# APPENDIX 13B

## Riparian Habitat Conservation Areas Assessment Memorandum

# Memo

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|---|---|
| Date: | Wednesday, September 30, 2020 |
| Project: | Little Cottonwood Canyon EIS |
| To: | Project files |
| From: | HDR, Inc. |
| Subject: | Riparian Habitat Conservation Areas Assessment |

## Introduction

The Utah Department of Transportation (UDOT) is preparing an Environmental Impact Statement (EIS) to study proposed transportation solutions to State Route (S.R.) 210 from its intersection with S.R. 190/Fort Union Boulevard through the town of Alta in Little Cottonwood Canyon in Salt Lake County, Utah. Transportation improvements are needed to improve the safety, reliability, and mobility on S.R. 210 for residents, visitors, and commuters who use this highway. The Little Cottonwood Canyon Project is intended to address existing safety, reliability, and mobility associated with both commuter traffic and winter recreational traffic in Little Cottonwood Canyon.

The Little Cottonwood Canyon EIS alternatives have the potential to impact riparian habitat conservation areas (RHCAs). With coordination from the United States Department of Agriculture (USDA) Forest Service, HDR conducted a field assessment of RHCAs within the Little Cottonwood Canyon EIS alternative footprints. This memorandum discusses background, methodology, and results of these RHCA assessments.

## Background

According to the revised forest plan for the Wasatch-Cache National Forest [1], "RHCAs include traditional riparian corridors, wetlands, intermittent streams, and other areas that help maintain the integrity of aquatic ecosystems by (1) influencing the delivery of course sediment, organic matter, and woody debris to streams, (2) providing root strength for channel stability, (3) shading the stream, and (4) protecting water quality."

The revised forest plan defines RHCA's by the following four categories which are further described below:

- Category 1. Fish-Bearing Stream
- Category 2. Permanently Flowing Non-Fish Bearing Stream
- Category 3. Ponds, Lakes, Reservoirs, and Wetlands Greater Than 1 Acre

[1] United States Department of Agriculture Forest Service, Intermountain Region 2003. Revised Forest Plan – Wasatch-Cache National Forest. February.

- Category 4. Seasonally Flowing or Intermittent Streams, Wetlands Less Than 1 Acre, Landslides, and Landslide-Prone Areas

**Category 1. Fish-Bearing Stream**
Category 1 RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to 300 feet slope distance (600 feet total, including both sides of the stream channel).

**Category 2. Permanently Flowing Non-Fish Bearing Stream**
Category 2 RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to 150 feet flow distance (300 feet total, including both sides of the stream).

**Category 3. Ponds, Lakes, Reservoirs, and Wetlands Greater Than 1 Acre**
Category 3 RHCAs consist of the body of water or wetland and the area to 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake,.

**Category 4. Seasonally Flowing or Intermittent Streams, Wetlands Less Than 1 Acre, Landslides, and Landslide-Prone Areas**
At a minimum, the interim Category 4 RHCAs must include landslides and landslide-prone areas, 100 feet slope distance in watersheds containing Bonneville or Colorado River cutthroat trout, and 50 feet slope distance for watersheds not containing Bonneville or Colorado River cutthroat trout. This category includes features with high variability in size and site-specific characteristics.

## Methodology

The objective of this assessment was to characterize the composition and condition of vegetation and aquatic habitat in RHCAs situated within the Little Cottonwood Canyon EIS alternative footprints. The survey area for this study included areas where RHCAs and the Little Cottonwood Canyon EIS alternative footprints overlap. To identify RHCA areas, HDR used aquatic resource delineation data collected for the Little Cottonwood Canyon EIS and buffered each resource based on the RHCA categories described above. These resources included Little Cottonwood Creek (a Category 1 stream) which was buffered 300 feet on either side of the stream and 14 Category 4 features which were buffered 100 feet on either side of the feature (Bonneville cutthroat trout occur in Little Cottonwood Creek). HDR then overlaid the Little Cottonwood Canyon EIS alternative footprints onto the RHCAs to identify locations where they overlap and riparian habitat field verification and assessments would occur.

A total of 43.09 acres of RHCAs were determined to overlap the Little Cottonwood Canyon EIS alternative footprints (the survey area). Prior to field evaluation, HDR established locations of 54 survey plots to visit throughout the 43.09 acres for riparian habitat verification and assessment. The plots were placed semi-systematically in order to collect representative data throughout the survey area. Tablets equipped with the ESRI data collection application Collector were prepared for use in both field navigation and data entry. In order to characterize vegetation within RHCAs and identify the presence or absence of riparian habitat and assess the condition of vegetation

and aquatic habitat, the following information was collected at each field plot, limited to a 30 foot radius from plot center (see Attachment A for a map series showing the survey areas and survey plot locations):

- Surveyor(s) Name and Date
- General Notes (observations of anthropogenic disturbance and general condition within plot)
- Riparian Community (Yes/No)
- Successional Stage (Early/Mid/Late)
- Canopy Cover (0%, Trace-5%, 5-25%, 25-50%, 50-75%, 75-95%, 95-100%)
- Dominant Canopy Species Observed
- Shrub/Sapling Cover (0%, Trace-5%, 5-25%, 25-50%, 50-75%, 75-95%, 95-100%)
- Dominant Shrub/Sapling Species Observed
- Herbaceous Cover (0%, Trace-5%, 5-25%, 25-50%, 50-75%, 75-95%, 95-100%)
- Dominant Herbaceous Species Observed
- Invasive/Weedy Species Cover (0%, Trace-5%, 5-25%, 25-50%, 50-75%, 75-95%, 95-100%)
- Invasive/Weedy Species Observed
- Percent ground (0%, Trace-5%, 5-25%, 25-50%, 50-75%, 75-95%, 95-100%)
- Stream Conditions (observations of anthropogenic disturbance and general condition within stream channel within or near plot)
- Representative photographs in the four cardinal directions (North, South, East, and West

Given that some locations did not exhibit riparian vegetation, HDR mapped the survey areas based on whether the site consisted of a riparian vegetation community, a non-riparian vegetation community, or if the site was unvegetated. Informal trails and small areas with naturally rocky substrates were not excluded from vegetated categories.

## Results

Overall, HDR identified 2.30 acres of riparian habitat in the survey area. Dominant plant species observed within riparian communities include boxelder (*Acer negundo*), water birch (*Betula occidentalis*), narrowleaf cottonwood (*Populus angustifolia*), willow (*Salix*) species, and redosier dogwood (*Cornus sericea*). RCHA plots in riparian habitat were most frequently dominated by Bebb's willow (*Salix bebbiana*), narrow-leaf cottonwood, and dogwood. Riparian areas generally appeared to be in good condition and undisturbed, except where immediately adjacent to the S.R. 210 road shoulder and road crossings. These areas often contained boulders and gravel from road and drainage stabilization measures.

A total of 30.08 acres of non-riparian vegetation was identified in the survey area. Non-riparian vegetation was generally dominated by the following plan species: quacking aspen (*Populus tremuloides*), Gambel oak (*Quercus gambelii*), Douglas fir (*Pseudotsuga menziesii*), bigtooth maple (*Acer grandidentatum*), chokecherry (*Prunus virginiana*), mountain snowberry (*Symphoricarpos oreophilus*), Saskatoon serviceberry (*Amelanchier alnifolia*), big sagebrush (*Artemisia tridentata*), rubber rabbitbrush (*Ericameria nauseosa*), and creeping barberry (*Mahonia repens*) among others, and smooth brome (*Bromus inermis*).

A total of 10.71 acres of the survey area were considered unvegetated and mainly consisted of S.R. 210 and its surrounding shoulder.

Data collected at each RHCA survey plot is provided in Attachment B, RHCA Plot Data and photographs for each RHCA survey plot are provided in Attachment C, RHCA Survey Plot Representative Photographs.

