

## Supplemental Map Information (User Report)

**Project ID:** R02Y11P05

**Project Title or Area:** Playa\_Lakes\_11

**Source Imagery:** USDA NAIP Imagery, TX-2004 CIR was used for all base wetland mapping. 2008 true color NAIP was used as collateral and to add riparian features.

**Collateral Data:** USDA SSURGO data. USGS Digital Raster Graphs (DRG).

**Inventory Method:** Original mapping was performed in a heads-up environment, using ArcGIS (9.3.1). Digital delineations were done on-screen at a relative scale of 1:12,000 using the digital NAIP county mosaics. Digital Photo interpretation was performed by NWI-trained students.

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

### Wetland Definition and Classification

The Service uses the Cowardin *et al.* (1979) definition of a wetland; **Classification of Wetlands and Deepwater Habitats of the United States** (FWS/OBS – 79/31 December 1979). This definition is the Federal standard for classifying and mapping wetlands as determined by the Federal Geographic Data Committee. It is a two-part definition as indicated below:

*Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.*

*For purposes of this classification wetlands must have one or more of the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; and 3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.*

### Riparian Definition and Classification

The term “*riparian*” may be viewed from different perspectives, and has many definitions. In 1997, the western Regions of the Service developed a classification system to identify riparian areas that fell outside of the Cowardin *et al.* (1979) system. Since that time, “**A System for Mapping Riparian Areas in the Western United States**” (USFWS 2009) has also been adopted by the Service and is a national standard for riparian mapping, monitoring and data reporting as determined by the Federal Geographic Data Committee. The definition is indicated below:

*Riparian areas are plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies*

*(rivers, streams, lakes, or drainage ways). Riparian areas have one or both of the following characteristics: 1) distinctly different vegetative species than adjacent areas, and 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms. Riparian areas are usually transitional between wetland and upland.*

This definition and the accompanying classification system were used to identify and map riparian habitats in the study area.

Links to on-line Classification system information:

[http://www.fws.gov/Wetlands/\\_documents/gNSDI/ClassificationWetlandsDeepwaterHabitatsUS.pdf](http://www.fws.gov/Wetlands/_documents/gNSDI/ClassificationWetlandsDeepwaterHabitatsUS.pdf)

[http://www.fws.gov/Wetlands/\\_documents/gOther/SystemMappingRiparianAreasWesternUS2009.pdf](http://www.fws.gov/Wetlands/_documents/gOther/SystemMappingRiparianAreasWesternUS2009.pdf)

### **Data Limitations:**

National Wetlands Inventory digital data were derived from stereoscopic analysis of high altitude aerial photographs. Wetlands and riparian areas were identified based on vegetation, visible hydrology and geography in accordance with **Classification of Wetlands and Deepwater Habitats of the United States** (FWS/OBS – 79/31 December 1979) and **A System for Mapping Riparian Areas in the Western United States** (FWS 2009). There is a margin of error inherent in the use of aerial photos. Age, scale and emulsion of the aerial photos, as well as seasonal and climatic variations at the time of aerial photo acquisition may affect the way in which wetlands and riparian areas are identified.

**General description of the Project Area:** The project area covered fifteen counties in the Texas panhandle

- **Geography:** The project area sits in the southern part of the Great Plains. The project area is characterized by nearly level and treeless high plains bisected by several canyons and rough land areas. Elevations range from 3400-3900 ft. above sea level. Precipitation ranges from 14 inches (western side) to 25 inches (eastern side). Temperatures can vary greatly, from -20 degrees F in the winter to well over 100 degrees in the summer. Average annual potential evaporation can exceed 100 inches. Drought is a natural and common occurrence. Playas occur on the level high plains areas. Riverine and riparian corridors will be found in the canyons and broken rough lands cut by drainages. Major drainages include the Cimarron and Beaver Rivers in the Oklahoma panhandle, the Canadian River in the northern Texas panhandle and the upper tributaries of the Brazos and Red River systems in the eastern and southeastern parts of the project area.
- **Vegetation, Soils, Land Use:** The high plains are dominated by agriculture with rangeland and some natural short grass prairie. Soils are typically clay loam. Playa depressions have a hard clay bottom and range in condition from natural (little impact) to heavily ditched/drainaged to farmed/non-existent. Broken rough lands and canyons have exposed rock/soil with mesquite, cacti, and sage as the dominant vegetation.

