Supplemental Map Information (User Report)

Project ID: R06Y11P07

Project Title or Area: Snake Valley, Utah

Source Imagery (type, scale and date):

NAIP CIR 1-meter resolution 08/06/2006
NAIP CIR 1-meter resolution 09/03/2006

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

LIDAR – 1 meter resolution acquired in 2009 (Northern Project area only).
USGS – 10 meter DEM
NRCS SSURGO Soil Data
Utah Department of Natural Resources – Sensitive Species GPS locations

Inventory Method (original mapping, map update, techniques used):

A vegetation mapping product was created for this project to provide an accurate representation of the location and extent of the different plant communities within the study area. The base imagery used for the project was the USDA National Agriculture Imagery Program (NAIP) 2006 Color Infrared (CIR). The imagery was acquired on August 6, 2006 and September 3, 2006. NAIP has a ground resolution of 1 meter. A subset of the NAIP imagery was created and processed using ERDAS Imagine software. Standard imagery processing took place such Image Dodging, Histogram Matching, and Mosaicing. The processed image was then loaded into SPRING 5.0.4 for image segmentation. The segmentation parameters used a Euclidean distance of 15 and a minimum polygon size of 250 square meters. These segmentation parameters were determined to create the "best case" output through several trial runs using a small subset of the project imagery. The resulting segmentation product was "smoothed" using SPRING. A simple supervised classification was constructed using a small subset of field data collected. The supervised classification was not designed to be an exhaustive list of all vegetation types to be mapped, but was simply designed to help distinguish some of the more common habitat types within the study area. The supervised classification used the following seven classes:

Open Water
Sparsely Vegetated
Juncus balticus Seasonally Flooded Herbaceous
Schoenoplectus spp. Semi permanently Flooded Herbaceous
Distichlis spicata Intermittently Flooded Herbaceous
Sarcobatus vermiculatus Intermittently Flooded Shrubland
Other Shrublands

The supervised classification product was then exported from SPRING and brought into the project GIS as an ESRI Feature Class within a File Geodatabase. Once within the GIS, the segmented polygons were manually edited and manually attributed for a Project Mapping Code and an Enhanced National Wetlands Inventory Code (ENWI). Final project vegetation codes were assigned to the mapping polygons using a combination of the supervised classification results, the available field plot data, including site photographs, spatial correlation, image tone and texture, and best professional judgment.

Field data were accessible via a centralized database during mapping to assist in interpreting and assigning project vegetation types to polygons. Analysts extrapolated vegetation types from nearby plots or from plots in polygons with similar photo signatures and landscape positions. Typically, vegetation coding decisions were based on review of the plot data from within multiple polygons with similar photo signatures. This process, and the knowledge of the area gained through fieldwork, provides for an efficient and technically robust means of delivering a vegetation map product.

Cowardin Classification

As part of this project's data collection and mapping inventory; wetland, aquatic habitats, and uplands are classified by an attribute known as the Enhanced National Wetland Inventory (ENWI) Code. During the field data collection phase, ENWI classifications are applied to the vegetation communities at plot sites. The ENWI classifications are also applied to every vegetation and waterbody polygon during the mapping phase. These classifications are based on the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and *National Wetland Inventory Mapping Conventions* (USFWS 1995).

Map Accuracy Assessment

The vegetation mapping product produced for this study was reviewed for QC through a senior staff review and a non-statistical standard thematic map accuracy assessment was performed. The map accuracy assessment followed procedures outlined in Congalton 2009. An error matrix table was produced and the Producer's Accuracy, the User's Accuracy, and the Overall Accuracy were calculated.

