



4.2 Habitat Types

The combination of the Study Area's climate, hydrology, and soils supports community or habitat types associated with the Central Valley floor. Habitat types in the Study Area are characteristic of the region with annual grassland being the predominant habitat with scattered vernal pools and other seasonally inundated wetlands occurring in the lower topographic landscape positions.

Vernal pools, vernal swales, seasonal pools, and seasonal swales are all types of seasonally inundated wetlands. However, the term "vernal" used in this report, denotes the presence of two or more vernal habitat indicator plants (e.g., *Downingia* ssp., *Lasthenia* ssp., *Eryngium* ssp., *Plagiobothrys* ssp., *Psilocarphus* ssp., *Gratiola* ssp.) occurring in the seasonally inundated wetland habitat. In contrast, the term "seasonal" refers to those wetlands that do not support two or more vernal habitat indicator plants. In addition, the term "pool" refers to the habitat's ability to pond water. In contrast, the term "swale" refers to the habitat's ability to convey water.

According to the National Wetland Inventory (NWI) maps, the U.S. Fish and Wildlife Service (USFWS 2007) identified seven freshwater emergent wetlands on site (Figure 4). These wetlands are classified as Palustrine Emergent Temporarily Flooded (PEMA).


In contrast, Helm Biological Consulting identified 170 individual wetlands within the Study Area, categorized into seven generalized habitat types:

- developed
- annual grassland
- vernal pool
- vernal swale
- seasonal swale
- seasonal wetland
- seasonal pool

Representative photographs of the habitats occurring on site are provided in Appendix B. The following section, in conjunction with the data sheets provided in Appendix A and jurisdictional determination data in Appendix C, describes the jurisdictional status of each habitat type observed in the Study Area.



 Study Area

 Freshwater Emergent Wetland - PEMA (Palustrine Emergent Temporarily Flooded)

Prepared By:
Date: 5-25-10



0 490 980 Feet



Data Sources:

- USFWS National Wetland Inventory (NWI) for the lower 48 states (2007)
- Aerial Photograph Flown March (2010)

Figure 2. Study Area NWI



4.2.1 DEVELOPED

Developed features in the Study Area include those anthropogenic features such as buildings and other structures, roads, horseshoe pits, and archery ranges. This habitat type also includes any feature that is constantly maintained by humans including the valley oak plantings (in the western half) and the agricultural ditch (along the eastern edge).

Vegetation. Vegetation in the developed areas consists of many of the same species described below under annual grassland habitat, as well as ornamental trees, shrubs, and herbs. Some of the ornamental trees include blue gum (*Eucalyptus globulus*) (NL), Bishop pine (*Pinus muricata*) (NL), oleander (*Neris oleander*) (NL), and valley oak (*Quercus lobata*) (FAC*). Vegetation within the lawns is comprised of commercial turf grasses such as fescue (*Festuca* sp.) (NL), and other grasses resistant to heavy traffic such as Bermuda grass (*Cynodon dactylon*) (FAC) and hairy crab grass (*Digitaria sanguinalis*) (FACU). Other ruderal species are abundant and include ruby sandspurry (*Spergularia rubra*) (FAC), wild radish (*Raphanus sativus*) (NL), mouse-ear chickweed (*Cerastium glomeratum*) (NL), and yellow star thistle (*Centaurea solstitialis*) (NL).

In addition, large areas within annual grassland habitat have been planted with valley oaks. Because these areas are maintained by humans (weeded, watered, and mowed) they are considered developed.

According to the survey record, the agricultural ditch occurring along the eastern edge of the Study Area, but out side of the fenced perimeter, occurs within the property boundary. This agricultural ditch is utilized and maintained by the adjacent land owner as part of an agricultural water delivery system. The human excavated ditch is roughly three feet wide and four feet in depth. The vegetation within the ditch depends on the season as well as its use and maintenance (vegetation removal, excavation). During the last field visit on June 18, 2010 the ditch was dominated by broadleaf peppergrass (*Lepidium latifolium*) (FACW), a noxious invasive weed that is currently being targeted on site for removal.

Soils. Soils in the developed areas were not evaluated because these areas lacked other wetland indicators.

Hydrology. This community is maintained and cared for primarily by artificial hydrology sources.

Justification for Non-Jurisdictional Status. No positive wetland indicators were observed in the developed areas. As such, it does not meet the Corps' definition of a wetland.



