# Biological Resources Evaluation

## Nebo Regional Water Project EA

**February 26, 2026**

U.S. Department of the Interior – CUPCA Office
Bureau of Reclamation
Utah Reclamation Mitigation and Conservation Commission
Central Utah Water Conservancy District

# Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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# Abbreviations

| Abbreviation | Definition |
|---|---|
| CCA | Candidate Conservation Agreement |
| District | Central Utah Water Conservancy District |
| EA | environmental assessment |
| ECOS | Environmental Conservation Online System |
| ESA | Endangered Species Act |
| HUC | Hydrologic Unit Code |
| IPaC | Information for Planning and Consultation |
| NEPA | National Environmental Policy Act |
| Proposed Project | Nebo Regional Water Project |
| TNW | traditional navigable water |
| UP | Union Pacific Railroad |
| USC | *United States Code* |
| USFWS | U.S. Fish and Wildlife Service |

# 1.0 Introduction

The Central Utah Water Conservancy District (District) is a regional wholesale provider that serves seven counties (all of Utah, Salt Lake, Wasatch, Duchesne, and Uintah Counties, as well as part of Juab and Summit Counties) in central Utah and collaborates with other agencies to serve its constituents. The District's primary responsibility is to deliver a safe and secure water supply to its customers by managing the federal Central Utah Project and the District's network of non-federal water facilities. The District is a water wholesaler to various cities and irrigation districts. The Central Utah Project Completion Act (Public Law 102-575, Section 205) required that the District enter into an agreement with the U.S. Department of the Interior to act as a federal agency for compliance with environmental laws, including the National Environmental Policy Act (NEPA).

As Joint Lead Agencies, the District, the U.S. Bureau of Reclamation, the U.S. Department of the Interior – Central Utah Project Completion Act Office, and the Utah Reclamation Mitigation and Conservation Commission are preparing an environmental assessment (EA) in accordance with NEPA, 42 *United States Code* (USC) Section 4321 and subsequent sections, and applicable regulations for the proposed Nebo Regional Water Project (Proposed Project).

The Proposed Project would develop an integrated raw (or untreated) water and finished (or treated) water delivery system that is reliable, resilient, and able to serve current and future municipal and industrial and agricultural water demands in southern Utah County and eastern Juab County.

# 2.0 Regulatory Setting

## 2.1 Threatened and Endangered Species

The Endangered Species Act (ESA; 16 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 for the purpose of, carrying out an otherwise lawful activity
- The take is for scientific purposes or to enhance the propagation or survival of the species

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.

## 2.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 USC Sections 703–712) makes it unlawful to pursue, hunt, take, capture, kill, possess, sell, barter, purchase, transport, export, or import any migratory bird or any part, nest, or egg of any such bird, with the exception of the taking of game birds during established hunting seasons. Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (January 10, 2001), directs federal agencies taking actions likely to affect migratory birds to support the implementation of the Migratory Bird Treaty Act.

## 2.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC Sections 668–668d) makes it unlawful to take, import, export, sell, purchase, transport, or barter any bald or golden eagle or their parts, products, nests, or eggs. “Take” includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing eagles.

## 2.4 Candidate Conservation Agreements

USFWS considers candidate species to be those plants and animals that are candidates for listing under the ESA. These are species for which there is enough information regarding their biological status and threats to propose them as threatened or endangered, but listing is currently precluded by higher-priority listing activities. Candidate species are not subject to the legal protections of the ESA.

A Candidate Conservation Agreement (CCA) is a formal, voluntary agreement among USFWS and one or more parties to address the conservation needs of candidate species or species that could become candidates in the near future. Participants voluntarily commit to implementing specific actions designed to remove or reduce threats to the covered species. Developing a CCA is one of the primary ways to identify appropriate conservation efforts. Proactive conservation efforts for candidate species can, in some cases, eliminate the need to list them under the ESA.

# 3.0 Methodology

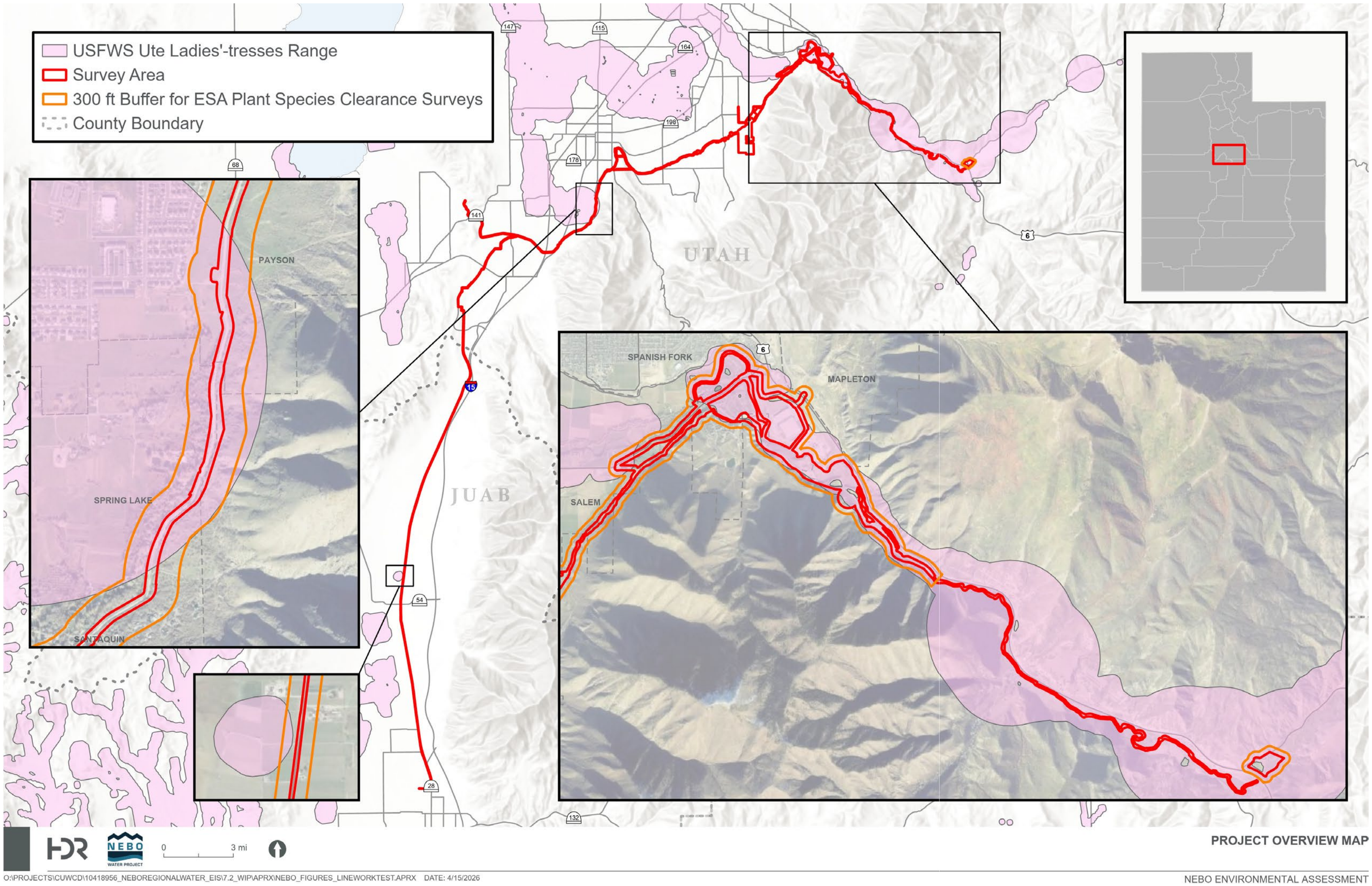
## 3.1 Survey Area

The survey area for the Proposed Project encompasses about 1,324 acres, ranges in elevation between about 4,600 feet and 5,000 feet, and traverses about 46 miles within Utah and Juab Counties. Beginning on Diamond Fork Road in Spanish Fork Canyon, the survey area follows the Spanish Fork River westward until it reaches Spanish Fork City at the entrance to the canyon. From there, the survey area continues southwest, generally following the alignment of the Strawberry High Line Canal through Salem, Payson, Spring Lake, Santaquin, and Genola. From Santaquin and Genola, the survey area turns south and generally follows several county roads and the Union Pacific Railroad (UP) tracks until it reaches the town of Rocky Ridge, at which point it follows Old Highway 91 through Mona, ending in Nephi. Figure 1 provides an overview map of the survey area.

The section of the survey area within Spanish Fork Canyon is part of the Semiarid Foothills subregion of the Wasatch and Uinta Mountains ecoregion (Woods and others 2001). Livestock grazing is a common land use in the Semiarid Foothills subregion, and pinyon-juniper woodlands are widely spaced and interspersed with sagebrush and grasslands. The section of the survey area from Spanish Fork to Rocky Ridge is part of the Moist Wasatch Front Footslopes subregion of the Central Basin and Range ecoregion (Woods and others 2001). This 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 section of the survey area from Rocky Ridge to Nephi is part of the Sagebrush Basins and Slopes subregion of the Central Basin and Range ecoregion (Woods and others 2001). The Sagebrush Basins and Slopes subregion is semiarid and dominated by Wyoming big sagebrush. Major land uses in this subregion include grazing, feedlots, dairy operations, and irrigated cropland.

The section of the survey area between Diamond Fork Road in Spanish Fork Canyon and Santaquin is located in the Spanish Fork watershed, Hydrologic Unit Code (HUC) 16020202 (USGS 2026a). This section of the survey area contains several named aquatic features, including Diamond Fork Creek, the Spanish Fork River, the East Bench Canal, the Strawberry High Line Canal, the Power Canal, and the South Field Canal. Peteetneet Creek and Dry Creek also briefly intersect the survey boundary southeast of Payson.

**Figure 3-1**
**Overview Map of the Survey Area**



Diamond Fork Creek originates northeast of the survey area, in Diamond Fork Canyon. In addition to conveying natural drainage, the creek serves as a conduit for water transported from Strawberry Reservoir to the Wasatch Front before it drains into the Spanish Fork River at the mouth of the canyon (USDI, no date). The Spanish Fork River flows 20 miles from the confluence of Soldier and Thistle Creeks through Spanish Fork and the Lake Shore before it drains into Utah Lake, a traditional navigable water (TNW; RouteYou 2026). The river serves agricultural, municipal, and recreational purposes. Starting at the mouth of the canyon, several canals divert water from the Spanish Fork River, including the East Bench Canal, Power Canal, Strawberry High Line Canal, and South Field Canal. Water from these canals is used for farmland and residential areas before eventually entering the Utah Lake watershed through natural drainage (USBR 1995; USGS 2026b).

Peteetneet Creek originates in the mountains south of Payson and flows northwest through Payson Canyon. At the mouth of the canyon, the creek divides based on flow levels: low flows during the irrigation season remain in the modified channel known locally as City Ditch, while higher flows during the nonirrigation season are diverted into the overflow channel called West Ditch. Water that remains in City Ditch is used for irrigation and municipal purposes before eventually reentering the watershed through localized drainage systems. Overflow conveyed through West Ditch continues out of the survey area, where it joins Spring Creek in west Payson (UDWRi 1995). Dry Creek diverges from Peteetneet Creek via a box culvert just south of the intersection of Nebo Loop Road and E Canyon Road near the mouth of Payson Canyon. From there, Dry Creek flows through southern Payson, where surface water is frequently diverted for irrigation and municipal use. Remaining flows continue west out of the survey area before ultimately joining Spring Creek. This creek then flows north, where it eventually discharges into Utah Lake, a TNW (UDWRi 1995).

The section of the survey area south of Santaquin down to Nephi is located in the Utah Lake watershed, HUC 16020201 (USGS 2026b). This portion of the survey area does not contain any named aquatic resources.

The survey area for the Proposed Project consists primarily of existing roadways, canal systems, developed and undeveloped upland areas, a gravel pit, agriculture fields, the UP railroad, wetland areas, and riparian corridors.

The section of the survey area located within Spanish Fork Canyon is composed primarily of riparian corridors along the Spanish Fork River and Diamond Fork Creek and wetland areas near Diamond Fork Creek. Dominant plant species observed in the wetland areas include mountain rush (*Juncus arcticus* ssp. *littoralis*), reed canarygrass (*Phalaris arundinacea*), narrowleaf willow (*Salix exigua*), shining willow (*Salix lucida*), peachleaf willow (*Salix amygdaloides*), narrowleaf cattail (*Typha angustifolia*), and broadleaf cattail (*Typha latifolia*), as well as *Carex* species including water sedge (*Carex aquatilis*), Nebraska sedge (*Carex nebrascensis*), and clustered field sedge (*Carex praegracilis*). Dominant plant species observed along the riparian corridor for the Spanish Fork River and Diamond Fork Creek include box elder (*Acer negundo*), narrowleaf cottonwood (*Populus angustifolia*), and reed canarygrass, as well as willow species including narrowleaf willow, shining willow, and peachleaf willow.

The section of the survey area between Spanish Fork and Rocky Ridge is composed of developed and undeveloped uplands, a wetland just southeast of Genola, and riparian corridors along the Spanish Fork River and portions of three canals (the East Bench Canal, Strawberry High Line Canal, and Salem Canal) and other streams in the survey area. The wetland plant community is dominated by narrowleaf willow, common reed, and broadleaf cattail. Dominant plant species observed along the riparian corridors of this section of the survey area include box elder, Fremont cottonwood (*Populus fremontii*), Siberian elm (*Ulmus pumila*), Russian olive (*Elaeagnus angustifolia*), and narrowleaf willow.

The section of the survey area between Rocky Ridge and Nephi is composed of developed and undeveloped uplands. Uplands throughout the survey area consist of sagebrush grasslands and mountain shrubs composed of big sagebrush (*Artemisia tridentata*), rabbitbrush species, Canada wildrye (*Elymus canadensis*), basin wildrye (*Leymus cinereus*), intermediate wheatgrass (*Thinopyrum intermedium*), meadow fescue (*Schedonorus pretensis*), smooth brome, crested wheatgrass (*Agropyron cristatum*), common sunflower (*helianthus annuus*), western goldentop (*Euthamia occidentalis*), golden currant (*Ribes aureum*), scrub oak (*Quercus berberidifolia*), rough cocklebur (*Xanthium strumarium*), antelope bitterbrush (*Purshia tridentata*), Canada thistle (*Cirsium arvense*), and broom snakeweed (*Gutierrezia sarothrae*), as well as other herbaceous species.

## 3.2 Data Collection

To collect data regarding the biological resources in the survey area, the District conducted literature reviews, interpreted aerial photographs, and performed reconnaissance-level field surveys for wildlife, vegetation, and rare, threatened, and endangered species throughout October, November, and December 2025.

The District obtained a species list from the USFWS IPaC website for federally threatened, endangered, or candidate species that might occur in the survey area and/or might be affected by the Proposed Project (USFWS 2026a). The District also referred to the USFWS Environmental Conservation Online System (ECOS) for a list of species under conservation agreement that are known to occur in Utah and Juab Counties (USFWS 2026b). Additionally, the District obtained a species list from the Utah Division of Wildlife Resources' Wildlife Habitat Analysis Tool to determine whether there are records of occurrence for any of the federally listed threatened, endangered, and candidate species or species under conservation agreement in the vicinity of the survey area (UDWRe 2026a). Reports from IPaC and the Wildlife Habitat Analysis Tool are provided in Attachment A, *Species Lists*.

The Utah Species Field Guide (UDWRe, no date), NatureServe (no date), Audubon (no date), Cornell Lab's All About Birds website (Cornell Lab of Ornithology 2019), Utah Native Plant Society (no date), *A Utah Flora* (Welsh and others 2016), and species-specific recovery plans in USFWS's ECOS (USFWS 2025b, 2025c) were referenced for species' preferred habitat descriptions.

### 3.2.1 Riparian Areas Evaluation

Woody riparian vegetation was mapped in the survey area and in a half-mile buffer of the survey area. These areas were mapped through a combination of reconnaissance-level field surveys and desktop analysis of aerial images. The mapped woody riparian vegetation consisted of plant communities dominated by shrubs and trees that are typically associated with aquatic resources such as narrowleaf cottonwood, Fremont cottonwood, narrowleaf willow, shining willow, and box elder.

# 4.0 Results

## 4.1 Threatened, Endangered, and Candidate Species

The IPaC report identified three federally listed species that might occur in the survey area and/or might be affected by the Proposed Project: two bird species, Mexican spotted owl (*Strix occidentalis*) and yellow-billed cuckoo (*Coccyzus americanus*); 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 survey area does not include designated or proposed critical habitat for these species.

Table 4-1 describes the preferred habitat for each of these species. Potentially suitable habitat does not exist in the survey area for Mexican spotted owl. Potentially suitable habitat exists in the survey area for yellow-billed cuckoo, Ute ladies'-tresses, monarch butterfly, and Suckley's cuckoo bumble bee.