For a statistically valid accuracy assessment, the number of reference sites should be determined through the multinomial distribution calculations as outlined in Congalton 2009. However, although this process is in place and the actual calculations are rather simple, these calculations can only be performed once the mapping is complete and ready for the accuracy assessment to take place. This is caused by the need to know the total number of mapped classes and the area represented by each mapped class. Fortunately, the authors state that as a general guideline, planning to collect a minimum of 50 reference plot samples for each map class for maps less than 1 million acres in size and fewer than 12 classes is generally statistically valid. (Congalton 1988b). This general guideline is relatively easy to apply from the beginning of any mapping or field data collection exercise. As the field data was collected, an attempt was made to account for all mapped wetland vegetation types in a quantity that would help satisfy this general guideline of 50 plots per mapped class. However, due to time restraints, the decision was made that the focus would be placed on the wetland vegetation community types that are most common throughout the study area. It was decided that the upland and phreatophytic transition communities would be sampled at a lower frequency. Also, some map classes are very distinctive and easy to map accurately through the manual photo interpretation. These map classes include Open Water, Fill, Agriculture, Playas, and Sparse Vegetation. The decision was made that few, if any; reference plots would be collected for these map classes as they would most likely bias the results of the map accuracy assessment.

The photo-point plot type was used as the reference data plot type for the accuracy assessment determination. The photo-point plot type is a GPS location recorded with the integrated camera systems where the field investigator would enter data such as the dominant vegetation alliance and association present along with hydrology observations. The vegetation alliance recorded in the field was then cross-referenced with the 3PPI List of Mapping Codes and reviewed within the GIS environment after the final map product was complete. The mapped vegetation polygon coding was compared to the vegetation community data recorded in the field. An error matrix was constructed following procedures outlined in Congalton 2009.

Classification (Cowardin wetlands, riparian, uplands, hydrogeomorphic, etc.):

Mapped Cowardin Classification by Type and Area – Northern Project Area

Cowardin Type	**Acres**	**Hectares**	**Percent**
Forested Wetlands			
PFO1/EM1B	0.25	0.1	0.003
Scrub/Shrub Wetlands			
PSS1B	0.09	0.04	0.001
PSS1/EM1B	9.6	3.89	0.10
Emergent Wetlands PEM1/USB	157.97	63.93	1.71
PEM1/USD	4.96	2.01	0.05
PEM1B	666.16	269.59	7.22
PEM1D	4.4	1.78	0.05
PEM1Dx	0.03	0.01	0.0003
PEM1E	224.23	90.74	2.43
PEM1F	104.08	42.12	1.13
PEM1Fx	0.08	0.03	0.001
PEM1H	230.25	93.18	2.50
Palustrine Ponds PAB4/1H	0.74	0.30	0.01
PUBH	19.33	7.82	0.21
PUSD	1700.87	688.32	18.45
PUSDx	0.02	0.01	0.0002
Riverine Systems			
R3UBH	1.55	0.63	0.02
Uplands			
U	6095.85	2466.91	66.11
TOTALS	9220.47	3731.39	100.00

Mapped Cowardin Classification by Type and Area – Southern Project Area

Cowardin Type	Acres	Hectares	Percent
Forested Wetlands			
PFO1/SS1B	0.03	0.01	0.0004
PFO1B	0.02	0.01	0.0003
Scrub/Shrub Wetlands			
PSS1A	4.12	1.67	0.060
PSS1Ah	8.65	3.5	0.127
PSS1Ax	0.07	0.03	0.001
PSS1B	0.20	0.08	0.003
PSS1C	0.31	0.12	0.005
PSS1E	0.04	0.02	0.001
PSS1Kx	0.01	0.02	0.0001
Emergent Wetlands PEM1/USEx	5.57	2.25	0.082
PEM1Ah	7.92	3.21	0.116
PEM1B	2264.98	916.61	33.244
PEM1C	5.12	2.07	0.075
PEM1Ch	0.98	0.40	0.014
PEM1E	159.03	64.36	2.334
PEM1Eh	3.17	1.28	0.047
PEM1Ex	1.53	0.62	0.022
PEM1F	13.67	5.53	0.201
PEM1Fh	3.30	1.34	0.048
PEM1H	5.72	2.31	0.084
PEM1Hh	0.02	0.01	0.0003
PEM1Kx	16.64	6.73	0.244
Palustrine Ponds PAB3/UBHh	0.70	0.28	0.010
PUBFh	1.97	0.8	0.029
PUBH	1.72	0.7	0.025
PUBHh	6.14	2.49	0.090
PUBHx	0.08	0.03	0.001
PUBKh	0.30	0.12	0.004
PUBKx	1.78	0.72	0.026
PUSC	4.56	1.85	0.067
PUSCx	0.35	0.14	0.005
PUSKx	4.96	2.01	0.073
Lacustrine Systems			
L1UBHh	286.94	116.12	4.212
L2UBFh	0.11	0.05	0.002
L2US/EMCh	0.24	0.10	0.004
L2USCh	21.94	8.88	0.322
Riverine Systems			