4.2.2 ANNUAL GRASSLAND

Annual grasslands occur in well-drained upland sites that are dry during the summer. This seasonally dry habitat is characterized by a dominance of naturalized non-native grasses that cover the well-drained uplands within the Study Area and surrounding areas.

Data forms 2, 3, 7, 10, 12, and 14 in Appendix A are representative of the vegetation, hydrology, and soils of the annual grassland habitat.

Vegetation. Vegetation within this habitat is typical of annual grassland habitat in the Central Valley. Dominant plants consist of upland and facultative upland grasses including wild oat (*Avena fatua*, *A. barbata*) (NL) and soft chess (*Bromus hordeaceus*) (FACU). Less dominant grasses include ripgut grass (*Bromus diandrus*) (NL), hare barley (*Hordeum murinum* ssp. *leporinum*) (NI), annual fescues (*Vulpia* ssp.) (NL), and medusa-head grass (*Taeniatherum caput-medusae*) (NL). Forbs were also present and those subdominants are listed in the general order of abundance as follows: yellow star-thistle (*Centaurea solstitialis*) (NL), bind weed (*Convolvulus arvensis*) (NL), spring vetch (*Vicia sativa*) (FACU), rose clover (*Trifolium hirtum*) (NL), redstem filaree (*Erodium cicutarium*) (NL), Fitch's tarplant (*Hemizonia fitchii*) (NL), common fiddleneck (*Amsinkia menziesii*) (NL), and Pursh's lotus (*Lotus purshianus*) (NL).

Patches of California poppy (*Eschscholzia californica* var. *californica*) (NL) and milk thistle (*Silybum marianum*) (NL) were scattered about this habitat.

Trees, shrubs and other woody vegetation are generally absent from this habitat except in the southwestern portion of the Study Area where valley oaks (*Quercus lobata*) (FAC*) have been planted. Those grassland areas where significant number of valley oaks were planted and irrigated were classified as developed habitat (see Section 4.2.1 above).

Soils. The soils in this habitat have clay, silty clay, and silty clay loam textures. Soil colors vary and include 7.5 YR 3/2, 10 YR 3/1, 10 YR 3/2, 10 YR 3/4, and 10 YR 4/1 with a redoximorphic feature color of 10 YR 2/1. Hydric soil indicators were not observed in this habitat.

Hydrology. Wetland hydrology indicators were not observed in this habitat.

Justification for Non-Jurisdictional Status. No positive wetland indicators were observed in the annual grassland habitat. As such, it does not meet the Corps' definition of a wetland.

4.2.3 SEASONAL WETLAND



Seasonal wetlands are scattered throughout the Study Area. The most extensive seasonal wetland occurs as an apron around the large vernal pool located in the southeastern corner of the Study Area. Seasonal wetlands occur in areas that are saturated for some period of time, but generally do not pond water for long periods. In general, seasonal wetlands support weedy hydrophytes and lack a dominance of native vegetation.

Many of the seasonal wetland on site are disturbed (i.e., disked, planted with perennial grasses, drained) and may have supported more typical native plant species composition (i.e., vernal pool plants) in a prior less disturbed state.

Data forms 1, 4, 9, 11, and 13 in Appendix A are representative of the vegetation, hydrology, and soils of seasonal wetland habitat.

Vegetation. Vegetation within seasonal wetlands on site are generally dominated by facultative species with some facultative wetland and facultative upland plant species occurring as sub dominance. Plant species occurring in the seasonal wetland habitat include annual Italian ryegrass (*Lolium multiflorum*) [FAC], Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) (FAC), rabbitsfoot grass (*Polypogon monspeliensis*) (FACW), hyssop loosestrife (*Lythrum hyssopifolia*) (FACW), curly dock (*Rumex crispus*) (FACW), common toad rush (*Juncus bufonius*) (FACW), blow wives (*Achyraea mollis*) (FAC), and annual silver hairgrass (*Deschampsia danthanooides*) (FACW).

Occasional obligate wetland species including Sacramento mesamint (*Pogogyne zizyphoroides*) (OBL), Oregon woolly-heads (*Psilocarphus oregonus*) (OBL), or purslane speedwheel (*Veronica peregrina* ssp. *xalapensis*) (OBL) were sparsely observed in the deep ruts caused by vehicle or disking activities.

Soils. The soils in this habitat have clay or silty clay textures. Soil colors varied and include 7.5 YR 3/2, 10 YR 3/1, 10 YR 3/2, and 10 YR 4/2, with redoximorphic feature colors of 7.5 YR 2/0, 10 YR 2/1, 10 YR 3/2, 10 YR 3/3, and 10 YR 4/3. Seasonal wetland habitat on site exhibited positive indicators for hydric soils.