## Attachments

Attachment A. RHCA Survey Area and Survey Plots Maps

Attachment B. RHCA Survey Plot Data

Attachment C. RHCA Survey Plot Representative Photographs

# ATTACHMENT A

## RHCA Survey Area and Survey Plot Maps

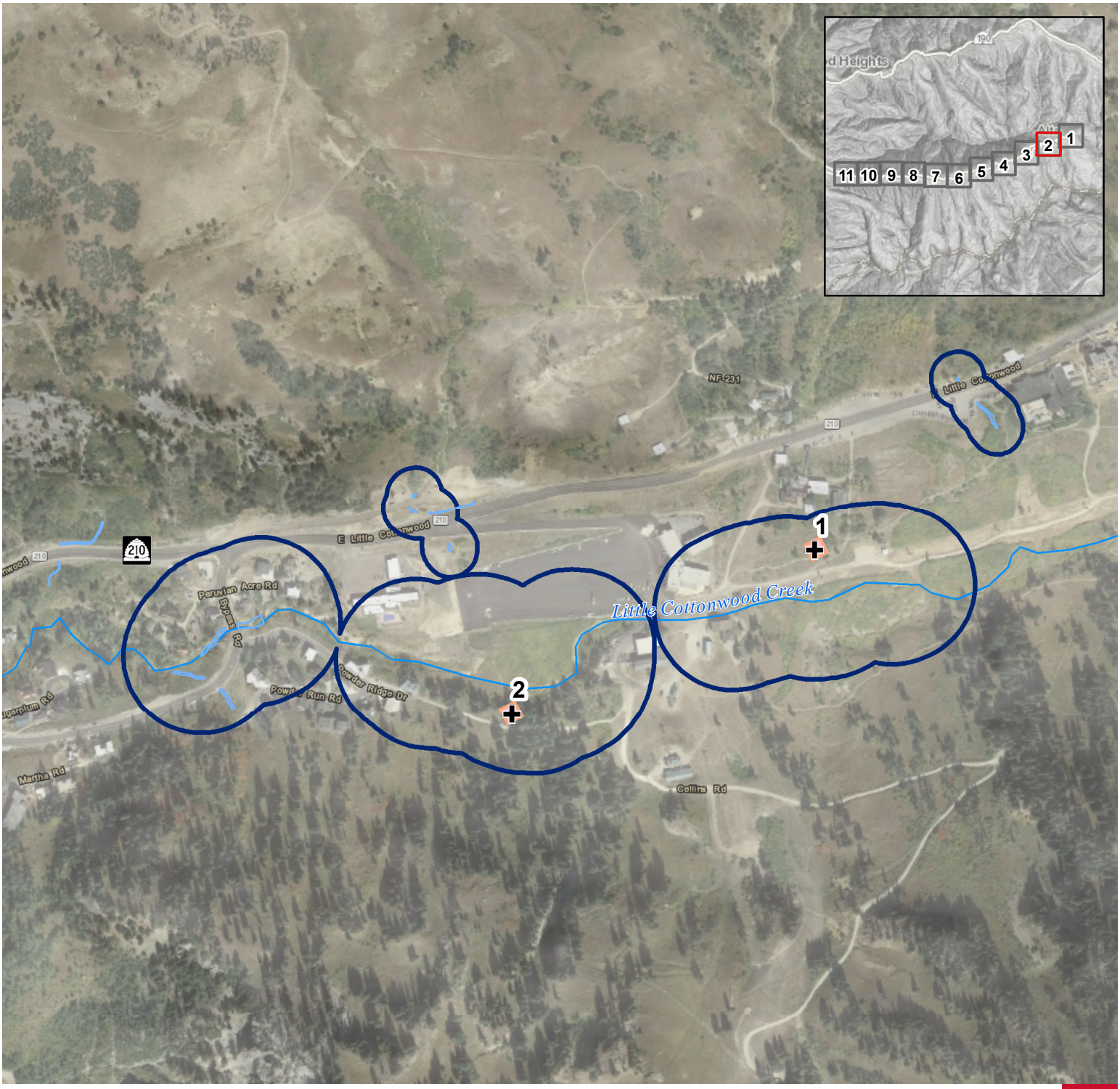

LEGEND

- RHCA Field Points
- RHCA Buffers
- Wetlands and Seasonal Streams
- Little Cottonwood Creek