**Table 4-1**
**Federally Listed Species That Might Occur in the Survey Area and/or Might Be Affected by the Proposed Project**

| Common Name[a] (Scientific Name) | Federal Status | Preferred Habitat[b] | Critical Habitat Present?[c] | Potentially Suitable Habitat Present? |
|---|---|---|---|---|
| **Birds** | | | | |
| Mexican spotted owl (*Strix occidentalis lucida*) | Threatened | Mexican spotted owls are nonmigratory and occupy a variety of habitats in different parts of their range including mixed conifer forests and steep-walled rocky canyons. In Utah, Mexican spotted owls nest almost exclusively in rocky canyon habitats. Nesting sites are often located in landscapes with complex tributary canyons, desert scrub or riparian vegetation communities, and prominent vertical cliffs (USFWS 2012). Canyon habitats typically include parallel canyon walls with steep cliffs that extend for at least 0.6 mile, narrow canyon widths (less than 0.6 mile rim to rim), and large cliff faces (normally greater than 50 feet tall with numerous ledges and caves) (USFWS 2012; Attachment C). Rock walls must include caves, ledges, and fracture zones that provide protected nest and roost sites. When USFWS designated critical habitat for Mexican spotted owl (69 *Federal Register* 53182), it described the following primary constituent elements for canyon habitat (one or more of the following):<br>• Presence of water (provides a complex vegetation community and a cooler and more humid microclimate)<br>• Clumps or stringers of mixed conifer, pinyon-juniper, pine-oak, and/or riparian vegetation<br>• Relatively tall canyon walls containing crevices, ledges, and caves | Final critical habitat has been designated for this species. The survey area is outside the critical habitat. | There is no suitable habitat in the survey area or within a 0.5-mile radius.[d] The area does not provide canyon habitat of the appropriate dimensions. |

| Common Name[a] (Scientific Name) | Federal Status | Preferred Habitat[b] | Critical Habitat Present?[c] | Potentially Suitable Habitat Present? |
|---|---|---|---|---|
| | | • A high percentage of ground litter and woody debris | | |
| 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 survey area is outside the critical habitat. | A total of 177.69 acres of potentially suitable habitat were identified in the survey area and within a 0.5-mile radius.[d] The area provides patches of multilayered riparian vegetation along the Spanish Fork River. The yellow-billed cuckoo habitat evaluation is described in Attachment B, *Yellow-billed Cuckoo Habitat Evaluation*. There are records of individuals within 0.5-mile and 2-mile radii of the survey area (UDWRe 2026a). |
| **Insects** | | | | |
| Monarch butterfly (*Danaus plexippus*) | Proposed[e] 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 | There is proposed critical habitat for this species. The survey area is outside the critical habitat. | Potentially suitable habitat exists in the survey area. Milkweed plants were observed during the field survey. There are records of individuals within |

| Common Name[a] (Scientific Name) | Federal Status | Preferred Habitat[b] | Critical Habitat Present?[c] | Potentially Suitable Habitat Present? |
|---|---|---|---|---|
| | | 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). | | 0.5-mile and 2-mile radii of the survey area (UDWRe 2026a). |
| Suckley's cuckoo bumble bee (*Bombus suckleyi*) | Proposed[e] 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 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. 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 survey area. The area offers potential nesting sites and diverse native floral resources for foraging. |

| Common Name[a] (Scientific Name) | Federal Status | Preferred Habitat[b] | Critical Habitat Present?[c] | Potentially Suitable Habitat Present? |
|---|---|---|---|---|
| **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. | Potentially suitable habitat was identified in the survey area and within a 300-foot radius,[d] specifically 0.40 acre on stream terraces along the banks of the Spanish Fork River and 4.47 acres in wetlands near and on stream terraces along Diamond Fork Creek. The Ute ladies'-tresses habitat evaluation is described in Attachment C, *Ute Ladies'-tresses Habitat Evaluation*. There are records of individuals within 0.5-mile and 2-mile radii of the survey area (UDWRe 2026a). |

[a] Source: Species list from USFWS 2026a

[b] Sources: Audubon, no date; NatureServe, no date; UDWRe, no date; Utah Native Plant Society, no date; and species-specific recovery plans in USFWS's ECOS (USFWS 2026c)

[c] "Critical habitat" is a term defined in the ESA (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 might need special management or protection.

[d] The recommended buffer for Mexican spotted owls is based on guidance from USFWS's *Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* (USFWS 2002) and the USFWS survey protocol for Mexican spotted owls (USFWS 2022). The recommended

buffer for yellow-billed cuckoos is based on USFWS's guidelines for identifying suitable habitat for yellow-billed cuckoos in Utah (USFWS 2017b). The recommended buffer for Ute ladies'-tresses is based on guidance from *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).

[e] 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 2026d).

## 4.2 Species under Conservation Agreement

The USFWS ECOS identified five species under conservation agreement that are known to occur in Utah and Juab Counties: one amphibian species, Columbia spotted frog (*Rana luteiventris*); one bird species, greater sage-grouse (*Centrocercus urophasianus*); and three fish species, Bonneville cutthroat trout (*Oncorhynchus clarkii utah*), Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*), and least chub (*Iotichthys phlegethontis*). Table 4-2 describes the preferred habitat for each species. There is no suitable habitat in the survey area for greater sage-grouse, Colorado River cutthroat trout, or least chub. Potentially suitable habitat exists in the survey area for Columbia spotted frog and Bonneville cutthroat trout.

**Table 4-2**
**Species under Conservation Agreement That Are Known to Occur in Salt Lake County**

| Common Name[a] (Scientific Name) | Preferred Habitat[b] | Potentially Suitable Habitat Present? |
|---|---|---|
| ***Amphibians*** | | |
| Columbia spotted frog (*Rana luteiventris*) | Columbia spotted frogs are highly aquatic and are rarely found far from permanent quiet water. They usually live at the grassy/sedgy margins of streams, lakes, ponds, springs, and marshes and use stream-side small mammal burrows as shelter. Breeding typically occurs in small pools or ponds with little or no current surrounded by dense aquatic vegetation. | Potentially suitable breeding habitat exists in the survey area in ponded areas associated with wetlands, open water ponds, and streams. There are records of individuals within 0.5-mile and 2-mile radii of the survey area (UDWRe 2026a). |
| ***Birds*** | | |
| Greater sage-grouse (*Centrocercus urophasianus*) | Greater sage-grouse are found throughout Utah in sagebrush steppe communities. Sagebrush is an essential part of sage-grouse habitat, with associated wet meadow areas and a good understory of grasses and forbs signifying quality habitat. | There is no suitable habitat in the survey area. The survey area does not contain extensive sagebrush habitat, and the survey area is not located in a sage-grouse management area. |
| ***Fish*** | | |
| Bonneville cutthroat trout (*Oncorhynchus clarkii utah*) | Habitat for Bonneville cutthroat trout ranges from high-elevation streams with coniferous and deciduous riparian trees, to low- | Potentially suitable habitat exists in the survey area. This species is known to occur in Diamond Fork |

| **Common Name[a] (Scientific Name)** | **Preferred Habitat[b]** | **Potentially Suitable Habitat Present?** |
|---|---|---|
| | elevation streams in sage-steppe grasslands containing herbaceous riparian zones, to lakes. | Creek and the Spanish Fork River. There are records of individuals within a 2-mile radius of the survey area (UDWRe 2026a). |
| Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) | Colorado River cutthroat trout require cool, well-oxygenated water and vegetated streambanks for cover and bank stability. Deep pools, boulders, and logs are also important for cover. Colorado River cutthroat trout are native to the Colorado River basin and are currently limited to a few small headwater streams of the Green and upper Colorado Rivers in Colorado, Utah, and Wyoming. | There is no suitable habitat in the survey area. This species is not known to occur in any of the streams in the survey area. |
| Least chub (*Iotichthys phlegethontis*) | Least chubs are endemic to the Bonneville Basin of Utah. There are only five wild populations: three in the Snake Valley in Utah's West Desert and two in the Sevier River drainage. Least chubs inhabit spring-fed marshes and wetlands. | There is no suitable habitat in the survey area. This species is not known to occur in any of the streams in the survey area. There are records of individuals within 0.5-mile and 2-mile radii of the survey area (UDWRe 2026a). |

[a] Source: Species list from USFWS ECOS (2025b)

[b] Sources: Audubon, no date; Cornell Lab of Ornithology, 2019; NatureServe, no date; UDWRe, no date; and species-specific recovery plans in USFWS ECOS (2025b)

## 4.3 General Wildlife Species

Large mammals found in the survey area include elk (*Cervus canadensis*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), mountain lions (*Puma concolor*), black bears (*Ursus americanus*), and coyotes (*Canis latrans*). Smaller animals found in the survey area include birds, raccoons, skunks, foxes, beavers, rabbits, squirrels, bats, voles, marmots, weasels, muskrats, snakes, and mice. Game fish, including rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), and Bonneville cutthroat trout are known to occur in Diamond Fork Creek, the Spanish Fork River, and Peteetneet Creek. Non-game species such as mountain whitefish (*Prosopium williamsoni*), mottled sculpin (*Cottus bairdii*), and mountain sucker (*Catostomus platyrhynchus*) are also present in these streams.

### 4.3.1 Big-game Species

The survey area crosses several locations identified as big-game habitat. Information regarding big-game habitat in Utah was obtained from Utah Division of Wildlife Resources habitat range maps (UDWRe 2026b). Big-game habitat is described in terms of seasonal use (year-long, winter, spring, or summer) and habitat value (crucial or substantial).

- Crucial-value habitat is defined by the Utah Division of Wildlife Resources as "habitat on which the local population of a wildlife species depends for survival because there are no alternate ranges or habitats available. Crucial habitat is essential to the life history requirements of a wildlife species."
- Substantial-value habitat is defined by the Utah Division of Wildlife Resources as "habitat that is used by a wildlife species but is not considered crucial for population survival."

Table 4-3 identifies the seasonal use and habitat value for big-game species habitat that crosses the survey area. Attachment D, *Big-game Species Habitat Maps*, provides Utah Division of Wildlife Resources overview maps of big-game habitat in relation to the survey area for each species listed in Table 4-3. Based on maps provided by the Utah Division of Wildlife Resources, a known mule deer migration corridor crosses the survey area (UDWRe 2026c, 2026d).

**Table 4-3**
**Big-game Habitat in the Survey Area**

| Common Name (Scientific Name) | Seasonal Use and Habitat Value |
|---|---|
| Elk (*Cervus canadensis*) | Winter, crucial habitat |
| Moose (*Alces alces*) | Year-long, substantial habitat; winter, substantial habitat |
| Mule deer (*Odocoileus hemionus*) | Winter, crucial habitat; winter/spring, crucial habitat; winter/spring, substantial habitat |

Source: UDWRe 2026b

## 4.4 Migratory Birds

Potentially suitable nesting and foraging habitat exists within tree and shrub communities along the riparian corridors of the Spanish Fork River, Diamond Fork Creek, the East Bench Canal, the South Field Canal, and portions of the Strawberry High Line Canal, as well as along various canal and stream corridors in the survey area. Suitable foraging and nesting habitat is also present in the wetland areas near Diamond Fork Creek and in upland shrub communities distributed throughout the survey area.

## 4.5 Riparian Areas

A total of 427.88 acres of riparian vegetation was mapped within the survey area and within a half-mile buffer of the survey area. Attachment E, *Riparian Areas Maps*, provides overview maps of the riparian areas.

# 5.0 Summary

## 5.1 Federally Listed Species

The IPaC report identified two federally listed bird species (Mexican spotted owl and yellow-billed cuckoo), one federally listed plant species (Ute ladies'-tresses), and two insect species proposed for ESA listing (monarch butterfly and Suckley's cuckoo bumble bee) that might occur in the survey area and/or might be affected by the Proposed Project. Of these species, the District identified potentially suitable habitat for yellow-billed cuckoo, monarch butterfly, Suckley's cuckoo bumble bee, and Ute ladies'-tresses.

**Yellow-billed Cuckoo.** Yellow-billed cuckoos prefer to nest in tall cottonwood and willow riparian woodland with dense understory foliage. 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).

A total of 177.69 acres of potentially suitable habitat were identified in the survey area and within a 0.5-mile radius in Spanish Fork Canyon. The area provides patches of multilayered riparian vegetation along the Spanish Fork River. Any fill or disturbance within this habitat would eliminate potential suitability. Additionally, modifications to the hydrologic regime could change the characteristics of the riparian vegetation to a point at which it is no longer potentially suitable for yellow-billed cuckoos.

**Monarch Butterfly.** Milkweed is an essential feature of quality monarch habitat, and milkweed plants were observed growing in the survey area. 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 2025d). Given that the proposed critical habitat for this species is outside the survey area, the Proposed Project would not jeopardize the continued existence of monarch butterflies.

**Suckley’s Cuckoo Bumble Bee.** Suckley’s cuckoo bumble bee is an obligate parasitic species that is entirely dependent on the workers of host colonies to raise its young; the western bumble bee is the most widely known host. Western bumble bees nest primarily in underground cavities and abandoned animal burrows. Suckley’s cuckoo bumble bees are found across North America between 6 and 10,500 feet in elevation. They require diverse pollen and nectar resources for nutrition, and common habitat types include prairies, grasslands, meadows, woodlands, forests, croplands, and urban areas. Potentially suitable nesting and foraging habitat exists in the survey area. Ground disturbance would eliminate potential nesting sites, and vegetation removal would eliminate potential foraging material.

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 2025d). Suckley’s cuckoo bumble bees have not been observed in the United States since 2016 (USFWS 2024), and critical habitat has not been proposed for this species. 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 Proposed Project would not jeopardize the continued existence of Suckley’s cuckoo bumble bees.

**Ute Ladies’-tresses.** Ute ladies’-tresses are found 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 grow in seasonally flooded river terraces, subirrigated or spring-fed abandoned stream channels and valleys, and lake shores. Populations have also been observed growing along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands.

Potentially suitable habitat was identified in the survey area and within a 300-foot radius, specifically 0.40 acre on stream terraces along the banks of the Spanish Fork River and 4.47 acres in wetlands near and on stream terraces along Diamond Fork Creek. Any fill or disturbance within this habitat would eliminate potential suitability. Additionally, dust generated during construction could indirectly harm plants. The accumulation of fugitive dust on plants could inhibit photosynthesis and reproduction. Additionally, modifications to the hydrologic regime could reduce or eliminate the potentially suitable habitat for Ute ladies'-tresses.

## 5.2 Species under Conservation Agreement

The USFWS ECOS identified five species under conservation agreement that are known to occur in Utah and Juab Counties: one amphibian species (Columbia spotted frog), one bird species (greater sage-grouse), and three fish species (Bonneville cutthroat trout, Colorado River cutthroat trout, and least chub). Of these species, the District identified potentially suitable habitat for Columbia spotted frog and Bonneville cutthroat trout.

**Columbia Spotted Frog.** Columbia spotted frogs are highly aquatic and are rarely found far from permanent quiet water. They usually live at the grassy/sedgy margins of streams, lakes, ponds, springs, and marshes and use stream-side small mammal burrows as shelter. Breeding typically occurs in small pools or ponds with little or no current surrounded by dense aquatic vegetation. Potentially suitable habitat is located in ponded areas associated with wetlands, open water ponds, and streams.

**Bonneville Cutthroat Trout.** Habitat for Bonneville cutthroat trout ranges from high-elevation streams with coniferous and deciduous riparian trees, to low-elevation streams in sage-steppe grasslands containing herbaceous riparian zones, to lakes. Bonneville cutthroat trout are known to occur in the Spanish Fork River and Diamond Fork Creek. Construction could impede fish passage, increase sedimentation, and reduce water quality. Additionally, reduced flows may reduce pool depth, limit cover provided by riparian vegetation, and increase water temperature, all of which can negatively affect spawning and rearing conditions.

## 5.3 General Wildlife Species and Big-Game Species

The survey area provides habitat for numerous wildlife species, including mapped habitat for elk, moose, and mule deer. Additionally, a known mule deer migration corridor crosses the survey area.

Short-term, local impacts to wildlife would occur during construction of the Proposed Project. Removal of vegetation and increased noise and activity from construction could temporarily and/or permanently displace individual animals from these areas. Increased noise, construction lighting, and human activity during construction could temporarily displace wildlife from the active construction areas.

Impacts to aquatic species from construction could include increased sedimentation and reduced water quality. Additionally, reduced flows in the Spanish Fork River may decrease spawning and rearing conditions and limit habitat connectivity.

## 5.4 Migratory Birds

Potentially suitable nesting and foraging habitat exists within the tree and shrub communities along riparian corridors associated with streams and canals in the survey area. Suitable nesting and foraging habitat is also present in upland shrub communities and in wetland areas throughout the survey area. Removal of trees or shrubs would eliminate these habitats, and construction activities could temporarily disturb avian nesting, hunting, and browsing behavior. In addition, changes to stream flows could affect the availability of water needed to support riparian vegetation.

## 5.5 Riparian Areas

The survey area contains 427.88 acres of riparian areas. Removal of trees or shrubs would permanently eliminate these areas as wildlife habitat, and altered stream flows could impact the water available to support riparian vegetation.

# 6.0 Reference List


Audubon. No date. "Guide to North American Birds." https://www.audubon.org/bird-guide.

Cornell Lab of Ornithology. 2019. "All About Birds." https://www.allaboutbirds.org.

Fertig, W., R. Black, and P. Wolken. 2005. *Rangewide Status Review of Ute Ladies'-tresses (Spiranthes diluvialis).* Prepared for USFWS and the Central Utah Water Conservancy District. Natural Resource Conservation Service. https://efotg.sc.egov.usda.gov/references/Public/WY/UtesRangewideStatusReview2005byFertig.pdf.

NatureServe. No date. "NatureServe Explorer." http://explorer.natureserve.org.

RouteYou. 2026. "Location Information: Spanish Fork." https://www.routeyou.com/en-us/location/view/51421403.

(UDWRe] Utah Division of Wildlife Resources. No date. "Utah Species Field Guide." https://fieldguide.wildlife.utah.gov.

(UDWRe) Utah Division of Wildlife Resources. 2026a. *Wildlife Habitat Analysis Tool Online Species Search Report. Report Number erb_18395.*

(UDWRe) Utah Division of Wildlife Resources. 2026b. "Utah Geospatial Resource Center Habitat Areas." https://dwr-data-utahdnr.hub.arcgis.com.

