Appendix E. Other Supporting Information

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E.5. Fish and Wildlife Species of Concern
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E.7. Forest Service Biological Specialist Report
E.8. Flat Canyon Clay Mine Plan
E.9. Unanticipated Archaeological Discoveries Procedures
E.10. Technical Memoranda

Appendix E.1. Resources Considered but Eliminated from Further Analysis

Resource	Rationale
Coastal zone management areas	Coastal zone management areas do not occur in Utah, which is an inland state.
Coral reefs	Coral reefs do not occur in Utah, which is an inland state.
Ecologically critical areas	Ecologically critical areas are not known to occur within the watershed area.
Essential fish habitat	Essential fish habitat does not occur in Utah.
Fire/fuels management (BLM)	The proposed action would have no impact on fire/fuels management as it does not change access to areas where fires may occur and standard stipulations will address basic fire mitigation measures required for operation.
Forest resources	Forest resources such as timber and fuelwood occur in the higher elevations of the watershed area, but would not be impacted by project activities.
Livestock grazing (BLM)	The proposed riprap sites are located within the Gypsum and Salls Meadow allotments. Vegetation would be removed for material extraction, but the areas are relatively small compared to the overall allotments. There would still be sufficient forage for livestock; therefore, there would be little to no impact to livestock grazing. All fences that were cut, removed, or damaged would need to be repaired or replaced following completion of the project.
Paleontology (BLM)	The proposed action is located in Potential Fossil Yield Classification (PFYC) 1-very low because the surface geology is igneous rocks. If any paleontological resources are discovered during the proposed action, work must stop at that location and a qualified BLM representative must evaluate the find.
Parklands	No state, county, or national parklands occur within or near the watershed area.
Rangeland health standards (BLM)	The proposed action is not anticipated to have a significant impact on Rangeland Health Standards. Reseeding disturbed sites and placing riprap in areas to prevent erosion would be beneficial, due to the relatively small scale of the project no further analysis is needed.
Scientific resources	No scientific resources are known to occur within or near the watershed area.
Sensitive animal species (BLM)	Sensitive wildlife species have been observed in the area around the riprap material sites, including bald eagle, burrowing owl, and golden eagle; for full list of observed or possible wildlife species see Wildlife Staff Report. Wildlife clearances are required before project implementation to prevent any negative impacts to any sensitive species that may be present. If den and nest sites of sensitive wildlife are found, spatial buffers will be placed around those sites to protect the wildlife. Additionally, all raptor nests would need to have seasonal buffers enacted as outlined in the Raptor BMP, which is a part of the RFO RMP. (Appendix 10)
Sole source aquifers	The nearest sole source aquifer is over 100 miles away from the watershed area (Environmental Protection Agency [EPA] 2023a).

Resource	Rationale
Wild and scenic rivers	Wild and scenic rivers do not occur in Sevier County (National Wild and Scenic Rivers System 2023). Nationwide Rivers Inventory (NRI) segments do not occur within 40 miles of the watershed area (National Park Service 2023).
Woodland / Forestry (BLM)	The immediate area contains scattered pockets of pinyon and juniper, while the broader landscape includes larger blocks of pinyon-juniper woodlands. These areas provide woodland products such as firewood, fence posts, and pine nut collection sites. The establishment of a riprap site is expected to have minimal impact on these resources due to the limited tree removal within the project area and the abundant availability of woodland resources within a 5-mile radius. While some impacts will occur, they are not anticipated to be significant enough to warrant further analysis.
Vegetation Excluding Designated/Special Status Species (BLM)	The proposed project site is dominated by big sagebrush, black sagebrush, Utah juniper, Squirreltail grass, Indian ricegrass, and sandberg bluegrass. Some of the existing vegetation would be lost during the construction activities. However, the loss of vegetation during the proposed action would be a minor, short term impact. Rehabilitation of the disturbance would be a positive impact, because seeding with desirable perennial species would result in better, future vegetation. Long-term benefits, due to rehabilitation through seeding, far out-weigh any short-term loss of the current vegetative resource on the proposed project area. Therefore, considering all factors, it is determined that the vegetative resource would not be impacted to the degree that further analysis is needed.

Appendix E.2. Redacted Cultural Inventory Reports

COVER PAGE
Must Accompany All Project Reports
Submitted to the Utah SHPO

Utah Division of State History

Report Title: Cultural Resource Survey of NRCS' Sevier Valley Watershed Project Near Richfield, Sevier County, Utah.
UDSH Project Number: U19MQ0243 Org. Project Number: 19-030
Report Date: December 21, 2019 County(ies): Sevier
Report Author(s): Jody Patterson Principal Investigator: Jody Patterson
Record Search Date(s): May 16, 2019 & June 26, 2019 Field Supervisor(s): Jessica Del Bozque
Intensive Acres Surveyed (<15m intervals): 821.2 Recon/Intuitive Acres Surveyed (<15m intervals): 0
USGS 7.5' Series Map Reference(s): Annabella, Aurora, Elsinore, Richfield, Sigurd, White Pine Peak, UT.

Sites Reported	Count	Smithsonian Trinomials
Revisits (no updated site forms)	6	42SV2343, 42SV2500, 42SV2502, 42SV3046, 42SV3389, 42SV3522
Updates (updated site forms attached)	10	42SV665, 42SV693, 42SV1375, 42SV1485, 42SV1821, 42SV1824, 42SV2087, 42SV2344, 42SV3862, 42SV3863
New recordings (site forms attached)	22	42SV3896 – 42SV3917
Total Count of Archaeological Sites in APE	35	42SV693, 42SV1375, 42SV1821, 42SV1824, 42SV2343, 42SV2344, 42SV2500, 42SV2502, 42SV3046, 42SV3389, 42SV3522, 42SV3862, 42SV3863, 42SV3896 – 42SV3917
Historic Structures (structures forms Attached)	0	N/A
Total National Register Eligible Sites	15	42SV693, 42SV1375, 42SV1821, 42SV2343, 42SV2344, 42SV2500, 42SV2502, 42SV3046, 42SV3863, 42SV3899, 42SV3900, 42SV3902, 42SV3908, 42SV3910, 42SV3911

*Please list all site numbers per category. Number strings are acceptable (e.g. "42TO1-13; 42TO15"). Cells should expand to accommodate extensive lists.

Checklist of Required Items for Submittal to SHPO

- ☑ "Born Digital" Report in a PDF/A format
  - ☑ SHPO Cover Sheet
  - ☑ File Name is the UDSH Project Number with no hyphens or landowner suffixes
- ☑ "Born Digital" Site forms in PDF/A format
  - ☑ UASF with embedded maps and photos
  - ☑ File name is Smithsonian Trinomial without leading zeros (e.g. 42TO13 not 42TO00013)
  - ☑ Photo requirements (including size and quality)
- ☑ Archaeological Site Tabular Data
  - ☑ Single spreadsheet for each project
  - ☑ Follows UTSHPO template (info here: https://goo.gl/7SLMqj)
- ☑ GIS data
  - ☑ Zipped polygon shapefile or geodatabase of survey (if different from APE) or other activity area with required field names and variable intensity denoted
  - ☑ Zipped polygon shapefile or geodatabase of site boundaries with a the required field name

CULTURAL RESOURCE SURVEY OF NRCS' SEVIER VALLEY WATERSHED PROJECT NEAR RICHFIELD, SEVIER COUNTY, UTAH

Jody J. Patterson

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CULTURAL RESOURCE SURVEY OF NRCS' SEVIER VALLEY WATERSHED PROJECT NEAR RICHFIELD, SEVIER COUNTY, UTAH

By:

Jody J. Patterson

Prepared For:

Natural Resources Conservation Service
Salt Lake City, Utah

Bureau of Land Management
Richfield, Utah

State of Utah School and Institutional Trust lands Administration
Salt Lake City, Utah

Fishlake National Forest
Richfield, Utah

Prepared Under Contract With:

Jones and DeMille Engineering
Richfield, Utah

Prepared By:

Montgomery Archaeological Consultants, Inc.
Moab, Utah

MOAC Report No. 19-030

December 21, 2019

United States Department of Interior (FLPMA)
Permit No. 19-UT-60122

State of Utah Public Lands Policy
Archaeological Survey Permit No. 167

State of Utah Antiquities Project No. U19MQ0243

U.S. Department of Agriculture Forest Service
Temporary Special – Use Permit No. FIL1905

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ABSTRACT

Between June and August 2019, Montgomery Archaeological Consultants, Inc. (MOAC) conducted a Class III cultural resource survey for the Natural Resources Conservation Service's (NRCS) proposed Sevier Valley Watershed Project, near Richfield, Utah. The project area is located on both sides of the Sevier River Valley between Aurora and Elsinore in Sevier County, Utah. The project area consists of 14 separate parcels covering a total of 821.2 acres. The proposed project area consists of parcels located in [redacted] (Figure 1-7). The parcels occur on public lands administered by the USFS Fishlake National Forest (113.6 acres), BLM (556.7 acres), and SITLA (3.2 acres). An additional 147.7 acres of the project area occurs on private land.

The inventory of NRCS' proposed Sevier Valley Watershed Project resulted in the location of six previously recorded sites (42SV2343, 42SV2500, 42SV2502, 42SV3046, 42SV3389, and 42SV3522), the update or redocumentation of seven previously recorded sites (42SV693, 42SV1375, 42SV1821, 42SV1824, 42SV2087, 42SV3862, and 42SV3863) and the documentation of 22 newly identified sites (42SV3896-42SV3917) (Table 3). Of the 13 previously documented sites, nine have been recommend as eligible for listing on the NRHP based on Criterion A, Criterion D, or Criteria C and D and three previously recorded sites have been determined ineligible for listing on the NRHP. Of the 22 newly documented sites, 6 are recommended as eligible for the NRHP and 17 are recommended as ineligible.

Five sites (42SV1821, 42SV2344, 42SV2500, 42SV2502, and 42SV3863) may potentially be impacted by the proposed undertaking. Based on the inventory results and that two sites will be, and possibly three other sites could be, impacted by the proposed undertaking, a finding of *adverse effect* is recommended for the proposed undertaking pursuant to Section 106.

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INTRODUCTION

Between June and August 2019, Montgomery Archaeological Consultants, Inc. (MOAC) conducted a Class III cultural resource survey for the Natural Resources Conservation Service's (NRCS) proposed Sevier Valley Watershed Project, near Richfield, Utah. The project area is located on both sides of the Sevier River Valley between Aurora and Elsinore in Sevier County, Utah. The project area consists of 14 separate parcels covering a total of 821.2 acres. The project area occurs on public lands administered by the U.S. Forest Service (USFS) Fishlake National Forest, the Bureau of Land Management-Richfield Field Office (BLM), State of Utah School and Institutional Trust lands Administration (SITLA) and private property. The inventory was conducted at the request of Ms. Jenna Jorgensen of Jones and DeMille Engineering, Richfield, Utah.

The inventory objective was to locate, document, and evaluate any cultural resources within the project area in order to comply with 36 CFR 800, the National Historic Preservation Act (NHPA) of 1966 (as amended). The inventory was also implemented to attain compliance with a number of federal and state mandates, including the National Environmental Policy Act of 1969, the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1978, and Utah State Antiquities Act of 1973 (amended 1990), and Utah Public Law 9-8-404.

Jessica Del Bozque (Field Supervisor), Tanner Gittins, Michael Bianchini, and Brian Meinhart conducted the survey between June 28 and August 11, 2019 under the direction of Jody Patterson (Principal Investigator). The inventory was completed under the auspices of US Department of the Interior (FLPMA) Permit No. 19-UT-60122 (expires May 2020), State of Utah Public Lands Policy Principal Investigator Permit No. 167, State of Utah Antiquities Permit (Survey) No. U19MQ0243, and U.S. Department of Agriculture Forest Service Temporary Special – Use Permit No. FIL1905 issued to MOAC, Moab, Utah.

Adam Thomas conducted an online file search using Preservation Pro on May 16, 2019. Mr. Chuck Hutcheson, archaeologist for Fishlake National Forest, conducted an additional file search of the Fishlake National Forest database on June 26, 2019. These file searches identified 51 previous projects within one half-mile of the current project area (Table 1) and 47 previously recorded sites occur within the same area (Table 2). Sixteen of the previously documented sites occur within the current project area (42SV665, 42SV693, 42SV1375, 42SV1821, 42SV1824, 42SV2087, 42SA2343, 42SV2344, 42SA2500, 42SA2502, 42SA3046, 42SV3389, 42SV3522, 42SV3862, and 42SV3863). Site 42SV2599 also occurs in the project area. This site consists of a segment of the Piute Canal. SHPO dropped this site number and included the information under site number 42SA2344. Site 42SV1485 was indicated in the search results as located in [redacted], but this location is incorrect. MOAC surveyed the plot at that location to verify no cultural material was present. The correct site location is [redacted]. Per the request of Mr. Arie Leeflang of the Utah Division of State History, an update was completed for 42SV1485 to document that the plot within the current project area is inaccurate. During the inventory it was also observed that the plot for 42SV1375, a rock art site, was misplotted and the rock art described in that form is at the plot for 42SV2187. Site 42SV2187 consists of

rock art and has no site form but is briefly described in report U87AK0773; the descriptions in that report strongly resemble those rock art panels located at the plot for 42SV2187 and pictured in the site form for 42UN1375. MOAC completed an update to re-document the rock art and combine site numbers 42SV1375 and 42SV2187 during the current inventory. No cultural materials were observed at the plot for 42SV1375.

Table 1. Previous projects within one half-mile of the current project area.

State Project Number	Project Title	Consultant
U75WJ0062	UP&L Camp Williams to Sigurd Line	Worldwide Surveys
U76BC0162	Intensive Survey of Three Transmission Line Routes.	BYU
U84BC0178	An Archaeological Inventory of the I-70 Elsinore-South Richfield Segment Sevier County, Utah and Three Proposed Borrow Pit Areas	BYU
U84BC0216	Prop Sigurd-Cameron 138KV Relocation nr Elsinore	BYU
U84BC0220	An Archaeological Survey of Several Borrow Areas Along the North Richfield to Sigurd Segment of Interstate 70 Sevier County, Utah	BYU
U84BC0237	Site 42SV1897 Near Elsinore	BYU
U85BC0401	An Archaeological Inventory of Four Proposed Borrow Pits for I-70 Construction, North Richfield-South Richfield	BYU
U85BC0550	Prop Gravel Borrow Area/Holding Pond N of Richfield	BYU
U85BC0591	3 Borrow Areas between Richfield & Elsinore - Addendum	BYU
U85BC0749	Prop Rip-Rap Pit Near Sigurd and Sigurd-Sevier River Bridge	BYU
U85BC0750	Prop Material Borrow Area Near North Richfield	BYU
U86AK0420	Nielson - Maglebee Borrow Pit	BYU
U86BC0486	UP&L Sigurd to Cedar City	BYU
U87AK0773	CRS of a Borrow Pit for Le Grand Johnson Construction on Reliable Insurance Company Lands	ARCON
U87BC0077	2 Reports-Pipeline Survey/Salina Sisters Burial Site	BYU
U89BL0463	Aurora City Pipeline	BLM
U89BL0533	Aurora Pipeline Gravel Pit	BLM
U94AS0567	CRI and Historical Reconnaissance Survey for Utah Department of Transportation's SR-260 Improvement Project, Sevier County, Utah	Abajo Archaeology
U95WZ0502	Salina Seismic Program	Desert West Research
U98FS0776	Flat Canyon Clay Pit	Forest Service
U03BC1000	UP&L Sigurd to Nevada Powerline	BYU
U04BC0381	UP& L Sigurd to Glen Canyon	BYU
U04MV0106	Sevier County Seismic Lines	Mountain States Archaeology
U04MV0866	Sevier Valley Seismic Lines	Mountain States Archaeology
U04UJ0433	Piute Canal 280 Acres	Utah State University
U04UJ0434	Test Excavation and Analysis of the Panguitch Creek Site 42GA5340	Utah State University
U05FS0122	ATV Play Areas	Forest Service
U05LW1224	Dawson Geo. WGO 2006 Southern	Western Land Services Inc.
U06ST1699	Pioneer 2-D Seismic in Sevier County	SWCA
U06UM0553	Richfield Public Shooting Range	SITLA
U07FS0535	Fishlake N.F. Travel Management Plan Survey	Forest Service

State Project Number	Project Title	Consultant
U07LW1125	Covenant 3-D Seismic	Western Land Services Inc.
U08BL0087	Aurora OHV Play Area	BLM
U08LW0080	Wolverine Data - Frogs 2-D Seismic	Western Land Services Inc.
U09EO0612	Sigurd to Red Butte Transmission Corridor	EPG
U10EO0327	A CRI for the Sigurd to Red Butte Geotechnical Investigations Project No. 2, Beaver, Iron, Millard, Sevier, and Washington Counties, Utah	EPG
U10EO0510	Sigurd to Red Butte Transmission Line	EPG
U11EO0482	Sigurd to Red Butte Geotechnical Investigation Project #3	EPG
U12BL0299	Bull Claim Hill Rip Rap Quarry	BLM
U12BL1119	Bull Hill Claim Quarry Inventory 2012	BLM
U12BL1120	Glenanna Vegetation Treatment Inventory 2012	BLM
U12HO0845	Horizon Energy Well Pads	Bighorn
U13HO0317	Sigurd to Red Butte Variance 30-091a Access Road Near Structure 35, Sevier County	Bighorn
U13HO0462	EC Source Sigurd to Red Butte Access Road/ROW Variance Between Structures 65 and 68	Bighorn
U13HO0509	A CRI for the EC Source ENV-042 Access Road 030-77 For Structure 29 Sigurd to Red Butte Transmission Line Project Near Richfield, Sevier County, Utah	Bighorn
U13HO0557	A CRI for the EC Source Sigurd to Red Butte Transmission Line Variance ENV-051 Fly Yard 65 Near Elsinore, Sevier County, Utah	Bighorn
U13HO0946	A Cultural Resources Inventory for the EC Source Variance ENV-023 ECS030-171 Access Road to Structure 65 Near Elsinore, Sevier County, Utah	Bighorn
U15HO0265	A Cultural Resource Inventory for the Aurora SITLA Inventory Near Aurora, Sevier County, Utah	Bighorn
U16SH0782	Cultural Resources Inventory of an NRCS Emergency Watershed Protection (EWP) Project Near Willow Canyon, Near Richfield, Sevier County, Utah	NRCS
U16SH0783	Cultural Resources Inventory of an NRCS Emergency Watershed Protection (EWP) Project in Flat Canyon Near Elsinore, Sevier County, Utah	NRCS
U16SH0843	Cultural Resources Inventory of an NRCS Emergency Watershed Protection (EWP) Material Source Location on Bull Claim Hill Near Anabella, Sevier County, Utah	NRCS
U18MQ0697	CRI of Richfield City's Richfield Bike Trails Survey, Phase I, Sevier County, Utah	MOAC

Table 2. Previously documented archaeological sites within one half-mile of the current project area.

Site Number	Affiliation	Site Type	NRHP Eligibility	In Current Project
42SV457	Unknown Aboriginal	Rock Art	Undetermined	No
42SV612	Unknown Aboriginal	Rock Art	Undetermined	No
42SV665	Fremont	Artifact Scatter	Undetermined	Yes
42SV691	Unknown Aboriginal	Lithic Procurement	Not Eligible	No
42SV692	Unknown Aboriginal	Lithic Procurement	Not Eligible	No
42SV693	Unknown Aboriginal	Rock Shelter	Eligible	Yes
42SV694	Unknown Aboriginal	Lithic Scatter	Not Eligible	No
42SV695	Unknown Aboriginal	Lithic Procurement	Eligible	No
42SV696	Unknown Aboriginal	Lithic Scatter	Not Eligible	No
42SV697	Fremont(?)	Camp	Not Eligible	No
42SV698	Unknown Aboriginal	Lithic Scatter	Not Eligible	No
42SV699	Unknown Aboriginal	Lithic Scatter	Not Eligible	No
42SV700	Unknown Aboriginal	Lithic Procurement	Not Eligible	No

Site Number	Affiliation	Site Type	NRHP Eligibility	In Current Project
42SV701	Unknown Aboriginal	Lithic Procurement	Not Eligible	No
42SV702	Unknown Aboriginal	Lithic Scatter	Not Eligible	No
42SV1375	Fremont	Rock Art	Eligible	Yes
42SV1619	Unknown Aboriginal	Rock Art	Eligible	No
42SV1821	European/American	Richfield Dump	Eligible	Yes
42SV1823	European/American	Dump	Not Eligible	No
42SV1824	European/American	Dump	Not Eligible	Yes
42SV1832	European/American	Dump	Not Eligible	No
42SV1897	Unknown Aboriginal	Stone Circle, Rock Art	Undetermined	No
42SV2087	European/American	Corral & Dugout	Not Eligible	Yes
42SV2343	European/American	Vermillion Canal	Eligible	Yes
42SV2344	European/American	Sevier Valley/Piute Canal	Eligible	Yes
42SV2500	European/American	Richfield Canal	Eligible	Yes
42SV2502	European/American	D&RG Railroad (Marysvale Branch)	Eligible	Yes
42SV2599	European/American	AKA 42SV2344	Eligible	Yes
42SV2636	Unknown Aboriginal	Lithic Procurement	Eligible	No
42SV2641	European/American	Dump	Not Eligible	No
42SV2642	Unknown Aboriginal	Lithic Scatter	Not Eligible	No
42SV2729	European/American	Venice Canal	Eligible	No
42SV2775	European/American	Domestic Artifact Scatter	Not Eligible	No
42SV2806	European/American	Telephone Line	Not Eligible	No
42SV3041	Multicomponent	Prehistoric/Historic Artifact Scatter	Not Eligible	No
42SV3045	European/American	Dump	Not Eligible	No
42SV3046	Multicomponent	Puebloan ceramic scatter/Historic Dump	Eligible	Yes
42SV3047	Multicomponent	Archaic-Late Prehistoric artifact scatter and rock art/ Historic Dump	Eligible	No
42SV3048	Multicomponent	Lithic Scatter/1 Tin Can	Not Eligible	No
42SV3384	Unknown Aboriginal	Lithic Scatter	Not Eligible	No
42SV3385	Multicomponent	Prehistoric/Historic Artifact Scatter	Not Eligible	No
42SV3389	European/American	Historic artifact scatter/camp	Not Eligible	Yes
42SV3522	European/American	Historic Artifact Scatter	Not Eligible	Yes
42SV3545	Unknown Aboriginal	Lithic Procurement	Eligible	No
42SV3662	European/American	Dump	Eligible	No
42SV3862	European/American	Powerline	Not Eligible	Yes
42SV3863	European/American	CCC Road	Eligible	Yes

DESCRIPTION OF PROJECT AREA

The project area consists of several parcels scattered throughout the Sevier River Valley between Aurora and Elsinore, Utah. The project area consists of 14 separate parcels covering a total of 821.2 acres. The proposed project area consists of parcels located in [redacted] (Figure 1-7). The parcels occur on public lands administered by the USFS Fishlake National Forest (113.6 acres), BLM (556.7 acres), and SITLA (3.2 acres). An additional 147.7 acres of the project area occurs on private land.

The proposed undertaking includes two debris basins, each located at the mouth of Flat or Tank Canyon. Flood channels at the north and south end of the project area would be improved to convey flows from canyons on the west side of the valley to the Sevier River. A series of two water and sediment control basins would be constructed at the mouth of Wood Canyon, and the channel downstream would be improved. The Sevier Valley Canal flood control gate would be upgraded. Riprap for the features would be extracted from public lands on the east side of the valley. The surveyed area contains the project features and associated construction disturbance areas for each component.

Environmental Setting

The study area lies within the Sanpete-Sevier Valleys subsection of the Basin and Range-Colorado Plateau physiographical province (Stokes 1986). The Sevier River valley is a narrow depression filled with sediments and alluvial fans that mask a complex area of subsidence caused by faulting, folding, and the removal of salt from Jurassic formations (Stokes 1986:248). The project area occurs primarily between Aurora and Elsinore, Utah. This portion of the Sevier River Valley is flanked in the west by the Pahvant Range and in the east by the Sevier Plateau. The intermediary elevations of these two ranges extend upwards of 2,500 feet above the valley floor, though the peaks in the Pahvant range approach 10,000 ft. The Sevier River Valley is about seven miles wide, with an average elevation of 5,300 ft. The Sevier River originates about 80 miles south of the project area, in the Pink Cliffs of northern Kane County and flows north through Marysvale Canyon in Piute and Sevier counties, eventually emptying into Sevier Lake in central Millard County. Throughout the project area, the river's original course through its floodplain has been heavily altered and restricted. Several intermittent drainages flow down from the range toward Richfield, the most prominent, Cottonwood Creek. Elevation of land surveyed as part of this project ranges between 5,250 ft and 6,500 ft and lies within the Upper Sonoran life zone. Natural vegetation includes sparse pinyon and juniper, blackbrush, greasewood, rabbitbrush, sagebrush, yucca, saltbush, cheatgrass, prickly pear cactus, snakeweed, various grasses characterized by a pinyon-juniper woodland community with an understory including low sagebrush, ephedra, bunch grasses, and cliffrose. Modern impacts to the area include urbanization, agriculture, camping, target shooting, ATV/recreation trails, roads and highways, dumping, and several transmission lines.

[MAP REDACTED]

Figure 1. Survey Area of NRCS' Sevier Watershed Project, Sevier County, Utah.

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[MAP REDACTED]

Figure 2. Survey Area of NRCS' Sevier Watershed Project, Sevier County, Utah.

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[MAP REDACTED]

Figure 3. Survey Area of NRCS' Sevier Watershed Project, Sevier County, Utah. Previous Inventory indicates projects from last ten years only.

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[MAP REDACTED]

Figure 4. Survey Area of NRCS' Sevier Watershed Project, Sevier County, Utah. Previous Inventory indicates projects from last ten years only.

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[MAP REDACTED]

Figure 5. Survey Area of NRCS' Sevier Watershed Project, Sevier County, Utah. Previous Inventory indicates projects from last ten years only.

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[MAP REDACTED]

Figure 6. Survey Area of NRCS' Sevier Watershed Project, Sevier County, Utah.

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[MAP REDACTED]

Figure 7. Survey Area of NRCS' Sevier Watershed Project area, Sevier County, Utah. Previous Inventory indicates projects from last ten years only.

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Historical Overview

Human occupation in the study area spans 10,000-12,000 years and encompasses four prehistoric cultural temporal units: the Paleoindian, Archaic, Formative, and Late Prehistoric (Paiute and Ute). Historic Euroamerican occupation of the area is extensive and begins in the mid-1800s.

