3.4 NatureServe

NatureServe is a non-profit conservation organization whose mission is to provide the scientific basis for effective conservation action. The NatureServe database is a leading source for information about rare and endangered species and threatened ecosystems. It contains the species included in the CNDDB. It also lists a species, with a historical range encompassing coastal Los Angeles County whose vulnerability has not yet been ranked by NDDB or CNDDB. This unranked species is *Psammobotys fordi*, **Ford's Sand Dune Moth**. The adults of this snout moth in the Crambidae family nectar at *Gnaphalium*, which is not present at the site. The moth is endemic to the El Segundo dunes and is suspected to be extinct [Mattoni 2000].

3.5 Other sources

For completeness, we list species of potential concern from the undisturbed remnant of the El Segundo Dunes west of Los Angeles International Airport and from the Ballona Wetlands and surrounding areas in Playa del Rey. A number of these species are rare, and some have not been formally described and do not yet have a scientific species name. None of these species have been recorded from the site during this project.

- *Aegialia convexa*, the **Dune Scarab Beetle** is a 4.5 millimeter long, black to dark-brown scarab beetle, found on ocean beaches;
- *Aptostichus simus*, the **Dune Trapdoor Spider**, which has been reported from the El Segundo Dunes, in Los Angeles County, north to Monterey County. Its habitat is fairly steep, undisturbed, south-facing slopes of packed sand, which are not present at the site;
- *Comadia intrusa*, the **El Segundo Goat Moth**, uses **Dune Lupine** (*Lupinus chamissonis*) as host plant, which does not occur on the site;
- *Copablepharon sanctaemonicae*, the **Santa Monica Dunes Moth**, is restricted to sand dune habitats, and primarily found in foredunes. Its host plant is Sand Verbena (*Abronia* sp.) [Mattoni 1990], which does not occur on the site;
- *Cophura clausa*, the **Seashore Robber Fly** [Schreiber 1981], a little-known, 7 to 9 millimeter long fast-flying predatory fly, originally described from Orange County. It has a large distribution range that includes the Mojave desert;
- *Cylindrocopturus new sp.*, an undescribed weevil, which isendemic to the El Segundo Dunes;
- *Ebo new sp.*, an undescribed crab spider, was reported to be present in encouraging numbers in the El Segundo dunes in 1993 [Mattoni-1993];
- *Eremobates new sp.*, **Coastal Dune Whip Scorpion**, is a solifugid. Solifugids, also known as sun spiders, are in a taxonomic order different from both the spiders and the scorpions. This solifugid species is not endemic to the Ballona Creek Region [Schreiber 1981];
- *Euxoa riversii*, **River's Dune Moth**, is a rare noctuid moth found in sand dune habitat;

- *Nebritus powelli*, a recently described stiletto fly without a common name, is possibly associated with coastal dunes and willows (*Salix* spp.) [Webb 1991]; it could become recognized as a species of concern because its distribution range is limited to a few coastal locations between Los Angeles County (Ballona Wetlands) and San Luis Obispo County, and such areas are prone to urbanization pressure;
- *Psammodius mcclayi*, the **South Coast Dune Beetle**, is a detritus-feeding scarab beetle found among the roots of grasses on sand dunes of the Californian sea coast. The holotype is from Playa del Rey;
- *Scythris new sp. 1*, the **El Segundo Scythrid Moth**, was reported to be present in encouraging numbers in the El Segundo dunes in 1993 [Mattoni 1993];
- *Scythris new sp. 2*, the **Lesser Dunes Scythrid Moth**, is reported to be rare and restricted to the El Segundo dunes [Mattoni 1993];
- *Stenopelmatus new sp.*, the **El Segundo Jerusalem Cricket**, is endemic to the El Segundo Dunes, whose northern limits are south of Marina del Rey [Mattoni 1993].

None of these species have been recorded during the course of this project. Due to the site not being a dune habitat, not being pristine, and not having salt flats or other wetland niche habitats, is it unlikely that these species are present at the site. It is, however, possible that some of the flying species are capable of reaching the site, especially during accommodating weather conditions; and if proper habitat is present at the site, they might take up residence.

3.6 Conclusions

The site in its present state is unlikely to harbor healthy populations of any invertebrate species of concern, with possible exception of the Signal Fly discussed in section 2.1.3 above. This is especially due to the scarcity of native vegetation, minimal habitat diversity, presence of non-native fauna, especially Argentine Ants, and the absence of soft sand dune habitat and presence of concrete and other rubble in the soil. Other intrinsic factors are the site's relatively small area and it being surrounded by urbanization, without explicit migration corridors, like adjacent urban parkland or backyards.

Figure 6: **Robber Fly** (*Nicocles sp.*) female

4 Recommendations

4.1 Recommendations for conservation

The Oxford Basin has great potential as a habitat for native invertebrates. Even though the site is currently in a relatively degraded state, with predominantly non-native vegetation, the basin provides an important breeding ground for many aquatic species. The upland areas still have some native vegetation and can be restored to become a more vibrant coastal ecosystem. Specific recommendations for conservation, restoration, and overall site improvement are:

- Removal of exotic plants, ideally by hand, without the use of toxic pesticides.
- Planting a broad diversity of native plants, specifically plants native to the local coastal area of Los Angeles County.
- Abatement of Argentine Ants, which displace native ant species as well as other arthropods, resulting in an impoverished biotope. A critical part of restoration efforts on the site should include the abatement of Argentine Ants. If desired, BioVeyda can assist in this effort.
- Removal of unnecessary concrete and other construction debris. Some monolithic rocks can be left or intentionally placed, as they will provide habitat for various vertebrate and invertebrate animals.

Possible introduction of native fauna, or at least introduction of their food-plants; for example:

- Pygmy Blue (*Brephidium exilis*): Chenopodiaceae, including Atriplex and Chenopodium.
- Wandering Skipper (*Panoquina errans*): Saltgrass (*Distichlis spicata* var. *spicata*) and Cordgrass (*Spartina foliosa*), which are common native plants in Southern Californian salt marshes.

4.2 Recommendations for future invertebrate surveys

The list of invertebrates encountered on the site is rudimentary, as the scope and duration of the project was limited to obtaining a high-level baseline. It would be beneficial to perform periodic surveys in the future, whose results can be compared to those obtained during this project. These future surveys would add valuable information toward completeness of the list and toward measuring changes in biodiversity over time. It would be of value to monitor before, during, and after a potential restoration effort, or other planned habitat modification.

It would be ideal to continue performing minimal impact surveys, based on visual inspection, including the use of close-focusing binoculars, photography, and capture and release. During minimal impact surveys, a minimal number of specimens are killed and curated for future study. For most common species it is not necessary to examine captured specimens in detail for identification. For uncommon taxa, it is often helpful to examine a specimen in microscopic detail, and occasionally by dissection, in order to arrive at a solid taxonomic identification.

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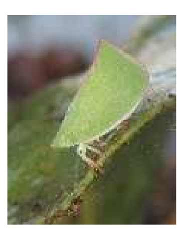

Figure 7: **Torpedo Bug** (*Siphanta acuta*)

Appendix A Invertebrates recorded

The invertebrates recorded during the project are listed in the following table. The table contains the combined results of the terrestrial invertebrate data collection methodologies, as well as the recorded aquatic macro-invertebrates.

	Family	Genus	Species	Subspecies	Common Name(s)
Phylum: Arthropoda					**Arthropods**
Class: Arachnida					**Arachnids = Spiders, Mites, & kin**
Order: Aranea					**Spiders**
	Agelenidae				Funnel-web Spiders
	Dysderidae	Dysdera	crocata		Woodlouse Spider
	Gnaphosidae				Ground Spiders
	Lycosidae				Wolf Spiders
	Miturgidae	Cheiracanthium	mildei		Longlegged Sac Spider
	Oecobiidae	Oecobius	sp.		Baseboard Spider
	Salticidae	Habronattus	pyrrithrix		Jumping Spider
	Theridiidae	Steatoda	grossa		False Black Widow (Spider)
Class: Collembola					**Springtails**
Order: Entomobryomorpha					**Elongate-bodied Springtails**
	Entomobryidae				Elongate-bodied Springtails
Class: Diplura					**Two-pronged Bristletails**
Order: Rhabdura					**Rhabdurans**
	Campodeidae	Campodea	kelloggi		Two-pronged Bristletail
Class: Insecta					**Insects**
Order: Coleoptera					**Beetles**
	Anobiidae	Ozognathus	cornutus		Death-watch Beetle
	Carabidae	Bembidion	sp.		Minute Ground Beetle
	Carabidae	Calathus	ruficollis	ruficollis	Redneck Woodland Ground Beetle
	Coccinellidae	Cryptolaemus	montrouzieri		Mealybug Destroyer
	Dermestidae	Cryptorhopalum	sp.		Carpet Beetle
	Hydrophilidae	Enochrus	sp.		Water Scavenger Beetle
	Staphylinidae				Rove Beetles
Order: Dermaptera					**Earwigs**
	Anisolabididae	Euborellia	annulipes		Ring-legged Earwig
Order: Diptera					**Flies, Mosquitos, & kin**
	Asilidae	Nicocles	sp.		Robber Fly (see figure 6)
	Bombyliidae	Hemipenthes	sinuosa		Sinuous Bee Fly
	Bombyliidae	Villa	lateralis		Bee Fly
	Calliphoridae	Lucilia	sp.		Common Green Bottle Fly
	Chironomidae				Midges
	Ephydridae	Ephydra	niveiceps		Brine Fly (see figure 8)
	Ephydridae	Mosillus	sp.		Shore Fly
	Limoniidae	Erioptera	pilipes		Limoniid Crane Fly
	Muscidae	Coenosia	sp.		Tiger Fly
	Platystomatidae	Amphicnephes	sp.		Signal Fly (see figure 1)
	Sarcophagidae	Sarcophaga	sp.		Flesh Fly
	Syrphidae	Eristalinus	aeneus		Hover Fly
	Syrphidae	Eupeodes	volucris		Bird Hover Fly
	Syrphidae	Palpada	sp.		Drone Fly
	Syrphidae	Paragus	haemorrhous		black+red Hover Fly
	Syrphidae	Sphaerophoria	sp.		cylinder Hover Fly
	Tachinidae				Tachinid Flies

	Family	Genus	Species	Subspecies	Common Name(s)
Phylum: Arthropoda					**Arthropods**
Class: Insecta					**Insects**
Order: Hemiptera					**True Bugs, Hoppers, Aphids, & kin**
	Cicadellidae				Leafhoppers
	Flatidae	Siphanta	acuta		Torpedo Bug (see figure 7)
	Miridae	Phytocoris	sp.		Plant Bug (see figure 3)
	Pentatomidae	Bagrada	hilaris		Bagrada Bug = Painted Bug
	Psyllidae				Psyllids
	Saldidae				Shore Bugs
Order: Hymenoptera					**Wasps, Ants, Bees, Sawflies, & kin**
	Apidae	Apis	mellifera		European Honey Bee
	Apidae	Xylocopa	varipuncta		Valley Carpenter Bee
	Colletidae	Hylaeus	sp.		Yellow-masked Bee
	Formicidae	Linepithema	humile		Argentine Ant
	Halictidae	Halictus	tripartitus		Sweat Bee (see figure 4)
	Ichneumonidae				Ichneumon Wasps
	Pompilidae	Aporinellus	sp.		Spider Wasp
	Pompilidae	Episyron	conterminus	posterus	Spider Wasp
	Sphecidae	Ammophila	sp.		Thread-waisted Wasp
	Sphecidae	Sceliphron	caementarium		Black and Yellow Mud Dauber
	Vespidae	Eumenes	sp.		petioled Potter Wasp
	Vespidae	Polistes	dominula		European Paper Wasp
Order: Isoptera					**Termites**
	Kalotermitidae	Incisitermes	minor		Western Drywood Termite
Order: Lepidoptera					**Butterflies & Moths**
	Crambidae	Dicymolomia	metalliferalis		Crambid Snout Moth
	Geometridae	Perizoma	sp.		Geometrid Moth
	Hesperiidae	Hylephila	phyleus		Fiery Skipper (see figure 2)
	Hesperiidae	Poanes	melane		Umber Skipper
	Noctuidae	Autographa	californica		Alfalfa Looper (Moth)
	Nymphalidae	Danaus	plexippus		Monarch
	Nymphalidae	Vanessa	atalanta		Red Admiral
	Nymphalidae	Vanessa	cardui		Painted Lady
	Papilionidae	Papilio	rutulus		Western Tiger Swallowtail
	Pieridae	Pieris	rapae		Cabbage White
	Pyralidae	Ephestiodes	gilvescentella		Dusky Raisin Moth
	Sphingidae	Hyles	lineata		White-lined Sphinx (Moth)
	Tineidae	Oinophila	v-flavum		Yellow V Moth
Order: Microcoryphia					**Bristletails**
	Machilidae				Bristletail
Order: Odonata					**Dragonflies & Damselflies**
	Coenagrionidae	Ischnura	cervula		Pacific Forktail
	Libellulidae	Libellula	saturata		Flame Skimmer
	Libellulidae	Pachydiplax	longipennis		Blue Dasher
	Libellulidae	Sympetrum	corruptum		Variegated Meadowhawk
	Libellulidae	Tramea	lacerata		Black Saddlebag

Family	Genus	Species	Subspecies	Common Name(s)
Phylum: Arthropoda				**Arthropods**
Class: Insecta				**Insects**
Order: Orthoptera				**Grasshoppers, Crickets, & kin**
Acrididae	Melanoplus	marginatus	(see fig. 5)	Margined Spurthroated Grasshopper
Myrmecophilidae	Myrmecophilus	sp.		Ant (Loving) Cricket
Order: Psocoptera				**Booklice & Barklice**
Ectopsocidae				Outer Barklice
Order: Thysanoptera				**Thrips**
Phlaeothripidae				Tube-tailed Thrips
Class: Malacostraca				**Amphipods & Isopods**
Order: Amphipoda				**Scuds & Sideswimmers**
Gammaridae				Gammarid Scud
Order: Decapoda				**Crabs, Lobsters, Shrimp, & kin**
Pandalidae				Shrimp
Order: Isopoda				**Isopods**
Porcellionidae	Porcellionides	pruinosus		Woodlouse
Class: Maxillopoda				**Barnacles, Copopods, & kin**
Order: Sessilia				**Acorn Barnacles**
Balanidae	Balanus	sp.		Acorn Barnacle
Phylum: Mollusca				**Molluscs**
Class: Gastropoda				**Snails & Slugs**
Order: Neotaenioglossa				
Bullidae	Bulla	gouldiana		California Bubble Shell
Potamididae	Cerithidea	californica		California Mud Snail
Class: Bivalvia				**Bivalves**
Order: Mytiloida				**Saltwater Mussels**
Mytilidae	Modiolus	rectus		Straight Horsemussel
Veneridae	Protothaca	laciniata		Rough-sided Littleneck Clam

Figure 8: **Brine Fly** (*Ephydra niveiceps*) female + male

End of Final Report

ATTACHMENT C: FISH & ESTUARINE BIOLOGY REPORT

MEMORANDUM

To: Robert A. Hamilton
Hamilton Biological, Inc.
316 Monrovia Avenue
Long Beach, CA 90803

From: Camm C. Swift, Ph.D.
Joel Mulder

Re: Results of Fish surveys at Oxford Basin on January 12 and April 27, 2010 and recommendations for restoration potential for fishes and other estuarine and marine life.

Date: August 27, 2010

Introduction

Oxford Basin (Basin) is a storm-water flood control basin connected by tide-gates and a subterranean concrete conduit to Marina del Rey. The Basin is located along Washington Avenue between Oxford Avenue and Palawan Way in the City of Venice, Los Angeles County, California (33°59'6.77"N, 118°27'19.93"W). It is a remnant of the much larger Ballona Wetlands that formerly occupied this area prior to development of the harbor (Swift and Frantz 1981) and which constituted the mouth of the Los Angeles River in the early 1800s. The Los Angeles County Department of Public Works (LADPW) requested a study of the fish population in the Basin from Hamilton Biological in order to provide a basis for the formulation of a restoration plan for the area and to examine the possible alternatives for improvements to the area. ENTRIX, Inc. (ENTRIX) conducted two fish surveys at Oxford Basin (January 12 and April 27, 2010) and performed a review of historical documents on the fishes and other biological aspects of the area. The results of this study are presented here and provide data on the current fish fauna. Also provided is a discussion and analysis of potential restoration actions to benefit and improve the estuarine habitat for fish and other aquatic estuarine species.

Description of the Project Area

Oxford Basin is designed to catch storm and street water runoff from the surrounding urban areas of the City of Venice and Marine del Rey. The main body of the Basin is approximately 465 meters (m) long and 56 m wide at its widest point. The Basin is generally rectangular shaped and runs in a northeast to southwest direction, with one long, narrow arm leading east approximately 120 m to a storm-water inlet (Figures 1 and 2). During the first survey on January 12, 2010, a small amount of street runoff flow was being pumped into the Basin around a construction project taking place at the eastern inlet. On the second survey occurring April 27, 2010, a permanent concrete diversion barrier had been completed at this inlet which collected street runoff and periodically pumped it into the sewer system rather than allowing this flow into the Basin. However, overflow inlets were present to allow high storm flows to pass in the Basin. A second inlet entered the Basin along the northern side via a concrete lined channel with a concrete apron (approximately 8.5 m wide) extending out into the Basin (Figures 1 and 2). Less than an estimated 0.02 cubic meters per second of flow was observed entering the Basin from this inlet on both survey dates. Additionally, two small trickles of street drainage or seepage were observed on the west and east sides of a southward extending point of land on the northern shore, directly across the Basin from the tide gates.

Water depths within the Basin fluctuate with natural tidal fluctuations in Marina del Rey, however, the inflow and outflow to the Basin is controlled by a set of tide-gates at the southwestern corner of the Basin. The elevation of high tide allowed to rise by no more than approximately 1.5 m (4.8 feet) above mean low water (Mike Stephenson, LADPW, January 12, 2010, personal communication). As a result, water depths in the Basin were greatest at or shortly after high tide, with a maximum depth of approximately 2 m in a localized area near the tide-gate. Depths are generally shallower throughout the remainder of the Basin. Approximately one-half of the Basin bottom substrate became exposed at low tide. The tide-gates are reported to be occasionally shut to prevent any tidal fluctuation, such as following low tides before predicted rain storms in order to increase the capacity of the Basin to hold storm runoff.

On January 12, 2010 the salinity at the surface at two sites in the lower Basin ranged between 15-18 parts per thousand (‰), Salinity at the inflow at the east inlet it was 3 ‰. The water temperature ranged from 15-18°Celsius (C) at several locations in the Basin. On April 27, 2010 several salinity measurements throughout the Basin, including at the eastern inlet, ranged from 33 to 34 ‰. Water temperatures were 17-18°C. During both surveys the water was moderately turbid with visibility estimated to approximately 1 m.

Substrate within the Basin on both survey dates was predominately comprised of firm to soft mud/silt. Some small areas of fine sand existed near the tide gates where the strength of the in-flowing and out-flowing tidal currents presumably prevents deposition of finer substrate. The majority of the Basin banks were steep to gentle earthen slopes densely inundated with pickleweed (*Salicornia sp.*) at the higher, intertidal, edges but the eastern one-third of the northern and southern shores were more shaded and only terrestrial grasses and herbaceous vegetation occupied the shore just above the high tide line. At lower tides, bare, firm to soft mud/silt was exposed between the waters edge and the pickleweed edges. The steeper south side of the Basin and eastern one third or so of the north side had approximately 1-3 m of bottom substrate exposed at low tide. The western two thirds of the north side became much more exposed at low tide, with 5 to 20 m of gently sloping mudflats becoming exposed. Near the tide-gates and the eastern inlet, patches of concrete debris and boulders were present. A few logs were also observed floating in the water. These hard substrates supported barnacles and a small number of mussels existed near and on the tide-gate structures.

During the first survey, no aquatic vegetation was observed in the Basin. On the second survey, filamentous green algae (possibly *Enteromorpha sp.)* were present along 50-80% of the wetted margins at low tide. Approximately 10% of the Basin surface had floating mats of this same algae present.

At high and low tides, very little flow was present in most of the Basin although some surge was observed coming through the mouth of the tide-gates. This caused a slow back and forth flow near the mouth and within about 30 m of either side of the gates, as well as some small wave action against the opposite shore. When the gates were opened with a strong difference in tidal levels between the Oxford Basin and the Basin E of Marina del Rey, stronger flows occurred. During strong incoming flows on April 27, a circular current existed in the western portion of the Basin which caused masses of green algae to float in a broad circular track across the water surface. This current, however, is likely an infrequent event and typically the tidal flow would be much slower over the 4-6 hour duration between high and low tides. These observed currents were with one tide-gate open and possibly even stronger flows can occur under certain circumstances with both tide-gates open.

The Basin is surrounded by elevated roadways, a parking lot, and trees along the roadway edges. Together, these extend upward to 10-15 m above the water level and shield the Basin from wind action. Surrounding high rise buildings and apartments along the northeast border also shelter the area from the wind even more.

Methods

The fish surveys were conducted by visual observation and by beach seining on January 12, 2010 and by visual observation, beach seining, and trapping on April 27, 2010. The seine net utilized measured 5 X 1.8 m with 3 millimeter (mm) mesh. The traps utilized consisted of 4 crayfish traps (Gee's) with 6 mm mesh and 25 minnow traps (Gee's) with 3 mm or 6 mm mesh. The crayfish traps were 70 centimeters (cm) long and 23 cm in diameter with double 5.7 cm openings and the minnow traps were 45 cm long and 23 cm in diameter with double 2.5 cm openings. All traps were baited with cut pieces of fresh mackerel. Traps were set around the perimeter of the Basin on the incoming high tide. Four crayfish traps were placed near the tide gates and the twenty minnow traps distributed around the Basin (Figure 2). The traps fished for 6 to 8 hours after being set in a west to east direction from 06:45 to 08:45 hrs and checked twice, once at approximately 11:30 and again at 14:30 when the traps were removed.

Results

Table 1 presents the results of the surveys. A total of 14 seine hauls around the perimeter of the Basin on January 12, 2010 captured hundreds of mosquitofish, *Gambusia affinis*, and one or two small juvenile shadow gobies, *Quietula y-cauda*, just west of the tide gates. In addition one large longjaw mudsucker, *Gillichthys mirabilis*, was observed in the rocks near the upper end but was not captured. The seining (5 hauls) and trapping on April 27, 2010 captured large numbers of native gobies, such as arrow gobies, *Clevelandia ios*, cheekspot gobies, *Ilypnus gilberti*. Also captured were a small number of native shadow gobies and longjaw mudsuckers. Topsmelt, *Atherinops affinis*, were abundant and hundreds were observed and captured ranging in size from small juveniles to adults (up to about 15 centimeters total length). In addition a few small, juvenile, non-native, yellowfin gobies, *Acanthogobius flavimanus*, were taken. The majority of fish were captured by seining rather than in the traps. Fish were found to be relatively scarce as distance form the tide-gates increased, with the exception of mosquitofish. For this reason, seining during the second survey was focused around the tide-gate. During both surveys, the majority of the Basin was observed from1-10 m from shore and fishes were rarely detected with the exception of the abundant mosquitofish in January.

Table 1 Results of fish surveys occurring on January 12 and April 27, 2010 at Oxford Basin.

		January 12, 2010		April 27, 2010		
Common Name	Scientific Name	Seine	Observed	Trap	Seine	Observed
mosquitofish	*Gambusia affinis*	>1000	>10,000	302	2	40
shadow goby	*Quietula y-cauda*	1	2	2	2	0
longjaw mudsucker	*Gillichthys mirabilis*	0	1	24	1	0
arrow goby	*Clevelandia ios*	0	0	0	25	0
cheekspot goby	*Ilypnus gilberti*	0	0	0	25	0
yellowfin goby	*Acanthogobius flavimanus*	0	0	0	7	0
topsmelt	*Atherinops affinis*	0	0	24	>300	150

Discussion

The species captured during the surveys are typical of coastal estuaries of southern California and indicate that Oxford Basin contains habitat that can support estuarine species for at least part of the year. The results of the January survey suggest the Basin supported very few estuarine fish in January. Mosquitofish were present in the tens of thousands while only two or three larval or small juvenile shadow gobies were captured near the tide-gate where they had apparently recently arrived and one large mudsucker was observed. By the April 27, 2010 survey, large numbers of gobies were detected. These were comprised of four native and one non-native species, all of which are typical of coastal estuaries in southern California. In addition, large numbers of topsmelt were present and only a few mosquitofish were captured. Fish were encountered both in seine hauls near the mouth and in traps set around the perimeter of the Basin indicating fish were dispersed throughout the Basin in late April. However, fish were most abundant near the tide gates. It is likely that the difference in fish abundance between the two surveys was due to the changes in freshwater influence and salinity in the Basin. In January, when freshwater input from numerous winter storm events had presumably repeatedly washed out the Basin, salinity in the Basin ranged from almost fresh to approximately half that of seawater. The salinity was considerably higher and at near seawater salinities in April, allowing colonization of the Basin by estuarine species dependent on higher salinity.

Invertebrates were uncommon in January except for broken-backed shrimp or *Palaemon macrodatylus*, a non-native species from Asia. This species was very common in January but fewer than 10 were captured in April when they were much les abundant. *P. macrodatylus* is well adapted for brackish or low salinity environments (Kuris et al. 2007). Possibly this species becomes abundant in Oxford Basin during the winter with the increase in freshwater influence that provides lower salinities and decreases the number of predatory fish present as well. California horn shells, *Cerithidia californica*, a typical invertebrate in southern California estuaries, were uncommon with only a few observed during both surveys despite the presence of considerable amounts of green algae, their primary food source, in April. As noted in the description of the area, barnacles were present on hard substrates around most of the Basin while mussels seemed restricted to the area around the tide gates. Other than an abundance of amphipods observed under the intertidal rocks, the only other aquatic invertebrate noted was the bubble shell, *Bulla gouldiana*. Several of these were observed near the mouth of the tide gate among the algae being dislodged by the strong incoming tidal currents and several were also captured by seining. Surprisingly, no crabs were encountered during the surveys. Seining and baited traps frequently take species of marsh crabs when sampling coastal salt marshes and estuaries. These crabs also have long pelagic larval stages which should enable them to colonize the Oxford Basin.

Also of interest are the species not encountered in the Basin during the surveys, but which would be expected to occur in southern California estuarine systems at this time of year. Because these species are typically very abundant following the springtime breeding periods, they are frequently easy to detect and would likely have been encountered if present in the Basin. These species include staghorn sculpin, *Leptocottus armatus*, California killifish, *Fundulus parvipinnis*, diamond turbot, *Pleuronichthys guttatus*, bay anchovy, *Anchoa delicatissima*, deepbody anchovy, *A. compressa*, bay pipefish, *Syngnathus leptorhynchus*, barred pipefish, *S. auliscus*, California halibut, *Paralichthys californicus*, striped mullet, *Mugil cephalus*, and shiner perch, *Cymatogaster aggregata*. A few other species that are less common or are more prevalent in larger estuaries but which might be expected to occur in the Basin include bay blenny, *Hypsoblennius gentilis*, spotted sand bass, *Paralabrax maculofasciatus*, and several species of elasmobranches (sharks and rays). Many of these are species are known to occur in adjacent Marina del Rey. The LADPW personnel present during the surveys related anecdotal observations of sting rays in the Oxford Basin in the past. Some of these fish are discussed in further detail below.

Additionally, there are several species of brackish, freshwater, or anadromous fish that undoubtedly occurred in the Ballona Lagoon and Ballona Wetlands historically but which have been extirpated from the area for at least 70 years or more. These species still occur to the north and south of the area and have special conservation status. The federally endangered tidewater goby, *Eucyclogobius newberryi*, occurs in Malibu and Topanga creeks to the north and in San Diego County to the south and there are historical records for artesian springs in Santa Monica (U. S. Fish and Wildlife Service 2005). The federally endangered southern California steelhead, *Oncorhynchus mykiss*, also still migrates from the ocean into Malibu and Topanga Creeks and was observed in San Mateo Creek in northern San Diego County in 1998-99 (NMFS 2009). After the adult steelhead spawned upstream in freshwater, the juveniles would have used the lagoon as a nursery area for a year or so before the juveniles left for the ocean (Swift et al. 1993; Moyle 2002). Finally the federally endangered unarmored threespine stickleback, *Gasterosteus aculeatus williamsoni*, occurred in the Los Angeles River and presumably occurred in or near the Ballona wetlands. The tidewater goby and stickleback would have been permanent residents of the estuarine area of the wider Ballona Marsh. All of these species rely on relatively stable, low salinity or brackish conditions and such conditions are unlikely to develop for any extended length of time in Oxford Basin, particularly since there appears to be an effort to divert freshwater street runoff into the sewer system, as was observed at the eastern inlet, rather than allowing it to flow into the Basin. Thus it would take exceptional effort to re-establish these species. In addition steelhead and stickleback require relatively cool and well oxygenated water which will also be difficult to maintain in the Oxford Basin under current conditions. If these species are ever to be seriously considered for return to this area, it would probably be best to utilize other areas of Ballona Wetlands where the appropriate habitat conditions can be developed more easily.

Most of the estuarine species detected during the two surveys in Oxford Basin are pelagic mid-water species (such as topsmelt) or have larvae that are pelagic in the water column for a few weeks (such as the goby species encountered). Other species that could be expected in Oxford Basin that produce pelagic larvae include anchovies, staghorn sculpin, diamond turbot, striped mullet, and California halibut. The larvae of these species typically arrive in estuaries in late winter and spring. Because these larvae colonize estuaries by being swept in by water currents, Oxford Basin should have the potential to be colonized by these species.

Fish species that do not have a pelagic larval phase, as well as adult fish of any estuarine species, would only be able to colonize the Basin by swimming in through the subterranean passageway and tide-gate system that connects Oxford Basin to Basin E in Marina del Rey. This connection is at least 100 m long and is unlit. It is unknown if this connection would present a barrier or deterrent to passage of fish into the Basin. As noted above the LADPW workers at the site on January 12 noted observations of "sting rays" in the Basin in the past and several other species known from Marina del Rey (Allen et al. 2006) certainly have the potential to invade. The available composition of fish species available to colonize Oxford Basin is probably largely determined by the community present in Basin E of Marina del Rey. The fauna of Marina del Rey have been studied for over 30 years and is well known to fluctuate considerably due to periodic fish kills in the summer when the lack of circulation and excess nutrients combines to lower oxygen concentrations. These effects are most extreme in the uppermost reaches of the harbor, such as at Oxford Basin or Basin E. (Aquatic BioAssay and Consulting 2009). Thus, the marina may not consistently be a reliable source of fish colonization into Oxford Basin.