R3UBH	22.94	9.28	0.337
R4SBA	0.15	0.06	0.002
R4SBKx	27.65	11.19	0.406
Uplands			
U	3929.51	1590.22	57.68
TOTALS	6813.15	2757.20	100.00

Description of wetland habitats:

Plant Community Types

The plant community types identified within the study area are listed in the following table. The complete project community descriptions and the published IVCS Alliances and Associations are available in International Vegetation Classification Alliances and Associations Occurring in Nevada with Proposed Additions (Peterson 2008). When not listed within Peterson 2008, the NatureServe Explorer website was queried to determine whether or not a community description was available. If a community description is not available from these sources, it is noted as such, and only the project description is included in this report. Minimal editing of the community descriptions within Peterson 2008 did occur to simplify the text. This included omitting the status, confidence, global rank, distributions, hyperlinks, and photo citations. The Alliance descriptions are listed first, with the subsequent group of Associations found within the Alliance listed in alphabetical order. The project-specific plant community type information is presented after the Alliance and Association descriptions.

The attempt here is that full, published community descriptions (Peterson 2008, NatureServe) help to provide context and thought process of how the prescribed community type was determined. The general overview of a community type often includes plant species present across several ecoregions, and could potentially list species (common, or less-common) not present within the ecoregion of the study area. The project-specific plant community descriptions include field data collected at various sites throughout the project area and contains information such as the species composition, depth of hydrology parameters, and depth of organic soil horizons.

Included in the Table is the Global Conservation Status Rank Code. The Global Rank Code is listed without an associated State Rank Code, due to the lack of a Utah State Conservation Status Ranking publication. The Global Rank is an international ranking system for rare, threatened and endangered species and plant associations throughout the world. The ranking is a 1-5 scale, primarily based on the number of known occurrences, but it also includes threats, sensitivity, area occupied, and other biological factors. The Global Ranking System uses the following descriptions (further details are available through NatureServe):

1 – Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences.
2 – Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences.

3 – Rare, uncommon or threatened, but not immediately imperiled, typically with 21-100 occurrences.
4 – Not rare and apparently secure, but with cause for long-term concern, usually with more than 100 occurrences.
5 – Demonstrably widespread, abundant, and secure.

