Project ID: R06Y07P02

Project Title or Area: Wasatch Front, Utah
List of 7’5 USGS quadrangles in Project Area: Coyote Point, Rozel, Golden Spike Monument, Thatcher Mountain SW, Public Shooting Grounds, Bear River City, Brigham City, Rozel Point, Messix Peak, East Promontory, Mouth of Bear River, Whistler Canal, Willard, Indian Cove, Pokes Point, Willard Spur, Plain City SW, North Ogden, Promontory Point, Fremont Island, Ogden Bay, Roy, Ogden, Antelope Island North, Clearfield, Kaysville, Antelope Island, Saltair NE, Farmington, Bountiful Peak, Antelope Island South, Saltair, Salt Lake City North, Fort Douglas, Farnsworth Peak, Magna, Salt Lake City South, Sugar House, Lark, Midvale, Draper, Jordan Narrows, Lehi, Saratoga Springs, Pelican Point, Orem, Soldiers Pass, Lincoln Point, Provo, Springville, Goshen Valley North, West Mountain, Spanish Fork.

Source Imagery (type, scale and date):
One meter resolution, 1997-8 black and white digital orthographic quarter quadrangles (DOQQ)

Collateral Data (include any digital data used as collateral):

1997-8 NAPP 1:40,000 scale black and white dia-positive transparencies
1981 NASA 1:65,000 CIR dia-positive transparencies
Alternative Futures for Utah’s Wasatch Front: bioregional planning for the maintenance and conservation of open space (Toth 2002).
Bear River Migratory Bird Refuge Comprehensive Management Plan (1997 USFWS)
Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et.al. 1979)
Hydric Soils of the United States (1987 USDA)
National List of Plants That Occur in Wetlands (1988 USDI)
Original NWI wetland delineations and classification 1980.
U.S. Department of Agriculture Soil Surveys, Utah Agricultural Experiment Station. County Surveys and Publishing date:
  Box Elder County, Utah, Eastern Part 1975
  Davis-Weber Area, Utah, 1968
  Morgan Area and part of Weber, Utah, 1980
  Salt Lake Area, Utah, 1972
  Utah County, Utah, 1972

USGS 1:24,000 Digital Raster Graphics (DRG) 1983 and 1992
USGS digital elevation model (DEM)
Water Resources Data (USDI 1997)
Inventory Method (original mapping, map update, techniques used):
On screen update of existing National Wetland Inventory (NWI) digital wetland data utilizing 1997-8 black and white DOQQ’s.

Classification (Cowardin wetlands, riparian, uplands, hydrogeomorphic, etc.):
Only the Cowardin et. al. wetland delineations and classifications were included in the project.

Data Limitations:

General description of the Project Area:

- Geography: The Wasatch Front project area is located primarily in the Intermountain Semi-desert and Desert Province (Bailey 1995). Physiographically this area is referred to as the Great Basin and the northern Colorado Plateau in Utah. It is characterized by semiarid sagebrush covered plains in numerous separate interior basins. Many mountain ranges rise steeply from these plains. There is a heavy accumulation of alkaline and saline salts in the lower parts of the basins. There are few perennial streams located in the area. The summers are hot and the winters only moderately cold in the Intermountain region.

  Average annual temperature is 4° to 13° C (40° to 50° F). Total annual precipitation averages 125 to 500 mm (5 to 20 inches) with almost no rain during the summer except in the mountains.
Vegetation, soils, land use: The dominant vegetation of the lower elevations of this province is sagebrush (Artimisia spp.). Other important plants found in this area are shadscale (Atriplex confertifolia) and rabbitbrush (Chrysothamnus spp.). All these shrubs tolerate alkali conditions to varying degrees. In areas where salt concentration is very high, the vegetative community is dominated by greasewood (Sarcobatus vermiculatus) and saltgrass (Distichlis spicata). The dominant vegetation in the mountainous areas are ponderosa pine (Pinus ponderosa) and Douglas-fir (Pseudotsuga menziesii).