The Paleoindian period in the continental United States extends from the end of the Pleistocene (ca. 11,000 YBP) to the early Holocene (7,500 YBP). Environmental conditions during the Pleistocene supported a variety of megafauna including bison, mammoth, camel, and ground sloth. In Utah, three Paleoindian complexes are recognized: Clovis (ca. 11,500-11,000 B.P.), Folsom (ca. 11,000-10,000 B.P.), and Plano (ca. 10,000-7500 B.P.). Despite minor differences in tool kits and tool manufacturing technology, the three complexes share a variety of traits including big game hunting, low population densities, and wide spatial distributions. Diagnostic cultural materials attributed to the Clovis complex have been found in sand dunes along the Sevier River, including a lithic scatter containing a Clovis projectile point (42JB180) (Copeland and Fike 1988). In western Utah, the Hell'n Moriah Clovis site (42MD1067), a single component retooling station, yielded seven Clovis fluted projectile points, flaked tools, and lithic debitage (Davis, Hurst, and Westfall 1994).

The earliest Archaic presence in the study area occurred during the Pleistocene-Holocene boundary (10,000-8000 B.P.). Diagnostic artifacts dated to the interval are found in the eastern Great Basin around 9500 B.P. and include Pinto Series projectile points and Western Stemmed Tradition points. A long period of environmental variability followed the Pleistocene-Holocene transition, with the span between 8000 and 4000 B.P., the Altithermal distinguished by aridity and the loss of broad areas of lakeshore marshes and the drying up of the large Pleistocene lakes. The environment subsequently became wetter, with increased precipitation causing lakeshore flooding. Sometimes called the "Neoglacial", this period is marked by an increase in the number of known sites and a movement from lakeshore to upland environments. Elko Series and Gypsum projectile points are common projectile points from this time period and Rose Spring-Eastgate Series projectile points begin to replace the larger projectile point styles, indicating a switch from use of the atlatl and dart to use of the bow and arrow.

Sometime between A.D. 1 and 400, the Formative stage emerges on the northern Colorado Plateau and in portions of the Great Basin. Maize, ceramics, and the bow and arrow were adopted in different spatiotemporal patterns, indicating that these features did not arrive as a complex from the south (Madsen and Simms 1998:260). Characteristics considered diagnostic of this stage are well-documented on either side of the southern Wasatch Plateau, including permanent architecture, plant domestication, and bow and arrow technologies. Several aceramic Late Archaic/Formative stage sites containing early pit structure architecture have been investigated in central Utah, such as Structure 2 at Icicle Bench (Talbot et al. 1997), and the Late Archaic Pahvant Park pit structure at North Richfield (Talbot and Richens 1993). By A.D. 700, a ceramic tradition is well-represented at hundreds of sites attributed to the Fremont complex in central Utah. Marwitt (1970) defined five Fremont regional variants. Under this scheme, the project area falls within the Sevier Fremont variant (ca. 780 to 1260), characterized by rectangular, square, and circular pit structures with ventilators or crawlway entrances, but without deflectors (Marwitt 1970:140). Dominant ceramic types include Sevier Gray and Snake Valley Gray. In central Utah and elsewhere, significant population growth began sometime around A.D. 900, represented by intensification of architecture, population growth, and expanding frontiers. Janetski et al. (2000) suggests that the

apparently high population of Fremont in the central Sevier Valley probably represented a supra-community equivalent to that of the Parowan Valley; Fremont occupations are known beneath the historic towns of Monroe, Elsinore, Glenwood, Aurora, Salina, and in Lost Creek Canyon. Permanent habitations such as Five Finger Ridge in Clear Creek Canyon are designated as "villages" and contain contemporaneous habitation structures, architectural features associated with communal economic cooperation, and evidence of political integration in the form of communal structures (Janetski et al. 2000).

Following the disappearance of the Fremont from the archaeological record, a largely nomadic hunting and gathering economic strategy resumed. Numic-speaking Southern Paiute and Ute groups were present throughout much of Utah upon the arrival of Europeans. Although the name Paiute was originally applied only to the Southern Paiute, it was extended to additional groups as the exploration of the Great Basin proceeded. Numic occupation in the study area is evidenced by Desert Side-notched projectile points, Southern Paiute Utility Ware ceramics, and distinct perishables. In the vicinity of the study area, several radiocarbon dates have been obtained from Late Prehistoric occupations in Clear Creek Canyon. The North Cedars Cave contained numerous brownware sherds (in mixed deposits), and yielded dates of A.D. 1400s and 1600s (Janetski et al. 2000). Although settlement patterns reflected a mobile society, family groups tended to occupy the same localities within their territory over the course of a year. Often families claimed certain springs as private property (Kelly and Fowler 1986). The major gatherings of the pre-contact period were centered around the pine nut harvest and the spring fish spawning time at such places as Fish Lake (Tom and Holtz 2000:124). Occupying the study area at the time of European American arrival were the Pah Vent (or Pahvant) Utes. According to Steward (1938:227), the traditional territory of the Pah Vent Utes stretched from "the deserts surrounding Sevier Lake west of the Wasatch Mountains nearly to the Nevada border." Known villages were located near the modern communities of Kanosh, Deseret, Black Rock, Holden, Lyndyl, and Scipio. Each of these villages denoted the winter headquarters of a division of the band (Steward 1938:227). There were approximately 500 Pah Vent Utes when the Mormons arrived in the 1860s to build Cove Fort (Van Cott 1997:94).

The earliest recorded visit by Europeans to Utah was the Dominguez-Escalante expedition, which departed from Santa Fe, on July 29, 1776. After traveling north through western Colorado, then turning west near Jensen, Utah, the party reached Utah Valley in late September. Following a three day rest the group headed south and in early October passing the Cove Fort area by approximately 20 miles to the west (Warner 1976). Near Black Rock, Utah a decision was made to return south to Santa Fe rather than continue the trek towards Monterey, California. Although their goal of establishing a new route between Santa Fe and Monterey was not met, the area became better known through the friars' journals. Following this expedition, Spanish traders and trappers continued to enter the region and soon established both a primary and secondary trail system in Utah that became known as the "Old Spanish Trail." In 1826, the American fur trapper and explorer Jedediah S. Smith, accompanied by 15 other trappers, traveled south through Sevier County from Bear Lake, eventually reaching southern California. By September 8, 1826, the party had encountered the Sevier River and proceeded to follow it upstream through the valley. As the canyon continued to narrow further south, the trappers turned west, passed through Clear Creek Canyon, and exited near Cove Creek at the present site of Cove Fort (Brooks 1977).

The Old Spanish Trail was busy with government travelers between 1853 and 1854 at which time Congress appropriated funds to conduct a series of surveys in the West for a possible transcontinental railroad to the Pacific Coast. In 1853, Lt. Edward F. Beale, who was serving in California as Superintendent of Indian Affairs, was delegated to unofficially survey a central route on his return trip to California from Washington D.C. The expedition reached the head of Salina Canyon and the headwaters of Salina Creek in July 1853 where they reported a new wagon road which was being used by Mormon freighters and miners to haul salt rock from the salt mines near Salina to the newly established settlements in Sanpete County (Bishop 1997:62). The expedition turned south at Salina and followed the Sevier River upstream. The expedition's recorder, Gwin H. Heap, wrote that the Sevier Valley "surpasses in beauty and fertility anything we had yet seen." The company left the county following the river to present-day Marysvale and Kingston where they connected with the Old Spanish Trail, eventually reaching California.

Mormon exploration of central and southern Utah in search of new settlements commenced in 1849, when Brigham Young commissioned a fifty-man company led by Parley P. Pratt, a Mormon apostle. Pratt and his men were to maintain a complete record of soil conditions, topography, vegetation, streams, timber, pasture lands, and other natural resources necessary to locate any new forts and settlements (Arrington 1958:86). Proceeding down the Sanpete Valley, the explorers reached the Sevier River by early December 1849 (Newell 1999:41). Pratt reported the occurrence of coal near the present site of Salina and had praise for the rich bottomland of the Sevier River Valley, where Richfield would eventually stand. In July 1863 George W. Bean was called by Mormon apostle George A. Smith, who was presiding over the Utah Valley area, to take a small exploration party go up the Sevier River above Gunnison and look for suitable locations for settlements. After crossing to the west side of the Sevier River, the party found a big spring where Richfield was later settled. There they found fertile soil, good water, and wood in the nearby hills. The party, returning by way of Spring City, met Mormon Apostle Orson Hyde, who informed them that the settlement of Sevier Valley was under his direction. In January 1864, an independent party of ten men under the leadership of Albert Lewis came from Sanpete and arrived in what is now Richfield on the sixth of January. In the winter of 1864 Orson Hyde called additional families to go. Some bought their way out, but others responded to the call to settle. The first settlement was called Big Springs or Warm Springs, after the life-giving spring at the foot of the red hills to the west. The settlement later was called Omni after a prophet in the *Book of Mormon*. The name was changed to Richfield because of the fertile soil. In 1864 Nelson Higgins, a veteran of the Mormon Battalion, was selected as temporary president of the settlement. In February 1865, the first schoolhouse was built; the first teacher in the school was Hans P. Miller. A fort was started in the fall of 1865; each man who owned a city lot was required to build one rod (16.5 feet) of wall.

Sevier County was officially created in early 1865, at which time there were a few small settlements, including Richfield, Glenwood, and Monroe (known at the time as Alma) (Bishop 1997:62). In 1865, another 100 families settled in the county, most immigrating from neighboring Sanpete County. Many of the county's early settlers were Scandinavians, who brought distinctive building styles and cultural practices with them. Expansion throughout central Utah was briefly interrupted as a result of the Black Hawk War, which began in 1865 (Poll 1978). Under Black Hawk's leadership, Ute bands initiated raids against settlers occupying their historical territory principally in Sanpete and Sevier Counties. Though it was labeled a "war" by many, it was actually a series of raids, chases, and skirmishes between the settlers

and their territorial militia and various bands of Utes (Powell 1994:44). In 1865, Black Hawk and his band took ninety head of stock from nearby Salina, killing two settlers working in the canyon. Other attacks followed. For safety, about forty families from nearby Glenwood moved to Richfield. Three settlers, Jens Peter Petersen, his wife Amalia, and Mary Smith were killed by Black Hawk's band between Richfield and Glenwood on March 21, 1867. Brigham Young called for the evacuation of the Sevier River Valley when the Indian depredations persisted and began to increase. The evacuation of the settlement was completed by April 1867. However, at the western end of Sevier County, Cove Fort was constructed and maintained in order to protect communication and transportation interests. Although the conflict dissipated with the signing of the Black Hawk War treaty in 1868, attempts to resettle the Sevier Valley by Mormon pioneers failed until 1870. By July 1872 there were 150 families in the Richfield area. In March 1874 Bishop Williams Seegmiller reported 145 families, 172 men, and a total of 753 persons in Richfield. There were 117 children attending school.

The population of Sevier County steadily increased after 1874 with the establishment of villages such as Annabella (1871) six miles southeast of Richfield, and Sevier Ward (1872), the county's southernmost community. The Sevier Ward, with boundaries extending from the mouth of the Sevier Canyon to south of Joseph, was settled by the heads of nine families living near Clear Creek Canyon. The first community effort by these families was the construction of a 2.5-mile-long irrigation ditch to divert water from Clear Creek to grow such diverse crops as apples, apricots, peaches, pears, grapes, and black walnuts (Bishop 1997:83).

In 1890, the narrow-gauge Denver & Rio Grande Western mainline between Ogden and Denver was being widened. A standard gauge roadbed was built south from Thistle to Ephraim, but laid with a three-foot-gauge track. During the two-year transition from narrow gauge to standard gauge, the Sevier Railway became the repository of most of the narrow-gauge equipment still left in the Utah half of the Rio Grande Western. The Sevier Railway was formed by citizens of Sevier County in May 1891 who purchased the right-of-way to build tracks from the towns of Manti to Marysvale for the use of the D&RGW trains (Newell 1999:196). Track was completed to Salina in 1891 and the rails reached Richfield by June 1896. Beginning in 1907 Sevier County received revenue derived from the national forests to assist with the funding of roads and public schools in the county (Bishop 1997:137). Several years later the Utah State Legislature established the state highway system and state highway department. In subsequent years, Richfield continued to grow with the development of businesses, hotels, restaurants, railroad service, and other amenities.

In 1933, a Civilian Conservation Corps (CCC) camp (F-12) was constructed near Fish Lake, and camp F-25 was built in Richfield (Bishop 1997:177). The CCC employed young men from needy families, and trained them to work on conservation and road construction projects in military style units. The goal of the CCC was to provide work during the depression era as part of the "New Deal" programs, and to repair the nation's roads, watersheds, and campgrounds. Thousands of young men worked for the CCC in Utah between 1933 and 1941. There were originally 48 men working for the CCC in Sevier County, housed in forest camps, given food and shelter, and paid a dollar a day for their labor. In the winter of 1933/34 the CCC workers from the Fish Lake Camp in Sevier County, and the Grover camp in Wayne County, were relocated to the fairgrounds in Richfield. New barracks were later built at the Richfield airport.

SURVEY METHODOLOGY

An intensive pedestrian survey was performed for this project which is considered 100% coverage. Each parcel within the project area was surveyed by the archaeologists walking parallel transects spaced no more than 15 m (49 ft) apart. Ground visibility was generally fair to good. The project area encompasses a total of 821.2 acres, of which 774.5 were inventoried for cultural resources during the current project. The remining 76.7 acres within the project area were previously surveyed within the last 10 years (see Table 1, Figures 3, 4, 5, and 7). Acreage surveyed for the inventory on public lands includes 98.6 acres on USFS, 555 acres on BLM, and 1.9 acres on SITLA land. An additional 119 acres were surveyed on private land.

Cultural resources were recorded as archaeological sites or linear sites. Archaeological sites are defined as spatially definable areas with ten or more artifacts and/or features. Sites were documented by the archaeologists walking transects across the site, spaced no more than 3 m (10 ft) apart and marking the locations of cultural materials with pin flags. This procedure allowed clear definition of site boundaries and artifact concentrations. At the completion of the surface inspection, a handheld Trimble GeoXH GPS unit was employed to point-provenience diagnostic artifacts and other relevant features in reference to the site datum, an aluminum capped rebar stake stamped with the temporary site number. The archaeological sites were plotted on a 7.5' USGS quadrangle map, photographed, and documented with site data entered on a Utah Archaeology Site Form (2018 version) inventory form (Appendix A). The documentation of linear sites (e.g., roads, canals) followed the Utah Professional Archaeological Council guidelines (updated 2008), which state, "linear features encountered within a survey area that extend outside of the inventory should be field recorded to a maximum of 400 meters in each direction outside of the survey area." Linear sites were plotted on a 7.5' USGS quadrangle with site data entered on a Utah Archaeology Site Form (2018 version) inventory form (Appendix A).

INVENTORY RESULTS

The inventory of NRCS' proposed Sevier Valley Watershed Project in the location of six previously recorded sites (42SV2343, 42SV2500, 42SV2502, 42SV3046, 42SV3389, and 42SV3522), the update or redocumentation of seven previously recorded sites (42SV693, 42SV1375, 42SV1821, 42SV1824, 42SV2344, 42SV3862, and 42SV3863) and the documentation of 22 newly identified sites (42SV3896-42SV3917) (Table 3). Three sites (42SV665, 42SV1485, and 42SV2087) shown on PresPro to be in the project area have either been destroyed or were misplotted. Sites 42SV665 and 42SV2087 were not relocated during the survey. Site 42SV1485 was misplotted in the incorrect township. In addition to archaeological sites, seven isolated finds were also documented (IF-A – IF-G) (Table 4).

Archaeological Sites

Smithsonian Site No.: 42SV665
Affiliation: Fremont
Site Type/Name: Artifact Scatter
Land Status: Forest Service

Eligibility: N/A
Description: Site 42SV665 is a roughly [redacted] artifact scatter of Fremont affiliation documented by UDSH-Antiquities in 1976. [redacted] A couple of utility poles related to the power grid [redacted] as well as numerous ATV/dirt bike trails, which may have destroyed the site. The survey area [redacted] and no prehistoric sites were found in that area. There is no site form on record for 42SV665 at the Fishlake National Forest Office or at the Utah Division of State History. Due to a lack of site form, the site could not be pursued outside of the inventory area. Therefore, the site is thought to be either destroyed or the plot on record is incorrect. All information on this form is derived from Preservation Pro.

Smithsonian Site No.: 42SV693
Affiliation: Fremont
Site Type/Name: Rock Shelter/Rock Art
Land Status: BLM
Eligibility: Eligible, C and D
Description: Site 42SV693 was originally recorded in 1976 by the BYU Department of Archaeology and Anthropology. When BYU documented the site in 1976, the [redacted]. MOAC relocated site 42SV693 during the current inventory. [redacted] MOAC completed a full re-record to correct the site plot, update the site description, and add a Part D to describe the rock art. Site 42SV693 [redacted]

Smithsonian Site No.: 42SV1375
Affiliation: Fremont
Site Type/Name: Rock Art
Land Status: Private Property
Eligibility: Eligible, C and D

Description: Site 42SV1375 is a rock art site originally documented in 1979 and assigned site number 42SV1375. In 1987, a cultural resource report of the [redacted] identified a rock art site [redacted] and referred to as 42SV2187. The report provides a vague description and no photos and to date, no form for 42SV2187 has been found. During the current inventory, MOAC examined the SHPO plot and surrounding area for 42SV1375 and no rock art or sites [redacted]. At the SHPO plot for 42SV2187, rock art was located that matched photos from the 42SV1375 site form. These panels also corresponded with the descriptions provided in the 1987 report. MOAC determined that 42SSV1375 and 42SV2187 were the same site, and that the original plot for 42SV1375 was inaccurate. MOAC conducted a full-rerecord to combine the previous documentations under the original number (42SV1375) and to add previously undocumented panels. This redocumentation provides a sketch map, Part-D forms, updated photos, and the correct plot for site 42SV1375. [redacted]

Smithsonian Site No.: 42SV1485
Affiliation: Unknown Prehistoric
Site Type/Name: Habitation and lithic scatter
Land Status: Forest Service
Eligibility: Eligible, D
Description: Site 42SV1485 is a short-term prehistoric habitation site [redacted]. It was documented by the Forest Service in 1989. [redacted]

Smithsonian Site No.: 42SV1821
Affiliation: Historic

Site Type/Name: Domestic Artifact Scatter
Land Status: BLM/Private
Eligibility: Eligible, D
Description: Site 42SV1821 is the Richfield City Dump, which was first documented in 1984 by CRMS/BYU. [redacted]

Smithsonian Site No.: 42SV1824
Affiliation: Historic
Site Type/Name: Domestic Artifact Scatter
Land Status: Forest Service
Eligibility: Not Eligible
Description: Site 42SV1824 is a historic and modern trash scatter. It was first documented by CRMS/BYU in 1984 as a historic dump [redacted]. Environmental Planning Group visited the site location in 2011 and were unable to locate the materials originally described. In 2016, the NRCS revisited the area and found that abundant materials were [redacted] while the original site sketch noted debris [redacted]. However, the NRCS felt that these

materials related to the original site and an update was completed to document the new, larger area. [redacted]

Smithsonian Site No.: 42SV2087
Affiliation: Historic
Site Type/Name: Corral and Dugout
Land Status: Private
Eligibility: Not Eligible
Description: Site 42SV2087 is a corral and dugout camp area documented by CRMS/BYU in 1985[redacted] This area was examined as well as the area around the site plot derived from Preservation Pro. Site 42SV2087 was not relocated within the current inventory area and could not be identified on aerial or satellite imagery in the project area or nearby. Since the site was previously determined ineligible, the site was not extensively searched for outside of the APE. The site was in poor condition at the time of documentation in 1985 with impacts cited as collapse and vandalism. It is possible in the last 34 years the site has been destroyed by dismantling, colluvial movement, or utility line construction.

Smithsonian Site No.: 42SV2343
Affiliation: Historic
Site Type/Name: Vermillion Canal
Land Status: Private
Eligibility: Eligible, A, C, D
Description: Site 42SV2343 represents the Vermillion Canal, which was built in 1878 and continues in use today. Various portions of the canal have been previous documented by Abajo (U94AS0567), Mountain States Archaeology (U04MC0106), MOAC (U05MQ0241), SWCA (U06ST1699), Western

Land Services (U07LW1225 & U08LW0080), and Bighorn (U12HO0545). In 2008, Western Land Services (documented the portion of the canal that intersects the current project area. The portion of the canal that occurs in the current project area was previously recorded by Western Land Services in 2008 (U07LW1125). MOAC revisited the canal segment within the project area. The segment remains unchanged since its original documentation 11 years ago.

Smithsonian Site No.: 42SV2344
Affiliation: Historic
Site Type/Name: Sevier Valley Canal/ Piute Canal
Land Status: BLM, SITLA, Private
Eligibility: Eligible, A
Description: Site 42SV2344 is the Sevier Valley Canal/Piute Canal. It is the largest canal in Sevier County, extending nearly 53 miles from its diversion from the Sevier River southwest of Joseph to its termination near the Sevier River Bridge Reservoir. [redacted] Historic records indicate the canal company responsible for building the canal was incorporated in 1910 and construction on it began the same year (Whetstone 1990). Various portions of the canal have been previously documented by several companies, with Abajo Archaeology being the first in 1994 (U94AS0567). [redacted]

Smithsonian Site No.: 42SV2500
Affiliation: Historic
Site Type/Name: Richfield Canal
Land Status: Private
Eligibility: Eligible, A & C
Description: Site 42SV2500 is the Richfield Canal constructed by Richfield Canal Company in 1893. [redacted] Baseline first documented the canal in 2000 (U00BS0252) and additional portions of it have been documented by Mountain States Archaeology (U-04MV0196), Western Land Services (U06LW0586 & U07LW1125), Bighorn Archaeology (U06HO1424 & Unknown Proj. No), MOAC (U06MQ1531), UDOT (Unknown Proj. No.), and NRCS

(U16SH0587). The current project area intersects with the canal in two places in [redacted]. Western Land Services documented the portion of the canal in the project area in 2008. The canal at both its intersections with the project area were revisited and found to be unchanged since that time.

Smithsonian Site No.: 42SV2502
Affiliation: Historic
Site Type/Name: D&RGW RR, Marysvale Branch
Land Status: Private
Eligibility: Eligible, A, C, and D
Description: Site 42SV2502 represents the Marysvale Branch of the Denver and Rio Grande Western Railroad. The branch, constructed as a narrow-gauge railroad in 1890 and replaced with a standard gauge track the following year, was in use for 93 years before it was eventually abandoned. The track did not actually extend to Marysvale until 1900. The branch was abandoned after the Thistle landslide occurred in 1983. Various portions of the railroad spur have been documented since soon after its abandonment. These efforts include those by BYU (Unknown Proj. No.), MOAC (U01MQ0130, U02MQ0171, U03MQ0183, U05MQ0241), Earth Touch (U03EP0044), Mountain States Archaeology (U04MV0106), Baseline (U05BS0538), Western Land Services (U06LW0586, U08LW1125, U08LW0080), Bighorn Archaeology (U06HO1424, U12HO0545), SWCA (U06ST1699), Sagebrush Archaeology (U08SJ0697), and NRCS (U16SH0689). The current project area intersects with 42SV2502 [redacted]. Western Land Services recorded this segment of the railroad in 2008 (U07LW1125). As detailed in the 2008 IMACs update, a portion of the railroad crossing through the current project area has been destroyed. MOAC revisited the site and observed that the documented portion of railroad bed through the project area has been graded and is essentially destroyed. MOAC did not observe any related features or artifacts.

Smithsonian Site No.: 42SV3046
Affiliation: Historic/Ancestral Puebloan (?)
Site Type/Name: Trash Scatter/ Prehistoric Ceramic Scatter
Land Status: BLM
Eligibility: Eligible, D
Description: Recorded by Western Land Services as part of a seismic project in 2007 (U07LW1125), site 42SV3046 [redacted] to the dump and likely reflects sporadic dumping for the last 120 years. [redacted] 42SV3046 was revisited during the current survey and found to be well-documented. No notable changes to the site condition or artifact assemblage were noted.

Smithsonian Site No.: 42SV3389
Affiliation: Historic

Site Type/Name: Historic Campsite
Land Status: Forest Service
Eligibility: Not Eligible
Description: Site 42SV3389 was identified by the Environmental Planning Group (EPG) during the [redacted] in 2010 (U10EO510). The site consists of a historic artifact scatter and roadside camp. [redacted] MOAC revisited the site during the current inventory and found the site to be well documented. No new impacts were noted since its original documentation.

Smithsonian Site No.: 42SV3522
Affiliation: Historic
Site Type/Name: Historic Trash Scatter
Land Status: Private
Eligibility: Not Eligible
Description: Site 42SV3522 is a small, but dense, historic artifact scatter first recorded in 2010 by EPG. [redacted] MOAC revisited the site in 2019 and found no evidence of disturbance since its initial documentation.