Project List of Alliances and Associations

Alliance	**Association**	**Global Rank**
Forest (25-100% Canopy Cover)		
Elaeagnus angustifolia Semi-natural Forest*	*Elaeagnus angustifolia* Semi-natural Forest*	N/A
Populus alba Semi-natural Forest*	*Populus alba Semi-natural* Forest*	N/A
Woodland (10-24% Canopy Cover and Individual Tree Specimens)		
Elaeagnus angustifolia Semi-natural Woodland*	*Elaeagnus angustifolia* Semi-natural Woodland*	N/A
Populus alba Semi-natural Woodland*	*Populus alba Semi-natural* Woodland*	N/A
Shrublands (10-100% Shrub Canopy Cover)		
Allenrolfea occidentalis Shrubland	*Allenrolfea occidentalis* Shrubland	G3
Artemisia arbuscula ssp. arbuscula Shrubland	*Artemisia arbuscula ssp. arbuscula / Poa secunda* Shrubland	G5
Artemisia tridentata Shrubland	*Artemisia tridentata* Shrubland	G5
Chrysothamnus albidus Shrubland	*Chrysothamnus albidus / Puccinellia nuttalliana Shrubland*	G3
Ericameria nauseosa Shrubland	*Ericameria nauseosa Shrubland*	G5
Rosa woodsii Temporarily Flooded Shrubland	*Rosa woodsii* Shrubland	G5
Salix [exigua, interior] Temporarily Flooded Shrubland	*Salix exigua /* Mesic Forbs Shrubland	G2
Salix [exigua, interior] Temporarily Flooded Shrubland	*Salix exigua /* Mesic Graminoids Shrubland	G5
Sarcobatus vermiculatus Intermittently Flooded Shrubland	*Sarcobatus vermiculatus / Artemisia tridentata* Shrubland	G4
Sarcobatus vermiculatus Intermittently Flooded Shrubland	*Sarcobatus vermiculatus / Ericameria nauseosa* Shrubland	G5
Sarcobatus vermiculatus Intermittently Flooded Shrubland	*Sarcobatus vermiculatus / Distichlis spicata* Shrubland	G4
Sarcobatus vermiculatus Intermittently Flooded Shrubland	*Sarcobatus vermiculatus / Mud Flat Vegetation* Shrubland	G4G5
Tamarix spp. Semi-natural Temporarily Flooded Shrubland	*Tamarix* spp. Semi-natural Temporarily Flooded Shrubland	N/A
Herbaceous (30-100% Herbaceous Cover with less than 10% canopy cover from shrubs or trees)		
Agrostis scabra Temporarily Flooded Herbaceous*	*Agrostis scabra* Herbaceous Vegetation*	G3G4

Agrostis stolonifera Seasonally Flooded Herbaceous	*Agrostis (gigantea, stolonifera)* Semi-natural Herbaceous Vegetation	N/A
Carex nebrascensis Seasonally Flooded Herbaceous	*Carex nebrascensis* Herbaceous Vegetation	G4
Carex praegracilis Seasonally Flooded Herbaceous*	*Carex praegracilis* Herbaceous Vegetation*	G3
Carex simulata Saturated Herbaceous	*Carex simulata* Herbaceous Vegetation	G4
Distichlis spicata Intermittently Flooded Herbaceous	*Distichlis spicata* Herbaceous Vegetation	G5
Distichlis spicata Intermittently Flooded Herbaceous	*Distichlis spicata* / Mixed Herbaceous Vegetation	G3G5
Distichlis spicata Intermittently Flooded Herbaceous	*Distichlis spicata / Juncus balticus* Herbaceous Vegetation	G5
Distichlis spicata Intermittently Flooded Herbaceous	*Distichlis spicata /* Sparse Herbaceous Vegetation*	N/A
Eleocharis acicularis Seasonally Flooded Herbaceous	*Eleocharis acicularis* Herbaceous Vegetation	G4
Eleocharis (palustris, macrostachya) Seasonally Flooded Herbaceous	*Eleocharis palustris* Herbaceous Vegetation	G5
Eleocharis (palustris, macrostachya) Seasonally Flooded Herbaceous	*Eleocharis palustris ./ Juncus balticus* Herbaceous Vegetation*	G2G4
Eleocharis [quinqueflora=pauciflora, rostellata] Saturated Herbaceous	*Eleocharis quinqueflora=pauciflora* Herbaceous Vegetation	G4
Juncus balticus Seasonally Flooded Herbaceous	*Juncus balticus* Herbaceous Vegetation	G5
Juncus balticus Seasonally Flooded Herbaceous	*Juncus balticus /* Mixed Herbaceous Vegetation	N/A
Lemna spp. Permanently Flooded Herbaceous	*Lemna* spp. Permanently Flooded Herbaceous Vegetation	G5
Leymus cinerus Intermittently Flooded Herbaceous	*Leymus cinerus / Distichlis spicata* Herbaceous Vegetation	G3
Leymus triticoides Temporarily Flooded Herbaceous	*Leymus triticoides* Herbaceous Vegetation	G4
Muhlenbergia asperifolia Intermittently Flooded Herbaceous	*Muhlenbergia asperifolia* Herbaceous Vegetation	GU
Phragmites australis Semipermanently Flooded Herbaceous	*Phragmites australis* Western North America Temperate Semi-natural Herbaceous Vegetation	G5
Poa secunda Seasonally Flooded Herbaceous	*Poa secunda* Herbaceous Vegetation	G4
Salicornia rubra Seasonally Flooded Herbaceous	*Salicornia rubra* Seasonally Flooded Herbaceous	G2G3