- **Natural history or important cultural features:** N/A

**Description of Wetland Habitats:**

The 15 counties in the project area lie on the east and south side of the Llano Estacado, a high, treeless plain that sits on the caprock of the Texas panhandle. The dominant wetland features of this plain are playa lakes. Playas are geographically isolated basins, varying in size, depth and vegetative cover. The playa lakes sit along the western edge of the Central Flyway, and provide valuable habitat for migrating birds. With the high volume of agriculture, the development of wind energy, lowering groundwater levels, and potential threats from climate change in this region, the survival of the playa lakes is of great concern.

Off of the caprock, the land is broken and cut by drainages. Wetlands in this part of the work area predominantly reside in these drainages. Shrub, forest and other riparian habitats are common, as well as emergent and grassy drainages. Impounded ponds can be found up and down all of these drainages.

- **Organize by Cowardin classification type:** A variety of riverine, palustrine and lacustrine wetland systems were identified. See digital data for all examples.
- **Wetland classification codes and corresponding (general) community type(s):**

**Lacustrine Features**

L1UB (H)	Lacustrine, limnetic, unconsolidated bottom	Lakes, reservoirs deeper than 6 meters	none
L2UB (F)	Lacustrine, littoral, unconsolidated bottom	Lakes, reservoirs less than 6 m. deep	none
L2US (C, A, J)	Lacustrine, littoral, unconsolidated shore	Shallow lakes, reservoirs, shore, flats	none

**Riverine Features**

R2UB (F, H)	Riverine, lower perennial, unconsolidated bottom	River	none
R2US (C, A, J)*	Riverine, lower perennial, unconsolidated shore	Sand bar	none
R3UB (F, H)	Riverine, upper perennial, unconsolidated bottom	River	none
R3US (C, A, J)*	Riverine, upper perennial, unconsolidated shore	Sand bar	none
R4SB (C, A, J)*	Riverine, intermittent, Streambed	stream	none

\*Subclasses indicating sparse vegetation (US5/SB7) were used for this project.

**Palustrine Features**

PUB (H, F)	Palustrine, unconsolidated bottom	Ponds, basins	none
PUS (C, A)	Palustrine, unconsolidated shore	Flats, shallow basins, shore	none

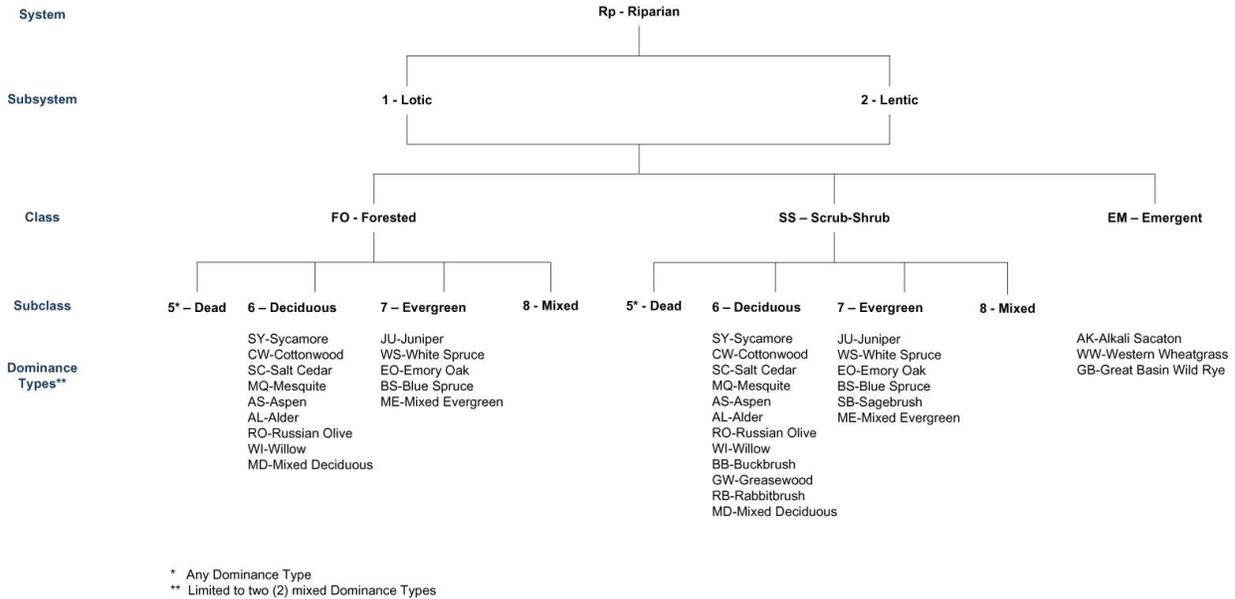
PEM1 (F, C, B, A, J)	Palustrine, emergent	Marsh, prairie, basin, depression, spring/ seep, wet meadow	<i>Typha latifolia</i> (cattail) <i>Cyperus spp.</i> (flatsedge) <i>Schoenoplectus spp.</i> (sedges) <i>Juncus spp.</i> (rushes) <i>Eleocharis spp.</i> (spikerush)
PSS1 (C, A, B, J)	Palustrine, scrub-shrub, broad-leaved deciduous	Shrub floodplain , bottomland, spring/ seep	<i>Salix exigua</i> (Coyote willow) <i>Salix irrorata</i> (Bluestem willow) <i>Elaeagnus angustifolia</i> (Russian olive)
PSS2 (A, J)	Palustrine, scrub-shrub, needle-leaved deciduous	Shrub floodplain, bottomland	<i>Tamarix spp.</i> (salt cedar)
PFO1 (C, A)	Palustrine, forest, broad- leaved deciduous	Forested floodplain, bottomland	<i>Populus spp.</i> (Cottonwoods) <i>Salix spp.</i> (willows) <i>Ulmus crassifolia</i> (cedar elm) <i>Celtis spp.</i> (hackberry/sugarberry)