Hydrology. Inundation and soil saturation to the surface were directly observed in all of the seasonal wetlands onsite during the winter and spring of 2010. In addition, positive indicators of wetland hydrology were observed in all of the seasonal wetland areas and included surface soil cracking, water stained leaves, and oxidized rhizospheres, and visible ponding on aerial photographs.



Justification for Non-Jurisdictional Status. Although seasonal wetland habitat on site exhibits positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology they are not considered Corps-jurisdictional because they appeared to be isolated and therefore lack an Interstate or Foreign Commerce Connection.

4.2.4 SEASONAL SWALE

Seasonal swales are similar to seasonal wetlands in vegetation composition and soil characteristics. However, they differ from seasonal wetland in that they do not pond water in basins, rather they function similar to a drainage that flows water.

Data form 6 in Appendix A is representative of the vegetation, hydrology, and soils of seasonal swale habitat.

Vegetation. Vegetation within the seasonal swales was primarily facultative to facultative wetland species, subdominated by obligate wetland and upland species. Vegetation within the swales included annual Italian ryegrass (*Lolium multiflorum*) [FAC], Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*) (FAC), hyssop loosestrife (*Lythrum hyssopifolia*) (FACW), curly dock (*Rumex crispus*) (FACW), coyote thistle (*Eryngium vaseyi*) (FACW), hawkbit (*Leontodon taraxacoides*) (FACU), and others.

Soils. The soils in this habitat have silty clay textures. Soil color was 10 YR 2/1, with a redoximorphic feature color of 10 YR 4/1. This feature exhibited a positive indicator for hydric soils.

Hydrology. Swales on site receive water during rainfall events, both directly and from sheet flow from upslope areas. After sheet flow subsides, the soil surface in swales remains saturated for a short period as the profile drains. The soil surface of some swales also is maintained in a saturated state for some period after rainfall by capillary rise above near-surface groundwater perched on impervious claypan layers.

Justification for Non-Jurisdictional Status. Although seasonal swale habitat on site exhibits positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology they are not considered Corps-jurisdictional because they appeared to be isolated and therefore lack an Interstate or Foreign Commerce Connection.

4.2.5 VERNAL POOL

Vernal pools are seasonally flooded landscape depressions where water ponds because of limitations to surface or subsurface drainage. Surface drainage is prevented by their depressed



or concave topography. Subsurface drainage is inhibited by subsurface hardpan (duripan) or claypan soil layers that impede the downward filtration of water. Vernal pools support an endemic flora adapted to periodic or continuous inundation during the wet season and desiccation during the summers.

Data form 5 in Appendix A is representative of the vegetation, hydrology, and soils of vernal pool habitat.

Vegetation. Vernal pools observed on site support a prevalence of hydrophytic plant species typical of the Sacramento Valley vernal pool flora. Vernal pool basins are dominated by cupped downingia (*Downingia insignis*) (OBL), woolly marbles (*Psilocarphus brevissimus*) (OBL), stipitate popcorn flower (*Plagiobothrys stipitatus*) (OBL), coyote thistle (*Eryngium vaseyi*) (FACW), purslane speedwheel (*Veronica peregrina* ssp. *xalapensis*) (OBL), and hyssop loosestrife (*Lythrum hyssopifolia*) (FACW).

Subdominant hydrophytic species observed in vernal pools basins included Sacramento mesamint (*Pogogyne zizyphoroides*) (OBL), annual hairgrass (*Deschampsia danthanoides*) (FACW), Fremont goldfields (*Lasthenia fremontii*) (OBL), common spike-rush (*Eleocharis macrostachya*) (OBL), bractless hedge-hyssop (*Gratiola ebracteata*) (OBL), American pillwort (*Pilularia americana*) (OBL), water-starwort (*Callitriche marginata*) (OBL), vernal buttercup (*Ranunculus bonariensis* var. *trisepalus*) (OBL), and water pigmy-stonecrop (*Crassula aquatica*) (OBL).

Vernal pool margins supported a prevalence of hydrophytic vegetation and were generally dominated by Mediterranean barley (*Hordeum marinum* var. *gussoneanum*) (FAC), common toad rush (*Juncus bufonius*) (FACW+), and annual Italian ryegrass (*Lolium multiflorum*) [FAC].