(UDWRe) Utah Division of Wildlife Resources. 2026c. "Utah Geospatial Resource Center Migration Corridors." https://dwr-data-utahdnr.hub.arcgis.com/datasets/61ca21abff034bb6b209031f694a6fbf_0/explore?location=38.642266%2C-111.733252%2C4.37.

(UDWRe) Utah Division of Wildlife Resources. 2026d. "Mapping Migration Corridors." https://wildlifemigration.utah.gov/land-animals/corridors.

(UDWRi) Utah Division of Water Rights. 1995. *Hydrology and Simulation of Ground-water flow in southern Utah and Goshen Valleys, Utah*. UDWRi. https://waterrights.utah.gov/docSys/v920/y920/y920000g.pdf.

(USBR) U.S. Bureau of Reclamation. 1995. *Strawberry Valley Project*. https://usbr.gov/projects/pdf.php?id=197.

(USDI) U.S. Department of the Interior. No date. "Diamond Fork System." https://www.doi.gov/cupcao/diamond-fork-system.

(USFWS) U.S. Fish and Wildlife Service. 2002. *Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances*. https://www.fws.gov/sites/default/files/documents/Utah_Field_Office_Raptor_Guidance.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2011.*Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants.* https://www.fws.gov/sites/default/files/documents/general-plant-survey-guidelines-2011_0.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2012. *Mexican Spotted Owl Recovery Plan, First Revision (Strix occidentalis lucida).* https://ecos.fws.gov/docs/recovery_plan/MSO_Recovery_Plan_First_Revision_Dec2012.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2017a. *Interim Survey Requirements for Ute Ladies-tresses Orchid (*Spiranthes diluvialis*) [revised].* Original date of publication November 23, 1992. https://www.fws.gov/sites/default/files/documents/SPDI_interimSurveyRequirements_1992_revised%202017.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2017b. *Guidelines for the Identification and Evaluation of Suitable Habitat for Western Yellow-billed Cuckoo in Utah.* https://www.fws.gov/sites/default/files/documents/Guidelines-for-Identificationand-Evaluation-of-Suitable-Habitat-for-Western-Yellow-Billed-Cuckoo-in-Utah-2017.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2022. *Appendix D, Mexican Spotted Owl Survey Protocol.* In Mexican Spotted Owl Recovery Plan, First Revision (Strix occidentalis lucida). Originally published 2012. https://www.fws.gov/sites/default/files/documents/APPENDIX%20D%20-%20Mexican%20spotted%20owl%20Survey%20Protocol%20508%20March%202022_Final.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2024. *Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*) Species Status Assessment. Version 1.0.* https://iris.fws.gov/APPS/ServCat/DownloadFile/263505.

(USFWS) U.S. Fish and Wildlife Service. 2026a. *List of Threatened and Endangered Species for the Nebo Regional Water Project Environmental Assessment.* Species list provided by the Utah Ecological Services Field Office.

(USFWS) U.S. Fish and Wildlife Service. 2026b. *Environmental Conservation Online System (ECOS). Conservation Plans Region Summary CCA [Candidate Conservation Agreement].* https://ecos.fws.gov/ecp/report/conservation-plans-region-summary-cca?region=6&type=CCA.

(USFWS) U.S. Fish and Wildlife Service. 2026c. *Environmental Conservation Online System (ECOS). FWS-Listed U.S. Species by Taxonomic Group.* https://ecos.fws.gov/ecp/report/species-listings-by-tax-group-totals.

(USFWS) U.S. Fish and Wildlife Service. 2026d. *IPaC Information for Planning and Consultation. Listing Status.* https://ipac.ecosphere.fws. gov/status/list.

(USGS) U.S. Geological Survey. 2026a. "Utah HUC Boundaries for: 16020202 – Spanish Fork." February 12. https://opendata.gis.utah.gov/datasets/utah::utah-huc-boundaries/explore?location=40.296581%2C-111.661416%2C-1.00.

(USGS) U.S. Geological Survey. 2026b. "Utah HUC Boundaries for: 16020201 – Utah Lake." February 12. https://opendata.gis.utah.gov/datasets/utah::utah-huc-boundaries/explore?location=40.296581%2C-111.661416%2C-1.00.

Utah Native Plant Society. No date. *Utah Rare Plant Guide.* Utah Native Plant Society. https://www.utahrareplants.org/rpg.html.

Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins. 2016. *A Utah Flora. 5th Edition.* Monte L. Bean Life Science Museum.

Western Association of Fish and Wildlife Agencies. 2019. *Western Monarch Butterfly Conservation Plan, 2019–2069. Version 1.0.* Western Association of Fish and Wildlife Agencies. https://wafwa.org/wpdm-package/western-monarch-butterfly-conservation-plan-2019-2069/?wpdmdl=13048&ind=1602171186650&refresh=5f274a28&filename=WAFWA_Monarch_Conservation_Plan.pdf.

Woods, A.J., D.A. Lammers, S.A. Bryce, J.M. Omernik, R.L. Denton, M. Domeier, and J.A. Comstock. 2001. *Ecoregions of Utah (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,175,000).* Utah Geological Survey. https://store.usgs.gov/assets/MOD/StoreFiles/Ecoregion/112579_ut_front.pdf.

# Attachment A. Species Lists

# 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: 04/18/2026 20:39:07 UTC
Project Code: 2026-0078406
Project Name: Nebo Regional Water Project

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

# 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: 2026-0078406
Project Name: Nebo Regional Water Project
Project Type: Water Supply Pipeline - New Constr - Below Ground
Project Description: Nebo Regional Water Project
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.9099595,-111.82272011543998,14z


Counties: Juab and Utah counties, 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 |
|---|---|
| Mexican Spotted Owl *Strix occidentalis lucida*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/8196 | Threatened |
| Yellow-billed Cuckoo *Coccyzus americanus*<br>Population: Western U.S. DPS<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/3911 | Threatened |

## INSECTS

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

## FLOWERING PLANTS

| NAME | STATUS |
|---|---|
| Ute Ladies'-tresses *Spiranthes diluvialis*<br>No critical habitat has been designated for this species.<br>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.

# IPAC USER CONTACT INFORMATION

Agency: Bureau of Reclamation
Name: Evan Blanford
Address: 2825 East Cottonwood Parkway
Address Line 2: Suite 200
City: Salt Lake City
State: UT
Zip: 84121
Email evan.blanford@hdrinc.com
Phone: 3853784941

# LEAD AGENCY CONTACT INFORMATION

Lead Agency: Bureau of Reclamation

# Attachment B. Yellow-billed Cuckoo Habitat Evaluation

# Yellow-billed Cuckoo Habitat Evaluation Report

**Nebo Regional Water Project EA**
**April 20, 2026**

U.S. Department of the Interior – CUPCA Office
Bureau of Reclamation
Utah Reclamation Mitigation and Conservation Commission
Central Utah Water Conservancy District

# Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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# Figures

Figure 1 Overview Map of the Survey Area, USFWS Survey Buffer Area for Yellow-billed Cuckoo, and Potentially Suitable Habitat for Yellow-billed Cuckoo .......... 5

# Exhibits

Exhibit A. Potentially Suitable Yellow-billed Cuckoo Habitat Maps

# Abbreviations

| Abbreviation | Definition |
|---|---|
| CFR | *Code of Federal Regulations* |
| CUPCA | Central Utah Project Completion Act |
| District | Central Utah Water Conservancy District |
| EA | environmental assessment |
| ESA | Endangered Species Act |
| FR | *Federal Register* |
| GIS | geographic information system |
| ha | hectares |
| m | meters |
| NEPA | National Environmental Policy Act |
| NWR | National Wildlife Refuge |
| Proposed Project | Nebo Regional Water Project |
| UDWR | Utah Division of Wildlife Resources |
| USC | *United States Code* |
| USFWS | United States Fish and Wildlife Service |

# 1.0 Introduction

The Central Utah Water Conservancy District (District) is a regional wholesale provider that serves seven counties (all of Utah, Salt Lake, Wasatch, Duchesne, and Uintah Counties, as well as part of Juab and Summit Counties) in central Utah and collaborates with other agencies to serve its constituents. The District's primary responsibility is to deliver a safe and secure water supply to its customers by managing the federal Central Utah Project and the District's network of non-federal water facilities. The District is a water wholesaler to various cities and irrigation districts. The Central Utah Project Completion Act (Public Law 102-575, Section 205) required that the District enter into an agreement with the U.S. Department of the Interior to act as a federal agency for compliance with environmental laws, including the National Environmental Policy Act (NEPA).

As Joint Lead Agencies, the District, the U.S. Bureau of Reclamation, the U.S. Department of the Interior – Central Utah Project Completion Act Office, and the Utah Reclamation Mitigation and Conservation Commission are preparing an environmental assessment (EA) in accordance with NEPA, 42 *United States Code* (USC) Section 4321 and subsequent sections, and applicable regulations for the proposed Nebo Regional Water Project (Proposed Project).

The Proposed Project would develop an integrated raw (or untreated) water and finished (or treated) water delivery system that is reliable, resilient, and able to serve current and future municipal and industrial and agricultural water demands in southern Utah County and eastern Juab County.

This report describes the habitat evaluation conducted for yellow-billed cuckoo (*Coccyzus americanus*), an avian species listed as threatened under the Endangered Species Act (ESA), for the Proposed Project.

# 2.0 Regulatory Setting

The ESA (16 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 for the purpose of, carrying out an otherwise lawful activity, or
- The take is for scientific purposes or to enhance the propagation or survival of the species.

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.

# 3.0 Yellow-billed Cuckoo Biology

## 3.1 Description

The yellow-billed cuckoo is a fairly large, long, slim bird with a flat head, thin body, and very long tail. Its bill is mostly yellow and thick, slightly downcurved, and nearly as long as its head. The bird has warm-brown upperparts, whitish underparts, and a blackish face mask highlighted by a yellow eye-ring. In flight, its pointed, swept-back wings reveal rufous flashes, and from below the tail shows wide white bands that alternate with narrower black ones (USFWS 2026).

Yellow-billed cuckoos primarily use vocalizations to communicate. They are generally silent birds during the winter and during migration but vocalize regularly during the early breeding season before their chicks fledge. These birds can make at least six vocal sounds, which are used for a wide variety of social situations (Hughes 1999). Recent research has led to the recognition of two subspecies of yellow-billed cuckoo: eastern (*Coccyzus americanus americanus*) and western (*Coccyzus americanus occidentalis*) (Brewerton and others 2013). This report focuses on the western yellow-billed cuckoo.

## 3.2 Status and Trends

Abundance and population trends for the yellow-billed cuckoo are difficult to assess because quantitative data, including historical population estimates, are generally lacking. However, the western distinct population segment of the yellow-billed cuckoo currently occurs across 12 western U.S. states: Washington, Oregon, Idaho, Montana, Wyoming, Nevada, Utah, Colorado, California, Arizona, New Mexico, and western Texas. However, historic and recent information shows that the yellow-billed cuckoo has experienced a substantial decline across much of the region over the past 50 years (66 *Federal Register* 38611). This decline reflects a broader, century-long pattern of range contraction, during which the species has lost a large portion of its historic distribution and abundance. The largest remaining populations are in Arizona, New Mexico, and parts of California, while occurrences in states such as Utah, Idaho, Nevada, Wyoming, Colorado, Montana, Oregon, and Washington are now rare or highly localized (66 FR 38611).

The yellow-billed cuckoo was listed as threatened under the ESA on October 3, 2014 (79 FR 59992), and critical habitat was designated for the species on August 21, 2021 (86 FR 20798). A significant loss or degradation of riparian habitat as a result of natural and human activities—including conversion of land for agriculture, impacts from dams and river flow management, streambank erosion, overgrazing, and competition from exotic plants—justified the listing at the time (USFWS 2021). In 1997, the Utah Division of Wildlife Resources (UDWR) estimated that there were as few as 10 breeding pairs statewide (Brewerton and others 2013). In 2012, UDWR performed a comprehensive statewide survey in which 21 detections of yellow-billed cuckoo were recorded. The survey protocol was designed to determine whether a habitat patch contained one or more yellow-billed cuckoos and was not intended to establish precise distribution or abundance at any site. For this survey effort, a “detection” was defined as either visually observing an individual or hearing an individual even if it was not seen. Detections were concentrated around the Ouray National Wildlife Refuge (NWR) in northeastern Utah and near the town of Green River in southeastern Utah. UDWR recorded 10 detections in northeastern Utah, all adjacent to the Ouray NWR; 10 detections in southeastern Utah along the Green River, the San Juan River, and Huntington Creek; and a single individual in central Utah along the Spanish Fork River (Brewerton and others 2013).

## 3.3 Habitat

Western yellow-billed cuckoos are riparian obligates that require habitats consisting of copious stands of broadleaf vegetation with a well-established canopy overtopping a dense understory (Brewerton and others 2013). Across their range, they are most commonly associated with cottonwood and willow dominated vegetation, although the dominant riparian vegetation can vary (Halterman and others 2016). Breeding individuals nest almost exclusively in low-to-moderate-elevation riparian woodlands with native broadleaf trees and shrubs. Breeding and nesting cuckoos will forage in riparian patches that have an overstory canopy only and are within 300 meters (m) of the edge of suitable breeding and nesting habitat (USFWS 2017). Suitable nesting habitat typically occurs in patches 20 hectares (ha; 50 acres) or larger within arid to semiarid landscapes. Yellow-billed cuckoos rarely use smaller habitat patches (under 20 ha), particularly when those patches are distant from other riparian habitat (Halterman and others 2016). Yellow-billed cuckoos have been recorded using flood-irrigated, fast-growing restoration habitat less than a year old for foraging and less than 2 years old for nesting.

The following parameters characterize suitable breeding and nesting habitat for yellow-billed cuckoos in Utah (USFWS 2017):

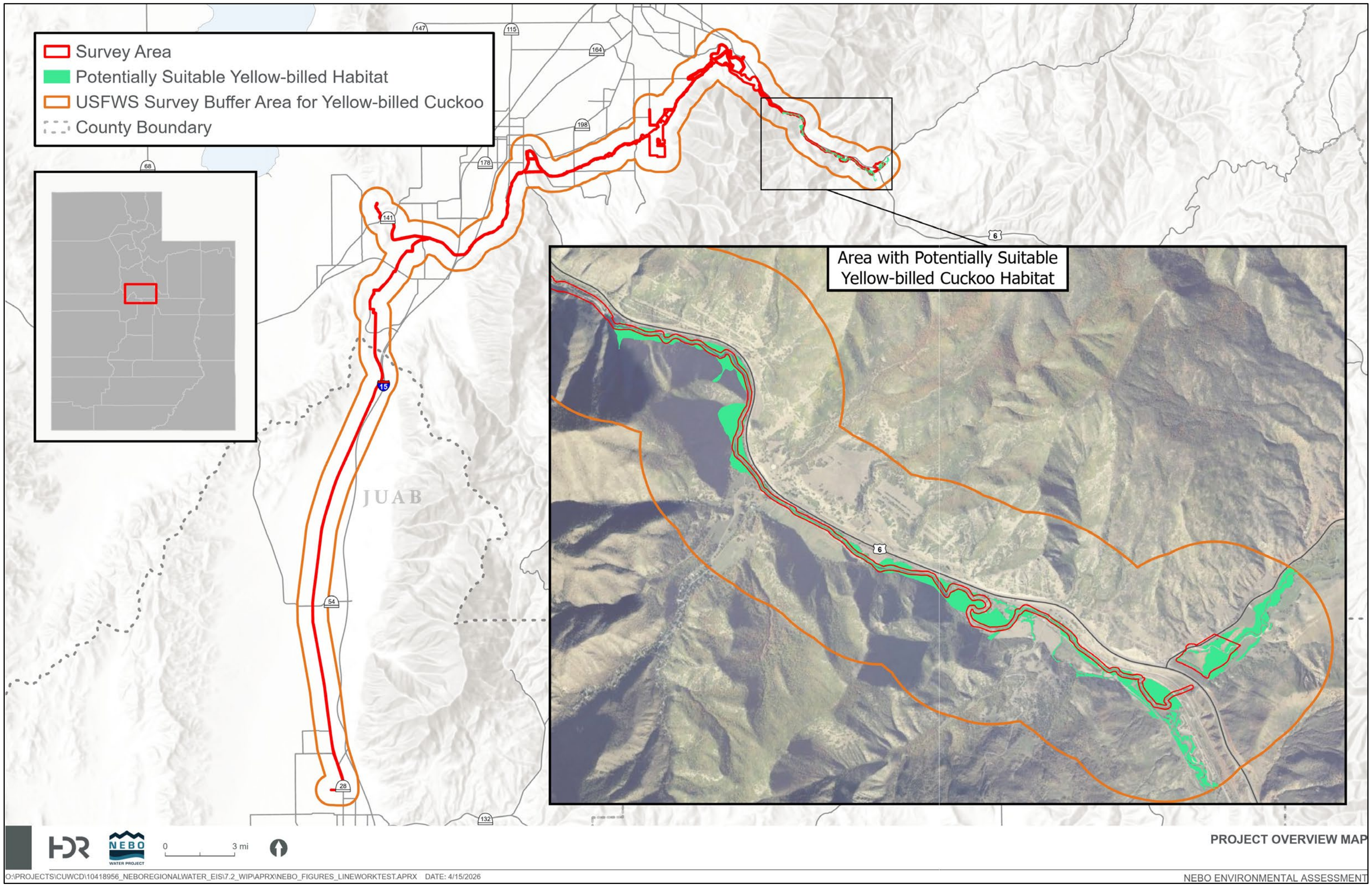
- Vegetation that is predominantly multilayered, with riparian canopy trees and at least one layer of understory shrubby vegetation
- Patches of multilayered vegetation (as described above) that are at least 5 ha (12 acres) or greater and are separated from other patches of suitable habitat by at least 300 m
- Multilayered riparian vegetation (as described above) that is at least 100 meters wide by 100 meters long somewhere within a patch; this size avoids patches that are long enough to meet the minimum area (5 ha) but are too narrow to be suitable (for example, 750 m long by 75 m wide)
- Open areas or gaps of multilayered vegetation within a patch that are less than 300 m

# 4.0 Methodology

## 4.1 Survey Area

The survey area for the Proposed Project encompasses about 1,324 acres, ranges in elevation between about 4,600 feet and 5,000 feet, and traverses about 46 miles in Utah and Juab Counties. Beginning on Diamond Fork Road in Spanish Fork Canyon, the survey area follows the Spanish Fork River westward until it reaches Spanish Fork at the entrance to the canyon. From there, the survey area continues southwest, generally following the alignment of the Strawberry High Line Canal through Salem, Payson, Spring Lake, Santaquin, and Genola. From Santaquin and Genola, the survey area turns south and generally follows several county roads and the Union Pacific Railroad tracks until it reaches the town of Rocky Ridge, at which point it follows Old Highway 91 through Mona, ending in Nephi. Figure 1 provides an overview of the survey area.