One species of fish not encountered in the Basin but which is extremely common in other parts of the Ballona Wetlands and Marina del Rey is the California killifish. California killifish lay large eggs on hard substrates or vegetation and the young hatch out at an advanced stage as small juveniles with little or no pelagic or drifting dispersal phase. Therefore, California killifish may be limited in their ability to colonize Oxford Basin since it does not have a pelagic phase and may not occur close enough for adults to disperse into the Basin. It is possible that the habitat between the nearest known population at Mother's Beach in the marina may be in inhospitable to killifish thereby limiting their dispersal. The long, dark passage from the tide-gates to Basin E may also deter them. In addition, Basin E has deep water (2 or more meters deep) with vertical concrete walls which may not be conducive to movement of the California killifish. The presence of larger predators in deep-water areas might also prevent significant migration through the marina and Basin E. It is possible that if California killifish were introduced into the Oxford Basin they would succeed in the area since the habitat appears appropriate for them. California killifish typically inhabit gently sloping, sandy, beaches and tidal sloughs. They often inhabit vegetated margins of salt marshes and adjoining shallow marine waters and are tolerant of fresh water (Moyle 2002). They are a prevalent part of the fish fauna of most southern California tidal salt marshes, bays and estuaries and would be a valuable addition to Oxford Basin.

Two other species which lack pelagic life stages, which were not encountered in Oxford Basin, and which are common in other parts of Ballona Wetlands are pipefish and shiner perch. Pipefish reproduce through male brooding of large eggs and the young juveniles are released directly into the habitat without a distinct dispersal stage. However, pipefish are often associated with drifting seaweed and other sea grasses and may disperse via this mechanism. Shiner perch are live bearing and young are born throughout most of the summer. It is uncertain how readily the young or adults would disperse into the Oxford Basin. If water quality conditions were improved in the Basin, artificial introduction of these species may be possible since appropriate habitat is present in the Basin.

The California halibut is an important commercial and sport fish species and is reliant on coastal bays and estuaries as nurseries for the first two or three years of life. Any increase is such habitat would be valuable for this species. Its preferred diet early in life, estuarine gobies, is already common in the Basin as identified in our surveys.

A study conducted by Aquatic BioAssay and Consulting (2009) noted that Basin E and Oxford Basin have some of the highest levels of pollutants and lowest oxygen values in the Marina del Rey area. The study found that the number and diversity of invertebrate species dropped from the mouth of the Marina inland towards the most inland sites such as Oxford Basin. These water quality issues may explain some of the absence of species in Oxford Basin. In addition, the Oxford Basin has only minimal circulation of water with the marina and is therefore more likely to suffer longer spans of poor water conditions that may arise. A good starting point for a restoration effort for fauna would be to improve the water circulation through the Basin, to reduce the level of pollutants, and to increase the dissolved oxygen levels in the Basin water in order to establish the water quality conditions necessary for successful colonization of estuarine aquatic species.

Dissolved oxygen concentration in water is related to water temperature such that the warmer the water the lower the amount of oxygen the water is able to hold in solution. Thus, excessive warming of the water will contribute to lower the availability of oxygen in the water. Other conditions such as the lack of circulation, excessive enrichment of the water, or the overnight lack of photosynthesis by aquatic plants to supply oxygen to the system can result in low dissolved oxygen levels. Excess plant material such as large algal blooms can supply oxygen in the day time but also use up the available oxygen rapidly at night as the plants respire resulting in low oxygen levels for the other organisms. During our surveys, the water was below 20□C which is within the preferred range for most estuarine fish and is cool enough to maintain adequate dissolved oxygen concentrations. Often, areas near the coast stay cooler because the summer fog coverage can insulate coastal marshes and wetlands from the usual summer warming more prevalent farther inland (Swift and Frantz 1981). However, it is possible that the water temperature gets considerably higher in the Basin in the late summer and fall due to the lack of water circulation, relatively shallow depths in the Basin, and as the cooler marine layer is less prevalent. If the water temperature increases beyond the mid-twenties Celsius then temperatures and dissolved oxygen concentrations may become intolerable to many fish species.

Estuarine fish species can generally be divided into two categories relative to oxygen tolerance. Gobies, killifish, and mosquitofish are relatively tolerant of low oxygen conditions and can utilize aerial oxygen and other strategies to survive periods of low oxygen in the water. Other fishes are relatively intolerant of low oxygen conditions and include anchovies, topsmelt, flatfishes (diamond turbot, California halibut), and shiner perch. These fish are unable to tolerate lower oxygen levels for any period of time and are the fish frequently seen during morning fish kills in coastal estuaries. Any attempt to restore habitat conditions that would support these species would have to include provisions for maintenance of relatively high oxygen concentrations (above approximately 4 milligrams per liter). Dissolved oxygen levels in the waters of Basin E and Oxford Basin often fall below this value according to the study by Aquatic BioAssay and Consulting (2009). It is less well known how these fish species are affected by the other pollutants noted by Aquatic BioAssay and Consulting (2009) such as DDT and heavy metals.

It appears that the current state of the Oxford Basin is of a system whose habitat and health is compromised by its distance from the ocean mouth and restricted access to Marina del Rey. It has been documented to have relatively poor values of several indicators of aquatic health, most recently by the study of Aquatic BioAssay and Consulting (2009). These factors make the development and sustainability of typical estuarine or bay fish fauna populations difficult. Our study indicates that several typical species can and do colonize and inhabit the area but have difficulty maintaining a year-round population. In addition, several species that would be expected to be present are absent and in some cases the reasons for their absence are not readily apparent. Some uncertainty exists in our sampling results regarding the presence of fish in the Basin throughout the year since our sampling was limited to two visits. More sampling throughout the season could better define the extent of fish population variation in the area. However, the faunal composition of nearby Marina del Rey is well understood and the Oxford Basin aquatic species composition is likely closely tied to conditions in the marina as well. Increasing the diversity and abundance of fish species living in Oxford Basin on a permanent basis will require management of water quality issues and the identification and removal of colonization barriers. Monitoring the fish populations in the Basin as such restoration actions are implemented would be beneficial in assessing the success of these actions as related to creating favorable habitat for estuarine fish.

Recommendations

1. Perform a water quality study to determine conditions present to provide a basis for predicting what fish species can be supported by the system and what changes might be made to accommodate others less likely to be currently supported.

2. Improve water circulation with Marina del Rey in order to improve water quality which is currently compromised both in Oxford Basin and its adjacent water supply, Basin E of Marina del Rey.

3. If water quality is or becomes appropriate, consider introduction of aquatic vegetation like eelgrass, ditch grass, and other species of marine algae to provide habitat for faunal elements more dependent on such vegetation (i.e. pipefishes and shiner perch).

4. Consider introducing some fish species such as California killifish which may currently be prevented from colonizing by inhospitable habitat between current populations in Marina del Rey, Ballona Marsh, and the Oxford Basin.

5. Investigate options for increasing the number of algae eating snails or fish present in the Basin in order to biologically control the proliferation of algae in the summer. If the freshwater conditions present in the winter decimate the populations of such grazers, possibly they could be artificially augmented in the spring from elsewhere in the marsh area. For example, the non-native fish, the sailfin molly, *Poecilia latipinna*, has become established and is common in Ballona Marsh. Stocks of sailfin molly could be transferred to Oxford Basin as a possible way to control algae. Sailfin mollies are a fecund species producing live bearing young and are tolerant of low oxygen conditions such as those found in the Basin. Striped mullet also feed on algae and detritus, reach large size, and could potentially be artificially introduced also. Striped mullet achieve much larger sizes but are more sensitive to oxygen requirements.

6. Investigate options for converting the Basin bottom substrate to more sand and less mud/fine silt. Possibly a layer of sand could be added when or after the system is dredged out periodically. If the fine sediment is determined to be primarily composed of decomposing organic matter, and water quality conditions can be stabilized, an increase in the diversity and abundance of bottom dwelling fish and invertebrate fauna may utilize and thus reduce the thickness of this silt/organic layer.

7. Explore exposing the Basin to more wind which would facilitate mixing and oxygenation of the water which could be effective in a wide shallow system like Oxford Basin, thereby reducing the need for increased water quality in the marina.

As discussed in the report, the long, dark culvert between Oxford Basin and Basin E of the marina likely inhibits dispersal of fish into the Basin. This condition could be improved by replacing some of the paving above the culvert with metal grating or comparable material. However, such a step would not likely improve fish stocks in Oxford Basin due to (1) the need to limit the range of tidal fluctuations in Oxford Basin in order to maintain its flood-protection capacity, and (2) the compromised water quality of Basin E, which limits the fish populations capable of surviving there. Given the inability to change these two items, increasing the amount of light in the culvert probably would not result in significant improvement of fish stocks in Oxford Basin (without simultaneous improvement for fish in these two additional items), and so this measure is not recommended as part of the current plan.

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Photo 1 Yellowfin goby (top), longjaw mudsucker (bottom left), and arrow goby (middle right)

Photo 2 -Topsmelt

Photo 3 Western mosquitofish

100 m

1-14 – Seine Haul Locations

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Figure 1 – Oxford Basin Survey Area
Fish Survey #1; January 12, 2010
City of Venice, Los Angeles County

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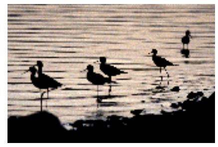
Figure 2 – Oxford Basin Survey Area
Fish Survey #2; April 27, 2010
City of Venice, Los Angeles County

ATTACHMENT D: BIRD & TERRESTRIAL VERTEBRATE REPORT



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Birds and Wildlife of Oxford Basin

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November 17, 2010

Introduction

In late 2009, Cooper Ecological Monitoring, Inc. was contracted by Robert A. Hamilton (RAH) of Hamilton Biological, Inc., and the County of Los Angeles to assess the biological community of Oxford Basin (Basin). The study area for this enhancement project includes 9.0 acres of a 10.7-acre parcel within Marina del Rey in Los Angeles County. In 2009, just prior to and concurrent with this work, I had teamed with RAH to produce a Conservation & Management Plan for Marina del Rey (now in draft form), which will assess the current and historical status of colonial waterbirds and other sensitive species of Marina del Rey, including Oxford Basin.

Background

Oxford Basin (Figure 1) was constructed in 1960 to "receive storm runoff at such times as the state of the tide within the [Marina del Rey] harbor precluded its discharge causing inundation of the low-lying lands adjacent to the north section of the harbor" (County of Los Angeles 1976). The Basin's water is roughly half as saline as seawater (C. Swift, pers. comm.). The Basin is fed by two (freshwater) storm drain inlets along the northeastern and southeastern ends, and a tidal gate at the western end provides limited flushing (the Basin was not designed to drain completely; as of the 1970s, the daily tidal range was "on the order of 5 feet", County of Los Angeles 1976; see Appendix).

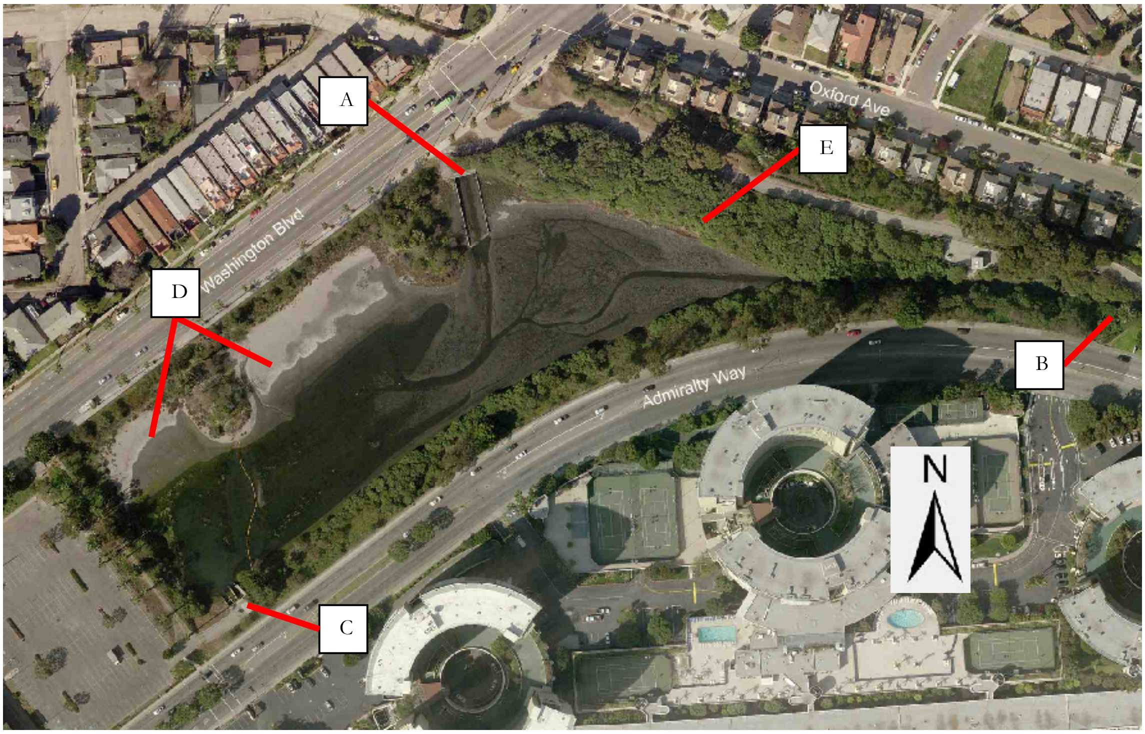

Figure 1. Oxford Basin (at low tide), showing inlet under Washington Blvd. (A), "eastern" inlet (B), main outlet to Marina del Rey harbor (C), mudlfat/drawdown area (D), and myoporum grove (E).

Figures 2 and 3 show Oxford Basin at low and high tide, respectively. This site now represents the largest remnant of open space, and the only area of tidal wetland habitat, within Marina del Rey. Today, the Los Angeles County Department of Public Works is looking into improving the function and natural features of Oxford Basin, and evaluating the biotic resources of the site, which have not been studied in decades. In the intervening years, wetland habitat, including that of small sites like Oxford Basin, have only become rarer and more highly valued in the region.


Figure 2. Oxford Basin, view west, during draw-down (28 May 2010, DSC).

Figure 3. Oxford Basin, view west, when full (23 September 2009, RAH).

To ensure that future work is done in a manner sensitive to the natural environment, and complementary of the ecological integrity of the nearby Ballona Wetlands, Cooper Ecological Monitoring was asked to:

- Develop baseline species lists for terrestrial vertebrates on the site.
- Assess the constraints on the current usage of the site by native bird species.
- Provide recommendations to the County for ecological improvements that could be made to the site, while still allowing for its primary use as a flood-control structure.

History of Site

Following its construction in 1963, the entire site, including approximately five acres of open water and surrounding landscaped "upland", was designated as a "Bird Conservation Area" by the Los Angeles County Board of Supervisors. In 1965, fill dirt was imported and placed along the northeastern edge of the site, and (irrigated) plantings were made here "to further improve the habitat", with additional plantings continuing to 1968 (County of Los Angeles 1976). Despite the moniker of "Bird Conservation Area", the site has never been formally managed for wildlife[1], and by the early 1970s it had become a popular dumping ground for unwanted pets, including rabbits and chickens. This situation was partially remedied in the 1990s by the construction of a taller fence surrounding the site, making it more difficult to toss pets inside. Still, other management issues remain, most significantly, the lack of full tidal flushing, which during summer months results in the formation of thick mats of algae

[1] Some actions ran counter to current ecological practices; a flock of domestic ducks was introduced from Alondra Park in 1965, reportedly prompted by "the apparent lack of bird life" at the site (County of Los Angeles 1976, p. 4). Descendents of these birds, as well as domestic ducks from the nearby Venice Canals, may still occur today.

covering the surface of the lagoon, as well as unpleasant odors from decomposing vegetation[2].

Designed and still used exclusively as a storm water catchment facility, Oxford Basin has been the subject of several proposals to improve its appearance and provide amenities for visitors to and residents of Marina del Rey since the 1960s. The most significant was a proposed 1.3-million-dollar "Japanese-American Cultural Garden" (1976), which led to the first attempt to study the birds of the site, consisting of a series of visits between 14 June to 30 November 1973 by an undergraduate student at California State University, Humboldt (then Humboldt State College; Schleicher 1974; see Appendix). It should be noted, however, that this study was not done by a trained observer (e.g., gulls were not identified to species), and it entirely missed the primary local nesting season for birds (March - May). In addition, many of the management recommendations in the report are unsophisticated, and read as the (unsupported) opinions of a young student (e.g., "We have for all practical purposes 100% cover on the land of which 90% is usable for the birds"; Schleicher 1974:9). Perhaps most jarringly, the author suggested planting non-native cotoneaster (*Pyracantha* sp.) widely, and removing native marsh plant species such as pickleweed (*Salicornia virginica*).

A second attempt to survey the birds of the Oxford Basin was done five years later, consisting of weekly surveys from 11 August 1979 to 08 August 1980 (with a "preliminary investigation" conducted from 07 October 1978 to 14 April 1979) by staff from the Los Angeles County Museum of Natural History (Schreiber and Dock 1980:2; see Appendix). In addition to producing a more professional report, the authors went into more detail on the habitat conditions and avian usage (including observations of flocks of white-crowned sparrows [*Zonotrichia leucophrys*] – now essentially extirpated from the site – feeding under shrubs in winter). However, this study, too, was similarly not peer-reviewed, and includes some questionable information. For example, under the account for belted kingfisher (*Megaceryle alcyon*), the authors state that a pair "probably nests at the Bird Conservation Area"; the species was and still is virtually unknown as a breeder in southern California, confined to a handful of remote, unchannelized streams in the backcountry. Even less helpful, the report recommended that the site be modified "to make it more conducive for the domestic animals", and included many normative statements that serve to downplay the importance of the site as a natural area, e.g., "the area serves little or no purpose as a conservation area for a viable population of migratory or resident wild species" and "any efforts at habitat modification would have little or no effect at increasing the wild avian populations in the region." These pejorative statements are still quoted in environmental documentation (e.g., California Coastal Commission 2007), if only because the site has not been re-studied in more than 30 years.

Other sources of information on the birds of the area deserve mention, including a database of bird counts from monthly visits to nearby Ballona Lagoon (i.e., the southernmost extension of the main Venice Canal, so-named in 1996 following an extensive habitat restoration project), compiled by local birder Charles Almdale between 1996 and 2006. Ballona Lagoon, a linear wetland of approximately 16 acres located a short distance west/coastward of Oxford Basin, receives tidal flushing from the Marina del Rey harbor

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[2] During summer, maintenance staff from Los Angeles County Department of Beaches and Harbors rake piles of algae from the basin at low tide (DSC pers. obs.).

mouth at its southern end (CERES 1997). While not directly applicable to Oxford Basin in its current state, Ballona Lagoon may serve as a model of what restoration of a similar-sized wetland can achieve. For example, Ballona Lagoon is regularly visited by the State- and federally-endangered California least tern (*Sternula antillarum brownii*) and supports a much wider diversity of waterfowl, shorebirds, large waders (herons/egrets) and migrant landbirds year-round than does Oxford Basin.

Methods

For this report, DSC conducted a thorough review of existing literature on the historical Ballona Wetlands and Marina del Rey, including obtaining copies of both prior bird surveys (see above) during the 1970s. DSC and/or RAH conducted brief (1-2 hour) monthly visits to Oxford Basin on eight mornings between September 2009 and April 2010 (23 September 2009 - morning and afternoon visit, 23 October 2009, 20 November 2009, 23 December 2009, 12 January 2010, 24 February 2010, 25 March 2010, and 27 April 2010), recording numbers of all birds seen at the site (including the "upland"/planted areas adjacent to the lagoon itself). Prior to this, we made a combined 19 visits to Oxford Basin during summer 2009 to census heron and egret usage for the Marina del Rey Conservation & Management Plan (Hamilton and Cooper 2010).

Results

Birds

As of July 2010, 84 species of birds have been credibly recorded at Oxford Basin (Schleicher 1974; Schreiber and Dock 1980; this study). A handful of species reported in previous studies are not credible, and should not be considered part of the avifauna of the site. For example, Schreiber and Dock (1980:21) reported multiple olive-sided flycatchers (*Contopus cooperi*) in January, but the species is virtually unknown in winter in North America. Of the 84 species credibly reported, 33 species were not detected during our recent monthly visits since September 2009, which suggests that roughly 50 species may be expected to occur regularly at the site each year. The following Table A provides the results for 2009/2010 and compares them with results obtained 30 years ago, mainly by Schreiber and Dock (1980). Apparent changes in bird species composition at the Basin are discussed in subsequent sections of this report (see especially "Faunal Change at Oxford Basin" on page 13).

Table A. Status of bird species at Oxford Basin, 1980 vs. 2009/2010

Family	Species	1980	Present	Change
Waterfowl	Mallard *Anas platyrhynchos*	50+ year-round, incl. domestics	Up to 23 during fall/winter; <5 during spring; pair with 5 young on 28 May 2010.	N/A
	American wigeon *Anas americana*	Vagrant (1 on 18 Nov.)	Up to 89 in winter (Nov. - Mar.)	Colonization
	Gadwall *Anas strepera*	No record	Up to 6 in winter (Dec. - Feb.)	Colonization
	Cinnamon teal *Anas cyanoptera*	Vagrant (1 in early May)	No records	N/A
	Bufflehead *Bucephala albeola*	Vagrant (1 in late Oct.)	No records	N/A
	Lesser scaup *Aythya affinis*	Up to 20 in winter (Nov. - Mar.)	Up to 14 in winter (Nov. - Mar.)	N/A
Quails	California quail *Callipepla californica*	1 in spring	No records	N/A

Family	Species	1980	Present	Change
Grebes	Pied-billed grebe *Podilymbus podiceps*	Singles in winter	Five in fall (23 Oct.), 1 through winter	N/A
	Eared grebe *Podiceps nigricollis*	Up to 3 in winter	1 in winter	N/A
	Western grebe *Aechmophorus occidentalis*	Single in winter	1 on 20 Nov.	N/A
Pelicans/ Cormorants	California brown pelican *Pelecanus occidentalis californicus*	No record	1 imm. in fall/winter	N/A
	Double-crested cormorant *Phalacrocorax auritus*	Vagrant (1 on 26 Nov.)	Up to 3 in fall	N/A
Large waders	Great blue heron *Ardea herodias*	No records	1 on 3 dates	Colonization?
	Great egret *Ardea alba*	No records	1-2 through early winter	Colonization
	Snowy egret *Egretta thula*	Singles on 2 dates	Up to 3 year-round	Colonization
	Green heron *Butorides virescens*	Up to 3 in winter	No records	Extirpation?
	Black-crowned night-heron *Nycticorax nycticorax*	2 in late winter/spring	Up to 8	N/A
Raptors	Red-shouldered hawk *Buteo lineatus*	Listed by Schleicher (1974)	Single on several dates	N/A
	Red-tailed hawk *Buteo jamaicensis*	No records	1 on 23 Dec.	N/A
	American kestrel *Falco sparverius*	Resident ("observed commonly")	No records	Extirpation
Rails	American coot *Fulica americana*	20-50 birds in fall/winter	Up to 45 birds fall/winter	N/A
Shorebirds	Black-bellied plover *Pluvialis squatarola*	1 on two dates in fall	No records	N/A
	Semipalmated plover *Charadrius semipalmatus*	3 on 14 Oct.	No records	N/A
	Killdeer *Charadrius vociferus*	Up to 6 in fall, then 1 through winter	1-2 in spring	Slight decline
	Greater yellowlegs *Tringa melanoleuca*	2 on 26 Nov.	No records	N/A
	Spotted sandpiper *Actitis macularia*	Sporadic Sept. – May	No records	Decline
	Marbled godwit *Limosa fedoa*	1 in fall	No records	N/A
	Western sandpiper *Calidris mauri*	"sporadically on mudflats" in winter	No records	Extirpation?
	Sanderling* *Calidris alba*	150 on 26 Nov.*	No records	N/A
	Red knot *Calidris canutus*	2 on 9 Dec.	No records	N/A
	Long-billed dowitcher *Limnodromus scolopaceus*	1 in Jan.	No records	N/A
Gulls/Terns	Bonaparte's gull *Larus philadelphia*	1 on 2 Dec.	No records	N/A
	Heermann's gull *Larus heermanni*	"Occ." in fall/winter	No records	Decline
	Ring-billed/California gull *Larus delawarensis/L. californicus*	Up to 37 Oct. - Apr.	2 RBGU on 12 Jan.	Decline
	Herring gull *Larus argentatus*	3 on 13 Jan.	No records	N/A
	Western gull *Larus occidentalis*	Irregular throughout year	Singles on 4 dates	N/A
	Forster's tern *Sterna forsteri*	"Occ." on mudflats in fall/winter	No records	Decline
	California least tern *Sternula antillarum brownii*	"Observed foraging in the pond...spring and summer, 1980"	No records	Extirpation?
Doves	Rock pigeon *Columba livia*	Up to 41 year-round	3-4 in spring	Decline
	Eurasian collared-dove *Streptopelia decaocto*	No records	Resident in surrounding urban area (to north)	(Colonization)
	Spotted dove *Streptopelia chinensis*	Resident in surrounding urban area	No records	Extirpation

Family	Species	1980	Present	Change
	Mourning dove *Zenaida macroura*	25+ in Nov.; otherwise up to 4 year-round	Up to 27 in late fall; single-digits rest of year	N/A
Swift	White-throated swift *Streptoprocne zonaris*	Listed by Schleicher (1974)	No records	N/A
Hummingbirds	Anna's hummingbird *Calypte anna*	Up to 3 in winter	Up to 11, with juveniles heard in myoporum grove (24 Feb.)	Increase/ Colonization as breeder
	Allen's hummingbird *Selasphorus sasin*	No records	2 on 27 Apr.	N/A
Kingfisher	Belted kingfisher *Megaceryle alcyon*	Up to 3 in winter	1 on three dates in fall/winter	N/A
Woodpecker	Northern flicker *Colaptes auratus*	Irr. throughout year in "wooded portion"	No records	Extirpation
Flycatchers	Western wood-pewee *Contopus sordidulus*	1 in May 1980	No records	N/A
	Pacific-slope flycatcher *Empidonax difficilis*	Listed by Schleicher (1974)	No records	N/A
	Black phoebe *Sayornis nigricans*	No records	Up to three year-round	Colonization
	Ash-throated flycatcher *Myiarchus cinerascens*	Listed by Schleicher (1974)	No records	N/A
Vireo	Hutton's vireo *Vireo huttonii*	No records	1 wintered 14 Dec. 2007 - 27 Jan. 2008 (DSC unpubl. data)	N/A
Shrike	Loggerhead shrike *Lanius ludovicianus*	Resident ("commonly observed")	No records	Extirpation
Crows/Jays	Western scrub-jay *Aphelocoma californica*	1-2 year-round	1 on 23 Sept.	Extirpation?
	American crow *Corvus brachyrhynchos*	Up to 4 in Oct.; otherwise irr.	Up to 5; nesting observed in myoporum (25 Mar.) and in surrounding residential area	Colonization as a breeder
	Common raven *Corvus corax*	1 overhead Apr.	No records	N/A
Swallows	No. rough-winged swallow *Stelgidopteryx serripennis*	No records	Singles in spring	N/A
	Barn swallow *Hirundo rustica*	Small #s late spring/summer	Small #s in spring and summer	N/A
Misc. songbirds	Bushtit *Psaltriparus minimus*	Up to 20 in fall/winter	Up to 20 year-round?	N/A
	House wren *Troglodytes aedon*	1-2 in spring	No records	N/A
	Ruby-crowned kinglet *Regulus calendula*	No records	Up to 4 in winter	Colonization
	Hermit thrush *Catharus guttatus*	Singles late fall/winter	No records	N/A
	Northern mockingbird *Mimus polyglottos*	Up to 4 year-round	1 on 3 dates	Decline?
	European starling *Sturnus vulgaris*	Common resident	Irr.; up to 10	N/A
	Cedar waxwing *Bombycilla cedrorum*	No records	30 on 27 Apr.	N/A
	Phainopepla *Phainopepla nitens*	Vagrant (1 on 7 Oct.)	No records	N/A
Wood-warblers	Orange-crowned warbler *Vermivora celata*	2 on 8 Jan.	1 on 3 dates	N/A
	Yellow-rumped warbler *Dendroica coronata*	"regularly observed" in winter	Up to 15 in winter (all but 1 were "Audubon's")	N/A
	Black-throated gray warbler *Dendroica nigricans*	No records	Up to 2 in winter/spring	Colonization
	Townsend's warbler *Dendroica townsendi*	No records	Up to 3 in winter/spring	Colonization
	Hermit warbler *Dendroica occidentalis*	No records	1 on 27 Apr.	N/A
	Wilson's warbler *Wilsonia pusilla*	1 in late Apr.	1 on 27 Apr.	N/A
	Western tanager *Piranga ludoviciana*	Singles (2) in fall	No records	N/A
Sparrows	Green-tailed towhee *Pipilo chlorurus*	Vagrant (1 in late Jan.)	No records	N/A

Family	Species	1980	Present	Change
	Song sparrow *Melospiza melodia*	"Frequent" in fall	No records	Extirpation
	White-crowned sparrow *Zonotrichia leucophrys*	Up to 60 in winter	2-3 on 2 dates	Extirpation
Blackbirds/ Orioles	Western meadowlark *Sturnella neglecta*	No records	2 on 23 Sept.	N/A
	Bullock's oriole *Icterus bullockii*	Vagrant (1 in late Aug.)	No records	N/A
Finches	House finch *Carpodacus mexicanus*	Up to 20+ year-round	Up to 3 in fall/winter, then 10 on 27 Apr.	N/A
	Lesser goldfinch *Spinus psaltria*	"Small #s late winter"	2 on 24 Feb., 27 Apr.	N/A
Weaver	House sparrow *Passer domesticus*	Common resident	15 on 27 Apr.	N/A

* A generally coastal species reported by Schreiber and Dock (1980) almost certainly in error (150 individuals); however, this species regularly forages well up Ballona Creek as far as Centinela Ave. (DSC pers. obs.), so it is possible that it occurred and may again.

Three species have been observed nesting at Oxford Basin in 2010: the mallard (*Anas platyrhynchos*; pair with five young on 28 May), Anna's hummingbird (*Calypte anna*; two juveniles in the myoporum grove on 24 February), and the American crow (*Corvus brachyrhynchos*; pair nest-building in the myoporum grove on 25 March). Several other species were observed using the site during the breeding season, but were breeding off-site in the surrounding residential area and ornamental landscaping, notably several species of herons and egrets (see Hamilton and Cooper 2010 for discussion).

Figure 4. California ground-squirrel at Oxford Basin, 7 May 2010 (Emile Fiesler).

<u>Non-bird Wildlife</u>

Mammals, reptiles, and amphibians were scarce during our surveys. On 28 May 2010, at least 10 California ground-squirrels (*Spermophilus beecheyi*) were detected (DSC), with presumed burrows scattered across the entire site; one squirrel was seen on 7 May 2010 (E. Fiesler; Figure 4) but they were not detected during the preceding fall/winter. Two non-native eastern fox squirrels (*Sciurus niger*) were observed in the myoporum grove on 24 February 2010, and evidence of their presence (including pine cone "shavings") are easily observed.