Smithsonian Site No.: 42SV3862
Affiliation: Historic
Site Type/Name: Powerline
Land Status: Private
Eligibility: Not Eligible
Description: Site 42SV3862 was originally recorded in 2018 by Montgomery Archaeological Consultants. The site is a linear segment of a powerline [redacted]

Smithsonian Site No.: 42SV3863
Affiliation: Historic

Site Type/Name: Civilian Conservation Road
Land Status: SITLA/Private
Eligibility: Eligible, A
Description: Site 42SV3863 is a segment of Fishlake NF Road 40096, also known as Civilian Conservation Road, [redacted] This road, which was originally constructed by the Civilian Conservation Corp stationed in Richfield during the winter of 1933, was a wood haul road that ran 12 miles into the western mountains towards Fillmore, Utah (Bishop 1997: 179). [redacted]

Smithsonian Site No.: 42SV3896
Affiliation: Unknown Prehistoric
Site Type/Name: Task Specific Artifact Scatter
Land Status: BLM
Eligibility: Not Eligible
Description: Site 42SV3896 is a small (963 m^2) task specific site consisting of a small lithic scatter [redacted]

Smithsonian Site No.: 42SV3897
Affiliation: Historic
Site Type/Name: Gravel Pit/Trash Scatter
Land Status: BLM
Eligibility: Not Eligible
Description: Site 42SV3897 is a large ([redacted]) historic site [redacted] The site seems to represent a small gravel pit operation. [redacted]

[redacted]

Smithsonian Site No.: 42SV3898
Affiliation: Historic
Site Type/Name: Telephone Line
Land Status: BLM
Eligibility: Not Eligible
Description: Site 42SV3898 consists of [redacted] cut down telephone poles [redacted]. [redacted] At some point the utility poles were cut down leaving stumps in their place. [redacted]
Specific information regarding this telephone line could not be located in the Utah Centennial County History Series, Utah Digital Newspapers, cadastral plats, or GLO records. However, the telephone line is thought to have been installed in the early 20th century and dismantled by the 1950's. These dates are based on when the Rocky Mountain Bell Telephone Company began installing telephone lines in Sevier County to bring telephone service to its residents, which was July 1901. The telephone line documented is not visible on 1953 or 1958 aerial imagery and is not on the 1961 [redacted] Quadrangle, indicating it was dismantled by this time. [redacted]

Smithsonian Site No.: 42SV3899
Affiliation: Historic
Site Type/Name: Lime Kilns
Land Status: BLM
Eligibility: Eligible, A-D
Description: Site 42SV3899 consists of a large lime kiln feature and associated retaining wall. [redacted] The lime kilns recorded in this area were constructed by Jens Larson Jenson and J.H. Kyhl beginning in 1903. This kiln [redacted] are all part of the lime production activity that took place in the Sevier Valley beginning in the 1880s (Notarianni 1978). Jens Larson Jenson (sometimes spelled Jensen) was born in Dalby, Scona, Sweden on July 14, 1827. Jenson converted to Mormonism and joined the Church of Latter-day Saints in 1855 and served a two-year church mission while living in Sweden (Eagle Scouts Kiosk). Four years later (in 1859) Jenson moved to Utah after joining the Rowley Handcart Company

(Notarianni 1978). After serving jail time for the outlawed practice of polygamy, Jenson arrived in Richfield to settle in the late 1880s. Jenson made a living farming and curing lime, which was an important material used in construction. To cure the limestone, Jenson built a total of seven lime kilns in the [redacted]. The first kilns he created were small structures constructed [redacted], such as this kiln and the one at 42SV3900. These smaller kilns were constructed prior to the construction of the larger more efficient kilns (Notarianni 1978). One such kiln built in 1903 by Kyhl is known as the "Jens Larson Jenson Lime Kiln" and is located two miles north of Richfield, Utah [redacted]. The Jens Larson Jenson Lime Kiln was listed to the National Register of Historic Places in 1978. Jenson produced lime until 1907 when he passed away sometime after losing his eyesight due to years of working in extreme head associated with operating the lime kilns (Notarianni 1978 and Richfield Reaper 1976). After his death, the kilns were operated for at least three years by Jenson's sons and in 1910 the Jens Larson Jenson Lime Kiln was sold to Leonard Ogden. The Jens Larson Jenson Lime Kiln was operated by Ogden for years after and the lime produced during this time was used to construct buildings like the Elsinore Sugar Factory and the Richfield First Ward Chapel (Notarianni 1978). It is unclear if the smaller kilns like 42SV3899 were still used after Jenson's death in 1907. Like the Jens Larson Jenson Lime Kiln, the kiln at 42SV3899 was [redacted]. [redacted] As described in the interpretive kiosk sign at the Jens Larson Jenson Kiln [redacted], these kilns were fitted with a metal grate at the bottom to hold rocks in them as a fire burned below (Eagle Scouts Kiosk). To create the lime, fires would burn underneath the rocks for three days. After this process, the material was hauled to town where it was sold (Eagle Scouts Kiosk). [redacted] This kiln and others represent a skilled process provided by Jenson that contributed to the development of Richfield and the surrounding area.

Smithsonian Site No.: 42SV3900
Affiliation: Historic
Site Type/Name: Lime Kiln
Land Status: BLM
Eligibility: Eligible, A-D
Description: Site 42SV3900 is a historic lime kiln related to lime production in and near Richfield, Utah. It consists of a large kiln feature constructed of local limestone and silt stone materials used to produce lime which was in turn used for construction. [redacted] The lime kilns recorded in this area were constructed by Jens Larson Jenson and J.H. Kyhl beginning in 1903. This kiln and [redacted] are all part of the lime production activity that took place in the Sevier Valley beginning in the 1880s (Notarianni 1978). Jens Larson Jenson (sometimes spelled Jensen) was born in Dalby, Scona, Sweden on July 14, 1827. Jenson converted to Mormonism and joined the Church of Latter-day Saints in 1855 and served a two-year church mission while living in Sweden (Eagle Scouts Kiosk). Four years later (in 1859) Jenson moved to Utah after joining the Rowley Handcart Company (Notarianni 1978). After serving jail time for the outlawed practice of polygamy, Jenson arrived in Richfield to settle in the late 1880s. Jenson made a living farming and curing lime,

which was an important material used in construction. To cure the limestone, Jenson built a total of seven lime kilns [redacted]. The first kilns he created were small structures [redacted] as this kiln and the one at 42SV3899. These smaller kilns were constructed prior to the construction of the larger more efficient kilns (Notarianni 1978). One such kiln built in 1903 by Kyhl is known as the "Jens Larson Jenson Lime Kiln" and is located two miles north of Richfield, Utah [redacted]. The Jens Larson Jenson Lime Kiln was listed to the National Register of Historic Places in 1978. Jenson produced lime until 1907 when he passed away sometime after losing his eyesight due to years of working in extreme head associated with operating the lime kilns (Notarianni 1978 and Richfield Reaper 1976). After his death, the kilns were operated for at least three years by Jenson's sons and in 1910 the Jens Larson Jenson Lime Kiln was sold to Leonard Ogden. The Jens Larson Jenson Lime Kiln was operated by Ogden for years after and the lime produced during this time was used to construct buildings like the Elsinore Sugar Factory and the Richfield First Ward Chapel (Notarianni 1978). It is unclear if the smaller kilns like 42SV3900 were still used after Jenson's death in 1907. Like the Jens Larson Jenson Lime Kiln, the kiln at 42SV3900 [redacted]. [redacted] As described in the interpretive kiosk sign at the Jens Larson Jenson Kiln [redacted], these kilns were fitted with a metal grate at the bottom to hold rocks in them as a fire burned below (Eagle Scouts Kiosk). To create the lime, fires would burn underneath the rocks for three days. After this process, the material was hauled to town where it was sold (Eagle Scouts Kiosk). The kiln recorded as 42SV3900 is undoubtedly associated with several other constructed kilns [redacted]. This kiln and others represent a skilled process provided by Jenson that contributed to the development of Richfield and the surrounding area.

Smithsonian Site No.: 42SV3901
Affiliation: Historic
Site Type/Name: Domestic Artifact Scatter
Land Status: BLM
Eligibility: Not Eligible
Description: Site 42SV3901 is a small ([redacted]) historic artifact scatter [redacted]

Smithsonian Site No.: 42SV3902
Affiliation: Fremont

Site Type/Name: Long-Term Habitation
Land Status: BLM
Eligibility: Eligible, D
Description: Site 42SV3902 is a small ( ) probable Fremont habitation site [redacted]

Smithsonian Site No.: 42SV3903
Affiliation: Unknown Prehistoric
Site Type/Name: Task Specific Artifact Scatter
Land Status: BLM
Eligibility: Not Eligible
Description: Site 42SV3903 is a small ( ) task specific site of unknown prehistoric affiliation [redacted]

Smithsonian Site No.: 42SV3904
Affiliation: Unknown Prehistoric/Historic
Site Type/Name: Task Specific Artifact Scatter/ Temporary Camp
Land Status: BLM
Eligibility: Not Eligible
Description: Site 42SV3904 is a small ( ) multi-component site [redacted] The prehistoric component is of unknown affiliation [redacted] The historic component consists of a [redacted]

[redacted] An examination of historic aerial imagery shows nothing in the area.

Smithsonian Site No.: 42SV3905
Affiliation: Unknown Prehistoric/Historic
Site Type/Name: Artifact Scatter/Gravel Pit
Land Status: BLM
Eligibility: Not Eligible
Description: Site 42SV3905 is a small ([redacted]) mining operation for gravel[redacted]

Smithsonian Site No.: 42SV3906
Affiliation: Unknown Prehistoric/Historic
Site Type/Name: Artifact Scatter
Land Status: BLM
Eligibility: Not Eligible
Description: Site 42SV3906 is a [redacted] multi-component artifact scatter [redacted] The historic component [redacted] The prehistoric component of the site consists of a small lithic scatter. [redacted]

Smithsonian Site No.: 42SV3907
Affiliation: Unknown Prehistoric
Site Type/Name: Task Specific Artifact Scatter
Land Status: BLM
Eligibility: Not Eligible

Description: Site 42SV3907 is a [redacted] task specific lithic scatter of unknown prehistoric cultural affiliation. [redacted]

Smithsonian Site No.: 42SV3908
Affiliation: Prehistoric/Historic, unknown
Site Type/Name: Rock Ring
Land Status: BLM
Eligibility: Eligible, D
Description: Site 42SV3908 consists of a single rock ring feature. [redacted]

Smithsonian Site No.: 42SV3909
Affiliation: Historic
Site Type/Name: Domestic Artifact Scatter
Land Status: BLM/Private
Eligibility: Not Eligible
Description: Site 42SV3909 is a large [redacted] local roadside dump [redacted]

[redacted]

Smithsonian Site No.: 42SV3910
Affiliation: Historic
Site Type/Name: Dugout
Land Status: Private
Eligibility: Eligible, D
Description: Site 42SV3910 is a previously documented historic dugout [redacted] The site was originally documented as 42SV2188 by Archaeological Research Consultants in 1987, but no site form was completed, and the only description of the site is in the report (U87AK0773); the location plotted in Pres Pro was examined and found to be misplotted. A prehistoric lithic scatter [redacted] was also documented under 42SV2188 in 1987 by Abajo Archaeology. Abajo Archaeology completed a site form that was submitted to the Utah Division of State History. After consulting with the Utah Division of State History, it was determined that the historic dugout site needed a unique site number and was issued 42SV3910. The site is small [redacted] was patented to Hans C. H. Ramlose in 1896 under the Homestead Act of 1862 (12 Stat. 392). Hans C. H. Ramlose was born in Denmark in 1822 and immigrated to Utah with his wife Johannah in 1877 after converting to Mormonism. They had nine children together, eight of which survived his death in 1898. His wife preceded him in death. Hans first moved to Richfield in 1878 and stayed for four years. He relocated for a few years but returned to Richfield in 1888 where he resided until his death. At the time of his death in 1898, Hans Ramlose was considered one of the earliest pioneers of the Richfield area and one of the "hand cart brigade to claim the honor of settling this part of Utah and making a barren desert habitable" (*Salt Lake Herald-Republican* 1898 June 14:6). Posthumously, the results of a land case were printed in the *Salt Lake Herald-Republican* that mentions Ramlose had improved a portion of land embraced by his entry and proved sufficient waterpower to entitle him to patent for his land (1898 September 8). [redacted] It appears after his death, part of the Hans Ramlose estate was left intact with some portions parceled out for inheritance by his surviving children (*Salt Lake Tribune* 1904 June 15). Besides a few newspaper articles and information regarding his gravesite online, no additional sources could be located regarding Hans Ramlose and his life and contributions to Sevier Valley. [redacted]

Smithsonian Site No.: 42SV3911
Affiliation: Unknown Prehistoric
Site Type/Name: Depression and wall
Land Status: BLM
Eligibility: Eligible, D
Description: Site 42SV3911 consists of two features including a rock wall and a rock ring/depression [redacted] The site is presumed to be prehistoric affiliated until further work, such as testing, can be conducted.

Smithsonian Site No.: 42SV3912
Affiliation: Historic
Site Type/Name: Domestic Artifact Scatter
Land Status: Forest Service
Eligibility: Not Eligible
Description: Site 42SV3912 is a medium sized [redacted] historic artifact scatter/dump. [redacted]

Smithsonian Site No.: 42SV3913
Affiliation: Unknown Prehistoric
Site Type/Name: Task Specific Artifact Scatter
Land Status: Forest Service
Eligibility: Not Eligible
Description: Site 42SV3913 is a small [redacted] lithic scatter [redacted]

Smithsonian Site No.: 42SV3914
Affiliation: Historic
Site Type/Name: Domestic Artifact Scatter
Land Status: Forest Service
Eligibility: Not Eligible
Description: Site 42SV3914 is a [redacted] trash dump [redacted]

Smithsonian Site No.: 42SV3915
Affiliation: Historic
Site Type/Name: Domestic Artifact Scatter
Land Status: Forest Service
Eligibility: Not Eligible
Description: Site 42SV3915 is a [redacted] historic artifact scatter with some modern debris. [redacted]

Smithsonian Site No.: 42SV3916
Affiliation: Historic
Site Type/Name: Domestic Artifact Scatter
Land Status: Private
Eligibility: Not Eligible
Description: Site 42SV3916 is a small [redacted] scatter of dense glass and ceramic fragments concentrated around a small concrete pad. [redacted] Although the land is on private property, a GLO record search could not tie the site location to a specific land patent.

Smithsonian Site No.: 42SV3917
Affiliation: Historic
Site Type/Name: Telegraph/Telephone Line

Land Status: Private/SITLA
Eligibility: Not Eligible
Description: Site 42SV3917 is a segment of an old telegraph or telephone line [redacted] These poles and wire are thought to be a telegraph line but could possibly be a telephone line. An intensive search of cadastral plats, historic maps, digital newspaper archives, Utah Centennial County History Series, as well as other Utah publications was pursued and the direct age, affiliation, and function of the line could not be found. A general history of the telegraph and telephone of Richfield and Sevier Valley follows. The first transcontinental telegraph line when into operation in 1861, which passed through Salt Lake City, and was greatly assisted by the Mormons who provided almost 1,000 miles of the line (Arrington 1951). Brigham Young used this experience to establish the Deseret Telegraph Company, with the goal of constructing a north-south territorial line to connect all Mormon settlements. The southern terminus of the line was planned for St. George, traveling through Fillmore in Millard County. The line between Logan and St. George was opened in the beginning of 1867. In 1872, the line was extended from Gunnison to Monroe to serve the Sevier Valley settlements. The efforts of the Deseret Telegraph Company were co-operative in nature and settlements helped provide supplies and labor. Richfield was responsible for supplying 450 of the poles. The Mormon Church sold the company to Western Union in 1900 (Arrington 1951). This site could possibly be a spur off the Sevier Valley line. In 1901, telephone service arrived in Sevier County when the Rocky Mountain Bell Telephone Company extended its lines into the area (Bishop 1997). By 1930, 174 of the county's 653 farms had telephones (Bishop 1997). On a 1917 cadastral plat for [redacted] the "Govt. Telephone Line from Richfield to Rockwood Ranger Station" is shown with a spur extending to the Red View Rangers Cabin (later the Ranger Station) and beyond. This site could also be part of this government line. The primary use dates for the site are general and given as ca. 1872 to ca. 1935, based on the establishment of telegraph lines in Sevier Valley (1872) and the turning point of when clear glass insulators became primarily used over colored glass insulators (1935), [redacted]. It's possible if this site represents a telephone line it was used beyond 1935, it just cannot be determined at this time.

Table 3. Archaeological Sites Associated with NRCS' Sevier Valley Watershed Project.

Smithsonian Site No.	Affiliation	Site Type	Eligibility	Land Status
42SV665 (Not Relocated)	Fremont	Artifact Scatter	N/A	Forest Service
42SV693	Fremont	Rock Shelter/Rock Art	Eligible, C&D	BLM
42SV1375	Fremont	Rock Art	Eligible, C&D	Private
42SV1485 (Misplotted in PA, outside APE).	Unknown Prehistoric	Habitation	Eligible, D	Forest Service
42SV1821	Historic	Domestic Artifact Scatter (Dump)	Eligible, D	BLM/Private
42SV1824	Historic	Domestic Artifact Scatter	Not Eligible	Forest Service
42SV2087 (Not Relocated)	Historic	Dugout & Corral	Not Eligible	Private
42SV2343	Historic	Vermillion Canal	Eligible, A, C, D	Private
42SV2344	Historic	Sevier Valley Canal	Eligible, A	BLM/SITLA/Private
42SV2500	Historic	Richfield Canal	Eligible, A, C	Private
42SV2502	Historic	Historical Railroad	Eligible, A, C, D	Private

42SV3046	Historic	Historic Trash Dump with Prehistoric Component	Eligible, D	BLM
42SV3389	Historic	Historic Campsite, Prehistoric Isolate	Not Eligible	Forest Service
42SV3522	Historic	Historic Artifact Scatter	Not Eligible	Private
42SV3862	Historic	Powerline	Not Eligible	Private
42SV3863	Historic	CCC Road	Eligible, A	SITLA/Private
42SV3896	Unknown Prehistoric	Artifact Scatter	Not Eligible	BLM
42SV3897	Historic	Gravel Pit	Not Eligible	BLM
42SV3898	Historic	Telephone Line	Not Eligible	BLM
42SV3899	Historic	Lime Kilns	Eligible, A-D	BLM
42SV3900	Historic	Lime Kiln	Eligible, A-D	BLM
42SV3901	Historic	Domestic Artifact Scatter	Not Eligible	BLM
42SV3902	Fremont	Habitation	Eligible, D	BLM
42SV3903	Unknown Prehistoric	Artifact Scatter	Not Eligible	BLM
42SV3904	Multicomponent	Artifact Scatter/Temp Camp	Not Eligible	BLM
42SV3905	Multicomponent	Artifact Scatter/Gravel Pit	Not Eligible	BLM
42SV3906	Multicomponent	Artifact Scatter	Not Eligible	BLM
42SV3907	Unknown Prehistoric	Artifact Scatter	Not Eligible	BLM
42SV3908	Unknown Prehistoric	Rock Ring	Eligible, D	BLM
42SV3909	Historic	Artifact Scatter	Not Eligible	BLM
42SV3910	Historic	Dugout	Eligible, D	Private
42SV3911	Unknown Prehistoric	Depression & Rock Wall	Eligible, D	BLM
42SV3912	Historic	Domestic Artifact Scatter	Not Eligible	Forest Service
42SV3913	Unknown Prehistoric	Artifact Scatter	Not Eligible	Forest Service
42SV3914	Historic	Domestic Artifact Scatter	Not Eligible	Forest Service
42SV3915	Historic	Domestic Artifact Scatter	Not Eligible	Forest Service
42SV3916	Historic	Domestic Artifact Scatter	Not Eligible	Private
42SV3917	Historic	Telegraph/Telephone Line	Not Eligible	SITLA/Private

Isolated Finds of Artifacts

Seven IFs were identified during the survey (Table 4). The IFs include two chipped stone tool fragments (IF-D and IF-E), two probable Fremont corn cobs (IF-B and IF-C), a cairn (IF-A), a rock wall (IF-F), and a small artifact cluster consisting a core/chopper, a used flake, and two tertiary flakes (IF-G).

Table 4. Isolated Finds Associated with NRCS' Sevier Valley Watershed Project

Isolated Find	Land Status	Legal Description	Affiliation	Artifact(s) Description	Comments
IF-A	Private	[redacted]	Historic	Cairn	[redacted]
IF-B	BLM	[redacted]	Fremont	Corn Cob	

Isolated Find	Land Status	Legal Description	Affiliation	Artifact(s) Description	Comments
IF-C	BLM	[redacted]	Fremont	Charred Corn Cob	
IF-D	BLM	[redacted]	Unknown Prehistoric	Stage VI Biface Fragment	[redacted]
IF-E	BLM	[redacted]	Unknown Prehistoric	Project Point Fragment	
IF-F	BLM	[redacted]	Historic (?)	Rock Wall	
IF-G	Forest	[redacted]	Unknown Prehistoric	Artifact Cluster	

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION

The National Register Criteria for Evaluation of Significance and procedures for nominating cultural resources to the National Register of Historic Places (NRHP) are outlined in 36 CFR 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, material, workmanship, feeling, and association, and that they:
>
> a) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> b) are associated with the lives of persons significant to our past; or
>
> c) embody the distinctive characteristics of a type, period, or method of construction; or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> d) have yielded or may be likely to yield information important in prehistory or history.

The inventory of NRCS' proposed Sevier Valley Watershed Project resulted in the location of six previously recorded sites (42SV2343, 42SV2500, 42SV2502, 42SV3046, 42SV3389, and 42SV3522), the update or redocumentation of seven previously recorded sites (42SV693, 42SV1375, 42SV1821, 42SV1824, 42SV2344, 42SV3862, and 42SV3863) and the documentation of 22 newly identified sites (42SV3896-42SV3917). Of the 13 previously documented sites, 9 have been recommend as eligible for listing on the NRHP based on Criterion A (42SV2344 and 42SV3863), Criterion D (42SV1821 and 42SV3046), Criteria C and D (42SV693 and 42SV1375) or Criteria A, C, and D (42SV2343, 42SV2500 and 42SV2503). MOAC relocated these sites and agrees with the original eligibility determinations. Four previously recorded sites have been determined ineligible for listing on the NRHP, these include 42SV1824, 42SV3389, and 42SV3522, 42SV3862. MOAC identified no additional materials, features, artifacts, or information at these sites that would alter the original determinations.

Of the 22 newly documented sites 6 are recommended as eligible for the NRHP and 17 are recommended as ineligible. The six sites recommended as eligible include 42SV3899, 42SV3900, 42SV3902, 42SV3908, 42SV3910, and 42SV3911. Sites 42SV3899 and 42SV3900 represent historic kilns built and operated by Jens Larson Jenson at the beginning of the 20th Century. One Jenson lime kiln, not one of those recorded as part of this project, is already listed on the NRHP. The additional kilns at 42SV3899 and 42SV3900 have similar integrities and fulfill all four eligibility criteria. Sites 42SV3902 represents a Fremont habitation site [redacted]. The site retains integrity of location, design, setting, materials, feeling, and association. Given the likelihood of buried structural remains, it is likely to contribute to our understanding of Formative lifeways in the Sevier River valley and is recommended as eligible based on Criterion D. 42SV3908 and 42SV3911 represent architectural features likely representing prehistoric structures, [redacted]

[redacted]. 42SV3908 consists of circular rock ring [redacted]. It is similar in morphology, size, and construction to Fremont-affiliated structures in the region (e.g., 42SV1897). Although no artifacts were identified, the lichen growth present on the boulders used to construct the feature is considerable and suggests considerable antiquity. Site 42SV3911 consists of a large boulder-lined depression and associated rock wall. The depression has a similar size to numerous several Fremont pit structures excavated at Icicle Bench, Clear Creek, and Five Finger Ridge (Talbot et al. 1997). Both 42SV3908 and 42SV3911 are tentatively recommended as eligible for listing on the NRHP under Criterion D. Though beyond the scope of this project, nature and extent testing at both sites would confirm or refute the assumed function and affiliation of the structures. Finally, site 42SV3910 is a historic dugout on land patented to Hans C.H. Ramlose in 1896. The dugout [redacted]. While [redacted], the site likely contains buried cultural deposits that may help elucidate subsistence and economic strategies of early pioneers in the Sevier River Valley. Therefore, site 42SV3910 is recommended as eligible for listing on the NRHP based on Criterion D.

The 17 sites recommended as ineligible for listing on the NRHP include 6 historic artifact scatters (42SV3901, 42SV3909, 42SV3912, 42SV3914, 42SV3915, and 42SV3916), 2 transmission lines (42SV3898 and 42SV3917), 4 prehistoric artifact scatters (42SV3896, 42SV3903, 42SV3907, and 42SV3913), a gravel pit (42SV3897), and 3 multicomponent sites (42SV3904, 42SV3905, and 42SV3906). The historic artifact scatters are all small single episode dumping events [redacted]. The domestic refuse dumps cannot be tied to events of persons significant to the past nor do they reflect distinctive characteristics pertinent to type, period, or construction. Furthermore, they are unlikely to yield important historic information. Similarly, the prehistoric artifact scatters are small, have low artifact richness and density, lack temporally diagnostic artifacts or features, and little likelihood of having buried cultural remains. The prehistoric artifacts fail to meet any of the eligibility criteria. The two transmission lines, though extensively researched, could not be associated with any significant events or people and lack any temporal distinction. They too are unlikely to yield any data pertinent to the region's history. The gravel pit too fails to meet any of the eligibility criteria.

The three multicomponent sites include a prehistoric and historic artifact scatter (42SV3906), a historic gravel pit spatially associated with a small prehistoric artifact scatter (42SV3905), and a prehistoric artifact scatter associated with a historic tent platform and artifact scatter (42SV3904). Each component at all three sites lacks distinction or association with past events or people. There is no evidence to suggest that they contain information relevant to regional history and prehistory, and lack unique characteristics of type, period, or construction. All three multicomponent sites are recommended as ineligible for listing on the NRHP.

Finally, seven IFs were documented over the course of the fieldwork (IF-A – IF-G). While the two corn cobs (IF-B and C) are interesting and may be an indication of a nearby Fremont habitation or granary, none of the isolates are significant enough to warrant their listing on the NRHP.

CONCLUSIONS AND RECOMMENDATIONS

The inventory of NRCS' proposed Sevier Valley Watershed Project resulted in the location of six previously recorded sites (42SV2343, 42SV2500, 42SV2502, 42SV3046, 42SV3389, and 42SV3522), the update or redocumentation of seven previously recorded sites (42SV693, 42SV1375, 42SV1821, 42SV1824, 42SV2087, 42SV3862, and 42SV3863) and the documentation of 22 newly identified sites (42SV3896-42SV3917) (Table 3). Of the 13 previously documented sites, nine have been recommend as eligible for listing on the NRHP based on Criterion A, Criterion D, Criteria A and C, Criteria A, C, and D, or Criteria C and D and three previously recorded sites have been determined ineligible for listing on the NRHP. Of the 22 newly documented sites, 6 are recommended as eligible for the NRHP and 17 are recommended as ineligible.

Ten of the total 15 sites in the project area recommended or determined as eligible to the NRHP will be avoided by the proposed undertaking. Sites 42SV3899 and 42SV3900, both historic lime kilns, are at least 600 ft from any proposed disturbance. Both sites are also far enough away from the proposed disturbance that the setting and feeling aspects of their integrity will not likely be compromised. Sites 42SV693, 42SV1375, 42SV3046, 42SV3902, 42SV3908, 42SV3910, and 42SV3911 are all located in potential source material and rip rap areas. If work does occur in these areas, the sites will be avoided by at least 100 ft. Site 42SV2343, the Vermillion Canal, is along the north flood channel which the proponent plans to pipe from the Richfield canal to an existing channel that drains into the Sevier River. The proposed pipeline will be bored underneath 42SV2343, thereby avoiding any adverse impact to the Vermillion Canal.

Five sites (42SV1821, 42SV2344, 42SV2500, 42SV2502, and 42SV3863) may potentially be impacted by the proposed undertaking. Site 42SV1821 is a historic Richfield Dump. Proposed work at the location consists of cleaning debris and stabilizing the sides of the existing flood channel. The channel has previously been straightened and partially stabilized [redacted]. New disturbances will be limited to the footprint of the previously disturbed areas. If work is limited to the previous disturbance, there will likely be no adverse effect to the site. Spot monitoring of the construction is recommended.