Schoenoplectus acutus - (Schoenoplectus tabernaemontani) Semipermanently Flooded Herbaceous	*Schoenoplectus acutus* Herbaceous Vegetation	G5
Schoenoplectus americanus Semipermanently Flooded Herbaceous	*Schoenoplectus americanus - Eleocharis palustris* Herbaceous Vegetation	G4
Schoenoplectus pungens Semipermanently Flooded Herbaceous	*Schoenoplectus pungens* Herbaceous Vegetation	G3G4
Spartina gracilis Seasonally Flooded Herbaceous	*Spartina gracilis* Herbaceous Vegetation	GU
Sporobolus airoides Intermittently Flooded Herbaceous	*Sporobolus airoides (*emergent *Sarcobatus vermiculatus)* Intermittently Flooded Herbaceous Vegetation	G2G4
Typha (angustifolia, latifolia) - (Schoenoplectus spp.*)* Semipermanently Flooded Herbaceous	*Typha (latifolia, angustifolia)* Western Herbaceous Vegetation	G5
Other Land Cover Types		
Agriculture		
Microphytic Playa Alliance		
Non-rooted Aquatic Plant and Algae Vegetation*		
Non-natural materials, Man-altered areas, roads.*		
Open Water*		
Unconsolidated Material Sparse Vegetation*		

* Not listed within: Peterson, E.B. 2008. International Vegetation Classification Alliances and Associations Occurring in Nevada with Proposed Additions. Nevada Natural Heritage Program, Carson City, Nevada.

List of wetland plant species with indicator status:

Snake Valley Project - Master Plant List

Acronym	Latin Name	Common Name	1988 Ind.	Freq.
ELAN-T	Elaeagnus angustifolia	Russian Olive	FAC	4
POAL7-T	Populus alba	White Poplar	NL	1
SAFR-T	Salix fragilis	Crack Willow	FAC	1
Saplings:				
Acronym	**Latin Name**	**Common Name**	**1988 Ind.**	**Freq.**
ELAN-SAP	Elaeagnus angustifolia	Russian Olive	FAC	1
Shrubs:				
Acronym	**Latin Name**	**Common Name**	**1988 Ind.**	**Freq.**
ALOC	Allenrolfea occidentalis	Iodine Bush	FACW	5