**Vegetation Category**

- Nonriparian Vegetation
- Riparian Vegetation
- Unvegetated

0 1,000 Feet




LEGEND

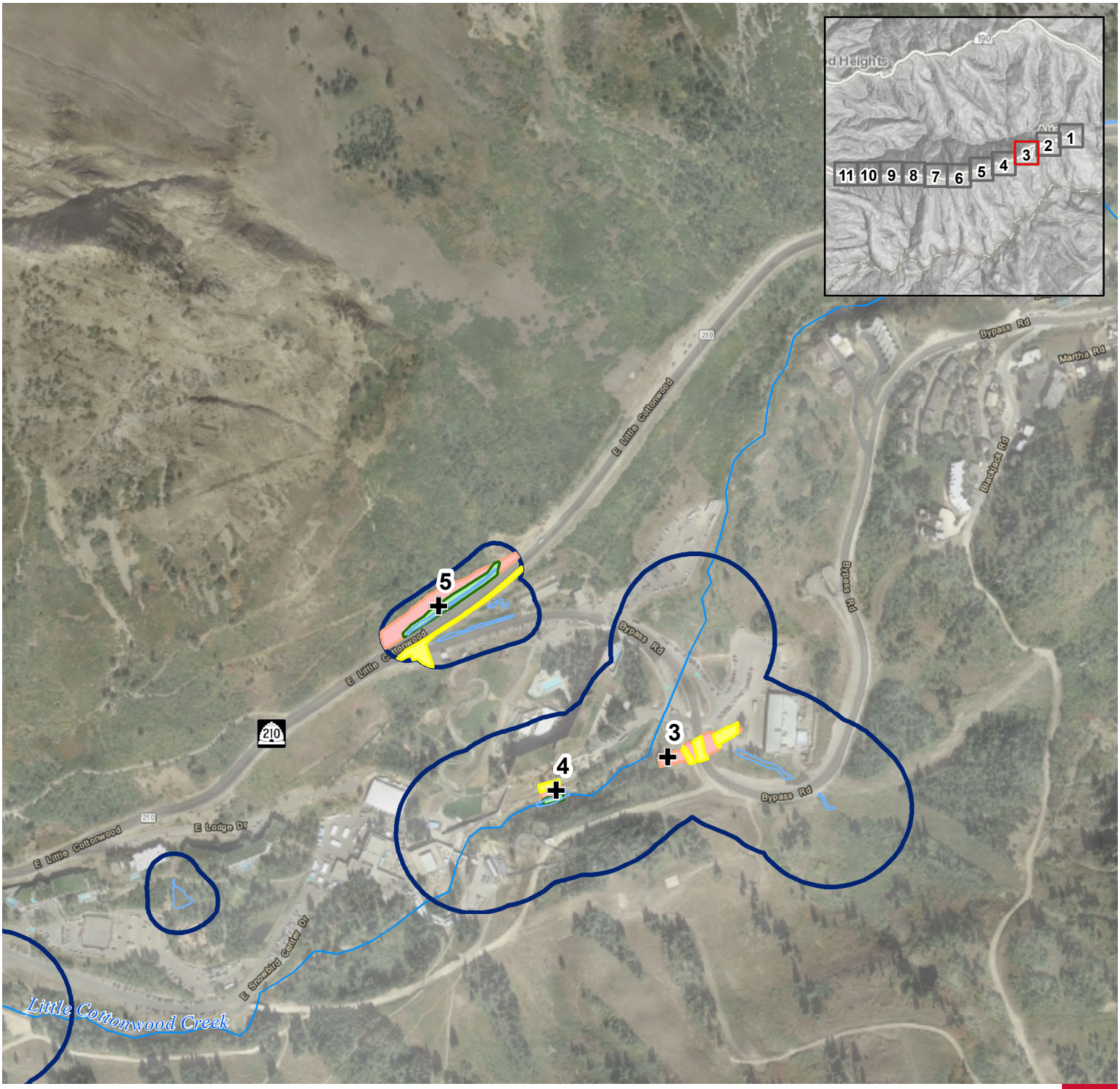
- RHCA Field Points

**Vegetation Category**

- Nonriparian Vegetation
- Riparian Vegetation
- Unvegetated

- RHCA Buffers
- Wetlands and Seasonal Streams
- Little Cottonwood Creek

0 — 1,000 Feet




LEGEND

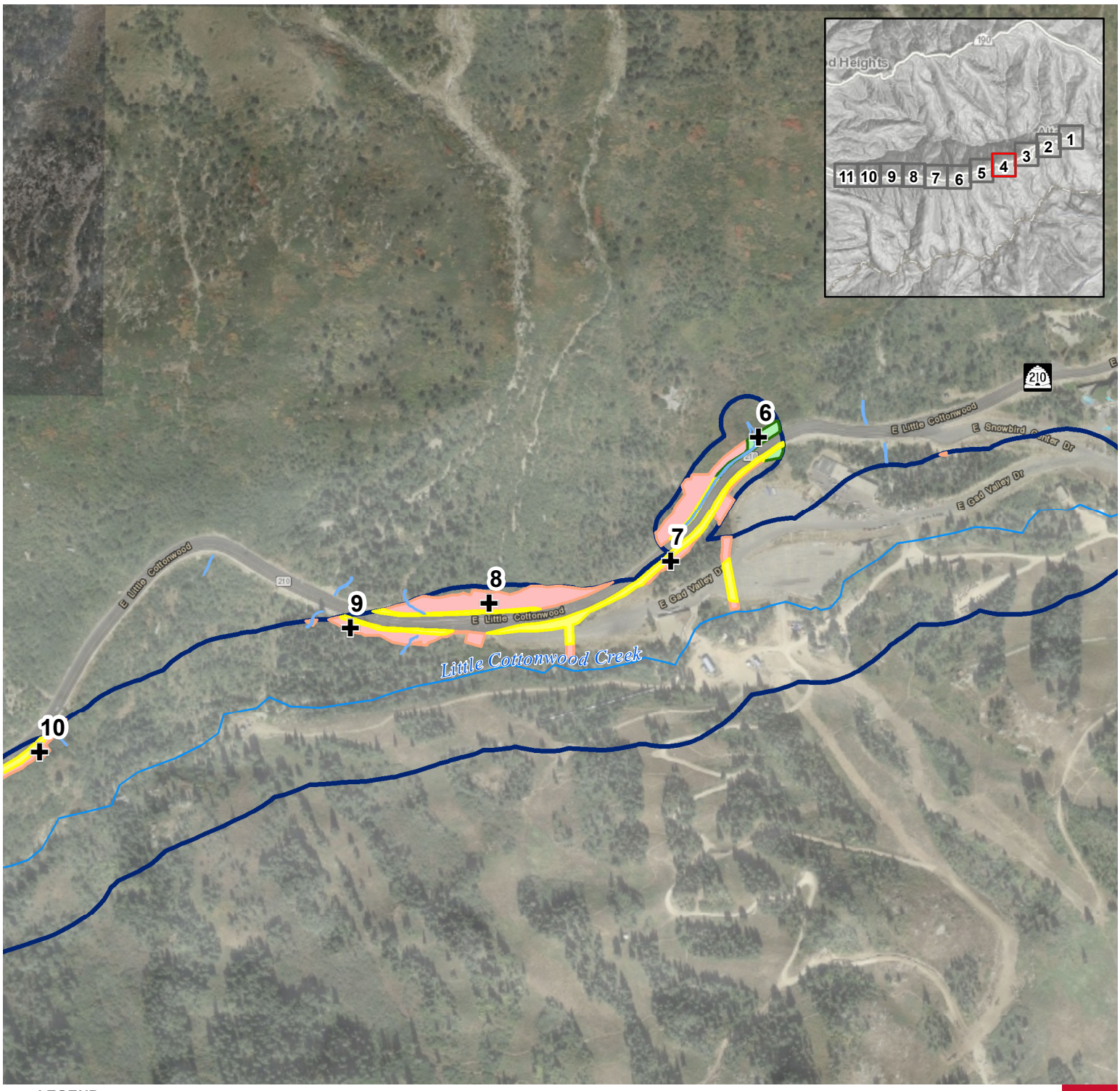
- RHCA Field Points

**Vegetation Category**

- Nonriparian Vegetation
- Riparian Vegetation
- Unvegetated

- RHCA Buffers
- Wetlands and Seasonal Streams
- Little Cottonwood Creek

0 — 1,000 Feet




LEGEND

- RHCA Field Points

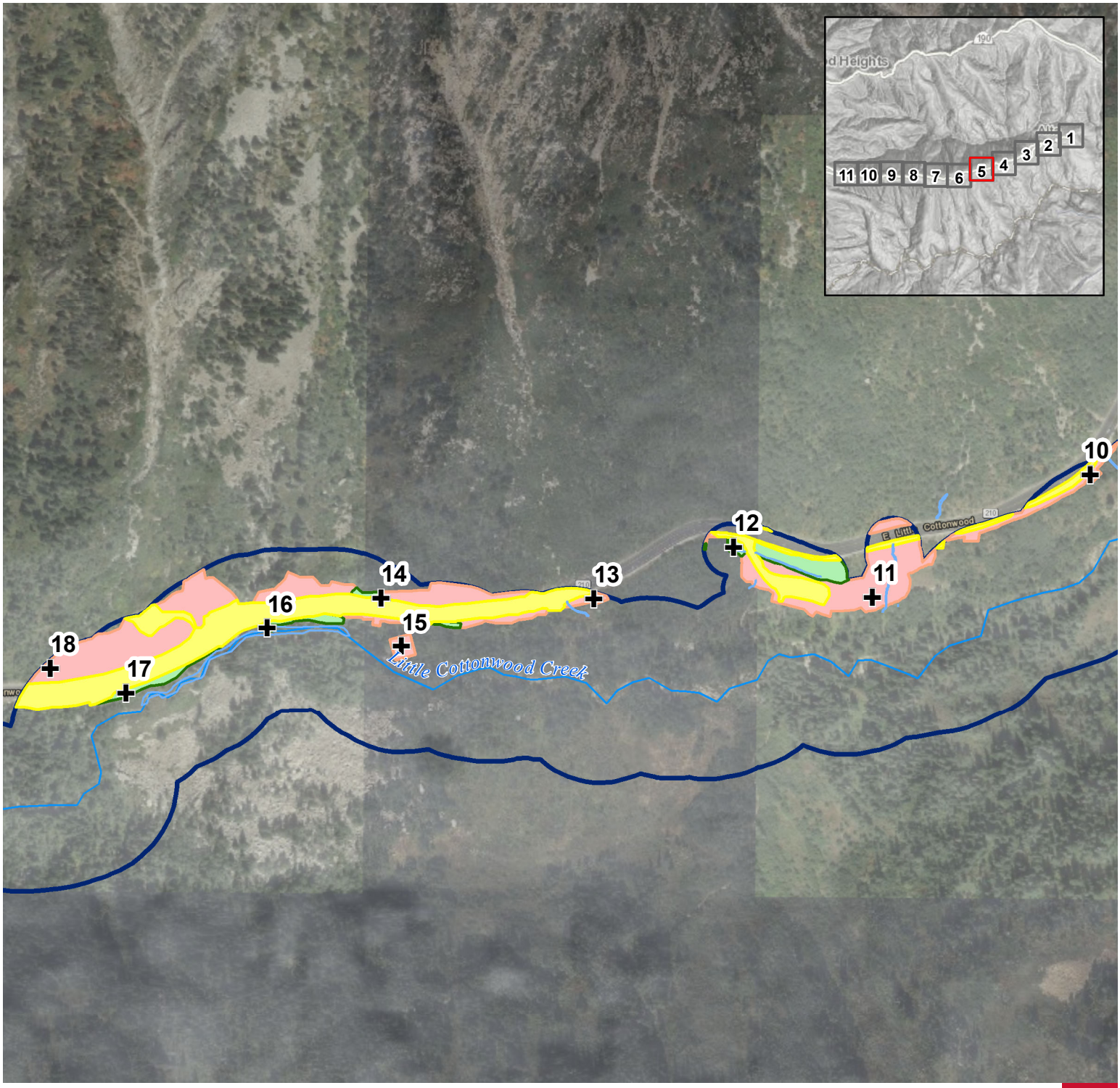
**Vegetation Category**

- Nonriparian Vegetation
- Riparian Vegetation
- Unvegetated

- RHCA Buffers
- Wetlands and Seasonal Streams
- Little Cottonwood Creek

0 1,000 Feet

N




LEGEND

- RHCA Field Points

**Vegetation Category**

- Nonriparian Vegetation
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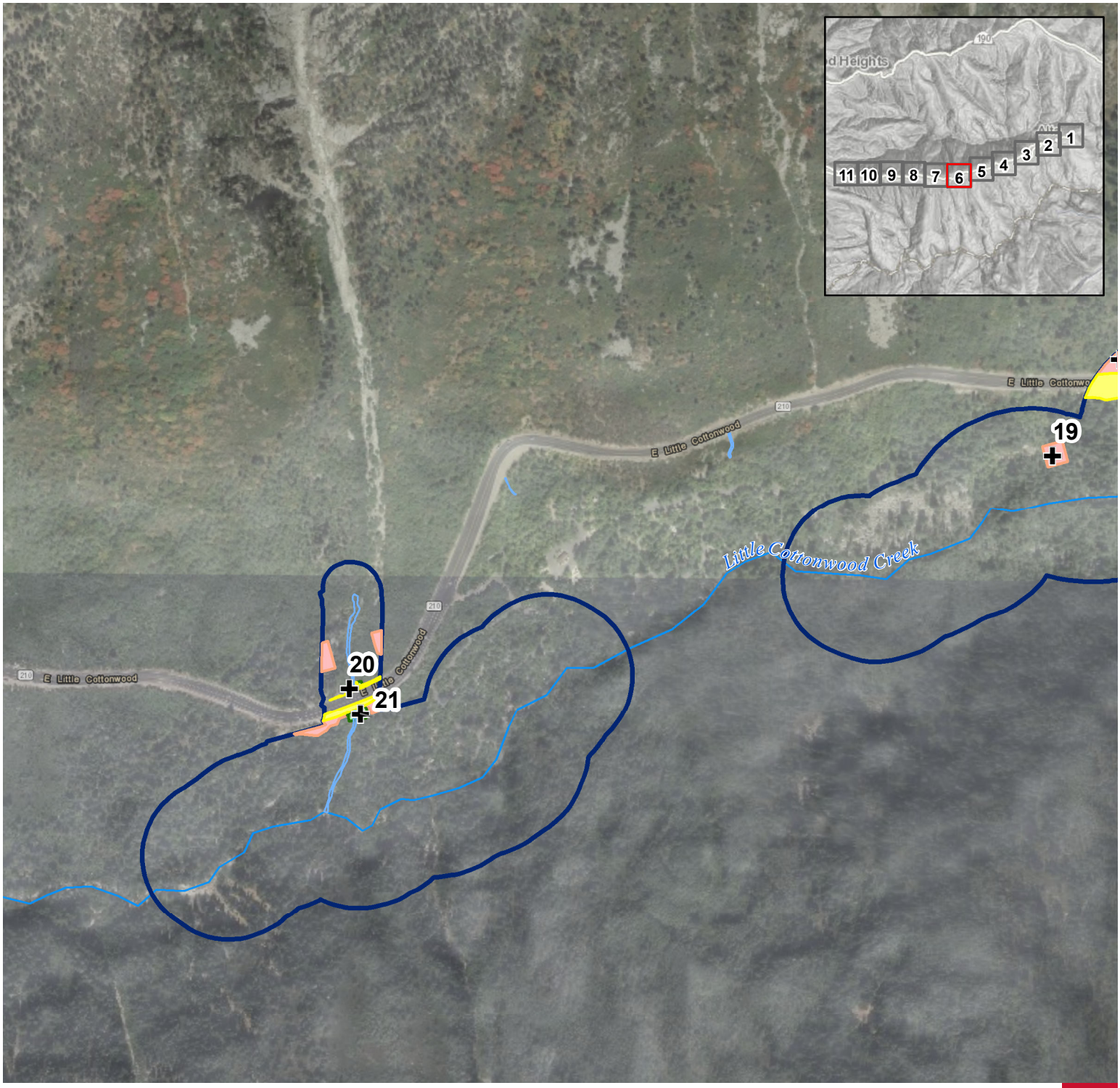
- Unvegetated