Site 42SV2344 is the Sevier Valley/Piute Canal. The proposed project includes armoring a portion of the canal at one location and installing a flood control gate and armoring the floor and walls of the canal at a second location. At the head of the lateral canal, the proponent plans to construct an emergency canal overflow structure. Based on SHPO's guidelines pertaining to historic canals, these measures will constitute an adverse effect. Within the lateral canal, which is considered non-contributary, the proponent plans to improve the existing channel and install a rock chute and stilling basin downstream of the emergency canal overflow structure.

Site 42SV2500 is the Richfield Canal. The proposed project includes installing riprap at the confluence of the canal with the lateral of the Sevier Valley/Piute Canal to avoid erosion, the cleaning of approximately 2,000 linear feet of the Richfield Canal, and the installation of an emergency overflow and

pipe inlet structure with a trash rack in the Richfield Canal at the proposed storm water pipe location. Based on SHPO's guidelines pertaining to historic canals, these measures will constitute an adverse effect.

Site 42SV2502 is the Marysvale Branch of the Denver & Rio Grande Western Railroad. The proponent plans to install a storm water pipe within or adjacent to the former railroad alignment. The railroad bed through the project area has been destroyed by grading related to agriculture and the installation of the storm water pipe will not further degrade the integrity of the documented railroad within the project area.

Site 42SV3863 is the historic CCC road. The construction of a water retention dam may adversely affect an original segment of the road and an associated retaining wall. The depth of suitable rock on the hillslope, which is currently unknown, below the road and retaining wall will determine if the segment will be impacted.

Based on the inventory results and that one site will be, and possibly two other sites could be, impacted by the proposed undertaking, a finding of *adverse effect* is recommended for the proposed undertaking pursuant to Section 106.

Based on conversations with the proponent, lead agency, and SHPO, the following measures are suggested to mitigate the proposed project's adverse effect.

1. For potential impacts related to channel clearing and stabilization at 42SV1821, a post construction walk-through to document any impacts that may have accidentally occurred outside the previously disturbed area.
2. Per SHPO's potential recommended mitigation strategies related to historic canals, a "desktop" review of the Sevier Valley/Piute and Richfield canals will be conducted. While the entirety of the canals have been mapped by the Utah Division of Water Rights, the desktop review would use freely available satellite imagery (e.g., Google Earth, and historical aerial photographs to identified and locate historic alignments of the canals and their primary laterals, potential features (head gates, weirs, flumes, etc.), and modern alterations of the canals. Updated Utah Archaeological Site Forms will be produced detailing the results of the desktop analysis of the canals.
3. To mitigate potential adverse effects to 42SV3863, it is recommended that an interpretive sign detailing the significance of the CCC, in general, and the road, in particular, be installed at the nearby parking lot for the recently constructed Richfield mountain bike trails.

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APPENDIX A:

Utah Archaeology Site Forms

On File At:

Utah Division of State History

Salt Lake City, Utah

CULTURAL RESOURCE SURVEY OF THE NRCS' SOUTH FLOOD CHANNEL PROJECT: AN ADDENDUM REPORT TO THE NRCS' SEVIER VALLEY WATERSHED PROJECT NEAR RICHFIELD, SEVIER COUNTY, UTAH

REDACTED

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Jessica Del Bozque

Prepared For:

Natural Resources Conservation Service
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Utah Division of Wildlife Resources
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UDOT Region 4
Richfield, Utah

Prepared Under Contract With:

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MOAC Report No. 23-026

March 4, 2024

State of Utah Public Lands Policy
Archaeological Survey Permit No. 167

State of Utah Antiquities Project (Survey)
Permit No. U23MQ0740

Utah Division of Wildlife Resources
Special Use Permit No. L169SU0167

ABSTRACT

In September 2023, MOAC conducted a cultural resource survey for the Natural Resources Conservation Service's (NRCS) South Flood Channel Project in Sevier County, Utah. This is an addendum report to the *Cultural Resource Survey of NRCS' Sevier Valley Watershed Project Near Richfield, Sevier County, Utah* conducted by MOAC between June 28 and August 11, 2019 (Patterson 2019; SHPO No. U19MQ0243). The South Flood Channel work is an additional component of this overall watershed project. The project occurs between Central Valley, Utah to the south and Richfield Municipal Airport to the north; and Interstate 70 to the west and the Annabella Wildlife Management Area to the east. It is in Township 24 South, Range 3 West, Sections 9, 10, 12, 13, 14, 15, and 16. The survey was conducted at the request of Jenna Jorgensen, Jones and DeMille Engineering, Richfield, Utah. The project occurs on lands managed by the Utah Division of Wildlife Resources (DWR) (81.4 acres), the Utah Department of Transportation (UDOT) (0.8 acres), and on private lands (236.6 acres). The proposed undertaking consists of reconstructing an overshot structure spanning the Sevier Valley Canal facilitating flow into a flood channel and allowing 50 cfs of spillover to enter the canal; constructing a rock chute and stilling basin to dissipate hydraulic energy downstream from the overshot structure; upgrading approximately 8,000 linear feet of existing open flood channel and replacing a 36 in. diameter culvert with a 48 in. diameter culvert; constructing a splitter structure allowing 50 cfs to enter the Richfield Canal and 100 cfs to enter a closed conduit inlet; installing approximately 8,600 linear feet of closed conduit pipe to convey flow from the splitter to an open channel; and installing a pipe outlet and approximately 5,600 linear feet of earthen channel leading to the Sevier River. The Area of Potential Effect (APE) covers 318.8 acres.

The cultural resource survey of the NRCS' South Flood Channel Project in Sevier County, Utah resulted in the identification and update of four previously recorded archaeological sites (42SV2344, 42SV2500, 42SV2502, and 42SV2600), the documentation of four newly identified archaeological sites (42SV4533-42SV4536), and the documentation of one isolated find (IF-A). Four of the cultural resources are recommended as eligible for inclusion in the National Register (42SV2344, 42SV2500, 42SV2502, 42SV2600); all four sites are linear. Of these four sites, the documented segments of two (42SV2502 and 42SV2600) sites within the APE are recommended as non-contributing elements to the eligibilities of the sites. Documented segments of 42SV2344 and 42SV2500 within the APE are considered contributing to their respective site eligibilities. At 42SV2344, the Sevier Canal, proposed work includes reconstructing the overshot structure for the flood channel (Feature A). Feature A has been previously modified which impacted its historic fabric and character and it is considered a non-contributing feature. Therefore, further modification to the feature will not have an adverse effect to site 42SV2344. At 42SV2500, the Richfield Canal, the proponent plans to install conduit pipe under the canal. The pipe will be bored, or an open cut may be used to install the pipe. If an open cut is used, the canal would be restored to pre-construction condition, which will not adversely affect site 42SV2500. The four newly documented sites (42SV4533-42SV4536) and isolated find (IF-A) are recommended as ineligible for NRHP listing. Based on the findings, a determination of *no adverse effect* is recommended for the undertaking pursuant to 36 CFR 800 and Section 106 of the National Historic Preservation Act.

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INTRODUCTION

In September 2023, MOAC conducted a cultural resource survey for the Natural Resources Conservation Service's (NRCS) South Flood Channel Project in Sevier County, Utah. This is an addendum report to the *Cultural Resource Survey of NRCS' Sevier Valley Watershed Project Near Richfield, Sevier County, Utah* conducted by MOAC between June 28 and August 11, 2019 (Patterson 2019; SHPO No. U19MQ0243). The South Flood Channel work is an additional component of this overall watershed project. The project occurs between Central Valley, Utah to the south and Richfield Municipal Airport to the north; and Interstate 70 to the west and the Annabella Wildlife Management Area to the east. It is in Township 24 South, Range 3 West, Sections 9, 10, 12, 13, 14, 15, and 16. The survey was conducted at the request of Jenna Jorgensen, Jones and DeMille Engineering, Richfield, Utah. The project occurs on lands managed by the Utah Division of Wildlife Resources (DWR) (81.4 acres), the Utah Department of Transportation (UDOT) (0.8 acres), and on private lands (236.6 acres). The proposed undertaking consists of reconstructing an overshot structure spanning the Sevier Valley Canal facilitating flow into a flood channel and allowing 50 cfs of spillover to enter the canal; constructing a rock chute and stilling basin to dissipate hydraulic energy downstream from the overshot structure; upgrading approximately 8,000 linear feet of existing open flood channel and replacing a 36 in. diameter culvert with a 48 in. diameter culvert; constructing a splitter structure allowing 50 cfs to enter the Richfield Canal and 100 cfs to enter a closed conduit inlet; installing approximately 8,600 linear feet of closed conduit pipe to convey flow from the splitter to an open channel; and installing a pipe outlet and approximately 5,600 linear feet of earthen channel leading to the Sevier River. The Area of Potential Effect (APE) covers 318.8 acres.

The survey served to locate, document, and evaluate any cultural resources within the project area to comply with 36 CFR 800, the National Historic Preservation Act (NHPA) of 1966 (as amended). The inventory was also implemented to attain compliance with several federal and state mandates, including the National Environmental Policy Act of 1969, the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1978, Utah State Antiquities Act of 1973 (amended 1990), and Utah Code, Title 9, Chapter 8, Section 404 (9-8-404).

Fieldwork was conducted by Jody J. Patterson (Principal Investigator), Jessica Del Bozque, Brian J. Meinhart, and Sheridan Hatch on September 3 and September 28-30, 2023. The survey was completed under the auspices of State of Utah Public Lands Policy Archaeological Survey Permit No. 167 and State of Utah Antiquities Project (Survey) No. U23MQ0740, issued to MOAC, Moab, Utah and DWR Special Use Permit No. L169SU0167, issued to Jones and DeMille Engineering, Richfield, Utah.

Jody J. Patterson holds an active PLPCO PI permit (No. 167) and is the PI (statewide) for MOAC's BLM UT CRUP Permit 23-UT-60112 (exp. 05/30/2026). All MOAC personnel authorized to work under this PLPCO PI permit are also listed on MOAC's BLM UT CRUP permit. Jody received his BA in Anthropology and Sociology in 1994, a MA in Southwest Studies/Anthropology in 1996 (a multidisciplinary degree in anthropology, history, and political science focusing on greater American Southwest), and a PhD in Anthropology in 2010 and he has over 22 years of experience in Utah. Jessica

Del Bozque has worked as an archaeologist in Utah since 2011 and is listed on MOAC's BLM UT CRUP permit statewide as a field director and PI. She completed a BA in Anthropology in 2010 and is currently working on a MA in Cultural Resource Management (anticipated graduation Spring 2024). Brian Meinhart has nearly three years of experience working as an archaeologist in Utah, starting shortly after completing his MA in Archaeology and Heritage in 2020. Brian is listed as a field director on MOAC's BLM CRUP permit (Great Basin). Sheridan Hatch is a seasonal field technician for MOAC that always works under the supervision of one of the previous listed personnel members. She has a bachelor's degree in Anthropology.

Jody J. Patterson and Brian J. Meinhart conducted Sego file searches on August 30 and September 22, 2023. These consultations identified 20 projects and nine sites that occur within one-half mile of the APE (Tables 1 and 2). Four of these sites occur within the APE (Table 2). In addition to the online file search, the Utah Division of Water Rights database, historic General Land Office (GLO) maps, historic topographic maps, historic aerial photographs, and satellite images were consulted. These reviews identified three historic agriculture related sites (42SV4533, 42SV4534, and 42SV4535) and a historic flood channel (42SV4536) that were documented during the current project. The one-half mile search area of the APE was searched on the HUB on February 20, 2024, which identified two historic structures built in 1935 (Property Records 104802 and 87911). These include the eligible Nebeker Lane Bridge (104802, not listed) and the Sevier River Bridge (87911) that has been demolished. Both are outside the APE.

Table 1. Previous Projects within One-Half Mile of the APE.

Report No.	Project Title	Consultant/ Agency
U84BC0178	An Archaeological Inventory of the I-70 Elsinore-South Richfield Segment, Sevier County, Utah and Three Proposed Borrow Pit Areas	BYU
U84BC0216	Prop Sigurd-Cameron 138KV Relocation near Elsinore	BYU
U85BC0591	3 Borrow Areas between Richfield & Elsinore - Addendum	BYU
U86AK0420	Nielson - Maglebee Borrow Pit	Archaeological Research Consultants
U87BC0077	2 Reports-Pipeline Survey/Salina Sisters Burial Site	BYU
U94BS0611	UDOT Nebeker Lane Bridge Over Sevier River near Anabella	Baseline Data Inc.
U04MV0866	Sevier Valley Seismic Lines	Mountain States Archaeology
U06HO1424	SR-118 Richfield to Monroe Turn Lanes	Bighorn
U06LW0795	Wolverine Gas & Oil Corporation - Henries Hollow	Western Land Services
U07FS0535	Fishlake N.F. Travel Management Plan Survey	US Forest Service
U09EO0612	Siguard to Red Butte Transmission Corridor	Environmental Planning Group
U10EO0510	Sigurd to Red Butte Transmission Line	Environmental Planning Group
U11IG0979	An Archaeological Survey of the Proposed Richfield Airport Improvement Project in Sevier County, Utah	Intersearch
U11UQ0195	Annabella Wildlife Management Area Habitat Project #2106	UDWR
U12SH0540	CRI of the Sevier South Emergency Watershed Protection (EWP) Project, Sevier and Sanpete Counties, Utah	NRCS
U13ST0001	Archaeological Investigations for the Sigurd to Red Butte No. 2-345kV Transmission Project in Beaver, Iron, Millard, Sevier, and Washington Counties, Utah	SWCA

Report No.	Project Title	Consultant/ Agency
U16SH0783	Cultural Resources Inventory of an NRCS Emergency Watershed Protection (EWP) Project in Flat Canyon Near Elsinore, Sevier County, Utah	NRCS
U17SH0205	Cultural Resources Inventory for NRCS Project No. 748D43150GM, Sevier County, Utah	NRCS
U21UX0676	Arcadian Fiber Optic Route Moroni to Joseph	WestLand Resources
U22JH0273	Cultural Resource Inventory of the Richfield City Road Improvement Project, Sevier County, Utah	Boulder Mountain Consulting

Table 2. Previously Recorded Sites within One-Half Mile of the APE.

Site Number	SHPO Number	Site Type	NRHP Eligibility	Within APE
42SV1825	U84BC0178	Historic Artifact Scatter	Not Eligible	No
42SV2115	U84BC0178	Historic Mine	Not Eligible	No
42SV2344	U10EO0510 U13ST0001	Sevier Valley Canal	Eligible	Yes
42SV2500	U06HO1424 U21UX0676	Richfield Canal	Eligible	Yes
42SV2501	U00BS0252	Elsinore Canal – Mill Ditch	Eligible	No
42SV2502	U87BC0077 U06HO1424 U21UX0676	D&RGW RR – Marysvale Branch	Eligible	Yes*
42SV2600	U21UX0676	Elsinore Canal	Eligible	Yes
42SV3459	U11UQ0195	Historic Structure	Not Eligible	No

*Portion through APE obliterated

DESCRIPTION OF PROJECT AREA

The project area occurs between Central Valley, Utah to the south and Richfield Municipal Airport to the north; and Interstate 70 to the west and the Annabella Wildlife Management Area to the east. It is in Township 24 South, Range 3 West, Sections 9, 10, 12, 13, 14, 15, and 16. The project occurs on lands managed by DWR, UDOT, and on private property. The APE covers 318.8 acres.

ENVIRONMENTAL SETTING

The project area lies within the Sanpete-Sevier Valleys section of the Basin and Range – Colorado Plateau physiographic province. The geology of the valley bottoms is quite complex, with subsidence caused by faulting, folding, and salt removal from buried Jurassic formations, but this complicated geology is obscured by the alluvial deposits of the Sevier and San Pitch Rivers, which drain their respective valleys (Stokes 1986). These rich deposits and the availability of water are the primary reason early settlers were drawn to the area and why intensive agriculture is characteristic of the area today.

The valley bottom is flat, and the project area ranges in elevation from 5,265-5,420 ft. (Figure 1). Much of the project area transverses cultivated farmland, including pastureland, corn, alfalfa, and grain. Non-agricultural vegetation includes shadscale, rabbitbrush, grasses, ragweed, willow, and various trees. Modern impacts include roads, residences, agriculture, fence lines, and the airport (Figures 2 and 3).

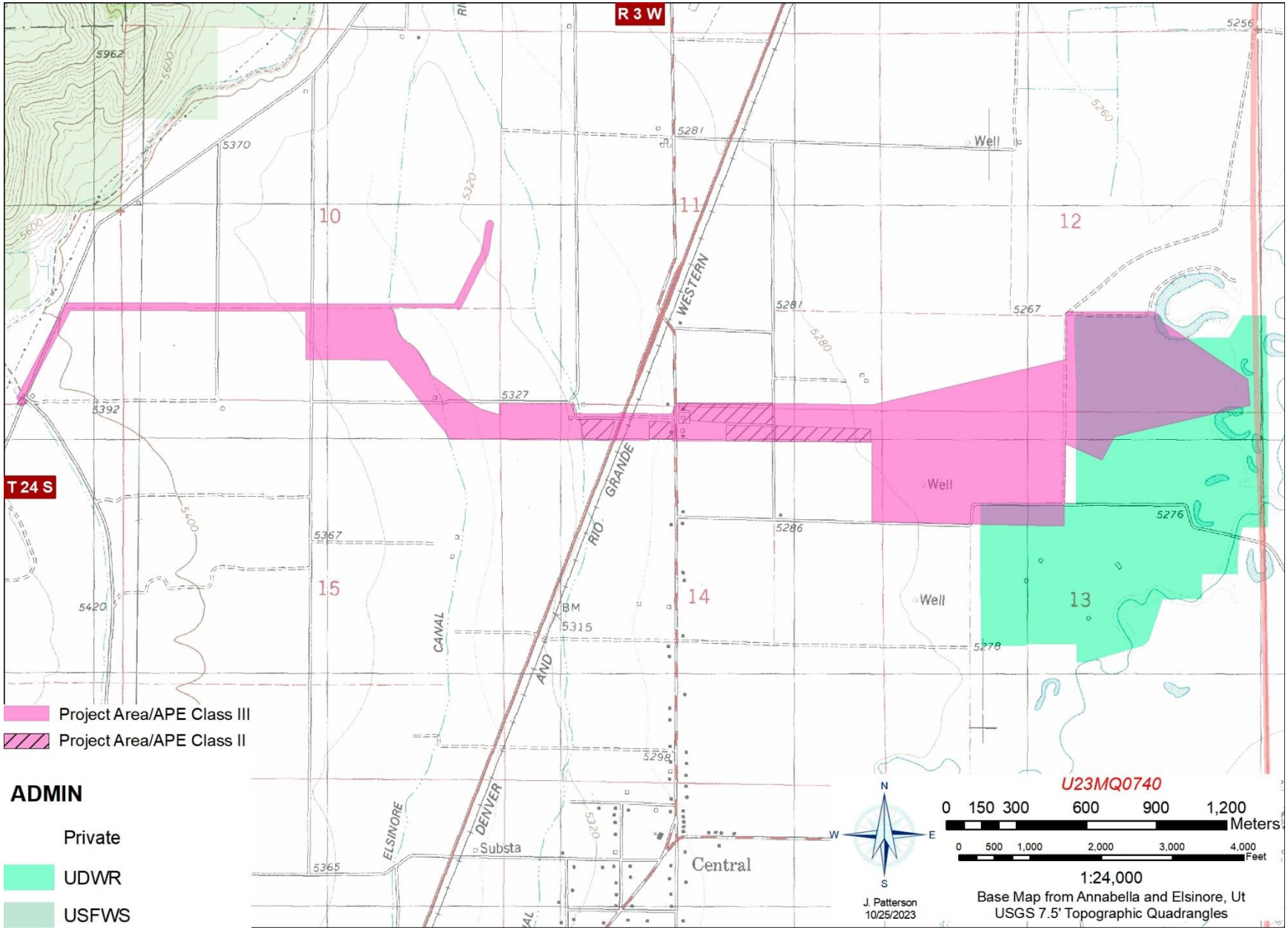


Figure 1. Cultural Resource Survey of the NRCS' South Flood Channel Project in Sevier County, Utah APE.



Figure 2. Project Area Overview facing West. U23MQ0740.



Figure 3. Project Area Overview facing Northeast. U23MQ0740.

HISTORICAL OVERVIEW

Human occupation in the region spans the last 10,000-12,000 years and is represented in prehistory by the Paleoindian, Archaic, Formative, and Late Prehistoric periods. The historic period began with Euroamerican occupation of the area beginning in earnest in the mid-1800s. Archaeological sites identified within the APE date to the historic period.

The earliest recorded visitation by Europeans to Utah was the Dominguez-Escalante expedition, which departed Santa Fe in July 1776 seeking a route to Monterey, California. The group entered Utah near present-day Jensen, entered the Utah Valley in September, and reached the Cove Fort area in October (Warner 1976). The group reached the area of Black Rock, Utah before deciding to discontinue the journey and return to Santa Fe. Though failing to achieve their intended goal, the journals kept by Frs. Dominguez and Escalante provided detailed and valuable information regarding the areas they trekked and the peoples they met. Spanish traders and trappers followed in their footsteps and established a network of trails that became known as the "Old Spanish Trail". The American trapper Jedediah Smith and a group of 15 companions traversed the area in 1826, following the Sevier River up valley and exiting near Cove Fort.

Exploration and settlement of Central Utah occurred shortly thereafter, when the LDS church under Brigham Young commissioned an investigatory party under Parley P. Pratt in 1849, which was to document the nature of the area, including soil conditions, topography, and the potential for natural resource development (Bishop 1997). This party provided a favorable report of the area. Additional exploration in 1863 confirmed the suitability of the area for settlement, and in 1864 the first settlement, named Big Springs or Warm Springs was established at the foot of the hills to west of the Sevier River valley. The name of the settlement was changed to Omni, then again to Richfield due to the high quality of the soil (Bishop 1997). Sevier County was established the following year, in 1865, by which time several settlements were already in place, including Richfield, Glenwood, and Monroe (Alma at the time) (Bishop 1997).

Further settlement in the area was interrupted by the outbreak of the Black Hawk War in 1865 (Poll 1978). Ute bands under Black Hawk clashed with settlers in a series of raids and skirmishes, eventually prompting Brigham Young to call for the evacuation of the Sevier River valley. The conflict ended in 1868 by a treaty, and by the 1870s the valley had been resettled.

Early agricultural development was greatly facilitated by the digging of several canals to distribute irrigation water throughout the valley. Taking their cue from the experience of settlers in the Great Salt Lake Valley, settlers in the Sevier River valley began to plan and construct water infrastructure projects concurrent with settlement (Bishop 1997). Three of these, the Sevier Valley Canal (Surveyed in 1884 and constructed in 1910), the Elsinore Canal (constructed in 1895), and the Richfield Canal (constructed in 1865) transect the APE.

Around the time of Utah statehood in 1896, communities in the valley undertook efforts to expand and modernize, including transportation. The county was initially responsible for raising funds for and directing the construction of roads, but in 1909 the state legislature established a state highway system and

department. Federal and local funds augmented state efforts to build out a modernized road system. The railroad too arrived around this time when the Sevier Railway Company was established in 1891 and built a rail line through the area. The company was purchased by the Denver & Rio Grande Western Railroad in 1908, and this Marysvale Branch ran between Thistle and Marysvale until 1982 when a mudslide impacted the line and forced its abandonment (Bishop 1997; Jennings 1988).

During the Great Depression, the Civilian Conservation Corps (CCC) constructed Camp F-12 near Fish Lake and Camp F-25 in Richfield (Bishop 1997). The CCC provided work for young men during these trying times for conservation and construction projects and employed thousands in Utah between 1933-1941.

The first airport in Richfield was built as a Works Progress Administration (WPA) project in 1936-1937 (Bishop 1997). A new airport was constructed in 1946 with the intent of serving as a commercial and regional hub. Though the airport was built, the expansion of Salt Lake City International Airport and the outpacing of Richfield in population by both Cedar City and St. George has lessened the regional importance of the facility (Bishop 1997). The airport was significantly upgraded in 2015 and serves primarily as a cargo and charter flight facility (Richfield City 2023).

SURVEY METHODOLOGY

MOAC performed both an intensive Class III and Class III (reconnaissance) pedestrian survey for this project as outlined in the Utah SHPO Cultural Resource Compliance Guide (2022 edition). The APE was examined for cultural resources by the archaeologist walking parallel transects spaced no more than 15 m (49 ft.) apart. MOAC conducted Class III survey on 296.2 acres of the project area and reconnaissance survey (Class II) on 22.6 acres of the APE (Figure 1). The acreage covered by Class II survey included private land where permission to access the land was not granted. The Class II survey consisted of an examination of recent and historical photographs, publicly available LiDAR data (both first and ground returns), and other historic maps and documents. In addition to the desktop review of the Class II areas, MOAC archeologists visually inspected the parcels from areas where access and permission had been granted. Ground visibility ranged from poor to excellent, though most of the APE consisted of fallow, overgrown fields, and mature agricultural crops (e.g., corn). The APE covers 318.8 acres and includes lands administered by DWR (81.4 acres), UDOT (0.8 acres), and on private lands (236.6 acres).

Cultural resources were recorded as archaeological sites or as isolated finds. Archaeological sites were documented by the archaeologist walking through and immediately around the site, mapping, describing, and photographing the locations of cultural materials. One site (42SV4535) was inaccessible due to property boundaries and was recorded utilizing visual observation from a distance, photographs, historic aerial photographs, and satellite imagery. Linear sites were recorded consistent with 2008 guidance provided by the Utah Professional Archaeological Council (UPAC). These procedures allowed clear definition of site boundaries, cultural features, and materials. A Geo-Explorer Trimble was employed to map the sites and relevant features. Archaeological sites were plotted on a 7.5' USGS quadrangle, photographed, and documented on Utah Archaeological Site Forms. Isolated finds are described in this report.

SURVEY RESULTS

The cultural resource survey of the NRCS' South Flood Channel Project resulted in the identification and update of four previously recorded archaeological sites (42SV2344, 42SV2500, 42SV2502, and 42SV2600), the documentation of four newly identified archaeological sites (42SV4533-42SV4536), and the documentation of one isolated find (IF-A). One of the previously recorded sites, 42SV2502, is obliterated through the APE; a Part A update was completed for this site documenting its state within the APE. All the sites are located on privately-owned land.