Figure 5. Track (hind foot), likely of a striped skunk or possibly a raccoon, at Oxford Basin, 13 October 2009 (DSC).

Numerous large burrows are present toward the far eastern end of the site, within the myoporum grove (Figure 1), that likely belong to striped skunk (*Mephitis mephitis*) based on their size and the habitat (this mammal is now common and highly urban-adapted in the region). Tracks in mud seen on several visits (Figure 5) indicate the presence of either skunk or raccoon (*Procyon lotor*), another ubiquitous, urban-adapted animal in Los Angeles. The feral dogs, chickens, and domestic ducks mentioned in previous studies are no longer present (raising the height of the fence apparently helped), although several obvious hybrid/feral mallard × domestic ducks were present on most visits. Native rabbits (*Sylvilagus* sp.) that were present in the 1970s have apparently been extirpated from the site.

No lizards or amphibians were observed during the 2009/10 survey, although Schleicher (1974) lists southern alligator lizard (*Elgaria multicarinata*) as occurring, and it likely still does.

Vegetation Notes

In a concurrent study, botanist David Bramlet is documenting and mapping the plants and plant communities of Oxford Basin; this section provides a brief overview of the existing vegetation. The Basin currently supports three main habitats: open water; saltmarsh/mudflat; and ornamental vegetation/thicket. Since the vegetation of site was last assessed (in 1980), the amount of open water has remained more or less constant, the myoporum thicket that surrounds the lagoon has matured, and the extent of saltmarsh – dominated by pickleweed (*Salicornia virginica*) – formerly limited to the southern shore and eastern inlet (Gustafson 1980; see Appendix), now extends around the entire shoreline. Currently (2010), the entire northern edge of the Basin is dominated by shrubby, non-native Perez's sea-lavender (*Limonium perezii*), forming a low, purple hedge between the northern fenceline and the waterline.

In addition to pickleweed, only one other native plant species noted in the 1970s still occurs at the site, wild heliotrope (*Heliotropium curassavicum*); at least one native plant species has been lost at the site, mugwort (*Artemisia douglasiana*), which was formerly found growing with weedy, non-native species at the eastern inlet (Gustafson 1980). Other native species noted by Gustafson (1980) were apparently planted during the original landscaping (see list in County of Los Angeles 1976, in Appendix), including coyote brush (*Baccharis pilularis*) and laurel sumac (*Malosma laurina*).

Sensitive Bird Species of Oxford Basin

Compared to the nearby Ballona Wetlands, Oxford Basin supports few sensitive species. However, some deserve mention, either because they are considered noteworthy by regulatory agencies (generally the California Department of Fish and Game), or because they are particularly dependent on coastal wetland, open-country, and other scarce habitat in the region. As a note, the (draft) Marina del Rey Conservation & Management Plan includes a comprehensive discussion of all sensitive bird species known from the Marina area; this is an abbreviated list of species that appear to be using Oxford Basin, based on our surveys, and those that could potentially use a restored Oxford Basin.

California Brown Pelican (*Pelecanus occidentalis californicus*) (State Endangered)

One individual was observed on several visits during the 2009/10 surveys (Figure 6). Earlier (1970s) visits did not record this large bird, but this was likely due to its extreme rarity in the region during the 1970s, when DDT-caused eggshell-thinning infamously drove it to the endangered species list. Since then, the species has rebounded, and it is now a regular sight along the coast and well upstream along Ballona Creek (DSC unpubl. data). Because of its rarity at Oxford Basin, and the fact that it has so much (occupied) habitat nearby (hundreds roost nearly year-round on the breakwater at the mouth of Marina del Rey harbor), and due to the small size of the site, it is unlikely that Oxford Basin will ever be particularly important for the California brown pelican.

Figure 6. California brown pelican foraging at Oxford Basin, 13 October 2009 (DSC).

Snowy Egret (*Egretta thula*) (no special status)
This species recently (c. 2005) established a breeding colony ("rookery") in tall eucalyptus, ficus, and coral trees in and around the parking lot of Yvonne B. Burke Park just east of Oxford Lagoon (Cooper 2006b), which held an estimated 69 nests of snowy egrets and black-crowned night-herons in July 2009 (Hamilton and Cooper 2010). During more than a dozen visits by DSC and RAH during July 2009, we confirmed that Oxford Basin provides important breeding-season foraging area for snowy egrets, particularly for young-of-the-year. Up to 19 individuals per day were recorded during July 2009, likely from nearby nests at Burke Park (Figure 7).

Great Egret (*Ardea alba*) (no special status)
Unrecorded by earlier surveyors (1970s), small numbers of this large wader were found during 2009/10, including young-of-the-year during summer 2009 surveys (Hamilton and Cooper 2010). Like the snowy egret, the great egret maintains a nesting colony adjacent to Oxford Basin at Yvonne B. Burke Park, albeit in much smaller numbers; additional nesting sites at Marina del Rey were documented in 2009, with an estimated Marina-wide breeding population of around five pairs.

Figure 7. Typical scene of egrets (snowy and great) foraging on the north side of Oxford Basin on 23 July 2009, near the main inlet at Washington Boulevard. These birds were probably from the nearby breeding colony along Admiralty Way (RAH).

Black-crowned Night-Heron (*Nycticorax nycticorax*) (no special status)
Long recorded at Oxford Basin during the non-breeding season (see Cooper 2006a), this medium-sized wader initiated nesting at Marina del Rey during the late 1990s. Today, several dozen pairs breed at the Marina, with a particularly large colony located just east of Oxford Basin, at Yvonne B. Burke Park. Although only relatively small numbers were observed at Oxford Basin during fall-spring (fewer than 10 birds per day), daily counts of up to 14 birds were made during July 2009 (see Figure 8), at a time of year when parents likely lead young birds to the Basin to forage in family groups (Hamilton and Cooper 2010).

Figure 8. Black-crowned night-herons – juvenile on the left, adult on the right – at Oxford Basin on 7 May 2010 (Emile Fiesler).

American Kestrel (*Falco sparverius*) (no special status)
This small raptor was found to be resident at Oxford Basin during the 1970s, but we know of no modern (post-1980) records from the site (DSC unpubl. data). As of 2010, it no longer breeds at the Ballona Wetlands, where it was once a common year-round resident. In coastal portions of the Los Angeles Basin, large vacant lots that formerly supported American Kestrels year-round have all but disappeared. At Oxford Basin, such habitat modifications as removal of myoporum and trees and maintenance of low-profile vegetation, with patches of bare ground, could possibly facilitate the kestrel's re-establishment, at least in fall and early winter.

California Least Tern (*Sternula antillarum brownii*) (State/Fed. Endangered)
The least tern maintains one of its largest known nesting sites at south Venice Beach, just a few hundred meters from Oxford Basin. Schreiber and Dock (1980) recorded this species at the Basin, but provided only sparse details about the nature of its occurrence: "Of particular interest are California Least Terns, an endangered species that nests on nearby Venice Beach and the Ballona Wetlands, and occasionally forages on small fish in the Bird Conservation Area" (p. 4); "Observed foraging in the pond at the Bird Conservation Area in Spring and Summer, 1980" (p. 20). Unfortunately, the number of individuals observed is illegible in the table of the report.

It is possible that the California least tern currently uses Oxford Basin at least irregularly as a foraging site for birds nesting in the Venice Beach colony, as birds are regularly seen foraging for mosquitofish (*Gambusia affinis*) at Ballona Freshwater Marsh and elsewhere in the Ballona area (Cooper 2006b). Having been fenced for decades, Oxford Basin receives very little coverage by birders, and since the least tern is present locally for only a brief time window (May to early July), it is likely that any foraging here – particularly the occasional brief visit by a bird bringing food to young – would simply be unobserved. It is not likely that the California least tern would ever nest at Oxford Basin, as the site does not support the broad, sandy beach and sandbar habitat favored by this species. Rather, Oxford Basin should be seen as a potential alternative foraging site for the species during its brief late spring/early summer nesting season.

Loggerhead Shrike (*Lanius ludovicianus*) (California Species of Special Concern)
Like the American kestrel, the shrike was formerly (1970s) present at Oxford Basin but is now best considered totally extirpated. It, too, still winters (1-3 individuals per year) at the

nearby Ballona Wetlands (including at Area A adjacent to Marina del Rey), and it is possible that the shrike could occur at Oxford Basin during migration, given the establishment of bare ground and the establishment of a macroinvertebrate/small mammal fauna (e.g., large grasshoppers, Order: Orthoptera) for foraging.

Western Meadowlark (*Sturnella neglecta*) (no special status)
This species has declined sharply throughout the Los Angeles area and, as of 2010, no longer breeds in the Ballona area (DSC unpubl. data), or possibly anywhere else in coastal Los Angeles County. Two birds were observed on a grassy promontory along the north end on 13 Oct. 2009 (Figure 9). Though these were fall migrants, it is possible that small numbers of wintering birds could occur if several acres of low-profile forbs/grasses and open ground were maintained at the site, rather than the dense (non-native) trees and shrubs currently present.

Figure 9. One of two western meadowlarks observed at Oxford Basin on 23 October 2009 (DSC).

Patterns of Bird Usage
The patterns of usage documented in this report provide baseline data against which the effects of future habitat enhancements may be compared. The fact that native birds are using non-native vegetation at the site does not imply that these exotic plants are especially "important" for birds at Oxford Lagoon. All of the birds recorded in the myoporum and other landscaping at the site are commonly encountered in urban habitats throughout Los Angeles. Nearby areas with native vegetation, either naturally-occurring or restored, such as Ballona Freshwater Marsh and the Playa Vista Riparian Corridor, see much higher usage by native bird species, including regular, successful breeding by more than a dozen species.

Scientific names of bird species recorded at Oxford Basin are omitted from the rest of this report but can be found in Table A.

By Season
As found in previous studies, bird usage of Oxford Basin is highly seasonal. Overall numbers are lowest in late summer and fall (July - October), before wintering waterfowl have arrived,

and after the locally-nesting herons have raised young and dispersed. By November, small rafts of waterfowl are present that include American wigeon, lesser scaup, and American coot, joined by lower numbers of other species of ducks and grebes (Figure 10).

Figure 10. Gadwall (at far left) and American wigeon foraging on and near an exposed mudflat during draw-down of the Basin's water level in advance of anticipated rain on 23 February 2010 (DSC).

While a smattering of fall migrant songbirds can occur from late July on, the first flights of wintering songbirds, such as ruby-crowned kinglets, yellow-rumped and Townsend's warblers, appear by late October, and remain through winter into April. Bird activity dips in spring, after wintering waterfowl and wintering songbirds have departed (April), and when only a small number of ubiquitous resident species, such as the American crow and bushtit, nest in the dense myoporum grove at the far eastern edge of the site. However, on certain days from mid-April to late May, a diversity of spring transient songbirds (e.g., Wilson's warbler) may occur, typically forming small foraging flocks in the myoporum grove (but generally using any tree or shrub habitat available throughout the Marina). During summer, waterfowl are mostly absent (aside from a handful of locally-breeding mallard), but herons and egrets from local colonies forage in the Basin, their numbers augmented by locally-raised young that remain into July and August.

By Area

Though data on usage by area of the Basin was not collected during our study in 2009/10, a few broad patterns are clear. Most waterfowl were observed either resting on open water or near overhanging vegetation along the shoreline, or foraging on the wet mud exposed during a drawdown. Fish-eating species, such as the pied-billed grebe, were observed actively feeding in open water. Herons and egrets foraged around the entire shoreline, but seemed concentrated at either inflow (especially the inflow emerging from under Washington Boulevard) or at the outflow to the Marina, where they would catch fish. Several species of large waders were observed roosting in the trees surrounding the open water, particularly black-crowned night-herons in myoporum and other landscaping trees at the far eastern end. Songbirds (tree-dwelling) were found throughout the site, but were most consistently found in and around the myoporum grove at the eastern end, especially the area where dense vegetation approached the freshwater at the eastern inlet.

Songbirds (other than the ubiquitous, non-native European starling) were almost never seen on the ground at the site, suggesting that foraging opportunities for birds like sparrows and towhees are limited, and have become even more degraded over time (see the subsequent discussion of "Faunal Change at Oxford Basin").

Faunal Change at Oxford Basin

<u>Birds</u>

The historical avifauna of the Oxford Basin area *per se* is not known, since it was part of a much larger wetland system and its current configuration dates back only to the 1960s. Historically, the inland mudflats and tidal channels of the "Venice Marshes" would have supported flocks of shorebirds nearly year-round, and rafts of waterfowl in winter ("Lake Los Angeles," situated near present-day Oxford Lagoon, was a popular duck-hunting spot through the 1950s; see, e.g., Cooper 2005). Species found in extensive, often wet grassland, such as the northern harrier (*Circus cyaneus*) and the long-billed curlew (*Numenius americanus*) were common in the Venice/Ballona area into the mid-1900s, as were dune and coastal strand specialists such as the horned lark (*Eremophila alpestris*) and large-billed savannah sparrow (*Passerculus sandwichensis rostratus*). Many of these coastal marsh, dune, and open-country species were effectively extirpated by the construction of Marina del Rey, though some – notably Belding's savannah sparrow (*P. s. beldingi*) and a variety of waterfowl and shorebirds – maintain remnant populations at the nearby Ballona Wetlands/Ballona Creek.

As Marina del Rey has lost certain species, others have colonized novel habitats, nesting in trees near water (herons/egrets, Family: Ardeidae), or on built structures such as culverts (swallows, Family: Hirundinidae), or have simply "invaded" from the surrounding residential area. These population changes are discussed below.

Of the species that are known only from 1970s surveys, several were apparently common then and are best considered extirpated from the site at this time, a determination that is supported by recent research on bird status and distribution in the Ballona area (Cooper 2006b). Recent years have seen the apparent extirpation of three resident or year-round species from Oxford Basin: two raptors/predators (American kestrel and loggerhead shrike) and a woodpecker (northern flicker). Two species, the green heron and western scrub-jay, might be considered a part of this extirpated group as well, though only 1-3 birds each were detected during the 1970s and both species remain fairly common in the greater Marina/Ballona area year-round (Cooper 2006b). Two species of sparrows have apparently been extirpated in their local roles from the site as well – the white-crowned (formerly a winter resident) and the song (formerly occurred in fall migration).

Shorebirds appear to have been at least irregularly present at Oxford Basin during the 1970s, but seem to have essentially abandoned the site. Schreiber and Dock (1980:6) wrote, "most of the shorebirds recorded here are dependent on the mudflats for their occurrence, both to feed and rest". Only one or two individual killdeer were seen during the recent surveys (Figure 11).

Figure 11. Killdeer on exposed mudflat at Oxford Basin on 23 February 2010 (DSC).

Other species that have apparently declined or stopped using the site include gulls and terns (gulls were apparently common at Oxford Basin in winter 30 years ago and are now rare) and possibly the northern mockingbird and the non-native rock pigeon. All of these species remain common at Marina del Rey and the surrounding urban area, so it is likely that their absence from the Basin stems from localized changes in vegetation, food supply and/or water regime.

With declines have come inevitable increases; several species have apparently established new populations at Oxford Basin that weren't present during the 1970s. Most importantly, large waders have increased dramatically. The great egret, snowy egret, and black-crowned night-heron now breed at various locations along Admiralty Way and forage at the Basin year-round, whereas during the 1970s they were only sporadic visitors to the Basin. Two species of waterfowl should be considered new "colonists," the American wigeon (high double-digits in winter) and the gadwall; interestingly, no species of waterfowl has dramatically declined at the Basin. The black phoebe, a resident and possible breeder, appears to have recently colonized the Basin. Three species were confirmed as breeders in 2009/2010, when before they occurred only in the non-breeding season: the mallard, Anna's hummingbird and the American crow. The ruby-crowned kinglet, black-throated gray warbler, and Townsend's warbler are regionally common during both migration and winter, though they were recorded at the Basin for the first time during 2009/2010.

Finally, the non-native spotted dove was considered common in residential areas Oxford Basin in the 1970s, but this species has declined greatly locally and across the Los Angeles Basin. The Eurasian collared-dove, a recent arrival to California that is starting to fill a similar niche today, was detected in the neighborhood north of Oxford Basin during this study.

[Addendum: An inactive nest high detected on 30 June 2010 in a large ficus tree along the Basin's southern border, near Admiralty Way, may have belonged to an American crow, a heron, or a raptor (see Figure 12). When discovered by DSC, there was no bird activity in the area, and no obvious whitewash on the ground below. Given that American crows were active in this area during previous visits, including birds carrying nesting material, this was probably a crow's nest. However, it is probably best left unidentified.]

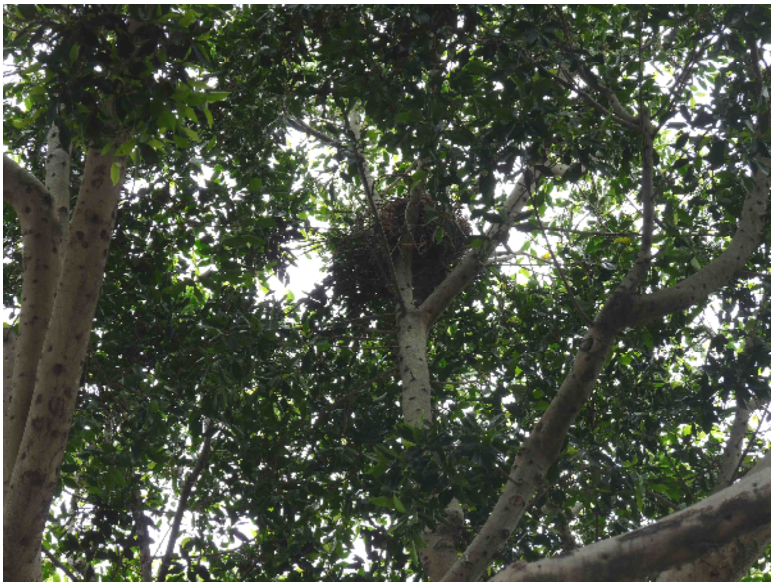

Figure 12. Unknown nest on south side of Oxford Basin, 30 June 2010; DSC).

<u>Other Wildlife</u>

Populations of non-avian terrestrial vertebrates have also come and gone from Oxford Basin during recent decades. Schleicher (1974:14) recorded one native reptile, the southern alligator-lizard (*Gerrhonotus* [now *Elgaria*] *multicarinatus*) and a native rabbit that was listed as "Brush rabbit" (*Sylvilagus bachmani*) but was almost certainly the desert cottontail (*S. audubonii*), a species widespread in the Los Angeles area. A 1976 EIR by the Los Angeles County Department of Small Craft Harbors also mentioned rabbits ("Other than a few rabbits...", p. 4). The desert cottontail is still common over much of the Ballona Wetlands (including "Area A" adjacent to Marina del Rey) but no longer occurs at Marina del Rey proper, nor elsewhere in the Venice/Mar Vista area (DSC pers. obs.). We consider it extirpated from Oxford Basin. Schleicher (1974) also recorded a non-native turtle, the red-eared slider (recorded as "*Pseudemys* sp."), a commonly released pet found widely in urban Los Angeles that will probably occur again at Oxford Basin. The Basin's population of the California ground-squirrel was not mentioned by Schleicher, and it may be fairly recent, perhaps the result of animals displaced by ongoing development of vacant lots nearby.

Opportunities for Restoration

The avifauna of Oxford Basin is constrained by several factors, including the parcel's small size, isolation from other wetland habitats by urban development (including numerous tall trees and two high-rise towers just to the south), current lack of regular tidal flushing, and dominance of invasive, non-native vegetation. Other factors, such as a litter and water quality, were emphasized in earlier studies but are probably only minimally impacting the birdlife of the Basin. Ballona Creek, for example, easily as polluted a water body as Oxford, sees very high usage from a much greater variety of waterbirds than does Oxford. Also, it is worth noting that the nearby (restored) Ballona Lagoon just west of Marina del Rey is also small in extent (and linear in configuration), but nonetheless supports an exceptionally high species diversity of shorebirds compared with present-day Oxford Basin (records of 10+ species per year [C. Almdale unpubl. data] vs. 1 species at Oxford Basin during the 2009/10 survey).

Relatively simple steps could be taken to enhance Oxford Basin for birds that have been extirpated since the 1970s, and possibly even for certain species that existed in the pre-Marina del Rey wetlands. Replacing the thicket of myoporum with low-profile, native vegetation would likely result in the re-colonization of the site by white-crowned sparrows, which no longer winter there. The American kestrel might use the site with such vegetation restored, as could (migrant) northern flickers and song sparrows. These species remain common in their respective roles in the larger Ballona ecosystem where native vegetation persists or has been restored. Other migrant songbirds recorded regularly at Ballona Lagoon that could use a restored Oxford Basin include the house wren, blue-gray gnatcatcher (*Polioptila caerulea*), common yellowthroat (*Geothlypis trichas*), and Lincoln's sparrow (*Melospiza lincolnii*). None of these currently occur at the site or in typical urban/residential vegetation, and all have responded positively to restoration at Ballona Lagoon and other nearby natural areas.

With increased tidal flushing, the mudflats of Oxford Basin could once again support numbers and a diversity of shorebirds, and possibly a wider variety of waterfowl than is currently represented (just four ducks and one shorebird were detected during surveys in 2009/2010, contrasting with five species of waterfowl and at least nine species of shorebirds in 1980). With most of the historical tidal mudflat habitat lost permanently in the Marina/Ballona area (and essentially absent from the rest of the Santa Monica Bay/Los Angeles Basin south of Malibu), restoration of this habitat could have a wide-reaching, positive impact on waterbirds in the region. It is also possible that such sensitive species as the California least tern could once again use the Oxford Basin as an alternate fishing site during its breeding season.

Please refer to the draft Marina del Rey Conservation & Management Plan (Hamilton and Cooper 2010) for additional species that could benefit from restoration at Oxford Basin.

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Schreiber, R. W., and Dock, C. F. 1980. *The Birds of the Bird Conservation Area, Marina del Rey, Los Angeles County.* Report to Department of Small Craft Harbors, County of Los Angeles, Marina del Rey, CA.

Appendix A. Previous reports on the birds and habitats of Oxford Basin ("Bird Conservation Area").

The following reports cited in the text are provided here as follows:

Los Angeles County Department of Small Craft Harbors. 1976. *DEIR, Proposed Japanese-American Cultural Garden, Marina del Rey*. August 19, 1976 (including "List of Plant Material at Bird Conservation Area - Marina del Rey").

Schreiber, R. W., and Dock, C. F. 1980. *The birds of the bird conservation area, Marina del Rey, Los Angeles County.* Report to Department of Small Craft Harbors, County of Los Angeles, Marina del Rey, CA.

Gustafson, R. J. 1980. Vegetation analysis [of Bird Conservation Area, Marina del Rey]. Appendix Four of Report to Department of Small Craft Harbors, County of Los Angeles, Marina del Rey, CA.

Schleicher, C. 1974. Ornithological Study of Bird Conservation Area, Marina del Rey, California. Appendix F. *In*: County of Los Angeles, Department of Small Craft Harbors. 1976. *DEIR, Proposed Japanese-American Cultural Garden, Marina del Rey*. August 19, 1976.

COUNTY OF LOS ANGELES / DEPARTMENT OF SMALL CRAFT HARBORS
Administration Building, Fiji Way, Marina del Rey, California 90291 / 823-4571 / 870-6782

VICTOR ADORIAN
Director

AUGUST 19, 1976

DRAFT ENVIRONMENTAL IMPACT REPORT

PROPOSED JAPANESE-AMERICAN CULTURAL GARDEN, MARINA DEL REY

CONTENTS

COUNTY OF LOS ANGELES / DEPARTMENT OF SMALL CRAFT HARBORS
Administration Building, Fiji Way, Marina del Rey, California 90291 / 823-4571 / 870-6782

August 20, 1976

VICTOR ADORIAN
Director

DRAFT: ENVIRONMENTAL IMPACT REPORT

SECTION I - PROJECT DESCRIPTION

1. Location: Parcel P, Marina del Rey Small Craft Harbor (See Appendix A) 4350 Admiralty Way, Marina del Rey, Ca. 90291

2. Description: The proposed project would convert approximately 5 acres of bird habitat, constructed in 1962, into a Japanese-style public garden containing two gate houses with public restrooms, an arbor, an outdoor amphitheater, the importation and placement of a Japanese tea house and several artifacts, including two bridges, stone lanterns and similar art objects, the construction of rock dust walkways, and the addition of pebble surfaces in key dry and submerged areas and "Rangui" posts (natural timber pile bulkheads) along portions of the shoreline of the Oxford Drainage Basin, a storm water catchment constructed in 1960. An artificial pond and waterfall are also proposed to be added. Most of the existing vegitation will be displaced by new flowering trees and shrubs, lawn and ground covers; the existing irrigation system will be modified to suit new proposed conditions. (See Appendix B for schematic plan of project.)

   Proponents of the project, proposed to be constructed with private funds and donated to the County for public use and maintenance, contend that the present premises do not sustain significant bird life, both in terms of numbers of species and numbers of individuals; that birds observed in the area are typical to the region and would return to the gardens after construction; and that the premises do not now present an attractive appearance. The proposed change in the use of the land will afford employment opportunities and a much higher order of public recreational use than presently afforded.

   The estimated cost of the proposed project is $1,306,000.

SECTION II - DESCRIPTION OF ENVIRONMENTAL SETTING

1. Historical Background:

Marina del Rey Small Craft Harbor encompasses 804 acres of real property owned and managed by the County of Los Angeles. Approximately one-half of the site was excavated by dredging to constitute navigation channels and small craft berthing basins. This construction was initiated in 1957 and substantially completed by 1962. Approximately two-thirds of the land area and one-third of the water area has been leased to private entrepeneurs for the construction and operation of public use facilities, including boat slips and ancilliary facilities, shopping facilities, restaurant and residential and hotel accomodations. Refer to Appendix for complete tabulation of leasehold improvements. The remaining acreage--two-thirds of the water area, one-third of the land area--is under the development and/or operational control of the County's Department of Small Craft Harbors.

The construction of the harbor interrupted certain natural drainage features in the locale, as a result of which various storm drain projects were constructed concurrently. One such was the Oxford Drainage Basin, a storm water catchment of about 5 surface acres, intended to receive storm runoff at such times as the state of the tide within the harbor precluded its discharge causing inundation of low-lying lands adjacent to the north section of the harbor. The basin is equipped with a tide gate which closes to prevent tidal flooding of the low-lying areas and opens to release impounded waters when the tide is low. The lowest level of the tide experienced in this vicinity is -1.7' MLLW; the highest is +7.8'. The average daily range is on the order of 5 feet. The Oxford Drainage Basin and its appurtenant structures is under the operational control of the Los Angeles County Flood Control District.

At the time the Oxford Drainage Basin was constructed, various naturalist organizations requested that the Board of Supervisors set aside this parcel as a wildlife sanctuary, particularly for birds. In January, 1963, the Board designated Parcel P as the Bird Conservation Area. Plant materials were selected and planted to afford nesting, roosting and feeding capabilities. A band of dense shrubbery was planted along the periphery fence to afford privacy and minimize the impact of nearby streets and activity areas. A few years later, about 1965, fill was imported to construct a mound along the northeasterly property line and the area replanted and irrigated in an effort to further improve the habitat.

SECTION II (continuation)

2. Current Environmental Setting:

The premises encompass 10.716 acres, approximately half of which is submerged, and is bounded as follows:

- Along the northwest bondary by Washington Street, a secondary highway;
- Along the north boundary by a 60-foot railroad right of way belonging to the Southern Pacific Transportation Co. which has applied for authorization to abandon its infrequent rail service;
- On the east by Parcel Q, currently unimproved and vacant. This property is identified for public parking on the harbor's master development plan and the project proponents propose that a parking lot be constructed to serve the project;
- Along the southeast side by Admiralty Way, a heavily travelled harbor thoroughfare.
- On the southwest side by a public parking lot (Parking Lot "OT") operated by the Department of Small Craft Harbors.

A portion of the South Bay Bicycle Trail traverses the north side of the premises parallel with the railroad between Washington Street and Parcel Q. It is a 16-foot wide asphaltic concrete strip within a 20-foot right of way and is fenced on both sides. All of the foregoing are identifiable on the project plans and aerial photos enclosed.

A complete list of plant materials installed in the Bird Conservation Area is provided in Appendix D. Most of it was planted between 1964 and 1968. The lack of an adequate irrigation system resulted in a heavy loss of first plantings. A few trees died after reaching substantial growth. This was attributed to deep tap roots reaching the salt water level. However, with the aid of improved irrigation most species have survived well since and grown as expected. Pyrocantha introduced in 1974 has not propagated as well as expected and may be inhibited by either soil or climate or both. Soil tests and analysis will be necessary to determine the nature of treatment, if any, required to sustain desired exotic plant materials.

In 1973, between June 14 and November 30, an inventory of bird life by observation and catalogueing was completed by Mr. Carter Schleicher, a biology major enrolled at California State University, Humboldt. His report and recommendation is attached as Appendix F. No nests were found in the area and, with few exceptions, most birds sighted during this period are quite common throughout the region.

In 1965, the apparent lack of bird life prompted the importation of a flock of domestic ducks from Alondra Park. The flock was augmented from time to time by citizens wishing to get rid of pet ducks and, occaisionally chickens. While the presence of these birds delighted many children, who watched and fed them through the fence along Washington Street, it became apparent that it not function as a lure to wild birds. Mr. Schleircher recommended their removal and a new home was found for them away from the Marina. However, "donations" of individual birds by tossing them over the fence continue and the crowing of roosters has brought several complaints from nearby apartment tenants.

Other than a few rabbits, there is little evidence of the presence of mammals or reptiles on the premises. However, a deliberate study has been initiated by personnel of the County's Museum of Natural History and the results will be distributed to recipients of this EIR for corelated review and comment.

The existing basin is kept submerged with salt water during the dry season with a maximum pool elevation of about +3' MLLW. The tide control gate is set to permit flows in and out with the daily harbor tide cycles. The Flood Control District may lower the pool level to about -1' MLLW in advance of expected winter storms. During the summer months, the low flows of fresh water into the pond create a brackish condition, particularly in the shallow East end, and there is a high incidence of algae and grass growth. There appears to be a thick mat of decomposed plant material over much of the bottom of the basin and Mr. Schleicher reported a "white cob-webby fungus." Various species of fish have been casually observed in the pond. However, no formal study has been accomplished heretofore. A comprehensive study of the nature and magnitude of marine life now present in the harbor waters, including the Oxford Drainage Basin, by a team from the University of Southern California has been commissioned by the County. The results of the study are not expected to be finalized before the latter part of 1977. A separate investigation of the "mud flats" areas of the basin where shore birds have been observed feeding will be made and reported concurrently with the data regarding animal life. The proposed project will not significantly affect the water areas except where pebble surfaces are proposed to be installed in shallow areas. Measures to obviate the undesired grass and algae will have to be devised and provided.

In addition to the Flood Control District's inlet and outlet structures, located on the property, a mainline sanitary sewer and water and power transmission facilities belonging to the City of Los Angeles traverse from East to West approximately 60-feet South of and parallel with Washington Street.