All basin and lowland areas are dominated by Aridisols while Mollisols are found at higher elevations. Narrow bands of Entisols are located along stream flood plains. Extensive areas of salt flats and playas without soils are found in the lower parts of the basins that have interior drainage.

Natural history or important cultural features:

Description of wetland habitats:

Organize by Cowardin classification type:

**Table 1. Plant Species Observed in Project Area**

**Palustrine Intermittently Flooded:** PEMJ
- Distichlis spicata, salt grass
- Allenrolfea occidentalis, pickleweed

**Palustrine Temporary Emergents:** PEMA
- Phleum pratense, timothy
- Eleocharis spp., spikerush
- Distichlis spicata, inland salt grass
- Sporobulus airoides, alkali sacaton
- Hordeum jubatum, foxtail barley
- Verbena hastata, blue vervain
- Polygonum spp., smartweed
- Rumex spp., dock
Calystegia sepium, hedge bindweed
Asclepias speciosa, showy milkweed
Spartina gracilis, alkali cord grass
Phragmites australis, common reed
Allenrolfea occidentalis, pickleweed

**Palustrine Saturated Emergents: PEMB**
Eleocharis spp., spikerush
Carex spp., sedge
Typha spp., cattail
Iris missouriensis, wild iris

**Palustrine Seasonal Emergents: PEMC**
Carex spp., sedge
Eleocharis spp., spikerush
Juncus spp., rush
Juncus balticus, saltrush
Asclepias incarnata, marsh milkweed
Polygonum spp., smartweed
Scirpus spp., bulrush
Puccinellia airoides, Nuttall alkali grass
Spartina gracilis, alkali cord grass
Typha spp., cattail
Sueda spp., seepweed
Triglochin maritimum, arrowgrass
Iris missouriensis, wild iris

**Palustrine Semi-permanent Emergents: PEMF**
Scirpus americanus, threesquare bulrush
Scirpus spp., bulrush
Typha spp., cattail

**Palustrine Semi-permanent Aquatic Bed: PABF**
Ceratophyllum spp., coontail
Ruppia maritima, widgeon grass

**Palustrine Temporary Scrub-shrub: PSSA**
Tamarix ramosissima, saltcedar
Tamarix chinensis, Chinese tamarisk
Atriplex nuttalli, Nuttall saltbush
**Populus spp.,** cottonwood
**Salix spp.,** willow

**Palustrine Temporary Forested:** PFOA
**Acer negundo,** boxelder
**Populus spp.,** cottonwood

Table 2. Observed wetland vegetation table

<table>
<thead>
<tr>
<th>A. EMERGENT</th>
<th>B. AQUATIC BED</th>
<th>C. SCRUB-SHRUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distichlis spicata inland</td>
<td><strong>Ceratophyllum spp.</strong></td>
<td><strong>Sueda spp.</strong></td>
</tr>
<tr>
<td>Carex spp.</td>
<td><strong>Ceratophyllum spp.</strong></td>
<td><strong>Triglochin maritimum</strong></td>
</tr>
<tr>
<td>Eleocharis spp.</td>
<td><strong>Ruppia maritima</strong></td>
<td><strong>Sporobulus airoides</strong></td>
</tr>
<tr>
<td>Iris missouriensis</td>
<td><strong>Ruppia maritima</strong></td>
<td><strong>Sporobulus airoides</strong></td>
</tr>
<tr>
<td>Allenrolfea occidentalis</td>
<td><strong>Sporobulus airoides</strong></td>
<td><strong>Sueda spp.</strong></td>
</tr>
<tr>
<td>Hordeum jubatum</td>
<td><strong>Distichlis spicata inland</strong></td>
<td><strong>Typha spp.</strong></td>
</tr>
<tr>
<td>Juncus spp.</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Spartina gracilis</strong></td>
</tr>
<tr>
<td>Juncus balticus</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Triglochin maritimum</strong></td>
</tr>
<tr>
<td>Verbena hastata</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Sporobulus airoides</strong></td>
</tr>
<tr>
<td>Calystegia sepium</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Sueda spp.</strong></td>
</tr>
<tr>
<td>Phragmites australis</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Typha spp.</strong></td>
</tr>
<tr>
<td>Polygonum spp.</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Spartina gracilis</strong></td>
</tr>
<tr>
<td>Rumex spp.</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Triglochin maritimum</strong></td>
</tr>
<tr>
<td>Scirpus spp.</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Spartina gracilis</strong></td>
</tr>
<tr>
<td>Scirpus americanus threesquare</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Triglochin maritimum</strong></td>
</tr>
<tr>
<td>Asclepias speciosa</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Spartina gracilis</strong></td>
</tr>
<tr>
<td>Asclepias incarnata</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Triglochin maritimum</strong></td>
</tr>
<tr>
<td>Spartina gracilis</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Spartina gracilis</strong></td>
</tr>
<tr>
<td>Typha spp.</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Triglochin maritimum</strong></td>
</tr>
<tr>
<td>Sporobulus airoides</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Spartina gracilis</strong></td>
</tr>
<tr>
<td>Puccinellia airoides</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Triglochin maritimum</strong></td>
</tr>
<tr>
<td>Sueda spp.</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Spartina gracilis</strong></td>
</tr>
<tr>
<td>Triglochin maritimum</td>
<td><strong>Juncus balticus</strong></td>
<td><strong>Spartina gracilis</strong></td>
</tr>
</tbody>
</table>