- RHCA Buffers
- Wetlands and Seasonal Streams
- Little Cottonwood Creek

0 1,000 Feet




LEGEND

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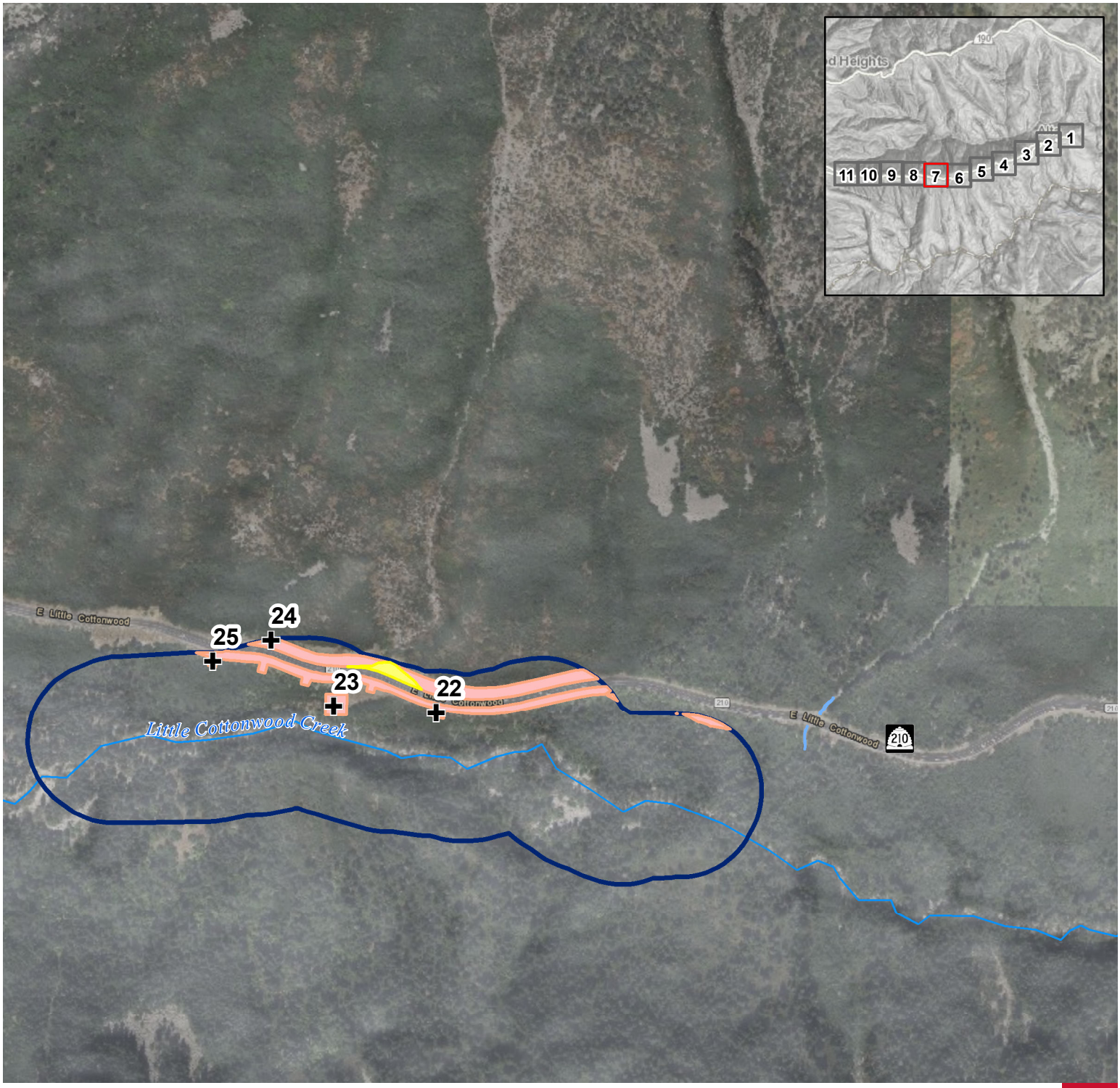
0 1,000 Feet

N




LEGEND

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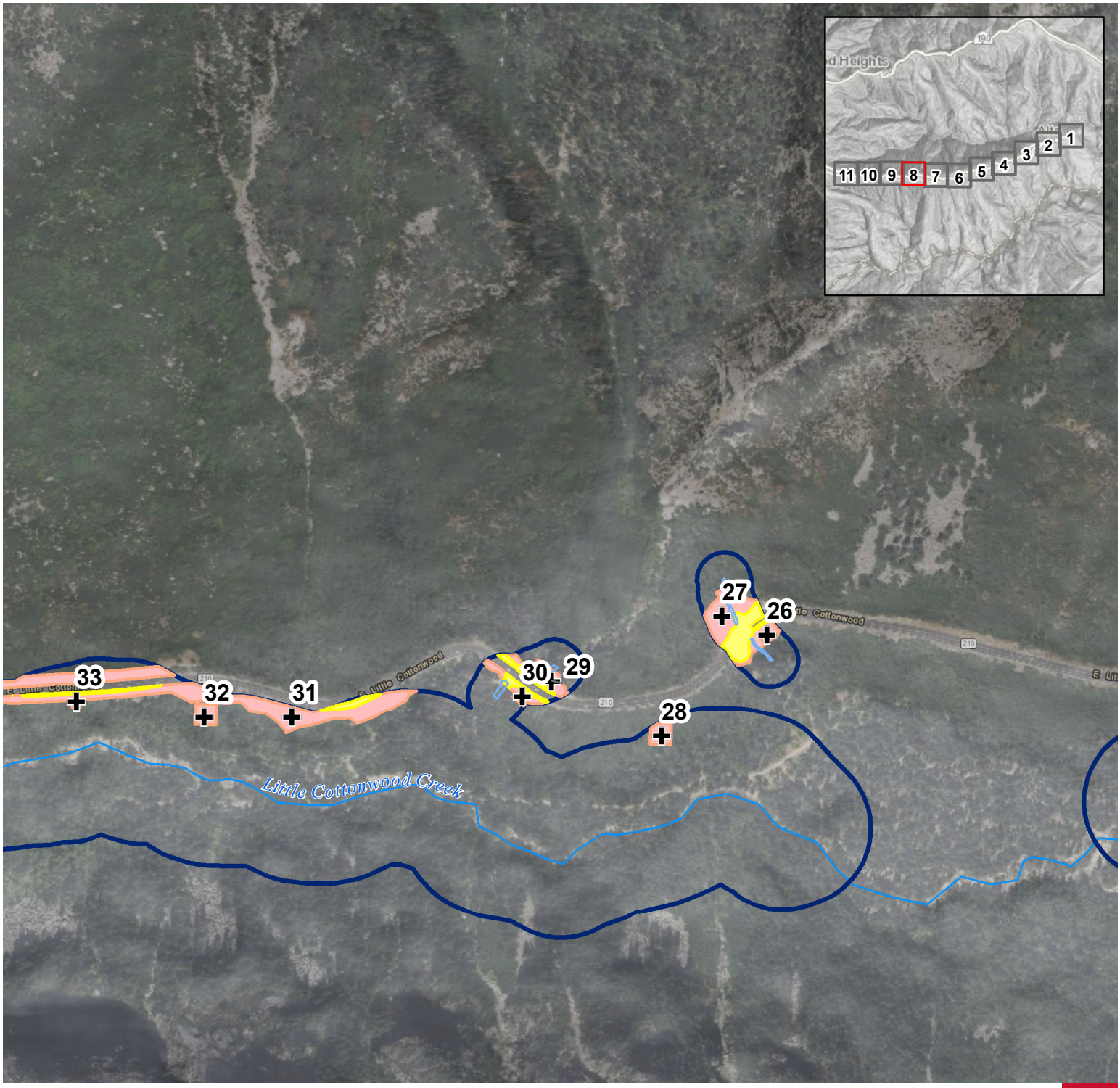
0 1,000 Feet

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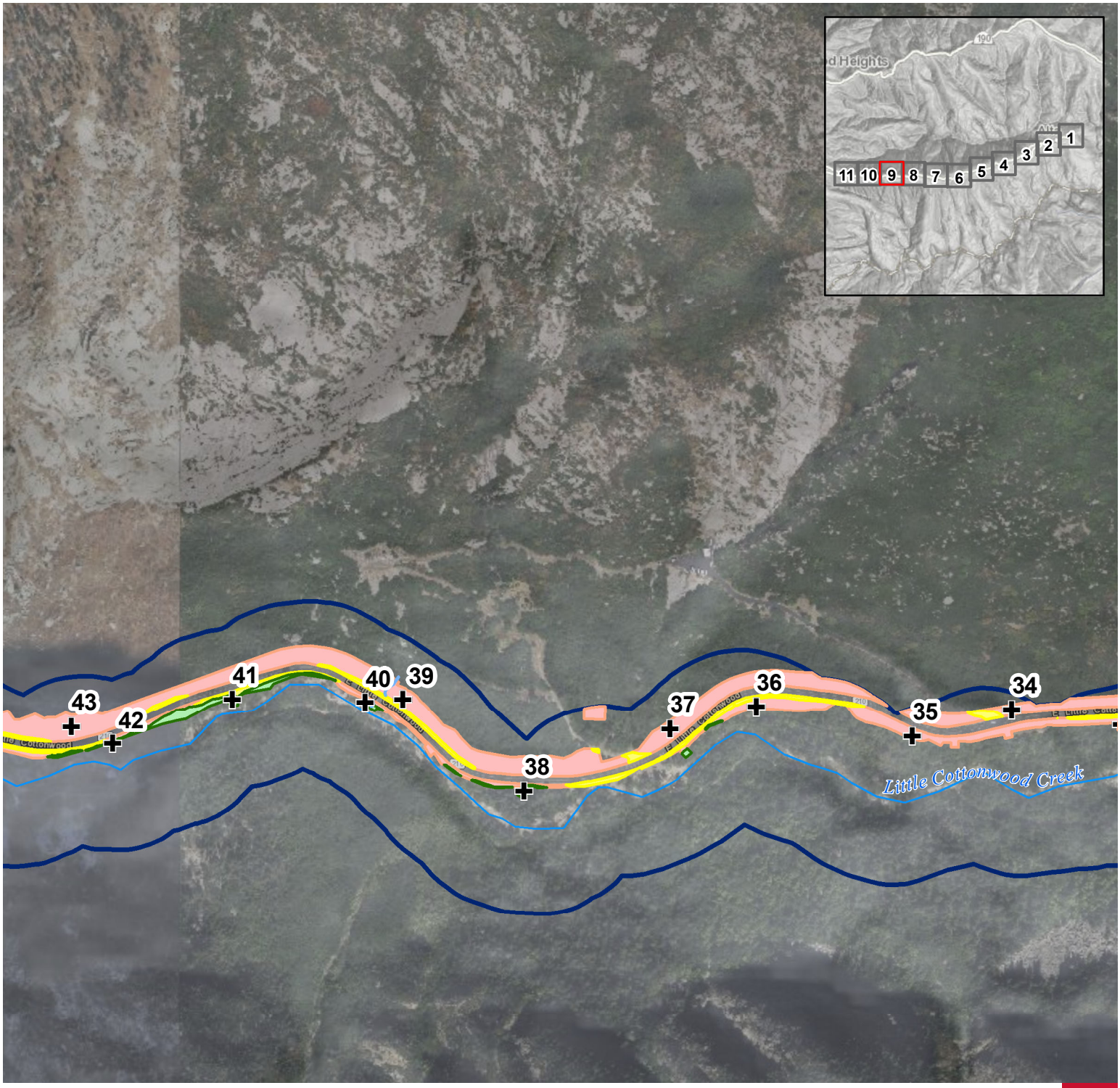
0 1,000 Feet