Soils. The soils in this habitat have clay and silty clay textures. Soil color was 10 YR 4/1 with a redoximorphic feature color of 10 YR 4/3. This feature exhibited a positive indicator for hydric soils.

Hydrology. Vernal pools on site occur in topographic micro-depressions and are underlain by impermeable clay layers (claypan). These features receive water during rainfall events, both directly and from sheet flow from upslope. Inundation and soil saturation to the surface were directly observed in all of the vernal pools during the winter and spring of 2010.

Justification for Non-Jurisdictional Status. Although vernal pool habitat on site exhibits positive indicators of all three mandatory criteria (hydrophytic vegetation, hydric soils, and



wetland hydrology) they are not considered Corps-jurisdictional because they appeared to be isolated and therefore lack an Interstate or Foreign Commerce Connection.

4.2.6 VERNAL SWALE

Vernal swales are similar to seasonal swales in that they generally convey water rather than pond it. However, their vegetation composition is much more similar to vernal pool habitats rather than seasonal swales, and support a minimum of two or more vernal pool indicator plants.

Data form 8 in Appendix A is representative of the vegetation, hydrology, and soils of vernal swale habitat.

Vegetation. Vernal swale vegetation on site consists of coyote thistle (*Eryngium vaseyi*) (FACW), little quakinggrass (*Briza minor*) (FACW), woolly marbles (*Psilocarphus brevissimus*) (OBL), common spike-rush (*Eleocharis macrostachya*) (OBL), fireweed (*Epilobium cleistogonum*) (OBL), smooth-spike primrose (*Epilobium pygmaeum*) (OBL), stipitate popcorn flower (*Plagiobothrys stipitatus*) (OBL), annual hairgrass (*Deschampsia danthanooides*) (FACW), rayless goldfields (*Lasthenia glaberrima*) (OBL), and purslane speedwheel (*Veronica peregrina* ssp. *xalapensis*) (OBL)

Similar to vernal pools, edge of vernal swales supported annual Italian ryegrass (*Lolium multiflorum*) [FAC], Mediterranean barley (*Hordeum marinum* var. *gussoneanum*) (FAC), and common toad rush (*Juncus bufonius*) (FACW).

Soils. Soils within the vernal swales on site are similar to the soils within vernal pools (silty clay texture and a soil colors of 10 YR4/1 as described above), which exhibited a positive indicator for hydric soils.

Hydrology. Swales on site receive water during rainfall events, both directly and from sheet flow from upslope. After sheet flow subsides, the soil surface in swales remains saturated for a short period as the profile drains. The soil surface of some swales also is maintained in a saturated state for some period after rainfall by capillary rise above near-surface groundwater perched on impervious claypan layers.

Justification for Non-Jurisdictional Status. Although vernal swales habitat on site exhibits positive indicators of all three mandatory criteria (hydrophytic vegetation, hydric soils, and wetland hydrology) they are not considered Corps-jurisdictional because they appeared to be isolated and therefore lack an Interstate or Foreign Commerce Connection.

4.2.7 SEASONAL POOL



Seasonal pools on site are characterized by defined depressions that pond water seasonally but do not currently support vegetation or are very sparsely vegetated (<5% cover). The lack of vegetation is presumably due to ground disturbances from heavy equipment use and concrete excavations.

Vegetation. Seasonal pool habitats are generally devoid of vegetation. When vegetation does occur it is sparse and consisted of those hydrophytic species describe above for seasonal wetland habitat.

Soils. Soils within this habitat are inundated for long durations during the growing season, a hydric soil indicator.

Hydrology. Inundation and soil saturation to the surface were directly observed in all of the seasonal pool habitats during the winter and spring of 2010.

Justification for Non-Jurisdictional Status. Seasonal pool habitat on site are not considered Corps-jurisdictional habitat because they are isolated and therefore seem to lack an Interstate or Foreign Commerce Connection.

4.2 Interstate or Foreign Commerce Connection

The Yolo County Grassland Regional Park is isolated from other native landscapes. The Study Area is surrounded by agricultural fields that have been leveled thus filling in all drainage features (e.g., swales, creeks). Although all five wetlands types occurring on site (vernal pool, vernal swale, seasonal wetland, seasonal pool, seasonal swale) exhibit positive indicators of all hydrophytic vegetation, hydric soils, and wetland hydrology they are not considered Corps-jurisdictional because they have no natural outlet, appeared isolated, and therefore lack an Interstate or Foreign Commerce Connection.



5.0 REFERENCES

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5.2 Personal Communications

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