ARCHAEOLOGICAL SITES

Smithsonian Site No.: 42SV2344
Site Type: Agriculture/Subsistence
Affiliation: European-American
Eligibility: Eligible
Description: Site 42SV2344 is the Sevier Valley / Piute Canal. It was first recorded in 1994 by Abajo Archaeology (Montgomery 1994; U94AS0567) and has subsequently been recorded numerous times with additional segments added to the record. For this project MOAC documented a previously unrecorded 1,312-ft segment of the Sevier Canal. It is indirectly connected to a segment recorded by Environmental Planning Group in 2011 (Yentsch 2011; U10EO0510) and revisited by SWCA in 2016 (Hovanes 2016; U13ST0001). Water is diverted into the canal south of the town of Joseph, and the canal runs generally northward to its terminus northwest of Gunnison in neighboring Sanpete County. The canal company was incorporated in 1910 and construction of the canal began that same year (Whetstone 1990). The documented portion may have been surveyed as early as 1884 (Bishop 1997). Two features were observed, including an aqueduct (Feature A) spanning the canal and a headgate (Feature B). The aqueduct is built utilizing the concrete abutments and wing walls of a historic bridge, but the span itself is modern construction. Per historic aerial photographs, a bridge crossed the canal at least as early as 1953 and was in place at least as late as 1981. Per satellite imagery, at some point between 1981 and 1993 a portion of the road south of and utilizing the bridge was partially converted into a section of the flood control channel (site 42SV4536) which historically began immediately north of the bridge. This likely occurred in the mid-1980s (Weingroff 2017). The headgate is a slider-gate metal headgate built into a concrete wall on the eastern bank of the canal that was likely updated/replaced sometime since the 1970s.

Smithsonian Site No.: 42SV2500
Site Type: Agriculture/Subsistence
Affiliation: European-American
Eligibility: Eligible
Description: Site 42SV2500 is the Richfield Canal, which runs northward from an intake on the Sevier River southwest of Elsinore to a terminal junction with the Vermillion Canal in Sigurd. For this project, MOAC documented an 1,896 ft. segment. In this segment, the canal manifests as an earthen ditch, approximately 16 ft. wide. Three features were documented, including a concrete weir with a metal foot bridge and an associated metal headgate set into a cobble wall (Feature A); the remnants of a historic

concrete weir/road crossing at the north end of the more modern structure (Feature B); and a metal headgate set into a cobble wall (Feature C). No artifacts were observed. Numerous segments of the canal have been recorded, including a short section at the southern end of this segment documented in 2021 by WestLand Resources (Allen 2021; U21US0676). The canal was constructed in 1865 and represents an important example of early water infrastructure construction in the valley which enabled early settlements to survive and flourish (Nielson 2000; U00BS0252). It is still utilized in the present day.

Smithsonian Site No.: 42SV2502
Site Type: Transportation/Communication
Affiliation: European-American
Eligibility: Eligible (Updated Segment Non-Contributing to Eligibility)
Description: Site 42SV2502 represents the Denver & Rio Grande Western Railroad – Marysvale Branch which operated between Marysvale and Thistle, Utah from 1890 – 1982, when a mudslide near Thistle impacted operability and the line was abandoned (Jennings 1988). It was first recorded by Brigham Young University in 1987 (Southworth 1987; U87BC077). Multiple segments have been subsequently recorded, including a segment south of but outside of the current APE, recorded by Bighorn Archaeological Consultants in 2006 (Jordan 2006; U06HO1424). MOAC inspected the alignment of the site that passes through the current project area and confirmed that it is no longer extent, as is the alignment a short distance north of the APE. The segment recorded by Bighorn to the south is still visible. This update serves as MOAC's attempt to locate and record any remnants of the site within the APE.

Smithsonian Site No.: 42SV2600
Site Type: Historic Agriculture/Subsistence
Affiliation: European-American
Eligibility: Eligible (Updated Segment Non-Contributing to Eligibility)
Description: Site 42SV2600 is the historic Elsinore Canal, first recorded by Baseline Data, Inc. in 2003 (Nielson 2003; U03BS0073) and updated by WestLand Resources, Inc. in 2021 (Allen 2021; U21UX0676). Baseline inspected a small portion that intersected their APE but described the canal in its entirety including PLSS descriptions, based on a desktop review, which include the intake at the Sevier River southwest of Elsinore Town to the terminus in a field southwest of Richfield Municipal Airport. Segments updated by WestLand are in the far south near the intake but are described as essentially the same as the description provided by Baseline, which described the canal as an earthen ditch, crossing beneath roads via concrete culverts, and diverted into fields and ditches via steel and concrete gates. Based on this description, the concrete lining in the segment updated by MOAC for this project was poured post-2003 and represents a significant modern modification. The integrity of the alignment remains true. Numerous features were recorded, and include the canal ditch(es), which begins as two parallel ditches from a property boundary in the south to a road, at which point one parallel diverts into a field ditch and the other crosses beneath the road via a corrugated pipe culvert and transitions into a single ditch; five wheel-crank slider-gate headgates; two Parshall flumes and a concrete flume; a temporary bridge span constructed of welded sheet metal; a concrete cistern; and two corrugated pipe outlets leading into adjacent fields. In addition, several small, gated portals were observed built into one of the parallel canal ditches for flood irrigating an adjacent field, and several hand-crank slider dams are built into the same parallel to raise the water level for these portals. These appear un-weathered and very recently installed. No artifacts were observed, though some modern

debris, including concrete, lumber, and metal fragments are present. The canal was constructed in 1895 and is still utilized in the present day (Nielson 2003).

Smithsonian Site No.: 42SV4533
Site Type: Agriculture/Subsistence
Affiliation: European-American
Eligibility: Not Eligible
Description: Site 42SV4533 is a 1,087 m^2 corral complex comprised of a small (approximately 63 x 66 ft.), square corral (Feature A), mostly dismantled; a small wooden shack (Feature B) believed to house a water well pump providing water and power to an adjacent heated livestock waterer (Feature C); and a second trough (Feature D) located at the eastern end of a chute leading into the corral. The corral remnants consist of ten standalone juniper posts and segments of relatively intact juniper post, barbed, and mesh wire fencing. Several un-milled wood rails are piled within the corral and may represent dismantled remnants. Remnants of a galvanized steel trough are also located within the corral. A juniper post, barbed, and mesh wire fence chute, approximately 231 ft. long and running east-west is connected to the northeast corner of the corral. The artifact assemblage is relatively small and homogenous and consists of milled lumber fragments, wire nails, galvanized metal fragments, bolts, hinges, tube steel and mesh wire gate remnants, and a horse/tractor-drawn wheeled plow. The footprint of the complex is visible on a 1953 historic aerial photograph, and the heated livestock waterer is labeled as a Marlor Inc. Model ME-2-0; Marlor Inc. was established in 1963 (Harryman 2018). The site therefore predates 1953 and was utilized at least as late as 1963, but the terminal date of the corral's usage is unknown. The pasture in which the site is located is still utilized to graze livestock, but the corral complex is no longer functional.

Smithsonian Site No.: 42SV4534
Site Type: Agriculture/Subsistence
Affiliation: European-American
Eligibility: Not Eligible
Description: Site 42SV4534 represents a small agricultural complex consisting of a small wooden shack (Feature A) and adjacent water trough (Feature B). No artifacts were observed. The shack was wired into a power line, but the connection was cut. An inspection of the interior revealed miscellaneous modern refuse, including a hot water heater tank, but there did not appear to be any historic remnants. Due to the location of the trough immediately next to the shack, it is believed the shack housed a water well pump feeding into the trough. The site is in a disturbed area that once contained numerous additional structures, with some likely visible in a 1953 aerial immediately north of the site, expanded by 1973, including the site, and in apparent use until 2009, with several additional structures appearing in 1993 satellite imagery to the south (gone by 1998). Most of these structures were demolished by 2011 per satellite imagery by road construction. Several debris piles, mostly lumber, are located near the site and are believed to represent the remains of some of these structures that once stood around the site. Given that the overall complex appears to have been expanded between 1953 and 1973 and the extent structures are not conclusively verifiable until 1973, the site is dated from pre-1973 to 2009, at which point most structures had been demolished and continued use of the site was unlikely.

Smithsonian Site No.: 42SV4535
Site Type: Agriculture/Subsistence
Affiliation: European-American
Eligibility: Not Eligible
Description: Site 42SV4535 consists of two historic structures; a granary (Feature A) and an open stable/animal shade (Feature B). Both structures are located on private property and could not be directly inspected due to lack of access. Descriptions are based on visual observations from a distance and photographs, and measurements are estimates taken utilizing satellite imagery. Feature A is a rectangular structure, externally framed with a peaked roof, gables, and overhanging rake and eaves. The roof appears sheathed with dimensional lumber and shingled with wood shingles. An opening near the peak likely framed a ventilation element or may indicate the structure was converted to other uses and may have framed a chimney or other element. A large opening in the south gable provided a port for depositing grain/hay. No doors were observed, but it is likely an access door is located on the east wall, which could not be directly observed. The framing appears to be of balloon framing technique, which was largely phased out of practice by the 1930s. It measures approximately 16 x 12 ft. The height is not known. Feature B is a long, south-facing open animal shade or stable that appears to be constructed of juniper posts supporting a long, peaked roof, with dimensional lumber forming a rear (north) wall. The west wall is gabled and sheathed with dimensional lumber; though not directly observed it is likely the east wall is of similar construction. The roof is sheathed with dimensional lumber and corrugated sheet metal. The structure measures approximately 74 x 23 ft. The height is not known. No artifacts were observed due to inaccessibility. Both structures are deteriorated and appear to be in disuse. It is likely the two structures are contemporaneous and were constructed prior to the 1930s. Their terminal dates are unknown. According to county assessor records, the primary residence on the associated property was built in 1934.

Smithsonian Site No.: 42SV4536
Site Type: Agriculture/Subsistence
Affiliation: European-American
Eligibility: Not Eligible
Description: Site 42SV4536 is a flood channel which begins near the Sevier Valley Canal (42SV2344) and empties into the Richfield Canal (4SV2500). The current runoff channeling features leading to the documented flood channel date to the mid-1980s and later. As such, it is possible site 42SV4536 may have originally served as a lateral ditch between the Sevier Valley Canal and the Richfield Canal as the flood control features feeding into the channel do not appear to be historic. Discussions with a local resident indicate the channel was at one time cement lined, with maintenance activities in the late 1970s damaging the lining. Concrete fragments observed within the channel appear to support this information. Subsequent water flow has significantly eroded the flood channel. Asphalt and concrete fragments and boulders have been placed within the channel to counter this erosion. Historic debris, including building materials, miscellaneous metal, and glass were observed within a berm on the edge of the channel, but these appear to have been recently dug out and piled, and are not in situ. The eastern end of the drainage has been rerouted north to empty into a rerouted portion of the Richfield Canal; these reroutes are due to runway construction at the airport and a recently constructed road. The flood channel (possible former lateral ditch) is visible in 1953 historic aerials and dates to at least that early. The east-west portion of the site is depicted as an earthen dam in 1980 topographic quads but appears to be a channeled feature on historic aerials that

predate 1980; the topographic map symbol likely references the earthen berm on the bank of the channel. No in situ artifacts or additional features were observed.

ISOLATED FINDS

The cultural resource survey of the South Flood Channel resulted in the documentation of one isolated find (IF-A). IF-A is some sort of machinery axel/attachment measuring 4 x 4 ft with a 23 ½ inch opening and a 7 ft long connector to a hitch attachment. IF-A dates to the historic period, likely the mid-20th century, and is of European-American affiliation.

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION

The National Register Criteria for Evaluation of Significance and procedures for nominating cultural resources to the National Register of Historic Places (NRHP) are outlined in 36 CFR 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, material, workmanship, feeling, and association, and that they:
> a)…are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> b)…are associated with the lives of persons significant to our past; or
>
> c)…embody the distinctive characteristics of a type, period, or method of construction; or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> d)…have yielded or may be likely to yield information important in prehistory or history.

The cultural resource survey of the NRCS' South Flood Channel Project resulted in resulted in the identification and update of four previously recorded archaeological sites (42SV2344, 42SV2500, 42SV2502, and 42SV2600), the documentation of four newly identified archaeological sites (42SV4533-42SV4536), and the documentation of one isolated find (IF-A). Four of these archaeological sites have been previously determined eligible for inclusion in the National Register of Historic Places (42SV2344, 42SV2500, 42SV2502, 42SV2600). Site 42SV2344 is the Sevier Valley Canal, which has been previously determined eligible under Criterion A. The newly documented segment maintains integrity aspects of location, design, setting, feeling, and association and is recommended as a contributing element of this historic site under Criterion A. The two associated features include a modern aqueduct deck using historic bridge abutments (Feature A) and a slider-gate metal headgate set into a concrete wall (Feature B). These features have been heavily modified (Feature A) or replaced/updated in the modern era (Features A and B) resulting in minimal integrity and association with the historic period of significance of the overall canal system. Therefore, Features A and B are considered non-contributing elements of this eligible site.

Site 42SV2500, the Richfield Canal, has been previously determined eligible under Criteria A and C. The newly documented segment maintains integrity aspects of location, design, setting, feeling, and association and is recommended as a contributing element of this historic site under Criterion A. The documented segment does not have any structures that are considered contributing under Criterion C. However, two of the structures are considering contributing under Criterion A. These include a metal crank wheel slider gate headgate set into a cobble and concrete or mortar wall (Feature C) and a similar headgate feature associated with a concrete weir (Feature A). These two features are thought to date from the early-mid 20th century and contribute to the feeling of the historic canal system. Feature B is a historic weir and road crossing that has been mostly replaced by a modern structure of the same function. Only 3 ft of the original structure are intact. The feature has lost most of its integrity and is considered a non-contributing feature to the eligible site.

Site 42SV2502 represents the Denver & Rio Grande Western Railroad – Marysvale Branch which operated between Thistle and Marysvale, Utah from 1890 – 1982. The site has been previously determined eligible for inclusion in the National Register under Criterion A. MOAC investigated the alignment of the historic railroad through the current project area and confirmed that it has been destroyed. As remnants of the railroad are no longer extent within the project area, it does not constitute a contributing element to this eligible site.

Site 42SV2600, the Elsinore Canal, has been previously determined eligible under Criterion A. The documented segment maintains aspects of integrity for location, setting, and association. However, modern upgrades to the canal (concrete lining of the historically earthen channel) in the recorded segment have significantly altered the appearance of the site from its historic form. Therefore, it is recommended as a non-contributing segment to the eligibility of the site. The 12 associated features are also considered non-contributing. These include non-original features (flume – Feature F, post-1967; cistern – Feature I, post-2006), basic steel culvert features (Features J and L), an ephemeral sheet metal canal crossing (Feature D), and several features built into the concrete canal lining including metal crank wheel slide-gate headgates (Features A, C, E, H, and K), and metal Parshall flumes (Features B and G); some of these features may be reused historic materials, but the reinstallation into a concrete lining has impacted the overall integrity of these features. In summary, no portion of the documented canal segment or its associated features are recommended as contributing elements to overall site eligibility under Criterion A

Newly documented sites 42SV4533-42SV4536 represent a corral complex (42SV4533), a small agricultural complex (42SV4534), a granary and animal stable (42SV4535), and a flood channel (42SV4536). These sites were found to lack strong associations with events or persons significant to our past (Criteria A and B). The sites do not embody a type, period, or method of construction (Criterion C) nor are they likely to yield additional data important to our past (Criterion D). Therefore, sites 42SV4533-42SV4536 are recommended as ineligible for NRHP listing as they fail to meet the outlined criteria. IF-A is also recommended as ineligible for NRHP listing.

CONCLUSIONS AND RECOMMENDATIONS

The cultural resource survey of the NRCS' South Flood Channel Project in Sevier County, Utah resulted in the identification and update of four previously recorded archaeological sites (42SV2344, 42SV2500, 42SV2502, and 42SV2600), the documentation of four newly identified archaeological sites (42SV4533-42SV4536), and the documentation of one isolated find (IF-A). Four of the cultural resources are recommended as eligible for inclusion in the National Register (42SV2344, 42SV2500, 42SV2502, 42SV2600); all four sites are linear. Of these four sites, the documented segments of two (42SV2502 and 42SV2600) sites within the APE are recommended as non-contributing elements to the eligibilities of the sites. Documented segments of 42SV2344 and 42SV2500 within the APE are considered contributing to their respective site eligibilities. At 42SV2344, the Sevier Canal, proposed work includes reconstructing the overshot structure for the flood channel (Feature A). Feature A has been previously modified which impacted its historic fabric and character and it is considered a non-contributing feature. Therefore, further modification to the feature will not have an adverse effect to site 42SV2344. At 42SV2500, the Richfield Canal, the proponent plans to install conduit pipe under the canal. The pipe will be bored, or an open cut may be used to install the pipe. If an open cut is used, the canal would be restored to pre-construction condition, which will not adversely affect site 42SV2500. The four newly documented sites (42SV4533-42SV4536) and isolated find (IF-A) are recommended as ineligible for NRHP listing. Based on the findings (summarized in Table 3), a determination of *no adverse effect* is recommended for the undertaking pursuant to 36 CFR 800 and Section 106 of the National Historic Preservation Act.

Table 3. Management Summary Table.

Site No.	Site/Feature Type	NRHP Status	Proposed Project Impacts	Recommendation of Effect
42SV2344	Sevier Valley/ Piute Canal – canal segment	Eligible (A) Contributing	The canal channel will not be impacted by the project.	42SV2344
42SV2344	Feature A – modern aqueduct deck/historic bridge abutments	Non-contributing	This is an existing overshoot structure that will be reconstructed	42SV2344
42SV2344	Feature B – metal headgate set in concrete wall	Non-contributing	Outside APE and will not be impacted	42SV2344
42SV2500	Richfield Canal – canal segment	Eligible (A & C) Contributing to Criterion A	The canal is within the flood pipeline corridor and will be crossed at one location by the proposed flood pipeline. This will consist of a conduit pipeline that will be bored, or an open cut may be used to install the pipe. If an open cut is used, the canal will be restored to pre-construction condition	42SV2500
42SV2500	Feature A – metal headgate set in cobble wall with associated concrete weir	Contributing to Criterion A	Outside APE and will not be impacted	42SV2500

Site No.	Site/Feature Type	NRHP Status	Proposed Project Impacts	Recommendation of Effect
42SV2500	Feature B – historic weir/road crossing mostly replaced by modern structure	Non-contributing	Outside APE and will not be impacted	42SV2500
42SV2500	Feature C – metal headgate set in cobble wall	Contributing to Criterion A	Outside APE and will not be impacted	42SV2500
42SV2502	D&RGW RR – Marysvale Branch	Eligible (A) Non-contributing	A destroyed portion of the historic railroad alignment is crossed by the flood pipeline corridor	42SV2502
42SV2600	Elsinore Canal – canal segment	Eligible (A) Non-contributing	The canal is within the flood pipeline corridor and will be crossed by the proposed flood pipeline.	42SV2600
42SV2600	Feature A – headgate	Non-contributing	Outside APE and will not be impacted	42SV2600
42SV2600	Feature B – Parshall flume	Non-contributing	Outside APE and will not be impacted	42SV2600
42SV2600	Feature C – headgate	Non-contributing	Outside APE and will not be impacted	42SV2600
42SV2600	Feature D – makeshift bridge	Non-contributing	Within flood pipeline corridor.	42SV2600
42SV2600	Feature E – headgate	Non-contributing	Within flood pipeline corridor.	42SV2600
42SV2600	Feature F – concrete flume	Non-contributing	Within flood pipeline corridor.	42SV2600
42SV2600	Feature G – Parshall flume	Non-contributing	Within flood pipeline corridor.	42SV2600
42SV2600	Feature I – concrete cistern	Non-contributing	Within flood pipeline corridor.	42SV2600
42SV2600	Feature J – outlet pipe	Non-contributing	Within flood pipeline corridor.	42SV2600
42SV2600	Feature K – headgate	Non-contributing	Within flood pipeline corridor.	42SV2600
42SV2600	Feature L – outlet pipe	Non-contributing	Within flood pipeline corridor.	42SV2600
42SV4533	Corral Complex	Not Eligible	Within open channel/overland flow area.	42SV4533
42SV4534	Agricultural Complex	Not Eligible	Within flood pipeline corridor.	42SV4534
42SV4535	Granary and Stable	Not Eligible	Within flood pipeline corridor.	42SV4535
42SV4536	Flood channel	Not Eligible	Entire documented segment will be upgraded, and a splitter structure will be built within the channel	42SV4536

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Appendix E.3. Biological Assessment

Biological Assessment

Richfield-West Sevier Watershed Plan
Sevier County, Utah

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July 24, 2025

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Appendix A. Map

Appendix B. USFWS IPaC Species Report

1. Introduction

This Biological Assessment (BA) analyzes the potential effects to federally listed species and designated critical habitat from the implementation of the Richfield-West Sevier Watershed Plan Project in Sevier County, Utah. Sevier County, the project sponsor, proposes to construct several improvements within the Richfield-West Sevier Watershed for the purpose of flood prevention.

The Natural Resources Conservation Service (NRCS) is providing technical and financial assistance to the Sponsor for the project, and is the lead federal agency. The project occurs on private lands, within the Fishlake National Forest, within Bureau of Land Management (BLM)-administered land, and within a Utah State Wildlife Management Area; the U.S. Forest Service and BLM are cooperating agencies. Project activities will likely require Section 404 permitting with the U.S. Army Corps of Engineers (USACE). This BA has been prepared for the NRCS to identify the project's potential impacts on federally listed species, including critical habitat for such, and make an effects determination in accordance with the Endangered Species Act (ESA) of 1973 (7 U.S.C. 136, 16 U.S.C. 1531 et seq.), as amended.

1.1. Consultation to Date

- June 3, 2025 – An official species list was acquired from the IPaC system.

2. Project Description

2.1. Project Location

The proposed project is located in western Sevier County. More specifically, the project occurs within the following sections within the Salt Lake Base and Meridian:

T23S, R2W, Sections 12, 13, 14, 16, 17, 18, 20, and 21

T24S, R2W, Sections 4 and 9

T24S, R3W, Sections 9, 10, 13, 14, 15, 16, 17, and 21

2.2. Project Details

The Proposed Action consists of measures at the following locations to address flood damage risk:

1) A debris basin in Flat Canyon
2) Improvement of a south flood channel to the Sevier River
3) Improvement of a north flood channel to the Sevier River
4) Installation of a flood control gate on the Sevier Valley Canal

Rock riprap would be acquired from BLM-administered land on the east side of the Sevier Valley. The locations of these measures are shown on Map 1 in Appendix A.

Flat Canyon Debris Basin

The Flat Canyon debris basin would detain flows from Flat Canyon and reduce the risk of canal breach and flooding throughout the watershed area. The debris basin would be located within the Fishlake National Forest boundaries, with the exception of a staging area on nearby private land.

The debris basin would be constructed at the mouth of Flat Canyon; the earthen dam would be approximately 73 feet high with a longitudinal crest length of 1,150 feet. Per NRCS design criteria, the basin would have a capacity of 827 acre-feet and would drain in 10 days or less following an event large enough to completely fill the basin. The maximum inundation area would be approximately 37 acres in the bottom of Flat Canyon. The basin would provide for sediment accumulation and storage throughout the 100-year design life.

Approximately 540,000 cubic yards of soil material would be excavated from the basin inundation area for construction of the dam embankment, and 64,000 cubic yards of clay core material would be collected from the native clay ridge adjacent to the inundation area for construction of the core. Sand filter materials and rock riprap would be imported from other permitted sites.

Forest Road (FR) 106 in the bottom of Flat Canyon would be rerouted around the south abutment to allow for continued vehicular access into Flat Canyon; the road would be approximately 16 feet wide. There would also be a restricted access road along the dam crest for operation and maintenance purposes. The embankment would be fenced with non-reflective fencing to prevent access on the embankment slopes.

Approximately 109.5 acres would be disturbed by construction, operation, and maintenance of this measure; 84.3 acres would be disturbed permanently and the remaining 25.2 acres would be disturbed by temporary staging or inundation.

Construction access and staging would use existing routes and disturbed areas.

South Flood Channel Improvements

The south flood channel would convey flows from the Flat Canyon debris basin to the Sevier River floodplain, and improvements would mitigate the risk of exceeding the capacities of the canals during the flood events from Flat Canyon. The area crosses private property and UDWR-owned land.

Specific items for channel improvement include:

1. Reconstruct the overshot structure to allow storm flows to be directed into the flood channel while allowing for up to 50 cfs to enter the Sevier Valley Canal.
2. Construct a rock chute and stilling basin to help dissipate energy downstream of the overshot structure.
3. Upgrade approximately 7,900 linear feet of existing open channel, including armoring two bends and inlets and outlets of existing culverts and reshaping the banks. Project activities would stay within a 100-foot-wide corridor along the channel.
4. Construct a splitter structure to allow for up to 50 cfs to enter the Richfield Canal and a closed conduit inlet structure to divert the remaining minimum 100 cfs.
5. Install approximately 8,940 linear feet of 48-inch-diameter HDPE pipe to convey flows from the splitter structure through developed and cultivated areas. Project activities would stay within a 100-foot-wide corridor along the pipeline. A combination of directional drilling and open cutting would be used for pipeline crossings of four roadways, including 860 North, SR-118, Central Valley Main Street, and 200 North. The Richfield and Elsinore canals would be open-cut in accordance with canal company best practices and outside of irrigation season. The pipeline would be buried deep enough to provide protection from normal canal cleaning and other operation and maintenance activities.

6. Install a pipe outlet structure and channel and dike to convey overland flow to the Sevier River. The outlet structure would consist of a concrete headwall with a flap gate to prevent reverse flows. The channel would be 3.3 feet deep with a 15-foot bottom width and side slopes of 3H:1V. The dike would be constructed on the south side of the channel with a 3H:1V side slope and be 4 feet wide at the top. The height of the dike would vary as needed to achieve required freeboard.

Up to 59.3 acres would be temporarily disturbed for construction; 38.8 acres would be disturbed permanently and the remaining 20.4 acres would be disturbed temporarily for installation of the buried pipeline.

North Flood Channel Improvements

The north flood channel would convey flows from the Sevier Valley Canal to the Sevier River to reduce the risk of exceeding the capacities of the canals during the flood events that enter the canal. The north flood channel crosses private land. The existing channel currently conveys flood water from Willow Creek Canyon through an overshot on the Sevier Valley Canal to the Richfield Canal.