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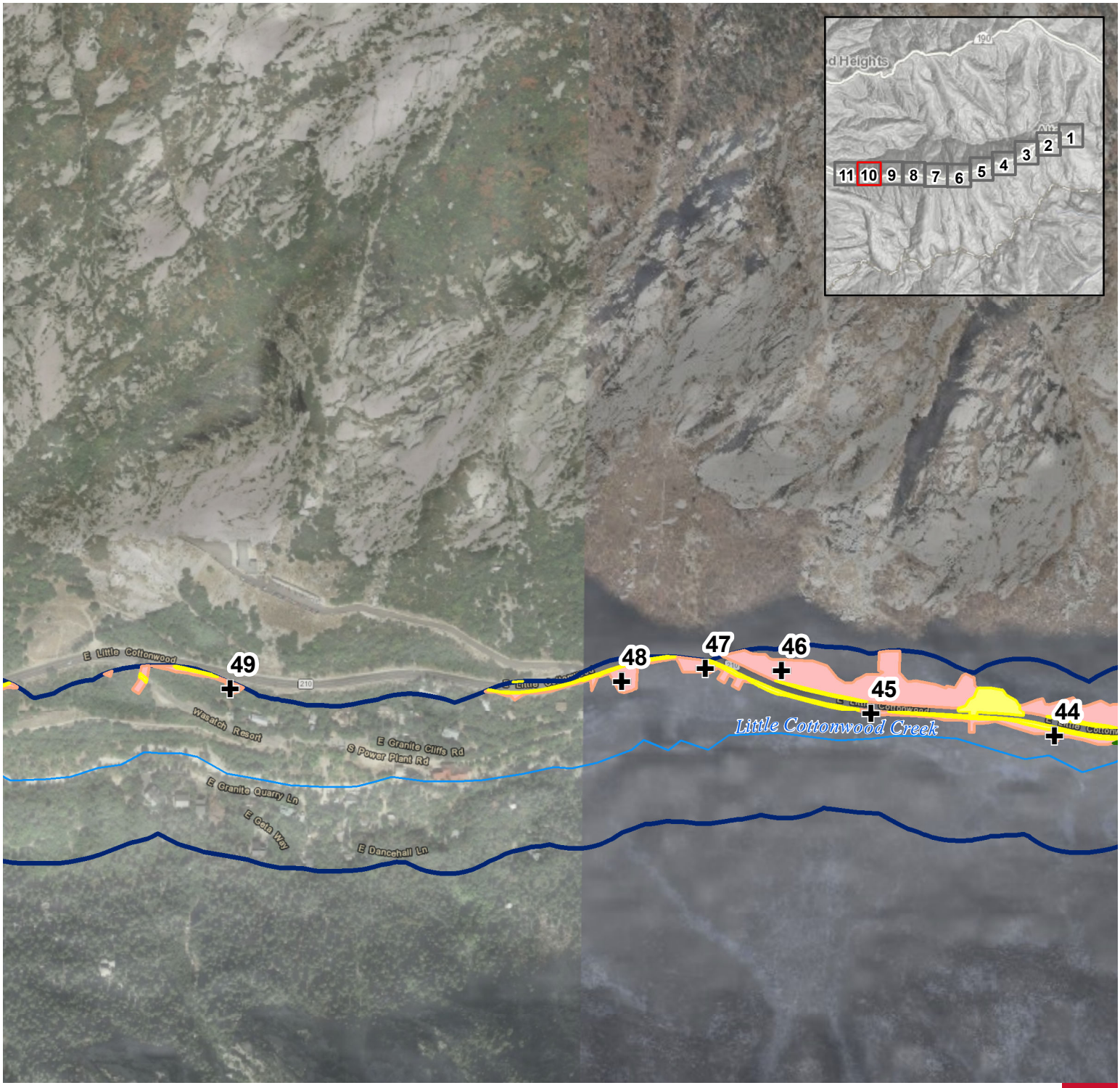
0 1,000 Feet




LEGEND

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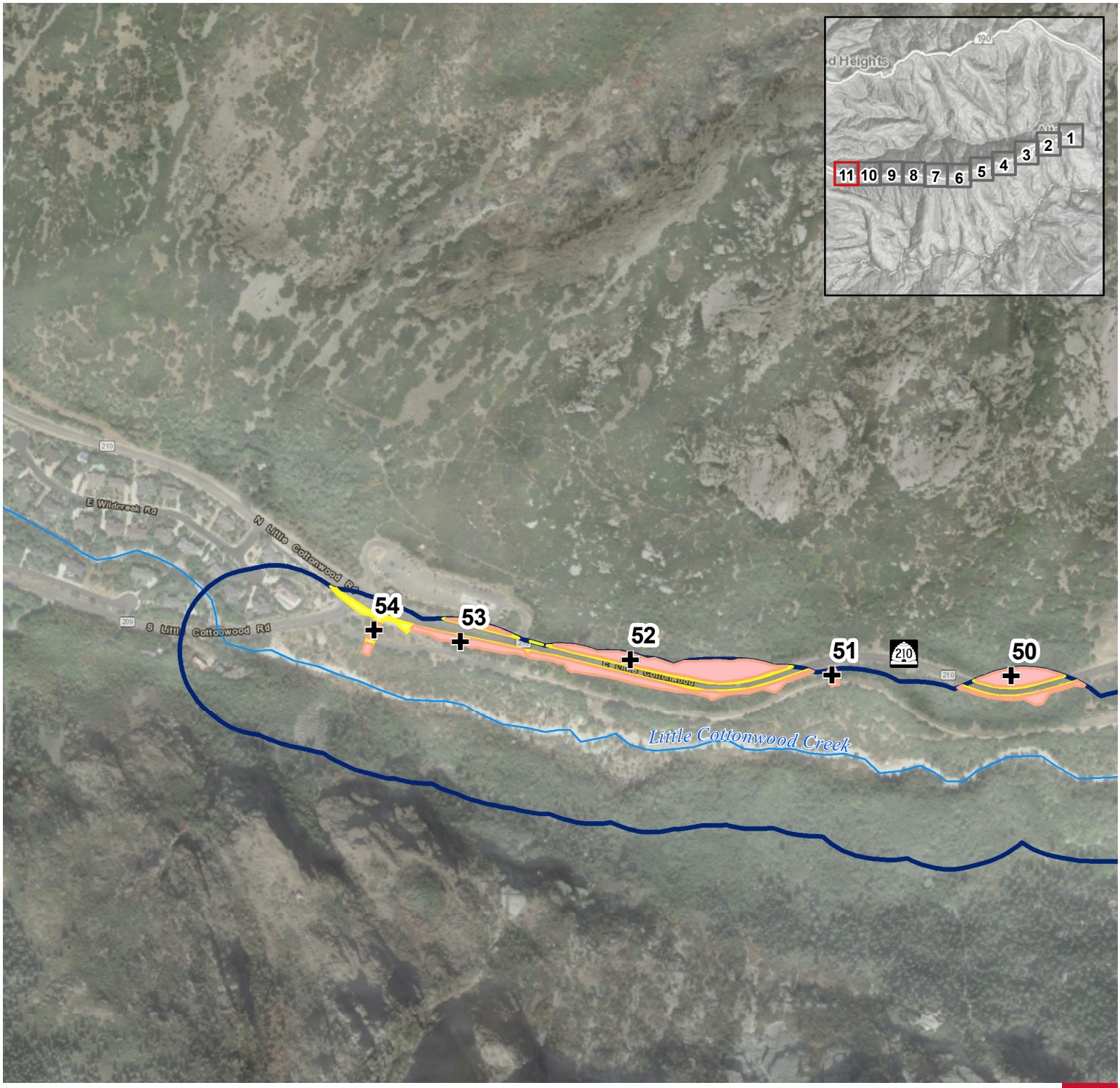
0 1,000 Feet