### **Description of Other Habitats:**

In accordance with, **A System for Mapping Riparian Areas in the Western United States** (FWS 2009), riparian habitats were identified for all major drainages.

## Riparian System:

### RIPARIAN CLASSIFICATION SYSTEM



- Uplands: N/A

### List of wetland plant species with indicator status, specific for playa lake features:

#### Examples of “drier” playa (PEM1J/PEM1A) communities:

Bur Ragweed (*Ambrosia grayi*) FACW  
Alkali Sacaton (*Sporobolus airoides*) FAC  
Saltgrass (*Distichlis sp.*) FACW+  
Plains Coreopsis (*Coreopsis tinctoria*) FAC

#### Examples of “wetter” playa (PEM1C/PEM1F) communities:

Smartweed (*Polygonum amphibium*) OBL  
Saltmarsh Aster (*Aster subulatus*) OBL  
Spikerush (*Eleocharis sp.*) FACW  
Threesquare (*Scirpus americanus*) OBL  
Curly Dock (*Rumex crispus*) FACW

#### Examples of “pioneering” vegetation observed in typically unvegetated or sparsely vegetated playas (PUSJ/PUSA), also observed on sparsely vegetated stream sand bars (R4SB7A):

Silver-leaf Nightshade (*Solanum elaeagnifolium*) NI  
Narrowleafed Goosefoot (*Chenopodium leptophyllum*) FACU

Summer Cypress (*Kochia scoparia*) FACU  
Plains Ironweed (*Veronia marginata*) FAC

Examples of scrub/shrub (PSS1A/PSS1C) playa communities;

Sandbar Willow (*Salix exigua*) FACW+  
Black Willow (*Salix nigra*) FACW+

Examples of wetland communities adjacent/associated with riverine systems;

PFO1A;

Black Willow (*Salix nigra*) FACW+  
Cottonwood (*Populus Deltoides*) FAC  
Hackberry (*Celtis occidentalis*) FAC  
Soapberry (*Sapindus saponaria*) FACU-  
Siberian Elm (*Ulmus pumila*) NI

PSS1A/PSS1C;

Sandbar Willow (*Salix exigua*) FACW+  
Willow Baccharis (*Baccharis Salicina*) FAC

PSS2A;

Salt Cedar (*Tamarix Chinensis*) FACW

PEM1A/PEM1C/PEM1F;