Specific items for channel improvement include:

1. Construct an emergency canal overflow structure in the canal bank to allow for up to approximately 200 cfs of floodwater to exit the Sevier Valley Canal into the existing channel; construct a rock chute and stilling basin to dissipate energy downstream of the emergency canal overflow structure.
2. Upgrade approximately 7,100 linear feet of existing open channel between the Sevier Valley Canal and the Richfield Canal. Upgrades would consist of reshaping the canal to a consistent cross section, installing riprap armor at four sharp bends to protect against erosion, and installing riprap armoring at the inlets and outlets of four existing culverts to prevent erosion and potential culvert bypass. Project activities would stay within a 100-foot-wide corridor along the channel.
3. Install riprap bank protection at the confluence with the Richfield Canal to prevent erosion.
4. Construct an emergency overflow and pipe inlet structure with trash rack in the Richfield Canal to allow for up to approximately 100 cfs of floodwater to exit the canal and enter the proposed storm water pipe.
5. Install approximately 6,700 linear feet of pipe to convey flows from the Richfield Canal, under the Vermillion Canal, to an existing channel that drains into the Sevier River. Project activities would stay within a 100-foot-wide corridor along the pipeline. A combination of directional drilling and open cutting would be used for the pipeline crossing of SR-118 and a county gravel road.

Approximately 44.3 acres would be temporarily disturbed for construction; 16.9 acres would be disturbed permanently and the remaining 27.4 acres would be disturbed temporarily for installation of the buried pipeline.

Sevier Valley Canal Flood Control Gate

An upgraded flood control gate would facilitate emergency flood conveyance and minimize the risk of canal breaching. The Sevier Valley Canal flood control gate is located within private property. The proposed gate would replace the existing stop-log structure that is currently used to regulate canal flows. The new control gate would consist of extension of a concrete structure from existing bridge wingwalls and automated control gates. The gates would allow the canal to operate at a range of canal

flows while allowing for emergency flood conveyance in any season. The control gate would facilitate conveyance of flood waters downstream and minimize the risk of canal breaching throughout the watershed area.

Approximately 60 feet of the canal would be disturbed for installation of the concrete gate structure and downstream riprap armoring. Approximately 1.8 acres would be temporarily disturbed for construction; less than 0.1 acre would be permanently disturbed by the new structure and riprap armoring.

Riprap Extraction

Rock riprap would be acquired from BLM-administered land on the east side of the Sevier Valley; suitable rock has been identified near Venice and at Bull Claim Hill. Approximately 9,000 cubic yards of rock would be extracted between the two sites to armor embankments and channels. Rock would be excavated from the exposed surface with a track hoe, and placed in trucks for delivery to the placement sites.

Up to 235.3 acres would be permanently disturbed by material extraction.

2.3. Conservation Measures

The following conservation measures are proposed:

1. Equipment will be washed and inspected prior to entering the project area to remove any soil and debris that may contribute to the spread of noxious weeds.
2. Equipment servicing and refueling areas will be located at least 300 feet away from any stream channels. To ensure that accidental spills do not enter waters, the storage of petroleum-based fuels and the refueling of construction machinery will not occur outside of approved designated staging/batch plant areas. The project will comply with state and federal water quality standards and toxic effluent standards to minimize any potential adverse impacts from discharges to waters of the U.S.
3. A stormwater pollution prevention plan (SWPPP) will be prepared by the construction contractor prior to initiation of ground disturbance for each project measure that disturbs more than 1 acre. The SWPPP will detail the best management practices and site-specific control features to prevent sediment and other pollutants from discharging off the site during construction. BMPs may include silt fence, fiber wattles, and earthen berms.
4. Where practicable, disturbed areas will be seeded with an appropriate seed mix.
5. Where practicable, vegetation will be removed during the fall and winter to avoid impacts during the breeding bird season (March 1 – August 31). If vegetation removal activities occur between March 1 and August 31, clearance surveys for migratory birds within 10 days prior by a qualified biologist will be required. Appropriate spatial and temporal buffers will be applied if nesting birds are located.

2.4. General Setting

The project is located within the High Plateaus of Utah section of the Colorado Plateau physiographic province (Fenneman and Johnson 1946). More specifically, the area is located within Sevier Valley, in central Utah. Topography ranges from the alluvial valley of the Sevier River, upward through moderately steep foothills, and up to steep mountains. Elevation ranges between 5,200 feet above sea level along the river in the valley bottom, up to 10,200 feet on White Pine Peak. The climate is arid, with average total annual precipitation of only 8 inches (Western Regional Climate Center 2023).

3. Species Considered

3.1. Species that May Be Present

An official species list was obtained from the Information for Planning and Consultation (IPaC) system on June 3, 2025 (see Appendix B). The species listed as threatened or endangered that "may be present in the area of the proposed action" are listed in Table 3-1 below.

Table 3-1. Listed species that may be present in the area of the Proposed Action, and rationale for further consideration in this Biological Assessment

Species	Status	Species Likely Occurrence in the Project Area and Consideration in this BA
Yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	Not considered. The nearest critical habitat for this species is located over 90 miles away. Suitable riparian nesting habitat of appropriate patch size and configuration below 8,500 feet in elevation (USFWS 2017) does not occur within the watershed area.
Monarch butterfly (*Danaus plexippus*)	Proposed Threatened	**Considered**. Suitable habitat that provides milkweed (*Asclepias* spp.) and nectar sources (USFWS 2024a) may occur in association with the riparian areas along the canals and Sevier River.
Suckley's cuckoo bumble bee (*Bombus suckleyi*)	Proposed Endangered	**Considered.** Suitable nesting and overwintering habitat and nectar and pollen sources (USFWS 2024b) likely occur within the project area.
Ute ladies'-tresses (ULT; *Spiranthes diluvialis*)	Threatened	Not considered. Habitat characteristics for the species include adequate soil moisture, direct sunlight, and "additional supporting floral resources for pollinators in and around the habitat" (USFWS 2023). Based on field reviews in 2019 and 2023, suitable habitat for Ute ladies'-tresses does not occur within 300 feet of the project area.

The NRCS has determined that there would be no effect to the following species as a result of the Proposed Action: yellow-billed cuckoo and Ute ladies'-tresses.

3.2. Critical Habitat

There is no designated critical habitat within or adjacent to the watershed area.

3.3. Species Carried Forward

Monarch butterfly and Suckley's cuckoo bumble bee were identified as potentially occurring in the vicinity of proposed project activities; therefore, these species are being carried forward in this BA for further analysis.

Monarch butterfly

The monarch butterfly is an insect that is proposed for listing as threatened. The species is found mainly in North America, in separate populations east and west of the Rocky Mountains. Monarchs require milkweed (*Asclepias* spp.), overwintering habitat, and migration habitat. Overwintering for the western population occurs along the Pacific Coast, and migration habitat is typically associated with riparian corridors (USFWS 2024a).

Suckley's cuckoo bumble bee

Suckley's cuckoo bumble bee was proposed for listing as an endangered species in 2024. The bee is an obligate social parasite for other species in the same genus. The species occurs broadly across North America and from elevations between sea level and 10,500 feet. Nest sites are typically holes underground in various habitats and specific overwintering requirements are unknown. They require "a diversity of native floral resources (pollen and nectar) for nutrition." The minimum distance between nest or overwintering sites and suitable foraging resources is unknown (USFWS 2024b).

4. Project Action Area

The Action Area for monarch butterfly and Suckley's cuckoo bumble bee consists of the disturbance limits for all project features (including staging and access), and extends 300 feet beyond the disturbance limits to address potential indirect impacts of dust and vibration; this Action Area encompasses approximately 1,315 acres. A standard buffer of 300 feet is commonly applied for identifying indirect impacts to plants (USFWS 2011). Dust deposition on plants affects growth and vigor and may reduce the attractiveness to pollinators (Lewis et al. 2017, Phillips et al. 2021). Turbulence disturbs pollinators and may inhibit foraging (Phillips et al. 2021).

Landownership within this Action Area includes developed and undeveloped portions of private property, National Forest System lands, BLM-administered lands, and state wildlife management areas (WMAs), and includes sparse residential and municipal development, roadways, irrigated fields and pastures, and portions of the Sevier River.

Ongoing activities within the Action Area include residential, agricultural, and infrastructure development.

5. Effects Analysis

5.1. Direct and Indirect Effects – Monarch Butterfly and Suckley's cuckoo bumble bee

Habitat

Construction activities would remove flowering plants and create fugitive dust and air turbulence that may affect flying insects such as butterflies and bumble bees. The project would result in the temporary loss of less than 450.2 acres of flowering plants that could provide nectar or pollen for these insects, and the permanent loss of flowering plants on 375.4 of those acres. Flowering plants would remain where they occur adjacent to the disturbed areas. Once construction was completed, temporarily disturbed areas would be reseeded with a mix that includes nectar- and pollen-bearing species; suitable butterfly and bumble bee food sources would be expected to be available by the next growing season.

Approximately 1,315 acres within and around the project disturbance limits would be impacted by dust and turbulence. A large portion of the Action Area includes existing local, state, and interstate roadways,

residences, and agricultural fields, which currently result in regular dust emissions and turbulence. Increased turbulence and dust from construction and maintenance of the project measures could deter pollinators from using flowering plants within the Action Area; however, project disturbance would be localized to the individual project measures and would be temporary and short-term; this is estimated to be 3 years based on the time for construction and for vegetation to establish on reseeded areas and reduce dust emissions. Considering the temporary and localized nature of the disturbance associated with construction and maintenance of the project measures, construction and maintenance of the project would not adversely affect foraging habitat for monarch butterfly or Suckley's cuckoo bumble bee in the long term. Operation of the project measures would not be expected to affect foraging habitat for butterflies and bumble bees.

Project activities could also disturb or destroy bumble bee nesting or overwintering sites if they occur in the project area. Up to 534.0 acres would be directly disturbed by project construction or maintenance activities. Similar habitat surrounds the project disturbance limits and would provide suitable dispersal opportunities where nesting and overwintering sites occur. Operation of the project measures could result in localized flooding (inundation) of nesting or overwintering sites that were located within the proposed detention basin. Operation of the other project measures would not be expected to affect nesting or overwintering habitat for bumble bees.

Species

Impacts to insects could include direct mortality and displacement of butterflies and bees within the project area during construction and maintenance activities. Once vegetation was cleared, the insects would avoid the immediate area of project disturbance and feed on available flowering plants outside of the project disturbance limits. Operation of the project measures would not affect foraging butterflies or bees.

Impacts to Suckley's cuckoo bumble bees could include direct mortality and displacement of nesting or overwintering bees within the water-detention area after storm events.

Determination

Due to the localized disturbance area, the availability of alternate flowering plants nearby, and the temporary timeframe of disturbance, implementation of the Proposed Action **would not likely jeopardize the continued existence** of monarch butterfly or Suckley's cuckoo bumble bee.

5.2. Interrelated and Interdependent Effects

The project is not part of a larger action, nor would any other actions be dependent upon this project; therefore, there are no interrelated or interdependent effects of the Proposed Action.

5.3. Cumulative effects

Non-federal activities that are likely to occur in the foreseeable future and that have potential to cause cumulative effects include private property development for residential, agricultural, or municipal purposes.

Future development could lead to mortality or displacement of butterflies and bees into alternate or less suitable habitats. Habitats in the watershed area are already affected by dust and turbulence associated with existing uses. The Proposed Action would have a slight additive adverse effect on flying insects by increasing turbulence and dust during construction and maintenance, but these impacts are not expected to be measurable. Due to the limited potential for impacts from project activities and the

small percentage of habitat impacted, implementation of the Proposed Action would not result in measurable cumulative impacts to monarch butterfly or Suckley's cuckoo bumble bee.

6. Conclusion and Determination of Effect

Considering all the potential effects disclosed above, we determine that the Proposed Action:

- **Would not likely jeopardize the continued existence of the monarch butterfly or Suckley's cuckoo bumble bee.**
- Would have **no effect** on yellow-billed cuckoo or Ute ladies'-tresses.
- Would have **no effect** on designated critical habitat.

7. Literature Cited

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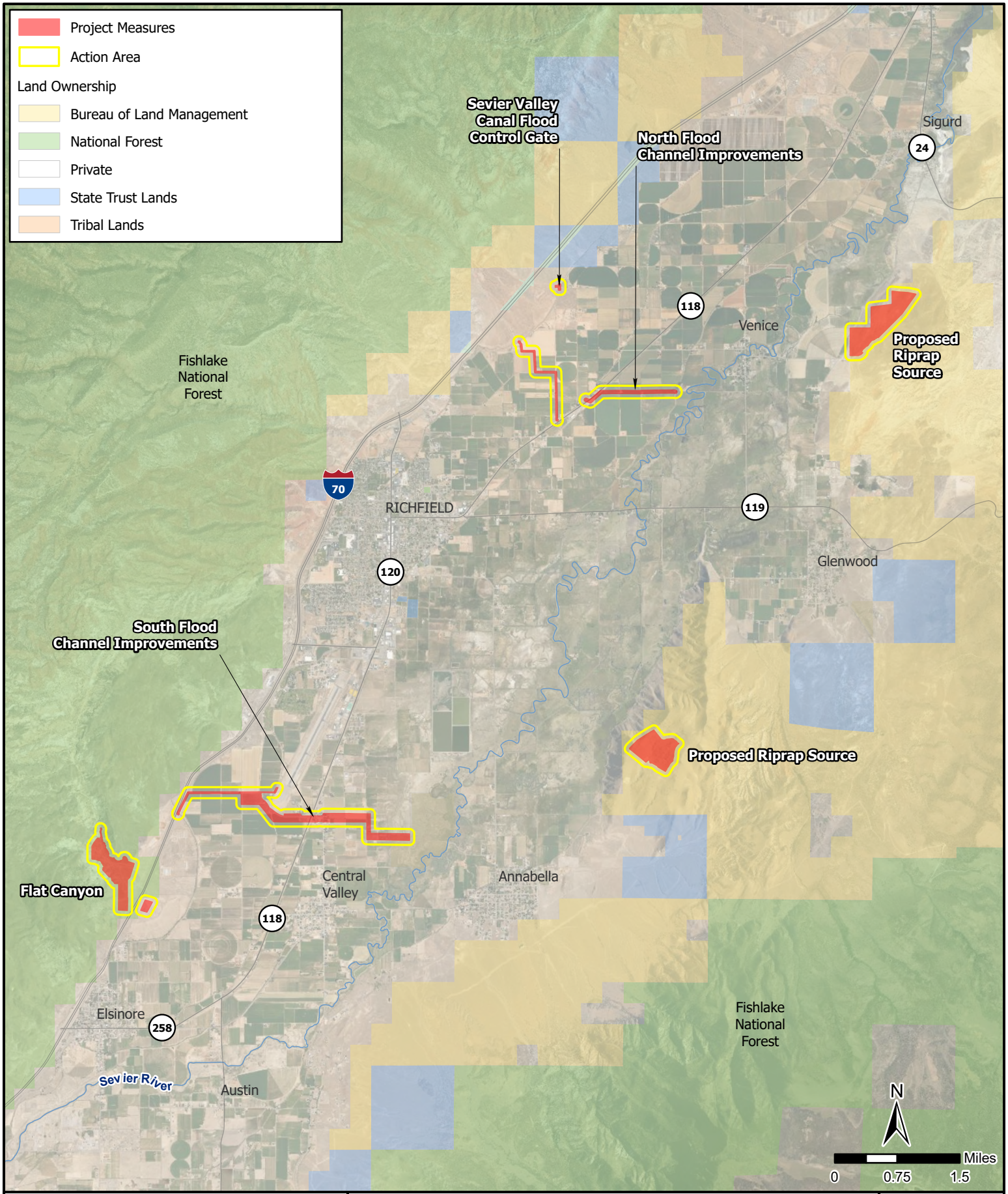
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Appendix A. Map



Jones & DeMille Engineering

- Shaping the Quality of Life -

800.748.5275 www.jonesanddemille.com

Richfield-West Sevier Watershed Plan

Sevier County

Biological Assessment - Project Map

Scale: 1" = 1.5 Miles

Map Name: H:\JD\Proj\1804-224\Design\GIS\Projects\Environmental\Sevier Watershed Plan.aprx - Map BA 01 Project Map

Project Number: 1804-224 | Drawn by: JWW 10-19 | Last Edit: 07/23/2025

Appendix B. USFWS IPaC Species Report

United States Department of the Interior

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

In Reply Refer To: 06/03/2025 20:22:16 UTC
Project Code: 2024-0121864
Project Name: Richfield-West Sevier Watershed Plan

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, intentional or unintentional, 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.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. 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: 2024-0121864
Project Name: Richfield-West Sevier Watershed Plan
Project Type: Dam - New Construction
Project Description: Watershed planning for flood prevention
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.7575492,-112.13429507339248,14z



Counties: Millard and Sevier counties, Utah

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

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

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

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

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

BIRDS

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

INSECTS

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

FLOWERING PLANTS

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

CRITICAL HABITATS

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

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

IPAC USER CONTACT INFORMATION

Agency: County of Sevier
Name: Jenna Jorgensen
Address: 1535 S. 100 W.
City: Richfield
State: UT
Zip: 84701
Email jenna.j@jonesanddemille.com
Phone: 4358935203

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Natural Resources Conservation Service

Appendix E.4. Utah Natural Heritage Program Online Species Search Report

Utah Division of Wildlife Resources
Utah Natural Heritage Program
1594 W. North Temple
PO Box 146301
Salt Lake City, UT 84116

Report Number: 15149
February 1, 2024

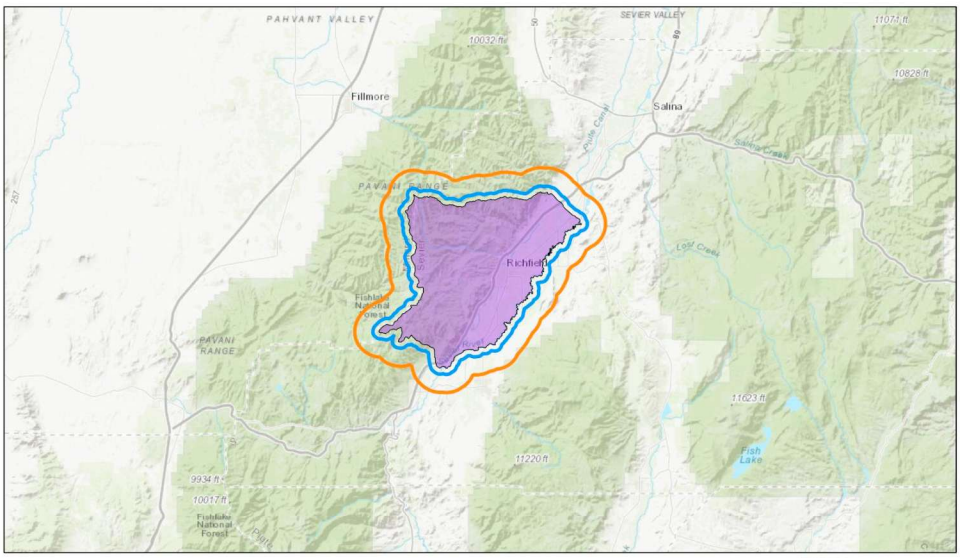
Utah Natural Heritage Program Online Species Search Report

Project Information

Project Name
Richfield-West Sevier Watershed Plan

Project Description
Flood

Location Description
Revised Richfield-West Sevier Watershed



Animals within a ½ mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
Bald Eagle	Haliaeetus leucocephalus	SGCN		2019
Band-tailed Pigeon	Patagioenas fasciata	SGCN		1969
Black Swift	Cypseloides niger	SGCN		1978
Burrowing Owl	Athene cunicularia	SGCN		1992
Carinate Glenwood Pyrg	Pyrgulopsis inopinata	SGCN		1998
Golden Eagle	Aquila chrysaetos	SGCN		2019
Northern Leopard Frog	Lithobates pipiens	SGCN		1978
Olive-sided Flycatcher	Contopus cooperi	SGCN		2014
Pinyon Jay	Gymnorhinus cyanocephalus	SGCN		2020
Southern Leatherside Chub	Lepidomeda aliciae	SGCN		2013
Townsend's Big-eared Bat	Corynorhinus townsendii	SGCN		1959

Plants within a ½ mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
No Species Found				

Animals within a 2 mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
American White Pelican	Pelecanus erythrorhynchos	SGCN		1989
Arizona Mountain Kingsnake	Lampropeltis pyromelana	SGCN		1951
Bald Eagle	Haliaeetus leucocephalus	SGCN		2019
Band-tailed Pigeon	Patagioenas fasciata	SGCN		1969
Black Swift	Cypseloides niger	SGCN		1978
Burrowing Owl	Athene cunicularia	SGCN		1992
Carinate Glenwood Pyrg	Pyrgulopsis inopinata	SGCN		1998
Golden Eagle	Aquila chrysaetos	SGCN		2019
Northern Leopard Frog	Lithobates pipiens	SGCN		1978
Olive-sided Flycatcher	Contopus cooperi	SGCN		2014
Otter Creek Pyrg	Pyrgulopsis fusca	SGCN		1993
Pinyon Jay	Gymnorhinus cyanocephalus	SGCN		2020
Southern Leatherside Chub	Lepidomeda aliciae	SGCN		2013
Townsend's Big-eared Bat	Corynorhinus townsendii	SGCN		1959

Plants within a 2 mile radius

Common Name	Scientific Name	State Status	U.S. ESA Status	Last Observation Year
No Species Found				

Definitions

State Status

SGCN	Species of greatest conservation need listed in the Utah Wildlife Action Plan

U.S. Endangered Species Act

LE	A taxon that is listed by the U.S. Fish and Wildlife Service as "endangered" with the probability of worldwide extinction
LT	A taxon that is listed by the U.S. Fish and Wildlife Service as "threatened" with becoming endangered
LE;XN	An "endangered" taxon that is considered by the U.S. Fish and Wildlife Service to be "experimental and nonessential" in its designated use areas in Utah
C	A taxon for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threats to justify it being a "candidate" for listing as endangered or threatened
PT/PE	A taxon "proposed" to be listed as "endangered" or "threatened" by the U.S. Fish and Wildlife Service

Disclaimer

The information provided in this report is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, any given response is only appropriate for its respective request.

The UDWR provides no warranty, nor accepts any liability, occurring from any incorrect, incomplete, or misleading data, or from any incorrect, incomplete, or misleading use of these data.

The results are a query of species tracked by the Utah Natural Heritage Program, which includes all species listed under the U.S. Endangered Species Act and species on the Utah Wildlife Action Plan. Other significant wildlife values might also be present on the designated site. Please contact UDWR's regional habitat manager if you have any questions.

For additional information about species listed under the Endangered Species Act and their Critical Habitats that may be affected by activities in this area or for information about Section 7 consultation under the Endangered Species Act, please visit https://ecos.fws.gov/ipac/ or contact the U.S. Fish and Wildlife Service Utah Ecological Services Field Office at (801) 975-3330 or utahfieldoffice_esa@fws.gov.

Please contact our office at (801) 538-4759 or habitat@utah.gov if you require further assistance.

Your project is located in the following UDWR region(s): Southern region

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Report generated for:
Jenna Jorgensen
Jones and DeMille Engineering
1535 S. 100 W.
Richfield, UT 84754
(435) 896-8266
jenna.j@jonesanddemille.com

Appendix E.5. Fish and Wildlife Species of Concern

Species	Classification	Species likely occurrence in the project area and consideration for further analysis
American white pelican (*Pelecanus erythrorhynchus*)	Migratory Bird	**Considered**. Pelicans are associated with wetland and water habitats (Parrish et al. 2002), and may fish in the Sevier River.
Arizona mountain kingsnake (*Lampropeltis pyromelana*)	Utah SGCN[1]	**Considered**. Mountain kingsnakes typically occur in rocky terrain in canyons (UDWR 2015); kingsnakes could occur throughout the western portion of the watershed area.
Bald eagle (*Haliaeetus leucocephalus*)	USFS Sensitive; Utah SGCN[1]; Migratory bird	**Considered**. Bald eagles have been observed in the Sevier Valley as recently as 2019.
Band-tailed pigeon (*Patagioenas fasciata*)	Utah SGCN[1], UDWR-mapped habitat	Not considered. The most recent recorded observation within ½-mile of the watershed area was in 1969. The species is no longer known to occur in the Sevier Valley.
Black bear (*Ursus americanus*)	UDWR-mapped habitat	Not considered. UDWR-mapped crucial year-long habitat for black bear occurs within the western portion of the watershed, at higher elevations than project impacts are anticipated to occur. Black bear habitat is described as having "relatively inaccessible terrain, thick understory vegetation, and abundant sources of food" (UDWR 2010); this habitat does not occur within the valley.
Black swift (*Cypseloides niger*)	Utah SGCN[1]	Not considered. Black swifts nest in association with waterfalls but may forage in lowland riparian habitats (Parrish et al. 2002). Waterfalls do not occur within or near the watershed area, and the most recently recorded observation was in 1978.
Bonneville cutthroat trout (*Oncorhynchus clarki utah*)	USFS Sensitive	Not considered. Aquatic habitats do not occur within the project area on the Fishlake National Forest.
Boreal toad (*Bufo boreas*)	USFS Sensitive	Not considered. Potentially suitable wetland habitat does not occur within the project area on the Fishlake National Forest.
Brewer's sparrow (*Spizella breweri*)	MIS – sage nester guild[2]	Not considered. Potentially suitable sagebrush habitat does not occur within the project area on the Fishlake National Forest.
Burrowing owl (*Athene cunicularia*)	Utah SGCN[1]	**Considered**. Burrowing owls occupy "underground burrows in open and short-grass habitats" (UDWR 2015), and may occur within the watershed area. The most recent recorded observation was in 1992.
California gull (*Larus californicus*)	Migratory Bird	**Considered**. Gulls are associated with water habitats (Parrish et al. 2002), and may occur in association with the Sevier River.

California quail (*Callipepla californica*)	UDWR-mapped habitat	**Considered**. California quail are associated with oak and urban habitats in Utah (Parrish et al. 2002). Year-long crucial habitat is mapped throughout the valley bottom.
Carinate Glenwood pyrg (*Pyrgulopsis inopinata*)	Utah SGCN[1]	Not considered. The most recently recorded observation was in 1998, but the species is "native to only two springs in Utah" (UDWR 2015). Springs are not known to occur in the project areas.
Cassin's finch (*Carpodacus cassinii*)	Migratory bird	Not considered. Cassin's finch are associated with aspen and sub-alpine conifer habitats (Parrish et al. 2002), which occur in the higher elevations of the watershed and would not be impacted by project activities.
Chukar (*Alectoris chukar*)	UDWR-mapped habitat	**Considered**. Chukar are associated with desert scrub and shrubsteppe habitats (Parrish et al. 2002) in steep, rocky topography (UDWR 2003), which occur in the middle elevations of the watershed. The Bull Claim Hill riprap site is within UDWR-mapped year-long substantial habitat.
Clark's grebe (*Aechmophorus clarkii*)	Migratory bird	**Considered**. Clark's grebe are associated with wetland and water habitats (Parrish et al. 2002), and may occur in association with the Sevier River.
Clark's nutcracker (*Nucifraga columbiana*)	Migratory bird	Not considered. Clark's nutcrackers are associated with mixed and sub-alpine conifer habitats (Parrish et al. 2002), which occur in the higher elevations of the watershed and would not be impacted by project activities.
Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*)	USFS Sensitive	Not considered. Aquatic habitats do not occur within the project area on the Fishlake National Forest.
Desert bighorn sheep (*Ovis canadensis nelsoni*)	USFS Sensitive	Not considered. The watershed area is outside the bighorn sheep's known distributional range.
Dusky grouse (*Dendragapus obscurus*)	UDWR-mapped habitat	Not considered. UDWR-mapped crucial year-long habitat for dusky grouse occurs within the western portion of the watershed, at higher elevations than project impacts are anticipated to occur.