LEGEND

- RHCA Field Points

**Vegetation Category**

- Nonriparian Vegetation
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- Wetlands and Seasonal Streams
- Little Cottonwood Creek



0 1,000

Feet

# ATTACHMENT B

## RHCA Survey Plot Data

**Table 1. Riparian RHCA Survey Plot Data**

| RHCA ID | Surveyor | Date | General Notes | Riparian | Successional Stage | Canopy Cover | Dominant Canopy Species | Shrub-Sapling Cover | Dominant Shrub/Sapling Species | Herbaceous Cover | Dominant Herbaceous Species | Invasive/Weedy Species Cover | Dominant Invasive/ Weedy Species | Percent Ground Cover | Stream Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **4** | JM | 9/24/2020 | Disturbance from rock slides from trail above. | Yes | Late | 5-25% | *Populus tremuloides, Pseudotsuga menziesii* | 5-25% | *Salix bebbiana, Cercocarpus ledifolius Nutt.* | 5-25% | *Solidago canadensis* | 0% | *NA* | 25-50% | Stream is in relatively good condition with some disturbance from trail. Thin riparian layer on each side of the stream approximately 5 feet. |
| **5** | JM | 9/24/2020 | Cottonwood stand above roadside drainage. | Yes | Late | 5-25% | *Populus tremuloides* | 25-50% | *Salix bebbiana, Cercocarpus ledifolius Nutt.* | 25-50% | *Solidago canadensis* | 5-25% | *Phragmites australis* | 50-75% | Riparian vegetation along drainage. No riparian layer on south side of road. |
| **6** | JM | 9/24/2020 | Site doesn't appear to be disturbed. | Yes | Late | 5-25% | *Populus tremuloides, Acer negundo* | 50-75% | *Salix bebbiana, Acer negundo* | 25-50% | *Bromus inermis* | 5-25% | *Cirsium sp.* | 75-95% | Stream doesn't appear to be disturbed. Small intermittent channel. Somewhat channelized. |
| **12** | JM | 9/24/2020 | Site doesn't appear to be disturbed. | Yes | Late | 50-75% | *Populus tremuloides, Populus angustifolia* | 25-50% | *Cercocarpus ledifolius Nutt.* | 25-50% | *NA* | 0% | *NA* | 50-75% | Intermittent stream channel with a few cottonwoods. Stream appears to be in good condition. |
| **14** | JM | 9/24/2020 | Plot is undisturbed. | Yes | Late | 50-75% | *Populus angustifolia, Populus tremuloides* | 25-50% | *Populus tremuloides, Symphoricarpos oreophilus, Prunus virginiana* | 5-25% | *Bromus inermis* | 0% | *NA* | 75-95% | Riparian area in depression near intermittent stream, riparian area is not along the stream itself. |
| **16** | JMMP | 9/24/2020 | Stabilized for road shoulder and informal trail within plot. | Yes | Late | 25-50% | *Pseudotsuga menziesii* | 5-25% | *Salix bebbiana, Lonicera involucrata, Ribes aureum* | 5-25% | *Bromus inermis, Solidago canadensis* | 0% | *NA* | 25-50% | Some disturbance from road stabilization boulders. Aside from that, stream appears to be in good condition. |

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| **17** | MP | 9/24/2020 | Plot in riparian area, into base of road shoulder whereas upper shoulder is non-riparian. | Yes | Mid | 0% | *NA* | 75-95% | *Fraxinus americana, Populus angustifolia, Prunus virginiana , Symphoricarpos oreophilus, Populus tremuloides* | 5-25% | *Solidago canadensis, Bromus inermis, Grindelia squarrosa* | 0% | *NA* | 5-25% | Appears undisturbed just south of plot. |
| **20** | MP | 9/24/2020 | Evidence of ground disturbance from road shoulder and channel work. | Yes | Late | 25-50% | *Acer negundo, Populus angustifolia , Pseudotsuga menziesii* | 50-75% | *Symphoricarpos oreophilus, Acer negundo, Pseudotsuga menziesii* | 25-50% | *Solidago canadensis* | 0% | *NA* | 5-25% | Intermittent, currently dry. Evidence of channel work from storm flooding to repair road drainage. |
| **21** | MP | 9/24/2020 | No cottonwoods. Somewhat disturbed as plot is at toe of road slope. Informal trail. | Yes | Late | 50-75% | *Acer negundo, Pseudotsuga menziesii* | 25-50% | *Salix wolfii, Acer negundo* | 25-50% | *Bromus inermis* | 0% | *NA* | 5-25% | Relatively new road drainage culverts. |
| **38** | JM | 9/25/2020 | Site is disturbed by large intermittent stream. | Yes | Late | 50-75% | *Pseudotsuga menziesii, Populus angustifolia* | 5-25% | *Acer grandidentatum, Cornus sericea* | 0% | *NA* | 0% | *NA* | 50-75% | Disturbance and debris from runoff area. |
| **40** | JM | 9/25/2020 | Disturbance from road stabilization. | Yes | Late | 5-25% | *Acer negundo* | 5-25% | *Paxistima myrsinites* | 5-25% | *Thinopyrum ponticum* | 0% | *NA* | 25-50% | Stream is disturbed from road stabilization. Thin riparian layer about 10 feet north of the stream. |
| **41** | JM | 9/25/2020 | The stream has eroded the banks within the plot. | Yes | Late | 25-50% | *Acer grandidentatum, Populus angustifolia , Acer negundo* | 25-50% | *Cornus sericea, Paxistima myrsinites* | Trace-5% | *Thinopyrum ponticum* | 0% | *NA* | 50-75% | Stream has eroded banks, but is in good condition aside from that. |
| **42** | JM | 9/25/2020 | Plot near roadside, some road disturbance. | Yes | Late | 50-75% | *Populus angustifolia , Acer grandidentatum* | 50-75% | *Cornus sericea* | 5-25% | *Bromus inermis, Grindelia squarrosa* | 0% | *NA* | 50-75% | Stream is in good condition aside from eroded banks. |

**Table 2. Non-Riparian RHCA Survey Plot Data**

| RHCA ID | Surveyor | Date | General Notes | Riparian | Successional Stage | Canopy Cover | Dominant Canopy Species | Shrub-Sapling Cover | Dominant Shrub/Sapling Species | Herbaceous Cover | Dominant Herbaceous Species | Invasive/Weedy Species Cover | Dominant Invasive/ Weedy Species | Percent Ground Cover | Stream Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | JM | 9/24/2020 | Some nearby disturbance from trails. | NO | Late | 5-25% | *Populus tremuloides, Pseudotsuga menziesii* | 5-25% | *Artemisia tridentata, Lonicera involucrata, Prunus virginiana* | 25-50% | *Asclepias syriaca, Solidago canadensis* | 0% | *NA* | 50-75% | NA |
| **2** | JM | 9/24/2020 | No disturbance within the plot. | NO | Late | 25-50% | *Picea engelmannii, Pseudotsuga menziesii* | 0% | *NA* | 50-75% | *Erigeron sp.* | 0% | *NA* | 50-75% | NA |
| **3** | JM | 9/24/2020 | Plot has disturbance with walking trails and a nearby road. | NO | Late | 5-25% | *Populus tremuloides* | 5-25% | *Populus tremuloides* | 25-50% | *Bromus inermis, Solidago canadensis* | 0% | *NA* | 25-50% | Stream has some disturbance with boulders from road stabilization. Areas downstream are in good condition. |
| **7** | JM | 9/24/2020 | Some disturbance from road gravel. | NO | Late | 25-50% | *Pseudotsuga menziesii* | 25-50% | *Symphoricarpos oreophilus, Artemisia tridentata* | 5-25% | *Solidago canadensis, Asclepias syriaca* | 0% | *NA* | 50-75% | NA |
| **8** | JM | 9/24/2020 | Some roadside construction disturbance to site. | NO | Late | 5-25% | *Pseudotsuga menziesii, Populus tremuloides* | 50-75% | *Cercocarpus ledifolius Nutt., Symphoricarpos oreophilus* | 5-25% | *Bromus inermis* | 0% | *NA* | 50-75% | NA |
| **9** | JM | 9/24/2020 | Some disturbance within plot from road stabilization. | NO | Late | 25-50% | *Pseudotsuga menziesii* | 25-50% | *Symphoricarpos oreophilus, Prunus virginiana* | Trace-5% | *Bromus inermis* | 0% | *NA* | 50-75% | NA |
| **10** | JM | 9/24/2020 | Gravel disturbance from road. | NO | Late | 25-50% | *Acer grandidentatum, Populus tremuloides, Pseudotsuga menziesii* | 25-50% | *Symphoricarpos oreophilus, Rosa woodsii* | 5-25% | *Solidago canadensis, Thinopyrum ponticum, Bromus inermis* | 0% | *NA* | 50-75% | NA |
| **11** | JM | 9/24/2020 | No disturbance within plot. | NO | Late | 25-50% | *Populus tremuloides, Pseudotsuga menziesii* | 0% | *NA* | 50-75% | *Bromus inermis* | 0% | *NA* | 75-95% | NA |
| **13** | JM | 9/24/2020 | Gravel disturbance from roadside. | NO | Mid | 25-50% | *Populus tremuloides* | 25-50% | *Symphoricarpos oreophilus* | 5-25% | *Pseudoroegneria spicata, Bromus inermis,* | 0% | *NA* | 50-75% | NA |