List of Plant Material at
Bird Conservation Area --
Marina del Rey

Punicum (Pomegranate)	Abelia
Pampas Grass	Myoporum
Oleander	California Pepper
Pyracantha	Lagenaria
Hakea	Fruiting Loquat
Aleppo Pines	Tam Juniper
Armstrong Juniper	Eucalyptus Glomerata
Hybiscus	Baccaris Pilularis
Monterey Pine	Bouganvillea
Cistus (Rock Rose)	Catalina Cherry
Sycamore	Sumac (Rhus ?)
Meleleuca Species	Lonicera (Honeysuckle)
Acacia Species	Fremontia
Thompson Seedless Grapes	

8/17/76
LWS

THE BIRDS OF THE BIRD CONSERVATION AREA
MARINA DEL REY, LOS ANGELES COUNTY

RALPH W. SCHREIBER and CHARLES F. DOCK

Report to

Department of Small Craft Harbors
County of Los Angeles
Administration Building, Fiji Way
Marina del Rey, California 90291

From

Ornithology Section
Natural History Museum, Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007

TABLE OF CONTENTS

LIST OF FIGURES AND APPENDICES

The Birds of the Bird Conservation Area
Marina del Rey, Los Angeles County

Ralph W. Schreiber and Charles F. Dock

Introduction

The "Bird Conservation Area" (BCA) is 10.7 acres known as Parcel P on the northwest corner of the Marina del Rey Small Craft Harbor, Los Angeles County, California. The BCA was so designated in 1963 by the County Board of Supervisors and is primarily fenced and planted land surrounding a storm water catchment basin. Various proposals have been made to improve this region for public use over the years. Under the California Coastal Act of 1976, regarding environmentally sensitive habitat areas (Sec. 30240), any such project must consider the effects of changes in the land on the biotic community. The present study was designed to determine the bird use of the region. This study is a portion of a larger study on the total avian populations of the Ballona wetlands, but this report deals only with the Bird Conservation Area (Dock and Schreiber, 1980, The Birds of Ballona Wetlands, Los Angeles County, California, Submitted to California Coastal Commission).

Summary

Based on weekly surveys during 17 months between October

1978 and August 1980 of the birds of the "Bird Conservation Area," we conclude that this area is not important as habitat for wild birds in the Los Angeles basin. While it serves as "green belt" space and as an area for a limited but important number of people to enjoy seeing and feeding domestic ducks, the area serves little or no purpose as a conservation area for a viable population of migratory or resident wild species. Because of its limited size and relative isolation, we believe that any efforts at habitat modification would have little or no effect at increasing the wild avian populations in the region. Certain modifications could make it more conducive for the domestic animals and as green space.

Methods

Avian populations of the Los Angeles County Bird Conservation Area (BCA) were studied from August 11, 1979 to August 8, 1980. Censuses were conducted on a weekly basis. Two censuses per week were made during all times when migrant and wintering birds were likely to alter the usual species composition of the area. Counts were usually made during morning hours, when terrestrial bird species are most active, but frequent afternoon studies were also conducted to assess the effects of time of day on census results. Relative water levels and weather conditions were recorded during each visit. Birds were systematically counted from the periphery of the pond. The area was circled slowly and all bird species and individuals observed were recorded. Each sampling period lasted approximately one hour. All species identifications were made with the aid of 9x35 binoculars.

A preliminary investigation was conducted from October 7, 1978 to April 14, 1979. Data obtained in this study are presented in Appendix 2. That study was conducted by other investigators, and data obtained were not included in the analysis of the yearly cycle, to assure strictly comparable comparisons. Daily comparisons of morning and afternoon censuses were made during this earlier study, and results of this investigation are discussed. Data on these daily comparisons are presented in Appendix 3.

Habitats

An account of the vegetation occurring at the Bird Conservation Area is given in Appendix 4, including a generalized map (Fig. 1). Birds, however, tend to respond to the structure of the vegetation rather than specific plant species in most instances. The following habitat classification appears to reflect patterns of bird utilization and is based generally on vegetation structure.

Open Water

This habitat includes the principal water mass and purely aquatic vegetation (e.g. algae). This habitat is primarily important as foraging and resting area for ducks, geese and coots. Occasionally, other species of waterbirds are seen on the water, including gulls and cormorants. Belted Kingfishers, herons and egrets forage in the shallow margins of the main water mass. Of particular interest are California Least Terns, an endangered species that nests on nearby Venice Beach and the Ballona Wetlands, and occasionally forages on small fish in the Bird Conservation Area.

Pickleweed

Pickleweed, *Salicornia virginica*, is found in a narrow strip along the southeastern border of the pond and along the margins of the inlet channel. This vegetation type is generally associated with salt marshes and is of interest as bird habitat primarily because Belding's Savannah Sparrow, an endangered species, is restricted to Pickleweed associations.

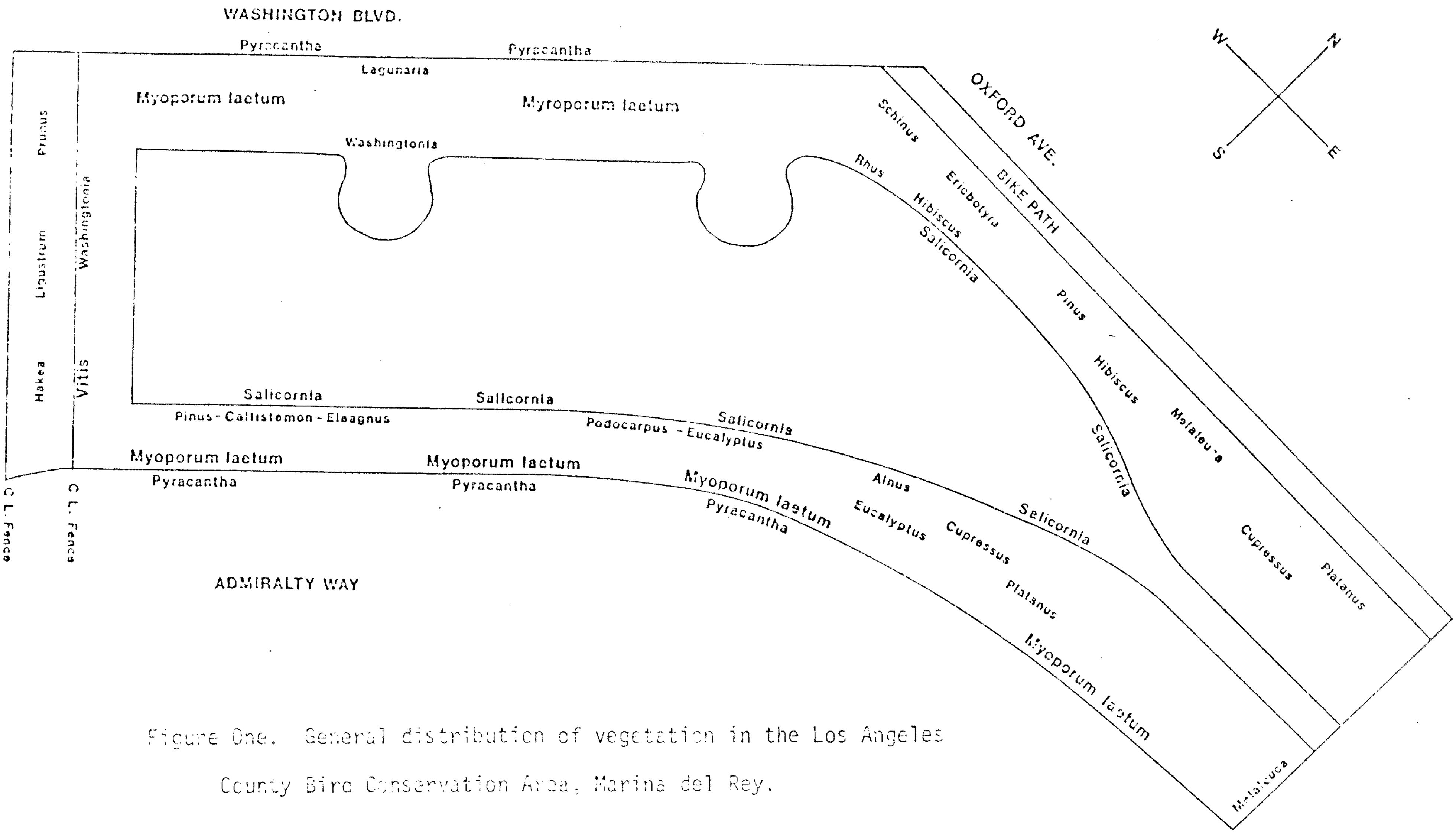


Figure One. General distribution of vegetation in the Los Angeles County Bird Conservation Area, Marina del Rey.

Pickleweed habitat at the BCA is of very limited extent, however, and does not support a population of Belding's Sparrows. During the course of this investigation, not a single individual of this species was recorded. Pickleweed at the BCA is used primarily for cover by the resident ducks, and to a lesser extent by Song Sparrows and Mockingbirds as foraging grounds.

Mudflats

When water levels are low, mudflats are exposed along the northwestern shore of the pond. This habitat type is important to a number of species that regularly or occasionally occur at the BCA. Most of the shorebirds recorded here are dependent on the mudflats for their occurrence, both to feed and to rest. The mudflats are also used as loafing grounds by gulls, ducks and coots.

Trees

Trees of several species cover much of the grounds surrounding the pond. These trees provide shade and general cover for the resident ducks, geese and chickens. In addition, they are used as perching sites for a number of species and nesting sites for Mockingbirds, Starlings, Jays and possibly a few other common birds. The most common nesting species is the Starling. In Spring, 1980, a sizable colony bred in the trees along the northwestern shore.

Undergrowth

In certain portions of the area, particularly along the southeastern shore, various herbaceous plants occur sporadically under the canopy. This undergrowth provides cover and foraging substrate for migrant terrestrial birds, including thrushes, wrens and especially White-crowned Sparrows. During the winter months, White-crowned Sparrows are found regularly in fairly large numbers in this particular habitat. Much of the area beneath the trees is devoid of vegetation, in part because of shading, but primarily due to the concentration of domestic fowl and domestic ducks. The ducks also use the existing undergrowth as cover for breeding activities, although reproduction in the duck population at present appears limited.

Shrubs

Large shrubs are scattered over the more open portions of the area, particularly along the northern border. These plants are used as foraging sites by House Finches, jays and Mockingbirds. White-crowned Sparrows commonly forage on the ground underneath the shrubs. Hummingbirds nest only in these fairly open areas where the shrubs provide not only nest sites, but also perches for display and observation.

Grasses and Herbs

Various species of grasses and herbs occur over much of the grounds. These plants provide a seed supply for finches, sparrows, Mourning Doves and Spotted Doves.

Results

Figure 2 shows changes in total species and total waterbird species recorded throughout the yearly cycle. Neither parameter exhibits particularly dramatic seasonal changes, and in fact are rather remarkable for their consistency. A few more species use the BCA in the fall and winter than in spring and summer. These minor differences are due to the seasonal presence of migrants, including ducks, Coots, California Gulls, White-crowned Sparrows and assorted occasional terrestrial species.

Seasonal differences in total numbers of individuals and numbers of individual waterbirds are shown in Figure 3. Seasonal differences in numbers of individuals are greater than seasonal differences in numbers of species. Some of the migrants are fairly abundant in winter, particularly coots and White-crowned Sparrows, which affect these figures markedly. Differences in waterbird numbers are especially influenced by changes in the status of the American Coot population as can be seen from an examination of Figure 4. Only stragglers are present in the summer, while considerable numbers are present during the winter months. Other waterbirds contribute relatively little to changes in overall numbers of individuals, being present as single individuals or small flocks.

Most of the individual waterbirds present on the area are domestic ducks and mallards that are year-around residents. Most of the variation in numbers of these birds, as shown in Figure 5, reflect census difficulties and not actual changes in the populations. At different times, the birds may be

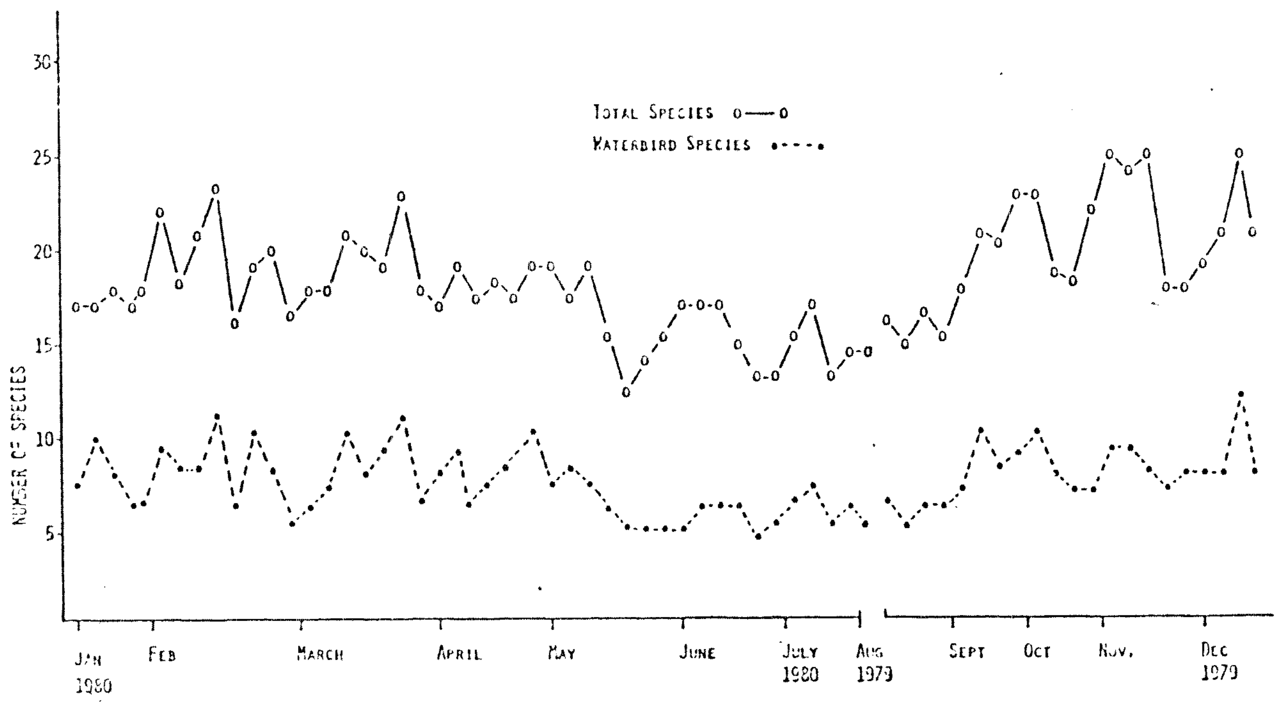


Figure Two. Total number of species and total waterbird species observed on individual censuses from August 1979 through July 1980.

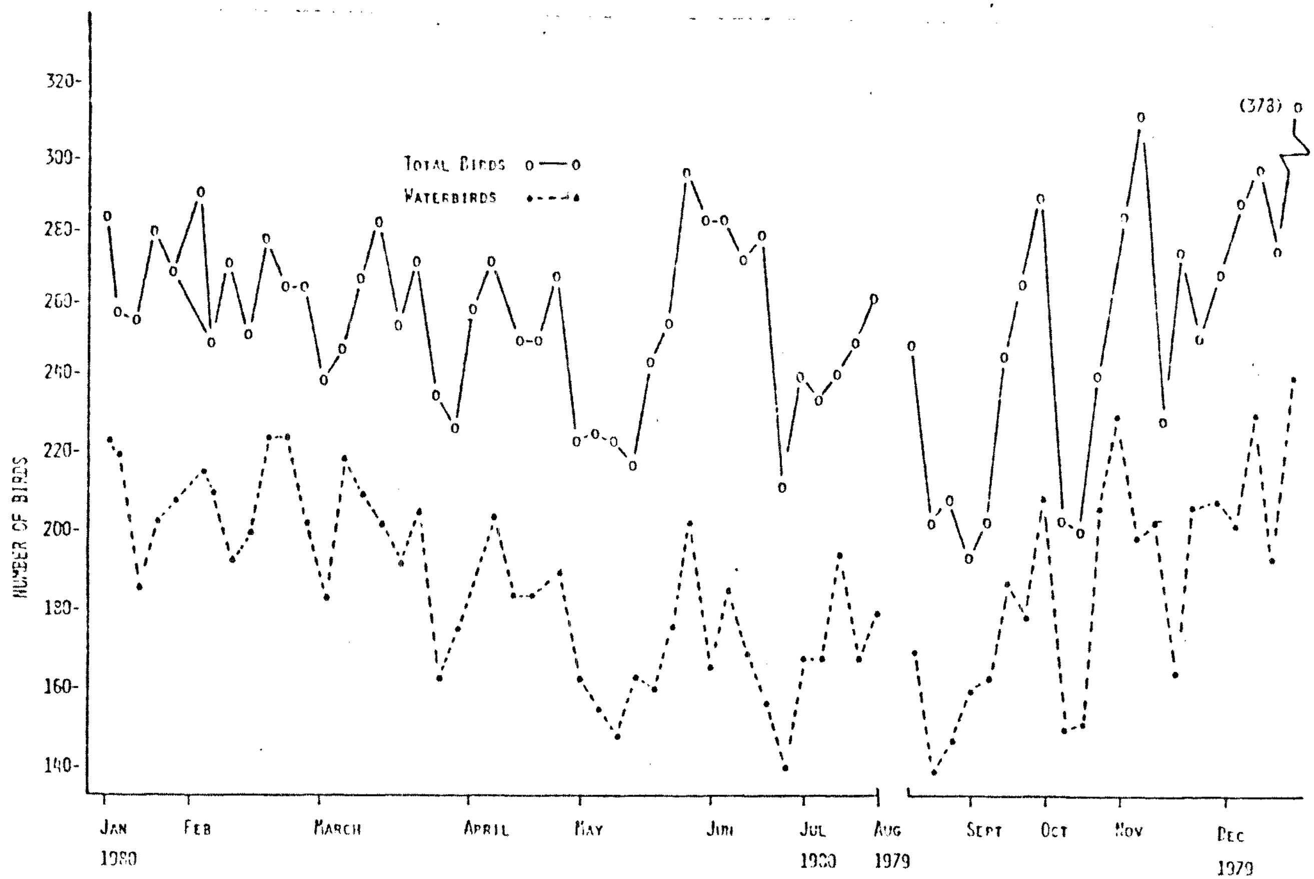


Figure Three. Total number of individual birds of all species and total number of waterbirds observed on individual censuses from August 1979 through July 1980.

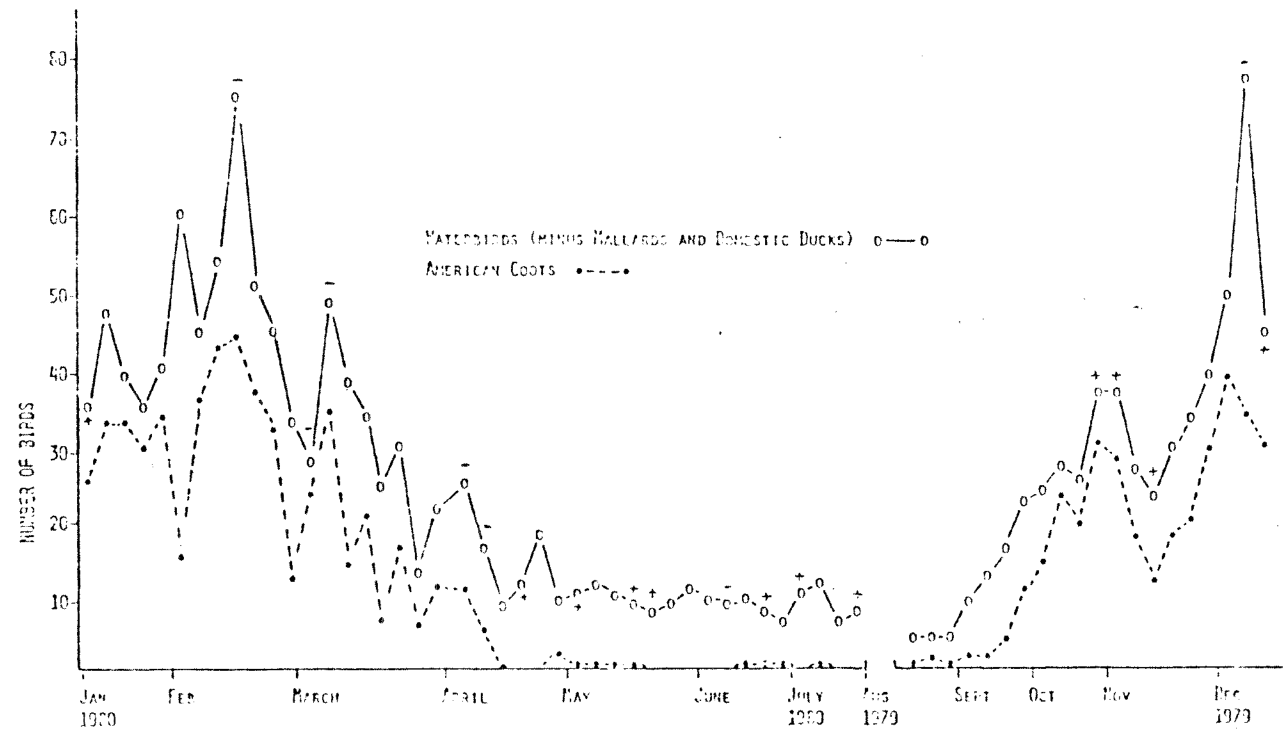


Figure Four. Total number of waterbirds, exclusive of resident Mallards and Domestic Ducks, and total number of American Coots observed on individual censuses from August 1979 through July 1980. Pluses (+) indicate times of particularly high water levels; minuses (-) indicate times of particularly low water levels.

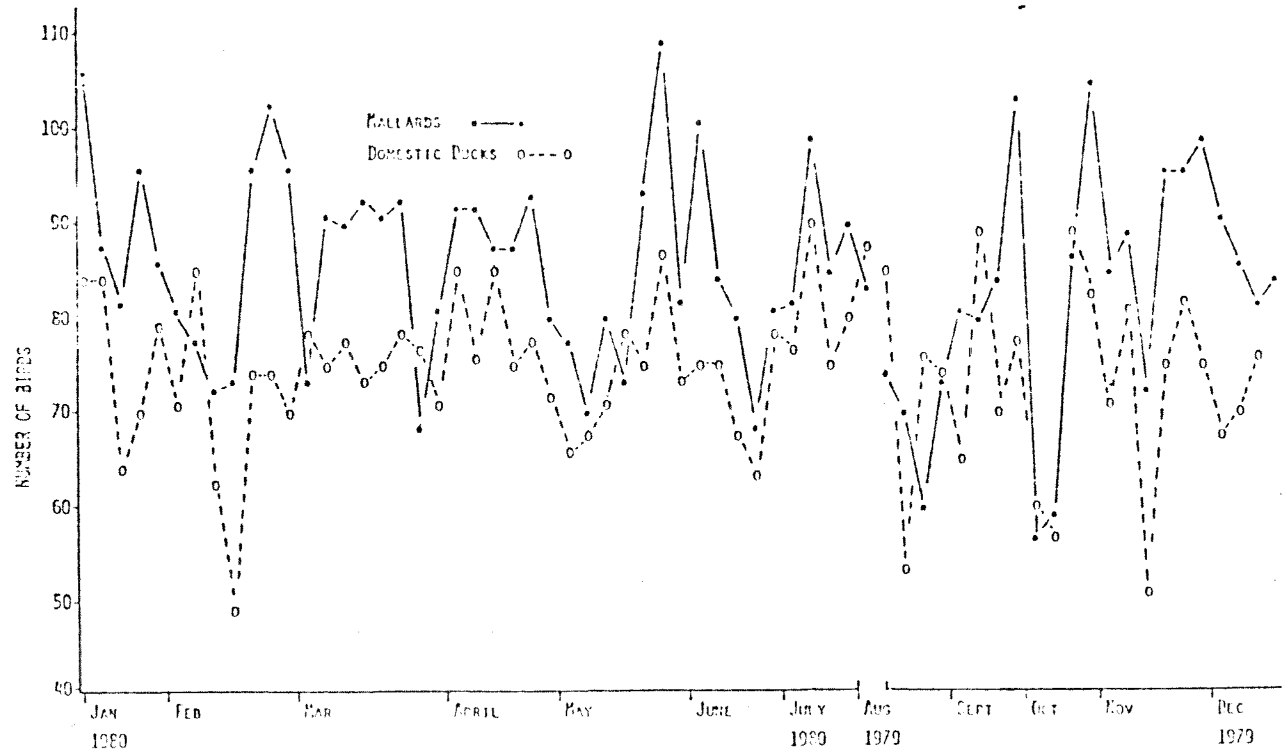


Figure Five. Total number of Mallards and Domestic Ducks observed on individual censuses from August 1979 through July 1980.

concentrated on the open water, or may be found primarily loafing or feeding under the trees adjacent to the pond. The ducks are much easier to census on the water than when they are in the vegetation.

The mallards and domestics breed to a limited extent within the BCA, and hybridization between the two forms is quite common. This reproduction is possibly contributing to a gradual increase in numbers of ducks through time, although there is singificant mortality in the populations. A number of dead ducks were observed during the course of this investigation. Much of this mortality is apparently due to predation from dogs, which were frequently seen inside the fence and were observed pursuing the ducks on several occasions. There may also be limited interchange of individuals between the BCA and the nearby Venice Canal system, although no individuals were actually observed flying between the two locations.

A complete tabulation of birds observed during the study, and their times of occurrence is given in Appendix 1.

Non-seasonal Factors Affecting Bird Utilization

At low water levels, fairly extensive areas of mudflat are exposed along the northwest side of the pond, while virtually no mudflat is exposed at high water levels. Many shorebirds, gulls and terns utilize mudflats for feeding and/or loafing. Figure 4 shows the number of waterbirds in relation to particularly high and low water levels. No completely consistent pattern emerges,but particularly low water levels in winter tend to be associated with increased waterbird usage. This becomes more apparent if differences between total waterbird numbers and American Coot numbers are considered. Additional species (other than coots) tend to contribute more to overall waterbird numbers during periods when more mudflat is exposed.

Certain species exhibit fairly predictable daily patterns of movement over their home range. In the Spring of 1979, same-day censuses were conducted in both mornings and afternoons over an eleven-week period to determine the effect of time of day on census numbers. The results of this study are summarized in Figure 6. More birds were recorded in the afternoon censuses than in early morning censuses. Most of this difference in numbers of individuals was attributable to an increase in waterbirds present in the afternoon. As can be seen from the figure, the numbers of terrestrial birds and resident ducks recorded remained relatively constant, as would be expected. More wild waterbirds were present on the area in the afternoon than in the morning. In particular, the number of gulls present at the study site increased in the afternoon.

While the overall differences are not dramatic, we tentatively conclude that more waterbirds are present at low water levels than at high water levels, and more individuals use the area in the afternoon than in the morning.

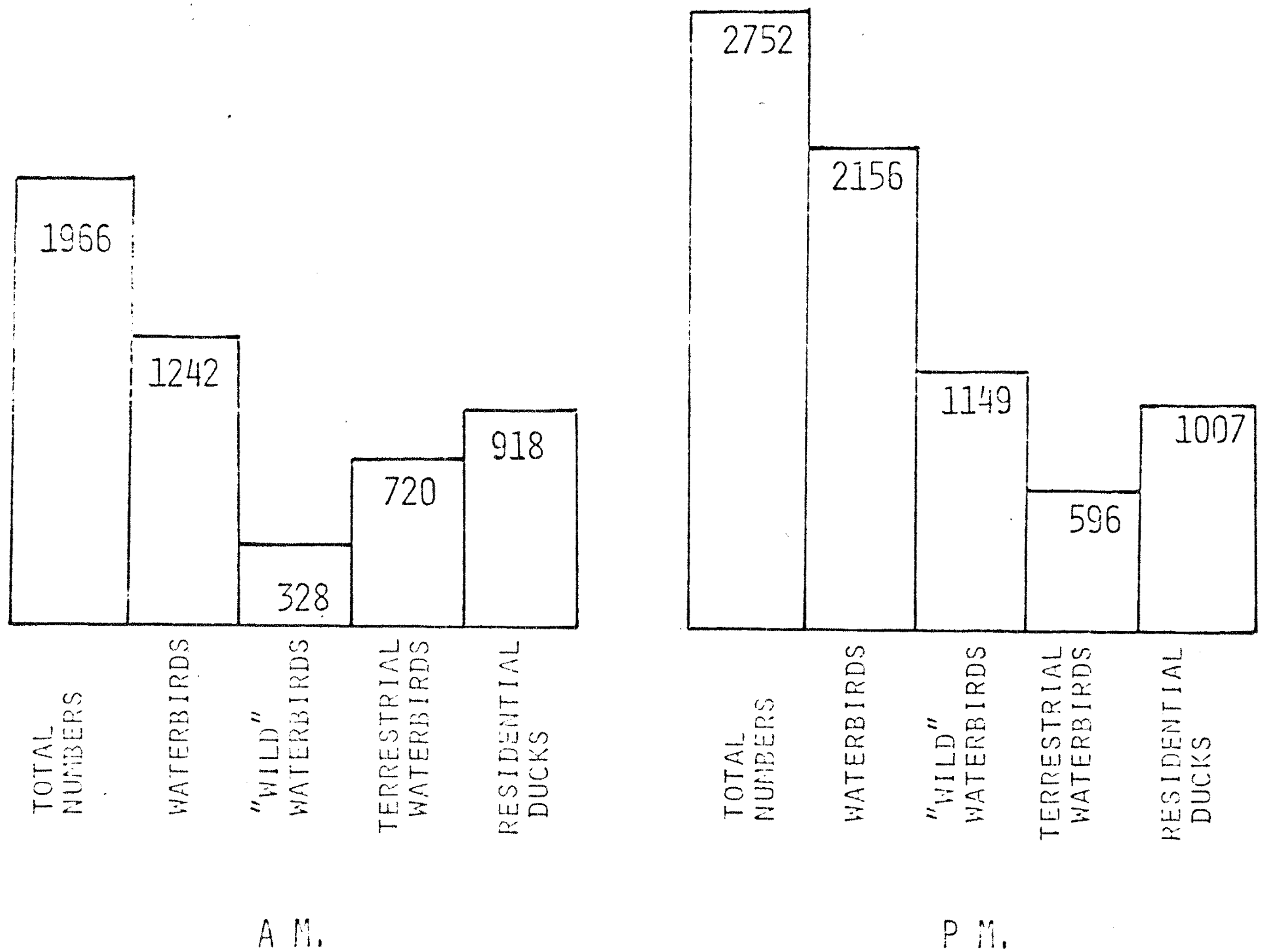


Figure Six. Numbers of birds observed during morning and afternoon censuses over eleven week period from 20 January 1979 to 14 April 1979.

SPECIES ACCOUNTS

ORDER PODICIPEDIFORMES
FAMILY PODICIPEDIDAE

EARED GREBE *Podiceps nigricollis*

Common migrant and winter visitor on protected coastal waters. One to three individuals were observed regularly on open water at the Bird Conservation Area from mid-October, 1978 to mid-January, 1979.

WESTERN GREBE *Aechmophorus occidentalis*

Common migrant and winter visitor offshore and occasionally on quiet inshore waters. Observed occasionally during winter months on open water at Bird Conservation Area.

PIED-BILLED GREBE *Podilymbus podiceps*

Fairly common migrant and winter visitor to protected bodies of both fresh and salt water. Individuals may occasionally be observed in summer. One to three individuals were regularly recorded at the Bird Conservation Area from late summer to early spring.

ORDER PELICANIFORMES
FAMILY PHALACROCORACIDAE

DOUBLE-CRESTED CORMORANT *Phalacrocorax auritus*

Common offshore species in all seasons but less numerous in summer. Most local adults breed on the Channel Islands. Occasional vagrants observed in the fall and winter, resting on open water at the Bird Conservation Area.

ORDER CICONIIFORMES
FAMILY ARDEIDAE

GREEN HERON *Butorides striatus*

Common resident around shallow water containing vertebrate and/or invertebrate prey. Breed in a variety of locations in southern California. Individuals commonly observed in all seasons around the Bird Conservation Area.

SNOWY EGRET *Egretta thula*

Common transient and winter visitor around fresh and salt water. Observed sporadically on mudflats from fall to late spring.

BLACK-CROWNED NIGHT HERON *Nycticorax nycticorax*

Uncommon transient and winter visitor in southern California. A pair of juveniles was observed on several occasions in late winter and spring in the trees surrounding the Bird Conservation Area.

ORDER ANSERIFORMES
FAMILY ANATIDAE

WHISTLING SWAN _Olor columbianus_
Uncommon winter visitor in coastal southern California. Single individual observed at Bird Conservation Area from September to early November.

DOMESTIC GOOSE _Anser anser_
Birds on area probably intentionally released. Several birds resident on Bird Conservation Area. Bred on area in Spring, 1980.

MALLARD _Anas platyrhynchos_
Wild birds are common southern California residents, with numbers increasing in winter with influx of migrants. Common residents on Bird Conservation Area. Commonly hybridize with domestic ducks.

DOMESTIC DUCK _Anas platyrhynchos_
Common "pets"; also raised commercially. Common residents on Bird Conservation Area.

CINNAMON TEAL _Anas cyanoptera_
Common migrant and winter visitor in coastal southern California, particularly in fresh water and wet agricultural fields. One individual observed at the Bird Conservation Area in early May, 1980.

AMERICAN WIDGEON _Anas americana_
Common migrant and winter visitor on protected fresh and salt water situations in southern California. A single individual was observed on the pond in mid-November, 1978.

GREATER SCAUP _Aythya marila_
Uncommon winter visitor in southern California. Small flocks observed in winter at Bird Conservation Area.

LESSER SCAUP _Aythya affinis_
Common winter visitor and migrant on quiet water. Small flocks observed regularly from December through March at the Bird Conservation Area.

BUFFLEHEAD _Bucephala albeola_
Regularly seen in small numbers during winter in southern California. Single individuals obsrved in late October on the Bird Conservation Area.

ORDER FALCONIFORMES
FAMILY FALCONIDAE

AMERICAN KESTREL _Falco sparverius_
Common resident in open areas with natural or man-made perch sites. Observed commonly in all seaons on tall perch sites around the Bird Conservation Area.

ORDER GALLIFORMES
FAMILY GALLIDAE

DOMESTIC FOWL *Gallus gallus*
Common "pets" and commercial birds. Several individuals resident in wooded portions of Bird Conservation Area. Exist primarily on food items provided by passersby.

ORDER GRUIFORMES
FAMILY RALLIDAE

AMERICAN COOT *Fulica americana*
Common resident in fresh water marshes, ponds, and slower-moving streams and canals. Year-round resident on Bird Conservation Area, but numbers greatly increase in winter.

ORDER CHARADRIIFORMES
FAMILY CHARADRIIDAE

SEMI-PALMATED PLOVER *Charadrius semipalmatus*
Common fall and spring transient and winter visitor to coastal mudflats. Three individuals were observed on the mudflats in October, 1978.

KILLDEER *Charadrius vociferus*
Common resident near fresh and salt water and in wet fields and meadows. Observed sporadically in all seasons on mudflats around pond.

BLACK-BELLIED PLOVER *Pluvialis squatarola*
Common winter visitor and migrant on mudflats along coast. Small numbers found on mudflats of the Bird Conservation Area in winter.

FAMILY SCOLOPACIDAE

SPOTTED SANDPIPER *Actitis macularia*
Fairly common spring and fall transient and winter visitor, primarily around fresh water. Individuals observed sporadically from September to May, primarily along water's edge at the Bird Conservation Area.

WILLET *Catoptrophorus semipalmatus*
Common visitor in all seasons on mudflats, beaches, and marshes, but does not breed in region. Observed commonly foraging and loafing on mudflats. Numbers greatest from late summer through the winter, and least in early summer.

GREATER YELLOWLEGS *Tringa melanoleuca*
Fairly common as migrant, less common as winter visitor at marshes, mudflats and shores of ponds. Two individuals were seen on a single occasion on the mudflats in late November, 1978.

RED KNOT *Calidris canutus*

Rare fall migrant in salt marshes and mudflats. Two individuals seen on mudflats in late November, 1978.

WESTERN SANDPIPER *Calidris mauri*

Common spring and fall transient and fairly common winter visitor on mudflats or moist shores of both fresh and salt water. Observed sporadically on mudflats during the winter months.

MARBLED GODWIT *Limosa fedoa*

Common winter visitor and migrant on mudflats, beaches and marshland along coast. Occasionally seen in wet areas further inland. A single individual was seen on the mudflat in Fall, 1979.

SANDERLING *Calidris alba*

Common migrant and winter visitor along beaches of coast. Somewhat less common on mudflats. One large flock (150 individuals) observed on the mudflats in late November, 1978.

FAMILY LARIDAE

WESTERN GULL *Larus occidentalis*

Common resident in coastal southern California, but restricted to offshore islands for breeding, south of San Luis Obispo County. Observed irregularly from throughout year loafing on mudflats.

HERRING GULL *Larus argentatus*

Fairly common to uncommon winter visitor along coast. Rarely observed inland. Three individuals observed on Bird Conservation Area in January, 1979.

CALIFORNIA GULL *Larus californicus*

Common spring and fall transient and winter visitor. May be found in virtually any open area with nearby water, but more common along coast. Observed irregularly on mudflats from late summer through the winter.

RING-BILLED GULL *Larus delawarensis*

Common visitor in all seasons. Numbers diminish appreciably in summer. May be found in variety of habitats where some moist ground is available for foraging. A regular visitor on mudflats and open water in all seasons.

BONAPARTE'S GULL *Larus philadelphia*

Very common migrant and winter visitor around protected waters and wet agricultural fields along coast. Occasionally observed on mudflats and open water in the fall and winter months.

HEERMANN'S GULL *Larus heermanni*

Primarily late summer and fall visitor. Some individuals present in all seasons. Restricted to coastal areas. Occasional vagrants observed loafing on mudflats during fall and winter.

FORSTER'S TERN *Sterna forsteri*
Common migrant and winter visitor around bays, lagoons and other protected waters along coast. Occasionally observed on mudflats in fall and winter.

LEAST TERN *Sterna albifrons*
Uncommon summer visitor, from late April to September or October along protected portions of coast. Formerly nested on upper beaches at a number of locations as far north as Monterey County. Breeding now limited to a small number of managed sites in southern California. Observed foraging in the pond at the Bird Conservation Area in Spring and Summer, 1980.

ORDER COLUMBIFORMES
FAMILY COLUMBIDAE

ROCK DOVE *Columba livia*
Common resident in urban, suburban and agricultural areas. Resident in urban areas surrounding wetlands. Common resident of urban area around Bird Conservation Area.

MOURNING DOVE *Zenaida macroura*
Common resident in open woodlands, agricultural areas, parks, residential areas. Numbers increase in winter. Commonly observed in all seasons in trees and open areas.

SPOTTED DOVE *Streptopelia chinensis*
Common resident in urban areas of coastal southern California, which comprises its entire North American range. Introduced. Resident in urban areas surrounding the Bird Conservation Area.

ORDER APODIFORMES
FAMILY TROCHILIDAE

ANNA'S HUMMINGBIRD *Calypte anna*
Common resident in open woodland, shrubland, parks and residential areas with appropriate vegetation. Observed in all seasons. Generally restricted to upland habitats with open shrubs providing perch sites.

ORDER CORACIIFORMES
FAMILY ALCEDINIDAE

BELTED KINGFISHER *Megaceryle alcyon*
Fairly common resident near waters containing fish. A pair of kingfishers probably nests at the Bird Conservation Area.

ORDER PICIFORMES
FAMILY PICIDAE

COMMON FLICKER *Colaptes auratus*
Common resident in open woodlands and parks throughout basin. Observed irregularly throughout the year in wooded portions of the study site.

ORDER PASSERIFORMES
FAMILY TYRANNIDAE

WESTERN WOOD PEWEE *Contopus sordidulus*

Common spring and fall migrant and transient in wooded areas, usually near water. Nests in Riparian Woodlands of nearby mountains. A single individual was observed in trees surrounding pond in May, 1980.

OLIVE-SIDED FLYCATCHER *Nuttallornis borealis*

Uncommon to rare transient in wooded regions of coastal southern California. Three individuals were recorded in trees around the Bird Conservation Area in January, 1979.

FAMILY HIRUNDINIDAE

BARN SWALLOW *Hirundo rustica*

Fairly common migrant and occasional summer resident in open areas near water. Requires mud for nest construction. Small numbers of individuals observed foraging over open water in late Spring and Summer, 1980.

FAMILY CORVIDAE

SCRUB JAY *Aphelocoma coerulescens*

Common resident in woodland, chaparral and urban areas with trees. A common resident of wooded urban areas. Observed commonly in trees and shrubs at the Bird Conservation Area.

COMMON RAVEN *Corvus corax*

Common resident in rocky areas of the foothills and mountains around the Los Angeles Basin. Less common within the city than the Common Crow. A single individual was observed soaring over the area in April, 1980.

COMMON CROW *Corvus brachyrhynchos*

Common resident in parks, suburbs and agricultural areas around the basin. Commonly observed soaring over areas in all seasons. Sometimes perch in trees.

FAMILY PARIDAE

COMMON BUSHTIT *Psaltriparus minimus*

Common resident of chaparral and coastal sage habitats in basin foothills. Flocks disperse widely outside breeding season. Small flocks were observed on four occasions in Winter, 1979, foraging in the trees and undergrowth at the Bird Conservation Area.

FAMILY TROGLODYTIDAE

HOUSE WREN *Troglodytes aedon*

Fairly common but patchily distributed resident in thickets and woodland edges. Northern birds transient in southern California in winter. Single individuals observed in late fall and winter in undergrowth at Bird Conservation Area.

FAMILY MIMIDAE

MOCKINGBIRD Mimus polyglottos

Common resident in urban areas and along edges of brushlands and woodlands. Common resident in urban areas. Regularly observed in trees and shrubs around pond. Probably nest at the Bird Conservation Area.

FAMILY TURDIDAE

HERMIT THRUSH Catharus guttatus

Fairly common transient and occasional winter visitor in lowland southern California. Breeds at higher elevations. Single individuals observed sporadically in late fall and winter amid undergrowth at Bird Conservation Area.

FAMILY PTILOGONATIDAE

PHAINOPEPLA Phainopepla nitens

Uncommon transient in lowlands and foothills surrounding Los Angeles Basin. One individual was observed in the trees around the Bird Conservation Area in October, 1978.

FAMILY LANIIDAE

LOGGERHEAD SHRIKE Lanius leudovicianus

Common resident in areas with lookout perches and open areas for foraging. Commonly observed perched on trees or shrubs in all seasons.

FAMILY STURNIDAE

STARLING Sturnus vulgaris

Common resident around human habitation. Nest in large numbers in and around the Bird Conservation Area, where they are common throughout the year.

FAMILY PARULIDAE

ORANGE-CROWNED WARBLER Vermivora celata

Common breeding resident in foothills and lower mountain slopes around Los Angeles. Most individuals winter further south, but some remain througout year. Two individuals observed on area in January, 1979.

YELLOW-RUMPED WARBLER Dendroica coronata

Common migrant and winter visitor; breed at higher elevations. Regularly observed in trees, shrubs and tall annuals from October to early April.

MACGILLIVRAY'S WARBLER Oporornis tolmiei

Fairly common spring and fall migrant in scrubby habitats throughout basin. A single individual was observed in undergrowth at Bird Conservation Area in early November.

WILSON'S WARBLER *Wilsonia pusilla*

Common spring and fall migrant, most commonly in brushland (esp. willow thickets) near water. A single individual was observed in the trees surrounding the pond in late April, 1980.

FAMILY PLOCEIDAE

HOUSE SPARROW *Passer domesticus*

Common resident around human habitation. Introduced. Small flocks may be observed regularly foraging in trees and undergrowth along periphery of area in all seasons. Nest in palms and man-made structures all around the Bird Conservation Area.

FAMILY ICTERIDAE

NORTHERN ORIOLE *Icterus galbula*

Fairly common summer visitor in deciduous woodlands and taller trees in parks, etc. One bird was sighted in trees surrounding the Bird Conservation Area in late August, 1979.

FAMILY THRAUPIDAE

WESTERN TANAGER *Piranga leudoviciana*

Common spring and fall migrant. Breed in higher life zones. Single individuals observed in August and September at the Bird Conservation Area.

FAMILY FRINGILLIDAE

BLACK-HEADED GROSBEAK *Pheucticus melanocephalus*

Fairly common trnasient in basin. Breeds in open woodland and forest. Observed in trees at Bird Conservation Area in latesummer.

HOUSE FINCH *Carpodacus mexicanus*

Common resident in open woodland and shrubland, both inside and outside of urban areas. Flocks move around in non-breeding season. Regularly observed in all seasons foraging in trees, shrubs, grasses and herbs.

LESSER GOLDFINCH *Carduelis psaltria*

Common resident in areas with scattered trees and/or large shrubs. Transient in non-breeding season. Observed in small numbers during late winter in trees at Bird Conservation Area.

GREEN-TAILED TOWHEE *Pipilo chlorurus*

Fairly common transient in spring and fall and as winter visitor. Breed in higher elevation chaparral. Single individuals observed on two occasions within undergrowth at Bird Conservation Area n late January.

WHITE-CROWNED SPARROW *Zonotrichia leucophrys*

Resident within southern California area. Generally restricted to "natural" areas of a variety of habitat types for breeding. Present from early October to late spring in trees, shrubs and undergrowth.

SONG SPARROW *Melospiza melodia*

Common resident in appropriate habitat. Numbers increase somewhat in fall and winter. Frequently seen in fall at the Bird Conservation Area, in dense vegetation near water.

Recommendations

Based on our investigations of avian utilization of the Bird Conservation Area, we propose two options for the future: 1) Leave the area essentially unchanged; and 2) Substantially alter the available habitat.

Option 1

Our investigations indicate that the current Bird Conservation Area is not a particularly important component of the overall pattern of avian distribution in the Los Angeles Basin. A number of factors contribute to this result, the most important of which are its limited size and its relative isolation. It is clearly a very small "island" of avian habitat in an increasingly urbanized region. Contributing to this isolation is the proximity of very tall apartment complexes which effectively cut the conservation area off from the general pattern of bird movement in the surrounding vicinity. These factors would be virtually impossible to alter substantially. On the other hand, several species of birds do use the area, if only in small numbers. The domestic waterfowl currently present on the area are of interest to many people who live in the surrounding community. These birds subsist largely on "handouts" from interested citizens who regularly visit the site. In this regard, the Bird Conservation Area is of some recreational value to the human community. A regular schedule of maintenance which would improve the aesthetic appeal of the area would undoubtedly be appreciated. This has been suggested by some of the local citizenry encountered during this study. In addition, stations might be created that would allow more efficient feeding of the birds and would allow better observation of the birds. Commercial waterfowl food might be provided in vending machines as it is at various other urban parks. Such a venture would probably pay for itself and would have the additional advantage of improving the nutrition of the ducks and geese. These would be low-cost measures and might well be the most popular with the general public.

Option 2

If a substantial effort is to be made to improve the current Bird Conservation Area in terms of its use by wild birds, the following recommendations should be considered.

1. Clear the area of introduced vegetation and replant with native species. This would mean an attempt to essentially reestablish a coastal scrub community on the grounds of the Bird Conservation Area. Such a program would improve the aesthetic appeal of the conservation area and could have an important educational value to the human community if information concerning the vegetation were made available to the public. Signs could be erected providing the names of the plants and historical and ecological facts pertaining to the species and coastal scrub communities in general. Such restoration measures concerning the vegetati on would be likely to attract larger numbers of migrating and wintering songbirds.

2. Remove the resident domestic waterfowl and gallinaceous birds that currently inhabit the area in large numbers. Such

a move might lessen the competition for space and food resources and lead to an increase in the number of wild birds. Removing domestics would also decrease the degree of degradation of ground cover currently seen at the area. Benefits of such action must, however, be weighed against potential costs. As previously mentioned, there is considerable interest in the resident waterfowl populations among local people, many of whom would be displeased by any efforts to eliminate these "pets." Removal of the chickens and other domestic fowl would probably not be opposed and should lead to an increase in ground cover which could improve the habitat for terrestrial migrants.

3. Increase the extent of available mudflat habitat. This would have the potential of increasing the number of shorebirds, gulls and terns using the Bird Conservation Area. Such change could be accomplished by grading the intertidal zone to create a more gradual shoreline around the pond. Any such effort would probably have to be accompanied by dredging of the deeper regions of the pond to maintain the potential water volume of the area for flood control purposes. An alternative, or additional step, would be to create a series of small mudflat islands within the pond itself. This could be preferable to the aforementioned approach,as it would provide greater isolation from human disturbance for any birds using this habitat, and might actually make them easier to observe by interested bird watchers.

4. Regulate water quality within the pond. Pollution levels within the pond should be monitored and controlled,

and the variability of salinity should be regulated to permit furtherdevelopment of the invertebrate community of the mudflats. The invertebrates provide food for most of the shorebirds and some of the duck species found on the area.

We must emphasize that the suggestions given above are a brief outline, and we are more than willing to discuss these factors further. However, we firmly believe that it is a real gamble whether or not this "Bird Conservation Area" can actually be improved as a wild bird habitat, no matter how much funds are expanded. No question exists that it can be improved as a "green belt" and as an area for people to enjoy the presence of and feeding of domestic ducks, but schemes to attract a large wild bird population probably will be fruitless.

APPENDIX ONE. BIRDS OBSERVED PER VISIT: AUGUST 1979 to AUGUST 1980.

*Observed but not counted.

APPENDIX TWO. BIRDS OBSERVED PER VISIT: OCTOBER 1978 to APRIL 1979.

		7 Oct.	14 Oct.	21 Oct.	28 Oct.	5 Nov.	11 Nov.	18 Nov.	26 Nov.	2 Dec.	9 Dec.	22 Dec.
Pied-billed Grebe		1	0	0	0	0	0	1	1	0	0	0
Eared Grebe		0	1	0	1	3	2	3	2	2	0	0
Western Grebe		0	0	0	0	0	1	0	0	0	0	0
Double-cr. Cormorant		0	0	0	0	0	0	0	1	0	0	0
Green Heron		3	1	3	1	1	1	3	3	2	0	0
Snowy Egret		0	1	0	0	0	0	0	0	0	0	0
Mallard	♂	49	49	45	49	24	37	29	25	47	43	41
	♀	14	15	21	19	9	11	18	6	22	14	9
Scaup sp.	♂	0	0	0	0	0	0	7	6	7	0	0
	♀	0	0	0	0	0	3	11			0	0
Widgeon		0	0	0	0	0	0	1	0	0	0	0
Muscovy		19	17	21	11	17	1	4	0	15	19	13
Peking Duck		86	79	71	56	75+	73	80	72	68	81	61
California Quail		0	0	0	0	0	0	0	0	0	0	0
Domestic Fowl		27	2	7	6	22	19	6	8	2	15*	16
American Coot		37	55	53	48	52	41	53	62	79	47	43
Black-bellied Plover		0	1	0	0	0	0	0	1	0		0
Semi-palmated Plover		0	3	0	0	0	0	0	0	0	0	0
Killdeer		2	6	4	5	0	0	0	3	1	0	0
Long-billed Dowitcher		0	0	0	0	0	0	0	0	0	0	0
Willet		1	1	1	0	1	0	1	2	4	1	1
Spotted Sandpiper		2	0	0	0	0	0	0	1	0	0	0
Knot		0	0	0	0	0	0	0	0	0	2	0
Sanderling		0	0	0	0	0	0	0	150	0	0	0
Greater Yellowlegs		0	0	0	0	0	0	0	2	0	0	0
Heermann's Gull		0	1	0	1	0	0	0	0	0	0	0
Ring-billed Gull		1	3	2	6	0	1	1	37	12	1	1
California Gull		0	0	0	1	0	0	0	0	0	0	0
Bonaparte's Gull		0	0	0	0	0	0	0	0	1	0	0
Western Gull		0	0	0	0	0	0	0	1	0	0	0
Unk. Gull		0	0	0	4	0	0	0	1	0	6	0
Herring Gull		0	0	0	0	0	0	0	0	0	0	0
Rock Dove		41	31	12	21	48	31	19	20	15	20	19
Mourning Dove		2	0	0	0	25+	29	2	3	0	0	0
Anna's Hummingbird	♂	0	1	2	1	2	3	2	1	2	1	0
	♀								1			
Belted Kingfisher	♂	1	1	1	1	0	1	0	1	0	0	0
	♀	0							0			
Olive-sided Flycatcher		0	0	0	0	0	0	0	0	0	0	0
Scrub Jay		2	1	2	2	1	1	1	2	2	1	1
Common Crow		1	1	3	0	4	1	0	1	0	0	0
Common Bushtit		0	0	19+	12+	0	0	0	0	6+	0	15
Mockingbird		4-5	5+	11	11	3+	12	4	6	2	4	3
Phainopepla		1	0	0	0	0	0	0	0	0	0	0
Starling		4	6	2	0	0	1	6	49	0	1	0
Orange-crowned Warbler		0	0	0	0	0	0	0	0	0	0	0
Warbler-Unknown		0	0	0	1	1	0	1	0	0	0	0
House Finch		29	23	20	2[illegible]	33	17	13	30	2	20	19
White-crowned Sparrow		4	0	48	30	15	20+	41	17	52	52	30
House Wren		0	0	0	0	0	0	0	0	0	0	0
Brush Rabbit		2	0	3	2	0	0	2	2	4*	2	2
[illegible]		0	[illegible]	0	0	0	0	0	0	3	0	0
Cat		0	1	1	0	[illegible]	0	0	0	0	0	1

		1 Jan.	8 Jan.	13 Jan.	21 Jan.	28 Jan.	4 Feb.	11 Feb.	[illegible] Feb.	25 Feb.	4 Mar.	12 Mar.	18 Mar.	2 Apr.	7 Apr.	14 Apr.
Pied-billed Grebe		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Eared Grebe		0	0	2	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Western Grebe		0	0	1	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Double-cr. Cormorant		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Green Heron		1	1	0	1	1	0	0	[illegible]	0	0	0	0	0	0	0
Snowy Egret		0	0	0	0	0	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0
Mallard	♂	30	24	27	37	22	25	33	[illegible]	37	54	28	23	37	25	33
	♀	13	6	7	18	5	7	13	[illegible]	12	14	14	7	14	7	6
Scaup sp.	♂	0	1	0	0	10	4	0	[illegible]	2	15	0	1	0		0
	♀	0			0	7		0	[illegible]	3	7	0	2	0		0
Widgeon		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Muscovy		16	9	9	8	4	13	12	[illegible]	9	11	7	0	6	11	1
Peking Duck		31	61	61	71	19	59	51	[illegible]	86	67	49	68	55	23	43
California Quail		0	0	0	0	0	0	0	[illegible]	0	0	1	0	0	0	1
Domestic Fowl		12	12	12	8	9	8	7	[illegible]	0	5	6	0	4	3	5
American Coot		35	42	50	40	55	22	46	[illegible]	69	31	24	35	25	5	1
Black-bellied Plover		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Semi-palmated Plover		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Killdeer		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	1	0
Long-billed Dowitcher		1	0	0	1	0	0	0	[illegible]	0	0	0	0	0	0	0
Willet		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Spotted Sandpiper		0	1	0	0	0	0	0	[illegible]	1	1	0	0	1	1	1
Knot		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Sanderling		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Greater Yellowlegs		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Heermann's Gull		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Ring-billed Gull		5	4	0	4	1	6	1	[illegible]	2	6	10	0	0	1	0
California Gull		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Bonaparte's Gull		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Western Gull		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Unk. Gull		0	0	0	0	0	0	0	[illegible]	2	0	0	10	4	0	22
Herring Gull		0	0	3	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Rock Dove		18	8	6	9	2	0	7	[illegible]	0	7	3	0	[illegible]	2	15
Mourning Dove		0	2	2	3	2	0	0	[illegible]	0	0	1	0	0	0	4
Anna's Hummingbird		2	3	1	2	1	1	0	[illegible]	1	2	0	0	0	0	0
Belted Kingfisher		0	1	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Olive-sided Flycatcher		3	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Scrub Jay		1	1	0	2	2	1	1	[illegible]	1	2	0	0	0	1	0
Common Crow		0	0	0	0	0	0	1	[illegible]	0	1	1	0	0	0	0
Common Bushtit		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Mockingbird		0	2	2	0	1	1	3	[illegible]	4	4	0	0	4	2	4
Phainopepla		0	0	0	0	0	0	[illegible]	[illegible]	0	0	0	0	0	0	0
Starling		0	0	0	0	0	0	0	[illegible]	5	0	0	0	2	0	[illegible]
Orange-crowned Warbler		0	2	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Warbler-Unknown		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
House Finch		0	30	0	0	1	0	0	[illegible]	67	12	20	0	22	6	21
White-crowned Sparrow		25	30+	45+	43	47	37	12	[illegible]	60	[illegible]	10	0	40	0	27
House Wren		0	0	0	0	0	1	0	[illegible]	0	0	0	0	0	2	0
Brush Rabbit		2	2	4	5	2	1	1	[illegible]	6	1	5	0	2**	3**	3*
[illegible]		0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0
Cat		0	1	0	0	0	0	0	[illegible]	0	0	0	0	0	0	0

* 1 [illegible]
** [illegible]

APPENDIX THREE. BIRDS COUNTED IN MORNING AND AFTERNOON ON 11 DAYS IN 1979.

	Jan. 28 AM	Jan. 28 PM	Feb. 4 AM	Feb. 4 PM	Feb. 11 AM	Feb. 11 PM	Feb. 17 AM	Feb. 17 PM	Feb. 25 AM	Feb. 25 PM	Mar. 4 AM	Mar. 4 PM	Mar. 12 AM	Mar. 12 PM	Mar. 18 AM	Mar. 18 PM	Apr. 2 AM	Apr. 2 PM	Apr. [illegible] AM	Apr. [illegible] PM	Apr. 11 AM	Apr. 11 PM
Pied-billed Grebe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Eared Grebe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Western Grebe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Double-cr. Cormorant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0
Green Heron	1	0	0	2	0	0	0	0	0	0	0	1	0	[illegible]	0	0	0	0		0	1	0
Snowy Egret	0	0	1	0	0	0	0	0	0	0	0	1	0		0	0	0	1		[illegible]	[illegible]	[illegible]
Mallard ♂	27	41	25	35	35	14	25	14	37	21	54	27	2[illegible]	2[illegible]	21	0	37	37	[illegible]	25	25	26
♀	7	21	7	22	12	6	19	7	12	13	12	16	14	13	7	0	14	16		2[illegible]	0	0
Scaup	17	16	4	30	9	23	1	10	1	18	15	[illegible]	0	0	1	0	0	0		[illegible]	0	0
	0	11		9	0	2		2	3	15	7	2	0	1	2	0	6	0		0	0	0
Wigeon	0	0	0	0	0	0	0	0	0	0	0	[illegible]	0	0	0	0	0	0		0	0	0
Muscovy	4	2	13	2	12	10	0	0	[illegible]	4	11	8	7	9	0	0	2	13		10	[illegible]	10
Peking Duck	19	6[illegible]	56	46	5[illegible]	27	1[illegible]	[illegible]	80	50	67	72	40	50	6[illegible]	0	55	50*		68	4[illegible]	29
California Quail	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		0	1	0
Domestic Fowl	3	7	8	9	7	6	2	3	0	4	5	1	3	2	0	0	4	2		3	3	2
American Coot	53	64	22	67	40	21	37	21	69	70	31	19	2[illegible]	40	33	[illegible]	25	20		18	1	3
Black-bellied Plover	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Semi-palmated Plover	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Killdeer	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Marbled Godwit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-billed Dowitcher	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
Willet	0	1	0	1	0	0	1	1	1	1	1	1	0		0	0	1	0	1	0	1	0
Spotted Sandpiper	0	0	0	0	0	0	0	0	0	1	0	0	0		0	0	0	0		0	0	0
Knot	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sanderling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Greater Yellowlegs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Heermann's Gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Ring-billed Gull (adult)	1	1	0	92	1	0	2	1	2	0	6	4	1	0	0	0	0	0		0	0	0
(juvenile)		63										40	8	0	0	0	0	0		0	0	0
California Gull (adult)	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
(juvenile)	0	3	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0
Bonaparte's Gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Western Gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		0	0	0
Unid. gull	0	0	0	0	0	53	0	54	0	125	0	0	0	125	10	0	4	0	0	60	22	50
Herring Gull	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Rock Dove (Pigeon)	2	10	3	28	7	0	2	5	0	0	7	14	1	21	0	0	4	43		37	11	0
Mourning Dove	2	2	0	0	0	0	0	2	0	0	0	0	1	1	0	0	0	5		0	0	0
Anna's Hummingbird	1	0	1	0	0	0	1	0	1	1	2	0	0	0	0	0	0	1		0	0	0
Belted Kingfisher	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0		0	0	0
Olive-sided Flycatcher	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Scrub Jay	2	0	1	0	1	0	1	0	1	1	2	0	0	0	0	0	0	1	1	0	0	0
Common Crow	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	3	0	0	0	0	0
Common Bushtit	0	0	0	0	0	0	0	0	0	0	0	0	[illegible]	0	0	0	0	0		0	0	0
Mockingbird	1	2	1	2	3	2	2	1	2	1	4	1	0	3	0	0	4	2		0	1	0
Phainopepla	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Starling	0	0	0	0	0	0	0	1	5	0	0	0	0	4	0	0	2	0		0	4	0
Orange-crowned Warbler	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Warbler Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
House Finch	1	1[illegible]	0	25		0	+	5	66	45	11	-	29	10	0	0	29	28		10	21	10
White-crowned Sparrow	47	7	37	1	17	0	13	37	69	63	+	-	16	1	0	0	40	0	1	0	27	22
House Wren	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Bush Rabbit	0	0	1	0	1	4	0	1	6	0	1	3	5	0	0	0	2**	2**	[illegible]	[illegible]	0	2*

APPENDIX FOUR. VEGETATION ANALYSIS

Robert J. Gustafson
Assistant Curator, Botany

At the extreme western boundary of the park along a chain-link fence is Vitis, a vigorous, large-leaved climber that has spread out in all directions along the ground. Behind this first fence is another chain-link fence which forms the northern boundary of a parking lot. Between these areas are planted a small assemblage of ornamentals including Hakea, Ligustrum, Prunus, Washingtonia, etc. Mesembryanthemum (or an allied genus) is a fairly common ground cover in this area. Along the southern boundary as one proceeds west to east, the dominant tree or shrub is Myoporum laetum, forming dense thickets along most of the southern border. Interspersed along the chain-link fence are plantings of Pyracantha. Salicornia virginica can be found along the waterline along most of the southern boundary but is absent along the northern shore. Above the Salicornia one finds interspersed here and there planting of Pinus, Callistemon, Eleagnus, Podocarpus, Alnus, Cupressus and Eucalyptus. Several trees of Eucalyptus are planted toward the southeastern end. A Melaleuca is growing at the extreme southeastern boundary. Where the water channel narrows in this same area the Salicornia is more prominent along with Artemisia, Chrysanthemum, Foeniculum, Picris, annual grasses, Raphanum, Brassica, Pennisetum, Lactuca, etc. (all introduced weeds except the Artemisia which is native). Paralleling the bike path on the eastern perimeter are plantings of Cistus, Platanus, Meleleuca, Eriobotrya, Hibiscus, Schinus, Pinus, and Rhus laurina (a native plant). Interspersed among these ornamentals are Atriplex semibaccata, Conyza, Lolium, Sorghum, Avena, Salsola, Amaranthus, Plantago, Heliotropium, Convolvus, Anagallis, and Cortaderia. The northern boundary is almost solely Myoporum along with 1 Washingtonia and 1 Lagunaria patersonii. The fence has sporadic plantings of Pyracantha along it. Ditchgrass (Ruppia maritima) is in the flood control basin.

From a botanical viewpoint this area is extremely uninteresting, since hardly any native vegetation is in evidence. If the area were replanted with native plants and could somewhat approximate a coastal sage community flanking the flood control basin, more native birds might be induced to nest in this area. Recommended plantings of Rhus laurina, R. integrifolia, Salvia mellifera, Encelia californica, Haplopappus venetus, Baccharis pilularia consanguinea, Atriplex lentiformis, to mention a few, could certainly enhance the park.

PLANT LIST

Hakea sp.	Pincushion Tree
Prunus sp.	
Ligustrum sp.	Privet
Washingtonia sp.	Fan-Palm
Vitis sp.	Wild Grape
Mesembryanthemum (or an allied genus) sp.	Ice-Plant
Myoporum laetum	Myoporum
Pyracantha sp.	Firethorn
Salicornia virginica	Pickle Weed
Baccharis pilularis	Coyote Brush
Callistemon sp.	Bottlebush
Eleagnus sp.	Oleaster
Podocarpus sp.	Podocarpus
Alnus sp.	Alder
Cupressus sp.	Cypress
Eucalyptus sp.	Blue-gum
Melaleuca sp. (2 different species)	Honey Myrtle
Artemisia douglasiana	Mugwort
Chrysanthemum coronarium	Garland Chrysanthemum
Foeniculus vulgare	Fennel
Picris echioides	Bristly Ox-tongue
Raphanus sativus	Wild Radish
Brassica nigra	Black Mustard
Pennisetum setaceum	Fountain Grass
Lactuca serriola	Wild Lettuce
Platanus sp.	Sycamore
Eriobotrya japonica	Loquat
Hibiscus rosa-sinensis	Hibiscus
Pinus sp.	Pine
Schinus molle	Peruvian Pepper-tree
Cistus cf. *purpureus*	Rock Rose
Rhus laurina	Laurel Sumac
Conyza bonariensis	Horseweed
〃 *canadensis*	〃
Lolium multiflorum	Ryegrass
Bromus rigidus	Ripgut Grass
〃 *mollis*	Soft Chess
〃 sp.	
Sorghum cf. *halepense*	Johnson Grass
Avena fatua	Wild Oats
Plantago lanceolata	English Plantain
Anagallis arvensis	Pimpernal
Amaranthus sp.	Amaranth
Heliotropium curassavicum oculatum	Wild Heliotrope
Convolvulus sp.	Bindweed
Cortaderia sellowiana	Pampas Grass
Lagunaria patersonii	Lagunaria
Ruppia maritima	Ditchgrass
Cynodon dactylon	Bermuda Grass

ORNITHOLOGICAL STUDY

OF

BIRD CONSERVATION AREA

MARINA DEL REY, CALIFORNIA

1 9 7 4

Carter Schleicher
Humboldt State College

APPENDIX F

TABLE OF CONTENTS

LIST OF FIGURES

I. PURPOSE

Reasons for Bird Conservation Area Study

There are three reasons to have conducted the study on the area termed Bird Conservation Area. First, there was the necessity of determining the species of birds using the area in its present condition. Secondly, it was desirable to determine whether the Bird Conservation Area was used to its potential. Finally, the study would help to establish guidelines for a management program.

II. DATA

The following data has been based on observations from June 14, 1973 through November 30, 1973, during unusual weather conditions. This past summer was not a usual one. The temperatures were lower than normal. The amount of fog and haze were greater than normal. The sun was out bright and hot three weekends all summer.

Bird Species Present at Different Times of the Day

The day was divided into the following three periods: morning, afternoon and evening. Morning was set as that time before twelve o'clock noon. The parameters of afternoon were twelve noon to five o'clock. Evening was considered to be that time after five p.m.

Morning. The primary species using the area are resident terrestrial birds such as Starlings, Mockingbirds, Scrub Jays and Rock Doves. Gulls increased usage after the 1st of November.

Bird species that are compatible with man were of greater abundance (Fig. 1). These species included Coots, Rock Doves and Starlings.

Afternoon. There was an average increase of three hundred forty-three birds from the morning count to the afternoon count. Six species had increased close to 100% or greater (Fig. 2). The species and percentages are as follows:

Species	% (Approx.)
Gulls	177
House Finch	77
Rock Doves	100
Spotted Sandpiper	
Starlings	129
Wh. Cr. Sparrow	567

Shore birds as a group increased 1200% from morning to afternoon.

Evening. A 23% decrease occurred between afternoon and night. Seven species increased their numbers over the afternoon. Four species are shore birds, one water fowl specie, one terrestrial and one fish eater. The species and percentages are as follows:

Species	% (Approx.)
Belted Kingfisher	50
Coot	14
House Finch	49
Great Blue Heron	150
Killdeer	500
Spotted Sandpiper	98
Snowy Egret	300

The number of sightings of shore birds as a group increased 138% over the number of afternoon sightings. Terrestrial bird sightings decreased from the number of sightings during the afternoon. (Compare Fig. 3 with Fig. 2).

Bird Species Present During Different Weather Conditions

Clear and Sunny. Twenty-seven of the thirty-five bird species were sighted on sunny days (Appendix A). This would appear normal. The sun ripens berries, increases the number of available insects flying, so the birds would be out also.

Cloudy. Again twenty-seven of the thirty-five species were sighted on cloudy days (Appendix B). Four of the twenty-seven species increased the number of sightings during cloudy days. The remaining twenty-three species decreased in the number of sightings. The difference between total of sightings during sunny days and cloudy days is an insignificant number.

Precipitation. Seventeen species appeared on days of precipitation, (Fig. 4), which accounts for only 111 individuals. This is a decrease of 88% from the number of individuals that appeared during sunny days and a decrease of 72% from the number of individuals on cloudy days. This is normal. Birds usually seek shelter or leave the area during precipitation.

Terrestrial Plant Utilization

Plant utilization was divided into four categories as follows: food, perching, cover and nesting. Plants were put into these categories based on observations.

Food. Plant species used for food.

Chrysanthemum

Yellow Sweet Clover
Castor Bean
Loquat
Pyracantha

Perch. Plant species used for perching.

Eucalyptus
Pepper Tree

Ca. Sycamore
Tree Tobacco

Myoporum

Bottle Brush

Rumex

Chrysanthemum

Fennel
Loquat

Fremontia

Castor Bean
Bouganvillea

Cover. Plant species used for cover.

Eucalyptus
Salicornia
Myoporum
Pepper tree
Conifer
Grapes
Pampas Grass

Nesting. Birds did not use the Bird Conservation Area for nesting.

Other Food Sources

The other food sources are the following: fish, insects, invertebrates in the mud flats, aquatic vegetation. The number of times the above sources were used are illustrated in Figs. 1 thru 4.

Fish
Insects
Mud Flats
Aquatic Vegetation

Data from Similar Areas

The data consists of the bird lists for the similar areas (See Table 1). These areas have been picked due to similar aspects of our Bird Conservation Area. The areas chosen are Marina del Rey, Hughes property south of Ballona Creek, Bolinas Lagoon and Whittier Narrows Wild Life Sanctuary.

Marina del Rey. The Marina del Rey data is comprised from the 1968, 1970, 1971 and 1972 Christmas counts conducted by the Los Angeles Audubon Society. This area encompasses Ballona Creek, entrance channel and basins of Marina del Rey, Venice Canal area and the land that constitutes Marina del Rey.

Hughes Property. Data concerning Hughes property is taken again from the 1968, 1970, 1971 and 1972 Christmas counts by the Los Angeles Audubon Society. This land runs from the west end of the runway to behind the apartments in Playa Del Rey, south from Ballona Creek to the hills of Playa Del Rey. This area's data and Marina del Rey's data were picked to give us a look as to what bird species are in this area.

Bolinas Lagoon. Bolinas Lagoon gives us bird life typical of a salt water lagoon, salt water estuary, grassland and upland areas. Bolinas Lagoon consists of 1,400 acres of salt water, tidal mudflats, marsh lands and sandbars. Bolinas Lagoon bird list came out of the blue cover manual prepared by California Department of Fish and Game on Bolinas Lagoon's natural resources.

Whittier Narrows. Whittier Narrows Wild Life Sanctuary is operated by Los Angeles County. It is 127 acres with a five-acre pond. This area was chosen to give us data for another area in Southern California. This area represents what can be done through manipulation. Their man-made pond supported breeding water fowl.

TABLE I. BIRD SIGHTING LIST COMPARISONS FROM SIMILAR AREAS

	Bird Cons. Area	MdR	Hughes	Bolinas Lagoon	Whittier Narrows
Loons					
Common Loon		x		x	
Arctic Loon		x		x	
Red-throated Loon		x	x	x	
Grebes					
Red-necked Grebe		x			
Horned Grebe		x	x	x	
Eared Grebe		x	x	x	
Western Grebe		x	x	x	
Pied-billed Grebe	x	x	x	x	
Pelicans and Allies					
White Pelican		x		x	
Brown Pelican		x		x	
Double-crested Cormorant		x		x	
Brandt's Cormorant				x	
Pelagic Cormorant		x		x	
Herons and Allies					
Great Blue Heron	x	x		x	x

	Bird Cons. Area	MdR	Hughes	Bolinas Lagoon	Whittier Narrows
Common Egret	x			x	x
Snowy Egret	x	x		x	x
Green Heron	x	x	x	x	x
Black-crowned Night Heron				x	x
American Bittern		x			
Common Heron				x	
Water Fowl					
Harlequin Duck		x			
Black Brandt				x	
Mallard			x	x	x*
American Widgeon		x	x	x	x
Pintail		x	x	x	
Green-winged Teal		x		x	
Blue-winged Teal	x				
Shoveller		x	x	x	
Red Head		x	x	x	
Canvas back		x		x	
Greater Scaup				x	
Lesser Scaup	x	x		x	
Common Golden-eye				x	
Buffle head		x		x	
White-winged Scoter		x		x	
Surf Scoter		x		x	
Common Scoter		x			
Ruddy Duck		x		x	
Common Merganser		x		x	
Red-breasted Merganser		x		x	
Vultures, Hawks & Falcons					
Turkey Vulture		x		x	
Bald Eagle				x	
White-tailed Kite		x	x		x
Sharp-skinned Hawk				x	x
Coopers Hawk				x	
Red-shouldered Hawk	x	x		x	x
Marsh Hawk		x	x	x	x
Osprey				x	
Sparrow Hawk	x	x	x	x	x
Gallinaceous Birds					
California Quail		x	x	x	x*
Rails & Coots					
Clapper Rail				x	

	Bird Cons. Area	MdR	Hughes	Bolinas Lagoon	Whittier Narrows
Virginia Rail				x	
Sora				x	
American Coot	x	x	x	x	x
<u>Shore Birds, Gulls</u>					
Mountain Plover			x		
Semi-palmated Plover		x	x	x	
Killdeer	x	x	x	x	x*
Black-bellied Plover	x	x	x	x	
Surfbird		x			
Ruddy Turnstone		x		x	
Black Turnstone		x	x		
Common Snipe		x	x		x
Long-billed Curlew		x	x	x	
Whimbrel		x	x	x	
Spotted Sandpiper	x	x	x		x
Wandering Tattler		x			
Willet	x	x	x	x	
Greater Yellow Legs		x	x	x	x
Lesser Yellow Legs				x	
American Golden Plover			x		
Least Sandpiper		x	x	x	x
Dunlun		x	x	x	
Dowitcher	x	x	x	x	x
Western Sandpiper		x	x	x	
Marbled Godwit		x	x	x	
Sanerling		x	x	x	
Red Phalarope		x		x	
Northern Phalarope				x	
Gulls	x	x	x	x	
Black-legged Kittiwake		x		x	
Forster's Tern		x		x	
Royal Tern				x	
Caspian Tern		x	x	x	
Least Tern		x	x		
<u>Owls</u>					
Barn Owl			x	x	x
Great Horned Owl				x	
Burrowing Owl		x	x		
<u>Swifts & Hummingbirds</u>					
White-throated Swift	x	x	x		x
Black-chinned Hummingbird				x	x*
Anna's Hummingbird		x	x	x	x*
Allen's Hummingbird				x	

	Bird Cons. Area	MdR	Hughes	Bolinas Lagoo	Whittier Narrows
<u>Kingfishers</u>					
Belted Kingfisher	x	x	x	x	x
<u>Woodpeckers</u>					
Red-shafted Flicker	x	x	x	x	x*
Acorn Woodpecker				x	
Downy Woodpecker				x	
<u>Perching Birds</u>					
Black Phoebe	x	x		x	x*
Say's Phoebe		x	x	x	
Western Flycatcher	x			x	
Tree Swallow				x	
Barn Swallow	x			x	
Scrub Jay	x	x		x	x*
Common Raven		x		x	
American Crow	x	x		x	x
House Wren		x			
Long-billed Marsh Wren		x		x	
Rock Wren		x			
Mockingbird	x	x	x		x*
American Robin		x	x	x	
Hermit Thrush		x	x	x	
Cedar Waxwing		x		x	x
Loggerhead Shrike	x	x	x	x	x*
Starling	x	x	x	x	x*
Hutton's Vireo				x	
Yellow Warbler				x	x
Audubon's Warbler		x	x	x	x
Common Yellow throat		x		x	
Wilson's Warbler	x			x	
House Sparrow	x	x	x	x	x*
Western Meadowlark		x	x	x	x*
Brewers Blackbird		x		x	
Purple Finch				x	
House Finch	x	x	x	x	x*
American Goldfinch	x			x	x
Lesser Goldfinch		x		x	x
Rufous-sided Towhee		x		x	x*
Brown Towhee		x	x	x	x*
Savannah Sparrow		x	x		
White-crowned Sparrow	x	x	x	x	x
Golden-crowned Sparrow		x		x	
Lincoln's Sparrow			x	x	
Song Sparrow	x	x	x		x*
Ash-throated Flycatcher	x				x*

* = Nesting - only valid count at Whittier Narrows. No nesting observed in Bird Conservation Area over a six-month period.

Whittier Narrows had also the following species:

Cinnamon Teal
Ring-necked Pheasant
Black-necked Stilt
Screech Owl
Western King bird
Common Bushtit
California Thrasher
Western Tanager
Blck-headed Grosbeak
Blue Grosbeak

Data from Other Observations

Surface of Basin. The surface of the basin is cluttered with papers, cans, bottles and other trash. The trash enters the basin through Flood Control District's storm drain on Washington Boulevard, and the easement from Oxford Avenue. Due to the fluctation of the tide, a portion of the trash is strewn onto the vegetation bordering the basin. Some of the trash helps to clog up the tide gates in the southwest corner of the basin. Bits of the trash are flushed into Basin E. A small portion sinks to the bottom.

In the summer and through the fall there is a vegetation bloom on the eastern third of the surface. The vegetation breaks up and a small portion finds its way to the tide gates and adds to their clogging, which decreases the flow through the gates. The majority of the vegetation falls to the bottom after the first storm in the fall.

Floor of the Basin. The floor is again cluttered with cans, bottles and other assorted garbage. The surface of the floor is from six inches to eighteen inches thick in decomposed matter, the thickest being where most of the matter of vegetation dropped. The eastern third of the floor is covered with a white cob-webby fungus. Again, we cannot ignore the correlation that the eastern third is where the majority of the surface vegetation dropped.

III. CONCLUSIONS

The Bird Conservation Area is not being used to its potential as a bird sanctuary. (See Data from Similar Areas). Our Bird Conservation Area does not offer the birds what they need in the following essential areas: food, cover, nesting.

Food

Terrestrial Species. Our bird sanctuary does not have the quantity of plants needed to produce the amount of food needed to attract the passing birds. The few plants we have are not producing to their capabilities as they are either planted in the wrong light or are overgrown by other plant species.

Waterfowl. Top smelt is the major species of fish. There are four generations present at a time. It seems to be adequate for fish eaters, though there are no fish in the eastern end. There seems to be a lack of quality and quantity of invertebrates and marsh plants on the tide flats. There is a definite lack of adquate submerged vegetation on the bottom. This lack of marsh food probably is inhibited by the trash, dirt and the scummy growth aided by storm drainage and lack of natural flushing.

Cover

Terrestrial Species. For the terrestrial species there is plenty of cover. We have for all practical purposes 100% cover on the land of which 90% is usable for the birds.

Waterfowl. Once again we lack a good marsh plant cover. When there is bad weather the waterfowl need tall, thick plants to shelter themselves. It is possible that the marsh plants have not really taken hold due to water and soil quality.

Nesting

The terrestrial birds and waterfowl did not use the Bird Sanctuary for nesting. There are various possibilities on why they did not. First, we did not offer them the plants with the right limb configuration to make a nest on. Secondly, the material needed to make a nest was of poor quality or in short supply. Third, we probably did not have on hand the necessary food for the mother and/or the young.

General Environment

The overall appearance is trashy. Since there was never any regular trash pickup schedule the papers, bottles and cans accumulated along the shoreline and can be seen by the passing public. Domestic animals get into the area through holes in the fence and harass the wildlife.

IV. RECOMMENDATIONS

These recommendations are set forth for ultimate development because of the good potential of the area.

Back Flushing System

We need to provide a back flushing system and/or route the storm water through the east end. The back flush system would minimize the eutrification of the Bird Conservation Area. Routing the storm water out through the east end would remove the trash from the Bird Conservation Area and cut down the amount of vegetational growth on the surface. Remove six to eighteen inches of decomposed matter from the floor of the basin.

Planting Development

The Bird Conservation Area is divided into 8 planting areas. (See Map 1).

Each planting area has its own plants to be taken out and its new replanting. (See Table 2)

Table 2. Planting Development

Area 1

Plants to be removed -

Eucalyptus
Pines
Myoporum
Pampus Grass

Plants to be planted -

17 California Sycamores
17 Willows

Area 2

Plants to be removed -

Pines
Grapes
Pampus Grass

Plants to be planted -

47 Pyracantha along the fence
14 California Sycamores on the slope of Parking Lot OT

Area 3

Plants to be removed -

Myoporum
Pines

Plants to be planted -

4 California Bay
4 California Sycamores

Area 4

Plants to be removed -

Pampus Grass
Oleander
Myoporum
Pines

Plants to be Planted -

34 Toyon

Area 5

Plants to be planted -

10 Coffeeberry
10 Elderberry

Area 6

Plants to be removed -

Myoporum

Plants to be planted -

150 Mulefat
45 Pyracantha

Area 7

Plants to be removed -

Myoporum

Plants to be planted -

100 Toyon

Area 8

Plants to be removed -

Salicornia
Spartina Grass

The high tide level should be lowered from 3.5' to 2.5'

Stocking

After the marsh plants are established, California Fish and Game will capture and stock an endangered species, the Clapper Rail.

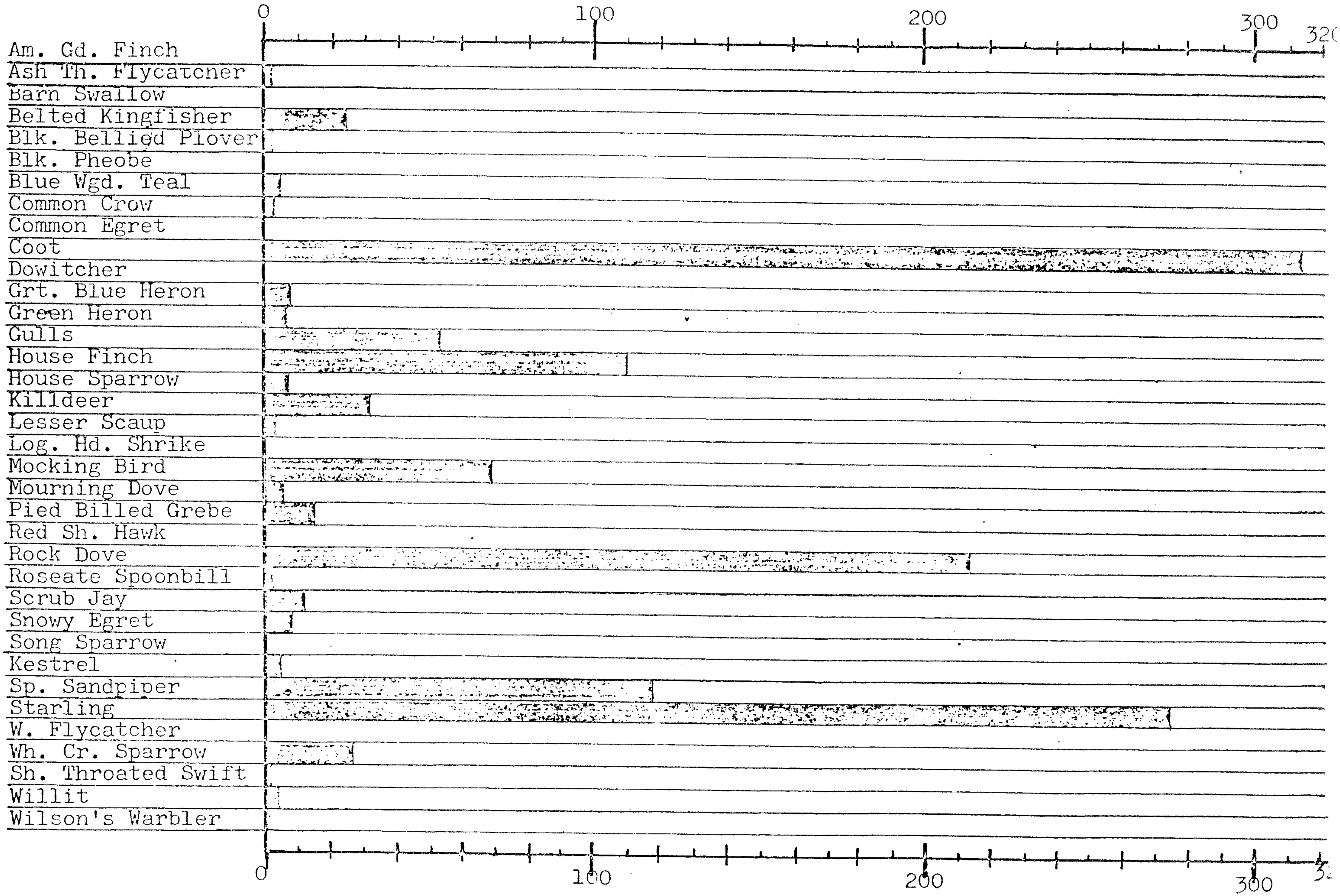
Access Ruling

There should not be any public access for a period of two years after all manipulation is completed. Thereafter, limited access by the public in the form of guided groups through the Bird Conservation Area.

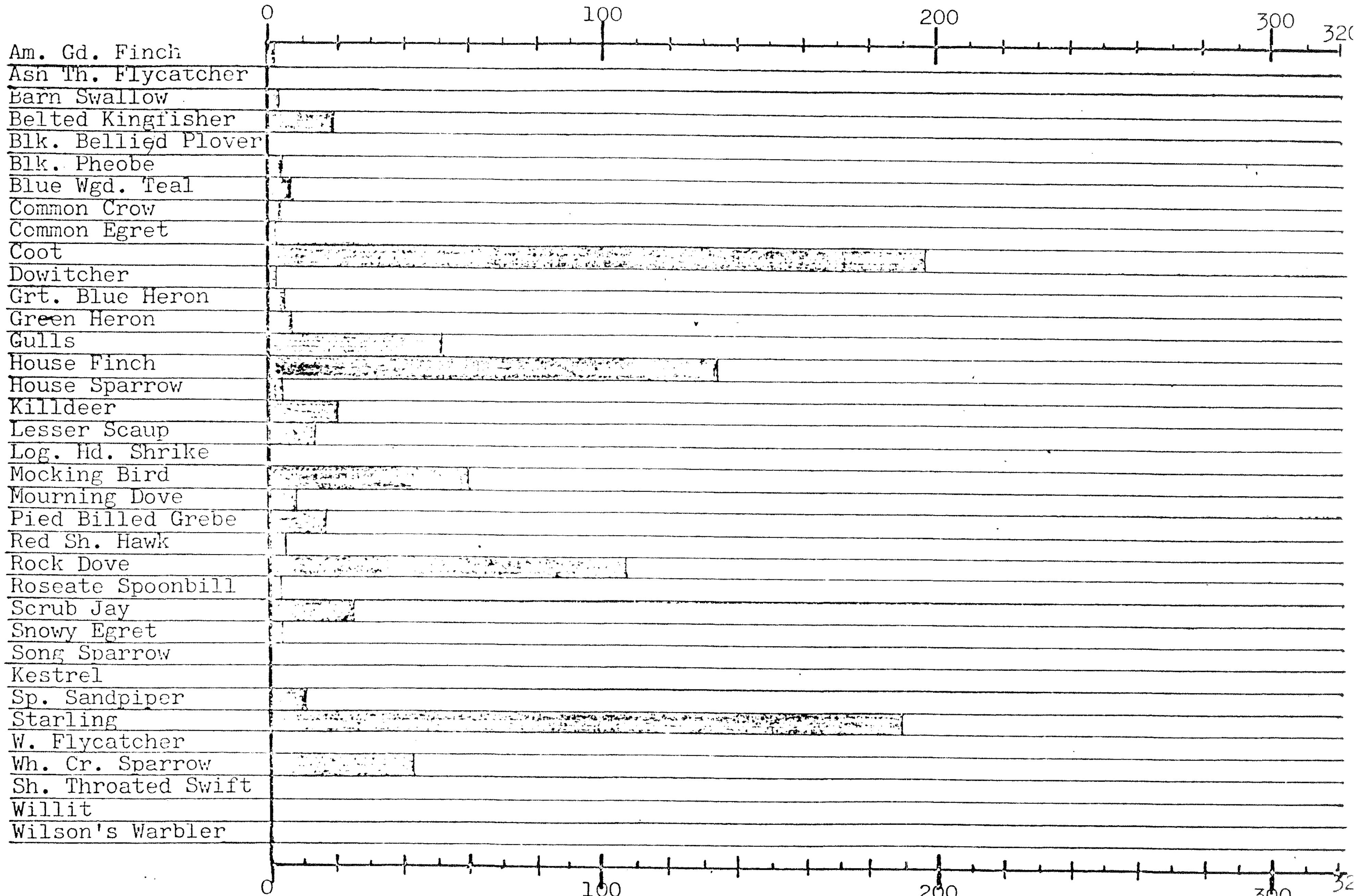
Maintenance

Periodic checking of the fence for holes in and under it so they can be fixed to keep the dogs out. A periodic trash pickup should be planned. Finally, constant removal of domestic fowl and mammals.

APPENDIX A



BIRDS OBSERVED ON SUNNY DAYS - AVERAGE NUMBER



APPENDIX B

BIRDS OBSERVED ON CLOUDY DAYS - AVERAGE NUMBER

APPENDIX C BIRD LIST

Common Name	Scientific Name
American Gold Finch	Spinus Tristis
Ash-Throated Flycatcher	Myiarchus Cinerascens
Barn Swallow	Hirundo Rustica
Belted Kingfisher	Megacergle Alcyon
Black Bellied Plover	Squatarola Squatarola
Black Phoebe	Sayornis Nigricans
Blue Winged Teal	Anas Discors
Common Crow	Corvus Brachyrhynchos
Common Egret	Casmerodius Albus
Coot	Fulica Americana
Dowitcher	Limnodromus Sp.
Great Blue Heron	Ardea Herodias
Green Heron	Butorides Virescens
Gulls	Larus Sp.
House Finch	Carpodacus Mexicanas
House Sparrow	Passer Domesticus
Killdeer	Charadrius Vociferus
Lesser Scaup	Aythya Affinis
Loggerhead Shrike	Lanius Ludovicianus
Mockingbird	Mimus Polyglottos
Mourning Dove	Zenaiduro Macroura
Pied-Billed Grebe	Podilymbus Podiceps
Red Shoulder Hawk	Buteo Lineatus
Rock Dove	Columba Livia
Roseate Spoonbill	Ajaja Ajaja
Scrub Jay	Aphelocoma Coerulescens
Snowy Egret	Leucophoyx Thula
Song Sparrow	Melospiza Melodia
Kestrel	Falco Sparverius
Spotted Sandpiper	Actitis Macularia
Starling	Sturnus Vulgaris
Western Flycatcher	Epidonax Difficilis
White Crowned Sparrow	Zonotrichia Leucophrys
White Throated Swift	Aeronautes Saxatalis
Willit	Catoptrophorus Semipalmatus
Wilson's Warbler	Wilsonia Pusilla

APPENDIX D REPTILE LIST

Southern Aligator Lizard	Gerrhonotus Multicarinatus

APPENDIX E AMPHIBIA LIST

Red-Eared Slider	Pseudemys Sp.

