Figure 1 – North Abutment

The existing north and south abutments located west of the structure were constructed to accommodate a future rail line (Figure 1). These were inspected in addition to the in-service structure and the following defects were noted:

- Vertical cracking up to 0.01" wide (Figure 2)
- 9" Tall x 13" Wide shallow spall in Northwest Wingwall (Figure 3)

Figure 2 – Narrow Vertical Cracking in North Abutment

Figure 3 – Shallow Spall in Northwest Wingwall

These defects are considered minor and do not diminish the as-built capacity of the substructure. Work to be performed on this bridge is not anticipated to disturb the American Fork River and potential June Sucker habitat. The minor defect repair work can be accessed without entering the American Fork River and equipment access for superstructure work will be from above the river. See Figures 4 and 5 for potential site access.

Figure 4 - Potential Crane and Girder Staging Area

Figure 5 - Potential Equipment Access