- **sedge**
- **spikerush**
- **wild iris**
- **pickleweed**
- **foxtail barley**
- **rush**
- **salt rush**
- **blue vervain**
- **hedge bindweed**
- **common reed**
- **smartweed**
- **dock**
- **bulrush**
- **bulrush**
- **showy milkweed**
- **marsh milkweed**
- **alkali cord grass**
- **cattail**
- **alkali sacaton**
- **Nuttall alkali grass**
- **seepweed**
- **arrowgrass**

- **coontail**
- **widgeon grass**
Tamarix ramosissima
Tamarix chinensis
Populus spp.
Salix spp.
Atriplex nuttalli

**D. FORESTED**
Acer negundo
Populus spp.

saltcedar
Chinese tamarisk
cottonwood
willow
Nuttall saltbush
boxelder
Cottonwood
- Wetland classification codes and corresponding community type(s):

<table>
<thead>
<tr>
<th>NWI CODE</th>
<th>WATER REGIME</th>
<th>COWARDIN DESCRIPTION</th>
<th>COMMON DESCRIPTION</th>
<th>REPRESENTATIVE VEGETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2UB</td>
<td>Riverine, (F,G,H) lower perennial, unconsolidated bottom</td>
<td>Meandering rivers, low gradient</td>
<td>Unconsolidated bottom</td>
<td></td>
</tr>
<tr>
<td>R2US</td>
<td>Riverine, (A,C) lower perennial, unconsolidated shore</td>
<td>Mud, sand, or gravel bars</td>
<td>Unconsolidated shore</td>
<td></td>
</tr>
<tr>
<td>R3UB</td>
<td>Riverine, (F,G,H) upper perennial unconsolidated bottom</td>
<td>Mountain streams, major drainage areas</td>
<td>Unconsolidated bottom</td>
<td></td>
</tr>
<tr>
<td>R4SB</td>
<td>Riverine, (A,C,J) intermittent, streambed</td>
<td>Small streams, creeks, or irrigation ditches</td>
<td>Streambed</td>
<td></td>
</tr>
<tr>
<td>L2AB</td>
<td>Lacustrine, littoral (F,G) aquatic bed</td>
<td>Shallow lake marshes</td>
<td>Ruppia maritima (widgeon grass) Ceratophyllum spp. (coontail)</td>
<td></td>
</tr>
<tr>
<td>L2US</td>
<td>Lacustrine, littoral, (A,C,J) unconsolidated shore</td>
<td>Dry alkaline lake beds</td>
<td>Unconsolidated shore</td>
<td></td>
</tr>
<tr>
<td>PUB</td>
<td>Palustrine, (F,G,H) unconsolidated bottom</td>
<td>Open water, gravel pits</td>
<td>Unconsolidated bottom</td>
<td></td>
</tr>
<tr>
<td>PAB</td>
<td>Palustrine, (F,G,K) aquatic bed</td>
<td>Deep basins, impoundments, sewage treatment ponds, beaver ponds</td>
<td>Ruppia maritima (widgeon grass) Ceratophyllum spp. (coontail)</td>
<td></td>
</tr>
<tr>
<td>WATER REGIME</td>
<td>DESCRIPTION</td>
<td>COMMON DESCRIPTION</td>
<td>VEGETATION</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td>---------------------</td>
<td>------------</td>
<td></td>
</tr>
</tbody>
</table>
| PEM (A,B,C,J,F) | Palustrine, emergent | Basins, depressions, marshes, meadows, springs, seeps, or vegetated drainage areas | Allenrolfea occidentalis (pickleweed)  
Sporobulus airoides (alkali sacaton)  
Carex spp. (sedges)  
Distichlis spicata (inland saltgrass)  
Eleocharis spp. (spikerush)  
Asclepias speciosa (showy milkweed)  
Hordeum jubatum (foxtail barley)  
Juncus spp. (rush)  