**Figure 1**
**Overview Map of the Survey Area, USFWS Survey Buffer Area for Yellow-billed Cuckoo, and Potentially Suitable Habitat for Yellow-billed Cuckoo**



## 4.2 Habitat Evaluation

Geographic information system (GIS) software was used to identify and map woody riparian vegetation in the survey area and within a half-mile buffer of the survey area.[1] Figure 1 above provides an overview map of the survey area and half-mile buffer. Woody riparian areas were initially mapped using desktop analysis of aerial images. Biologists then used tablets equipped with the ESRI data collection application ArcGIS Field Maps to field-verify that the woody riparian vegetation mapped through desktop analysis was multilayered with riparian canopy trees and at least one layer of understory shrubby vegetation, consistent with the yellow-billed cuckoo suitable habitat criteria described in Section 3.3, *Habitat*. The field verification was conducted in October 2025. After field-verifying that the woody riparian areas were multilayered with riparian canopy trees and at least one layer of understory shrubby vegetation, GIS software was used to measure whether the multilayered woody riparian areas met the patch size criteria for yellow-billed cuckoo suitable habitat as described in Section 3.3, *Habitat*.

# 5.0 Results

A total of 177.69 acres of potentially suitable yellow-billed cuckoo habitat were mapped along the Spanish Fork River and Diamond Creek. Exhibit A, *Potentially Suitable Yellow-billed Cuckoo Habitat Maps*, provides a map series of the potentially suitable habitat identified in the survey area and buffer area.

Dominant woody riparian species in the mapped potentially suitable habitat included box elder (*Acer negundo*), narrowleaf cottonwood (*Populus angustifolia*), Fremont cottonwood (*Populus fremontii*), narrowleaf willow (*Salix exigua*), shining willow (*Salix lucida*), peachleaf willow (*Salix amygdaloides*), and Russian olive (*Elaeagnus angustifolia*). These species formed a multilayered canopy and understory structure typical of habitat used by yellow-billed cuckoos across their western range. These riparian patches contained dense, well-developed woody vegetation with sufficient vertical layering, patch sizes exceeding the minimum 12-acre threshold, and internal gaps generally less than 300 m. Portions of the woody riparian vegetation along the Spanish Fork River and Diamond Fork Creek also provide adjacent overstory canopy within 300 m of the multilayered habitat, supporting potential foraging use as described in *Guidelines for the Identification of Suitable Habitat for WYBCU in Utah* (USFWS 2017). Together, these structural and spatial characteristics are consistent with the criteria for yellow-billed cuckoo suitable habitat described in Section 3.3, *Habitat*.

[1] The recommended buffer for yellow-billed cuckoos is based on the USFWS guidelines for identifying suitable habitat for yellow-billed cuckoos in Utah (USFWS 2017).

# 6.0 Reference List

Brewerton, Adam, Keith S. Day, Kimberly Hersey, Brian Maxfield, and Anthony Wright. 2013. *Summary of Yellow-billed Cuckoo Investigations in Utah: 2012*. Prepared for the Utah Division of Wildlife Resources. May.

Halterman, Murrelet D., Matthew J. Johnson, Jennifer A. Holmes, and Stephen A. Laymon. 2016. A *Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo (Draft).* Prepared for the U.S. Fish and Wildlife Service. May. https://www.fws.gov/sites/default/files/documents/YBCU%20Survey%20Protocol_%20DRAFT_2016_0.pdf.

Hughes, J. M. 1999. *Yellow-billed Cuckoo (Coccyzus americanus).* American Ornithologists' Union; Cornell Laboratory of Ornithology; Academy of Natural Sciences.

(USFWS) U.S. Fish and Wildlife Service. 2017. *Guidelines for the Identification of Suitable Habitat for WYBCU in Utah.* https://www.fws.gov/sites/default/files/documents/yellow-billed-cuckoo-guidelines-identification-suitable-habitat-utah-2015_0.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2021. "Critical Habitat Designated for Yellow-Billed Cuckoo." https://www.fws.gov/press-release/2021-04/critical-habitat-designated-yellow-billed-cuckoo.

(USFWS) U.S. Fish and Wildlife Service. 2026. "Yellow-billed Cuckoo." https://www.fws.gov/species/yellow-billed-cuckoo-coccyzus-americanus.

# Attachment C. Ute Ladies'-tresses Habitat Evaluation

# Ute Ladies'-tresses Habitat Evaluation and Survey

## Nebo Regional Water Project EA

**April 20, 2026**

U.S. Department of the Interior – CUPCA Office
Bureau of Reclamation
Utah Reclamation Mitigation and Conservation Commission
Central Utah Water Conservancy District

# Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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# Abbreviations

| Abbreviation | Definition |
|---|---|
| CUPCA | Central Utah Project Completion Act |
| District | Central Utah Water Conservancy District |
| EA | environmental assessment |
| ESA | Endangered Species Act |
| GIS | geographic information systems |
| NEPA | National Environmental Policy Act |
| Proposed Project | Nebo Regional Water Project |
| ssp. | subspecies |
| USC | *United States Code* |
| USFWS | United States Fish and Wildlife Service |
| var. | variety |

# 1.0 Introduction

The Central Utah Water Conservancy District (District) is a regional wholesale provider that serves seven counties (all of Utah, Salt Lake, Wasatch, Duchesne, and Uintah Counties as well as part of Juab and Summit Counties) in central Utah and collaborates with other agencies to serve its constituents. The District's primary responsibility is to deliver a safe and secure water supply to its customers by managing the federal Central Utah Project and the District's network of non-federal water facilities. The District is a water wholesaler to various cities and irrigation districts. The Central Utah Project Completion Act (CUPCA; Public Law 102-575, Section 205) required that the District enter into an agreement with the U.S. Department of the Interior to act as a federal agency for compliance with environmental laws, including the National Environmental Policy Act (NEPA).

As Joint Lead Agencies, the District, the U.S. Bureau of Reclamation, the U.S. Department of the Interior – Central Utah Project Completion Act Office, and the Utah Reclamation Mitigation and Conservation Commission are preparing an environmental assessment in accordance with NEPA, 42 *United States Code* (USC) Section 4321 and subsequent sections, and applicable regulations for the proposed Nebo Regional Water Project (Proposed Project).

The Proposed Project would develop an integrated raw (or untreated) water and finished (or treated) water delivery system that is reliable, resilient, and able to serve current and future municipal and industrial and agricultural water demands in southern Utah County and eastern Juab County.

This report describes the habitat evaluation conducted for Ute ladies'-tresses (*Spiranthes diluvialis*), a plant species listed as threatened under the Endangered Species Act, for the Proposed Project.

# 2.0 Regulatory Setting

The Endangered Species Act (ESA; 16 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.

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.

# 3.0 Ute Ladies'-tresses Biology

## 3.1 Description

Ute ladies'-tresses are 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 through 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).

## 3.2 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 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 that Ute ladies'-tresses be delisted as of August 2023 (USFWS 2023).

## 3.3 Habitat

The *Species Status Assessment Report for Ute Ladies'-tresses (Spiranthes diluvialis)* (USFWS 2024) 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 |

| Scientific Name[a] | Common Name[a] | Scientific Name[a] | Common Name[a] |
|---|---|---|---|
| *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 |
| *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 |

| Scientific Name[a] | Common Name[a] | Scientific Name[a] | Common Name[a] |
|---|---|---|---|
| *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 Plant Database (https://plants.usda.gov).

## 3.4 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.

# 4.0 Methodology

## 4.1 Survey Area

The survey area for the Proposed Project encompasses about 1,324 acres, ranges in elevation between about 4,600 feet and 5,000 feet, and traverses 46 miles in Utah and Juab Counties. Figure 1 and Figure 2 provide an overview of the survey area. Beginning on Diamond Fork Road in Spanish Fork Canyon, the survey area follows the Spanish Fork River westward until it reaches Spanish Fork at the entrance to the canyon. From there, the survey area continues southwest, generally following the alignment of the Strawberry High Line Canal through Salem, Payson, Spring Lake, Santaquin, and Genola. From Santaquin and Genola, the survey area turns south and generally follows several county roads and the Union Pacific Railroad tracks until it reaches the town of Rocky Ridge, at which point it follows Old Highway 91 through Mona, ending in Nephi.

## 4.2 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 with the exception of the section between the Spanish Fork River Diversion (located about 1 mile southeast of Spanish Fork Wind Park, at the mouth of Spanish Fork Canyon) and the entrance to Diamond Fork Canyon. The 300-foot buffer was not applied to this section because it would not have any direct impacts from the Proposed Project. Therefore, any potentially suitable Ute ladies'-tresses habitat within the buffer area (an area assessed for indirect impacts) would not be affected. The survey area in this section is limited to the Spanish Fork River and vegetation communities because any potentially suitable Ute ladies'-tresses habitat adjacent to the river could be indirectly impacted by changes in water flows resulting from the Proposed Project. Figure 1 and Figure 2 show the USFWS clearance survey buffer area in relation to the survey area.

**Figure 1**
**Overview Map of the Survey Area, USFWS Clearance Survey Buffer Area, and Potentially Suitable Habitat for Ute Ladies'-tresses (1 of 2)**

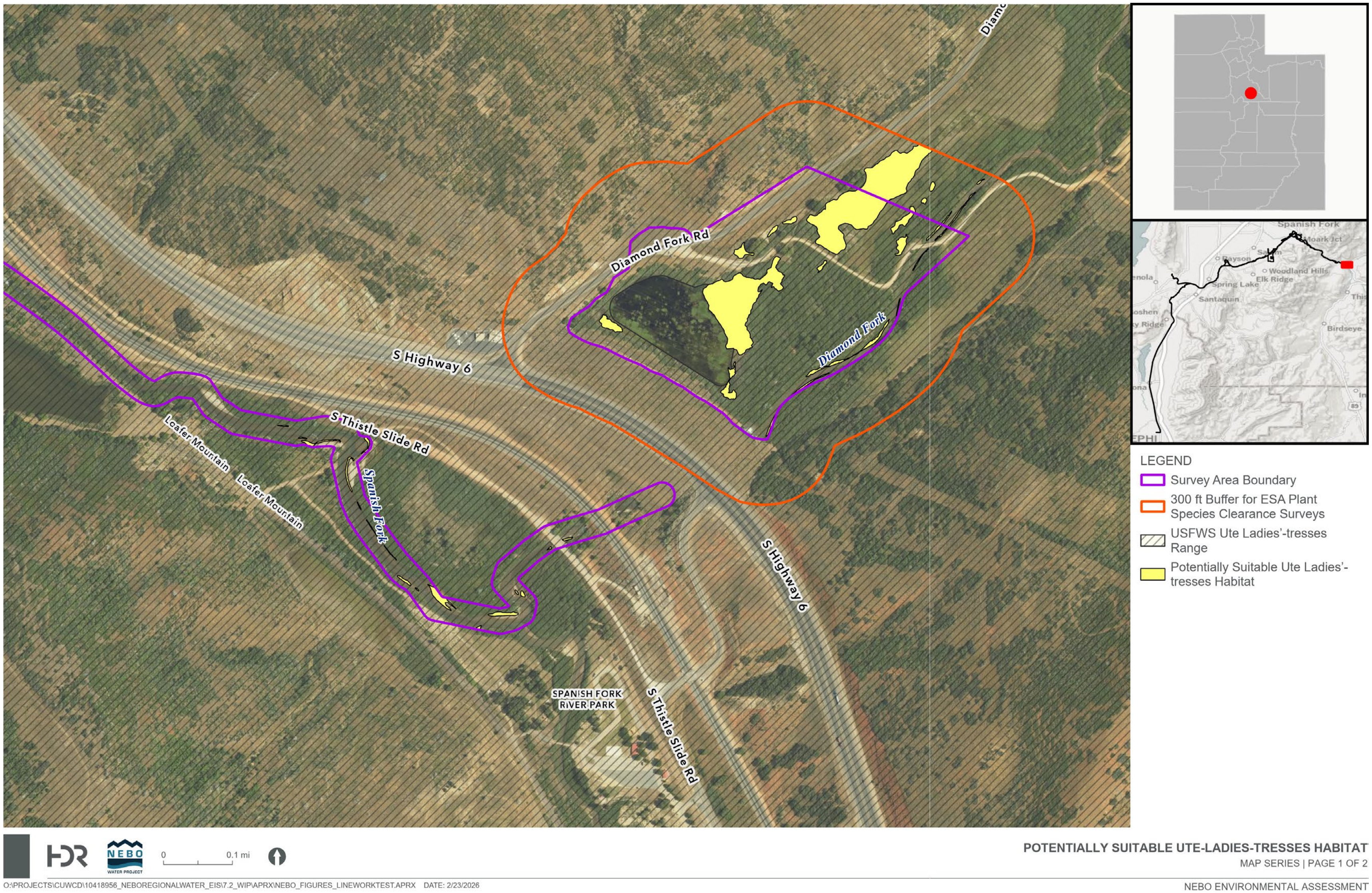
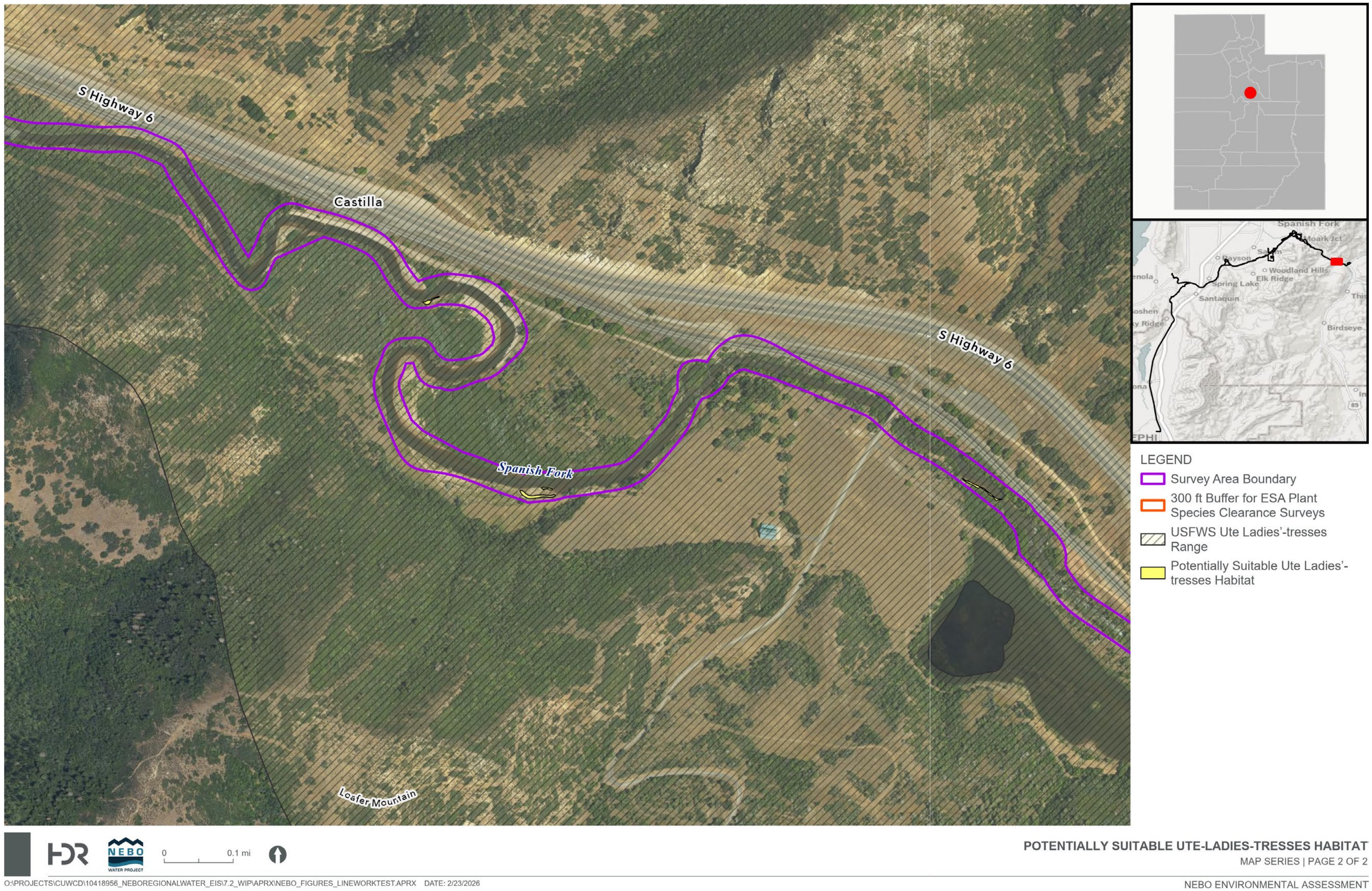


**Figure 2**
**Overview Map of the Survey Area, USFWS Clearance Survey Buffer Area, and Potentially Suitable Habitat for Ute Ladies'-tresses (2 of 2)**



## 4.3 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 Section 3.3, *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 criteria for suitable habitat for Ute ladies'-tresses. The habitat evaluation for the survey area was conducted in October 2025.

# 5.0 Results

Survey results identified potentially suitable Ute ladies'-tresses habitat, including 0.40 acres identified on stream terraces along the banks of the Spanish Fork River, 0.22 acres stream terraces along the banks of the Diamond Fork Creek, and 4.25 acres in wetlands near Diamond Fork Creek. Figure 1 and Figure 2 above provide overview maps of the mapped habitat in the survey area and buffer area.

The stream terraces in the survey area were dominated by field horsetail (*Equisetum arvense*), mountain rush, Torrey's rush (*Juncus torreyi*), reed canarygrass (*Phalaris arundinacea*), and willow species including narrowleaf willow (*Salix exigua*) and shining willow (*Salix lucida*). Wetland areas near Diamond Fork Creek were dominated by mountain rush, reed canarygrass (*Phalaris arundinacea*), narrowleaf willow, narrowleaf cattail (*Typha angustifolia*), broadleaf cattail (*Typha latifolia*), and *Carex* species including water sedge (*Carex aquatilis*), Nebraska sedge (*Carex nebrascensis*), and clustered field sedge (*Carex praegracilis*).

Narrowleaf cottonwood, reed canarygrass, shining willow, mountain rush, Torrey's rush, narrowleaf willow, broadleaf cattail, water sedge, and Nebraska sedge are plant species commonly associated with Ute ladies'-tresses across its range in Utah. Habitats adjacent to Diamond Fork Creek and the Spanish Fork River, and wetland areas near Diamond Fork Creek, provide adequate soil moisture, an open canopy, and additional flowering plants to attract pollinators, all of which are critical needs for Ute ladies'-tresses. Figure 3, Figure 4, Figure 5, and Figure 6 provide representative photos of the mapped potentially suitable habitat for Ute ladies'-tresses.

**Figure 3**
**Potentially Suitable Ute Ladies'-tresses Habitat on the Southeast Side of Diamond Fork Creek in the Survey Area**

**Figure 4**
**Potentially Suitable Ute Ladies'-tresses Habitat in a Wetland near Diamond Fork Creek in the Survey Area**

**Figure 5**
**Potentially Suitable Ute Ladies'-tresses Habitat on the North Side of the Spanish Fork River in the Survey Area**

**Figure 6**
**Potentially Suitable Ute Ladies'-tresses Habitat on the South Side of the Spanish Fork River in the Survey Area**

# 6.0 Reference List


Fertig, W., R. Black, and P. Wolken. 2005. *Rangewide Status Review of Ute Ladies'-tresses (Spiranthes diluvialis)*. Prepared for U.S. Fish and Wildlife Service and Central Utah Water Conservancy District. https://efotg.sc.egov.usda.gov/references/Public/WY/UtesRangewideStatusReview2005byFertig.pdf.

Lichvar, R.W., N.C. Melvin, M. Butterwick, and W.N. Kirchner. 2012. *National Wetland Plant List Indicator Rating Definitions*. U.S. Army Corps of Engineers, Engineer Research and Development Center, and Cold Regions Research and Engineering Laboratory. https://wetland-plants.usace.army.mil/static/references/NWPL/pubs/2012b_Lichvar_et_al.pdf.

(USFWS) U.S. Fish and Wildlife Service. 1992. *Endangered and Threatened Wildlife and Plants; Final Rule to List the Plant Spiranthes diluvialis (Ute Ladies'-tresses) as a Threatened Species*. *Federal Register* 57(12): 2048–2054.

(USFWS) U.S. Fish and Wildlife Service. 1995. *Ute Ladies'-tresses (Spiranthes diluvialis) Agency Review Draft Recovery Plan.* USFWS Denver, Colorado.

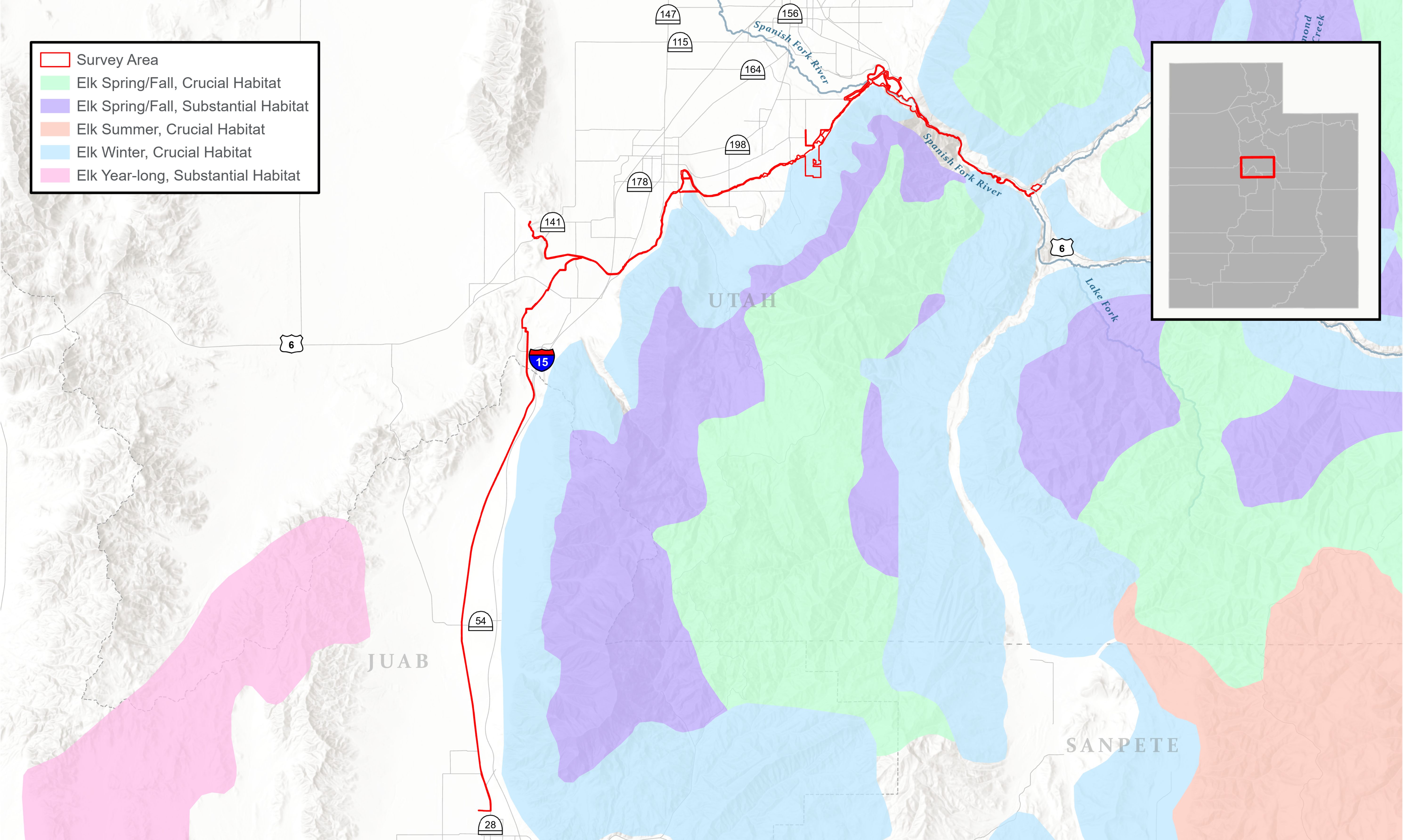
(USFWS) U.S. Fish and Wildlife Service. 2011. *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants*. USFWS Utah Field Office. https://www.fws.gov/sites/default/files/documents/general-plant-survey-guidelines-2011.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2017. *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* [revised]. USFWS; Original date of publication November 23, 1992. https://www.fws.gov/sites/default/files/documents/SPDI_interimSurveyRequirements_1992_revised%202017.pdf.

(USFWS) U.S. Fish and Wildlife Service. 2023. *Ute Ladies'-tresses (Spiranthes diluvialis) 5-Year Status Review: Summary and Evaluation*. USFWS Mountain-Prairie Region Denver Colorado. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/5853.pdf.

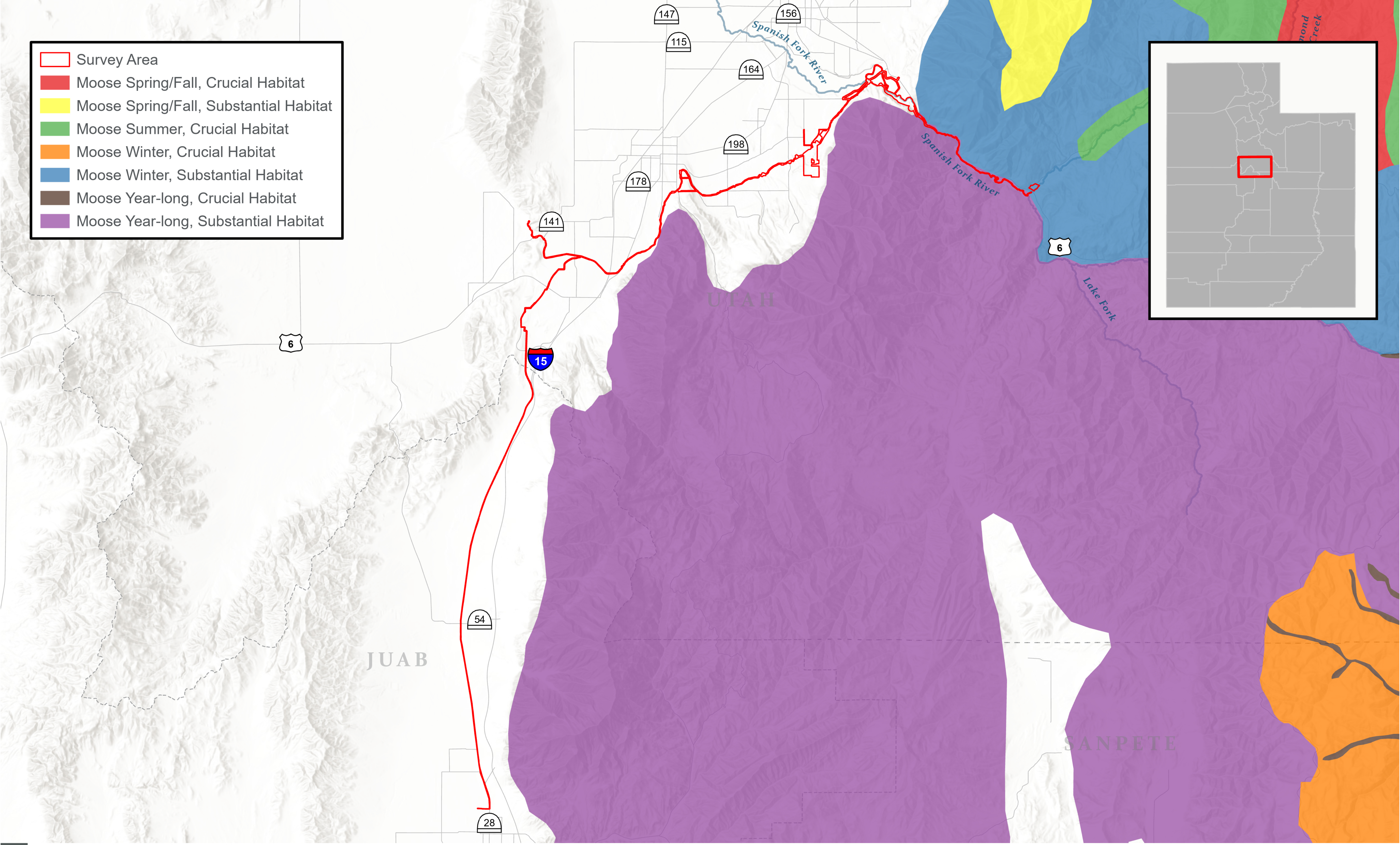
(USFWS) U.S. Fish and Wildlife Service. 2024. *Species Status Assessment Report for Ute Ladies'-tresses (Spiranthes diluvialis).* USFWS Utah Ecological Field Office, Salt Lake City, Utah. https://iris.fws.gov/APPS/ServCat/DownloadFile/261561.

# Attachment D. Big-game Species Habitat Maps



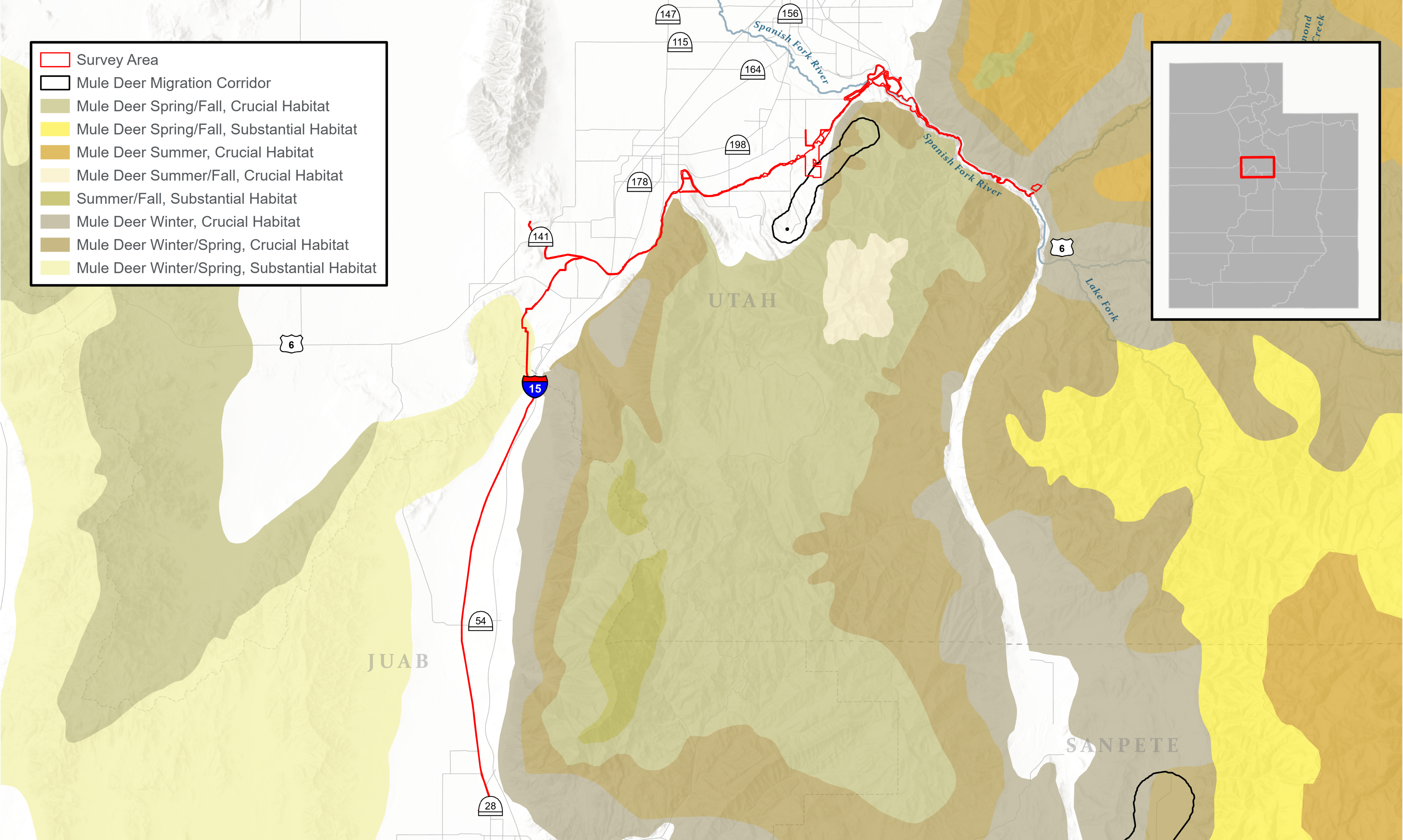
Survey Area
Elk Spring/Fall, Crucial Habitat
Elk Spring/Fall, Substantial Habitat
Elk Summer, Crucial Habitat
Elk Winter, Crucial Habitat
Elk Year-long, Substantial Habitat
UTAH
JUAB
SANPETE
Spanish Fork River
Lake Fork
147
156
115
164
198
178
141
6
15
54
28
0
2 mi


ELK HABITAT




0 2 mi

MOOSE HABITAT




0 2 mi

MULE DEER HABITAT

# Attachment E. Riparian Areas Maps


0 0.1 mi

RIPARIAN HABITAT CONSERVATION AREAS
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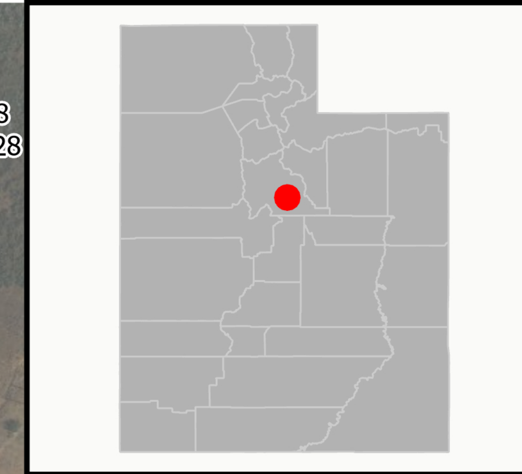

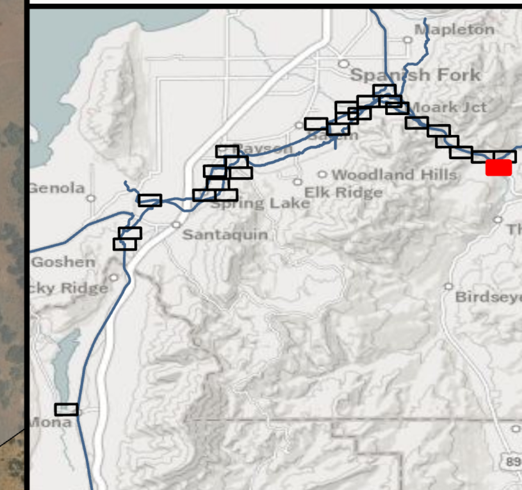


LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

HDR NEBO WATER PROJECT

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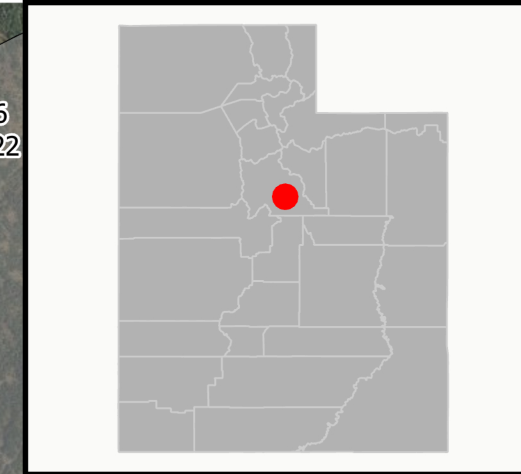
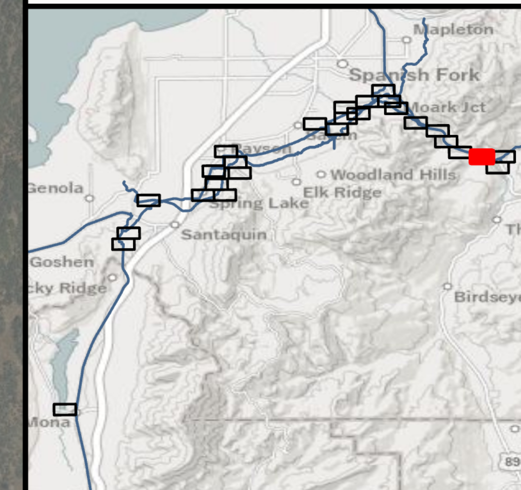
**RIPARIAN HABITAT CONSERVATION AREAS**




LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

HDR NEBO WATER PROJECT

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**RIPARIAN HABITAT CONSERVATION AREAS**

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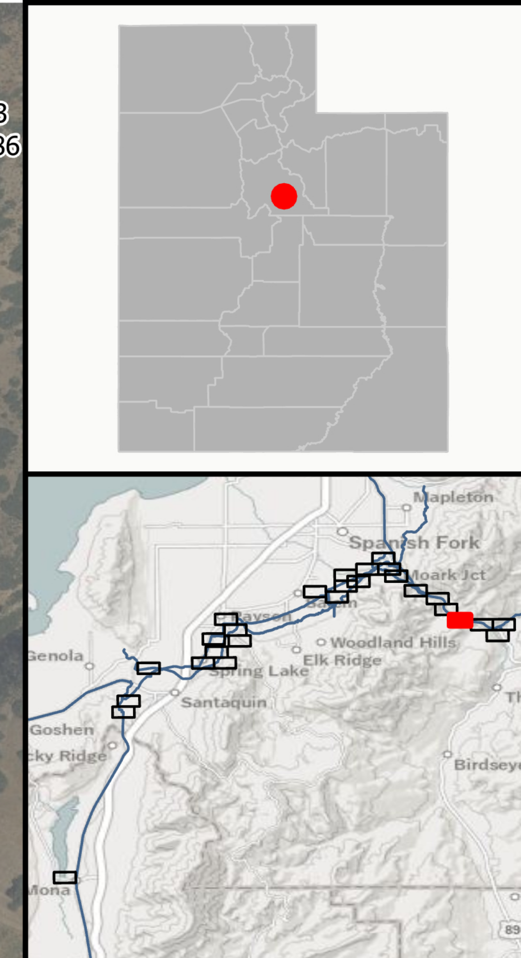


LEGEND

- Control Points
- Riparian Vegetation
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- Riparian Vegetation Survey Area

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**RIPARIAN HABITAT CONSERVATION AREAS**

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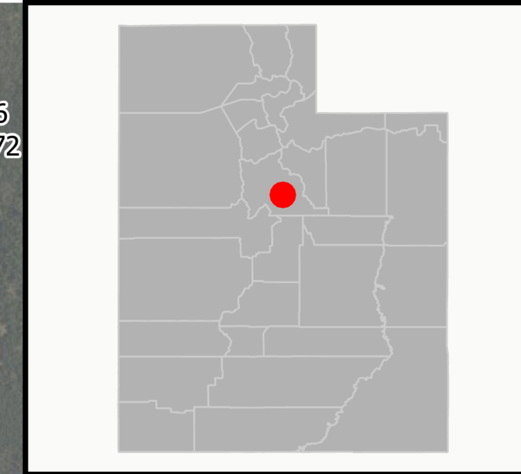

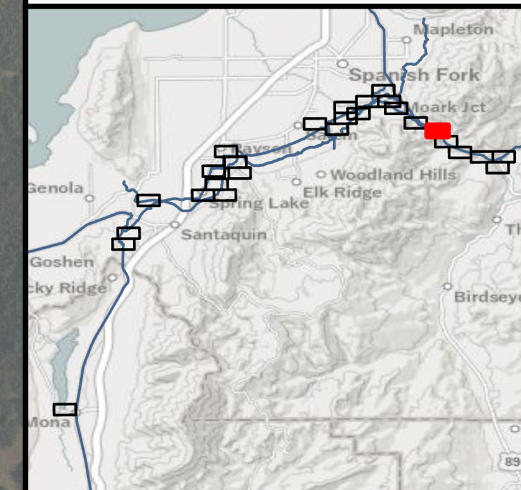


LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

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**RIPARIAN HABITAT CONSERVATION AREAS**

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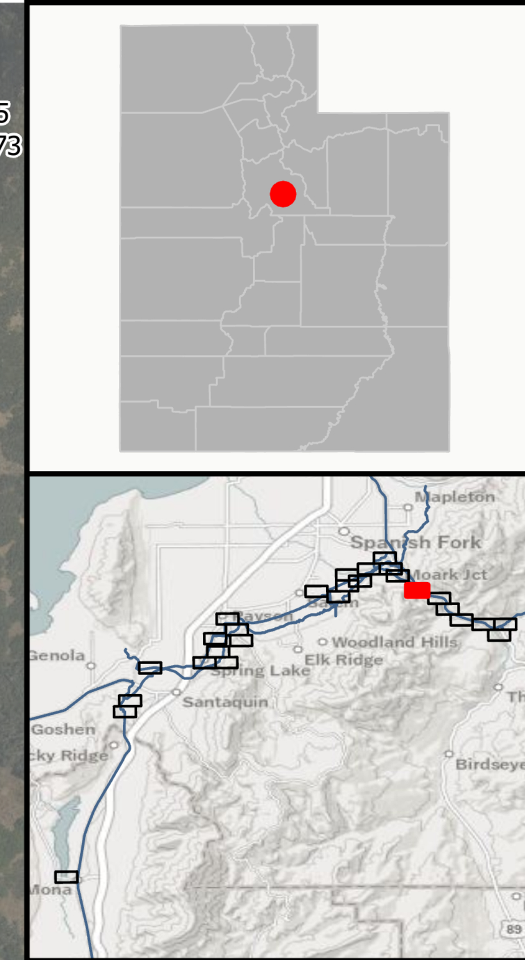


LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

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**RIPARIAN HABITAT CONSERVATION AREAS**

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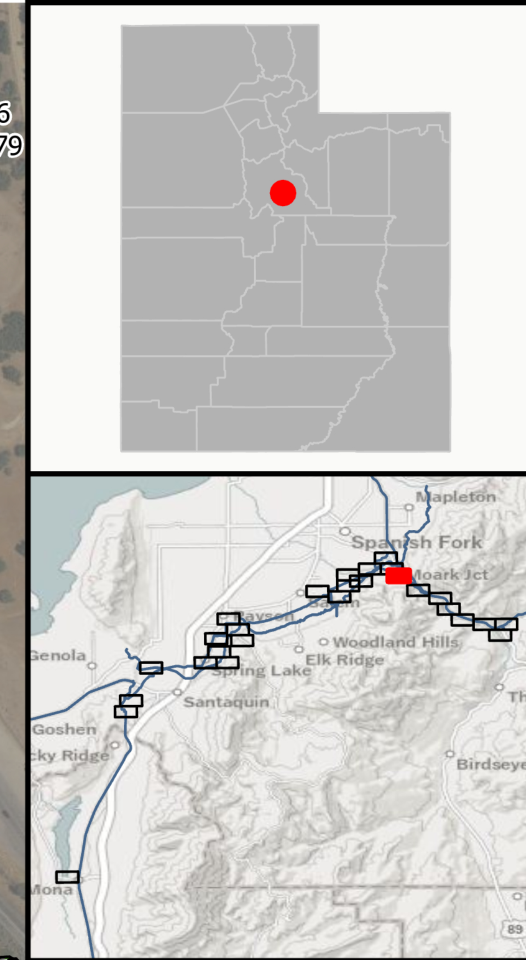


LEGEND

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- Survey Area Boundary
- Riparian Vegetation Survey Area

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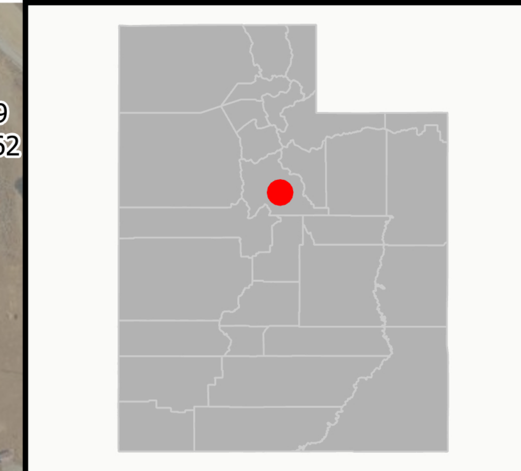
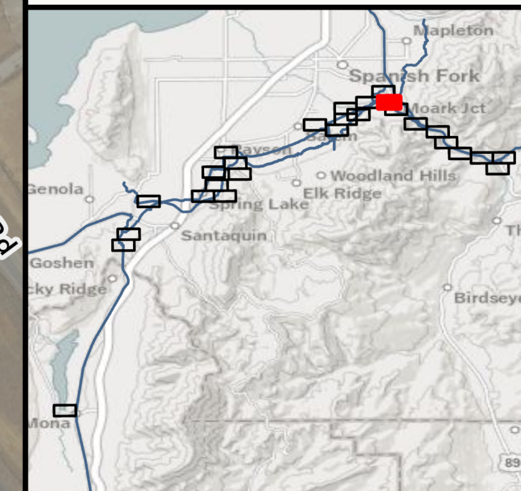
**RIPARIAN HABITAT CONSERVATION AREAS**




LEGEND

- Control Points
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HDR NEBO WATER PROJECT

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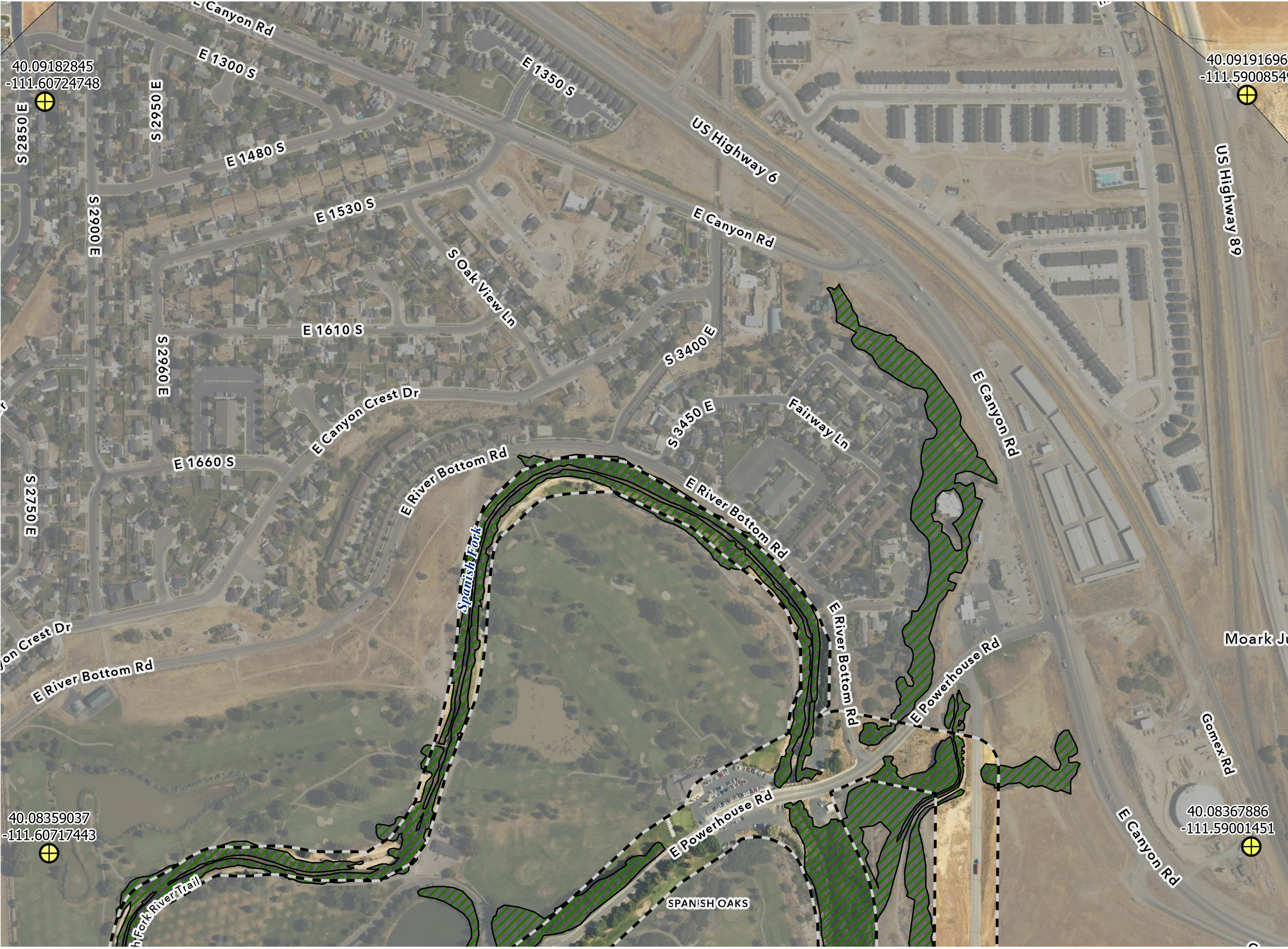
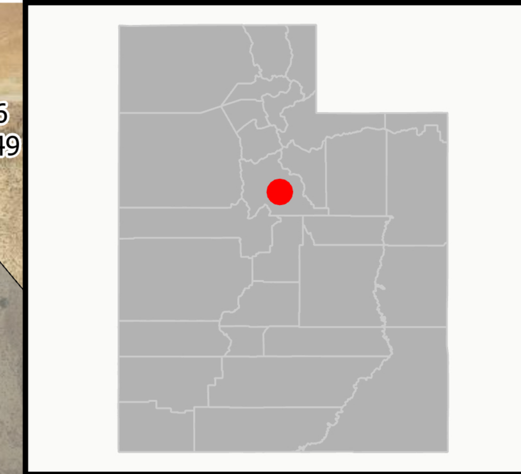
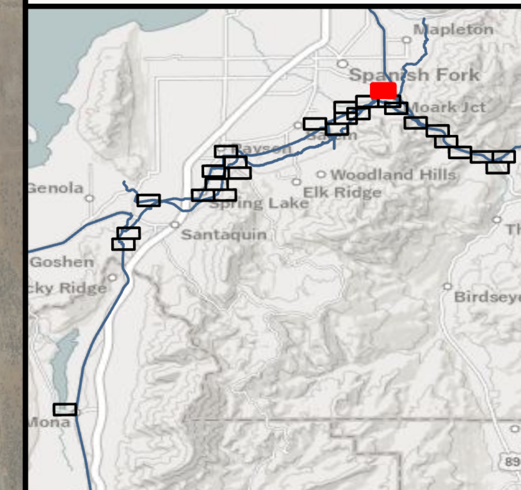
**RIPARIAN HABITAT CONSERVATION AREAS**




LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

0 0.1 mi

**RIPARIAN HABITAT CONSERVATION AREAS**

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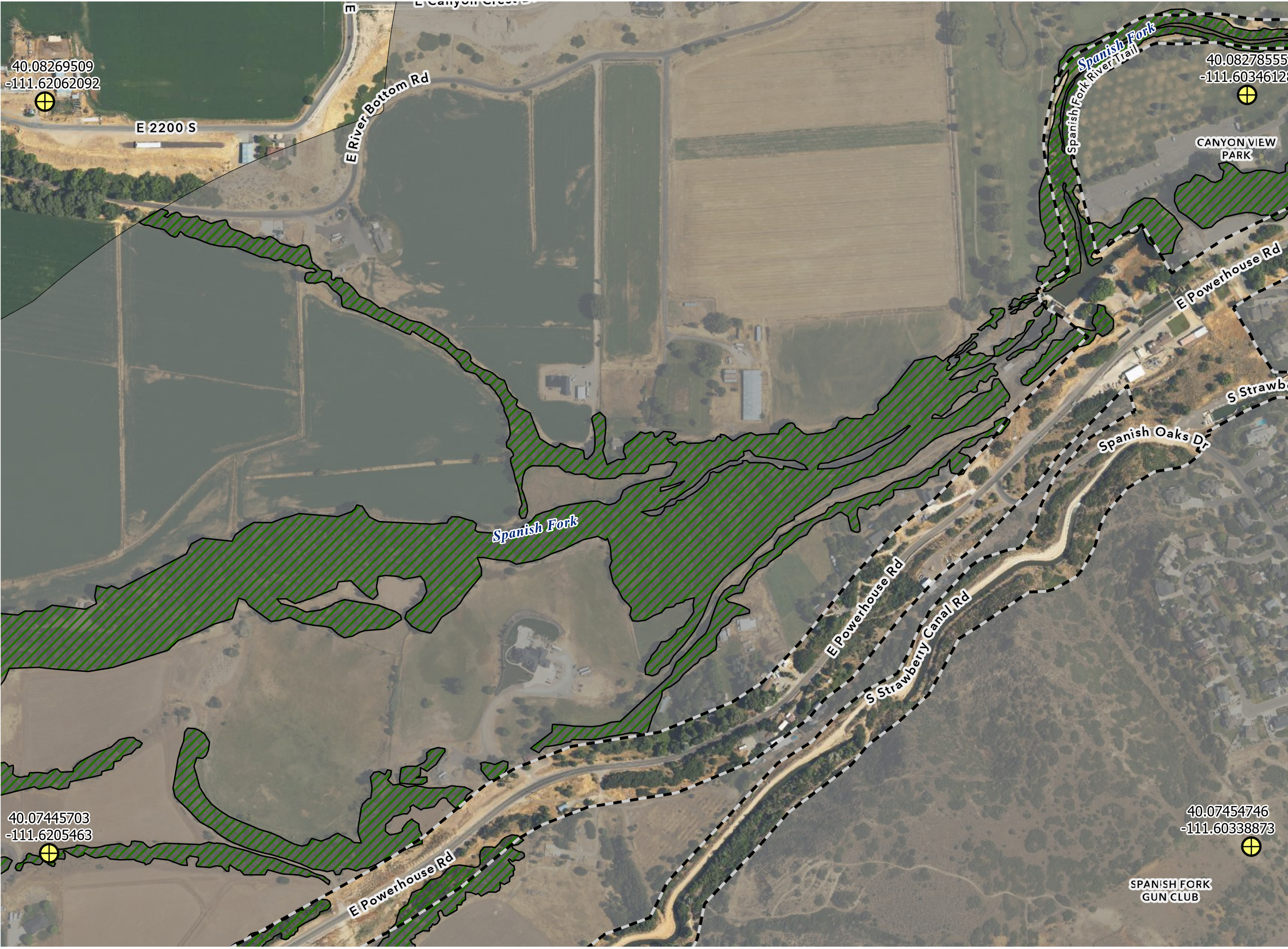


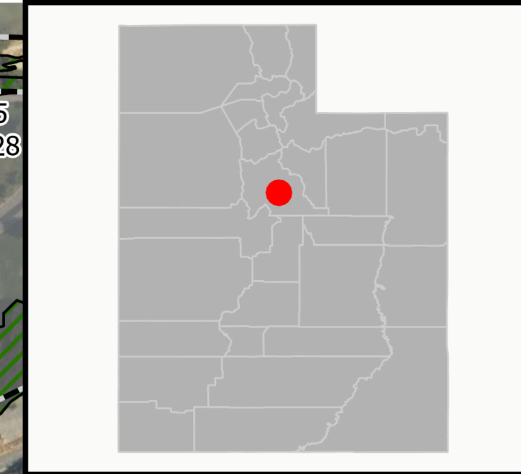

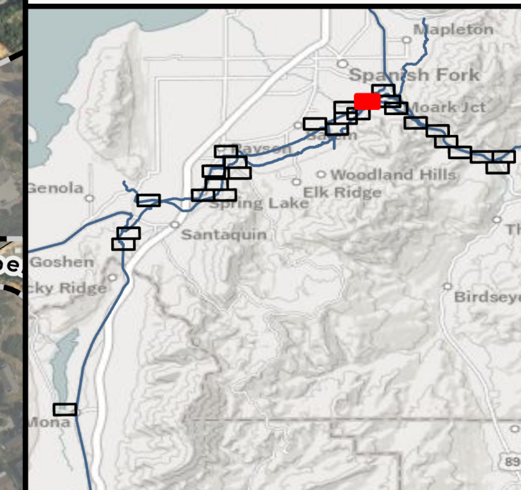


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- Survey Area Boundary
- Riparian Vegetation Survey Area

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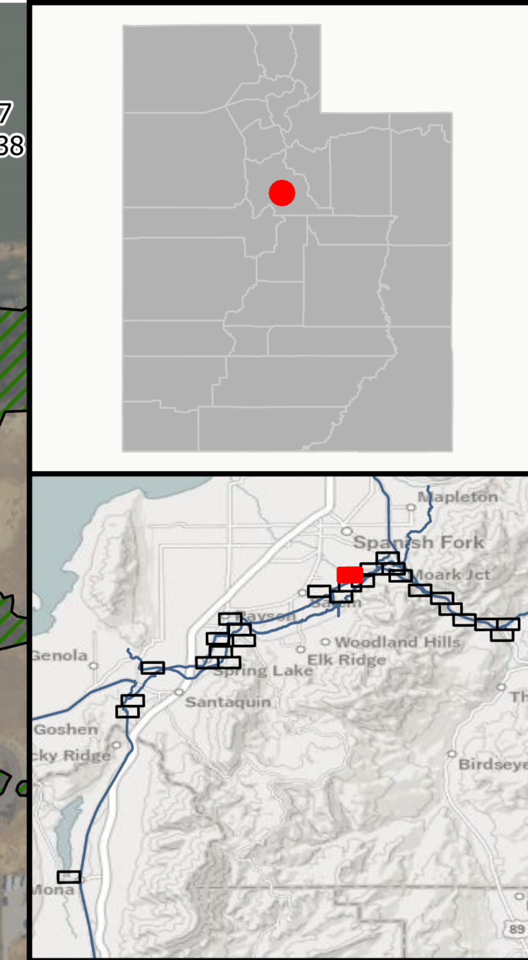
## RIPARIAN HABITAT CONSERVATION AREAS


LEGEND
- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

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RIPARIAN HABITAT CONSERVATION AREAS

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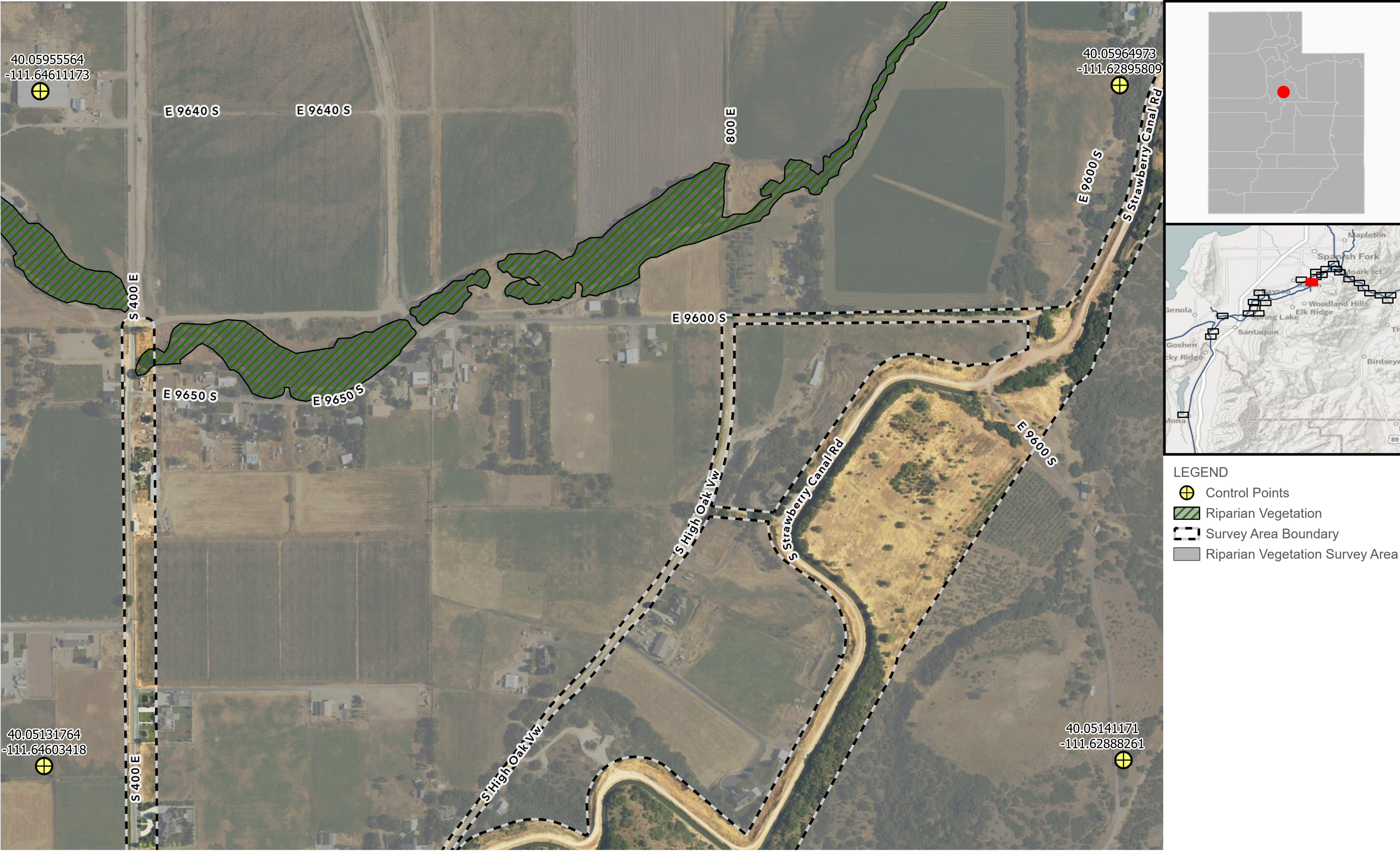


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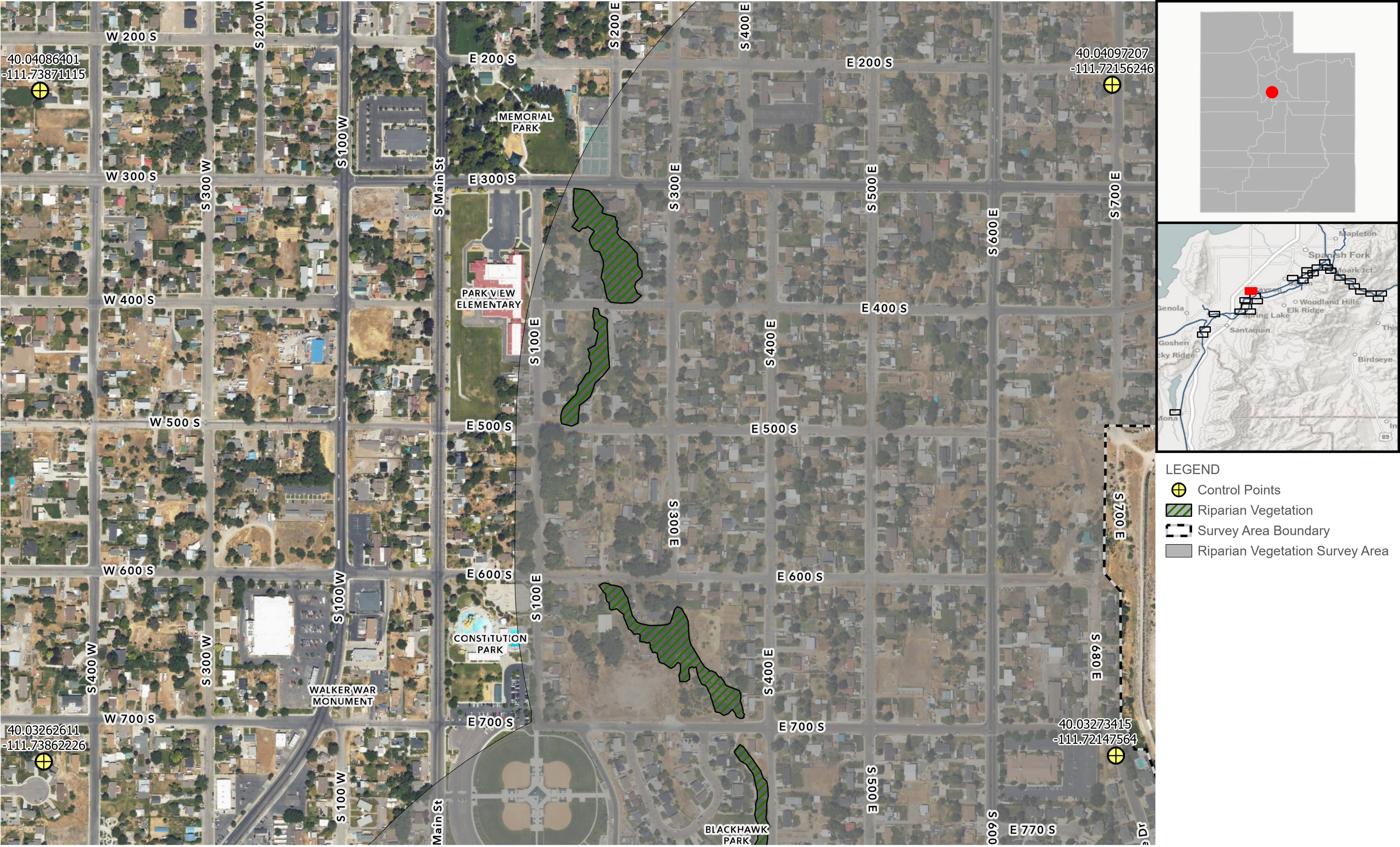


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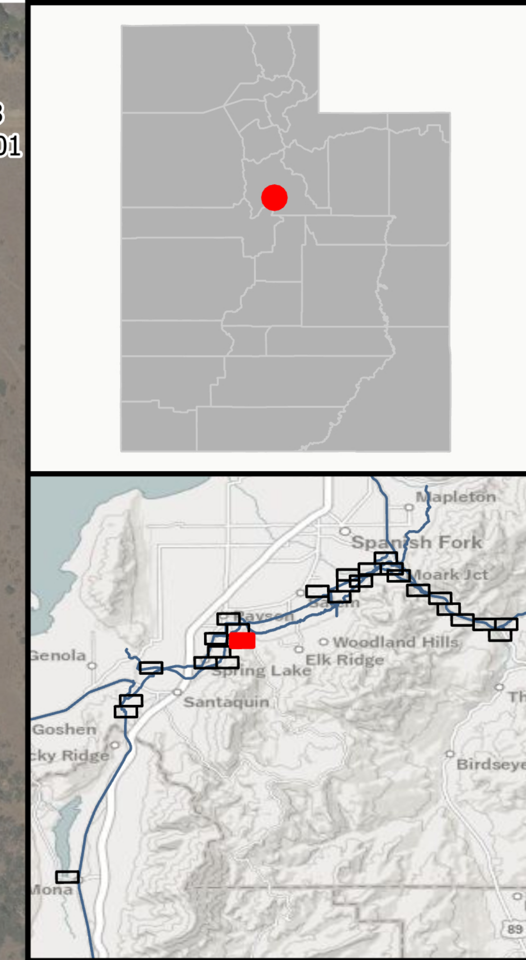


LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

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RIPARIAN HABITAT CONSERVATION AREAS

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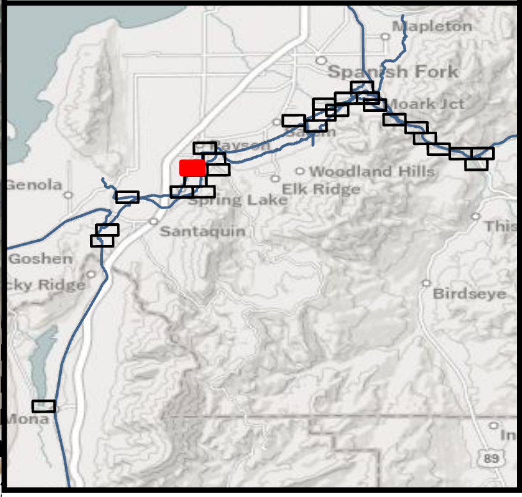


LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

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RIPARIAN HABITAT CONSERVATION AREAS