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| | | | | | | | | | | | *Solidago canadensis* | | | | |
| **15** | JMMP | 9/24/2020 | Disturbance within plot due to trails. | NO | Late | 5-25% | *Populus tremuloides, Pseudotsuga menziesii* | 50-75% | *Symphoricarpos oreophilus* | 5-25% | *Asclepias syriaca* | 0% | *NA* | 50-75% | Stream appears to be in good condition. |
| **18** | MP | 9/24/2020 | No evidence of disturbance in plot. | NO | Late | 50-75% | *Pseudotsuga menziesii, Populus tremuloides* | 50-75% | *Symphoricarpos oreophilus, Paxistima myrsinites* | Trace-5% | *Aquilegia sp.* | 0% | *NA* | 5-25% | NA |
| **19** | MP | 9/24/2020 | No evidence of disturbance observed. | NO | Late | 25-50% | *Pseudotsuga menziesii, Populus tremuloides* | 75-95% | *Salix wolfii, Populus tremuloides* | 0% | *NA* | 0% | *NA* | 25-50% | NA |
| **22** | MP | 9/24/2020 | Steep roadside slope with some reclaimed grassland. | NO | Late | 25-50% | *Acer negundo, Acer grandidentatum, Pseudotsuga menziesii* | 25-50% | *Prunus virginiana , Acer grandidentatum* | 25-50% | *Bromus inermis, Thinopyrum ponticum* | 0% | *NA* | 25-50% | NA |
| **22** | MP | 9/24/2020 | Reclaimed road slope with wheatgrass. Just below is oak-maple community. | NO | Mid | 0% | *NA* | 0% | *NA* | 75-95% | *Thinopyrum ponticum, Ambrosia artemisiifolia* | 5-25% | *Ambrosia artemisiifolia* | 5-25% | NA |
| **23** | MP | 9/24/2020 | Plot on roadside slope. | NO | Mid | 5-25% | *Quercus gambelii, Acer grandidentatum* | 5-25% | *Prunus virginiana , Acer grandidentatum* | 25-50% | *Ribes aureum, Thinopyrum ponticum, Bromus tectorum* | 5-25% | *Bromus tectorum* | 5-25% | NA |
| **23** | MP | 9/24/2020 | Steep road slope with reclaimed grasses. | NO | Mid | 0% | *NA* | 5-25% | *Ericameria nauseosa* | 25-50% | *Thinopyrum ponticum, Symphyotrichum sp.* | 0% | *NA* | 25-50% | NA |
| **24** | MP | 9/24/2020 | Plot on a road cut with some erosion. | NO | Mid | 0% | *NA* | 5-25% | *Quercus gambelii, Acer grandidentatum* | 25-50% | *Symphyotrichum sp., Achillea millefolium* | 0% | *NA* | 50-75% | NA |
| **25** | MP | 9/24/2020 | Some evidence of rock slope stabilization. | NO | Late | 75-95% | *Acer grandidentatum* | 25-50% | *Prunus virginiana* | Trace-5% | *Thinopyrum ponticum* | Trace-5% | *Bromus tectorum* | 25-50% | NA |
| **26** | JM | 9/24/2020 | Site has some gravel disturbance from road. | NO | Late | 50-75% | *Pseudotsuga menziesii, Acer grandidentatum* | 25-50% | *Prunus virginiana , Symphoricarpos oreophilus, Ericameria nauseosa* | 5-25% | *Grindelia squarrosa* | 0% | *NA* | 50-75% | NA |
| **27** | JM | 9/24/2020 | Site not disturbed. | NO | Late | 50-75% | *Pseudotsuga menziesii, Acer grandidentatum* | 5-25% | *Acer grandidentatum, Prunus virginiana* | Trace-5% | *Thinopyrum ponticum* | 0% | *NA* | 25-50% | NA |

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| **28** | JMAC | 9/25/2020 | Disturbance within plot with mountain biking trails. | NO | Late | 50-75% | *Quercus gambelii, Acer grandidentatum, Pseudotsuga menziesii* | 25-50% | *Paxistima myrsinites, Acer grandidentatum, Mahonia aquifolium* | 0% | *NA* | 0% | *NA* | 50-75% | NA |
| **29** | JMAC | 9/25/2020 | Large intermittent stream within plot. | NO | Late | 25-50% | *Pseudotsuga menziesii, Quercus gambelii, Acer grandidentatum* | 5-25% | *Mahonia aquifolium, Paxistima myrsinites* | 0% | *NA* | 0% | *NA* | 50-75% | NA |
| **30** | JMAC | 9/25/2020 | Stream causes some disturbance within plot. | NO | Late | 50-75% | *Pseudotsuga menziesii, Quercus gambelii* | 25-50% | *Acer grandidentatum, Pseudotsuga menziesii* | 0% | *NA* | 0% | *NA* | 50-75% | NA |
| **31** | JMAC | 9/25/2020 | Hill slope off the side of S.R. 210. | NO | Late | 25-50% | *Acer grandidentatum* | 25-50% | *Acer grandidentatum, Mahonia aquifolium* | 50-75% | *Bromus inermis* | 0% | *NA* | 75-95% | NA |
| **32** | JMAC | 9/25/2020 | Boxelder and larger trees downslope. | NO | Late | 50-75% | *Acer grandidentatum, Pseudotsuga menziesii* | 25-50% | *Acer grandidentatum, Mahonia aquifolium, Lonicera involucrata* | 25-50% | *Bromus inermis* | 0% | *NA* | 95-100% | NA |
| **33** | JMAC | 9/25/2020 | Point taken from side of road. Steep hill slope. | NO | Late | 25-50% | *Quercus gambelii, Acer negundo* | 25-50% | *Acer negundo, Quercus gambelii* | 5-25% | *Bromus inermis* | 0% | *NA* | 25-50% | NA |
| **34** | JMAC | 9/25/2020 | Steep hill slope. | NO | Late | 25-50% | *Acer grandidentatum, Quercus gambelii* | 5-25% | *Acer grandidentatum, Quercus gambelii, Prunus virginiana* | 5-25% | *Grindelia squarrosa* | NA | *NA* | 25-50% | NA |
| **35** | JMAC | 9/25/2020 | Just off hill slope of road. | NO | Late | 25-50% | *Acer grandidentatum* | 5-25% | *Mahonia aquifolium* | 5-25% | *Bromus inermis* | 0% | *NA* | 50-75% | NA |
| **36** | JM | 9/29/2020 | Site does not appear to be disturbed. | NO | Late | 50-75% | *Acer negundo, Acer grandidentatum* | 5-25% | *Ericameria nauseosa, Prunus virginiana* | 5-25% | *Bromus inermis, Thinopyrum ponticum* | 0% | *NA* | 50-75% | NA |
| **37** | JMAC | 9/25/2020 | Steep hill slope. | NO | Late | 50-75% | *Quercus gambelii, Acer grandidentatum* | 50-75% | *Quercus gambelii, Acer grandidentatum* | 5-25% | *Grindelia squarrosa, Bromus inermis* | 0% | *NA* | 50-75% | NA |
| **39** | JM | 9/25/2020 | Site is not disturbed. | NO | Late | 50-75% | *Acer grandidentatum, Acer negundo* | 50-75% | *Mahonia aquifolium* | 0% | *NA* | 0% | *NA* | 50-75% | NA |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **43** | JM | 9/25/2020 | No disturbance within area. | NO | Late | 25-50% | *Acer grandidentatum, Pseudotsuga menziesii* | 5-25% | *Prunus virginiana , Paxistima myrsinites* | 0% | *NA* | 0% | *NA* | 25-50% | NA |
| **44** | MP | 9/25/2020 | Informal trails in plot. | NO | Late | 50-75% | *Acer grandidentatum, Pseudotsuga menziesii* | 25-50% | *Prunus virginiana , Acer grandidentatum* | 25-50% | *Rubus parviflorus, Bromus inermis* | 0% | *NA* | 25-50% | Some erosion on north bank and pipe at top of bank. |
| **45** | JM | 9/25/2020 | Some gravel from road shoulder. | NO | Late | 25-50% | *Quercus gambelii, Acer grandidentatum* | 5-25% | *Quercus gambelii* | 50-75% | *Bromus inermis* | 0% | *NA* | 50-75% | NA |
| **46** | JM | 9/25/2020 | Site has disturbance from recreational activity. | NO | Late | 50-75% | *Acer grandidentatum, Quercus gambelii* | 25-50% | *Mahonia aquifolium, Prunus virginiana* | 0% | *NA* | 0% | *NA* | 50-75% | NA |
| **47** | JM | 9/25/2020 | Disturbance from road gravel. | NO | Late | 50-75% | *Acer grandidentatum, Acer negundo* | 5-25% | *Ericameria nauseosa* | 5-25% | *Grindelia squarossa, Asclepias syriaca* | 0% | *NA* | 25-50% | NA |
| **48** | JM | 9/25/2020 | Some trails throughout plot. | NO | Late | 50-75% | *Acer grandidentatum, Pseudotsuga menziesii* | 25-50% | *Mahonia aquifolium, Prunus virginiana* | 0% | *NA* | 0% | *NA* | 25-50% | NA |
| **49** | JMAC | 9/25/2020 | Some road disturbance at site. | NO | Late | 50-75% | *Acer grandidentatum, Quercus gambelii* | 25-50% | *Ericameria nauseosa, Lonicera involucrata* | 0% | *NA* | 0% | *NA* | 50-75% | NA |
| **50** | JM | 9/25/2020 | No disturbance within site. | NO | Late | 25-50% | *Acer grandidentatum* | 50-75% | *Acer grandidentatum, Prunus virginiana , Mahonia aquifolium* | Trace-5% | *Thinopyrum ponticum* | 0% | *NA* | 50-75% | NA |
| **51** | JM | 9/25/2020 | Popular trail runs through site. | NO | Late | 25-50% | *Acer grandidentatum* | 5-25% | *Ericameria nauseosa* | 5-25% | *Thinopyrum ponticum* | 0% | *NA* | 25-50% | NA |
| **52** | JMAC | 9/25/2020 | Construction ongoing at site. | NO | Late | 50-75% | *Quercus gambelii, Acer grandidentatum* | 25-50% | *Prunus virginiana , Acer grandidentatum* | 0% | *NA* | 0% | *NA* | 50-75% | NA |
| **53** | JMMP | 9/24/2020 | The disturbance observed in the plot. | NO | Late | 25-50% | *Quercus gambelii* | 5-25% | *Prunus virginiana* | 0% | *NA* | 0% | *NA* | 25-50% | NA |
| **54** | JMMP | 9/24/2020 | No disturbance observed in plot. | NO | Late | 5-25% | *Quercus gambelii, Acer grandidentatum* | 25-50% | *Ericameria nauseosa, Artemisia tridentata, Prunus virginiana* | 5-25% | *Bromus inermis* | 0% | *NA* | 25-50% | NA |