Phragmites australis (common reed)  
Phleum pratense (timothy)  
Puccinellia airoides (Nuttall alkali grass)  
Polygonum spp. (smartweed)  
Rumex spp. (dock)  
Sueda spp. (seepweed)  
Spartina gracilis (alkali cord grass)  
Triglochin maritimum (arrow grass)  
Scirpus americanus (common threesquare)  
Scirpus spp. (bulrush)  
Typha spp. (cattail) |
<table>
<thead>
<tr>
<th>WATER REGIME</th>
<th>DESCRIPTION</th>
<th>COMMON DESCRIPTION</th>
<th>VEGETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS</td>
<td>Palustrine,</td>
<td>Willow thicket, river banks or drainage areas</td>
<td>Salix spp. (willow) Tamarix spp. (saltcedar) Atriplex nuttalli (Nuttall saltbush)</td>
</tr>
<tr>
<td>(A,B,C)</td>
<td>scrub-shrub</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PFO</td>
<td>Palustrine,</td>
<td>Cottonwood, riverbanks, floodplains, or drainage areas</td>
<td>Populus spp. (cottonwood) Salix spp. (willow) Acer negundo (boxelder)</td>
</tr>
<tr>
<td>(A,B,C)</td>
<td>forested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUS</td>
<td>Palustrine,</td>
<td>Salt flats</td>
<td>Unconsolidated shore</td>
</tr>
<tr>
<td>(A,C,J)</td>
<td>unconsolidated shore</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Description of other habitats:

- Riparian
- Uplands

List of wetland plant species with indicator status:

Regional specialized conventions:

The Great Salt Lake:
The initial narrative report and photo interpretation project “contoured” the lake and classified the zones according to the available hydrologic data. These zones and classifications will not change in the update. Some wetlands above the 4200’ contour level may change due to wetland vegetation changes. The contour intervals and classification are:

<table>
<thead>
<tr>
<th>Contour Interval</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,195-4,200</td>
<td>L2USC</td>
</tr>
<tr>
<td>4,194-4,195</td>
<td>L2UBF</td>
</tr>
<tr>
<td>4,191-4,194</td>
<td>L2UBG</td>
</tr>
<tr>
<td>4,189-4,191</td>
<td>L2UBH</td>
</tr>
<tr>
<td>4,189-</td>
<td>L1UBH</td>
</tr>
</tbody>
</table>
Bear River Migratory Bird Refuge:
The water regime on virtually all the refuge is artificially controlled and extremely variable. Because the refuge contains dams, dikes, and water control structures the “K” water regime is used on all wetlands within the refuge. The definition of “K” water regime in Cowardin states:”The amount and duration of flooding is controlled by means of pumps or siphons in combination with dikes or dams. The vegetation growing on these areas cannot be considered a reliable indicator of water regime.”

Miscellaneous:
Open water impoundments less than 20 acres will be PAB with appropriate water regime and “h” modifier.
Open water dugouts less than 20 acres will be PUB with appropriate water regime and “x” modifier.

Other discussion of mapping issues (image quality, water conditions, etc.):

References:


