Guadalupe-Nipomo Dunes Preliminary Wetland Evaluation

Prepared for:

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1.0 Introduction

Freshwater wetlands in the Guadalupe-Nipomo Dunes (GND), specifically within the Unocal Guadalupe Oil Field (GOF), were significantly impacted by the long term operation of and, ultimately, detrimental diluent spills at this facility. Biological impacts of the diluent releases on these wetlands were largely unknown due to the unknown pre-spill conditions of the wetlands, that is, there were no, or few, data to establish base-line conditions of the wetlands. In response to this lack of information, this study was proposed as an initial assessment of the wetlands within the GND.

As originally envisioned, the focus was essentially the larger wetlands with year round standing water. This focus was changed during discussions with various Dunes Collaborative members to put more emphasis on smaller wetland such as occur in dune swales. Larger wetlands areas, such as Oso Flaco Lake, Black Lake, and the Santa Maria River estuary, have been the focus of other studies and would be inventoried but not in-depth.

The wetlands of primary interest were those with standing water or those showing signs of having had standing water within the recent past. These latter wetlands might reasonably be expected to have water in them again in the perhaps near future. Regulatory agency parameters used to define wetlands were not used to identify and delineate wetland boundaries during the course of this survey; these parameters are ambiguous and difficult to apply in dune habitats. Rather, elements of the regulatory definitions of wetlands were applied when applicable to recognize and identify natural dune wetland habitats. Furthermore, the purpose of this exercise was not to conduct an official jurisdictional determination for land use permit purposes. The purpose of this study was to identify, locate, map, photograph and collect preliminary data on the wetlands, as defined above, in the greater GND and omit those 'jurisdictional' wetland areas that might be included when using regulatory criteria to establish wetland presence for land development purposes. Information collected would be presented in a format useful to biologists, land managers and others interested in wetlands.

The project was not completed as proposed and therefore this is a report on an unfinished project. A part of the reason was related to logistics of time and accessibility. Once the fieldwork began, it became apparent that swale habitats in the GND were more prevalent than anticipated and were very difficult to access due to difficulty reaching them and impenetrable vegetation surrounding them.

This report follows a standard format of describing the methods used to survey the wetlands, presentation of the results generally as photos of the wetlands along with the data collected for the area, a brief discussion of the results and suggestions for further studies. Appendices include the original proposal, the final scope of work, and the format for the field data sheets.

2.0 Methods

As stated above, the approach used for detennining a wetland for the purpose of this study was neither a strict application of the Army Corps of Engineers three parameter rule (presence of wetland hydrology, hydrophytic vegetation and hydric soils) nor the California Department of Fish and Game and United States Fish and Wildlife Service definitions, satisfied by the presence of one of the three stated parameters. Rather a more functional, utilitarian approach. This approach may be simply stated as 'if it looks like a wetland, then it probably is'. This approach was taken to omit areas which may be included in strict application of regulatory agency criteria, such as water puddled in roadways or dune slopes vegetated by a dominance of clustered field sedge *(Carex praegracilis).*

Within coastal dune ecosystems, biologically significant wetland habitats extend beyond surface water ponding. Areas with groundwater just below the surface also provide viable wetland functions. In detennining if an area should be included within our mapping effort, the vegetative composition and hydrology were evaluated. Areas with a predominant presence of obligate and facultative wetland plants were chosen. Areas without current standing water were evaluated to determine if standing water had been present in the past or if it could be sunnised, that groundwater was shallow in the area. The past presence of surface water ponding was evident through the observation of adventitious roots or water staining on vegetation.

The Land Management Units (LMU), developed for weed eradication planning in the GND, were utilized to organize the GND complex into manageable units for our survey efforts. Recent aerial imagery for each LMU was reviewed to identify suspect wetland features. Active dune sands and coastal dune scrub habitat appear different than dune swale or pond habitats on aerial photos. Once suspect wetland features were identified, the LMU was visited to detennine if the feature met the criteria of a wetland habitat, as defined for our study. If so, then the characteristics of the were evaluated and recorded.

Each wetland feature was given a unique identifier, using the LMU as the root of the name. The feature was mapped either using a Trimble hand-held GPS unit capable of sub-meter accuracy, or for larger and distinct features, the boundary was marked on an aerial image for later digitization. Photographs representing the wetland feature were taken from an overview and close-up perspective. The locations of the photographs were recorded with the GPS unit.

All data were recorded on standardized field data sheets developed for this project (Appendix 5). Physical, morphological, and biotic characteristics were recorded for each wetland. Also recorded were access and location infonnation, description of the surrounding habitat, and possible impacts.

The wetland description included a classification of the type of wetland, including a pond, marsh wetland, willow wetland, willow woodland, dune swale, cattle pond, or dry wetland or marsh. Ponds were areas with standing water with little or no flow that had areas with open water and lacked vegetative cover. A marsh wetland was vegetated mainly or exclusively by emergent vegetation such as cattails *(Typha* spp.), sedge *(Carex* spp), rushes *(Juncus* spp.), tules *(Scirpus* spp.), or grasses and lacked cover by willows *(Salix* spp.). A willow wetland was vegetated mainly by willows and possibly emergent, non-woody vegetation. A willow woodland wetland was densely vegetated by willows and lacked emergent, non-woody vegetation. A dune swale was a low area among old, stabilized dunes. Standing water was a result of surfacing groundwater. A cattle pond was usually a modified wetland or drainage that was created for cattle use.

The hydraulic regime (permanent or ephemeral), estimated depth, estimated maximum depth, estimated average depth, if there was evidence of standing water, bank angle, wetland

substrate, water clarity (if applicable), percent canopy cover, percent emergent vegetation, and gross classification (either dry wetland, pond, or marsh). The habitat description is a description of the dominant vegetation species (Table 1), sub-dominant vegetation, observed wildlife species, and if the wetland was impacted by exotic vegetation and if so, what species. Notable observations of listed or sensitive species such as the presence of California red-legged frogs, or CRLF *(Rana aurora draytonil),* southwestern pond turtles or SWPT *(Clemmys marmorata pa/lida),* two-striped garter snake, or TSGS *(Thamnophis hammondil),* La Graciosa thistle, or LGT *(Cirsium /oncholepsis)* or other sensitive species were documented. The suitability of the wetland feature for the presence of these species was also evaluated and recorded. Photographs of the site were taken with the azimuth recorded. The wetland was classified by system (riverine, lacustrine, palustrine), abiotic substrate, unconsolidated bottom, water regime, hydrogeomorphic unit, and water chemistry. General notes and other observations were made and recorded on data sheets as warranted.

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seecies	Common name	Abbreviation/name
Arundo donax	giant reed	arundo;
Baccaharis pilularis	coyote bush	bac pil; bac sp.; coyote brush
Brassica sp.	mustard	
Bromus diandrus	ripgut brome	
Carex praegracilis	clustered field sedge	Car pra; **carex**
Carpobrotus sp.	iceplant	
Cirsium vulgare	bull thistle	
Chenopodium sp.	goosefoot	che pod
Conium maculatum	poison hemlock	
Ehrharta calycina	veldt grass	veldt
Foeniculum vulgare	sweet fennel	fennel
Hydrocotyle ranunculoides	floating marsh pennywort	hydrocoytle
Juncus acutus	spiny rush	jun acu; juncus
Juncus lesueurii	dune rush	jun les
Lemma gibba	duckweed	
Meliotus alba	white sweet clover	
Plantago major	common plantain	pla maj
Populus balsamifera	black cottonwood	
Potentilla anserine	cinquefoil	pot ans
Ribes divaricatum	straggly gooseberry	gooseberry
Ribes ursinus	wild blackberry	blackberry
Salix lasiolepis	arroyo willow	sal las; willow(s)
Scirpus sp.	bulrush	sci pun; scirpus, bulrush
Toxicodendron diversilobum	poison oak	tox div
Typha latifolia	cat tail	typ lat; typha; cattail

Table 1. Dune swale wetland plants present and their common abbreviations.

3.0 Results

A total of nineteen wetlands were evaluated during this project. The locations of these wetlands are shown in Figures 1a, 1b and 1c (All figures prepared by **Mike** Brannagan, Terra Solutions). Of these, two large, perennial water bodies, Oceano Lagoon (Figure 4) and Black Lake (Figure 5), were evaluated in a cursory manner because more detailed botanical and physical data exist for these wetlands, as well as for other large GND wetlands that remained as yet un-sampled by this program. Had this project been completed, existing data would have been incorporated into the wetland database. The remaining wetlands evaluated included two reaches of Meadow Creek (Figures 2 and 3) on the northern end of the Oceano Lagoon wetland complex, and dune swale wetlands in land management units 2082, 2085, 2107, and 2140 (Figures 6 through 20).

An additional eight dune swale wetlands in the northern portion of the GND adjacent to Arroyo Grande Creek in the State Parks Dune Preserve area were evaluated but the data were unfortunately misplaced.

The data collected at each wetland are presented in the figures that follow. For each wetland, there is an aerial photograph of the area with the wetland indicated by the crosshatched area. Also indicated in this figure are the locations of the photographic stations. This figure is followed by the data collected at the wetland followed by photographs taken at the wetland.

Table 1 presents the plants encountered at these wetlands along with the common abbreviation used on the original data sheets for that plant species. Table 2 presents the area of each wetland in square meters and the location of the center of the wetland expressed in CA Stateplane, Zone V, Nad27 feet coordinates. It is noted that these coordinates have not been geo-rectified to confirm with the existing GIS data bases for the GND and these given locations may be off by a few meters. Regardless, the datum remains appropriate for the purpose of providing a geographic reference should future investigators wish to locate these features in the future.

Of the fifteen dune swale wetland areas evaluated, 53.3 percent (53.3%), or eight wetlands, were dry, one wetland (6.7% of those evaluated) was muddy but with no standing water and seven wetlands (40.0% of those evaluated) were ponds. From Table 2, the average size of the dune swale wetlands was 2540 sq. meters and of the ponds was 2798 sq. meters. The depth of the ponds varied from a few inches to an estimated two or so feet.

Eighty percent (80%) of the dune swale wetland areas showed signs of having been used by cattle. Most cattle use appeared not to have been recent. Two ponds showed signs suggesting they were modified at some time to be used as stock ponds for cattle. Cattle were observed in the vicinity of the ponds and at least two ponds showed very recent use by cattle. Exotic vegetation affected 26.6 % of the dune swale wetland areas. The common exotic plants were poison hemlock *(Conium macu/atum),* white sweet clover *(Me/ilotus alba),* fennel *(Foenicu/um vulgare)* and rip-gut brome *(Bromus diandrus).*

Among the plants and animals of special interest in these dune swale wetland areas, the presence of LGT was likely at 15% of the wetlands. Two populations of 100 to 250 individual plants were located at two wetlands evaluated. The presence of CRLF was likely at 50% of the areas evaluated. The observation of one immature CRLF in one of the dune swale wetlands strongly suggests that the frogs breed there. No Southwestern pond turtles were observed and their presence was likely in only 20% of the dune swale wetland areas evaluated. Similarly, the presence of TSGS was likely in 20% of the dune swale wetland areas evaluated. However, one TSGS was observed during the evaluations.

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Wetland Name	Area (sq. m.)	Location of center of area X	y
2082-W-01	636.3	1221843	555494
2085-W-01	693.5	1221788	555062
2085-W-02	3074.0	1221523	555127
2085-W-03	594.5	1221132	555148
2085-W-04	893.7	1220324	555876
2107-W-01	13588.2	1223285	554316
2107-W-02	1854.6	1222738	554194
2107-W-03	1141.2	1222663	555090
2121-W-01	2500.7	1221966	554137
2121-W-02	3608.2	1221235	554579
2121-W-03	3278.5	1220930	554739
2140-W-01	2441.0	1222395	553015
2140-W-02	919.6	1221876	553277
2140-W-03	3034.1	1221560	553467
2140-W-04	2462.5	1220857	553823
OCEANO LAGOON	3033.5	1214424	592318
BLACKLAKE	60281.6	1221231	576863
MEADOW1	980.1	1213546	600906
MEADOW2	3407.9	1213122	602162

X, Y Coordinates are in CA. Stateplane, Zone *V,* Nad27 Feet

Table 2. Location and size of GND wetlands evaluated.

Please Note: The normal format is for the presentation of the results to follow, which here consist of over 50 pages of mainly photographs and data, followed by the Discussion section. However, an exception to this format is made here for simplification and the Discussion section will follow, followed by presentation of the results.

4.0 Discussion/Recommendations

Dune swale wetlands that were sampled represent approximately 20 percent of these types of wetlands in the GND exclusive of the Chevron property. Until the remainder of the dune swales are evaluated and the other large, significant GND wetlands are evaluated and the existing data are examined, a detailed discussion of the results of this study would be premature. Some general comments can be made, however.

The principal hydraulic source for dune wetlands is ground water. Some rain water or storm runoff may flow into ponds, however it is the presence of the ground water table at or near the surface that maintains the surface ponding. As such, for those areas where the ground water is just barely at or below the surface, the ponds are ephemeral in nature; these tend to be the dune swale wetland types. The more permanent water sources are found in the ponds and marsh wetland types. These typically have surface water through multiple seasons and multiple years.

The shallowness of the ground water interface defines the wetland habitat type. Hydrophytic vegetated wetlands {cat tails and/or willows) are found in areas of shallow ground water.

The two populations of LGT were newly found populations not yet reported {wetland 2121-W-02 and 2121 -W-03). The CRLF observed at wetland 2140-W-01 was a sub-adult and, as no known CRLF breeding ponds were located in the vicinity, offers the strong suggestion that the 2140-W-01 wetland is a breeding pond for CRLF. Although CRLF were assumed to be present in dune swale wetlands, the documentation of CRLF and the high likelihood that they breed in these wetlands was unreported prior to this investigation.

There are three general recommendations that can be made from this very preliminary examination of the dune swale habitats in the GND.

First, this study should be completed with all of the dune swale wetlands visited, photographed, evaluated and their perimeter mapped using GPS technology. This applies primarily to those wetland areas for which there is no doubt that they are wetlands, showing either standing water or signs of having had standing water at some time in the recent past {within the last several years).

Second, existing information for the larger, perennial water bodies in the GND, such as the portions Arroyo Grande Creek, Pismo Creek, Carpenter Creek which are in the GND and Oso Flaco Lake, Black Lake and the Dune Lakes, should be assimilated. The extent of these wetlands can be relatively accurately determined from existing GIS data bases with field work to fill in gaps and insure accuracy. These wetlands along with all GND wetlands with permanent or semi-permanent standing water, should have either grab or dip-net samples taken and all benthic organisms identified and relative abundances recorded.

Third, these data should be put in a GIS database as originally proposed and available for easy access by interested parties. These data bases should be able to be updated easily as new information becomes available.

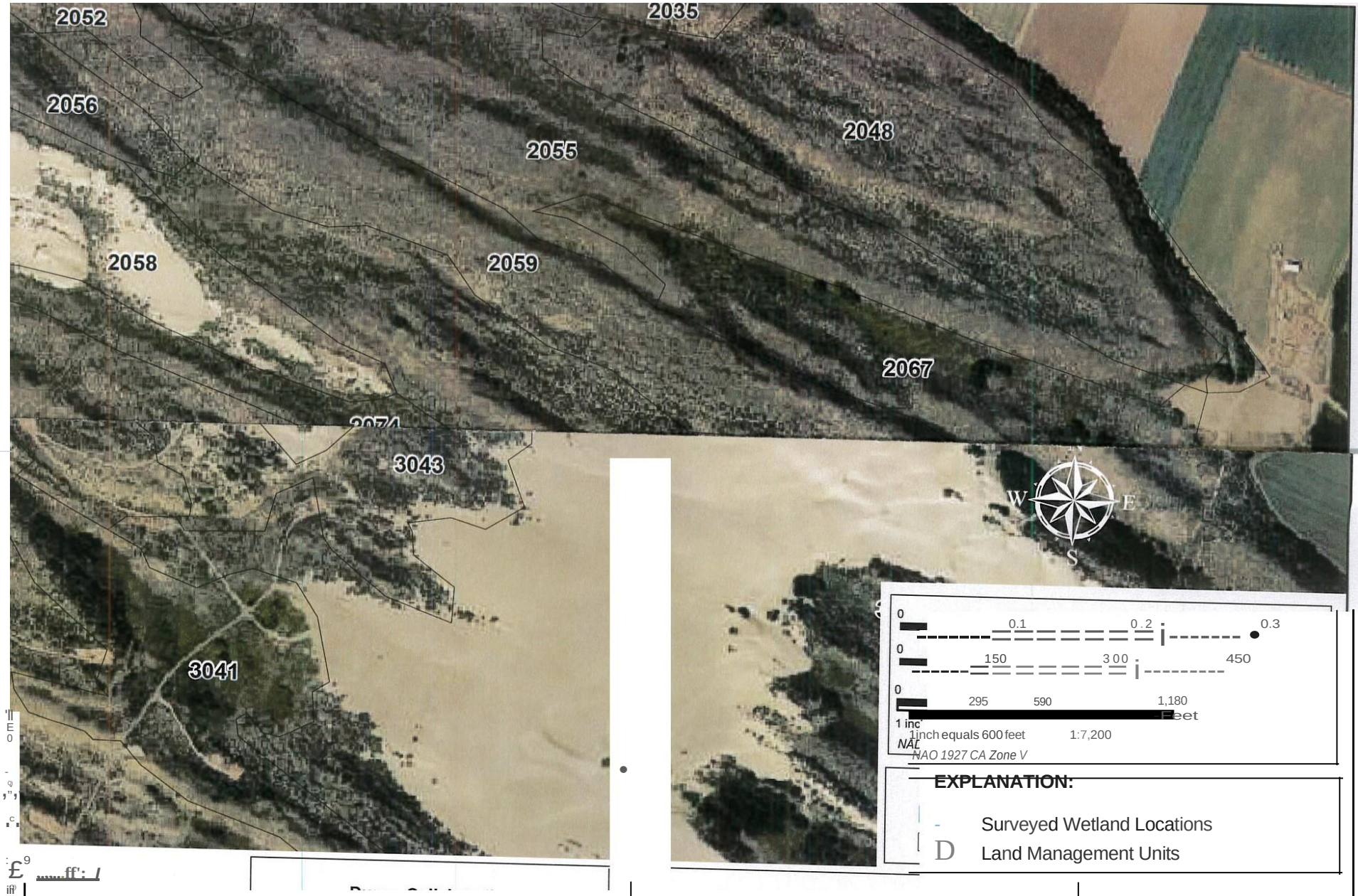

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Figure 1C Extent of Wetland Survey with Aerial Photograph

October 7, 2008 MRB

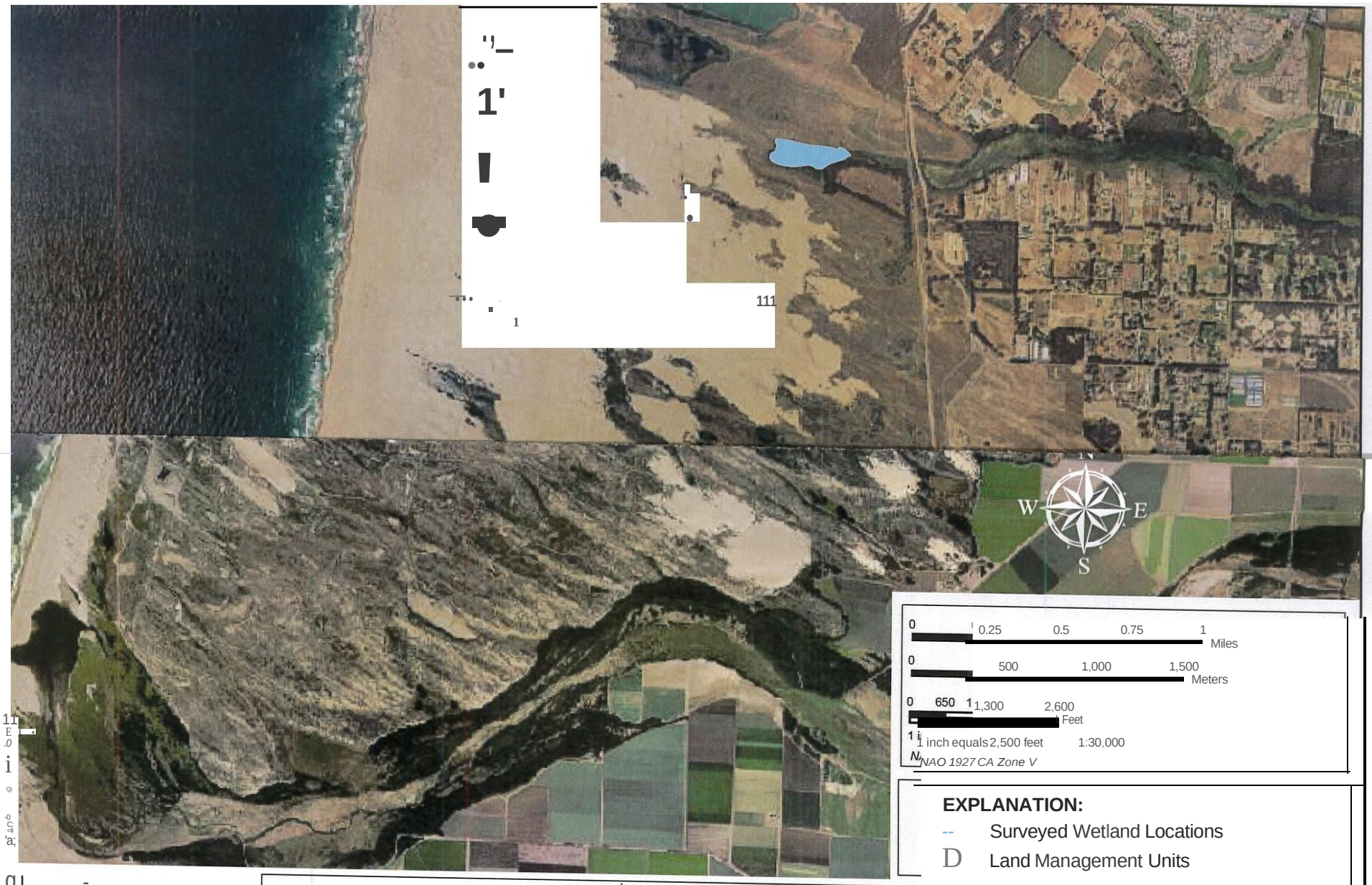

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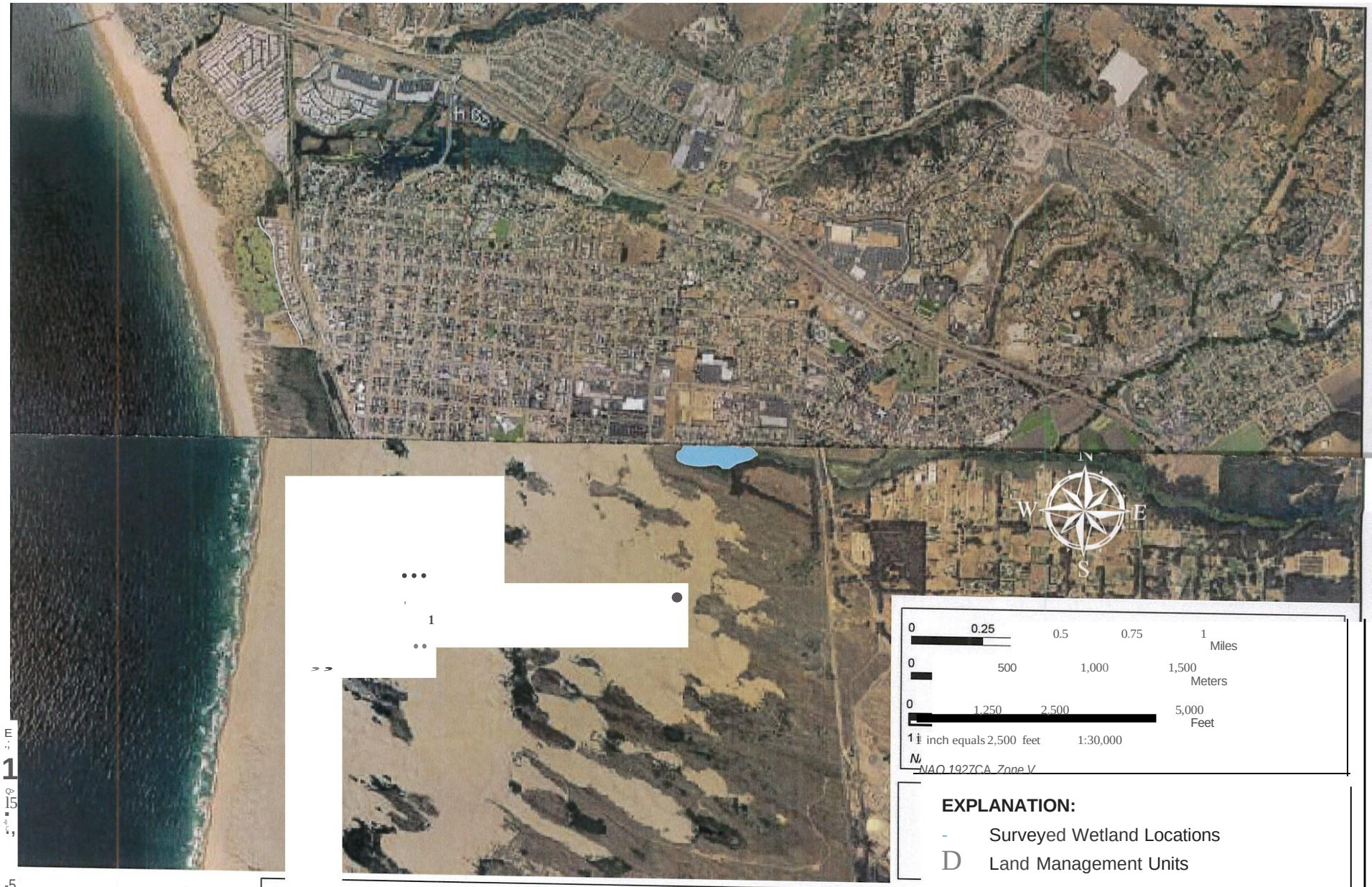
Figure 18 • Extent of Wetland Survey with Aerial Photograph

October 7, 2008 MRB



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Extent of Wetland Survey
Figure A. with Aerial Photograph

October 7, 2008 MRB

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Figure 2: Meadow Creek Reach 1

September 30, 2008 MRB

Wetland Inventory Report

Wetland Number MEADOW1

Land Management Unit#: Date: 6/10/2005 Time: I0:00:00 A Biologists: Jim/Cindy

Access Information: Slarting at Grand Ave. bridge to LeSage bridge

Weather: Sunny and windy Temperatnre: 75 Location: Grand Ave. bridge

Description of Snrrounding Habitat: E is LeSage Riviera parking, W is horse staging area

Impacts to Wetlands: Weed Infestation

If Other (What Impacts):

Wetland Description

Type: Creek/Stream Hydraulic Regime: Permanent Est. Depth: 15 cm to 1/3

Est. Max Depth: Est. Avgerage Depth: 1.5 ft Standing Water Evidence:

Angle of Bank: Shallow Wetland Substrate: Man-made Water Clarity: Tea

Percent Canopy Cover: 80 Percent Emergent Vegetation: 70 Gross C..lassification: Creek/Stream

Habitat Elements

Dominant Vegetation Species: sci pun, blackberry, iceplant, poison oak, willows

Sub-Dominant Vegetation:

Observed Wildlife Species: crayfish

CRLF Presence: Potential breeding, SWPT Presence: Likely presence TSGS Presence: Likely presence

LGT Presence: Other Potential Sensitive Species:

Wetland Impacted by Exotic Vegetation: Exotic Species Present: Pampas grass along reach

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
MEADOWI-PS-01		MeadowI-I	6/10/2005	Cindy Cleveland	Looking N from Grand Ave.
PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
MEADOWI-PS-02		Meadowl-3	6/10/2005	Cindy Cleveland	Open Water

Wetland Classification

System: Riverine

Abiotic Substrate

Unconsolidated Bottom: Mud Riverbed or Streambed: Mud

Water Regime: Permanently-satwated Water Chemistry: Fresh water

Hydrogeomorphic Unit: Artificial ditches If Other:

Notes: Depth I foot, running SE to S. East bank 8 to 10 feet, 45 degree, heavy growth of blackberry, iceplant, poison oak. Some areas of open water, looks deep. Overstory - willows, 80% cover

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Guadalupe-Nlpomo Wetland Inventory

Figure 3: Meadow Creek Reach 2

September 30, 2008 MRB

Wetland Inventory Report

Wetland Number MEADOW2

Land Management Unit#: **Date:** 6/10/2005 **Time:** 8:50:00 **A** **Biologists:** Cindy/Jim

Access Information: Started at Fin's restaurnnt

Weather: Sunny and windy **Temperature:** 70 **Location:** Parking lot at Fins - Meadow creek

Description of SUJToondiJJg Habitat: Golf course on west side, trailer park on east side. Heading N along Meadow from LeSage Bridge to N end ofLeSage Riviera (trailer park).

Impacts to Wetlands: Weed Infestation

If **Other (What Impacts):**

Wetland Description

Type:	Bydranlic Regime:	Est. Depth:
Est. Max Depth:	Est. Avgerage Depth: I - 2 feet	Standing Water Evidence: D
Angle of Bank:	Wetland Snbstrate:	Water Clarity:
Percent Canopy Cover:	Percent Emergent Vegetation:	Gross Classification:
Type: Creek/Stream	**Hydranlic Regime:** Semi-permanent/Permanent	**Est. Depth:** 1/3 m to 1/2 m
Est. Max Depth:	**Est. Avgerage Depth:**	**Standing Water Evidence:**
Angle of Bank: Steep	**Wetland Substrate:** Man-made	**Water Clarity:** Tea
Percent Canopy Cover: 60	**Percent Emergent Vegetation:** 60	**Gross Classification:** Creek/Stream

Habitat Elements

Dominant Vegetation Species: sci pun

Sub-Dominant Vegetation:

Observed Wildlife Species: Pond turtles, coyote, snakes, beaver chewing on branches and muskrat possibly, mosquito fish

CRLF Presence: Potential breeding, **SWPT Presence:** Likely presence **TSGS Presence:** Likely presence

LGT Presence: **Other Potential Sensitive Species:**

Wetland Impacted by Exotic Vegetation: li2! **Exotic Species Present:** Pampas grass (3 clumps)

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
MEADOW2-PS-OI		Meadow2-J	6/10/2005	Cindy Cleveland	LookingN
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
MEADOW2-PS-02		Meadow2-2	6/10/2005	Cindy Cleveland	LookingN
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
MEADOW2-PS-02		Meadow2-3	6/J0/2005	Cindy Cleveland	Looking S

Wetland Classification

System: Riverine

Abiotic Substrate

Unconsolidated Bottom: Mud **Riverbed or Streambed:** Mud/vegetated

Water Regime: Permanently-saturated **Water Chemistry:** Fresh water

Hydrogeomorphic Unit: Artificial ditches **HOther:**

Notes: 20% overstory. East bank 40% - much higher elevation. West bank 40%. Channel is cleaned once per year but not verydeep.

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Wetland Inventory Report

Wetland **Number** OCEANO

Land Management Unit#: Date: 6/16/2005 Time: 9:40:00 A Biologists: Wayne/Cindy

Access Information: Park at park

Weather: Overcast, light wind Temperature: low 60's Location: Oceano Lagoon Park

Description of Snrronnding Habitat: maintained grass park

Impacts to Wetlands: Human Intnision

If **Other (What Impacts):**

Wetland Description

Type: Lake Hydranlic Regime: Permanent **Est. Depth:** > I 1/2 m

Est. Mu Depth: 3 m Est. Avgerage Depth: 1.5 - 2 m **Standing Water Evidence:**

Angle of Bank: Moderate Wetland Substrate: **Water Clarity:** Tea

Percent Canopy Cover: 5 Percent Emergent Vegetation: 5 **Gross Classification:** Lake

Habitat Elements

Dominant Vegetation Species: sci pun, sal las

Sub-Dominant Vegetation:

Observed Wildlife Species: Waterfowl - mallard, coot

CRLF Presence: Likely presence, p **SWPT Presence:** Likely presence, potent **TSGS Presence:**

LGT Presence: **Other Potential Sensitive Species:**

Wetland Impacted by Exotic Vegetation: **Exotic Species Present:** Arrundo on island

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
OCEANO-PS-01		P1040481	6/16/2005	Wayne Vogler	Overview of lake from S sick

Wetland Classification

System: Lacustrine

Abiotic Substrate

Unconsolidated Bottom: Mud **Riverbed or Streambed:**

Water Regime: Permanently-flooded **Water Chemistry:** Saline, haline

Hydrogeomorphic Unit: Diked estuarine lagoon, basin If **Other:**

Notes: Lake w/in community park. People feecling waterfowl. Willows & scirpus along western shore as buffer between lake and hotel. Island in middle overgrown w/scirpus and ammdo. Bare dirt characteristic of shoreline.

OCEANO-PS-01 Photo#: P1040481 Azimuth: --°
Overview of lake from S side Pier Avenue Bridge

OCEANO-PS-01 Photo#: P1040482 Azimuth: -°
Overview of lake from S side Pier Avenue Bridge

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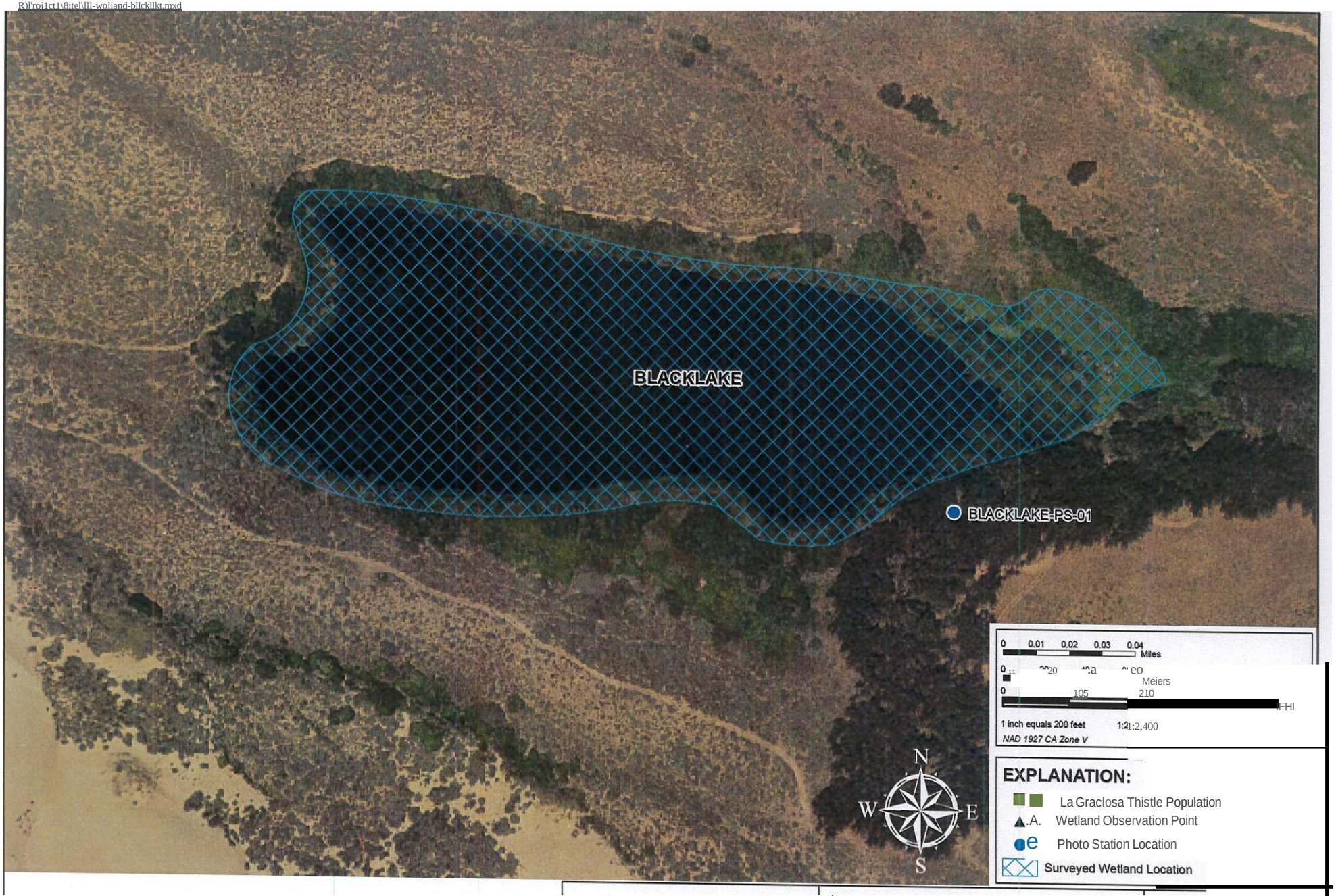

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Figure 5: Black Lake

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Wetland Inventory Report

Wetland Number BLACKLAKE

Land Management Unit#: Date: 6/4/2005 Time: 10:19:00 A Biologists: Wayne Vogler/Jim Blecha

Access Iofonnation: Drive into TLC property

Weather: Temperature: low 60's **Location:**

Description of Surrounding Habitat: Open dune hills to S,W,N; Eucalyptus trees to E

Impacts to Wetlands:

If Other (What Impacts):

Wetland Description

Type: Lake Hydraulic Regime: Permanent Est. Depth: > I I/2 m

Est. Max Depth: 3 m+ Est. Avgerage Depth: 2 m Standing Water Evidence:

Angle of Bank: Moderate Wedand Substrate: Water Clarity: Tea

Percent Canopy Cover: 15 Percent Emergent Vegetation: 15 Gross Oassification: Lake

Habitat Elements

Dominant Vegetation Species:

Sob-Dominant Vegetation:

Observed Wildlife Species:

CRLF Presence: Likely presence SWPT Presence: Likely presence TSGS Presence: Likely presence

LGT Presence: Other Potential Sensitive Species:

Wedand Impacted by Exotic Vegetation: O Exotic Species Present:

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
BLACKLAKE-PS-		Pl040285	6/4/2005	Wayne Vogler	View from E Side

Wetland Classification

Notes:

BLACKLAKE-PS-01 Photo#: P1040285 Azimuth: -° View from E side

BLACKLAKE-PS-01 Photo#: P1040286 Azimuth: -° View from E side

BLACKLAKE-PS-01 Photo#: P1040287 Azimuth: -° View from E side

BLACKLAKE-PS-01 Photo #: P1040288 Azimuth: - ° View from E side

BLACKLAKE-PS-01 Photo#: P1040289 Azimuth: -° View from E side

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Guadalupe-Nipomo Wetland Inventory

Figure 6: 2082-W-01

September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2082-W-01

Land Management Unit#: 2082 **Date:** 5/20/2005 **Time:** 12:12:00 P **Biologists:** Wayne Vogler/Tun Blecha

Access Information: hike from Unocal *Q-5* pad

Weather: Sunny, windy, warm **Temperature:** high 60's **Location:** Southeast comer of GND NWR

Description of Surrounding Habitat: Narrow valley between steep dunes

Impacts to **Wetlands:**

If **Other (What Impacts):**

Wetland Description

Type: Dry wetland | Hydraulic Regime: Ephemeral | Est. Depth: Dry

Est. Max Depth: 15 cm | Est. Avgerage Depth: 2 cm | Standing Water Evidence: O

Angle of Bank: Shallow | Wetland Substrate: | Water Oarity:

Percent Canopy Cover: 50 | Percent Emergent Vegetation: 100 | Gross Classification: Dry Wetland

Habitat Elements

Dominant Vegetation Species: SaJ las, jun Jes, car pra., bac pil, blackberry

Sub-Dominant Vegetation:

Observed Wildlife Species: Wood rat nest in willows

CRLF Presence: Not likely | SWPT Presence: Not likely | TSGS Presence: Not likely

LGT Presence: | Other Potential Sensitive Species:

Wetland Impacted by Exotic Vegetation: | Exotic Species Present: 5% poison hemlock

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
2082W0I-PS-OJ	340	Pl040227	5/20/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2082W0J-PS-0J	15	Pl040228	5/20/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2082W0J-PS-0I	60	Pl040229	5/20/2005	Wayne Vogler	overview of wetland

Wetland Classification

System: PaJustrine

Abiotic Substrate

Unconsolidated Bottom: **Riverbed** or **Streambed:**

Water Regime: Phreatophytic **\Vater Chemistry:** Fresh water

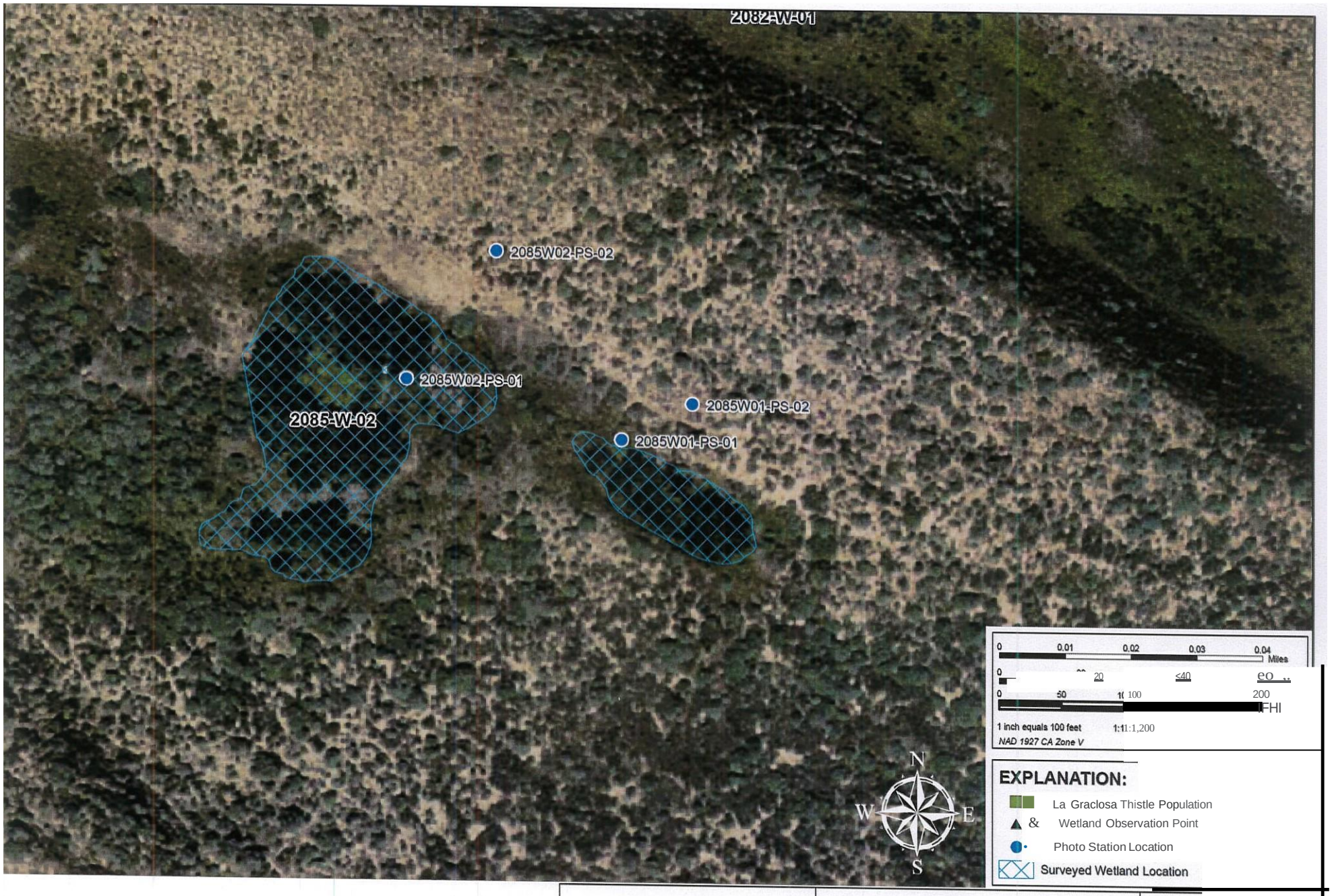
Hydrogeomorpbic Unit: Dune swaJe If **Other:**

Notes: dry wetland. Been dry for lengthy period of time. Transistioning from wetland into dune swaJe habitat (non-wetland). Tall stand of dense willows. Spit bug really hitting coyote bush.

2082W01-PS-01 Photo#: P1040227 Azimuth: 340° Overview of Wetland

2082W01-PS-01 Photo#: P1040228 Azimuth: 15° Overview of Wetland

2082W01-PS-01 Photo#: P1040229 Azimuth: 60° Overview of Wetland


2082-W-01
2085W02-PS-02
2085W02-PS-01
2085-W-02
2085W01-PS-02
2085W01-PS-01
0 0.01 0.02 0.03 0.04 Miles
0 20 <40
0 50 100 200 FHI
1 inch equals 100 feet
1:1:1,200
NAD 1927 CA Zone V
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EXPLANATION:
La Graclosa Thistle Population
Wetland Observation Point
Photo Station Location
Surveyed Wetland Location

Wetland Inventory Report

Wetland **Number** 2085-W-Gl

Land Management Unit#; 2085 Date: 3 /31/2005 Time: I0:25:00 A Biologists: Wayne/Cindy/Jim/Dave

Access Information: Drove ranger along pipeline

Weather: Hot, clear skies.slight bre Temperature: high 80's Location: SE portion of GND NWR

Description of Surronnding Habitat: rolling hills, large valley

Impacts toWetlands: Weed Infestation, cattle

If Other (What Impacts):

Wetland Description

Type: Dry wetland Hydraulic Regime: Ephemeral Est. Depth: 1/3 m to 1/2 m

Est. Max Depth: 2 m Est. Avgerage Depth: <0.3 m Standing Water Evidence: lia

Angle of Bank: Shallow Wetland Substrate: Silts/Fines Water Clarity:

Percent Canopy Cover: 100 Percent Emergent Vegetation: *5* Gross Oassification: Dry Wetland

Habitat Elements

Dominant Vegetation Species: Willows, blackberry, poison oak, car pra, juncus

Sub-Dominant Vegetation:

Observed Wildlife Species: Breeding alligator lizards

CRLF Presence: Not likely SWPT Presence: Not likely TSGS Presence: Not likely

LGT Presence: Other Potential Sensitive Species: Tanagers (summer?)

Wetland Impacted by Exotic Vegetation: D Exotic Species Present:

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
2085W0I-PS-0l	JJ0	Pl030845	3/31/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimuth**	Photo Number	Photo Date	Photographer	Notes
2085W0I-PS-02	240	PI030846	3/31/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimuth**	Photo Number	Photo Date	Photographer	Notes
2085W0I-PS-02	2IO	PI030847	3/31/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimuth**	Photo Number	Photo Date	Photographer	Notes
2085W0I-PS-02	170	PI030848	3/31/2005	Wayne Vogler	Closeup of wetland
PS Name	Azimuth	Photo Number	PhotoDat·e	Photographer	Notes
2085WOI-PS-02	149	PI030849	3/31/2005	Wayne Vogler	Closeup of wetland

Wetland Classification

System: Palustrine

Abiotic Substrate

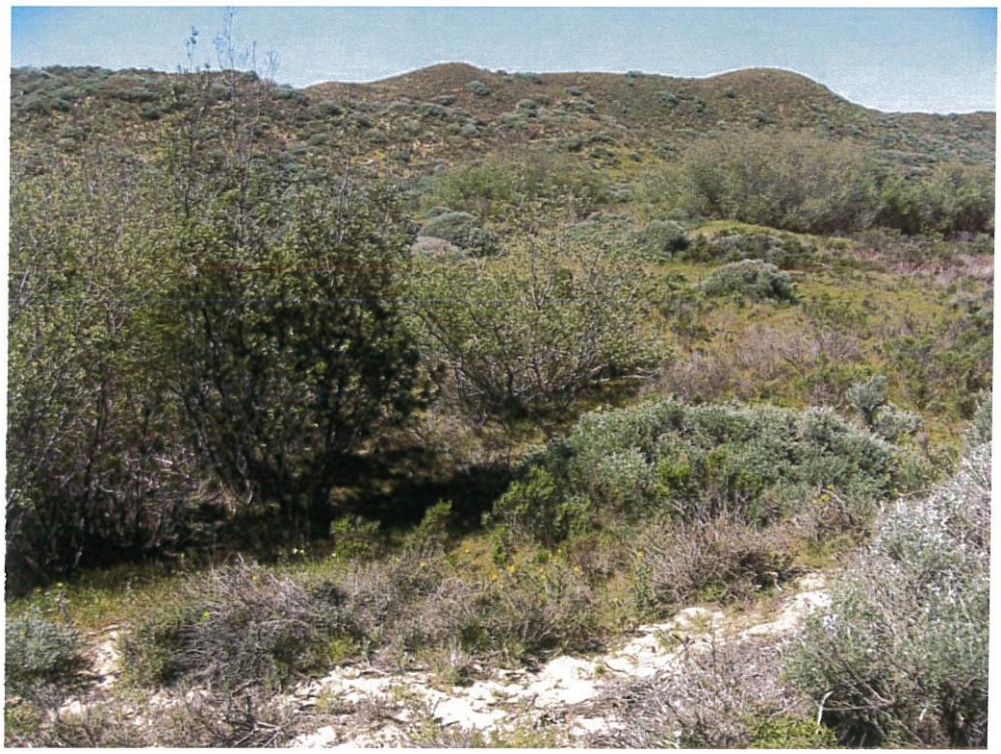
Unconsolidated Bottom: Organic Riverbed or Streambed:

Water Regime: Temporarily-flooded Water Chemistry: Fresh water

Hydrogeomorphic Unit: Coastal dune pond If Other:

Notes: Wetland dry at time of survey. Evidence of standing water (2 fl max) by root butress & cattails. Deep leaf covering on bottom indicate period of timesince flooded.

2085W01-PS-01 Photo#: P1030850 Azimuth: 260° Close-up of wetland



2085W01-PS-02 Photo#: P1030851 Azimuth: 275° Close-up of wetland

2085W01-PS-02 Photo#: P1030852 Azimuth: 305° Close-up of wetland

2085W01-PS-02 Photo #: P1030853 Azimuth: 180° Close-up of wetland

2085W01-PS-02 Photo#: P1030854 Azimuth: 205° Close-up of wetland

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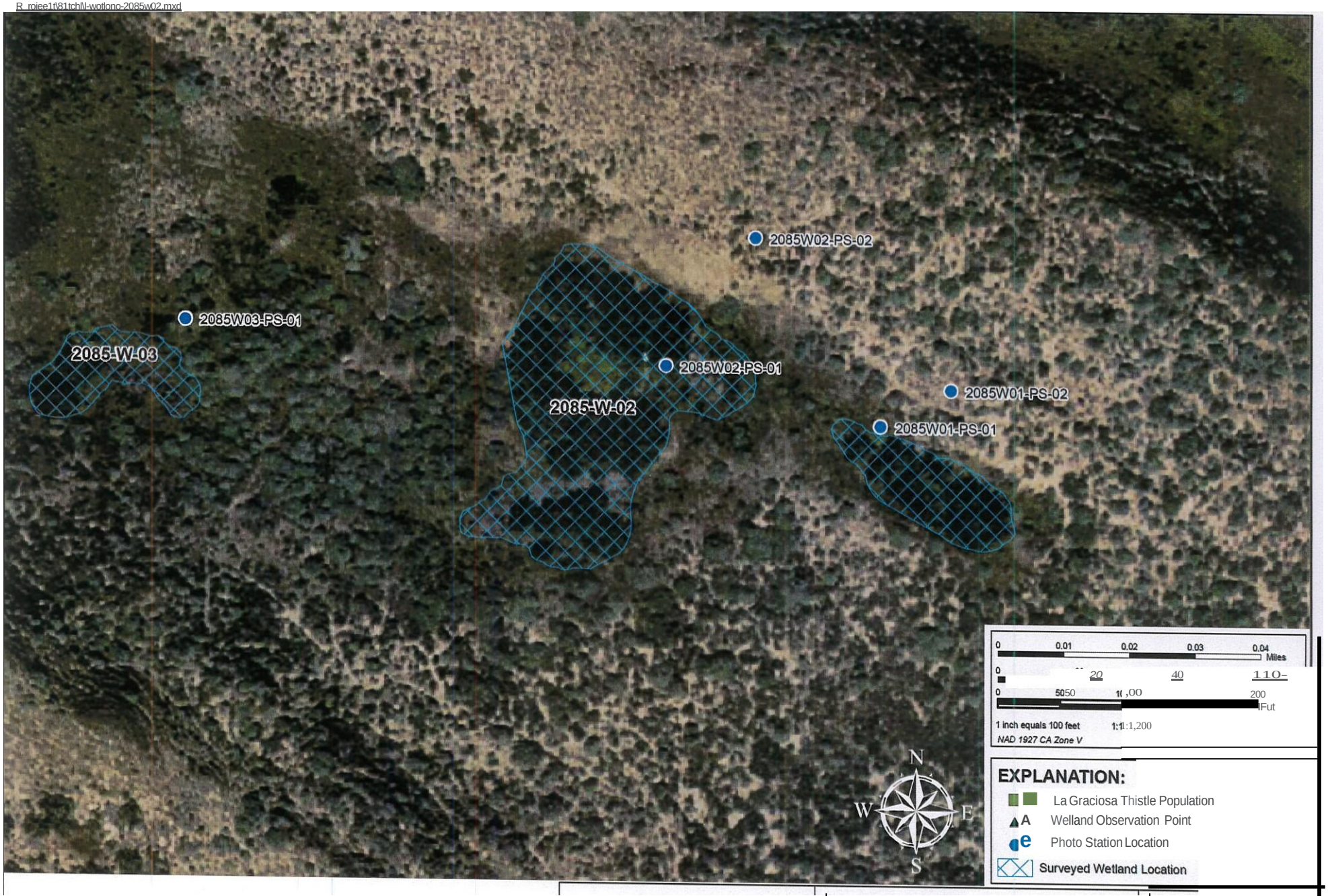


Dunes Collaborative
Ouadalupe,-Nlpomo WetlDnd Inventory

Figure 8: 2085-W-02

September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2085-W-02

Land Management Unit#: 2085 **Date:** 3/31/2005 **Time:** 10:40:00 **A** **Biologists:** Wayne/Jim/Cindy/Dave

Access Information: Drove ranger along pipeline

Weather: Wann sunny, clear skies, s Temperature: high 80's **Location:** SE portion of GND NWR

Description of Sorroooding Habitat: in a large valley

Impacts to Wetlands: Cattle

H **Other(What Impacts):**

Wetland Description

Type: Pond Bydranlic Regime: Permanent **Est. Depth:** 1 m to I 1/2 m

Est. Max Depth: 3 m Est. Avgerage Depth: 1.5 m **Standing Water Evidence:**

Angle of Bank: Shallow Wetland Substrate: **Water Clarity:** Tea

PercentCanopy Cover: 20 Percent Emergent Vegetation: 20 **Gross Classification:** Pond

Habitat Elements

Dominant Vegetation Species: SaJ las, cat tails, jun Jes, car pra, blackbeny

Sub-Dominant Vegetation:

Observed Wildlife Species: 2 splashes from unknown frogs jumping into water, lots of invertebrates (corixids, mosquito larv

CRLF Presence: Likely presence, p **SWPT Presence:** Likely presence **TSGS Presence:**

LGT Presence: **Other Potential Sensitive Species:**

Wetland Impacted by Exotic Vegetation: 0 **Exotic Species Present:**

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
2085W02-PS-O1	260	Pl030850	3/31/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimnth**	**Photo Nnmber**	**Photo Date**	**Photographer**	**Notes**
2085W02-PS-O**1**	275	Pl03085J	3/31/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2085W02-PS-O**1**	305	Pl030852	3/31/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimnth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2085W02-PS-02	180	Pl030853	3/31/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimnth**	**Photo Nnmber**	**Photo Date**	**Photographer**	**Notes**
2085W02-PS-02	205	Pl030854	3/31/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2085W02-PS-02	250	Pl030855	3/31/2005	Wayne Vogler	Overview of wetland

Wetland Oassification

System: PaJustrine

Abiotic Substrate

Unconsolidated Bottom: Mud, organic **Riverbed or Streambed:**

Water Regime: lntermittently-exposed **Water Chemistry:** Fresh water

Hydrogeomorpbic Unit: CoastaJ dune pond If **Other:**

Notes: Evidence of being man-made due to large berm on SE & S sides. 2 fingers extend out from main body of water also showing evidence of standing water. Standing water present, good CRLF habitaL Open water in center surrounded by willows w/cattails at southern end. Hydrocotyle ring around remainder. Much used by cattle at one time but not recenL

2085W02-PS-01 Photo#: P1030850 Azimuth: 260° Close-up of wetland

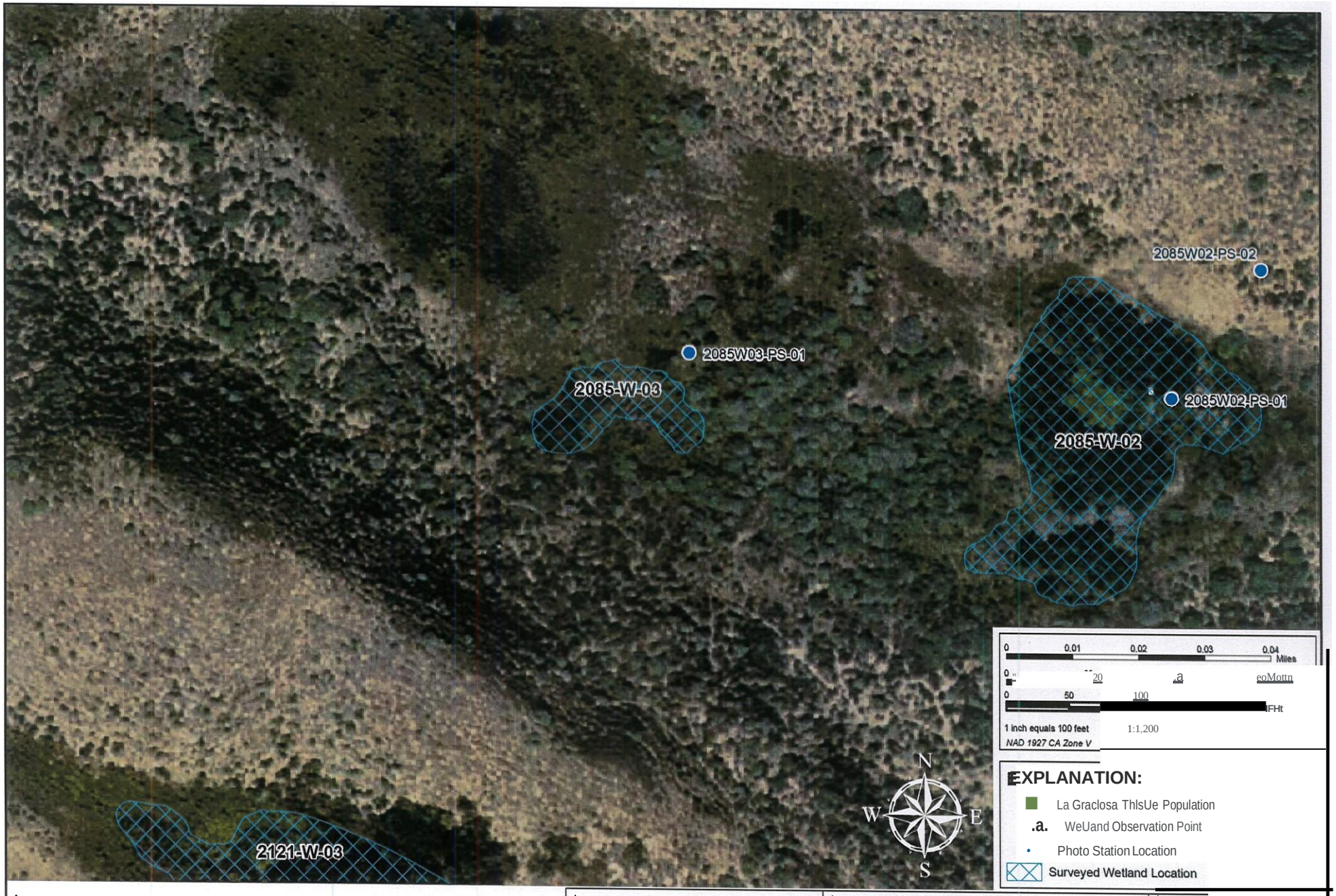
2085W02-PS-01 Photo#: P1030851 Azimuth: 275° Close-up of wetland

2085W02-PS-01 Photo#: P1030852 Azimuth: 305° Close-up of wetland

2085W02-PS-02 Photo#: P1030853 Azimuth: 180° Overview of wetland

2085W02-PS-02 Photo#: P1030854 Azimuth: 205° Overview of wetland

2085W02-PS-02 Photo#: P1030855 Azimuth: 250° Overview of wetland



	Dunes Collaboratlve Guadalupe-Nlpomo Wetland Inventory	Figure 9: 2085-W-03	September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2085-W-03

Land Management Unit#: 2085 Date: 3 /31/2005 Time: II :25:00 A Biologists: Wayne/Cindy/Jun/Dave

Access Information: Drove ranger along pipeline

Weather: Wann, clear, slight breeze Temperatnre: 88 Location: SE portion of refuge

Description of Surrounding **Habitat:** in large valley

Impacts to Wetlands: Cattle, weed infestation

If Other (What Impacts):

Wetland Description

Type: Dry wetland Hydranlic Regime: Est. Depth: Dry

Est. Max Depth: 1/3 m Est. Avgerage Depth: dry Standing Water Evidence: D

Angle of Bank: Shallow Wedand Substrate: Water Clarity:

Percent Canopy Cover: *5* Percent Emergent Vegetation: I00 Gross aassification: DryWetland

Habitat Elements

Dominant Vegetation Species: Car pra, jun Jes, jun acu, sal las

Sub-Dominant Vegetation:

Observed Wildlife Species:

(,'RLF Presence: Not likely SWPT Presence: Not likely TSGS Presence: Not likely

LGT Presence: Other Potential Sensitive Species:

Wetland Impacted by Exotic Vegetation: li2j Exotic Species Present: White sweet clover

Photographs

PS Name	Azimuth	Photo **Number**	Photo Date	Photographer	Notes
2085W03-PS-0I	220	Pl030856	3/31/2005	Wayne Vogler	Overview and closeup of wet

Wetland Classification

System: Palustrine

Abiotic Substrate

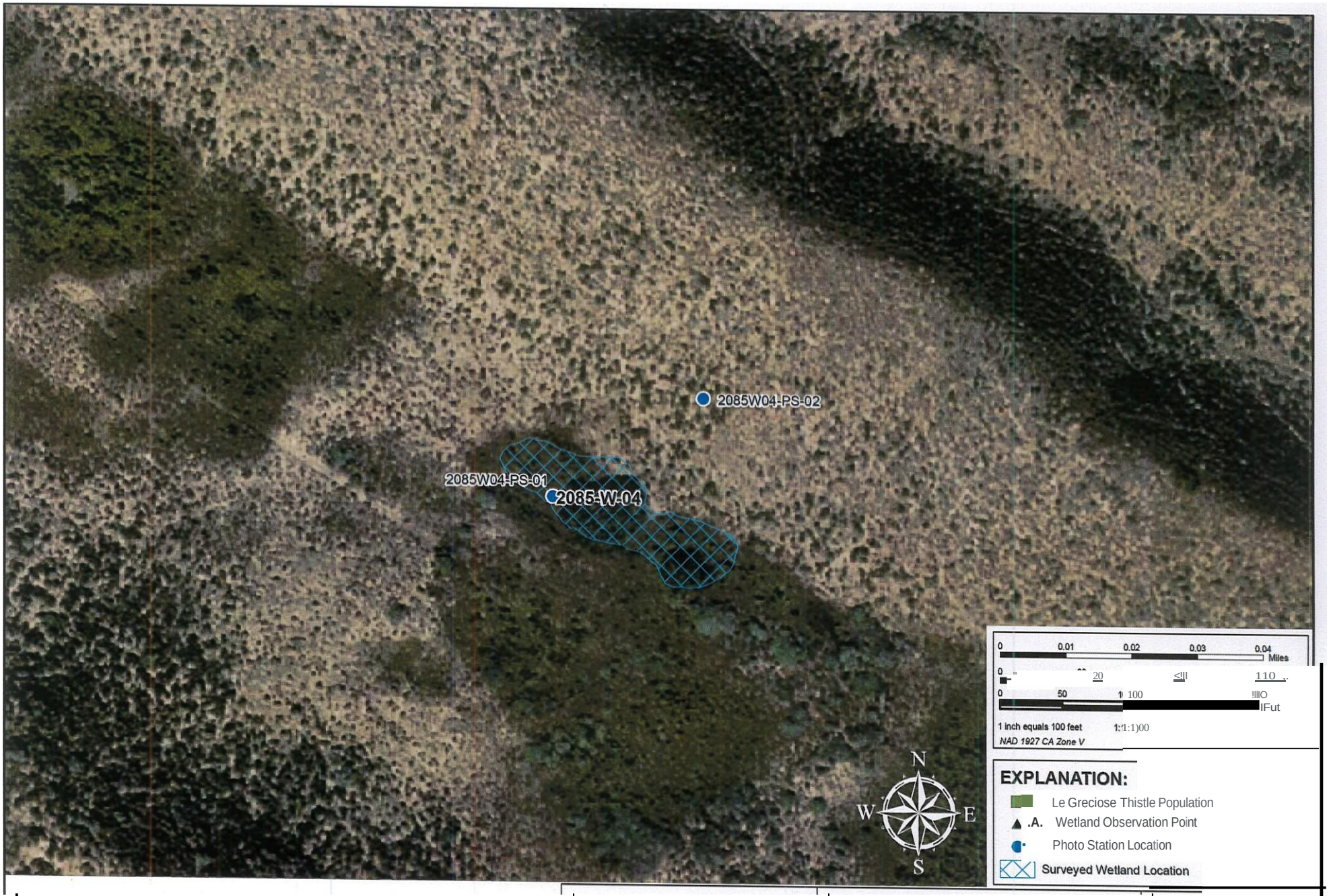
Unconsolidated Bottom: Riverbed or Streambed:

Water Regime: Phreatophytic Water Chemistry: Fresh water

Hydrogeomorphic Unit: If Other:

Notes: Base ofhill, dry swale wetland, I large willow and lots of spiny rush. Natural wetland, may be ephemeral wetland (mud-hole) near willows but only inches deep.

2085W03-PS-01 Photo#: P1030856 Azimuth: 220° Close-up of wetland


2085W04-PS-02
2085W04-PS-01
2085-W-04
0 0.01 0.02 0.03 0.04 Miles
0 50 100
1 inch equals 100 feet
NAD 1927 CA Zone V
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EXPLANATION:
Le Greciose Thistle Population
.A. Wetland Observation Point
Photo Station Location
Surveyed Wetland Location

Wetland Inventory Report

Wetland Number 2085-W-04

LandManagementUnit#: 2085 Date: 3/31/2005 Time: 11:44:00A Biologists: Wayne/Jim/Cindy/Dave

Access Information: Drove ranger down access road

Weather: Sunny, hot, wind picking Temperature: High 80's Location: SE comer of GND NWR

Description of Surronnding Habitat: Valley

Impacts to Wetlands: Cattle

H Other (What Impacts):

Wetland Description

Type: Dry wetland Hydraulic Regime: Ephemeral Est. Depth: Dry

Est.Mu Depth: < I/3 m Est. Avgerage Depth: Standing Water Evidence: D

Angle of Bank: Shallow Wetland Substrate: Water Oarity:

Percent Canopy Cover: 25 Percent Emergent Vegetation: *<5%* Gross Oassification: Dry Wetland

Habitat Elements

Dominant Vegetation Species: Willow, car pra, dead cattails, blackberry, jun Jes

Sub-Dominant Vegetation:

Observed Wildlife Species: Garter snake

CRLF Presence: Not likely SWJ'T Presence: Not likely TSGS Presence: Not likely

LGT Presence: Other Potential Sensitive Species:

Wetland Impacted by Exotic Vegetation: Exotic Species Present: White sweet clover

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
2085W04-PS-OI	350	PI030857	3/31/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimuth**	Photo Number	Photo Date	Photographer	Notes
2085W04-PS-02	160	PI030858	3/31/2005	Wayne Vogler	Overview of wetland
PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
2085W04-PS-02	195	P1030859	3/31/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	Photo Number	Photo Date	Photographer	Notes
2085W04-PS-02	240	PI030860	3/31/2005	Wayne Vogler	Overview of wetland

Wetland Oassification

System: Palustrine

Abiom:: Substrate

Uncoosolidated Bottom: Riverbed or Streambed:

Water Regime: Phreatophytic Water Chemistry: Fresh water

Bydrogeomorphic Unit: If Other:

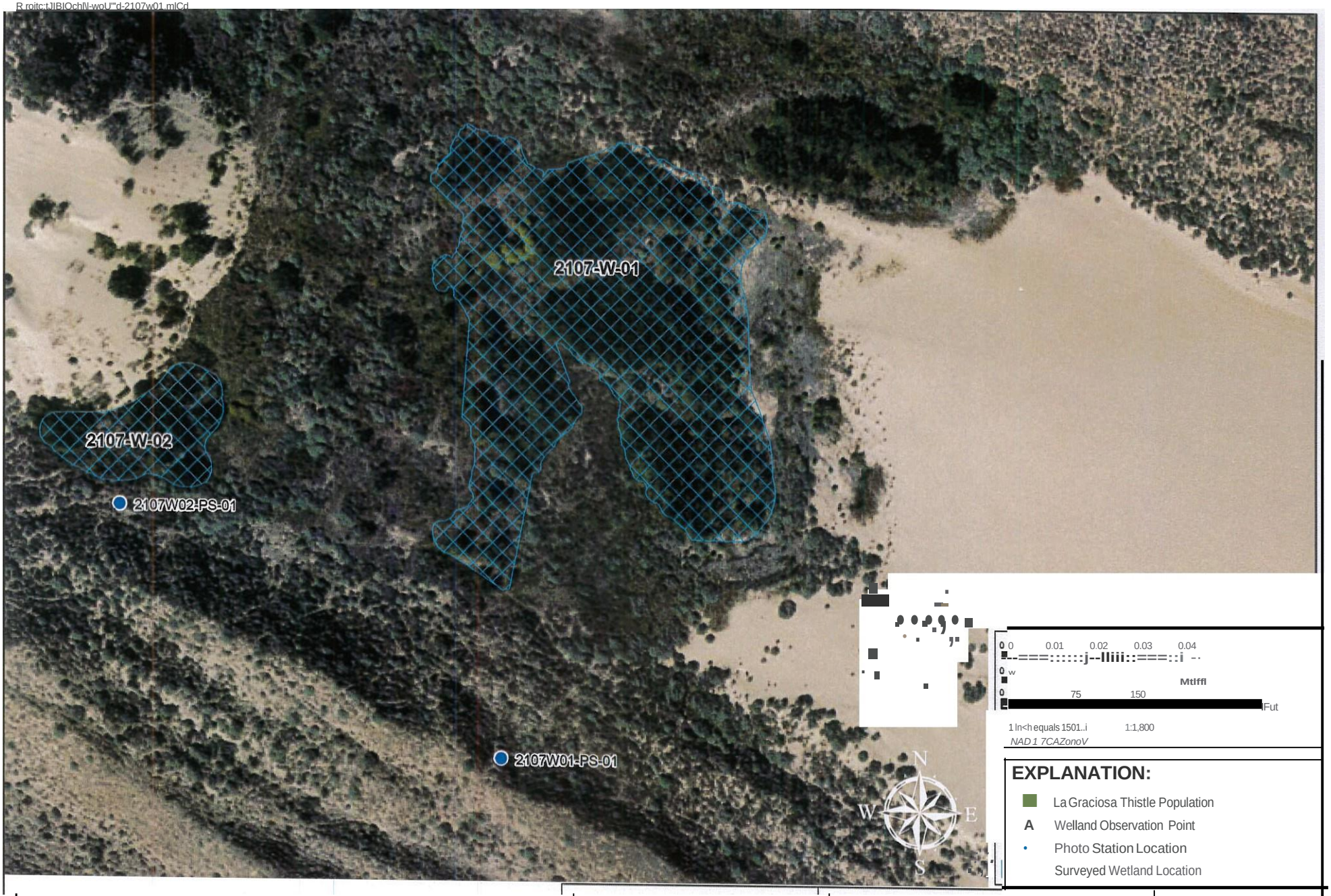
Notes: Figure 8 wetland with a few large willows anddead cattails. Margin. of area are "soft" with low slope. Lots of dead juncus. Dozens of blue butterflies.

2085W04-PS-01 Photo #: P1030857 Azimuth: 315° Close-up of wetland

2085W04-PS-02 Photo#: P1030858 Azimuth: 335° Overview of wetland

2085W04-PS-02 Photo #: P1030859 Azimuth: 10° Overview of wetland

2085W04-PS-02 Photo #: P1030860 Azimuth: 40° Overview of wetland



	Dunu Collaboratlva **lluad11lupa-Nlpomo Watland Inventory**	Figure 11: 2107-W-01	September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2107-W-01

Land Management Unit#: 2107 **Date:** 5/20/2005 **Time:** 10:05:00 **A** **Biologists:** Wayne Vogler/Jim Blecha

Access Information: hike in from Unocal *Q-5* pad

Weather: Sunny, breezy, warm **Temperature:** high 60's **Location:** SE comer of GND NWR

Description of Surrounding Habitat: Coastal dune scrub dunes

Impacts to Wetlands: Cattle

If **Other (What Impacts):**

Wetland Description

Type: Dry wetland **Hydraulic Regime:** Ephemeral **Est. Depth:** 15 cm to 1/3

Est. Max Depth: l/2 m **Est. Avgerage Depth:** l/3 m or less **Standing Water Evidence:**

Angle of Bank: Shallow **Wetland Substrate:** Sand/Silts/Fi **Water Oarity:**

Percent Canopy Cover: 80 Percent Emergent Vegetation: **Gross Oassification:** Dry Wetland

Habitat Elements

Dominant Vegetation Species: Sal las, blackcottonwood, jun Jes, car pra, tox div, gooseberry, blackberry

Sub-Dominant Vegetation:

Observed Wildlife Speci.es: Rattlesnake. Blue butterflies (lupine blues?) very abundant

CRLF Presence: Not likely SWPT Presence: Not likely TSGS Presence: Not likely

LGT Presence: **Other Potential Sensitive Species:**

Wetland Impacted by Exotic Vegetation: D **Exotic Species Present:**

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
2107W0I-PS-OI	20	Pl040217	5/20/2005	Wayne Vogler	Overview of valley
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2107W0J-PS-OI	0	Pl040218	5/20/2005	Wayne Vogler	Overview of valley
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2107W01-PS-OI	335	Pl040219	5/20/2005	Wayne Vogler	Overview of valley

Wetland Classification

System: Palustrine

Ahiotic Substrate

Unconsolidated Bottom: **Riverbed or Streambed:**

Water Regime: Intermittently-exposed **Water Chemistry:** Fresh water

Hydrogeomorphic Unit: PaltLo;trme vernal lake If **Other:**

Notes: Hummocky valley floor w/low elevation areas being wetland. . Primarily forested w/ willows, some cottonwoods. Islands of coastal dune scrub on highareas. Evidence of ponding water but not evidence of deep ponding such *as* highly buttressed roots. Densely forested., some more open ponded areas on eastern side. Approximately 20 or so cottonwood trees - the biggest approx. 20 ft. high and 8 to IO inches diameter. Willows are large aslo with tnmks of 12 to 14 inches diameter.

2107W01-PS-01 Photo#: P1030850 Azimuth: 20° Overview of valley

2107W01-PS-01 Photo#: P1030851 Azimuth: 0° Overview of valley

2107W01-PS-01 Photo#: P1030852 Azimuth: 335° Overview of valley

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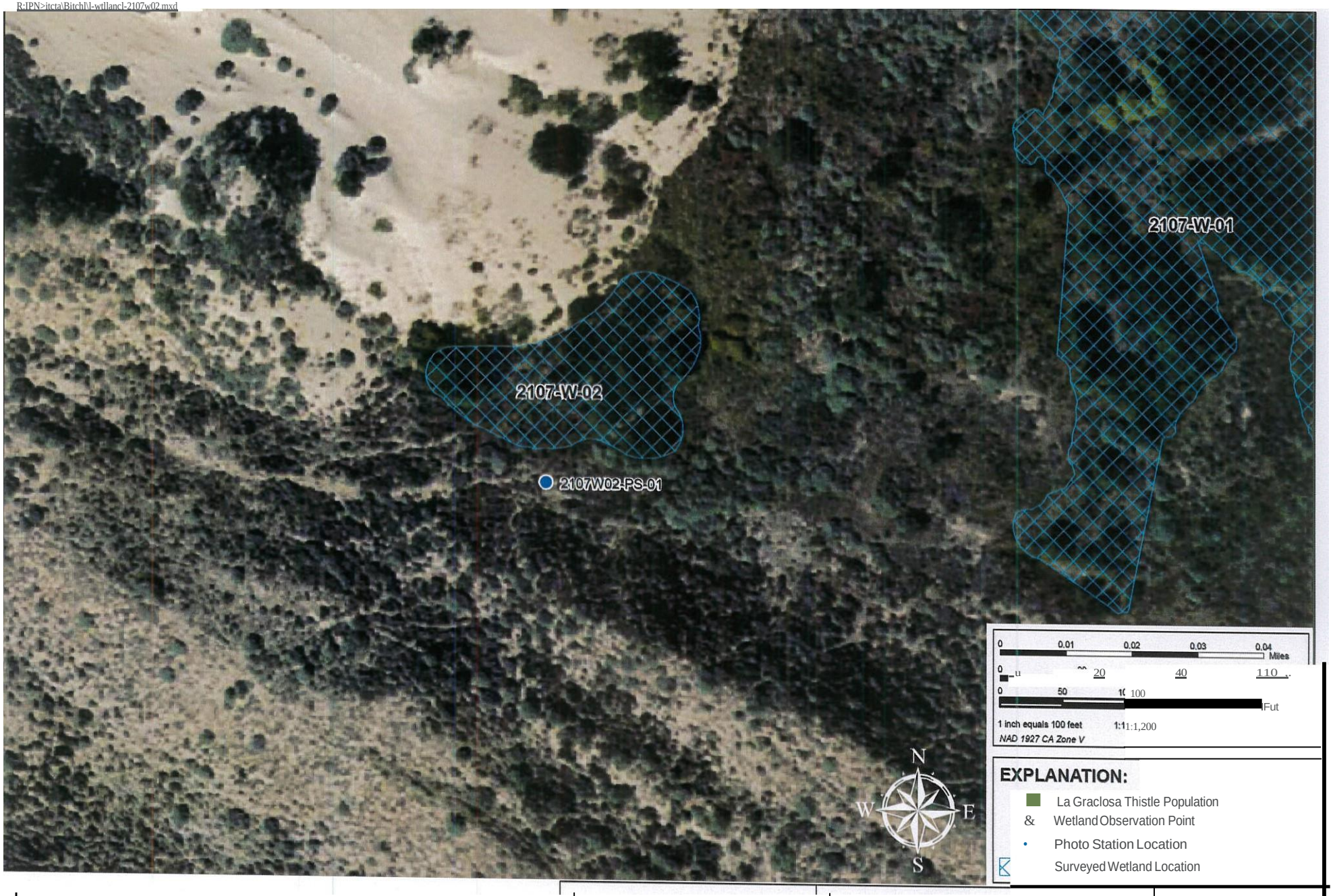

	Dunes Coll11bor11Uve Guadalupe-Nlpomo WeUand Inventory	Figure 12: 2107-W-02	September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2107-W-02

Land Management Unit#: 2107 Date: 5/20/2005 Time: JI:10:00 A Biologists: Wayne Vogler/Jim Blecha

Access Information: hilre in from Unocal *Q-5* pad

Weather: Sunny. windy. warm Temperature: high 60's Location: SE comer of GND NWR

Description of Snrronnding Habitat: Coastal dune scrub dunes

Impacts to Wetlands: Cattle

H Other (What Impacts):

Wetland Description

Type: Dry wetland Hydranlic Regime: Ephemeral Est. Depth: 0 to 15 cm (<6

Est. Max Depth: 1/2 m Est. Avgerage Depth: 7 cm Standing Water Evidence: D

Angle of Bank: Shallow Wedand Substrate: Water Clarity:

Percent Canopy Cover: 60 Percent Emergent Vegetation: I00 Gross C..lassification: *Dry* Wetland

Habitat Elements

Dominant Vegetation Species: Sal las, sci pun., blackbeny. lox div. car pra

Sub-Dominant Vegetation:

Observed Wildlife Species:

CRLF Presence: Not likely SWl"f Presence: Not likely TSGS Presence: Not likely

LGT Presence: Other Potential Sensitive Species:

Wedand Impacted by Exotic Vegetation: D Exotic Species Present:

Photographs

PS Name	Azimuth	Photo Nnmber	Photo Date	Photographer	Notes
2107W02-PS--OI	315	Pl040220	5/20/2005	Wayne Vogler	Overview of wetland
PS Name	Azimnth	Photo Nnmber	Photo Date	Photographer	Notes
2107W02-PS-OI	335	Pl040221	5/20/2005	Wayne Vogler	Overview of wetland
PS Name	Azimnth	Photo Number	Photo Date	Photographer	Notes
2107W02-PS-OI	JO	Pl040222	5/20/2005	Wayne Vogler	Overview of wetland
PS Name	Azimnth	Photo Number	Photo Date	Photographer	Notes
2107W02-PS--OI	40	Pl040223	5/20/2005	Wayne Vogler	Overview of wetland

Wetland Oassification

System: Palustrine

Ahiotic Substrate

Unconsolidated Bottom: Riverbed or Streamhed:

Water Regime: Seasonally-saturated Water Chemistry: Fresh water

Hydrogeomorphic Unit: Dune swale If Other:

Notes: At SW comer of 2107 vaJJey. Fairly dense willows w/spiny rush between willow clumps. Primarily a dry wetland w/saturated soils. Looks to have been dry for years - IO ft x IO ft patch of dead cattails.

2107W02-PS-01 Photo#: P1040220 Azimuth: 315° Overview of wetland

2107W02-PS-01 Photo#: P1040221 Azimuth: 335° Overview of wetland

2107W02-PS-01 Photo #: P1040222 Azimuth: 10° Overview of wetland

2107W02-PS-01 Photo #: P1040223 Azimuth: 40° Overview of wetland

	Dunes Collaborative **Ouadalupe-Nlpomo Wetland Inventory**	Figure 13: 2107-W-03	September 30, 2008 **MRB**

Wetland Inventory Report

WetlandNumber 2107-W-03

Land Management Unit#: 2l07 **Date:** 5/28/2005 Time: Biologists: Wayne Vogler/Tun Blecha

Access **Infonnation:** hike in from Unocal *Q5* pad

Weather: Clear.windy Temperature: Location: SE comer of GND-NWR

Description of **Surrounding Habitat:** Veldt vegelated ridge to N. Swale *is* shallow, no sign of water for many years. One willow in center

Impacts to Wetlands:

If Other (What Impacts):

Wetlaod Description

Type: *Dry* wetland Hydraulic Regime: Rain pool Est. Depth: Dry

Est. Max Depth: Est. Avgerage Depth: Standing Water Evidence: 0

Angle of Bank: Moderate Wetland Substrate: Silts/Fines Water Oarity:

Percent Canopy Cover: Percent Emergent Vegetation: Gross Oassification: Dry Wetland

Habitat Elements

Dominant Vegetation Species: Carex, spiny rush, blackberry, poison oak, coyote bush

Sub-Dominant Vegetation:

Observed Wildlife Species: Deer (doe and fawn)

CRLF Presence: Not likely SWYf Presence: Not likely TSGS Presence: Not likely

LGT Presence: Other Potential Sensitive Species:

Wetland Impacted by Exotic Vegetation: Exotic Species Present: ripgut brome, fennel

Photographs

PS Name	Anmnth	Photo Number	Photo Date	Photographer	Notes
2107W03- I	340	Pl040224	5/20/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2I07W03- I	JO	PJ040225	5/20/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2I07W03- J	50	Pl040226	5/20/2005	Wayne Vogler	Overview of wetland

Wetland Classification

System: Palustrine

Abiotic Substrate

Unconsolidated **Bottom:** Riverbed or Streambed:

Water Regime: Phreatophytic Water Chemistry: Fresh water

Hydrogeomorphic Unit: Dune swale If Other:

Notes: *Dry* wetland, no water for many years. Long period of time since last water ponding. Mature coyote bush growing in swale. Thich with blackberry vines.

2107W03-PS-01 Photo#: P1040224 Azimuth: 340° Overview of Wetland

2107W03-PS-01 Photo#: P1040225 Azimuth: 10° Overview of Wetland

2107W03-PS-01 Photo#: P1040226 Azimuth: 50° Overview of Wetland


2121W01-PS-01
2121-W-01
2121W01-PS-02
0 0.01 0.02 0.03 0.04 Miles
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0 50 1 100 F'Mt
1 inch equals 100 feet
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EXPLANATION:
LB Graciosa Thistle Population
Welland ObservationPoint
Photo Station Location
Surveyed Welland Location

Wetland Inventory Report

Wetland **Number** 2121-W-01

LandManagementUnit#; 2121 Date; 3/3/2005 Time: 9:30:00 A Biologists; Wayne Vogler/Jim Blecha

Access Information: **Walk** in from Unocal *Q-5* pad

Weather: Scatterclouds,calmwind **Temperature;** 68 **Location;** SEcomerofGNDNWR

Description of Snrronnding Habitat; Dune valley; steepsloped dunes immediately bordering wetland

Impacts to Weflands; Cattle

If **Other (What Impacts);**

Wetland Description

Type; Pond Hydraulic Regime: Semi-permanent/Permanent Est. **Depth;** 1/2 m to Im

Est.Max Depth: 1.5 m Est. Avgerage Depth; 0.75 m **Standing Water Evidence;**

Angle of Bank: Moderate Wetland Substrate: **Water Clarity:** Clear

Percent Canopy Cover; 90 Percent Emergent Vegetation; 25 **Gross Classification;** Pond

Habitat Elements

Dominant Vegetation Species: Sal las, typ lat, sci acu, gooseberry

Sob-Dominant Vegetation:

Observed Wildlife Species: Pacific tceefrog. Abundant signs of deer andcoyote.

CRLF Presence: Likely presence, p **SWPT Presence;** Likely presence **TSGS Presence:** **Not likely**

LGT Presence: Other Potential Sensitive Species:

Wetland Impacted by Exotic Vegetation: D Exotic Species Present:

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
212IWOI-PS--Ol	120	PI030???	3/3/2005	Wayne Vogler	Closeup of pond area
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2121WO1-PS--0I	115	PI030823	3/3/2005	Wayne Vogler	Closeup of pond area
PSName	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
212IWOI-PS--OI	125	PI030824	3/3/2005	Wayne Vogler	Closeup of pond area
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2121W01-PS--01	160	PI030825	3/3/2005	Wayne Vogler	Closeup of pond area
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2121WOI-PS--02	350	PJ030826	3/3/2005	Wayne Vogler	Overview of pond area
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2I2 IWO1-PS--02	20	PI030827	3/3/2005	Wayne Vogler	Overview of pond area
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2121WOI-PS--02	45	PI030828	3/3/2005	Wayne Vogler	Overview of pond area

Wetland Oassification

System: Palustrine

Abiotic Substrate

Unconsolidated Bottom; Mud, organic Riverbed or Streamhed:

Water Regime; Intermittently-exposed Water Chemistry: Fresh water

Hydrogeomorphic Unit; Coastal dune pond If Other:

Notes: Water temp 12.5 C. Wetland oval in shape tending NW - SE in orientation. Canopy of sal las; thich root buttresses at base of willows. SE end of wetland thich vegetation of sal las, gooseberry, jun acc1L NW side slighter bank angle gmding into car pra, jun les dominated

wetland. Evidence of cattle use. Surface water extends almost entire length of wetland at present. Evidence of deeper water for prolonged period. Cattails sprouting in water"and bank. Break in willow canopy of surface water. No aquatic insects observed..

I

Can not find photo

2121W01-PS-01 Photo#: P1030-Azimuth: 120° Close-up of pond area

2121W01-PS-01 Photo#: P1030823 Azimuth: 115° Close-up of pond area

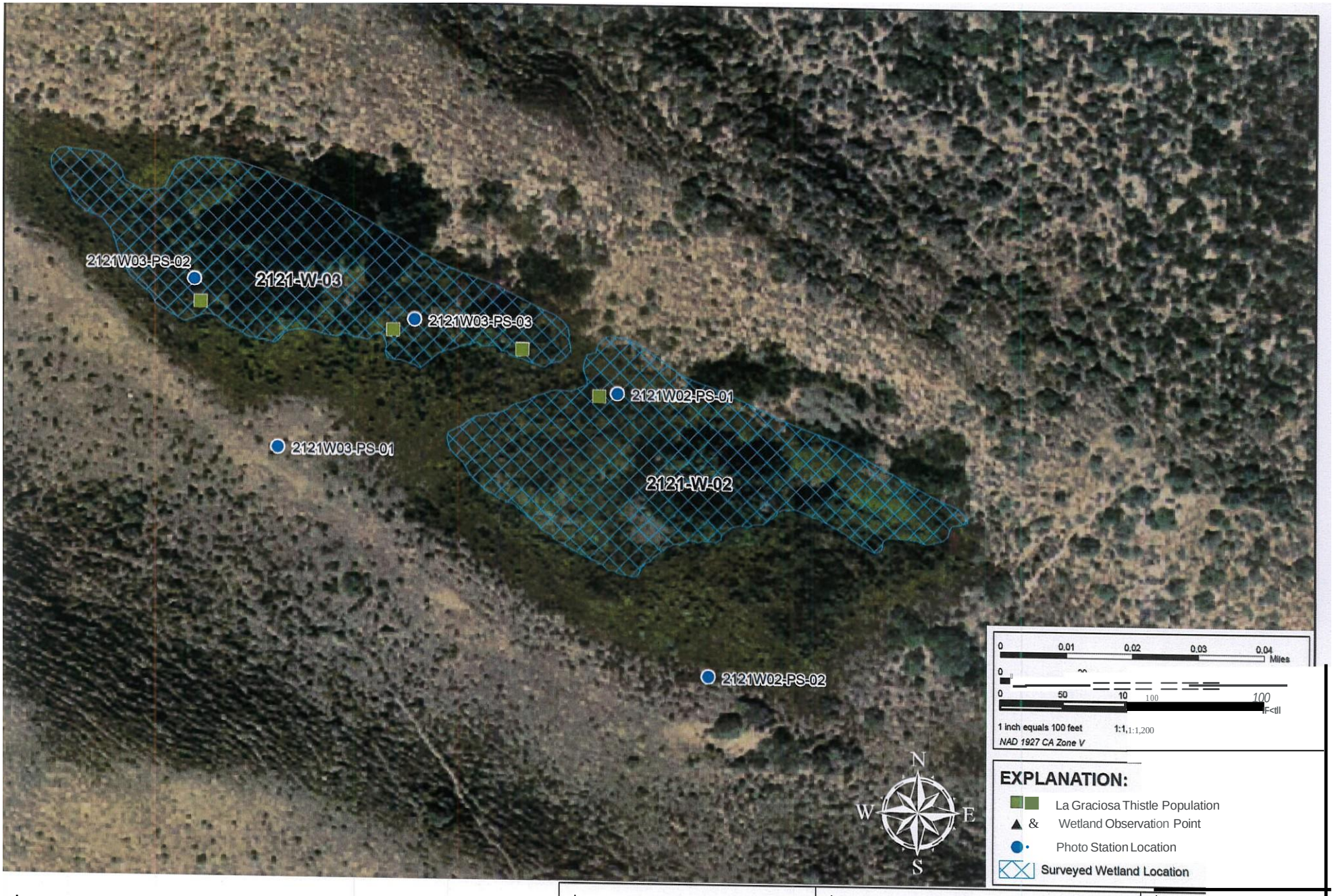
2121W01-PS-01 Photo#: P1030824 Azimuth: 125° Close-up of pond area

2121W01-PS-01 Photo#: P1030825 Azimuth: 160° Close-up of pond area

2121W01-PS-02 Photo #: P1030826 Azimuth: 350° Overview of Wetland

2121W01-PS-02 Photo#: P1030827 Azimuth: 20° Overview of Wetland

2121W01-PS-02 Photo#: P1030828 Azimuth: 45° Overview of Wetland



	Dunn Collabo1111tlve Guadalup-.Nlpomo Wetland Inventory	Figure 15: 2121-W-02	September 30, 2008 MRB

Wetland Inventory Report

Wetland **Number** 2121-W-02

Land Management Unit#: 2121 **Date:** 3 /3 /2005 **Tune:** 10:15:00 **A** **Biologists:** Wayne Vogler/Jim Blecha

Access Information: Walk in from Unocal *Q-5* pad

Weather: Overcast, slight breeze **Temperatore:** 68 **Location:** SE comer of GND NWR

Description of Surrounding Habitat: Coastal dune scrub valley

Impacts to Wetlands: Cattle

If **Other (What Impacts):**

Wetland Description

Type: Marsh (no willows) Hydraulic Regime: Ephemeral **Est. Depth:** Saturated soils

Est. Max Depth: 1/3 m Est. Avgerage Depth: 15 cm **Standing Water Evidence:**

Angle of Bank: Shallow Wedand Substrate: Sand **Water Oarity:**

Percent Canopy Cover: Percent Emergent Vegetation: **Gross Oassification:** Marsh

Habitat Elements

Dominant Vegetation Species: Sal las, blackberry, jun acu, car pra, jun les, fushcia

Sub-Dominant Vegetation:

Observed Wildlife Species: Common garter snake; male Allen's hummingbird.

CRLF Presence: Possible **SWPT Presence:** Possible **TSGS** Presence: Not likely

LGT Presence: 100 to 250 Individual Other Potential Sensitive Species:

Wedand Impacted by Exotic Vegetation: D **Exotic Species Present:**

Photographs

PS Name	Aiimutb	Photo Number	Photo Date	Photographer	Notes
2121W02-PS--OI	200	PI030817	3/3/2005	Wayne Vogler	Closeup of NW part of wetla
PSName	**Anmuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
212JW02-PS--OI	145	P1030818	3/3/2005	Wayne Vogler	Closeup of NW part of wetla
PS Name	**Aiimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2121W02-PS--OI	100	PI030819	3/3/2005	Wayne Vogler	Closeup of NW part ofwetla
PS Name	**Aiimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2121W02-PS--02	315	PI030820	3/3/2005	Wayne Vogler	Closeup of S part of wetland
PS Name	**Aiimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
212JW02-PS-02	350	PI030821	3/3/2005	Wayne Vogler	Closeup of S part of wetland
PSName	**Anmuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2121W02-PS--02	20	Pl030822	3/3/2005	Wayne Vogler	Closeup ofS part of wetland

Wetland Oassification

System: Palustrine

Ahiotic Substrate

Unconsolidated Bottom: Mud **Riverbed or Streamhed:**

Water Regime: Temporarily-flooded **Water Chemistry:** Fresh water

Hydrogeomorphic Unit: Dune swale If **Other:**

Notes: Ring of blackberry (dense) surrounding wetland. Long, skinny arm extending SE from roundish main body. Dead cattails evidenL Some muddy wet area at SE ann. Some saturated soils at NW comer. Mature bac pil mixed w/Car pra & jun Jes sunounding in dune swale. Buttressed roots on saJ las in center of wetland. I00-+ LGT breaking up through car pra at NW side; all seedling or rosettes, no bloom evident. Evidence that shallow standing water is present in better than average rain year.

2121W02-PS-01 Photo#: P1030817 Azimuth: 200° Close-up of NW area

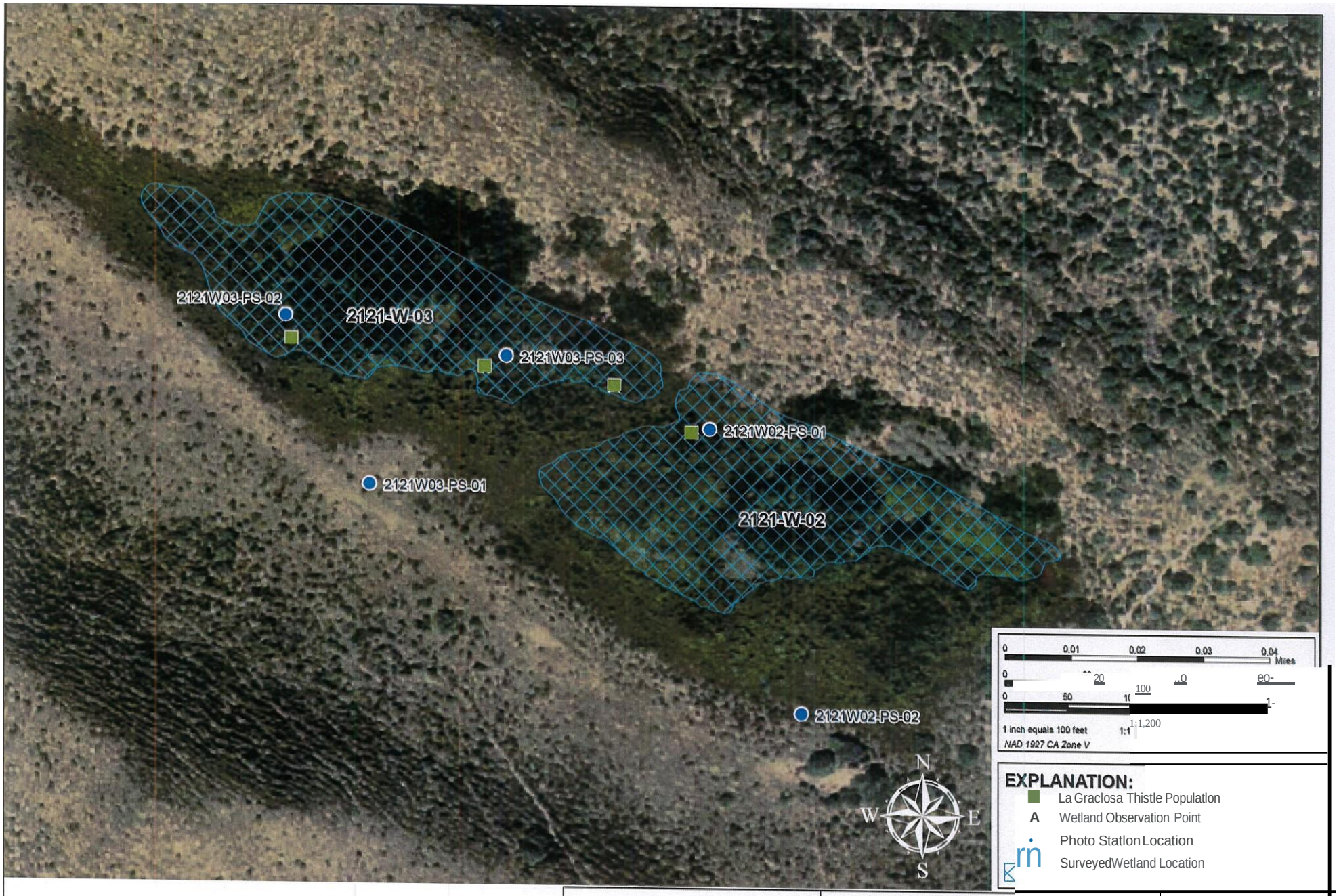
2121W02-PS-01 Photo#: P1030818 Azimuth: 145° Close-up of NW area

2121W02-PS-01 Photo#: P1030819 Azimuth: 100° Close-up of NW area

2121W02-PS-02 Photo#: P1030820 Azimuth: 315° Overview of S area

2121W02-PS-02 Photo#: P1030821 Azimuth: 350° Overview of S area

2121W02-PS-02 Photo#: P1030822 Azimuth: 20° Overview of S area



Dunes Collaborative
Guadalupe-Nipomo Wetland Inventory

Figure 16: 2121•W•03

September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2121-W-OJ

Land Management Unit#: 2121 Date: 3 /3 /2005 Time: 11:00:00 A Biologists: Wayne Vogler/Jim Blecha

Access Information: Walle in from Unocal *Q-5* pad

Weather: Overcast slight breeze Temperature: 72 Location: SE Comer ofGND NWR

Description of S11JTooodiog Habitat: Coastal dune scrub valley; valley floor mix of CDS and dune swale

Impacts to Wetlands: Cattle

If Other (What Impacts):

Wetland Description

Type: Pond Hydraulic Regime: Semi-pennanent/Peonanent Est.**Depth:** 1/2 m to I m

Est. Max Depth: 1.5 m Est. Avgerage Depth: 0.33 m **Standing Water** Evidence:

Angle of Bank: Shallow Wetland Substrate: Water Clarity: Clear

Percent Canopy Cover: 70 Percent Emergent Vegetation: 90 Gross aassification: Pond

Habitat Elements

Dominant Vegetation Species: Sal las, junacu. hlackbeny, bac sp., pol ans, LGT, pla maj, bnlmsh

Sub-Dominant Vegetation:

Observed Wildlife Species:

CRLF Presence: Likely presence, p SWPT Presence: Likely presence TSGS Presence: Not likely

LGT Presence: 100 lo 250 Individual Otlrer Potential Sensitive Species:

Wetland Impacted by E:s:otic Vegetation: 0 E:s:otic Species Present: bull thistle present (<I%), oms1ard and fenneU

Photographs

PS Name	**Azimuth**	**Photo Number**	Photo Date	Photographer	**Notes**
212IW03-PS-OI	325	PI0308IO	3/3/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimntb**	**Photo Number**	Photo Date	**Photographer**	**Notes**
212IW03-PS-OI	0	P10308l1	3/3/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo** Date	Photographer	**Notes**
212IW03-PS-OI	40	PJ0308l2	3/3/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	Photo **Number**	Photo Date	Photographer	**Notes**
2l2IW03-PS-02	330	P1030813	3/3/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimntb**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
212IW03-PS-02	40	PI0308l4	3/3/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimntb**	**Photo Number**	Photo Date	**Photographer**	**Notes**
2121W03-PS-03	330	**PI0**308l5	3/3/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2l21W03-PS-03	40	PI0308l6	3/3/2005	Wayne Vogler	Closeup of wetland

Wetland Classification

System: Palustrine

Abiotre Substrate

Unconsolidated Bottom: Mud, organic Riverbed or Streambed:

Water Regime: Intermittently-exposed Water Chemistry: Fresh water

Hydrogeomorphic Unit: Coastal dune pond HOther:

Notes: Surface waler present at NW end of wetland. Width narrows as extends lo SE. Evidence of standing water extending entire length of wetland. Thick vegetation ofblackbeny evidence that has been period of time since standing water in SE part.. LGT population along

entire S side of wetland. NWportion of wetJand may have been excavated at one point in hil.1ory to act as cattle pond, evidence of use. Willows growing in center of wetJand.. Surface water has dense flower vascular w/typha sheets beginning. Coyote bush covered with larvae and adult metallic green beetJes (frihabda spp.). Foliage gone from most of infested bushes.

)

2121W03-PS-01 Photo#: P1030810 Azimuth: 325° Overview of wetland

2121W03-PS-01 Photo#: P1030811 Azimuth: 0° Overview of wetland

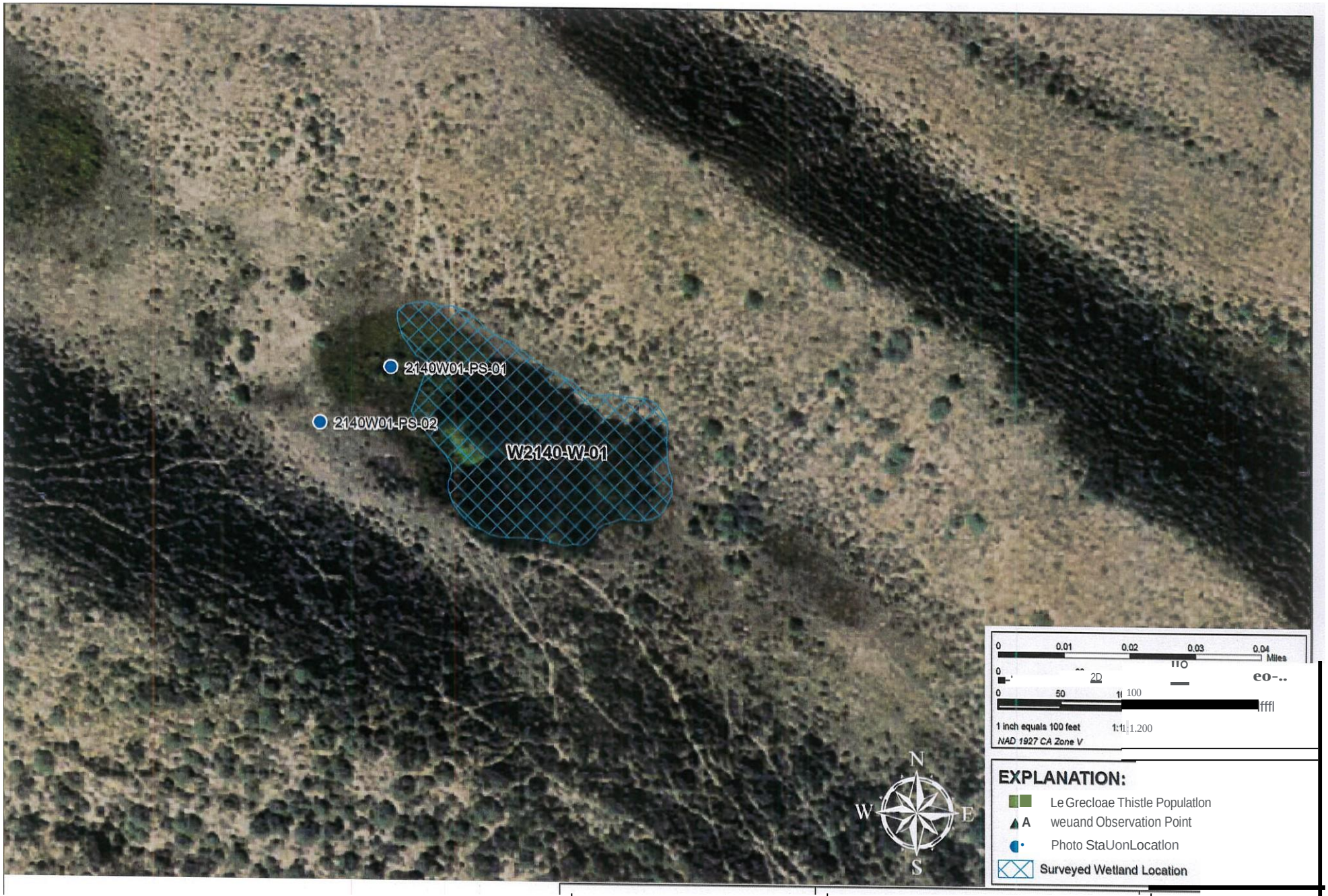
2121W03-PS-01 Photo#: P1030812 Azimuth: *40°* Overview of wetland

2121W03-PS-02 Photo#: P1030813 Azimuth: 330° Close-up of wetland

2121W03-PS-02 Photo#: P1030814 Azimuth: 40° Close-up of wetland

2121W03-PS-03 Photo#: P1030815 Azimuth: 330° Close-up of E part

2121W03-PS-03 Photo#: P1030816 Azimuth: 40° Close-up of E part



DunuCollGboratlve Cluadalup-.Nlpomo W1ll11nd Invantory	Figure 17: 2140-W-01	September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2140-W-Ol

LandManagementUnit#: 2140 **Date;** 2/17/2005 TIOle: 9:15:00A **Biologists:** WayneVogler/TunBJeclia

Access **Information:** walk in from Unocal *Q-5* well pad

Weather: light rain **Temperature:** **Location:** SE comer ofGND NWR

Description of Snrronnding Habitat: narrow dune valley; moderate dune scrub slope on each side

Impacts to Wetlands: Cattle, Weed infestation

If Other (What Impacts):

Wetland Description

Type: Pond Hydraulic Regime: Semi-permanent/Permanent Est. Depth: 1/3 m to l/2 m

Est. Max Depth: 2 m Est. Avgerage Depth: 0.5 m Standing Water Evidence:

Angle of Bank: Moderate Wetland Substrate: Silts/Fines, s Water Clarity: Tea

Percent Canopy Cover: *35* Percent Emergent Vegetation: 70 Gross aassification: Pond

Habitat Elements

Dominant Vegetation Species: Hydrocotle, salix lasiolepis

Sub-Dominant Vegetation:

Observed Wildlife Species: None; owJ pellet under willows, cattle nearby, two-striped garter snake

CRLF Presence: Observed, likely pr SWPT Presence: Not likely TSGS Presence: Likely presence

LGT Presence: Other Potential Sensitive Species: CRLF observed on willow slope, juvenile a.ppr

Wetland Impacted by Exotic Vegetation:0 Exotic Species Present:

Photographs

PS Name	**Azimuth**	Photo Number	Photo Date	Photographer	Notes
2J40W0I-PS--OJ	0.0	PJ030692	2/17/2005	Wayne Vogler	Close up view of suiface wai
PS Name	**Azimuth**	Photo Number	Photo Date	Photographer	Notes
2J40W0J-PS--OJ	100	Pl030693	2/17/2005	Wayne Vogler	Same bothlooking NE
PS Name	Azimuth	Photo Nnmber	Photo Date	Photographer	Notes
2140W0I-PS--02		Pl030694	2/J7/2005	Wayne Vogler	Overview of pond
PS Name	Azimuth	**Photo Number**	Photo Date	Photographer	Notes
2140W0J-PS--02	0	Pl030787	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	Photo Nnmber	**Photo Date**	Photographer	Notes
2140W0I-PS--02	40	Pl030788	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	Azimuth	Photo Nomber	Photo Date	Photographer	Notes
2140W0J-PS--02	70	Pl030789	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	Photo **Nnmber**	Photo Date	Photographer	Notes
2140W0J-PS-02	100	Pl030790	2/J7/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	Photo Nomber	Photo Date	Photographer	Notes
2140W0J-PS--Ol	*25*	Pl030791	2/17/2005	Wayne Vogler	Close-up of wetland
PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
2140W01-PS--0I	ll5	P1030792	2/17/2005	Wayne Vogler	Close-up of wetland

Wetland Oassification

System: PaltL'ilrine

Abiotic Substrate

Unconsolidated Bottom: Mud. organic

Riverbed or Streambed:

Water Regime: SemipennanentJy-flooded

Water Chemistry: Fresh water

Hydrogeomorphk Uoit: Coastal dune pond

HOther:

Notes: Open water approximately 20 m x 10 m oval shaped Water depth at time of observation mostly I ft w/ deep pockets of2-3 ft deep. Adventitious roots on willows approximately 3 feet above current water line. Evidence of prolonged deeper 'landing water. Pond resembles a waUow, moderate slope banks. Duck weed on roots indicates water recently 6 - 8 inches deeper.

2140W01-PS-01 Photo#: P1030692 Azimuth: 60° Close-up of surface water area

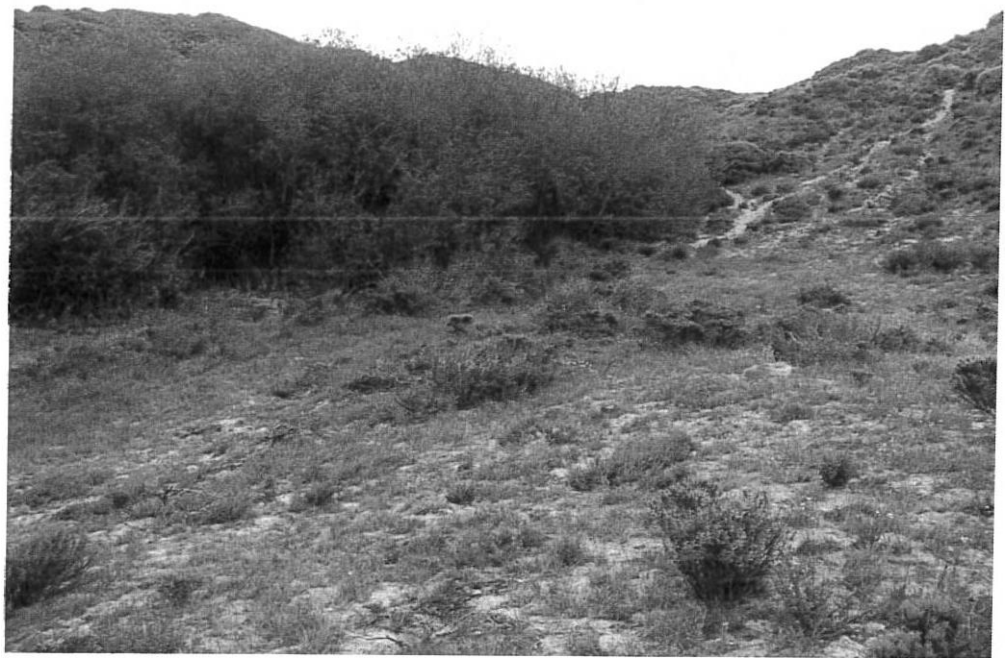
2140W01-PS-01 Photo#: P1030693 Azimuth: 100° Close-up of surface water area

2140W01-PS-02 Photo#: P1030694 Azimuth: -[0] Overview of pond

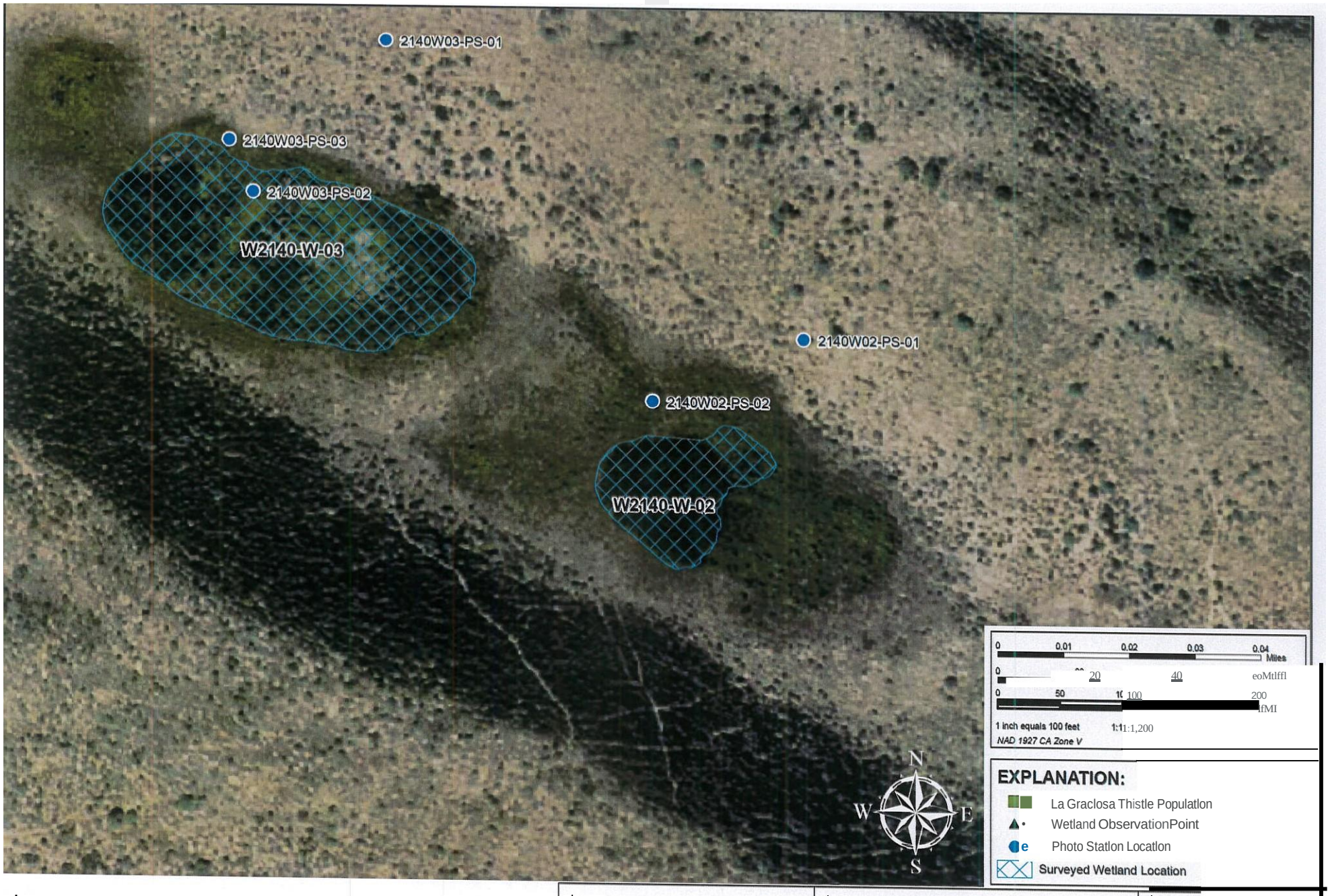
2140W01-PS-02 Photo#: P1030787 Azimuth: 0° Overview of Wetland

2140W01-PS-02 Photo#: P1030788 Azimuth: 40° Overview of Wetland

2140W01-PS-02 Photo#: P1030789 Azimuth: 70° Overview of Wetland



2140W01-PS-02 Photo#: P1030790 Azimuth: 100° Overview of Wetland



Dun11Coll11borat111• Ouad11lupa.Nlpomo W•tl11nd Inventory

Figure 18: 2140-W-02

September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2140-W-02

LandManagementUnit#: 2140 Date: 2/17/2005 Tune: 10:05:00A Biologists: WayneVogler/TunBiecha

Access Information: Walk in from Unocal *Q-5* pad

Weather: light rain Temperature: high 60's Location: SE comer ofGND NWR

Description of Snrronnding Habitat: Dune swale with creeping rush, clustered field sedge, and coyote brush

Impacts to Wetlands: Cattle

If Other (What Impacts):

Wetland Description

Type: Dry wetland Hydraulic Regime: Est. Depth: Tuy

Est.Mu Depth: Est. Avgerage **Depth:** Standing Water Evidence: D

Angle of Bank: Shallow Wetland Substrate: Water Clarity:

Percent Canopy Cover: 90 Percent Emergent Vegetation: I00 Gross <-lassification: Tuy Wetland

Habitat Elements

Dominant Vegetation Species: Sal las, straggly goosebeny, jun acu, jun Jes, car pra

Sub-Dominant Vegetation:

Observed Wildlife Species:

CRLF Presence: Not likely 'WY[Presence: Not likely TSGS Presence: Not likely

LGT Presence: Other Potential Sensitive Species:

Wetland Impacted by Exotic Vegetation: D Exotic Species Present:

Photographs

PS Name	Azimntb	Photo **Number**	Photo Date	Photographer	Notes
2140W02-PS-OI	195	Pl030793	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimnth**	Photo **Number**	Photo Date	Photographer	Notes
2140W02-PS-OI	230	Pl030794	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	Azimntb	Photo Number	Photo Date	Photographer	Notes
2I40W02-PS-02	140	PI030795	2/17/2005	Wayne Vogler	Closeup of wetland

Wetland Classification

System: Palustrine

Ahiotic Substrate

Unconsolidated Bottom: Riverbed or Streambed: Sand

Water Regime: Phreatophytic **Water** Chemistry:

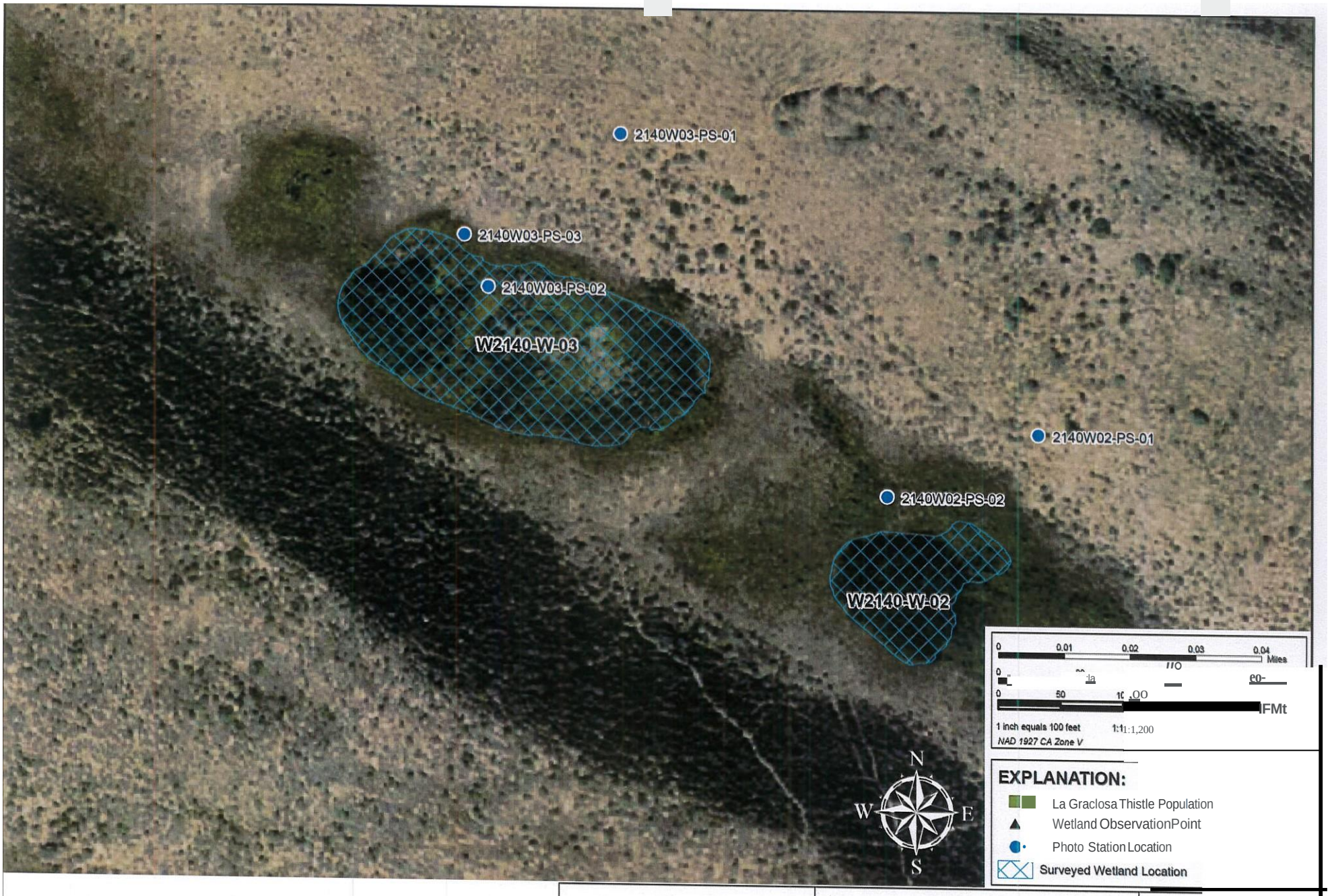
Hydrogeomorphic Unit: Dune swale If Other:

Notes: Willow woodland w/dense goosebeny. l)"ummnded by dune swale w/mix of coyote brush, car pra,jun Jes. Tuy wetland

2140W02-PS-01 Photo#: P1030793 Azimuth: 195° Overview of wetland

2140W02-PS-01 Photo#: P1030794 Azimuth: 230° Overview of wetland

2140W02-PS-02 Photo#: P1030795 Azimuth: 140° Close-up of wetland


2140W03-PS-01
2140W03-PS-03
2140W03-PS-02
W2140-W-03
2140W02-PS-01
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0 0.01 0.02 0.03 0.04 Miles
1 inch equals 100 feet
NAD 1927 CA Zone V
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EXPLANATION:
La Graclosa Thistle Population
Wetland Observation Point
Photo Station Location
Surveyed Wetland Location

Wetland Inventory Report

Wetland Number 2140-W-03

Land Management Unit#; 2140 **Date:** 2 /J 7/2005 **Time:** 10:29:00 **A** **Biologists:** Wayne Vogler/Tun Blecha

Access Information: **Walk** from Unocal *Q-5* pad

Weather: light rain **Temperature:** high 60's **Location:** SE comer of GND NWR

Description of Surrounding Habitat: narrow dlUle swale valley w/ moderate slope dlUles

ImpacCs to Wetlands: Cattle

lf Other (What Impacts):

Wetland Description

Type: Pond **Bydranlic Regime:** Semi-permanent **Est. Depth:** 15 cm to 1/3

Est.Mu Depth: 4 ft **Est. Avgerage Depth:** 1-2 ft **Standing Water Evidence:**

Angle of Bank: Shallow **Wetland Substrate:** Silts/Fines **Water Clarity:** Clear

PercentCanopy Cover: 25 **Percent Emergent Vegetation:** *5* **Gross Classification:** Pond

Habitat Elements

Dominant Vegetation Species: Jun acu, goosfoot, sa1las, straggly goosebeny

Sub-Dominant Vegetation:

Observed Wildlife Species: None, cattle evidence

CRLF Presence: Likely presence **SWPT Presence:** Not likely TSGS Presence: Likely presence

LGT Presence: **Other Potential Sensitive Species:**

Wetland Impacted by Exotic Vegetation: D **Exotic Species Present:**

Photographs

PS Name	Azimuth	Photo Number	Photo Date	Photographer	Notes
2140W03-PS-OI	155	Pl030796	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2I40W03-PS-OI	190	PI030797	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2140W03-PS-01	325	PI030798	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2140W03-PS-02	110	Pl030799	2/J7/2005	Wayne Vogler	Closeup of 5-'E side of valley
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2I40W03-PS-03	200	Pl030800	2/17/2005	Wayne Vogler	Closeup NW side

Wetland Oassification

System: Palustrine

Abiotk Substrate

Unconsolidated Bottom: **Riverbed or Streambed:** Sand, mud, organic, vegetated

Water Regime: Semipermanently-flooded **Water Chemistry:** Fresh water

Bydrogeomorphic Unit: Coastal dune pond If **Other:**

Notes: NW portion of wetland dug out at some point in past to create stock pond feature. Spoils berm visible between two portions of wetland. NW part has standing water and willows, remainder is di:y at time of observation hut evidence of standing water visible. Dead cattataifa visible in center. Currently dense junacu and straggly goosebeny around perimiter. Goosefoot colonizing in area of dead cattails. 'urface water could extend throughout entire wetland.

2140W03-PS-01 Photo#: P1030796 Azimuth: 155° Overview of wetland

2140W03-PS-01 Photo#: P1030797 Azimuth: 190° Overview of wetland

2140W03-PS-01 Photo#: P1030798 Azimuth: 325° Overview of wetland

2140W03-PS-02 Photo#: P1030799 Azimuth: 110° Close-up SE side of valley

2140W03-PS-03 Photo #: P1030800 Azimuth: 200° Close-up NW side

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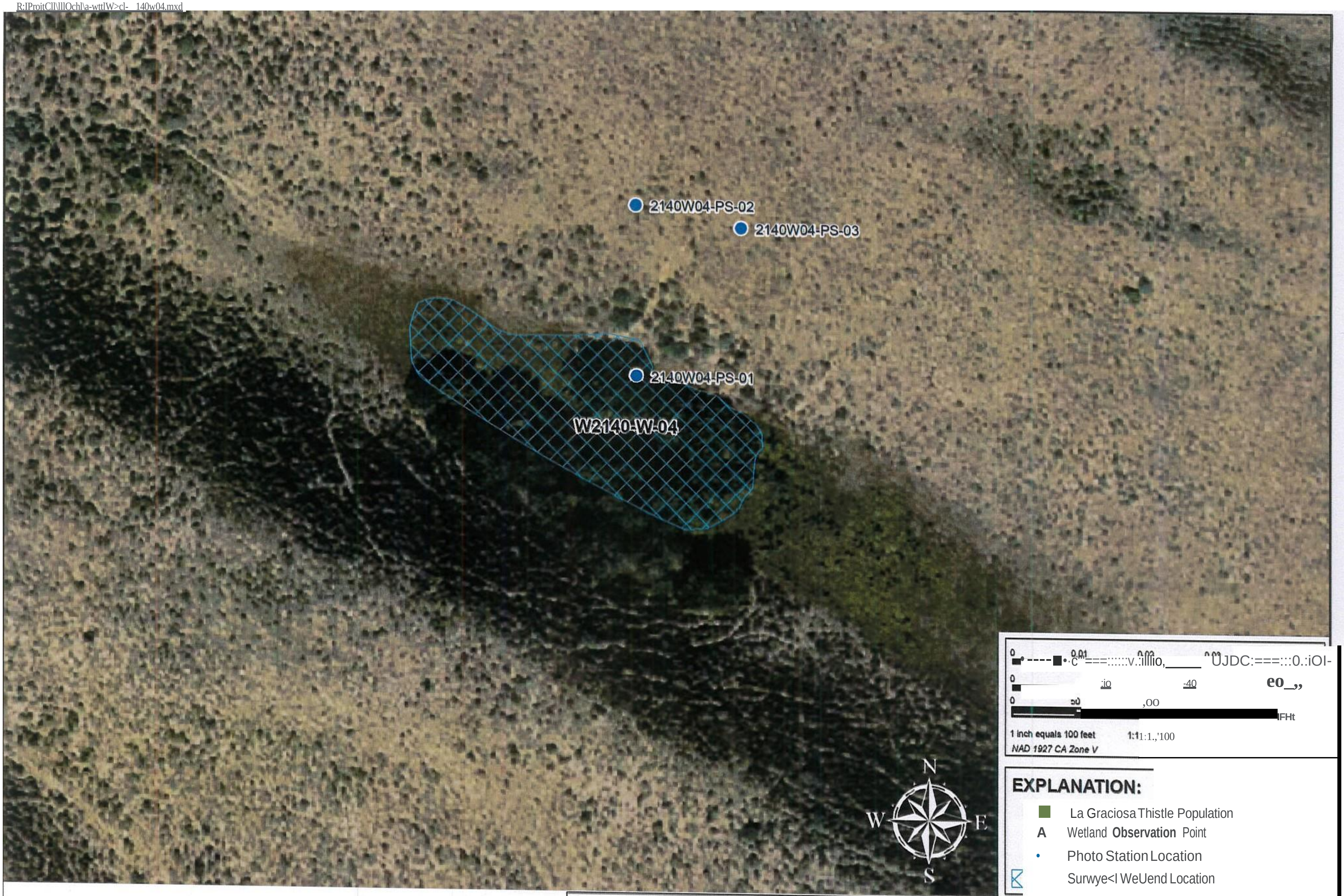

Dunes Collaborative Guadalupe-Nipomo Wetland Inventory	Figure 20: 2140-W-04	September 30, 2008 MRB

Wetland Inventory Report

Wetland Number 2140-W-04

Land Management Unit#: 2140 **Date:** 2/17/2005 **Tune:** II :02:00 **A** **Biologists:** Wayne Vogler/Tun Blecha

Accesslnformatioo: Walk in from Unocal *Q-5* pad

Weatlier: light rain **Temperature:** high 60's Loeatioo: SE comer of GND NWR

Description of Sorroonding Habitat: Dune swale valley, narrow w/moderate sloped dunes

Impacts to Wetlands: Cattle

***H* Other (What Impacts):**

Wetland Description

Type: Pond **Hydraolic Regime:** Permanent **Est. Deptb:** I/2 m to I m

Est. **Max Deptb:** 2 m+ **Est. Avgerage Deptb:** I - 1.5 m **Standing Water Evidence:** **[ii']**

Angle of Bank: Moderate **Wetland Substrate:** Mud/organic **Water Clarity:** Tea

Percent Canopy Cover: 60 **Percent Emergent Vegetation:** 20 **Gross Classification:** Pond

Habitat Elements

Dominant Vegetation Species: Sal las, cat tails, che pod, straggly goosebeny

Sub-Dominant Vegetation:

Observed Wildlife Species:

CRLF Presence: Likely presence, p **SWPT Presence:** Not likely **TSGS Presence:** Likely presence

LGT Presence: Other Potential Sensitive Species: PAIR calling

Wetland Impacted by Exotic Vegetation: D Exotic Species Present:

Photographs

PS Name	Azimntb	Photo Number	Photo Date	Photographer	Notes
2140W04-PS-Ol	220	PJ030801	2/17/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimntb**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2140W04-PS-Ol	140	PI030802	2/17/2005	Wayne Vogler	Closeup of wetland
PS Name	**Azimntb**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2 J40W04-PS-02	150	PJ030803	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2140W04-PS-02	180	PJ030804	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2140W04-PS-02	215	Pl030805	2/17/2005	Wayne Vogler	Overview of wetland
PS Name	**Azimntb**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2140W04-PS-03	llO	PJ030806	2/17/2005	Wayne Vogler	Overview of valley
PS Name	**Azimuth**	**Photo Number**	**Photo Date**	**Photographer**	**Notes**
2140W04-PS-03	200	PI030807	2/17/2005	Wayne Vogler	Overview of wetland

Wetland Oassification

System: Palustrine

Abiotic Substrate

Unconsolidated Bottom: **Riverbed or Streambed:** Mud, organic, vegetated

Water Regime: **Water C..'hemisny:** Fresh water

Hydrogeomorphic Unit: Coastal dune pond If **Other:**

Notes: Deep water body appears to be permanently flooded Perimeter of fairly open canopy willows w/open water interior. Floating mat of duck weed covering 90% of surface water. Evidence that water elevation increases I - 1.5m from present for prolonged periods. Typha

and buttressed willow roots extending out from cwrent water level.

2140W04-PS-01 Photo#: P1030801 Azimuth: 220° Close-up of wetland

2140W04-PS-01 Photo#: P1030802 Azimuth: 140° Close-up of wetland

2140W04-PS-02 Photo #: P1030803 Azimuth: 150° Overview of wetland

2140W04-PS-02 Photo#: P1030804 Azimuth: 180° Overview of wetland

2140W04-PS-02 Photo#: P1030805 Azimuth: 215° Overview of wetland

2140W04-PS-03 Photo#: P1030806 Azimuth: 110° Overview of valley

2140W04-PS-03 Photo#: P1030807 Azimuth: 200° Overview of wetland

APPENDIX 1

Letter from J. Blecha and Dr. M. Moline to DSC clarifying project scope. Dated 31 January 2002

NOTE: The date on this document is in error. The actual date is **31 January 2003**

January 31, 2002

Mr. Chris Barr
Guadalupe-Nipomo Dunes Stewardship Collaborative
P.O. Box 9
Guadalupe, CA 93434

Re: Response to comments on Tenera Environmental-Cal Poly Biological Sciences Department proposal for Guadalupe-Nipomo Dunes Wetlands Assessment

Dear Chris,

Tenera Environmental and Cal Poly want to thank the Guadalupe-Nipomo Dunes Stewardship Collaborative (Collaborative) for the opportunity to answer questions, present additional information on our proposal to evaluate the Guadalupe-Niporno dunes wetland ecosystems, and help clarify the importance of the project to restoration efforts. We would like to further address some of the questions raised during our presentation and, hopefully, make a strong case for first year funding of these proposed studies.

How does this project dovetail with other efforts undertaken by Collaborative?
How does project go beyond the projects already planned and implemented?

The goals of the Collaborative arc to develop the physical structures of the Dune Center, including a new research center; improve educational opportunities through a Dune Center web page; develop a GIS system to archive and access essential information; and guide and implement unified restoration efforts, including land acquisitions. We feel our proposed project for wetland evaluation is very much in step with these goals for the following reasons.

The studies we have proposed will provide a valuable baseline for further wetlands work conducted out of the new research center. The final phase of the project is the design of a long-term volunteer monitoring program for the wetlands. The future research center would be a valuable resource for the volunteer monitoring program and Cal Poly student and faculty wetlands research. We look forward to participating in design considerations for these facilities to help facilitate their future use for wetlands research.

The project we have proposed will not be successful unless the results arc made available to students, educators, resource managers and other researchers. In the scientific community information is disseminated through scientific publications of research results. While we expect to publish the findings of these studies we also realize the importance of insuring that the results arc easily accessible for other users. Therefore, we have proposed modifying the Dunes Center website so the results of the studies are available to the widest range of users. It is particularly important that the information be available for evaluating and planning restoration projects. We

feel that GIS is the best approach for providing the information in a usable form. Cal Poly and Tenera both have extensive experience in the application of GTS for biological resource management. The GIS lab at Cal Poly has assisted in the development of GIS for the Morro Bay National Estuary Program. As dissemination of the information is a priority of all dune prqjects, both Cal Poly and Tenern researchers would be available to provide presentations of the studies to interested groups.

Arguably, the most important goal of the Collaboration is restoration. Unlike terrestrial systems where the need for restoration may be evident from even casual observations (e.g., invasive plant species, extensively eroded areas, poor soil quality), degraded conditions in aquatic environments are not always apparent without directed studies. Aquatic environments are no less important than terrestrial habitats and are often the critical lwbilats required by threatened and/or endangered species (e.g. red-legged frogs). Additionally, aquatic habitats are often the most directly impacted by contamination, as is the case for the Nipomo-Guadalupe dunes complex. Given the recent studies and conclusions regarding water quality in Oso Flaco Lake, (summarized in Telegram-Tribune article 24 Jan. 02), it seems reasonable to speculate that m,my if not most of the wetland systems in the dunes have degraded water quality, The impact of these water quality issues on the biological communities in the wetlands is unknown. Planning restoration el'forls for the wetlands in the Niporno-Guaclalupe dunes complex would be extremely difficult without this information.

Our proposal is to look at all the wetland systems in the Nipomo-Guadalupe dunes complex as an entire ecosystem and provides the information necessary tor ensuring successful restoration and the long-term health of the ecosystem. Results from these studies will I) quantify the biological communities and spatial extent of specific habitats in the wetlands; 2) identify biotic or abiotic factors that may be indicative of degraded conditions; 3) identify the temporal patterns of change that may indicate areas are in need of restoration efforts; 4) determine the biotic or abiotic functions that need to be modified in order to restore natural functions lo the wetland; 5) determine the measures necessary lo insure long term functioning of the habitats; and 6) recommend restoration projects and metrics for measuring their success.

We are aware or two other dune wetlands projects, neither of which was described in the management plan as being funded through the Unocal settlement fi.111ds. As we understand, the studies arc located at the Santa Maria River estuary and in Oso Flaco Lake. We specifically omitted studies in the Santa Maria estuary, assuming that area would be subject to more specific studies and restoration efforts not appropriate to the broad, ecosystem approach we are proposing. Oso Flaco is an important dune wetland area that is included in our studies. We are very willing to redesign our studies lo compliment and augment existing studies in these wetlands.

Other studies considered by the Collaborative for possible funding include a proposal by the Oceana Community Services District (OCSD) lo restore the Oceana Lagoon and one by SLO County (the County) to examine the main water course flowing into Oceana Lagoon. Establishing baseline biological and hydrographic conditions would be a requirement before either of these restoration efforts could be undertaken, studies which, in the case of OCSD, arc included in our wetland evaluation proposal and in the case of the County proposal, can be easily

accommodated by slight adjustment to our proposed evaluation program. Under this scenario, completion of the biological assessments puts these projects in good position for grants from either the Collaborative or other sources, such as Urban Streams Renewal funds.

Are there any time critical aspects and matching.funds available?

We !eel it is imperative that a comprehensive evaluation of the wetland ecosystems or the dunes complex be completed as soon as possible for two compelling reasons. first, the poor water quality in Oso Flaco Lake indicates that other wetlands in the dunes system may have similar problems that have gone undetected. The impacts on the wetland ecosystems, including Oso Finco, are unknown. If there are problems in other dune wetlands, the sooner they are detected the sooner measures can be taken to remedy the problems. Second, no comprehensive examinations have been clone on the dune wetlands as an entire ecosystem. These wetlands may have evolved in parallel or from a large continuous wetland that is now fragmented. In any case, the wetland complex is unique and the differences that now exist among them can be extremely valuable in iclentif-ying natural or anthropogenic factors that could be addressed in implementing restoration projects or BMPs. This study needs to be funded so that further degradation of these habitats does not occur.

Once the data collection for the project is completed and results evaluated, recommendations will be made for restoration or remedial action projects. The study results will provide a sound basis for obtaining matching funds from other sources to complete the recommended projects. Similar to the Collaborative, many of these funding sources are reluctant to fund studies that appear to be pure research nnd prefer to fund projects with mensurable results. A study can have measurable results if it provides information for identifying problems and providing a necessary basis for future funding. Problems in aquatic systems may not be as evident as they arc in terrestrial situations, and only through examination of hare.I data, such as those produced through the evaluations we propose, can problems within wetlands be determined and erlectivc measures designed to restore the areas.

The driving rorce behind the submittal of our wetland evaluation proposal, aside from pure biological curiosity, was well stated in the third point raised by the Collaborative on their specilic comments: *gather basic hiological and physical i1?formation then, in co1?/11nclion with other intere.l'ted organizations, develop a comprehensive strategic plan.for the entire dune wetland eco.1ystem with recommendations for long term re.l'torntion e.{/hrts.*

Several comments were made and questions asked during our presentation. Below, we have summarized the questions and presented our response. Two of the questions have been incorporated into our responses above: how does the project expand on projects already planned and what is the availability matching funds?

Do 111e *do 111etland delineation and did* 111e *mean to include dune swede wetaml.l'as part < (our propo.w/'!*

Yes to both. In fact, some of the smaller dune swale wetlands may show some very interesting biological adaptations 10 shifting environmental conditions.

How would our project be qfjectecl (/!he Dune Lakes were not included (due to access li111itatio11.,)?

Although in several ways, these lakes may be among the most interesting of the dune wetland areas, lhc success or our proposed project in no way hinges upon being able to examine these lakes. However, gaps in the database can be filled in, albeit with a loss of biological resolution, by remote sensing teclrnologics. As mentioned during the presentation, a high-resolution (1-5111 ground resolution) hypcrspeetral (200+ spectral bands) sensor will be flown (between June l-10, 2002) over the site as a collaboration among Cal Poly, the National Oceanic and Atmospheric Administration, the Naval Research Labs in Washington D.C and florida Environmental Research Institute. These data will 1) be directly translatable into GJS for the Collaborative members lo utilize (also as a web-based resource), 2) provide species-level information on plant communities throughout the complex and fully delineate the habitat types (e.g. wetland types, soil types) within the dune complex.

Do /he lakes in the dunes really need res/oralinn?

Based on the recent information regarding waler quality in Oso Flaco Lake, it seems reasonable lo speculate that a hard look at the other wetland areas of the dunes is warranted. A serious concern for these wetlands is the source and quality of fresh water flowing into them. Dunc wetlands lhal receive a reduced llow of water or lack periodic strong flows will have an accumulation or organic matter which can result in low oxygen conditions within the lakes and an increase in the coverage of bulrush, similar to the situation in Oceano Lagoon. High nutrient loads can promote algal blooms, which can affect waler quality by raising water temperatures, decrensing its oxygen content, and in some instances, the algae may itself be toxic to particular species within the habitat.

As recognized and appreciated by the Collaborative, the Guadalupe-Nipomo Dunes Wetlands Complex is a unique coastal California habitat. Under the stewardship of the Collaborative, its protection can only be insured through a comprehensive assessment that can be used as a basis for long term planning, identifying disturbed habitats and responsible factors, and recommending appropriate restoration or remedial actions. The Restoration Plan developed by !he Collaborative has iclentilicd projects that will provide valuable resources for research, education and management and will help ensure the success of restoration projects in the Guadalupe-Nipomo Dunes. We look forward to working with the Collaborative on providing similar resources for the wetland arcas. ln conclusion, we again wanl lo thank the Collaborative for the opportunity to further clarily some of the reasons that we believe our project should receive firsl-ycar funding. Please contact either one of us with any acldilional questions you may have regarding our proposal.

Sincerely,

Mr. James Blecha
Senior Scientist
Tenera Environrnenlal

Dr. Mark Moline
Biological Sciences Department
California Polytechnic Slate University

APPENDIX 2

Preliminary Survey of Nipomo Dunes Wetlands and Dune Swales.

13 April 2003.

Proposed Preliminary Survey of Nipomo Dunes Wetlands and Dune Swales

Prepared by
Jim Blecha, Associate
TENERA Environmental
225 Prado Rd., Suite D
San Luis Obispo, CA 93401

Background

In July 2000, Mr. Jim Blecha ofTenera Environmental, and Dr. Mark Moline of Cal Poly State University, submitted a joint study proposal entitled *"Nipomo Dunes Wetlands Evaluation Project"* to the California Department of Fish and Game Office of Oil Spill Prevention and Response. The proposed project was selected by the Restoration Subcommittee as a potential candidate for funding, pending some clarification. In November 2002, Mr. Ray Belknap, Restoration Task Force chairman, suggested modifications to the original project to address wetland related issues of interest to the Collaborative. Information for this proposal was gathered from the following sources: questions posed at a presentation of our proposal in January 2002; a meeting with Ray in November 2002; a document received in December 2002, *Restoration Task Force Tenera/CalPoly Wetland Assessment Project Comments;* Restoration Task Force meeting in January 2003; and from follow up conversations with Chris Barr and Ray.

Project Overview

The Restoration Task Force requested that the following modifications be made to our original proposal:

1. Prioritize scope of work items based on issues raised *in* the original proposal.
2. Expand the original scope of work to address terrestrial biological resources.
3. Identify key milestones that will aid in setting work priorities over the next five years.

A decision was made to submit proposals dealing separately with the terrestrial biological component and the aquatic biological component.

Following is a proposed modification to our original proposal for a biological evaluation of the dune wetland that is intended to be the initial, first year phase of the evaluation project. This project will incorporate aspects of the original proposal and the following concerns received from the sources stated above:

- Preliminary investigation to "scope" the biological issues that need additional consideration as part of our (Restoration Task Force) ongoing restoration program;
- Location of the wetlands and their general condition;
- Provide information to the database (map of dunes divided into landscape units based on general topography, plant communities, and management needs) that will identify presence of wetlands and a brief narrative of the specifics of the wetland and priority for restoration;

- Prepare a separate GIS layer that is georectified with .the air photos now in use that will identify all of the wetlands within the dunes;
- Scope of dune wetlands to be evaluated expanded to include the Santa Maria River estuary and riparian area, the Arroyo Grande.Creek estuary and riparian areas, and the various dune swale areas.
- Based on the findings of the proposed fieldwork, a recommendations regarding, and time line for, further in-depth biological, bathymetric and hydrographic studies of the wetland areas will be made.

Scope of Work

As proposed, this project will be comprised of three tasks and result in two deliverables.

Task I. *Field Surveys.*

All areas within the Guadalupe-Nipomo dunes study area, as defined by the Collaborative, will be located and visited by a survey team consisting of a biologist and a botanist. Preliminary surveys of all identified wetland areas will consist of:

- Delineation of wetland using a GPS unit with comparable accuracy to existing data;
- Major botanical resources;
- Preliminary assessment of aquatic biological resources including birds and wildlife, reptiles, amphibians, fishes, and invertebrates.

The wetland areas should be surveyed at least twice during the course of the first year, once during the late spring/early summer and again in the late fall/early winter. Similar data may be available for some of the dune wetland areas and these data will be used where appropriate. Interviews with knowledgeable individuals will also be conducted to reduce or avoid duplication of effort.

Budget.

Labor. This task can be expected to take up to 30 field days of 12 lo 20 man-hours per day for a total of up to 600 man-hours. Hourly rates for independent, professional biologist are in the $50.00 to $65.00 range. At this point, this expense is not warranted and a proposed budget for Task I is **$15,000.**

Equipment. Some equipment purchases or rental will be necessary. This will include some aquatic environment sampling equipment including nets, sieves, grab sampler, and preliminary water quality analysis equipment. Purchase or rental of a WAAS compatible GPS unit is necessary. Total budget is not expected to exceed $2,500.

Total Task 1 Budget $17,500

Task 2. ***Report.***

Deliverable. A report of the findings of the preliminary field surveys of the dune wetland areas and dune swales. The format of this report, while flexible, will include the following data for each site visited:

- Latitude and longitude of site and location within the dunes complex landscape unit map;
- Photograph (s) of site showing general botanical and geomorphic features;
- Brief site description that includes pertinent botanical assemblages, surrounding dune morphology, obvious hydrographic characteristics and other physical information as necessary to describe site;
- Findings of preliminary biological survey, including both species observed or collected and those suspected of being present either through previous written accounts or presence of appropriate habitat;
- Recommendations for future detailed biological sampling and preliminary assessment of restoration priority, if appropriate.

Budget. Preparation of three copies of the described report is not expected to exceed **$2,500**

Task 3. *GIS Layer.*

Deliverable. Preparation ofa separate GIS layer that is georecrtified with the air photos now used in association with the landscape unit map and that will identify all of the wetlands within the dunes. This is essentially an electronic version of the above report

JJullget. Preparation of the above-described GIS layer is not expected to exceed **$2,500.**

Total Budget - Tasks 1, 2, **and 3.**

'.fhe total cost for completing preliminary site descriptions of the dune wetland and swales, preparation of - ';feport of the preliminary findings with recommendations for future biological sampling and preparation '><if-a separate georectified GIS layer is not expected to exceed $22,500.

Study Duration

The proposed work could begin in mid- 2003, after review and approval of the objectives by the Collaborative. Field work is expected to take a total of30 field days over the remainder of the year and into the following year. Following collection of the field information, report preparation will take one month. Preparation of the GIS layer, based on the information in the written report, can be completed within one or two weeks. It is reasonable to assume that there will be recommended changes after review by Collaborative members which would require additional time to prepare the final report.

Projected Costs

This report will be prepared primarily by Mr. Jim Blecha, acting either as an independent contractor or as an Associate ofTenera Environmental status as yet to be determined). The total cost of the project, with a deliverable of three copies of the described report and a CD with the GIS layer is expected·not to exceed $22,500. As an independent contractor, Mr. Blecha's billing rate is '$55.00 per hour; the Tenera Environmental qjlli!'lg rate for a senior Associate is $80.00 per hour. Mr. Blecha may retain the services of one or more subcontriictors, including students and faculty from Ca!Poly, the costs for which would be included within the prqpos_ed budget.

APPENDIX 3

Nipomo Dunes Wetlands Evaluation Project Proposal

July 28, 2000

Tenera Environmental Services and Cal-Poly Department of Biological Sciences

Nipomo Dunes Wetlands Evaluation Project

July 28, 2000

Prepared for:

California Department of Fish and Game

Office of Spill Prevention and Response

Melissa Boggs-Blalack,

TENERA Project Manager:

C' TENERA:

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Project Description

This is a proposal for a project for a biological, chemical, bathymetric and hydrographic survey of the major wetland systems of the Guadalupe-Nipomo Dunes complex. Smith, Speth and Browning (1976) describe 5 major and several minor wetland systems of the Nipomo Dunes. Beginning at the northern boundary of the dunes complex, these 5 wetlands are Pismo Marsh, Oceano Lagoon, the Dune Lakes (including Black Lake), Oso Flaco Lake and the wetlands associated with the Santa Maria River (Figure 1). This is a proposal to investigate all of these wetlands, except those of the Santa Maria River, including the marine intertidal unconsolidated shore wetland (Cowardin et al. 1979) from the mouth of the Santa Maria River to the mouth of Pismo Creek, a distance of approximately 10 miles. If either or both of the proposals submitted separately for biological investigations of Pismo Marsh (Lake) and Oceano Lagoon are selected as suitable projects, these areas will not be included in this proposed study.

The goals of this resource evaluation are to:

- perform an assessment of the biological, physical, and chemical properties of the various wetlands using methods developed by Ambrose (1995).
- describe the resources at these wetland sites so that biologically unique or sensitive regions can be recognized.
- conduct an inventory that will provide a useful baseline so that in the case of further degradation to these environments, impacts to biological resources can be assessed.
- assess seasonal variation in bird and, where appropriate, fish communities.
- determine factors associated with species richness for plants, invertebrates, fishes, and birds.
- make specific recommendations as to how the biological integrity of these wetlands can be restored or enhanced.
- design an annual monitoring program for the wetlands which can be implemented at low cost using trained volunteers

The proposed project will use conventional biological survey methods. In the freshwater wetlands, of primary interest are the aquatic organisms found in each wetland, including fishes,

amphibians, reptiles and invertebrates. Plants, including planktonic forms, will also be surveyed. The methods used by Ambrose (1995) for coastal wetland assessment in Santa Barbara County were comparable to those used to assess similar wetlands in Ventura and Los Angeles Counties. These methods allow a detailed description of the plant, invertebrate, fish and bird communities of each wetland areas to be made. In conjunction with the biological surveys, a detailed bathymetric survey using sensitive hydroacoustic and GPS methods will create a permanent data file of depth at precise location for each wetland. Chemical analysis of sediment and water samples will be performed at each site. The hydrography of each site will be described in as complete detail as practical using historical records and on-site observations and measurements. Freshwater wetland sites are expected to be surveyed at least two times, winter and summer, over a two year period although they may be visited more often for bird surveys.

Sandy beach sampling protocol is adapted from quantitative sampling methods developed by the National Park Service for monitoring sand beaches in the Channel Islands National Park (Dugan et al., 1990). This sampling involves coring transects for infauna, supplemental sampling for important species (Pismo clams, sand crabs), measuring physical conditions, and a avifauna census. These data can be analyzed with multivariate methods to identify any gradients in fauna! composition that may exist and which may be attributable to human caused impacts or natural causes (wave exposure, sediment characteristics).

Project Rationale

Each of these wetland systems was formed by different processes and each is suspected of having unique biological properties. Although in the geological past these wetlands, or some of them, could have been part of a larger, connected wetland system, today they do not form a continuous corridor, each linked with one another. Separated, each wetland system, and each component (e.g., lake or pond) of the individual wetlands, developed a characteristic biological community. Each has its own set of biotic and abiotic factors which govern the nature and condition of the associated biological communities. However, the biology and physiography of these wetlands have not been studied in sufficient detail to establish current baseline conditions, a necessary starting point from which to assess any future changes which may occur or the success of future restorations.

Thepotential for the Nipomo Dunes wetlands to have interesting biological characteristics is pointed out in Smith, Speth and Browning (1976):

> A unique quality of this particular ecosystem is its location in a transition zone between the northern and southern California biotic communities represented by different life forms (both plant and animal). Such ecological considerations are extremely important to the discussion of this dune complex. Wetland and semiarid habitats furnish some of the most fascinating and important ecosystems on earth. When these two conditions are found uniquely interspersed, as they are along the southern San Luis Obispo county coast, the complex of plant and animal communities created provides for a diversity of organisms duplicated nowhere else.

Understanding the functions and setting the values of coastal wetlands requires, among other processes, an extensive and intensive ecological assessment (Zedler l996). It is important to know what habitats were historically present as well as what values are still present and understand what processes act to maintain or destroy these habitats.

Project Location

The Nipomo Dunes and wetlands comprise approximately 18 square miles of sand dunes, small lakes and marshes. On the north the Dunes and wetlands complex are bordered by the urban areas of Pismo Beach, Oceano and Grover Beach, the land to the east of the dunes is primarily agricultural and to the south lies Vandenberg Air Force Base. This area is considered the largest and most beautiful coastal dune-lagoon complex in California (Smith, Speth and Browning 1976).

The wetlands of primary interest are briefly described.

Pismo Marsh or Pismo Lake

A freshwater marsh located within the city limits of Pismo Beach. Extensively reconstructed (restored) in the early 1980's, the success of this restoration, with the subsequent formation of the Pismo Marsh Ecological Area, has not been evaluated. The marsh lies in the Meadow Creek watershed. The primary source of water to the marsh during the summer and fall is domestic runoff from the surrounding communities. Further downstream from Pismo Lake along Meadow Creek is the Oceano Lagoon.

Oceano Lagoon/Arroyo Grande Creek mouth

Oceano Lagoon is located at the historic confluence of Meadow Creek and Arroyo Grande Creek at the mouth of Arroyo Grande Creek. Today, Meadow Creek is separated from the Arroyo Grande Creek by a dike and the only articulation between the two watersheds is via a flood gate in the dike approximately ¼ mile inland from the mouth of Arroyo Grande Creek at the Pacific Ocean. Prior to being separated from the Arroyo Grande Creek watershed, this lagoon was probably more accurately described as an estuary with regular, although probably seasonal, flooding by sea water. Oceano Lagoon also receives urban and agricultural runoff during the summer and fall. The Lagoon has supported a modest recreational fishery for catfish, bass, bluegill (Smith, Speth and Browning 1976) and an occasional trout (J. Blecha, pers. obs.).

The stretch of Arroyo Grande Creek below Lopez Lake is fed by water released from Lopez Dam and from Tar Spring Creek and agiicultural water runoff. Natural runoff augments this flow during winter. The mouth of the creek is generally closed to the ocean by a sand berm except at very high tides during summer and fall. During heavy flows in the winter and spring, the creek flows into the ocean. The exact location of the opening is variable depending on flow volume and rate and can vary up to one mile along the beach. This stretch of Arroyo Grande Creek supports a rainbow trout population, some of which may be steelhead trout.

Dune Lakes and Black Lake

The Dune Lakes are a series of IO lakes located about 7 miles south of Pismo Beach and lie approximately one mile inland and east of the crest of the dunes. These lakes are bordered by dunes on all sides and completely landlocked. Annual runoff into the lakes is generally negligible. Although springs feed some water to the lakes, water levels are kept constant during summer months through the use of irrigation wastewater (Smith, Speth and Browning 1976). Historically fresh water in the form of storm runoff entered the lakes via Black Lake Canyon. The area of the Dune Lakes is currently managed as a private reserve; much of the land surrounding Black Lake is owned or managed by the Land Conservancy of San Luis Obispo.

Oso Flaco Lake and associated lakes

The Oso Flaco Lakes consist of two larger lakes, which at one time were a single large lake, and three small lakes, Coreopsis, Jack and Lettuce Lakes. These lakes lie in the old flood plain of the Santa Maria River that, during periods of high water, served as an alternate outlet to the ocean (Smith, Speth and Browning 1976). The area around the lakes is heavily agricultural.

Oso Flaco Lakes are fed primarily by irrigation runoff and Oso Flaco Creek runs from the Lakes to the ocean. Jack and Coreopsis Lakes are seasonal and have their own characteristic floras (Smith, Speth and Browning 1976). Oso Flaco Lakes supports a small but constant fishery for bass and bluegill.

Marine intertidal unconsolidated shore wetland

This wetland is the broad, sandy beach which begins approximately ½ mile north of Pismo Beach pier and extends south to Point Sal. This beach is heavily used by recreational drivers from the beach entrance at Grand Avenue in Grover Beach south to approximately ½ mile north of Oso Flaco Creek mouth. The proposed study area would include that section of beach closed to vehicles between Oso Flaco Creek and the mouth of the Santa Maria River as well as the closed area from Grand Avenue north to the mouth of Pismo Creek. The biological resources of these areas can be compared to those resources of the area open to recreational beach driving. Pismo clams, once abundant on this beach, have declined in recent years but other invertebrate species may remain abundant including sand and mole crabs, various gastropods including moon snails, hermit crabs and sand dollars.

Cost

The expected total costs for this project is: **$240.000.** This amount is broken down by project tasks in the Proposed Budget section.

Geographical Nexus

The wetlands proposed to be studied are the principal wetlands within the boundaries of the Nipomo Dunes and Wetland complex (Smith, Speth and Browning 1976) (Figure 2). This system is bounded on the north by the City of Pismo Beach and on the south by the southern edge of the Santa Maria River flood plain (Smith, Speth and Browning 1976). Four of the wetland areas proposed for study are freshwater wetlands, similar to the freshwater wetlands documented as having been impacted or "injured" by the diluent releases. The sandy intertidal zone was similarly documented as having been impacted by the spills.

Inaddition to impacts resulting from diluent spills, it appears that a major impact of the operation of the Unocal Guadalupe oilfield was to freshwater wetlands and the lagoon at the mouth of the Santa Maria River. Prior to 1973, Unocal pumped its oilfield production wastewater, which had a high sulfur content, into the Santa Maria River approximately 3,000 yards upstream from the mouth (Smith, Speth and Browning 1976). Hydrogen sulfide was observed bubbling to the surface near this discharge. Between 1975 and 1977, Unocal was again permitted to discharge a maximum of three million, twenty-five thousand gallons per day into the river (Smith, Speth and Browning 1976). The effects of these discharges on water quality and wildlife in this wetland and lagoon at the mouth of the river can be reasonably assumed to be significant. In fact, observations of this area indicated that the discharged water may have had an adverse impact on the flora and fauna of the wetland (Smith, Speth and Browning 1976).

Biological characterization of the coastal dune wetland habitats, similar to the impacted areas at the mouth of the Santa Maria River, is central to setting biological baseline criteria for maintaining the health of the entire Nipomo Dunes and Wetlands complex. This system is one of the most unique coastal ecosystems in the state and the aesthetic and ecological values of the area can *only* be sustained through by maintaining all of its components.

Threshold Criteria

Technical Feasibility

Assessments of the biological and physical characteristics of wetlands similar to the proposed project are routinely completed. The methods proposed generally call for non-destructive sampling, although collections will need to be made. Sensitive species will be sampled for and handled according to established criteria. One potential logistical problem may occur with access to the Dune Lakes, a privately owned parcel of over 2,000 acres. Access to Black Lake can be arranged through the Land Conservancy of San Luis Obispo. Access to the other wetlands is coordinated through CDF&G or State Parks.

Consistency with restoration goals

As stated earlier, significant impacts to other wetlands components of the dune complex, including the sandy intertidal wetlands, occurred as a result of the operation of the Unocal Guadalupe oilfield and the ensuing diluent spills. Although this project does not seek to

directly restore any of these wetland areas, in the future it may be necessary for some restorative measures. The baseline ecological conditions of these areas will be invaluable in setting restoration criteria to ensure that the efforts are successful. However, even in the event that the wetlands do not require restorative measures in the future, documenting the existing biological composition, trophic relationships and physical and chemical structure in these unique wetlands, followed by periodic monitoring, is central to ensuring that they will not become degraded over time.

Compliance with laws

This project will comply with all applicable laws. All required county, state and federal collecting permits will be obtained prior to initiation of the project. A significant potential condition is compliance with various aspects of the Endangered Species Act. Potential federal and state listed species that may occur in the Nipomo Dunes wetlands include south/central California steelhead trout, tidewater goby, California red-legged frog, California brown pelican, American peregrine falcon, bald eagle, and perhaps the California clapper rail and the California black rail. Several other species of special concern, particularly plants and birds, may also be present in the lagoon and subject to special conditions by various permitting agencies.

Public health and safety

This project is not expected to present any health hazards to the community or be a concern for public safety.

Additional Criteria

The following narrative of the project is intended to address many of the additional project evaluation criteria.

Background

A relationship between the wetlands, including sandy intertidal areas, impacted by diluent releases and the proposed project exists in the sense that they both involve wetlands of the Nipomo Dunes complex. This proposed project does not specify any wetland restorations. Rather the proposed project is the first in a series of logical processes designed to first

document the present biological/ecological condition of the various wetlands, second, make recommendations based on the findings of those studies, and third to monitor the condition of the wetlands such that the direction of future changes in the ecological conditions of the wetlands can be determined and hopefully reversed the changes are towards degradation.

The surveys are designed to have minimal impacts on the wetlands studies. Surveys methods are largely non-destructive and rely on field identifications and quantification. Biomass estimates of most fish expected to be encountered can be done using sonic technology, a proven method. For sensitive species of fish or amphibians, accepted methods of collection and quantification will be employed to minimize incidental takings. The simplicity of the survey methods and their proven effectiveness in other coastal wetland surveys assures a high likelihood for similarly meaningful results in the Nipomo Dunes wetlands. Results of these surveys can be immediately available to interested parties and agencies and general public in documents and GIS format on computer web sites. Once documented, and coupled with a periodic, well defined monitoring program, the baseline biological and physical conditions of the various Nipomo Dune wetlands will remain a standard by which to measure further changes in their condition, literally for decades into the future.

Several benefits of the proposed survey of the existing biological and physical conditions in the dune wetlands have been addressed;

- establishment of baseline biological, physical and chemical conditions;
- documentation of the ecological condition of the wetlands regarding species present and their abundance;
- identification of the key biological and physical processes which maintain the ecological integrity of the wetlands;
- specific recommendations for remedial actions if or where appropriate;
- recommendations for specific monitoring objectives for each wetland studied.

There are however wider public benefits for the proposed studies. The current uses of the wetlands ofNipomo Dunes, except for the Dune Lakes, are primarily for passive recreational pursuits such as bird and wildlife watching or fishing, rather than the more active pursuits such as boating or swimming. Nature viewing is a very popular activity in these wetlands,

particularly at Oso Flaco Lakes and Oceano Lagoon. As an indication of its popularity, the Nature Center at the Pismo State Beach Oceano Campground receives about 5,000 visitors annually to its displays of plants, animals, fishes, and cultural resources of the lagoon and dunes. Docent led nature walks around the lagoon draw about 500 people annually. At Oso Flaco Lakes, visitor use is somewhat lower due to the user fee for entry but is nevertheless still a popular place to visit. Fishing is still permitted at the Lakes. The people participating in these activities are not just local people, although many are, but come to these wetlands from all over the State and country (Jack Biegle, docent, pers. comm.). A better understanding of the biological structure and functions of these wetlands and the periodic monitoring program will benefit these and future visitors by giving them a certain assurance that the biological condition of the wetlands is important and is being watched carefully for potentially detrimental changes in their condition.

Through the Nature Center, there are many opportunities for collaboration on environmental education of the proposed restoration, docent led walks to the restored areas, and access to volunteers familiar with the Lagoon.

Budget

Biological Studies

The cost for biological, chemical and bathymetric surveys for **one** of the four wetlands proposed to be studied is given in the table below.

TASK	DESCRIPTION	EST.MAN-HOURS	TOTAL EST. COST
initial biological surveys	bird survey, fish abundance/biomass invertebrates, botanical, amphibians & reptiles, report preparation including recommendations for periodic monitoring programs	600	$45,000
physical site assessment	aerial photography, hydroacoustic bathymetry w/GPS, sediment analysis, water chemistry, report and map preparation	120	$10,500
periodic monitoring of biological and physical paramaters	proposed 5 year monitoring program to assess any changes in physical or ecological condition of wetlands; report of results	100 hrs/yr	$6,000/yr$ $30,000 for 5 yrs.*
* The total cost of monitoring programs can be greatly reduced through the use of trained volunteers.			

Literature Cited

Ambrose, R., Principal Investigator. 1995. Coastal Wetland Resources of the Santa Barbara County Mainland. Final Report to the County of Santa Barbara, December 1995.

Cowardin, L.M. V. Carter, F. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. Office of Biological Services, U.S. Fish and Wildlife Service. FWS/OBS-79/31.

Dugan, J.E., D.M. Hubbard and G.E. Davis. 1990. Sand beach and coastal lagoon monitoring handbook. Channel Islands National Park, National Park Service, Ventura, CA.

Smith, K.A., J.W. Speth and B.M. Browning. 1976. The Natural Resources of the Nipomo Dunes and Wetlands. California Department offish and Game, Coastal Wetland Series# 15. 106 p.

Zedler, Joy B., Principal Author. 1996. Tidal Wetland Restoration: A Scientific Perspective and Southern California Focus. Published by the Calif. Sea Grant College System, Univ. Calif., La Jolla, CA. Report No. T-038.

APPENDIX 4

DSC Work Program for Project 2: Preliminary survey of Guadalupe-Nipomo Dunes wetlands and dune swales.

April 2003

Work Program

Terrestrial and Aquatic Biological Resources

Introduction

The following work plan combines into one contract two projects submitted to the Collaborative for funding. These two projects resulted from a request by the Restoration Task Force to consider a modification to our original proposal "Nipomo Dunes Wetland Evaluation Project" submitted 28 July 2000 and as clarified by letter on 31 January 2002, as stated in the Guadalupe-Nipomo Dunes Stewardship Collaborative Work Plan (October 2002). The document dated December 2002, *Restoration Task Force Tenera/CalPoly Wetland Assessment Project Comments,* requested the following modifications to the original proposal:

1. Prioritize scope of work items based on issues raised in original proposal;
2. Expand original scope of work to address terrestrial biological resources;
3. Identify key milestones that will aid in setting work priorities over next five years.

These recommendations were proposed as two projects, separate from but related to the original proposal. Project 1, *"Inventory and management recommendations for terrestrial biological resources, exclusive of plants, within the Guadalupe-Nipomo Dunes complex",* is a report that addresses the current status of non-plant biological resources of the dunes with recommendations for measures to either improve their status or eliminate or modify restoration activities which may be detrimental. Project 2,*"Preliminary survey of Guadalupe-Nipomo Dunes wetlands and dune swales"* addresses items 1 and 3 above as well as providing preliminary information on the biological condition of the wetlands and dune swales to be included in the newly created Guadalupe-Nipomo dunes GIS database.

Project 1. Terrestrial biological resources

Note: This project description intentionally omitted.

Project 2. Preliminary survey of Guadalupe-Nipomo Dunes wetlands and dune swales

Total cost: $22,470 **Schedule: begin - May 2003 completed- March 2004**

Background

Data presented in Chesnut (1999) indicate that within the landscape units identified by the Land Conservancy (2003) as Oceano, Phillips 66 and Oso Flaco, there are 9

riparian areas of approximately 100 acres, 21 dune swales with approximately 250 acres and 17 wetland/lake areas of approximately 180 acres. The privately owned Dune Lakes unit has an additional 32 riparian acres, 32 acres of swale and 195 wetland/lake acres. Within the Refuge unit there are 7 wetland/lake areas with 26 acres, 7 riparian areas with 40 acres and 22 dune swales with approximately 320 acres. Within this general area, which may be subject to some change, the objectives of this project, as stated by the Restoration Task Force, are to:

- locate the dune wetlands and determine their general biological condition;
- provide information to the existing, extensive database of topography, plant communities and management needs and;
- prepare a georectified GIS layer of dune wetlands and swales.

Task 1 Field surveys

Purpose: Survey all dune wetlands and dune swales between the mouths of the Santa Maria River and Arroyo Grande Creek and inland to the extent access is feasible, and with the exception of the Unocal property, to determine the:

- extent of wetlands or for dune swales, the wetland portion, if any, of the habitat;
- biological assessment largely based on a qualitative sampling protocol;
- potential for restoration or necessity for further, more in depth biological sampling to determine what, if any, restoration may be necessary.

Procedure: A survey team will consist of one biologist and one botanist. Each area will be surveyed at least one time; more biologically complex sites may require further visits in order to provide information for an adequate preliminary assessment.

The perimeter of each wetland unit will be defined according to characteristics of soil, vegetation and hydrology and, at a minimum, be in accordance with the United States Army Corps of Engineers 1987 "Corps of Engineers Wetlands Delineation Manual". Wetland boundaries will be surveyed using a GPS unit of comparable accuracy to existing data. Biological samples from the wetland areas may be collected using typical aquatic sampling gear such as dip nets and grab samplers. Organisms collected will be identified to lowest taxonomic unit practical, typically genus. For areas with standing water, dissolved oxygen, temperature, pH and turbidity will be measured at representative locations. Results of this site evaluation will allow a general biological description will be made and an assessment of the condition of each area. One survey will be conducted at each site, between late spring/early summer and late falVearly winter.

Product: A data base for each wetland unit surveyed will include the geographical location and extent of the unit, major botanical resources and a preliminary assessment of the aquatic biological resource.

Estimate,/ labor costs to complete Task 1:

	Blecha	120 hrs@$55.00/hr
	Botanist	160 hrs@$50.00/hr
	Total labor	**$14,600**

Task 1 equipment purchase **$2,500**
To include nets, grab sampler, sieves, water quality sampling equipment and WAAS compatible GPS unit

Total Task 1 but/get **$17,100**

Schedule: will require approximately 8 months 31 January 2004

Task 2 Report preparation

Purpose: Create a hard copy of the findings of the preliminary field surveys of dune wetland and dune swales.

Procedure: Synthesis and analysis of collected information on the biological resources. Consult with various Collaborative members as to format preferences and most effective, user friendly report format.

Product: Self-contained report with the following proposed sections for each of the wetland units surveyed:

- Latitude and longitude of wetland unit and GPS database of boundaries of unit
- Photograph (s) of site
- Brief site description with pertinent botanical assemblages, surrounding dune morphology, obvious hydrographic characteristics and other physical information;
- Findings of preliminary biological survey including species observed and collected as well as those suspected of being present;
- Recommendations for future sampling and preliminary assessment of restoration priority

A summary section will identify key milestones to use in setting work priorities over next five years.

Estimated labor costs to complete Task 2: 54 hrs@$55.00/hr

Total cost to complete Task 1 $2,970

Schedule: approximately 1 month from end of Task 1 1 March 2004

Task 3 GIS layer preparatiop

Purpose: To present data collected on the wetland units in an easily accessed electronic format that is compatible in both content and format with GIS formats in current use by Collaborative members and contractors.

Procedure: This task will be completed by a qualified sub-contractor who will gather all of the necessary information in order to produce a GIS layer consistent in both format and content and complementary to the existing GIS applications in use by Collaborative/Restoration Task Force.

Product: A GIS layer georectified with the air photographs now used by the Restoration Task Force in association with the landscape unit map that will identify all wetland units within the dune study area.

Estimated labor costs to complete Task 3: 40 hrs@$60.00/hr

Total cost to complete Task 1 **$2,400**

Schedule: approximately I month from end of Task I I March 2004

Projects 1 & 2

Task 1 Monthly progress reports

Purpose: To keep the Collaborative and Restoration Task Force appraised on the progress of the projects and present and discuss salient preliminary findings for interest and for input from the group.

Procedure: Written progress reports will be presented according to the established procedure of the Collaborative and Restoration Task Force.

Product: Monthly written status report.

Total cost: Included within project budgets

APPENDIX 5

Example of field data sheet for GND wetland evaluation

2004

General Information

Land Management Unit#: _____ **Wetland Number:** _____

Date: _____ **Time:** _____ **Biologist(s):** _____

Access Information: _____

Weather: _____ **Temperature(°F):** _____

Location: ----------

Description of Surrounding Habitat: ----------

_____

Impacts to Wetland: ☐ cattle ☐ weed infestation ☐ human intrusion D other _____

Wetland Description

Type: D Dry Wetland ☐Marsh ☐Pond ☐ Lake ☐ Creek/Stream

Hydraulic Regime: ☐rain pool D ephemeral ☐ semi-permanent ☐ semi-perm/perm ☐ permanent

Est. Depth: ☐dry ☐ saturated soils ☐ 0 to 15 cm (<6 in) D 15 cm to½ meter ☐½ m to½ m ☐½ m to 1 m ☐1 mto1½m D>1½m

Est. Max Depth: _____ **Est. Avg. Depth:** _____ **Standing Water Evidence:** ☐yes D no ___ _

Angle of Bank: ☐shallow ☐ moderate ☐ steep **Wetland Substrate:** ☐ sand ☐ silts/fines ☐gravel D man-made

Water Clarity: ☐ clear ☐ tea ☐ muddy

Percent Canopy Cover: _____ **Percent Emergent Vegetation:** ___ _

Gross Classification: ☐Dry Wetland ☐Marsh ☐ Pond ☐Lake ☐Creek/Stream

Habitat Elements

Dominant Veg Species: _____

Observed Wildlife Species:

CRLF Presence: ☐Observed ☐Likely Presence ☐Potential Breeding D Not Likely ☐ Bullfrog(s) Observed

SWPT Presence: ☐ Observed ☐ Likely Presence ☐ Potential Breeding ☐ Not Likely

SGS Presence: ☐ Observed D Likely Presence ☐Potential Breeding ☐Not Likely

La Graciosa Thistle Presence: D O to 100 individuals D 100 to 250 individuals D over 250 individuals

Other Potential Sensitive Species: _____

Wetland Impacted by Exotic Vegetation: D Yes D No Species:

Photographs

PS Name	Azimuth	Photo Number	Description	Zoom
				☐None ☐¼ 0½ •-¾ ☐ Full
				0None0¼ 0½ ¾None Full ¼ 0¼ ¾ ☐Full
				0None0¼ 0½ ¾ ☐ Full
				0None0¼ 0½ 0¾ ☐Full

Wetland Classification

System: ☐Marine ☐Estuarine ☐ Riverine ☐Lacustrine D Palustrine

'\biotic Substrate

[1]**Unconsolidated Bottom:** ☐ Rubble/Boulder ☐ Cobble/Gravel ☐ Sand ☐ Mud ☐ Organic ☐ Vegetated

Riverbed or Streambed: D Bedrock D Rubble/Boulder D Cobble/Gravel D Sand D Mud D Organic D Vegetated

Biotic Substrate

Aquatic Bed: D Attached Algal D Floating Algal D Aquatic Moss D Rooted Vascular D Floating Vascular

Emergent Wetland: ☐ Persistent ☐ Non-persistent

Scrub-Shrub: ☐ Broadleaved Deciduous ☐ Needleleaved Deciduous D Broadleaved Evergreen D Needleleaved Evergreen ☐Mixed Deciduous ☐Mixed Evergreen ☐ Dead

Forested Wetland: ☐ Broadleaved Deciduous ☐ Needleleaved Deciduous D Broadleaved Evergreen D Needleleaved Evergreen D Mixed Deciduous ☐Mixed Evergreen ☐ Dead

Water Regime: D Permanently-Flooded D Intermittently-Exposed D Semipermanently-Flooded D Seasonally-Flooded D Permanently-Saturated D Seasonally-Saturated ☐ Temporarily-Flooded ☐ Intermittently-Flooded ☐ Phreatophytic

Water Chemistry: ☐Fresh water ☐Saline, haline ☐Brackish D Eurysaline, euryhaline ☐Hypersaline, hyperhaline

Hydrogeomorphic Unit: D Riffles ☐ Runs ☐ Cold springs ☐ Coastal dune pond ☐ Coastal dune lake ☐ Palustrine vernal lake D Agricultural pond, reservoir D Recreational pond, reservoir D Diked estuarine lagoon, basin D Coastal plain stream channel ☐ Coastal plain river channel D Vernal freshwater marsh ☐ Perennial freshwater marsh D Dune swale ☐ Artificial ditches ☐ Other _ _ _ _ _ _ _

Notes