*Phragmites sp.* FACW  
*Scirpus sp.* OBL  
*Typha latafolia* OBL

**Regional (project) specialized conventions:**

Wetlands

1. For salt lakes and alkali flats, the Water Chemistry, pH Modifier “i” was used to distinguish these features from playa lakes. Example; L2UBFi.
2. To identify sparsely vegetated riverine sand bars, a “7” (for streambed “SB”) or a “5” (for unconsolidated shore “US”) Subclass was used. Example; R4SB7A, or R2US5A. The vegetation was distinguishable on the imagery, but did not meet wetland/riparian density requirement to be mapped in the vegetated Class.
3. SSURGO digital soils data was used extensively. Playa soils were extracted and imported into the polygon Feature Class. These were used as base delineations for playa features. These polygons were fit to the imagery and classified with the Cowardin system. This technique eliminated digitally creating tens of thousands of polygon features. Playas not indicated by hydric soils, non-playa wetlands, and riparian features were added using photo interpretation techniques, to complete the mapping of each county.
4. Farmed playas (Pf) were identified using hydric soil data. Hydric soils, specifically designated for playas, were used to identify these features. Hydric playa soils, that showed no hydrophytic

vegetation signature, or where plow lines were visible, were labeled Pf. Some counties, especially in the southern part of the work area, did not identify hydric playa soils. In these cases, if a strong signature was visible, Pf could still be used.

### Riaprian

1. A “5” or “Dead” Subclass was used in limited situations, for salt cedar areas identified as dead through field observation or photo interpretation. At this time, this subclass has not officially been adapted for the riparian system, though it should in the near future.

**Other discussion of mapping issues:** Imagery was of good quality. Limited issues with cloud cover did occur. Collateral imagery from online sources like TerraServer or Google Earth was used to aid in any delineations needed under cloud cover. The Texas imagery was collected after one of the wettest winter/spring (04) seasons in recorded history for that area.

Also, playa lake features are highly susceptible to variations (normal and otherwise) to climate and local weather. From a photo interpretation standpoint, playas may appear very wet and holding water in a wet season (or year) and dry and faint in other years. Playas were identified and labeled as seen on the base imagery. Field observations and imagery collected in other years may yield different appearances, as far as wetness and extent.

### **References:**

Haukos, D.A. and Smith, L.M. 1997. Common Flora Of The Playa Lakes. Texas Tech University Press. Lubbock, TX. 195 p.

Melcher, C.P. and Skagen, S.K. 2005. Grass Buffers for Playas in Agricultural Landscapes: A Literature Synthesis. Open-File Report 2005-1220. U.S. Geological Survey, Fort Collins Science Center, Colorado. 35 p.

U.S. Fish and Wildlife Service. 1983. Playa Wetlands And Wildlife On The Southern Great Plains: A Characterization Of Habitat. FWS/OBS-83/28. 163 p.

U.S. Fish and Wildlife Service. 1983. Playa Wetlands And Wildlife On The Southern Great Plains: A Guide To Habitat Management. FWS/OBS-83/29. 99 p.

**Appendix A: Wetlands Quality Review Certification**

**Work Area/Project Title: R02Y11P05, Playa Lakes 11**

**Location (state and city, counties, watershed, or area):** Fifteenn counties in the Texas panhandle.

**Size of Work Area:** \_\_\_\_\_ acres 250 new quad equivalentents Using NAIP imagery

**Quality Control during Interpretation (QCI) Performed by:**

**Names and Affiliations:** Texas Tech University.

**Percent of Area reviewed:** Contractors: 100%; as needed based on field experiences; Regional staff, 30-40% as needed.

**Dates of Review:** Oct. 2010-Feb 2011.

**Regional QC of Final Submission (QCF) Performed by:**

**Name:** Audrey Wilson/Gary Hunt

**Affiliation:** NWI Program Assistants.

**Percent of Area reviewed:** 100%

**Dates of Review:** Feb. 2011- July 2011

**Date(s) of Spot Check by Regional Wetlands Coordinator:** June 2011

**National QA Review (QA) Performed by:** To be arranged with the Madison Support Staff (MSG); National QA Procedures became official in July 2007 as data was being delivered.

**Name:** Jim Dick

**Affiliation:** RWC

**Percent of Area reviewed:** 50%

**Dates of Review:** Aug. 2011

**The Region certifies that the wetlands geospatial data submission listed above has gone through all Regional quality review steps and meets NWI data requirements for completeness and quality.**

**Regional Wetland Coordinator:**

**Jim Dick, Region 2**

**(Certified)**

**Region :2 Regional Certification Control Number: \_\_\_\_\_ Date: Sept. 5, 2011**

**National Wetlands Inventory Program Region 2**

**500 Gold Ave. SW Room 4012**

**Albuquerque, NM 87102**