# ATTACHMENT C

# RHCA Survey Plot Representative Photographs

# RHCA Field Point 1

# RHCA Field Point 2

# RHCA Field Point 3

# RHCA Field Point 4

# RHCA Field Point 5

# RHCA Field Point 6

# RHCA Field Point 7

# RHCA Field Point 8

# RHCA Field Point 9

# RHCA Field Point 10

# RHCA Field Point 11

# RHCA Field Point 12

# RHCA Field Point 13

# RHCA Field Point 14

# RHCA Field Point 15

# RHCA Field Point 16

# RHCA Field Point 17

# RHCA Field Point 18

# RHCA Field Point 19

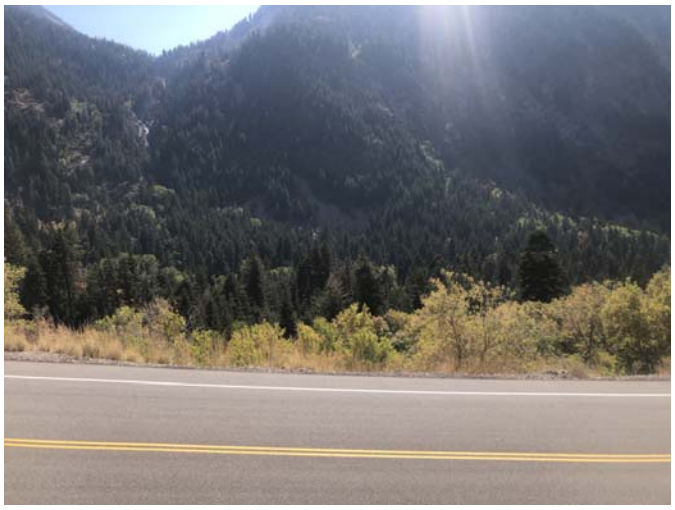
# RHCA Field Point 20

# RHCA Field Point 21

# RHCA Field Point 22

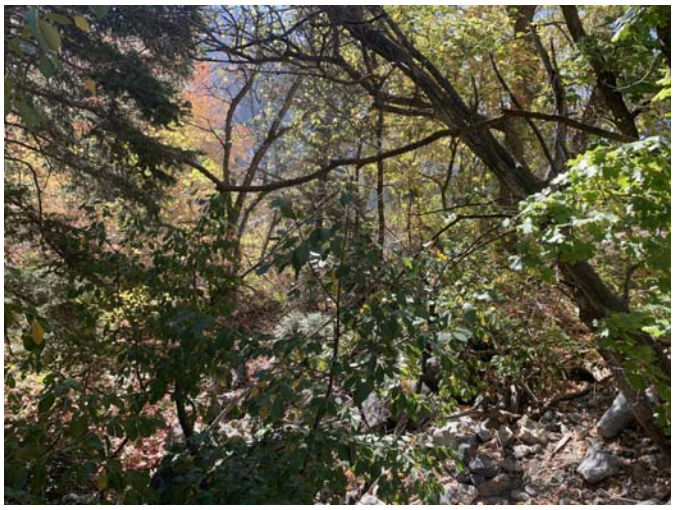
# RHCA Field Point 23

# RHCA Field Point 24



# RHCA Field Point 25

# RHCA Field Point 26



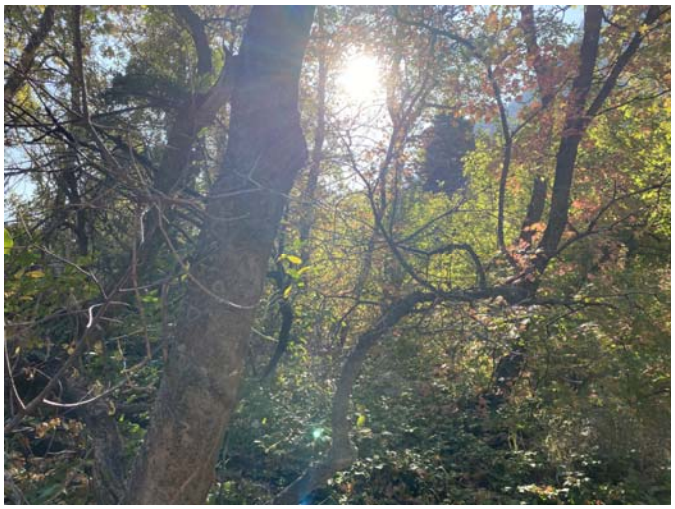
# RHCA Field Point 27

# RHCA Field Point 28

# RHCA Field Point 29

# RHCA Field Point 30

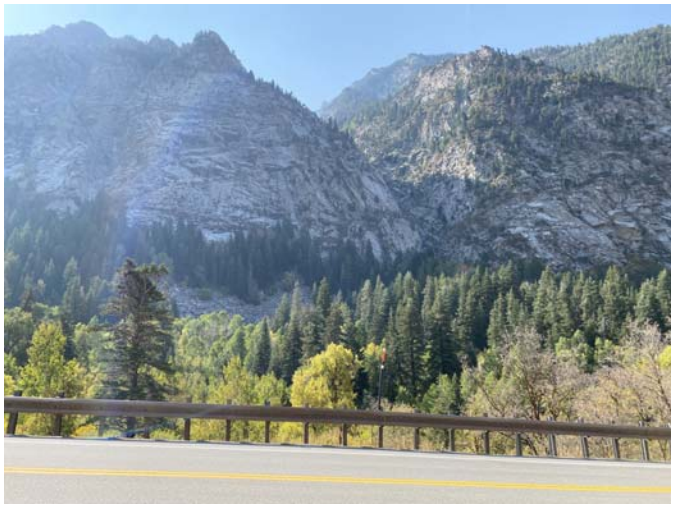
# RHCA Field Point 31



# RHCA Field Point 32

# RHCA Field Point 33

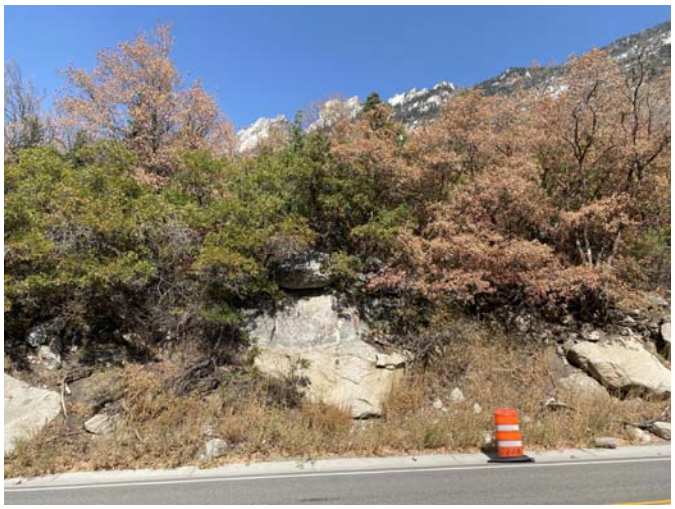
# RHCA Field Point 34



# RHCA Field Point 35

# RHCA Field Point 36

# RHCA Field Point 37



# RHCA Field Point 38

# RHCA Field Point 39

# RHCA Field Point 40

# RHCA Field Point 41

# RHCA Field Point 42

# RHCA Field Point 43

# RHCA Field Point 44

# RHCA Field Point 45

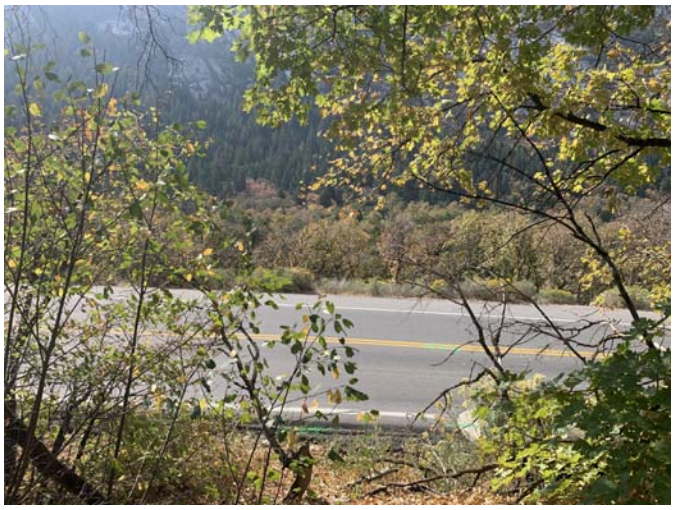
# RHCA Field Point 46

# RHCA Field Point 47

# RHCA Field Point 48

# RHCA Field Point 49

# RHCA Field Point 50



# RHCA Field Point 51

# RHCA Field Point 52

# RHCA Field Point 53

# RHCA Field Point 54