APPENDIX F MAMMAL LIST

Brush Rabbit	Sylvilagus Bachmani

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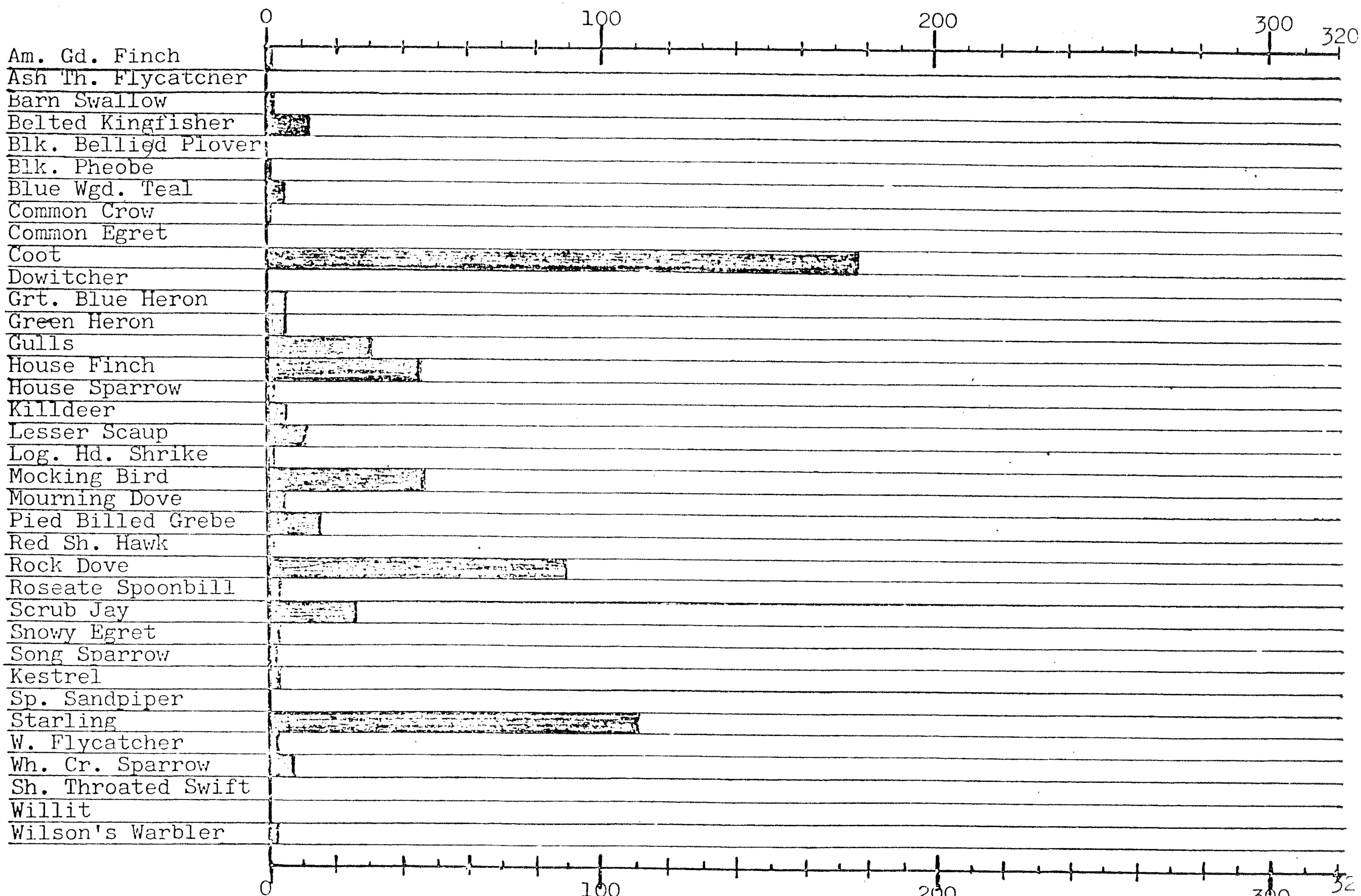


FIGURE 1 BIRDS OBSERVED IN THE MORNING - AVERAGE NUMBER

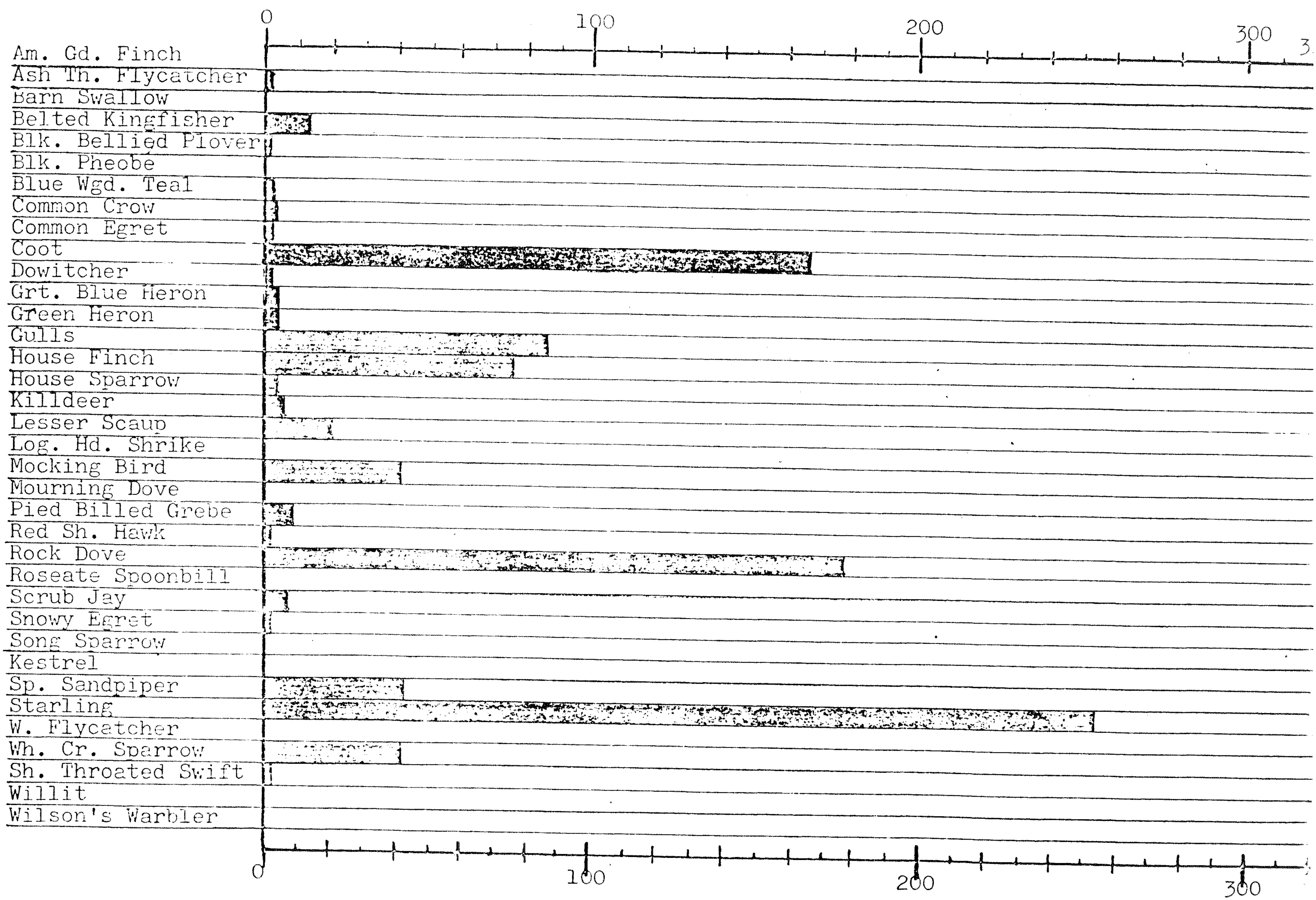


FIGURE 2 BIRDS OBSERVED IN THE AFTERNOON - AVERAGE NUMBER

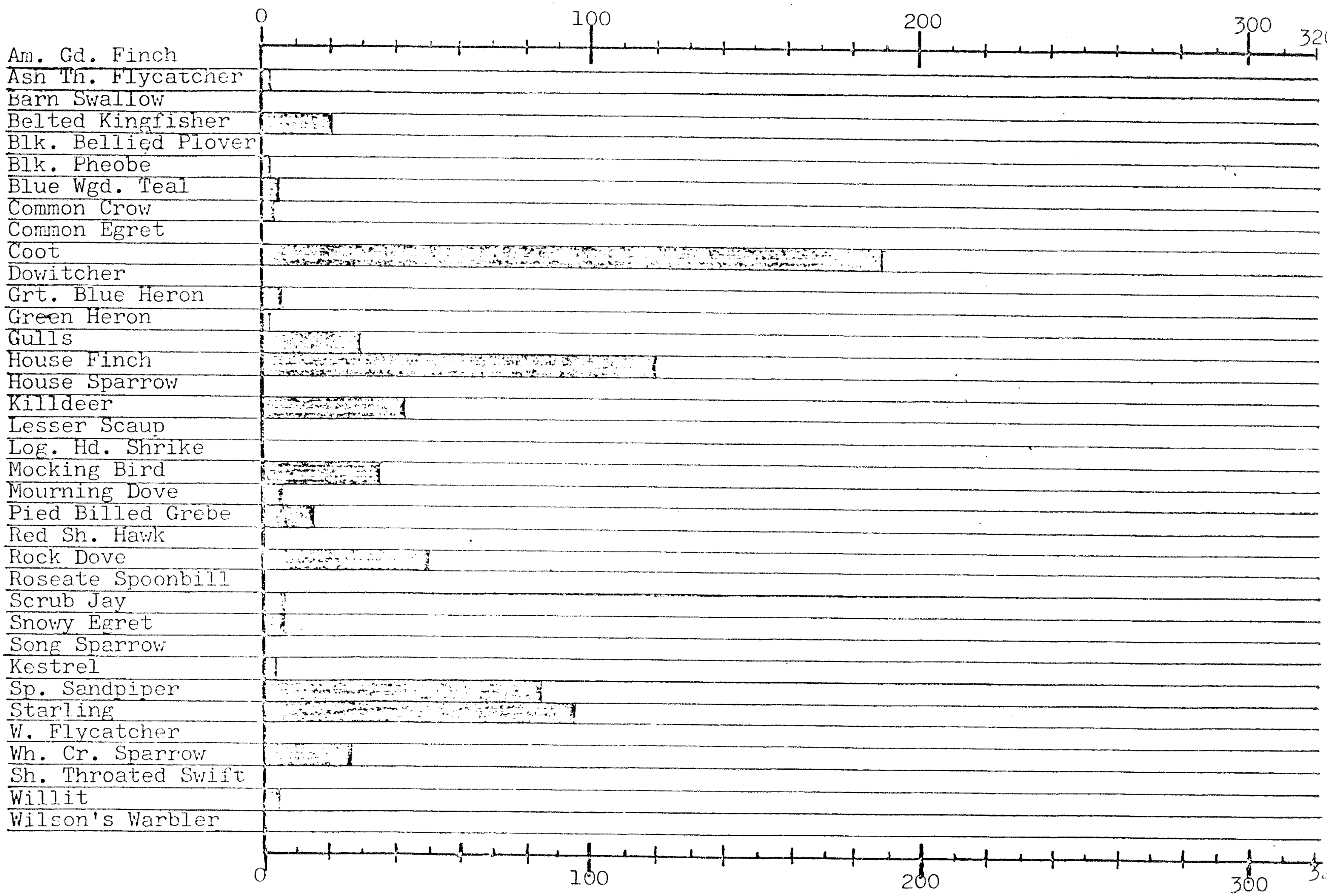


FIGURE 3 BIRDS OBSERVED IN THE EVENING - AVERAGE NUMBER

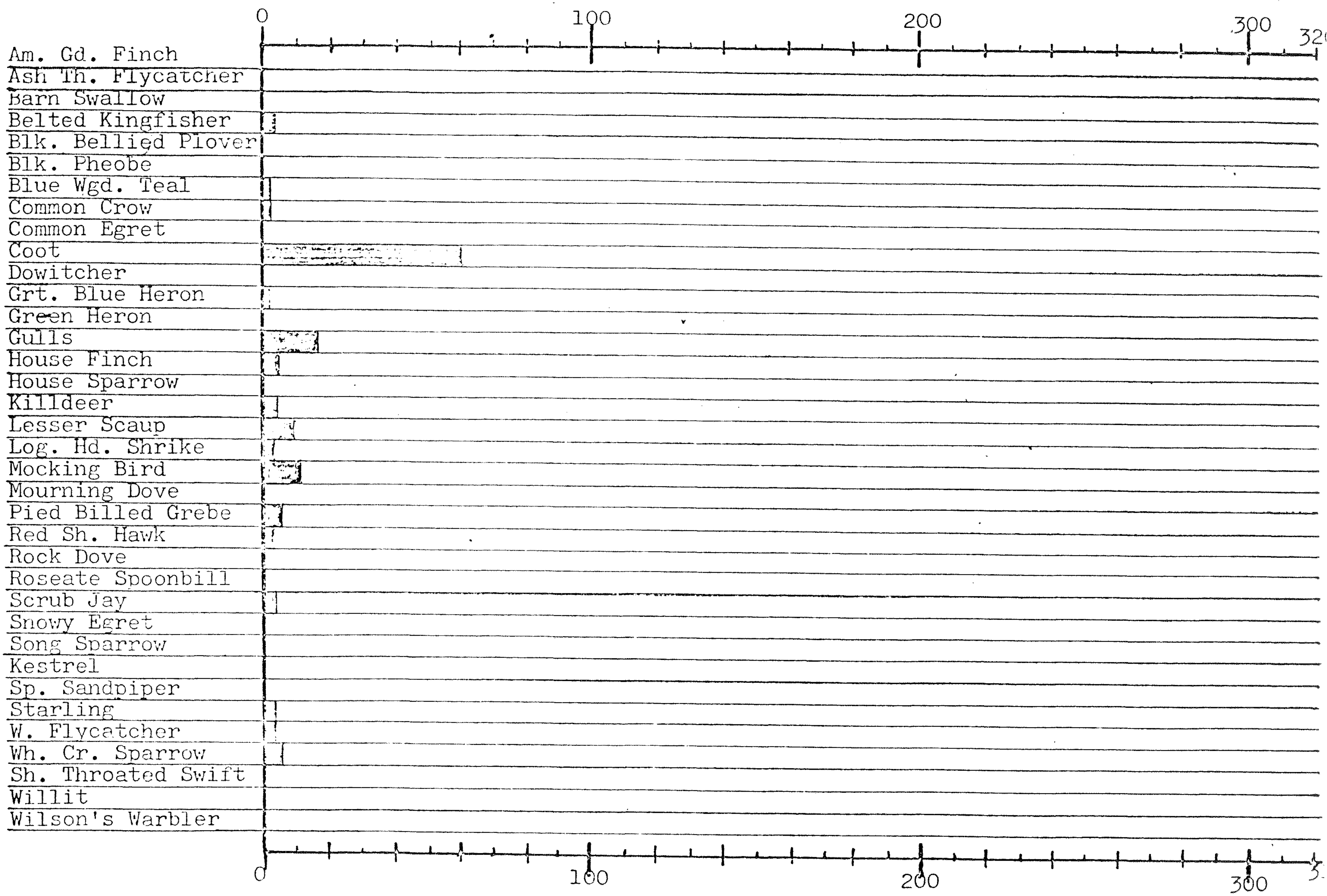
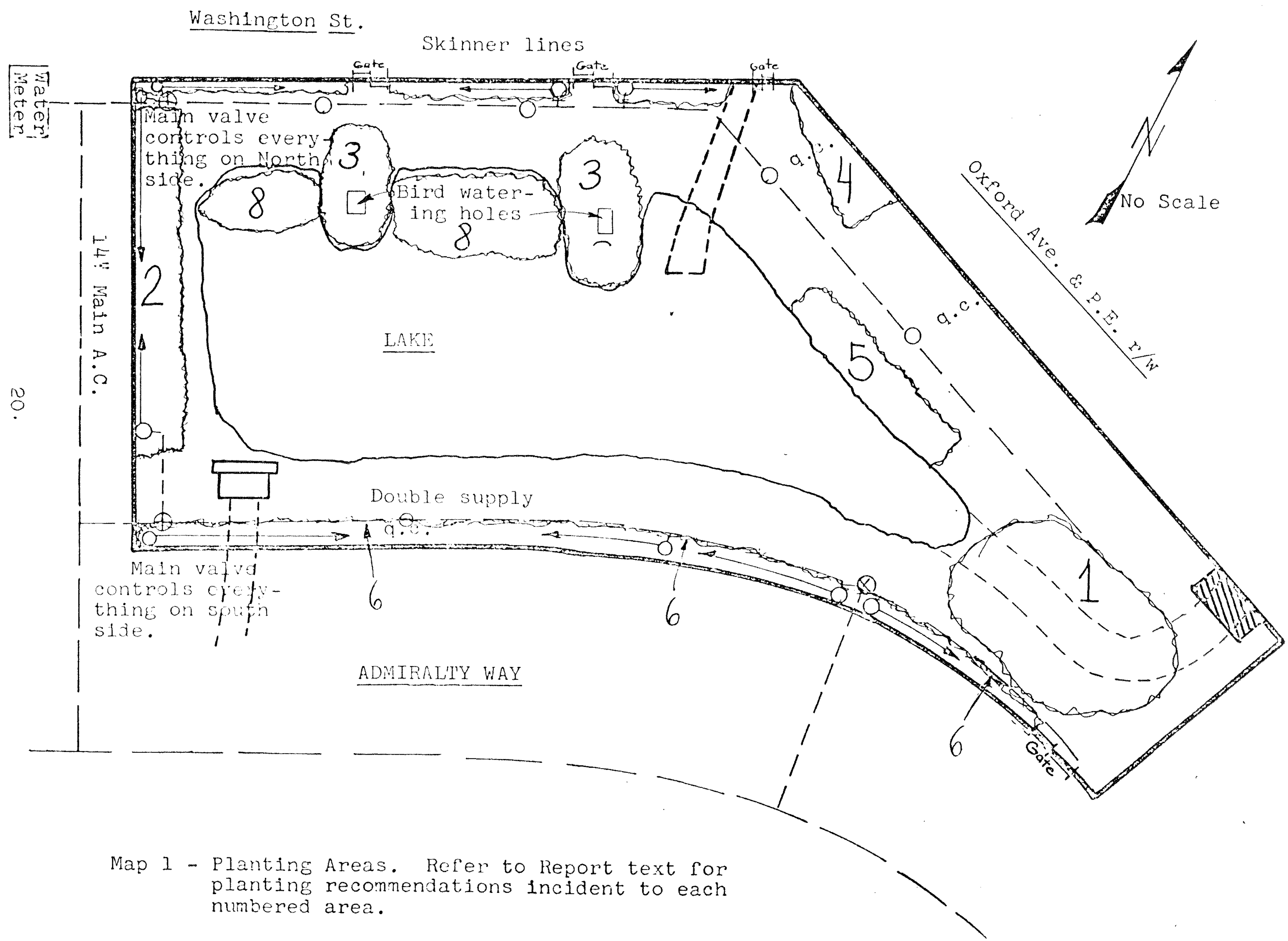


FIGURE 4 BIRDS OBSERVED ON RAINY DAYS - AVERAGE NUMBER



Map 1 - Planting Areas. Refer to Report text for planting recommendations incident to each numbered area.

ATTACHMENT E: JURISDICTIONAL DELINEATION

Wetland Delineation of the Oxford Basin Marina Del Rey, Los Angeles County, California

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October 1, 2010

1.0 INTRODUCTION

1.1 Site Description

Oxford Retention Basin (Oxford Basin) is located in the Marina Del Rey Harbor, Los Angeles County, California. It is located approximately 1 mile east of Venice Beach, and 600 feet north of the Marina del Rey Harbor (Figure 1-1). It is south of Washington Boulevard, north of Admiralty Way, east of an existing public parking lot, and west of Yvonne B. Burke park (Figure 1-2). The property occurs on the Venice 7.5' U.S.G.S. topographic map and is generally located at the following UTM coordinates: 11S 03 65 584m E □37 61 458mN. Oxford Basin occurs in an area that was historically part of the Venice Marshes (see Appendix A).

Water flows into Oxford Basin from culverts beneath Washington Boulevards and Admiralty Way, and from a pump station at the eastern end of the basin. There is also a tidal gate at the southwest corner of the basin, which connects with the end of Basin E in Marina del Rey Harbor. This gate allows for tidal fluctuations to occur in the Basin and the drainage of flood flows that come into Oxford Basin from the surrounding neighborhood. Recently, low flows (urban runoff) from Admiralty Way culvert were diverted out of Oxford Basin, through a low flow diversion structure that was developed to improve Oxford Basin's water quality.

The presence of the tidal gate means that the tidal prism within the basin (the volume of water in the basin between mean high tide and mean low tide, or the volume of water leaving the basin at ebb tide) does not completely correspond to the tidal fluctuations that occur within Marina del Rey Harbor. In addition, the gates may be closed and the basin pumped out before the rainfall events, so the tidal fluctuations may be interrupted for short periods during the winter months or for various operations conducted within the basin during other seasons of the year. In general, the basin maintains tidal fluctuations for most of the year, and the levels of the tidal prism define the locality of wetlands found within Oxford Basin.

This wetland delineation was completed as part of advanced planning by the County Department of Public Works, which seeks to increase Oxford Basin's effectiveness as a flood control facility and to improve its aesthetics and passive recreation opportunities.

Figure 1-1. Oxford Basin is located on the northern boundary of Marina del Rey, Los Angeles County, California.

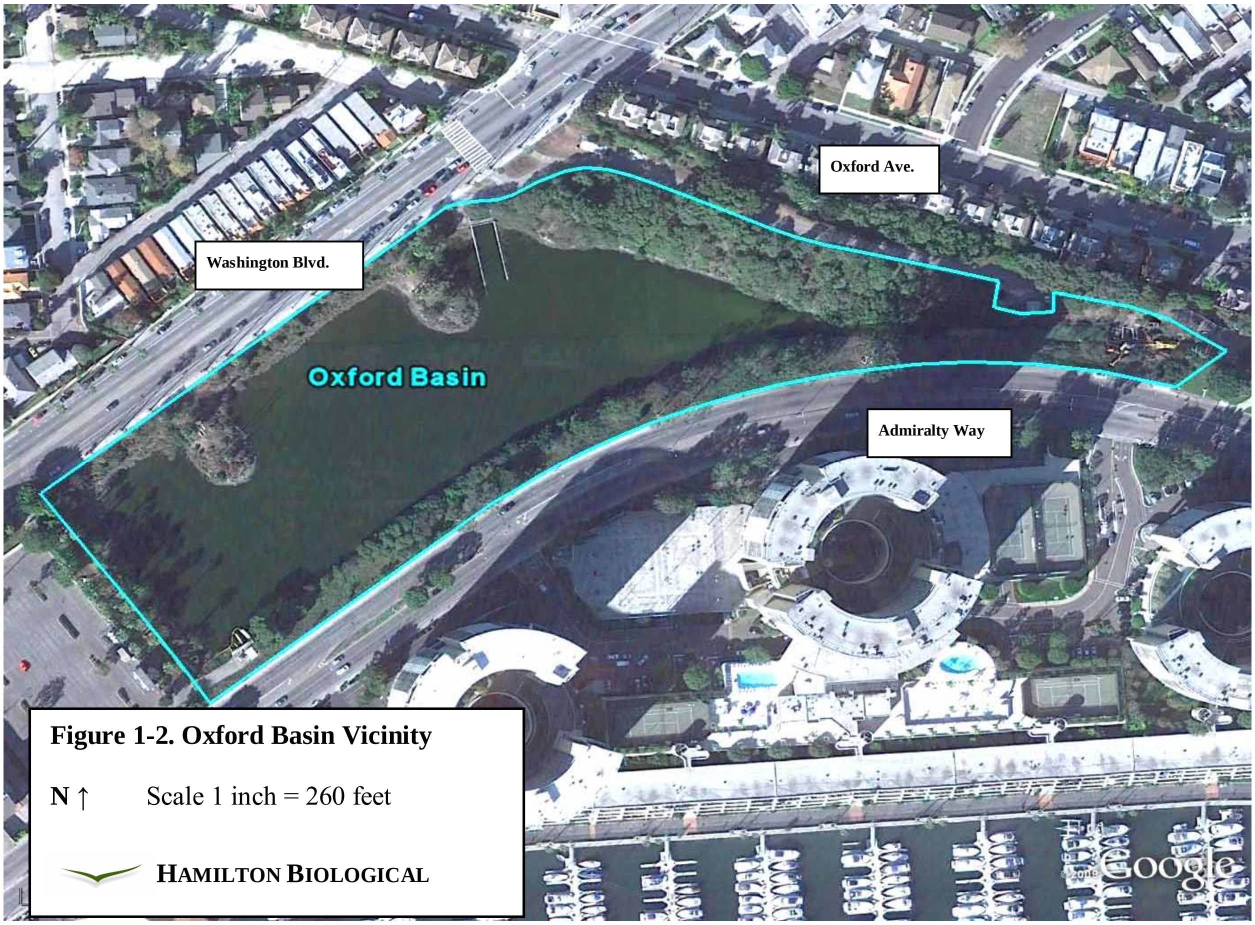


Figure 1-2. Oxford Basin is bounded on the north by Washington Boulevard and Oxford Avenue, and on the south by Admiralty Way.

1.2 Regulatory Overview

1.2.1 U.S. Army Corps of Engineers (Corps)

1.2.1.1 Clean Water Act

The Corps regulates discharges of dredged or fill material into Waters of the United States under the provisions of Section 404 of the Clean Water Act. Waters of the United States (Waters) includes wetlands and nonwetland habitats, including oceans, bays, ponds, lakes, rivers, and streams, which may be used for interstate commerce. It also includes tidal areas, mudflats, sandflats, tributaries of Waters, along with wetland and adjacent wetland areas. Wetlands are a type of the Waters of the United States, and are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, under normal circumstances, a prevalence of vegetation adapted to saturated soil conditions.

The determination of those wetland sites under the Corps jurisdiction is determined by the presence of wetland vegetation, hydric soils, and suitable hydrology, using the methodology defined in the arid west region supplement to the 1987 Corps wetland delineation manual (Wetland Training Institute 1991, U. S. Army Corps of Engineers 2008).

1.2.1.2 Rivers and Harbors Act (Section 10)

The Corps also regulates any obstruction or alteration to Navigable Waters of the United States. The jurisdiction for these Waters extends to the high tide line, including spring high tides or other high tides that occur with regular frequency, and to the ordinary high water mark in non tidal waters. Navigable Waters are typically within the same boundaries as the Waters of the United States, but wetlands are not typically found within Navigable Waters, with the exception of some tidal marshes.

1.2.2 California Coastal Commission

The California Coastal Commission regulates the filling, dredging or diking of wetlands within the coastal zone. Generally the 1981 Statewide interpretive guidelines for wetlands and other wet environmentally sensitive habitats are used to determine the presence of wetlands within the coastal zone. These guidelines provide a definition of a wetland and note that the presence of hydrophytes and□or hydric soils are useful to identify wetlands, but that the Commission will take into account all relevant information in making wetland determinations. Typically, a single wetland parameter is all that is required to define a wetland under these guidelines.

The Coastal Commission (1981) considers most wetlands to be Environmentally Sensitive Habitat Areas (ESHAs), but man-made flood-control facilities like Oxford Basin are not typically called out as ESHAs; no ESHAs are identified in the Marina Del Rey Local Coastal Plan (County of Los Angeles 1996).

1.2.3 Regional Water Quality Control Board (RWQCB)

The RWQCB is responsible for implementing Section 401 of the Clean Water Act, which typically refers to the same jurisdictional area recognized by the Corps. As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit system controls potential water pollution by regulating point sources that discharge into Waters of the United States. The RWQCB is also responsible for regulatory waste discharge under the Porter-Cologne Act.

Currently, the County of Los Angeles has a NPDES permit for the discharge of storm waters into the ocean. The RWQCB is currently under a federal consent decree for developing targeted compliance for storm water pollutants. In Marina Del Rey Harbor, this includes a targets for complying with total maximum daily loads (TMDL) of bacteria in dry and wet conditions (effective as of March 2004) and TMDL of toxic materials (effective as of 18 March 2006).

1.2.4 California Department of Fish and Game (CDFG)

Sections 1600□1603 of the California Fish and Game Code empower CDFG to issue agreements that regulate the alteration of any river, stream, or lake, where fish and wildlife resources may be affected. Jurisdictional determination of wetlands are not generally conducted for CDFG agreements, since the boundary of the jurisdictional area is generally the banks of the stream or shoreline of the lake. However, CDFG also extends jurisdiction to the riparian habitat along the stream course, or along the lake shore, so the jurisdictional area can extend beyond the bank or shoreline and beyond the defined Corps jurisdictional wetland areas.

2.0 METHODOLOGY

An initial step was to conduct a literature review on the current regulations, information on the wetland parameters, and any documentation on the distribution of wetlands in the study area. This included the procedural information in the arid lands supplement (Corps 2008) along with the 1987 Corps wetland delineation manual (Wetland Training Institute 1991), and regulatory information on the Corps jurisdiction of Waters of the U.S. (Cylinder 1995, 2004).

Background information on the three wetland parameters in the area were evaluated for this project. There were no published soil surveys for this portion of Los Angeles County and information on the distribution of soils in this area is not generally available. Descriptions of the plant communities and species within the Basin have recently been developed by Bramlet (2010).

Current National Wetlands Inventory maps (U.S. Fish and Wildlife Service 2010) were reviewed to evaluate any previous description of the wetlands within this facility. The inventory erroneously mapped Oxford Basin as "palustrine wetlands" (referring to freshwater marshes or bogs), apparently assuming no tidal connection to the harbor.

The Local Coastal Plan for Marina del Rey (County of Los Angeles 1996) and associated information from the California Coastal Commission (2002) were also examined for this study, principally to determine any special status or conditions on the Oxford Basin that is noted within the LCP for this area.

Reviews of historic topographic maps and older aerial photos were conducted to determine the potential vegetation types occurring on the project site, before construction of the Basin. Reviews of historic topographic maps (USGS 1924, 1934, 1942) and aerial photos from 1952 and 1972 (www. historicaerials.com) were conducted to establish the previous land use and possibly historical vegetation within the area of the Basin (see Appendix A).

During January, March, April and May of 2010, surveys were conducted throughout the fenced area around the Basin in order (1) to document and catalog the plant species occurring in this area, and (2) to map and describe the plant communities present in this area (Bramlet 2010).

The wetland delineation was conducted on 12 June 2010 by David Bramlet and Rick Riefner. The study employed the three-criteria delineation methodology currently defined by the arid lands supplement. Please refer to Appendix B for the wetland determination field forms and a map of the sample sites.