ARAR8	Artemisia arbuscula	Low Sagebrush	NL	7
ARTR2	Artemisia tridentata	Big Sagebrush	NL	19
ATCA2	Atriplex canescens	Four-Wing Saltbush	UPL	1
ATCO	Atriplex confertifolia	Shadscale	NL	15
ATPA3	Atriplex parryi	Parry's Saltbush	FACW	1
ATPO	Atriplex polycarpa	Many-Fruit Saltbush	FACU	4
BAPR5	Bassia prostrata	Forage kochia	NL	7
CHAL9	Chrysothamnus albidus	Whiteflower Rabbitbrush	NL	23
CHGR6	Chrysothamnus greenei	Greene's Rabbitbrush	NL	1
CHVI8	Chrysothamnus viscidiflorus	Sticky-leaved Yellow Rabbitbrush	NL	56
EPVI	Ephedra viridis	Mormon Tea	NL	9
ERNA10	Ericameria nauseosa	Rubber Rabbitbush	NL	60
GRSP	Grayia spinosa	Hopsage	NL	1
GUSA2	Gutierrezia sarothrae	Broom Snakeweed	NL	35
KOAM	Kochia americana	Perennial Summer-Cypress	FACU	2
LEGUM	Leguminosae sp.	Unkeyed Leguminosae	NA	1
ORHY	Oryzopsis hymenoides	Indian Ricegrass	UPL	6
RHTR	Rhus trilobata	Smooth Sumac	NI	1
ROWO	Rosa woodsii	Woods Rose	FAC-	1
SAEX	Salix exigua	Sandbar Willow	OBL	19
SAVE4	Sarcobatus vermiculatus	Black Greasewood	FACU*	82
SUCA2	Suaeda calceoliformis	Seepweed	FACW	2
SUTO	Suaeda torreyana	Torrey Seepweed	FAC+	4
TARA	Tamarix ramosissima	Saltcedar	FACW	11
Herbs:				
Acronym	**Latin Name**	**Common Name**	**1988 Ind.**	**Freq.**
AGDA	Agropyron dasystachyum	Thick-Spike Wheatgrass	UPL	1
AGGI2	Agrostis gigantea	Black Bentgrass	NI	5
AGSC5	Agrostis scabra	Rough Bentgrass	FAC	9
ARMI2	Arctium minus	Lesser Burdock	NL	2
ASSP	Asclepias speciosa	Showy Milkweed	FACW	8
ASBR3	Aster brachyactis	Rayless Alkali Aster	FACW	2
ASPA3	Aster pansus	Many-Flowered Aster	FACU	6
ALPA14	Aster pauciflorus	Alkali Marsh Aster	FACW	12
ASTRA-SP	Astragalus sp.	Unkeyed Astragalus	NA	1
ATPA4	Atriplex patula	Halberd-Leaf Saltbush	FACW	4
ATRO	Atriplex rosea	Tumbling Orache	FACU	1
ATRI-SP	Atriplex sp.	Unkeyed Atriplex	N/A	4
BEER	Berula erecta	Cut-Leaf Water Parsnip	OBL	3
BICE	Bidens cernua	Nodding Beggar-Ticks	OBL	2
BRASS-SP	Brassicaceae sp.	Unkeyed Brassica	NA	2
BRTE	Bromus tectorum	Cheatgrass	NL	10

CANU4	Cardus nutans	Musk Thistle	NL	18
CALE8	Carex lenticularis	Shore Sedge	OBL	1
CANE2	Carex nebrascensis	Nebraska Sedge	OBL	32
CAPA18	Carex parryana	Parry's Sedge	FACW	1
CAPR5	Carex praegracilis	Clustered Field Sedge	FACW	28
CASI2	Carex simulata	Short-Beak Sedge	FACW	3
CAMI12	Castilleja miniata	Scarlet Indian-Paintbrush	FAC	9
CHFE3	Chamaesyce fendleri	Fendlers Sandmat	NL	1
CHAL7	Chenopodium album	White Goosefoot	FACU	4
CIDO	Cicuta douglasii	Western Water-Hemlock	OBL	4
CISC2	Cirsium scariosum*	Meadow Thistle	NI	2
CLSE	Cleome serrulata	Bee Spider-Flower	FACU	3
CRRU3	Crepis runcinata	Dandelion Hawksbeard	FACW	11
DECE	Deschampsia cespitosa	Tufted Hairgrass	FACW	2
DISP	Distichlis spicata	Seashore Saltgrass	FAC+*	92
ECMU2	Echinochloa muricata	Rough Barnyard Grass	FACW	1
ELAC	Eleocharis acicularis	Least Spikerush	OBL	4
ELPA3	Eleocharis palustris	Creeping Spikerush	OBL	27
ELPA6	Eleocharis pauciflora	Few-Flower Spikerush	OBL	5
ELCI2	Elymus cinereus	Basin Wild-Rye	NI	12
ELTR3	Elymus triticoides	Creeping Wild-Rye	FAC+	24
EPCI	Epilobium ciliatum	Hairy Willow-Herb	FAC	2
EPHO	Epilobium hornemannii	Hornemann's Willow-Herb	FACW	3
EPPA	Epilobium palustre	Marsh Willow-Herb	OBL	2
EQHY	Equisetum hyemale	Rough Horsetail	FACW	2
EQLA	Equisetum laevigatum	Smooth Scouring-Rush	FACW	6
ERSP3	Eriastrum sparsiflorum	Great Basin Wollystar	NL	1