Flammulated owl (*Otus flammeolus*)	USFS Sensitive	Not considered. The flammulated owl is a cavity nester and an opportunistic insectivore (McCallum 1994) and could occur in the forested areas of the watershed. Potentially suitable forest nesting and foraging habitat occurs within the western portion of the watershed, at higher elevations than project impacts are anticipated to occur.
Golden eagle (*Aquila chrysaetos*)	Utah SGCN[1]; Migratory bird	**Considered**. Golden eagles have been observed in the Sevier Valley as recently as 2019.
Greater sage-grouse (*Centrocercus urophasianus*)	USFS Sensitive	Not considered. Suitable sagebrush habitat does not occur within or near the project area on the Fishlake National Forest.
Hairy woodpecker (*Leuconotopicus villosus*)	MIS – cavity nester[2]	Not considered. Suitable mature forest habitat does not occur within or near the project area on the Fishlake National Forest.
Lincoln's sparrow (*Melospiza lincolnii*)	MIS – riparian guild[2]	Not considered. Suitable riparian habitat does not occur within or near the project area on the Fishlake National Forest.
MacGillivray's warbler (*Geothlypis tolmiei*)	MIS – riparian guild[2]	Not considered. Suitable riparian habitat does not occur within or near the project area on the Fishlake National Forest.
Mountain bluebird (*Sialia currucoides*)	MIS – cavity nester[2]	Not considered. Suitable mature forest habitat does not occur within or near the project area on the Fishlake National Forest.
Mule deer (*Odocoileus hemionus*)	MIS[2], UDWR-mapped habitat	**Considered**. UDWR-mapped winter crucial habitat is mapped along the foothills on the west side of the Sevier Valley.
Northern goshawk (*Accipiter gentilis*)	USFS Sensitive, MIS[2]	Not considered. The northern goshawk uses a variety of habitats in Utah, ranging from Engelmann spruce and subalpine fir to pinyon-juniper woodlands (Graham et al. 1999); suitable forest habitats do not occur within or near the project area on the Fishlake National Forest.
Northern leopard frog (*Lithobates pipiens*)	Utah SGCN[1]	**Considered**. Northern leopard frog could occur in association with waters and wetlands within the watershed (Smith and Keinath 2007), including the Sevier River and canals.
Olive-sided flycatcher (*Contopus cooperi*)	Migratory bird	Not considered. Olive-sided flycatcher are associated with subalpine conifer habitats (Parrish et al. 2002), which occur in the higher elevations of the watershed and would not be impacted by project activities.

Otter Creek pyrg (*Pyrgulopsis fusca*)	Utah SGCN[1]	Not considered. The most recently recorded observation was in 1993, but the species is "found in three springs in Utah" (UDWR 2015). Springs are not known to occur in the project areas.
Peregrine falcon (*Falco peregrinus anatum*)	USFS Sensitive; Migratory bird	**Considered**. Suitable cliff nesting and proximal foraging habitat (USFWS 1984) occur within the watershed.
Pinyon jay (*Gymnorhinus cyanocephalus*)	Utah SGCN[1]; Migratory bird	**Considered.** Pinyon jay are associated with pinyon-juniper type habitat in Utah (Parrish et al. 2002), which occurs along the foothills on the west side of the Sevier Valley.
Pygmy rabbit (*Brachylagus idahoensis*)	USFS Sensitive	Not considered. Suitable tall sagebrush (*Artemisia tridentata*) habitat (Green and Flinders 1980) does not occur within or near the project area on the Fishlake National Forest.
Rocky Mountain elk (*Cervus elaphus nelsoni*)	MIS[2], UDWR-mapped habitat	Not considered. UDWR-mapped crucial winter and summer substantial habitat for elk occurs within the western portion of the watershed, at higher elevations than project impacts are anticipated to occur.
Rufous hummingbird (*Selasphorus rufus*)	Migratory bird	**Considered**. Rufous hummingbirds may occur in Utah during migration (Sibley 2003).
Sage thrasher (*Oreoscoptes montanus*)	MIS – sage nester guild[2]	Not considered. Potentially suitable sagebrush habitat does not occur within the project area on the Fishlake National Forest.
Song sparrow (*Melospiza melodia*)	MIS – riparian guild[2]	Not considered. Suitable riparian habitat does not occur within or near the project area on the Fishlake National Forest.
Southern leatherside chub (*Lepidomeda aliciae*)	Utah SGCN[1]; USFS Sensitive	**Considered**. Aquatic habitats do not occur within the project area on the Fishlake National Forest, but the species may occur within the Sevier River.
Spotted bat (*Euderma maculatum*)	USFS Sensitive	**Considered.** Spotted bats have been observed in Utah year-round and in a variety of habitats (Luce and Keinath 2007), and may occur within the watershed.
Three-toed woodpecker (*Picoides dorsalis*)	USFS Sensitive	Not considered. In Utah, three-toed woodpeckers generally nest and winter above 8,000 feet (2,400 meters) in elevation (Parrish et al. 2002). High-elevation forest habitat does not occur within or near the project area on the Fishlake National Forest.

Townsend's big-eared bat (*Corynorhinus townsendii*)	Utah SGCN[1], USFS Sensitive	**Considered.** Townsend's big-eared bats roost sites range from the lowest elevations in Utah up to 10,460 feet (Gruver and Keinath 2006), and may occur within the watershed. The most recent recorded observation was in 1959.
Turkey (*Meleagris gallopavo*)	UDWR-mapped habitat	**Considered**. Year-long turkey habitat is mapped along the Sevier River within the watershed area.
Vesper sparrow (*Pooecetes gramineus*)	MIS – sage nester guild[2]	Not considered. Potentially suitable sagebrush habitat does not occur within the project area on the Fishlake National Forest.
Virginia's warbler (*Vermivora virginiae*)	Migratory bird	**Considered**. Virginia's warbler are associated with oak and pinyon-juniper habitats in Utah (Parrish et al. 2002), which occur along the foothills on the west side of the Sevier Valley.
Western grebe (*Aechmorphorus occidentalis*)	Migratory bird	**Considered**. Western grebes are associated with wetland and water habitats (Parrish et al. 2002), and may occur in association with the Sevier River.
Western bluebird (*Sialia mexicana*)	MIS – cavity nester[2]	Not considered. Suitable mature forest habitat does not occur within or near the project area on the Fishlake National Forest.
White-tailed jackrabbit (*Lepus townsendii*)	UDWR-mapped habitat	**Considered**. The watershed is wholly within UDWR-mapped year-long habitat.
Yellow warbler (*Setophaga petechia*)	MIS – riparian guild[2]	Not considered. Suitable riparian habitat does not occur within or near the project area on the Fishlake National Forest.

[1] Species of greatest conservation need/BLM sensitive species

[2] Management indicator species as identified in the 1986 Fishlake National Forest LRMP

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Appendix E.6. Forest Service Biological Assessment/Biological Evaluation

Richfield-West Sevier Watershed Plan: Flat Canyon Site

Biological Evaluation

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For:

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Tables

Table 1. Forest Service-sensitive species that may occur or have suitable habitat in or around the project area. 1

Introduction

This biological evaluation (BE) analyzes the potential effects of the proposed project on species listed as sensitive on the Regional Forester's Sensitive Species List for the Intermountain Region (Region 4), and determines whether the likely effects on these species would result in a trend toward becoming federally listed.

The project description is detailed in chapter 3 of the EA.

Methodology

Impacts were assessed based on assumed presence or absence of species within the project area based on on-site review. The indicator for impacts to all present species is change in habitat effectiveness; this is evaluated on a qualitative basis. Where possible, direct impacts to suitable habitats were quantified.

Project Action Area

The proposed project action area includes the proposed Flat Canyon flood control features, and extends one-half (0.5) linear mile for potential noise disturbance impacts. The project would disturb up to 102.3 acres; the noise buffer includes approximately 1,400.9 acres (see map 1 in Appendix A).

Ongoing activities in the area include grazing, recreational off-highway vehicle (OHV) use, power line operation, and I-70 freeway use.

General Setting

The project area is within the Basin and Range – Colorado Plateau Transition physiographic subdivision of the Colorado Plateau. More specifically, the project area is located southwest of Richfield in central Utah on the Fishlake National Forest. Elevation of the proposed project is between 5,540 and 5,750 feet above sea level. A majority of the project area has been previously impacted by OHV use.

Forest Service-Sensitive Species Considered

The Forest Service-sensitive species that may occur or have suitable habitat in or around the project area are shown in Table 1.

Table 1. Forest Service-sensitive species that may occur or have suitable habitat in or around the project area.

Species	Habitat suitability or known occurrences of species in or near the project area	Species to be analyzed further? (Yes or No)*
Bald eagle (*Haliaeetus leucocephalus*)	Bald eagles are not known to nest or roost within or near the project area; suitable mature trees and open water do not occur within or near the project area. Any bald eagles would be incidental, and would likely avoid project activities.	No
Bonneville cutthroat trout (*Oncorhynchus clarki utah*)	Aquatic habitats do not occur within the project area.	No
Boreal toad (*Bufo boreas*)	Potentially suitable wetland habitat does not occur within the project area.	No

Species	Habitat suitability or known occurrences of species in or near the project area	Species to be analyzed further? (Yes or No)*
Colorado River cutthroat trout *(Oncorhynchus clarki pleuriticus)*	Aquatic habitats do not occur within the project area.	No
Desert bighorn sheep (*Ovis canadensis nelsoni*)	The project area is outside the bighorn sheep's known distributional range.	No
Flammulated owl (*Otus flammeolus*)	Potentially suitable forest nesting and foraging habitat does not exist within the project area.	No
Greater sage-grouse (*Centrocercus urophasianus*)	The project area is outside the species' known distributional range.	No
Northern goshawk (*Accipiter gentilis*)	Potentially suitable forest nesting and foraging habitat does not exist within the project area.	No
Peregrine falcon (*Falco peregrinus anatum*)	Potentially suitable cliff nesting habitat occurs adjacent to the project area.	**Yes**
Pygmy rabbit (*Brachylagus idahoensis*)	The species is not known to occur within the area; potentially suitable tall sagebrush habitat does not occur within the project area.	No
Southern leatherside chub (*Lepidomeda aliciae*)	Aquatic habitats do not occur within the project area.	No
Spotted bat (*Euderma maculatum*)	Potentially suitable cliff roosting habitat occurs adjacent to the project area, and the project area contains potentially suitable foraging habitat.	**Yes**
Three-toed woodpecker (*Picoides tridactylus*)	Potentially suitable forest nesting and foraging habitat does not exist within the project area.	No
Townsend's big-eared bat (*Corynorhinus townsendii)*	Potentially suitable roosting and foraging habitat occurs within the project area.	**Yes**
Sigurd townsendia (*Townsendia jonesii* var *lutea*)	Potentially suitable habitat occurs within the project area.	**Yes**
Elsinore buckwheat (*Eriogonum ostlundii*)	Potentially suitable habitat occurs within the project area.	**Yes**
Ward's penstemon (*Penstemon wardii*)	Potentially suitable habitat occurs within the project area.	**Yes**
*__Yes__ - The proposed project's potential effects on these species will be further analyzed in this document. *No – No further analysis is necessary, and a determination of "no impact" is made.		

Current Management Direction

Current policy as stated in the Forest Service Manual (FSM 2670.32) includes the following:

1. Assist states in achieving their goals for conservation of endemic species.

2. Review programs and activities as part of the National Environmental Policy Act of 1969 process through a Biological Evaluation, to determine their potential effect on sensitive species.
3. Avoid or minimize impacts to species whose viability has been identified as a concern.
4. Analyze, if impacts cannot be avoided, the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole.
5. Establish management objectives in cooperation with the states when projects on National Forest system lands may have a significant effect on sensitive species, population numbers, or distributions. Establish objectives for federal candidate species, in cooperation with FWS or NOAA Fisheries and the states.

Existing Environment

The existing environment within the project action area largely consists of cheatgrass (*Bromus tectorum*) and sparse shrub-steppe areas. The bottom of the canyon and alluvial area are disturbed by OHV tracks and power line tower pads. The steep canyon walls are relatively undisturbed, and may include scattered pinyon and juniper trees.

For more information concerning wildlife life history and species accounts, please refer to *Life History and Analysis of Endangered, Threatened, Candidate, Sensitive, and Management Indicator Species of the Fishlake National Forest* (Rodriguez 2006). This Forest Service document is incorporated here by reference and is considered to include some of the best available science on these species.

Species

Peregrine falcon

Potentially suitable cliff nesting habitat may occur within the project action area. The project area does not provide suitable riparian or open water habitat that would provide prey for foraging falcons, but the birds have been observed hunting on the treeless ridges and meadows along the crest of the Pahvant Mountains. Peregrine falcon have been found nesting on the Fillmore Ranger District in more arid habitat than is generally used in other areas.

Spotted bat

Potentially suitable cliff nesting habitat may occur within the project action area, and foraging may occur throughout the project area. The nearest documented occurrence is over 40 miles to the southeast, in Capitol Reef National Park.

Townsend's big-eared bat

Townsend's big-eared bat have been recorded in the immediate vicinity of Richfield; bats could roost within buildings near the project area. Suitable foraging habitat occurs throughout the project area.

Sigurd townsendia

Sigurd townsendia is known to occur in the foothills within Sevier Valley between 5,500 and 6,300 feet asl. Suitable habitat typically consists of "salt desert and mixed desert shrub and pinyon-juniper-sagebrush communities on semi-barren, white to red, fine-textured (often gypsiferous) shale and clay substrates" (Groebner 2005a). Suitable habitat likely occurs at numerous locations within the project area.

Elsinore buckwheat

Elsinore buckwheat is known to occur on "south-facing steep slopes of loose volcanic gravels and rocks in pinyon-juniper woodlands and shadscale scrub communities" between 5,500 and 6,500 feet asl (Clark 2005). Suitable habitat likely occurs at numerous locations within the project area.

Ward's penstemon

Ward's penstemon suitable habitat typically consists of semi-barren, white to gray, fine-textured substrates between 5,500 and 6,800 feet asl. Associated vegetation includes ephedra, rabbitbrush, shadscale, mountain mahogany, sagebrush, and pinyon-juniper communities (Groebner 2005b). Suitable habitat likely occurs at numerous locations within the analysis area.

Direct and Indirect Effects of the Proposed Action

Direct effects include the disturbance of up to 102.3 acres within the project area. Direct impacts to wildlife species could occur as a result of the removal of vegetation that may provide suitable habitat for foraging; however, habitat effectiveness in the area is decreased due to the existing disturbance and scarcity of suitable vegetation. The loss of habitat would be temporary, as appropriate areas would be reseeded upon project completion. Temporary disturbance (up to 1 year) to wildlife due to noise or the presence of equipment and personnel could occur during construction.

Operation of the basin would result in inundation of the basin behind the dam when storm flows were detained. Detained water may attract insect or bird species.

Maintenance of the system would require heavy equipment use on an as-needed basis, to clean sediment and debris out of the basin. Temporary disturbance to wildlife due to noise or the presence of equipment and personnel could occur.

Soils substrate that provides suitable habitat for sensitive plant species may be removed for use in the embankment. Areas of suitable habitat may also be inundated after storms.

Peregrine falcon

Although riparian foraging habitat does not occur within the project area, peregrine falcon eyries typically occur with 10 miles of an adequate prey source (USFWS 1984). Anecdotal observations also suggest that falcons hunt throughout the Sevier Valley. The project area is within a 10-mile radius of suitable riparian habitat in the valley; therefore, it is possible that falcons nest in suitable cliff habitat near the project area.

The recovery plan for the species recommends minimizing human activities within 1 mile of active eyries (USFWS 1984). If peregrine falcons were to nest on a cliff near the project area, they could be disturbed by construction activities. Construction activities would occur during breeding season due to temperature and weather constraints. Noise and human presence could result in displacement and abandonment of an active nest if peregrines happened to nest near the project. However, habitat suitability is likely decreased due to the project proximity with I-70 and the frequent OHV use in the area. Habitat effectiveness for nesting peregrine falcons would decrease only slightly as a result of project implementation. The proposed action would not adversely impact peregrine falcons.

Spotted bat and Townsend's big-eared bat

Potentially suitable bat roosting habitat would not be affected by construction of the dam, but suitable rocky roosting habitat could be temporarily inundated when the basin was detaining flood water. There would be little risk of disturbance to bats from the proposed construction activities, as the nocturnal bats

would be roosting during daytime project activities. Suitable roosting habitat above the inundation limit is abundant around the project area.

Bats could continue to forage within the project area, as prey insects would be available in both disturbed and undisturbed areas. Operation of the detention basin could provide open water, which attracts insects, and could increase foraging opportunities for up to 10 days, depending on the storm flows. Foraging habitat effectiveness would not decrease as a result of project implementation. The proposed action would not adversely impact bats.

Sigurd townsendia, Elsinore buckwheat, Ward's penstemon

Specific occurrences of each species within the project area are unquantified. Less than 102.3 acres of potentially suitable habitat below 8,000 feet asl would be impacted by project construction activities or basin inundation. Individuals of each species may be removed by project activities; however, due to the localized nature of the project within a highly disturbed area, project implementation would not significantly affect populations in the area. The proposed action would not adversely impact Forest Service-sensitive plant species.

Interrelated and Interdependent Effects

The project is not part of a larger action, nor would any other actions be dependent upon this project; therefore, there are no interrelated or interdependent effects of the proposed action.

Cumulative Effects

The purpose of the cumulative effects section is to describe the interaction among the effects of the proposed action and relevant past, present, and reasonably foreseeable actions. This interaction may be:

- Additive: the effects of the actions add together to make up the cumulative effect.
- Countervailing: the effects of some actions balance or mitigate the effects of other actions.
- Synergistic: the effects of the actions together is greater than the sum of their individual effects.

Spatial and Temporal Context for Effects Analysis

The Cumulative Effects Area (CEA) represents a landscape surrounding the project area where past, present, and reasonably foreseeable future management actions have occurred or will occur. The CEA for animal species is the Pahvant Mountain section of the Fillmore Ranger District (see map 2 in Appendix A). The CEA includes approximately 373,506 acres. The species included in this analysis will use part of this CEA during some portion of their life cycle.

Based on the published literature of ranges for the species (Utah Native Plant Society 2019), the CEA for sensitive plant species consists of the Fillmore Ranger District in Sevier County below 8,000 feet asl; this area is approximately 149,023 acres (see map 3 in Appendix A).

The temporal scope is permanent for direct and indirect impacts associated with implementation of the project. Ground-disturbing activities are expected to result in permanent disturbance; operation and maintenance would be ongoing and dependent on weather conditions at any given time.

Past, Present, and Reasonably Foreseeable Activities Relevant to Cumulative Effects Analysis

Management actions in the area include recreational OHV use, vegetation management (e.g., timber harvest, timber stand improvement, prescribed burning), livestock grazing and trailing, special uses (e.g., firewood collection, outfitters, and guides), and limited motorized access.

Peregrine falcon

Suitable remote nesting cliffs for peregrine falcons likely occur throughout the CEA. Construction and maintenance of the detention basin could lead to displacement of falcons into alternate or less suitable habitats, and behavioral disruption and stress due to noise and human presence; however, much of the remaining habitat in the CEA is relatively undisturbed. Less than three hundredths of a percent (0.027 percent) of the CEA would be disturbed by project activities. Falcons that avoided nesting near the area of project disturbance would have available remote cliff nesting opportunities elsewhere within the CEA. Habitat effectiveness within the larger CEA would not be noticeably impacted by the proposed project.

Implementation of the project would not adversely affect the species or affect the population trend of peregrine falcons on the Fishlake National Forest.

Spotted bat and Townsend's big-eared bat

Bats may roost or forage throughout the entire 373,506-acre CEA; however, less than three hundredths of a percent of the CEA would be disturbed by project activities. The nocturnal bats are unlikely to be affected by construction or operation of the basin, as these activities would occur during the day. Bats that avoided roosting near or foraging in the disturbed project area would have abundant available roosting and foraging opportunities within the CEA. Habitat effectiveness within the larger CEA would not be noticeably impacted by the proposed project.

Implementation of the project would not adversely affect the species or affect the population trend of spotted bat or Townsend's big-eared bat on the Fishlake National Forest.

Plant species (Sigurd townsendia, Elsinore buckwheat, Ward's penstemon)

Suitable habitat for these sensitive plant species occurs throughout the CEA. Less than 0.07 percent of the CEA for plants would be disturbed by project activities. Due to the limited potential for impacts from project activities and the small percentage of habitat impacted within the CEA, implementation of the project would not adversely affect these species or affect the population trends of sensitive plant species on the Fishlake National Forest.

Conclusion and Determination of Effect

As a result of this analysis, it is our professional determination that implementation of the proposed action may impact individuals or habitat of all sensitive species analyzed in this document, but would not likely contribute to a trend toward federal listing or cause a loss of persistence to these populations or species.