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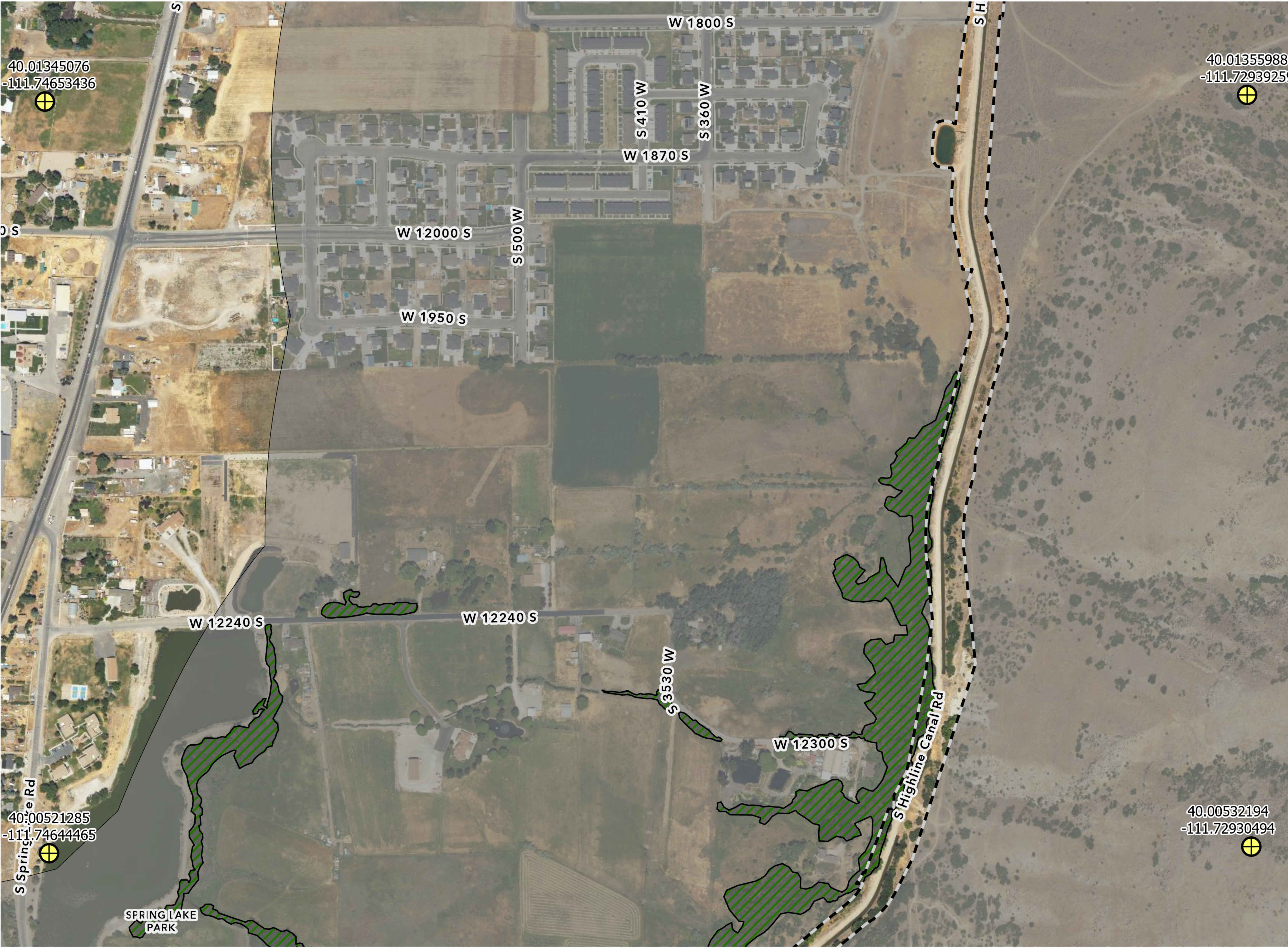


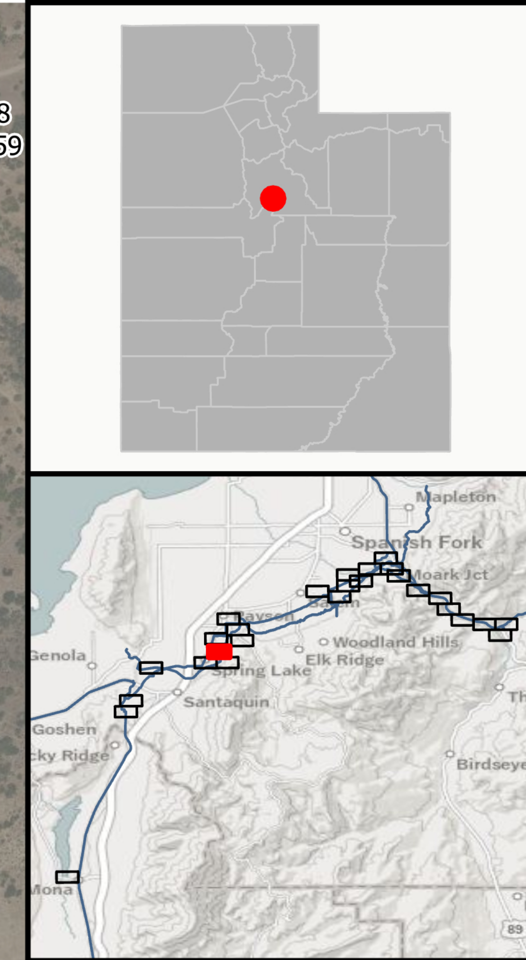


LEGEND

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- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

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LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

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RIPARIAN HABITAT CONSERVATION AREAS

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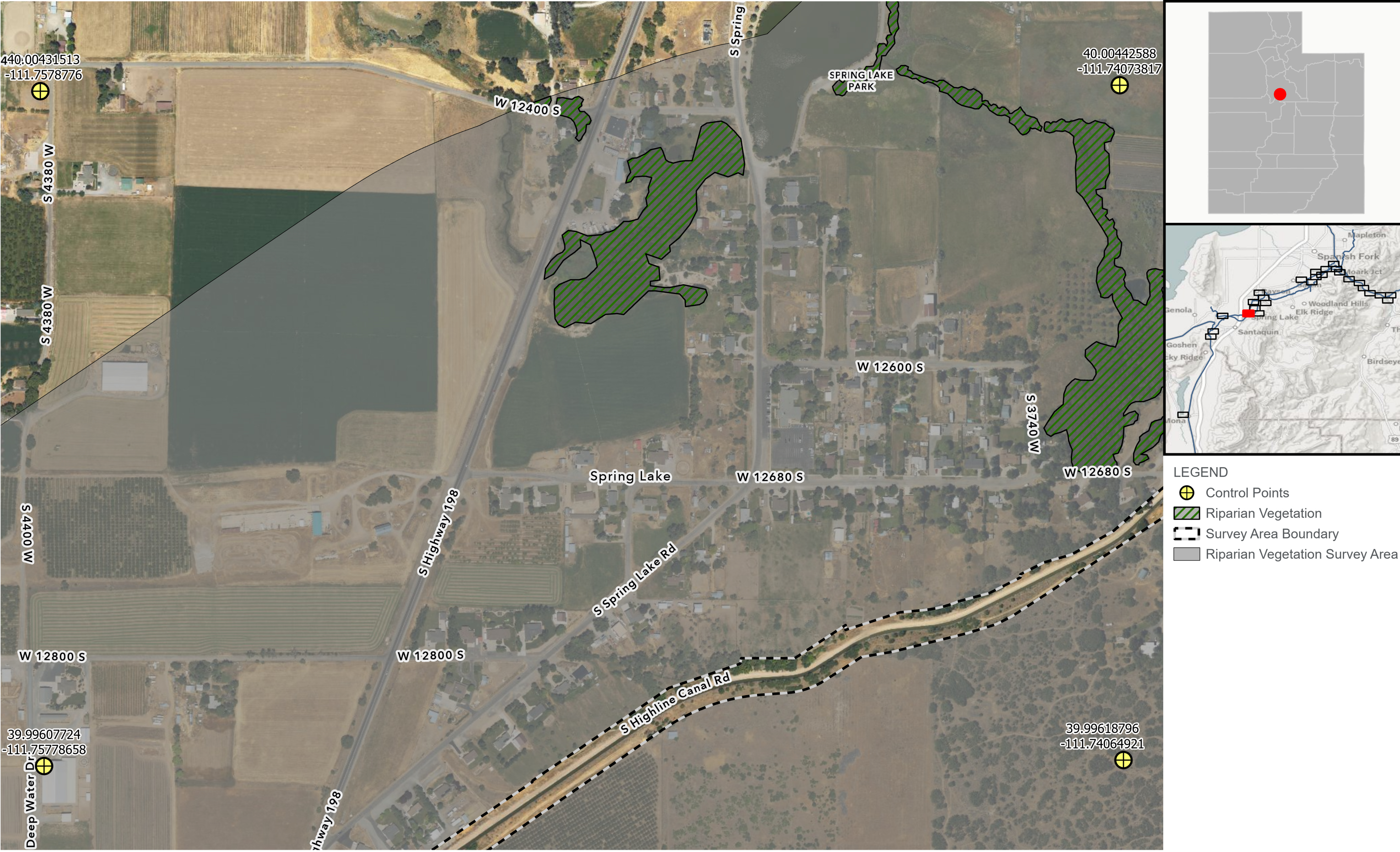
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PARK
S 4380 W
S 4380 W
S 4400 W
W 12600 S
S 3740 W
Spring Lake
W 12680 S
W 12680 S
S Highway 198
S Spring Lake Rd
W 12800 S
W 12800 S
S Highline Canal Rd
Deep Water Dr
Mapleton
Spanish Fork
Moark Jct
Woodland Hills
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Control Points
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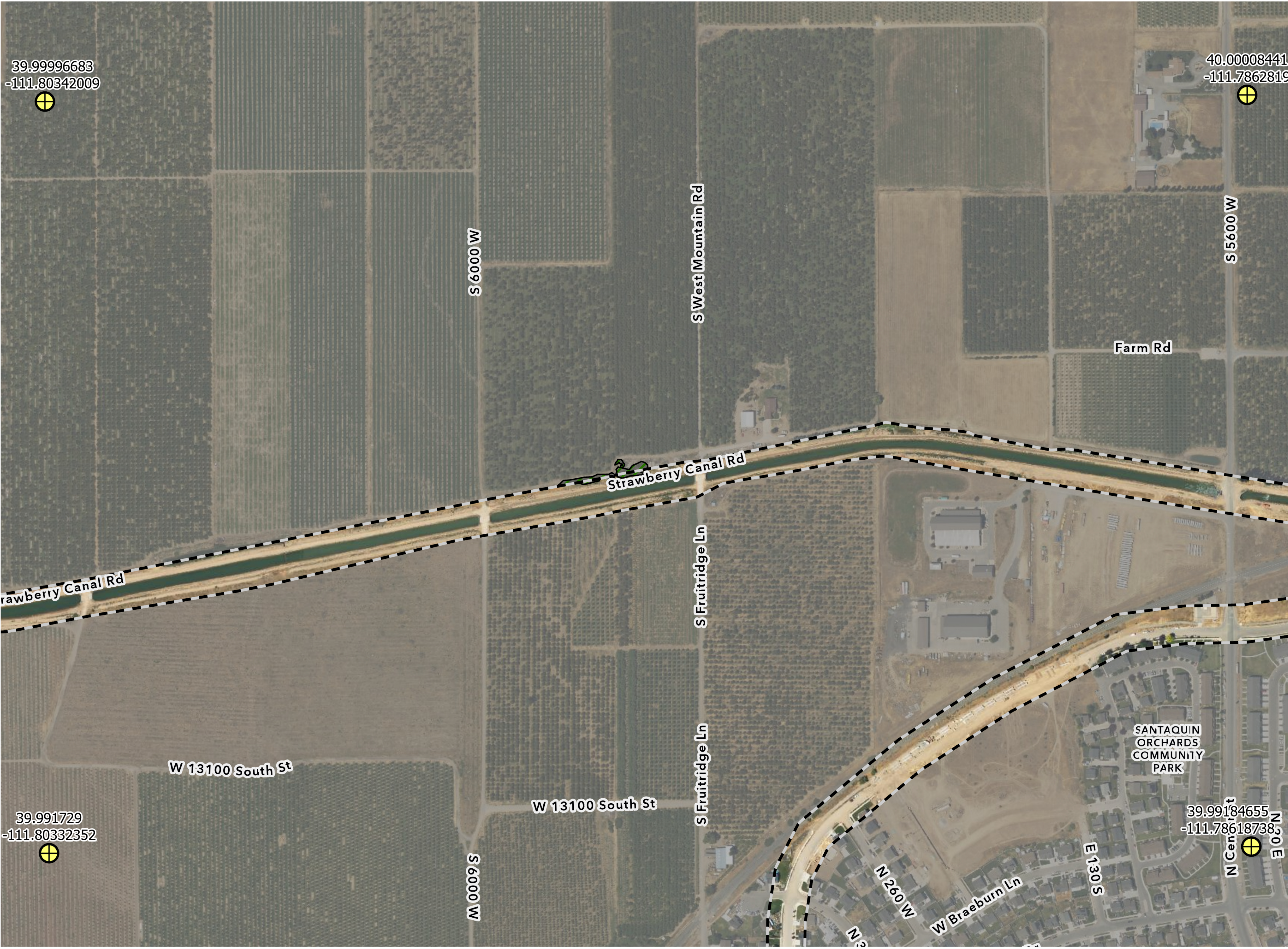
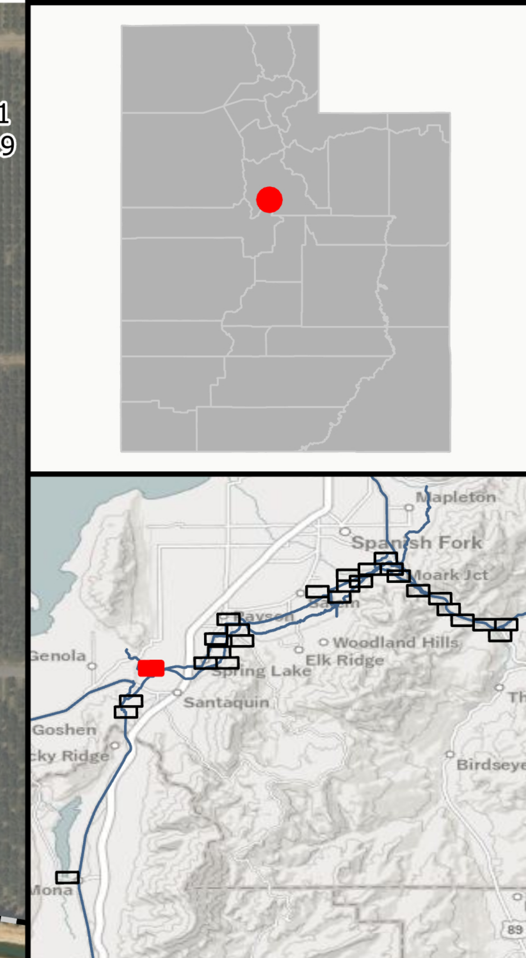
Survey Area Boundary
Riparian Vegetation Survey Area



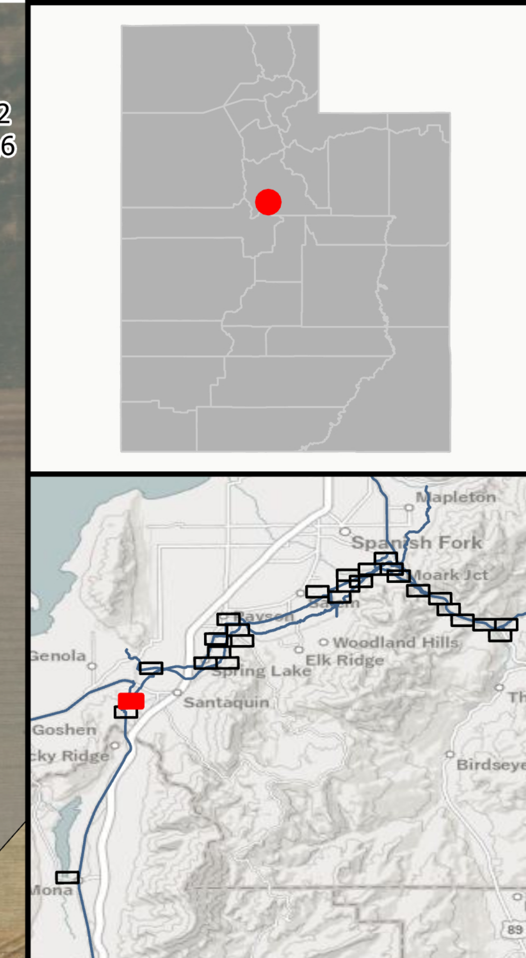

LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

HDR NEBO WATER PROJECT

0 0.1 mi

**RIPARIAN HABITAT CONSERVATION AREAS**


LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

HDR NEBO WATER PROJECT

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**RIPARIAN HABITAT CONSERVATION AREAS**



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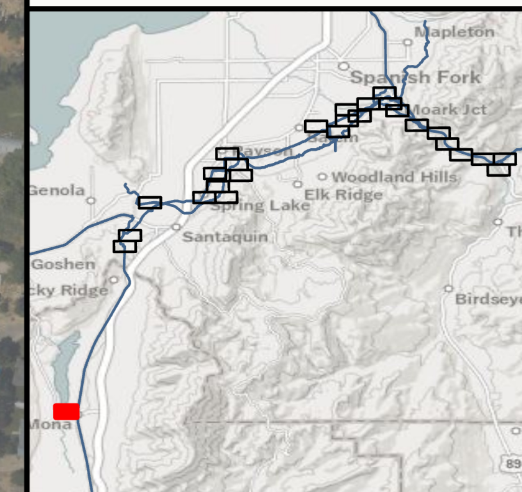


LEGEND

- Control Points
- Riparian Vegetation
- Survey Area Boundary
- Riparian Vegetation Survey Area

HDR NEBO WATER PROJECT

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**RIPARIAN HABITAT CONSERVATION AREAS**



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