ERAC2	Erigeron acris	Bitter Fleabane	FACU	1
FERU2	Festuca rubra	Red Fescue	FAC	1
GLMA	Glaux maritima	Sea-Milkwort	OBL	19
GRSQ	Grindelia squarrosa	Curly-Cup Gumweed	FACU	2
HAGL	Halogeton glomeratus	Halogeton	NL	26
HALA2	Haplopappus lanceolatus	Lance-Leaf Golden-Weed	FAC	10
HARA	Haplopappus racemosus	Cluster Golden-Weed	FAC	1
HEAN3	Helianthus annuus	Common Sunflower	FACU	3
HENU	Helianthus nuttallii	Nuttall's Sunflower	FACW	1
HOJU	Hordeum jubatum	Fox-Tail Barley	FAC*	30
HYRI	Hymenoxys richardsonni	Pingue Rubberweed	NL	4
IRMI	Iris missouriensis	Rocky Mountain Iris	OBL*	3
IVAX	Iva axillaris	Small-Flower Sumpweed	FACW	6
IVSA	Ivesia sabulosa	Intermountain mousetail	NL	1
JUAB2	Juncus abjectus	Center Basin Rush	OBL	1
JUBA	Juncus balticus	Baltic Rush	FACW	84
JUDR	Juncus drummondii	Drummond's Rush	FACW*	1
JUTO	Juncus torreyi	Torrey's Rush	FACW+	9

KOSC	Kochia scoparia	Mexican Summer-Cypress	FACU	21
LOBI	Lomatium bicolor	Wasatch Biscuitroot	FACU-	1
MEAL12	Melilotus alba	White Sweetclover	FACU	4
MEAR4	Mentha arvensis	Field Mint	FACW	2
MIGU	Mimulus guttatus	Common Large Monkey-Flower	OBL	2
MUAS	Muhlenbergia asperifolia	Alkali Muhly	FACW+	19
NAOF	Nasturtium officinale	True Water-Cress	OBL	2
PHAU7	Phragmites australis	Common Reed	FACW+	12
PLMA2	Plantago major	Common Plantain	FAC	6
POJU	Poa juncifolia	Alkali Bluegrass	FAC	3
POPA2	Poa palustris	Fowl Bluegrass	FACW	8
POSE	Poa secunda	Sandberg bluegrass	FAC	5
POLY-SP	Polygonum sp.	Unkeyed Polygonum	NA	5
POMO5	Polypogon monspeliensis	Annual Rabbit-Foot Grass	FACW+	16
POAN5	Potentilla anserina	Silverweed	OBL	60
PODI2	Potentilla diversifolia	Varileaf Cinquefoil	FACU	4
RACY	Ranunculus cymbalaria	Seaside Butter-Cup	OBL	19
RUCR	Rumex crispus	Curly Dock	FACW	7
SACU	Sagittaria cuneata	Northern Arrow-Head	OBL	2
SAAD	Saxifraga adscendens	Rock Saxifrage	UPL	1
SCAC	Scirpus acutus	Hard-Stem Bulrush	OBL	16
SCAM2	Scirpus americanus	Olney's Bulrush	OBL	6
SCPU3	Scirpus pungens	Three-Square Bulrush	OBL	22
SIDE4	Sisyrinchium demissum	Stiff Blue-Eye-Grass	OBL	16
SOCA6	Solidago canadensis	Canada Golden-Rod	FACU	4
SOAR2	Sonchus arvensis	Field Sowthistle	FACU	1
SPGR	Spartina gracilis	Alkali Cordgrass	FACW	29
SPOB	Sphenopholis obtusata	Prairie Wedgegrass	FACW-	8
SPAI	Sporobolus airoides	Alkali Sacaton	FAC	59
TAOF	Taraxacum officinale	Common Dandelion	FACU+	2
TRPR2	Trifolium pratense	Red Clover	FACU	6
TRCO19	Triglochin concinnum	Utah Arrow-Grass	OBL	1
TRMA4	Triglochin maritimum	Seaside Arrow-Grass	OBL	2
TYLA	Typha latifolia	Broad-Leaf Cattail	OBL	1
VEAN2	Veronica anagallis-aquatica	Water Speedwell	OBL	2
XAST	Xanthium strumarium	Rough Cockle-Bur	FAC	11
Bryophytes:				
Acronym	**Latin Name**	**Common Name**	**1988 Ind.**	**Freq.**
MOSS-SP	Unkeyed Moss	Unkeyed Moss	N/A	1
Other:				
Acronym	**Latin Name**	**Common Name**	**1988 Ind.**	**Freq.**
BARE	Bare Ground	Bare Ground	N/A	40