References

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Appendix A. Maps

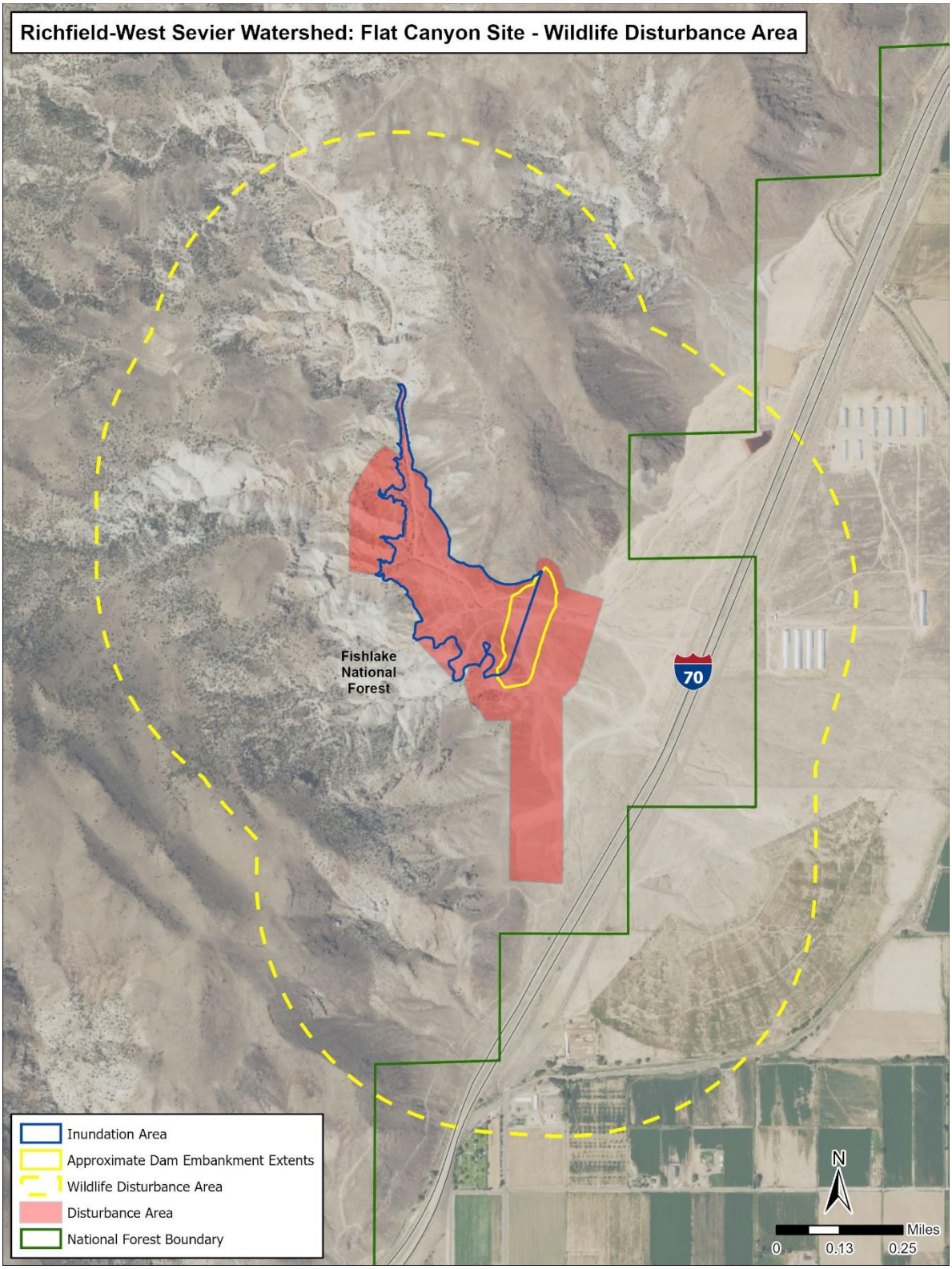


Figure 1. Project Action Area with ½-mile Noise Buffer

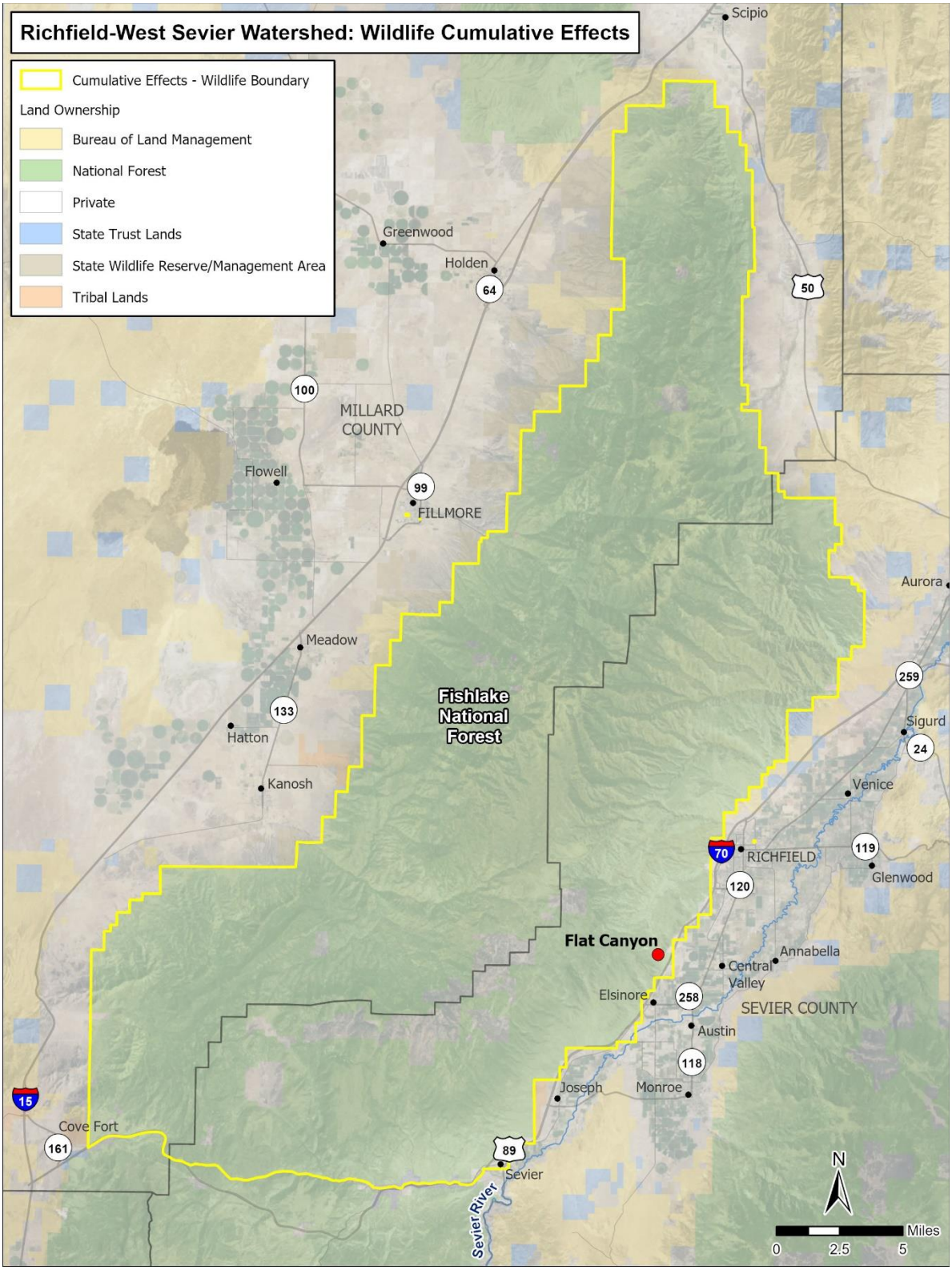


Figure 2. Sensitive Wildlife Cumulative Effects Area (CEA) Overview

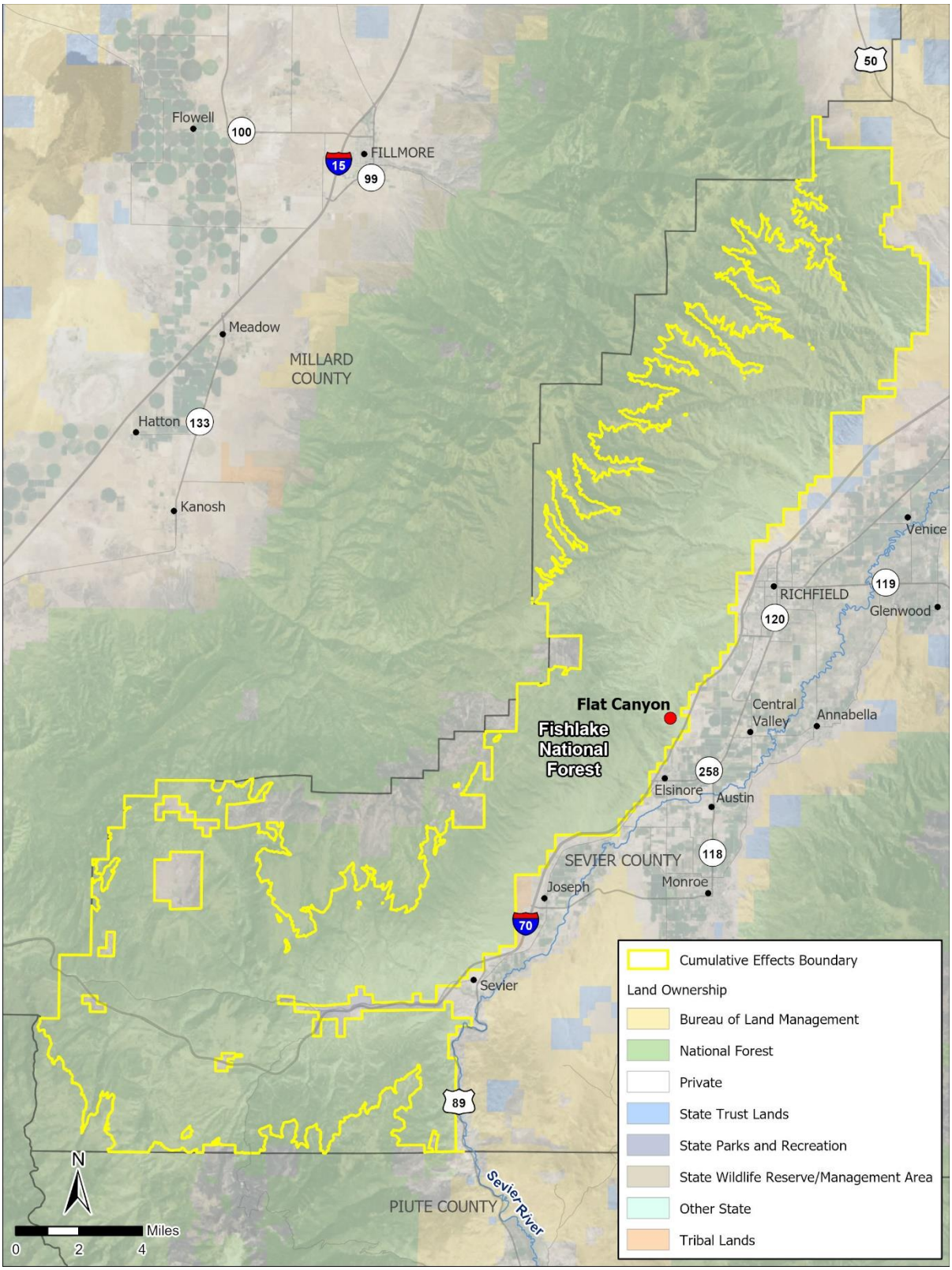


Figure 3. Sensitive Plant Cumulative Effects Area (CEA) Overview

Appendix E.7. Forest Service Biological Specialist Report

Richfield-West Sevier Watershed Plan: Flat Canyon Site

Biological Resources Report

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for

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October 3, 2019

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Appendix A. Maps 6

Introduction

Wildlife species selected for this analysis are composed of the following four groups:

1. Species that are listed as threatened, endangered, or proposed under the Endangered Species Act. Based on the USFWS IPaC System (accessed 8-21-2019), there would be no effect to listed species or critical habitats (see Appendix E of the Environmental Assessment [EA] for list and rationale).
2. Species listed as sensitive on the Regional Forester's Sensitive Species List for the Intermountain Region (Region 4). A biological evaluation (BE) was prepared separately to disclose impacts of the proposed action and sensitive species will not be addressed further in this report, with the exception of the northern goshawk, which is also a management indicator species.
3. Management indicator species (MIS) as designated by the Fishlake National Forest Land and Resource Management Plan (USDA 1986, as amended):
    a. Rocky Mountain elk (*Cervus elaphus*)
    b. Mule deer (*Odocoileus hemionus*)
    c. Northern goshawk (*Accipiter gentilis*)
    d. Cavity nesters
        - Hairy woodpecker (*Leuconotopicus villosus*)
        - Mountain bluebird (*Sialia currucoides*)
        - Western bluebird (*Sialia mexicana*)
    e. Riparian dependent guild
        - Lincoln's sparrow (*Melospiza lincolnii*)
        - Song sparrow (*Melospiza melodia*)
        - Yellow warbler (*Setophaga petechia*)
        - MacGillivray's warbler (*Geothlypis tolmiei*)
    f. Sage nester guild
        - Brewer's sparrow (*Spizella breweri*)
        - Vesper sparrow (*Pooecetes gramineus*)
        - Sage thrasher (*Oreoscoptes montanus*)
4. Other Species of Concern. For this analysis, additional migratory bird species were not selected because effects to all impacted habitat types were analyzed for other species in this analysis.

Project Description

The project description is detailed in chapter 3 of the EA.

Methodology

Impacts were assessed based on assumed presence or absence of species within the project area. The indicator for impacts to all present species is change in habitat effectiveness; this is evaluated on a qualitative basis. Where possible, direct impacts to suitable habitats were quantified.

Project Action Area

The proposed project action area includes the proposed Flat Canyon flood control features, and extends one-half (0.5) linear mile for potential noise disturbance impacts. The project would disturb up to 102.3 acres; the noise buffer includes approximately 1,400.9 acres (see map 1 in Appendix A).

Ongoing activities in the area include grazing, recreational off-highway vehicle (OHV) use, power line operation, and I-70 freeway use.

General Setting

The project area is within the Basin and Range – Colorado Plateau Transition physiographic subdivision of the Colorado Plateau. More specifically, the project area is located southwest of Richfield in central Utah on the Fishlake National Forest. Elevation of the proposed project is between 5,540 and 5,750 feet above sea level. A majority of the project area has been previously impacted by OHV use.

Affected Environment

Land cover of the project area is dominated by cheatgrass (*Bromus tectorum*), with Russian thistle (*Kali tragus*) and scarce greasewood (*Sarcobatus vermiculatus*) and rabbitbrush (*Ericameria nauseosa*). Isolated juniper (*Juniperus osteosperma*) are also scattered along the drainage bottom. The bottom of the canyon and alluvial area are disturbed by OHV tracks and power line tower pads.

For more information concerning wildlife life history and species accounts, please refer to *Life History and Analysis of Endangered, Threatened, Candidate, Sensitive, and Management Indicator Species of the Fishlake National Forest* (Rodriguez 2006). This Forest Service document is incorporated here by reference and is considered to include some of the best available science on these species.

Species Considered

Rocky Mountain elk

The proposed project is outside of UDWR-mapped range for elk. Elk are unlikely to range to the low elevations of Flat Canyon. There would be no effect to elk, and the species will not be addressed further in this report.

Mule deer

The proposed project is within UDWR-mapped crucial winter range for mule deer. Forage and cover is extremely limited in the area, but mule deer may use Flat Canyon as a corridor to access agricultural lands within Sevier Valley to the east.

Northern goshawk

Potentially suitable nesting or foraging habitat does not occur within or near the project area, which lacks mature forest types. Any goshawks that may fly through the project area would be incidental, and would avoid project activities. There would be no effect to northern goshawk individuals or habitat. The northern goshawk will not be addressed further in this report.

Cavity nesters (hairy woodpecker, mountain bluebird, western bluebird)

Potentially suitable mature forest habitat does not occur within or near the project area; therefore, these species would not be affected by implementation of the project, and will not be addressed further in this report.

Riparian dependent nesters (Lincoln's sparrow, song sparrow, yellow warbler, MacGillivray's warbler)

Riparian habitats do not occur within the project area; therefore, the riparian guild species would not be affected by implementation of the project. Riparian nesters will not be addressed further in this report.

Sage nesters (Brewer's sparrow, vesper sparrow, sage thrasher)

Potentially suitable sagebrush habitat does not occur within the project analysis area; these species would not be affected by implementation of the project, and will not be addressed further in this report.

Management Direction

Species selected as MIS are used to monitor a particular habitat type. This is accomplished by assessing the habitat conditions and population changes of the MIS that occupy each habitat, as required in the National Forest Management Act of 1976 (published at 36 CFR parts 200 to 299, July 1, 2000 edition).

Environmental Consequences

Proposed Action - Direct and Indirect Effects

Direct effects include the disturbance of up to 102.3 acres within the project area. Direct impacts to wildlife species could occur as a result of the removal of vegetation that may provide suitable habitat for foraging; however, habitat effectiveness in the area is decreased due to the existing disturbance and scarcity of suitable vegetation. The loss of habitat would be temporary, as appropriate areas would be reseeded upon project completion. Temporary disturbance (up to 1 year) to wildlife due to noise or the presence of equipment and personnel could occur during construction, but is unlikely as most animals would be habituated to some level of disturbance from the existing recreational uses.

Operation of the basin would result in inundation of the basin behind the dam when storm flows were detained. Detained water may attract insect or bird species.

Maintenance of the system would require heavy equipment use on an as-needed basis, to clean sediment and debris out of the basin. Temporary disturbance to wildlife due to noise or the presence of equipment and personnel could occur.

Mule deer

Approximately 69 acres of UDWR-mapped winter crucial mule deer habitat would be impacted by the proposed action (see map 1 in Appendix A); however, the area lacks sufficient vegetation to provide forage or cover during winter use periods. If construction were feasible during winter use periods, project activities would occur during daylight hours. Deer would likely travel through the area at dawn and dusk to access agricultural lands with forage opportunities, and would avoid project activities. Deer would be able to move through the canyon during construction.

Upon project completion, deer would be able to travel over the embankment to move through the canyon. During periods of inundation, deer would likely travel higher up the canyon wall to enter or leave the canyon. Maintenance operations would be temporary on an as-needed basis, and would likely occur during daylight hours. There would be no noticeable effect to mule deer as a result of implementation of the project.

Cumulative Effects

Because there would be no direct or indirect effects to mule deer as a result of the proposed action, there would be no cumulative effects.

Regulatory Framework

Land and Resource Management Plan

This analysis incorporates by reference the direction provided in the Fishlake National Forest Land and Resource Management Plan (LRMP; 1986). The proposed analysis is project level analysis, and is not intended to re-examine the basic land use allocations made in the LRMP, nor does this project level planning propose broad changes in land use allocations. Instead, planning at the project level involves the

development, analysis, and disclosure of likely environmental impacts associated with the implementation of specific actions designed to achieve the overall goals and objectives of the LRMP. The project area is outside of designated management areas.

The LRMP provides standards and guidelines for management of wildlife resources. Relevant standards and guidelines include:

- Habitat for each species on the Forest will be maintained by protecting at least 40% of the ecosystems for existing species. Proper juxtaposition of ecosystems must be considered.

Executive Orders

E.O. 13186

Executive Order 13186, signed January 10, 2001, directs federal agencies to protect migratory birds by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practical, adverse impacts on migratory birds' resources when conducting agency actions. This Order directs agencies to further comply with the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act, and other pertinent statutes. This analysis is compliant with the National Memorandum of Understanding between the USDA Forest Service and the USFWS to promote the conservation of migratory birds (USDA 2008).

References Cited

USDA. 2008. Memorandum of Understanding between the U.S. Department of Agriculture Forest Service and the U.S. Fish and Wildlife Service to promote the conservation of migratory birds. Abigail Kimball (Chief USDA Forest Service) and H. Dale Hall (Director US Fish and Wildlife Service). December 8.

Appendix A. Maps

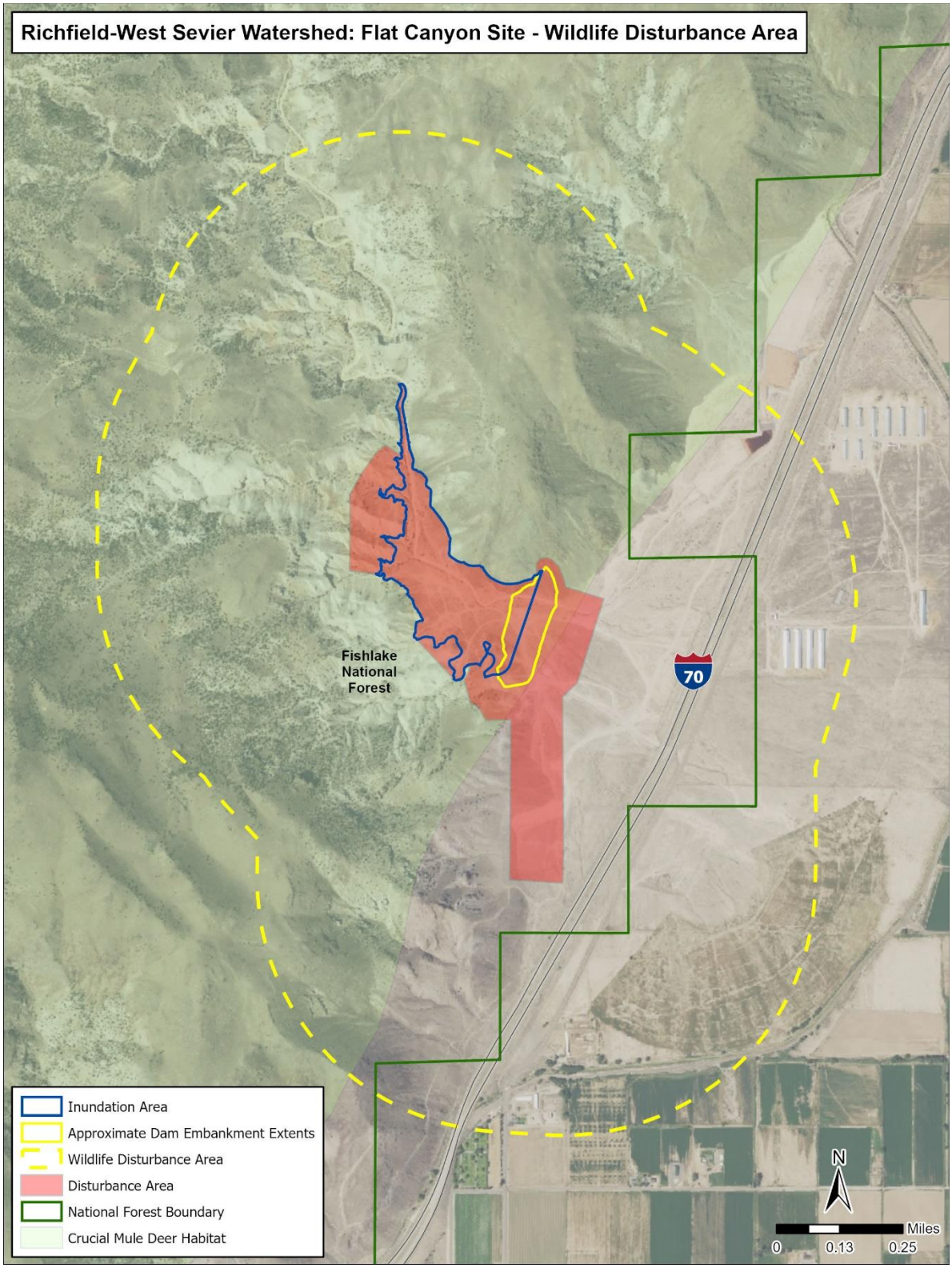


Figure 1. Project Action Area with ½-mile Noise Buffer and UDWR-mapped Mule Deer Habitat

Appendix E.8. Flat Canyon Clay Mine Plan

Mineral Materials Site Development and Reclamation Plan -Flat Canyon-

I. **Site Location**: Flat Canyon in Sevier County, UT
L3, L4, L6 Sec. 17 Township 24 S Range 3 W SLBM
38° 42' 50.78" N by 112° 8' 58.03" W
Elevation 5,700 feet

Access to Site: From Cove View Road parallel to I-70 south of Richfield, turn west and pass under I-70. Travel approximately 0.7 miles northwest on the dirt road, up the canyon. The material to be extracted makes up the hills on the west.

Operator:
Name: Sevier County
Address: 250 N. Main St, Richfield, UT 84701
Phone Number: (435) 893-0400
On-site Foreman: TBD
FS Representative: TBD
On-site Foreman Phone Number: TBD

II. **Existing Conditions Description**: Approximately 15.5 acres have been identified for clay material extraction, in two separate portions indicated on the attached map. The clay hills are adjacent to the proposed Flat Canyon debris basin, and form the western boundary of the proposed inundation area. The hills are sparsely vegetated with desert scrub. The southern site has been heavily disturbed by recreational OHV use; the northern site is relatively undisturbed. Aerial imagery of each site shows the relative disturbance.



Aerial image of southern proposed clay source



Aerial image of northern proposed clay source

III. **Mine Plan Development**: Over 5 years of operation (anticipated to begin 2023), approximately 101,200 cubic yards of material will be excavated and removed. Approximately 102 acres will be cleared through NEPA for construction, operation, and maintenance of the debris basin; the proposed clay extraction areas are contained within this area. The volume of material removed would be tracked for annual reporting purposes.

IV. **Environmental Protection Measures** – The following measures will be employed:

- The project area would be temporarily closed during construction for safety.
- Soil within the project area will be sprayed with water or another approved dust suppressant/soil binder. The quantity of water used for dust control will be minimized to prevent water from leaving the site.
- Procedures to reduce emissions during material transportation or handling may include wetting materials hauled in trucks, providing adequate freeboard (space from the top of the material to the top of the truck), or covering loads.
- Material stockpiles will be wetted to prevent wind-blown emissions.
- Appropriate emission-control devices will be required on all construction equipment.
- The use of cleaner burning fuels will be required.
- Only properly operating, well-maintained construction equipment will be used.
- Equipment servicing and refueling areas will be located at least 300 feet away from any stream channels. To ensure that accidental spills do not enter waters, the storage of petroleum-based fuels and the refueling of construction machinery would not occur outside of approved designated staging/batch plant areas. The project would comply with state and federal water quality standards and toxic effluent standards to minimize any potential adverse impacts from discharges to waters of the U.S.
- A stormwater pollution prevention plan (SWPPP) will be prepared by the construction contractor prior to initiation of ground disturbance. The SWPPP will detail the best management practices and site-specific control features to prevent sediment and other pollutants from discharging off the site during construction. BMPs may include silt fence, fiber wattles, and earthen berms.
- The project area will be kept free of any garbage and debris. Garbage will be removed from the site regularly and will be disposed of in approved facilities.
- Other disturbed areas on National Forest System lands will be seeded with an appropriate seed mix per FSM 2070.
- No construction materials would be stockpiled or deposited in or near any water bodies.
- Equipment will be washed and inspected prior to entering the project area to remove any soil and debris that may contribute to the spread of noxious weeds.
- Source material areas will be left with slope gradients that are safe for recreationists to use following construction activities.
- If construction activities occur between March 1 and September 30, clearance surveys for migratory birds within 10 days prior by a qualified biologist will be required. Appropriate spatial and temporal buffers will be applied if nesting birds are located.
- Fire Protection – The operator will take initial attack suppression actions for fires started as a result of operations. Fires must be reported to Richfield Interagency Fire Center at 435-896-8404 as soon as possible. Properly rated fire extinguishers will be provided in each on site vehicle and internal combustion engine. Pick-ups and dump trucks will have shovels. All gasoline- and diesel-powered equipment must be equipped with effective spark arrestors or mufflers. In addition, all electrical equipment must be properly insulated to prevent sparks.

- Fire restriction compliance requirement – Operations are subject to Forest Service and State of Utah fire restrictions and the Forest Service reserves the right to suspend operations during periods of high fire potential.
- Cultural/Historical values – No known historic or archaeological values exist in the area. If any cultural resources are encountered during project activities, activities will cease immediately and the Forest Service will be notified.
- Protection and replacement of survey markers – Section corners or other survey markers, including claim corners, in the project area must be located and flagged for preservation prior to commencement of surface disturbing activities. The removal, displacement, or disturbance of markers must be approved by the Forest Service. Replacement will be done by the Forest Service at the expense of the operator.

V. **Reclamation**

Due to the natural conditions and site capability of the sites, reclamation is anticipated to consist of grading to create slope gradients that are safe for recreationists to use following construction activities, and seeding where practicable.

Plan Authorized by Authorization Date

Appendix E.9. Unanticipated Archaeological Discoveries Procedures

In the event that any cultural materials identified during construction will be considered significant discoveries requiring longer-term work stoppage for consultation and mitigation, the NRCS will consult per 36 C.F.R. 800.6 to develop a Phase II data recovery (mitigation) plan to further mitigate adverse effects.

Depending on what is identified, the cultural remains will be recorded or treated as a discovery based on the criteria listed below. Procedures for responding to cultural resources discovered during monitoring are also discussed below.

Discovery Definition

For the purposes of this project, the criteria for determining significant discoveries will include, but are not limited to:

- Dense concentrations of prehistoric artifacts that appear to represent significant
- deposits or in situ artifact deposits rather than isolated artifacts.
- Dense concentrations of historical artifacts that appear to represent significant deposits or in situ artifact deposits rather than isolated artifacts.
- Prehistoric cultural features.
- Historical features considered to be significant.
- Any human bone.
- The types of artifacts and features that will not be considered significant discoveries and will be considered non-significant cultural resources include:
- Recent debris from use of the property.
- Individual prehistoric artifacts or groups of small number of artifacts with no apparent potential for further discovery of artifacts or features.
- Individual historical artifact or groups of small numbers of artifacts with no apparent potential for further discovery of artifacts or features.
- Individual non-human bones or groups of small numbers of bones with no apparent potential for further discovery of artifacts or features.

Discovery Procedures

If resources are encountered that are not cultural or are cultural but not significant, the resources will be documented and the construction will be allowed to continue after documentation is complete. Documentation will consist of illustrations (where relevant), photographs, detailed descriptions, and recording of the location of the cultural material. If a significant cultural resource is identified, the following procedures will be implemented depending on whether the discovery consists of features and artifacts other than human remains or whether it consists of human remains.

For cultural resources not involving human remains, the NRCS will provide the Utah SHPO, participating tribal governments, and as applicable, the USFS, the BLM, Utah TLA, or private landowner, with a proposed mitigation plan for review and comment. At the discretion of the NRCS cultural resource specialist, construction may be allowed to continue in the area of the discovery while the mitigation plan is under review by consulting parties. Under all circumstances, continuation of work following a discovery will be contingent upon approval by the NRCS cultural resource specialist in consultation with the Utah SHPO and other consulting parties.

If human remains are discovered under any circumstances, they will be secured and protected until such time as appropriate disposition has been determined in accordance with applicable local, state, and federal statutes. Construction activities in the immediate vicinity of the discovery will cease immediately within 15 meters (50 feet) of the discovery. The NRCS will immediately notify the local Sheriff's Department of the discovery, and will notify the Utah SHPO. The NRCS will consult to develop an appropriate mitigation plan that meets all the requirements of NAGPRA (Public Land) and Utah Code 9-8-309 (private land) for inadvertent discoveries. After approval of the plan, mitigation will proceed. Construction in the area of the remains may need to be halted throughout the review process. Continuation of work following a discovery will be contingent upon approval by the NRCS cultural resource specialist in consultation with the Utah SHPO and other consulting parties.