WATER	Water	Open Water	N/A	5

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

Northern Area Vegetation Map Accuracy Assessment

A vegetation thematic map was produced to account for baseline area estimates for all mapped vegetation communities within the study area. Field data was collected at 652 plots within the study area in support of the mapping. Of these 652 plots, 360 plots were placed in reserve to be used in a map accuracy assessment. The 360 reference data plots were removed from the GIS mapping environment until the vegetation map product was complete. Upon completion, and senior scientist review, the 360 reference data plots were brought into the GIS mapping environment and compared to the map generated from the CIR aerial imagery (i.e., remotely sensed map).

An error matrix was used to track the comparisons between the mapping product and the reference data, and allows for the Overall, User and Producer Accuracies to be calculated (Congalton 2009). The reference data collected computes an Overall Map Accuracy of 83%. The individual Producer’s Accuracy for the dominant vegetation types of DSMH, ELEO, JBMH, SCSP, TYLA and SVDS are 87%, 63%, 91%, 97%, 58%, and 95% respectively. The individual User’s Accuracy for the dominant vegetation types of DSMH, ELEO, JBMH, SCSP, TYLA and SVDS are 85%, 84%, 84%, 84%, 85%, and 86% respectively.

Southern Area Vegetation Map Accuracy Assessment

A vegetation thematic map was produced to account for baseline area estimates for all mapped vegetation communities within the study area. Field data was collected at 279 plots within the study area in support of the mapping. Of these 279 plots, 214 plots were placed in reserve to be used in a map accuracy assessment. The 214 reference data plots were removed from the GIS mapping environment until the vegetation map product was complete. Upon completion, and senior scientist review, the 214 reference data plots were brought into the GIS mapping environment and compared to the map generated from the CIR aerial imagery (i.e., remotely sensed map).

An error matrix was used to track the comparisons between the mapping product and the reference data, and allows for the Overall, User and Producer Accuracies to be calculated (Congalton 2009). The reference data collected computes an Overall Map Accuracy of 81%. The individual Producer’s Accuracy for the dominant vegetation types of DSMH, ELEO, JBMH, SCSP, CAMH and SVCV are 88%, 71%, 93%, 93%, 81%, and 82% respectively. The individual User’s Accuracy for the dominant vegetation types of DSMH, ELEO, JBMH, SCSP, CAMH and SVCV are 70%, 63%, 83%, 81%, 93%, and 90% respectively.

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