At each sample site a soil pit was dug, soils were examined, hydrologic indicators were evaluated, and an assessment of each plant species layer was conducted. Samples consisted of a single sampling locality if the wetland boundary was clearly definable, or a series of two or more sampling localities in areas where further evaluation was required to determine the Corps jurisdictional boundaries. The location of each sample site was recorded on an aerial photo of the site and also documented using a Garmin 60 CSX GPS receiver.

The Corps jurisdiction boundaries, along with the California Coastal Commission wetland boundaries, were delineated on an aerial photo at scale 1 inch equals 100 feet. On this photo, vegetative canopy obscured the rather narrow bands of wetland vegetation in some parts of the Basin, and in those areas the mapping of wetland boundaries were estimated in the field. As the wetlands in these areas occur in a narrow, regular band along the edge of the Basin, their boundaries could be estimated in the field with no substantial loss of accuracy.

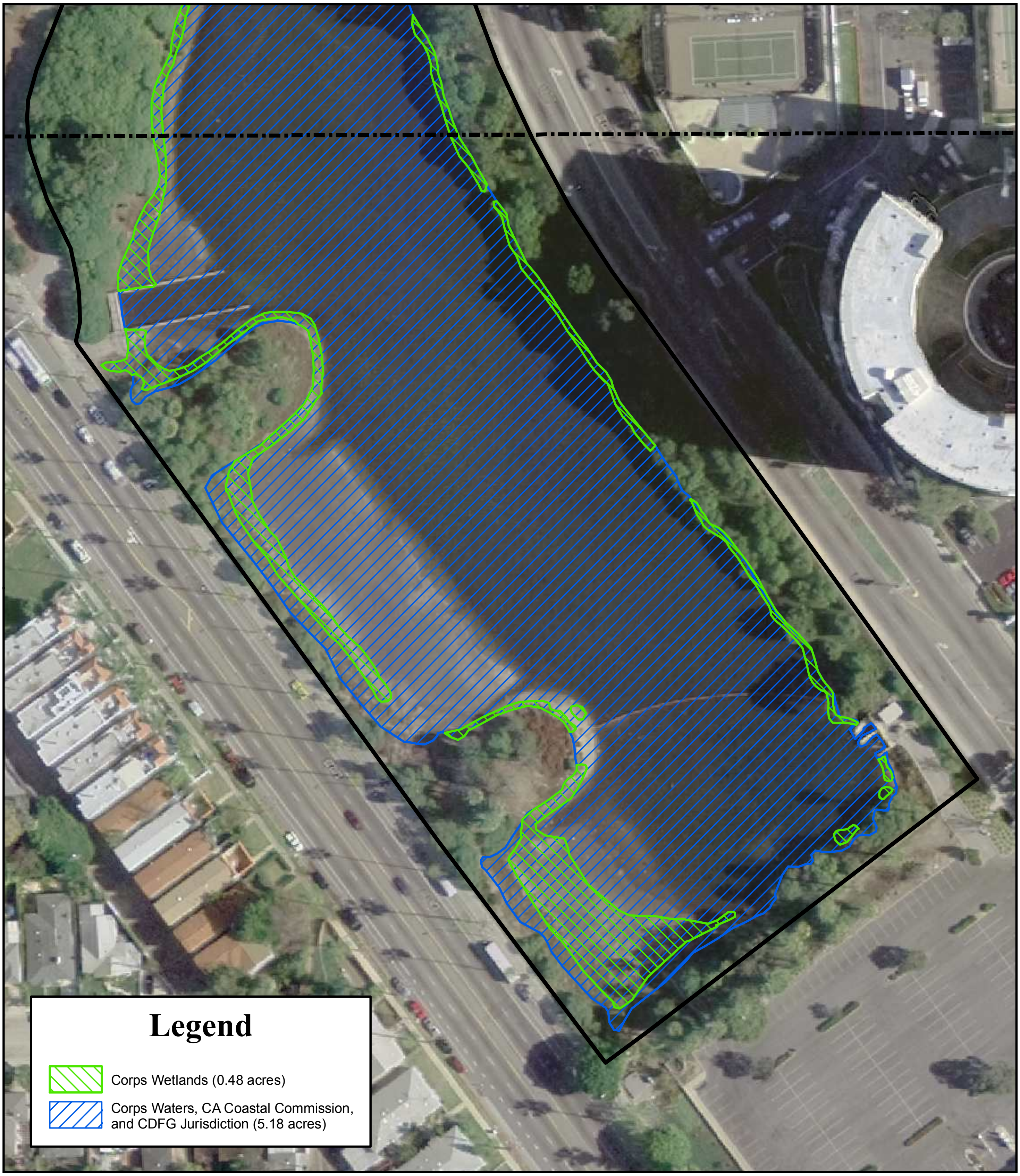
The wetland status of the plant species at each sampling point generally follows the *National List of Plant Species that Occur in Wetlands: California (Region O)* (Reed 1988). However, since some species are not included in the 1988 list, the draft 1996 list of *Vascular Species that Occur in Wetlands* (USFWS 1996) was used to provide the information on the wetland status of these plants in California. The indicator status for wetlands plants includes: Obligate wetland plants (Obl) □Plants that occur almost always in wetlands (>99□), under natural conditions; Facultative wetland plants (FacW) □Plants that usually occur in wetlands (67-99□), but also occur in nonwetlands; Facultative plants (Fac) □plants with a similar likely hood of occurring

(33-67□) in wetlands as nonwetlands; Facultative Upland plants (FacUp) □Plants that sometimes occur in wetlands (1-33□), but occur more often in uplands; and Upland plants (Up) □Plants that occur almost never in wetlands (□1□).

3.0 RESULTS

3.1 Introduction

The field surveys resulted in delineation of Corps jurisdictional wetlands, Waters of the United States, and Coastal Commission wetlands within Oxford Basin. The extent of the jurisdictional wetlands found on the project site is depicted in Figures 3-1b and 3-1b. Following these figures are descriptions of the jurisdictional wetlands and Waters found on the project site, and documentation of the historic wetland conditions for the general locality of Oxford Basin. Photos of some of the wetlands found on the project site are located in Appendix C.



Site area: 8.94 acres

0 100 200 Feet

Figure 3-1a

Jurisdictional Wetlands

in the Oxford Basin

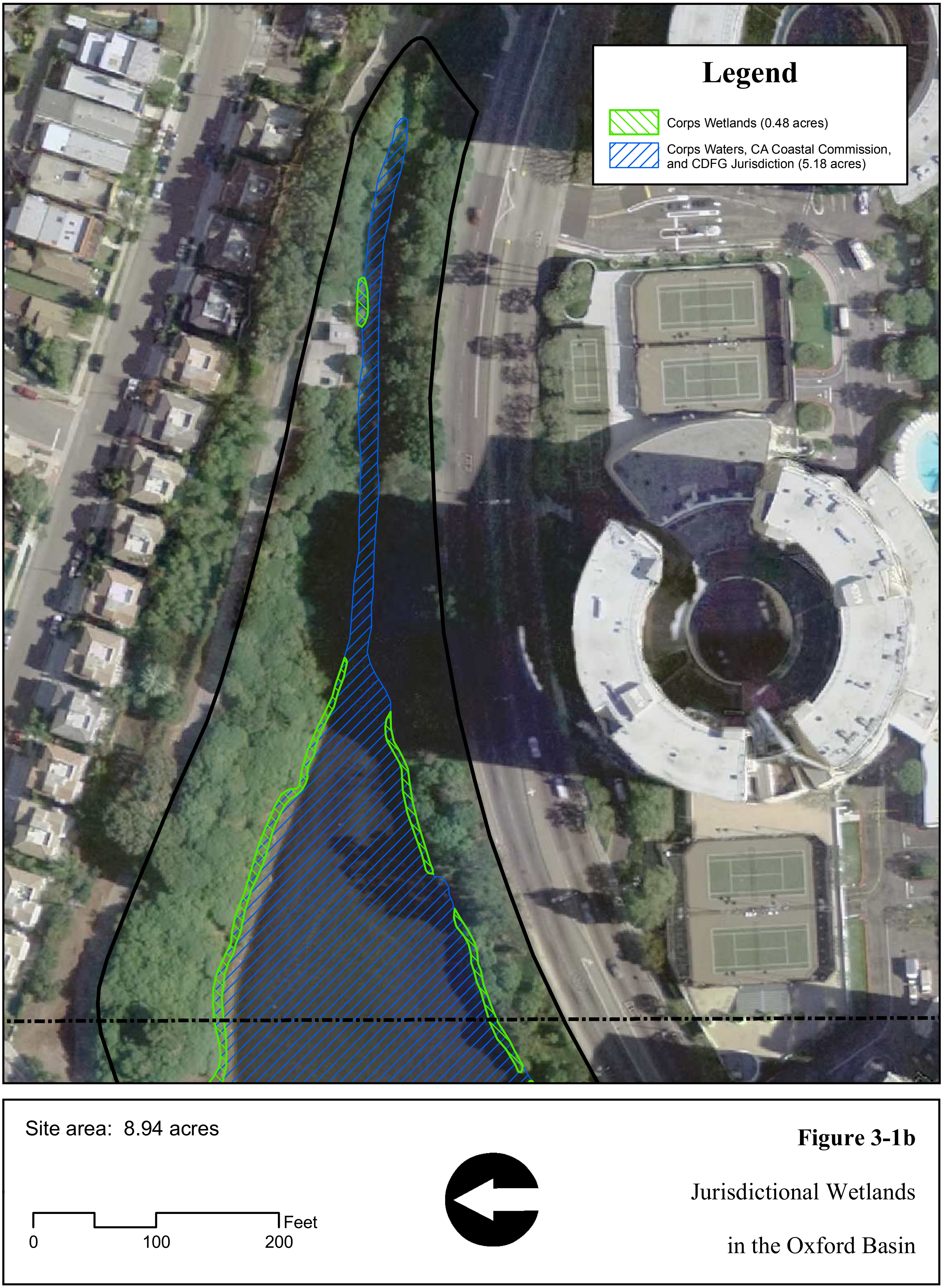


Figure 3-1b

Jurisdictional Wetlands

in the Oxford Basin

3.2 Corps of Engineers Jurisdictional Wetlands and Waters of the United States

3.2.1 Historical Conditions

An assessment of historical conditions at the current Oxford Basin was conducted involving review of historic topographic maps and aerial photographs (see Appendix A). This review shows that Oxford Basin was originally part of the greater Ballona Marsh.

A 1942 topographic map (USGS 1942) shows structures in the area of the marsh adjacent to Basin's current location. It is likely that the marshlands in this area were drained during this period.

During the early 1950s, the current Basin location was generally disturbed and apparently was part of a landfill site. An aerial photograph from 1952 shows that the marsh had been drained in the Basin's current location. Some structures and remnants of vegetation are visible in this photo.

The Basin, in its current form, was constructed starting in 1960 (County of Los Angeles Dept. of Small Craft Harbors 1976).

3.2.2 Wetlands

3.2.2.1 Soils

No information on the soils in the Oxford Basin study area was located in the literature review for this study. The Natural Resources Conservation Service did not publish a soil survey for this area of Los Angeles County. A study by Glenn Lukos Associates (2006) mentioned a published soil map for the region, but this could not be located in the material examined for this project.

Overall, the soils in the areas above the Basin tend to be sandy loams, commonly observed in southern California. The Basin itself has been filled with a silty clay and areas of loamy sands.

The observations from the soil pits, conducted at each sample point, noted strong indicators of hydric soils within the tidal zone. These included extensive mottling, low chroma, stratified layers, and gleyed matrix within these soils. Depleted matrix conditions with oxidized rhizospheres or less extensive mottling, along with some low chroma soils, were observed in the soils found near the margin of the mean high tide elevation. Hydric soils were not found in areas that apparently are inundated by occasional very high tides or winter flooding events, as evidenced by drift deposits.

3.2.2.2 Hydrology

The hydrology in Oxford Basin was clearly defined, due to the trash and debris in the basin, which provided well defined drift lines within the study area. Extremely high tides and storm events had left higher drift lines of debris, but these were clearly older, and did not correspond with soil mottling, water marks or other indicators of wetland hydrology.

In general, what is assumed to be the high tide elevation defines the extent of the wetland hydrology within Oxford Basin. This generally correspond with the observed hydric soil indicators, described previously. It generally appears that tidal fluctuations within the basin, as mediated by operation of the tide-gates, represent the predominant factor for the wetland hydrology, rather than the periodic floods that inundate the Basin for short periods.

3.2.2.3 Vegetation

The plant communities found within Oxford Basin were described by Bramlet (2010). The wetland vegetation found within this study consisted of the Salicornia marsh and “beach” communities” mapping unit found within the Basin. The predominant wetland species is the common woody pickleweed (*Salicornia virginica*), Obl (see page 10 for an explanation of the wetland indicator status for these plant species), which forms a “ring” of vegetation along the lower edge of the basin and ranges from 6 to 22 feet wide. At least one of the mapped “beach” areas has sufficient cover of common woody pickleweed seedlings to meet the criteria for hydrophytic vegetation. Other species found the designated hydrophytic vegetation of the Salicornia marsh included: rabbit’s foot grass (*Polypogon monspeliensis*), FacW; saltmarsh sand spurry (*Spergularia marina*) Obl; spearscale (*Atriplex prostrata*), FacW; and, uncommonly, yellow sweet clover (*Melilotus indicus*) Fac. At least one disturbed wetland site also had hydrophytic vegetation and this locality contained water bentgrass (*Agrostis viridis*) Obl; crab grass (*Digitaria sanguinalis*) FacUp; Mexican fan palm seedlings (*Washingtonia robusta*) FacW; salt marsh sand spurry; yellow sweet clover; and Boccone's sand spurry (*Spergularia bocconei*) Fac.

3.2.3 Waters of the United States

Within Oxford Basin, Corps jurisdiction over Waters of the United States extends as high as the mean "high tide" line. This designation includes wetland areas that lack of one or more of the three wetland parameters, such as "beach" areas or exposed tidal flat areas, which are often exposed in the Basin, and tidal flats that are generally inundated and exposed on a daily basis. Depending on the slope of the Basin, Waters of the United States extended from zero to 16 feet above the delineated Corps wetland areas. Along much of the Basin's north shore, Waters of the United States extend 6–8 feet above the areas delineated as Corps wetlands.

3.3 California Coastal Commission Wetlands

In Oxford Basin, wetlands satisfying the one-parameter methodology of the California Coastal Commission extend to mean "high tide" line. These wetland areas had hydric soils and wetland hydrology, but were generally dominated by Perez's sea lavender (*Limonium perezii*). Since this species was considered a Facultative upland species, these localities were not determined to have hydrophytic vegetation. Therefore these areas were not delineated as jurisdictional wetlands under the Corps' three-parameter methodology, but were delineated as wetlands under the Coastal Commission's one-parameter methodology. Other species found in these wetlands included rabbit's foot grass (FacW); salt marsh sand spurry (Obl); spearscale (FacW); alkali heliotrope (*Heliotropium curassavicum*) Obl; Boccone's sand spurry (Fac), Mexican tea (*Dysphania ambrosioides*) Fac; yellow sweet clover (Fac); garden beet (*Beta vulgaris*) FacUp; and myoporum (*Myoporum laetum*) FacUp. The Coastal Commission wetland areas also include sparsely vegetated or non-vegetated "beach" areas that are infrequently tidally inundated, as well as tidal flat areas that are inundated on a daily basis.

Depending on the slope of the Basin, the Coastal Commission wetlands extended from zero to 16 feet above the delineated Corps wetland areas. Along much of the Basin's north shore, Coastal Commission wetlands extend from 6 to 8 feet above the Corps delineated wetland areas.

3.4 California Dept. of Fish and Game (CDFG) Jurisdictional Areas

The CDFG 1601 jurisdictional area extends to the mean "high tide" line. No other riparian or isolated wetland habitat occurs within Oxford Basin and the inlet channels are all developed storm drains.

4.0 RECOMMENDATIONS

The following recommendations are provided for improving the ecological functions and values of Oxford Basin's wetland communities:

- Investigate the feasibility of increasing the total area of the tidal prism at differing elevational levels. The principal function of Oxford Basin is to maintain maximum flood control capacity, and this may require a uniform upper elevational level. However, if sediment is to be removed from the basin, the potential of having differing elevational levels within the basin should be evaluated. This would allow for a greater diversity of native salt marsh "habitats" (e.g. mid-marsh, high marsh) and species that could potentially be introduced into the basin.

- Investigate the feasibility of establishing vascular aquatic plant species, such as eel grass (*Zostera marina*) within the mud flats of Oxford Basin. These could be placed in artificial submerged structures, that would allow "harvesting" of the eel grass. These plants would be grown more to enhance water quality and reduce the algal blooms, than to enhance the habitat found within the mudflats. Another alternative would be to create areas of sandy habitat within the basin, to provide substrate for this or other suitable species.

- Consider the feasibility of enhancing the salt marsh community found at Oxford Basin. This would include plans for the removal of non-native Perez's sea lavender (*Limonium perezii*), which has low habitat value for native wildlife, and replacing it with a more diverse group of native salt marsh species. Some of these species could include California marsh rosemary (*Limonium californicum*), alkali heath (*Frankenia salina*), saltgrass (*Distichlis spicata*), jaumea (*Jaumea carnosa*), shore grass (*Monanthochole littoralis*), and American saltwort (*Batis maritima*). The plan would need to determine the suitability of the existing habitats for these species, and potential procedures that could allow for develop different marsh habitats within the basin. Planting plans would then need to be developed with the different palettes for the salt marsh plantings, along with detailed procedures for preparing the sites for planting/seeding and long term maintenance of the marsh enhancement areas.

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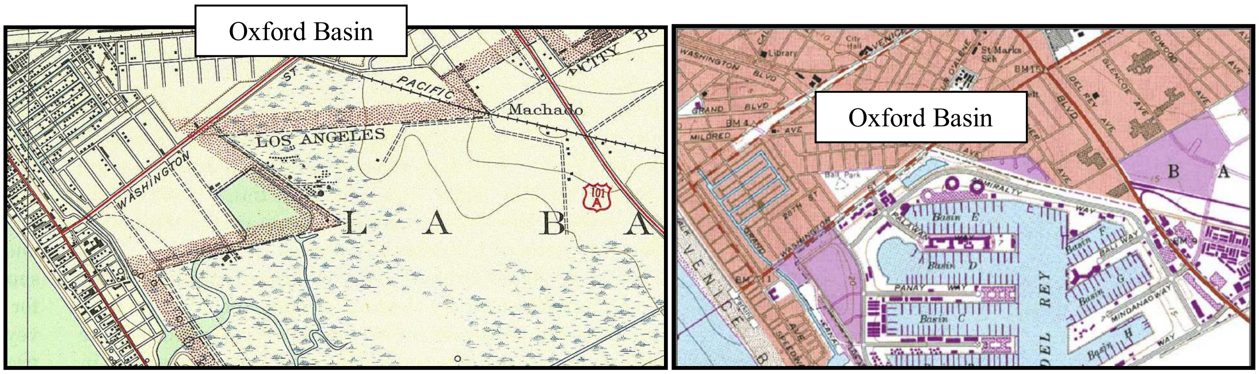
APPENDIX A
HISTORICAL DOCUMENTION
OF THE
PROJECT SITE



Historical topography showing in red the future location of Oxford Basin in 1942 (left) and the basin as it existed (and still exists) in 1964 (right). Source: USGS Venice 7.5′ topographic quadrangles.

Following page: Comparison of aerial photos from 1952 (pre-Marina del Rey) and 1972 (post-Marina del Rey). These photos show that the marshlands in question had been cleared some time before 1952. In 1952, the locality was generally disturbed and appeared to be used as a materials extraction site.

OXFORD BASIN, HISTORIC AERIAL PHOTOS

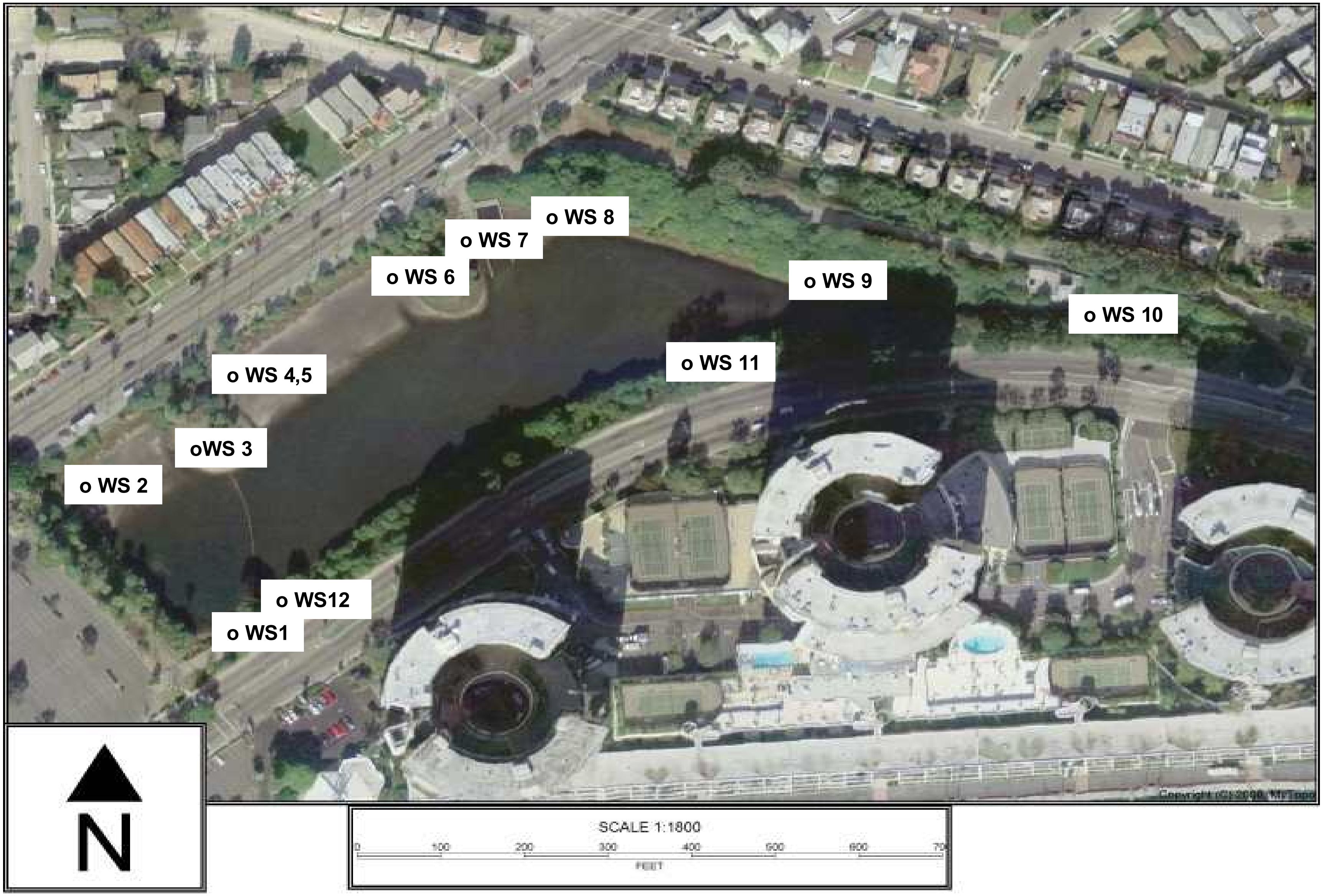
Oxford Basin Area, 1952

Oxford Basin Area, 1972

Source: Historicaerials.com

APPENDIX B
WETLAND FIELD FORMS

OXFORD BASIN WETLAND DELINEATION SAMPLING SITES



WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ox ford Basin City/County: LA County Sampling Date: 6/12/10

Applicant/Owner: LA County State: CA Sampling Point: 1

Investigator(s): Bramlet Riefner Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Slope of Basin Local relief (concave, convex, none): Convex Slope (%): 25%

Subregion (LRR): ______ Lat: 33° 59' 04" Long: 118° 27' 22" Datum: NAD83

Soil Map Unit Name: NA NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks:

Wetland area ~ 8 ft wide

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Salicornia virginica	95	Y	Obl
2. Polypogon monspeliensis	2	N	Facw
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	97		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	95	x 1 = 95
FACW species	2	x 2 = 4
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	97 (A)	99 (B)

Prevalence Index = B/A = 1.02

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
4"	10YR 3/2		2.5 YR 5/6	720	C	M	Sandy clay	Mottles thin

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______ Stratified Sand overlay

Depth (inches): ______ Clayey Sediments

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Barnacles on rocks.

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ______

Water Table Present? Yes ___ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 1"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Normal high tide w/in the basin will inundate this area

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oxford Basin City/County: LA County Sampling Date: 6/12/1?

Applicant/Owner: LA County Flood Control State: CA Sampling Point: 2 - A

Investigator(s): Bramlet Riefner Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Mud flat Local relief (concave, convex, none): ______ Slope (%): Ø

Subregion (LRR): ______ Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ______
Hydric Soil Present?	Yes ✓	No ______
Wetland Hydrology Present?	Yes ✓	No ______

Is the Sampled Area within a Wetland? Yes ✓ No ______

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Salicornia virginica	75	Y	OBL
2. Atriplex prostrata	3	N	FACW
3. Spergularia marina	5	Y	OBL
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	20	x 1 = 20
FACW species	3	x 2 = 6
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	23 (A)	26 (B)

Prevalence Index = B/A = 1.13

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:

SOIL

Sampling Point: Z-A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
4	10YR 2/1		5YR 5/6	10	C	M	Siltyclay	
5	Cley 5N							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- X Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______________________

Depth (inches): ______________________

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Algal mats, snail shells small channels So

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- X Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ________

Water Table Present? Yes ____ No X Depth (inches): ________

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): ________

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oxford Basin City/County: LA County Sampling Date: 6/12/16

Applicant/Owner: LA County Flood Control State: CA Sampling Point: 2B

Investigator(s): Bramlet Riefner Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Mudflat Local relief (concave, convex, none): ______ Slope (%): Ø

Subregion (LRR): ______ Lat: 33° 59' 04" Long: 118° 27' 23 Datum: NAD83

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks:

16 ft wetland 2.1 + 2.2

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Salicornia virginica	50	Y	Obl
2. Atriplex prostrata	40	Y	Facw
3. Polypogon monspeliens	4	Y	Facw
4. Spergularia marina	6	Y	Obl
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	56	x 1 = 56
FACW species	44	x 2 = 88
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	100 (A)	144 (B)

Prevalence Index = B/A = 1.44

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

SOIL

Sampling Point: ____________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
2	10YR 5/1		2.5Y 5/6	20	C	M	Silty clay	
6	10YR 2/1		2.5Y 5/6	40	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- X Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Shells

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✓ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____________

Water Table Present? Yes ____ No X Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____________

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oxford Basin City/County: LA County Sampling Date: 6/12/10
Applicant/Owner: LA County Flood Control State: CA Sampling Point: 2 C
Investigator(s): D Bramlet R Riefner Section, Township, Range: ____
Landform (hillslope, terrace, etc.): Slope of Basin Local relief (concave, convex, none): Convex Slope (%): 6%
Subregion (LRR): ____ Lat: 33° 59 04 Long: 118 27 23 Datum: NAD83
Soil Map Unit Name: ____ NWI classification: ____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	Is the Sampled Area within a Wetland?	Yes ____ No X
Hydric Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____		

Remarks:
Driftline Veg 4 ft above this sample point
Area 18ft wide

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Salicornia virginica	10	Y	Obl
2. Limonium perezii	80	Y	Facup
3. Polypogon monspeliensis	3	N	Facw
4. Spergularia marina	2	N	Obl
5. Heliotropium curassavicum	2	N	Obl
6. Atriplex prostrata	1	N	Facw
7.			
8.			
= Total Cover	98		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	10	x 1 = 10
FACW species		x 2 =
FAC species		x 3 =
FACU species	80	x 4 = 320
UPL species		x 5 =
Column Totals:	90 (A)	330 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is >50% No
- ____ Prevalence Index is ≤3.0[1] No
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

oxidated rhizospheres

SOIL

Sampling Point: ___________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
4	10YR 4/1		5YR 5/6	20	C	P	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

oxidated rhizospheres

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___________________

Depth (inches): ___________________

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___________

Water Table Present? Yes ___ No X Depth (inches): ___________

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___________

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oxford Basin City/County: LA County Sampling Date: 6/12/10

Applicant/Owner: LA County Flood Control State: CA Sampling Point: 3a

Investigator(s): D Bramlet R Riefner Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Slope of basin Local relief (concave, convex, none): Convex Slope (%): 10%

Subregion (LRR): ______ Lat: 33 59 05 Long: 118 27 23 Datum: NAD83

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ___	Is the Sampled Area within a Wetland?	Yes ✓ No ___
Hydric Soil Present? Yes ✓ No ___		
Wetland Hydrology Present? Yes ✓ No ___		

Remarks:

Salicornia ~ 6 ft wide

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Salicornia virginica	70	Y	Obl
2. Atriplex prostrata	15	Y	Facw
3. Polypogon monspeliensis	3	N	Facw
4. Spergalaria marina	2	N	Obl
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	70	x 1 = 70
FACW species	15	x 2 = 30
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	85 (A)	100 (B)

Prevalence Index = B/A = 1.18

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

SOIL

Sampling Point: ___________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
4"	10YR4/2		5YR 5/8	50	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___________

Depth (inches): ___________

Hydric Soil Present? **Yes** X **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): ___________

Water Table Present? Yes ______ No X Depth (inches): ___________

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ___________

Wetland Hydrology Present? **Yes** X **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oxford Basin City/County: LA County Sampling Date: 6/12/10

Applicant/Owner: LA County Flood Control State: CA Sampling Point: 3b

Investigator(s): Bramlet Riefner Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Slope of Basin Local relief (concave, convex, none): Convex Slope (%): 20%

Subregion (LRR): ______ Lat: 33°59'05" Long: 118°27'23" Datum: NAD83

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No ✓		Is the Sampled Area within a Wetland? Yes ___ No ✓
Hydric Soil Present? Yes ___ No ✓		
Wetland Hydrology Present? Yes ✓ No ___		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: ___)			
1. Limonium perezii	70	Y	Facup
2. Spergularia marina	5	Y	obl
3. Salicornia virginica	5	Y	obl
4. Polypogon monspeliensis	5	Y	Facw
5.			
6.			
7.			
8.			
		= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	10	x 1 = 10
FACW species	5	x 2 = 10
FAC species		x 3 =
FACU species	70	x 4 = 280
UPL species		x 5 =
Column Totals:	85 (A)	300 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1] No

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: ___________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
4	10Y 4/2		No mottles				Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___________

Depth (inches): ___________

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oxford Basin City/County: LA County Sampling Date: 6/12/10

Applicant/Owner: LA County Flood Control State: ______ Sampling Point: 4

Investigator(s): Bramlet Riefner Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Mudflat + Basinslope Local relief (concave, convex, none): None Slope (%): 5%

Subregion (LRR): ______ Lat: 33 59 07 Long: 118 27 228 Datum: NAD83

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______	No X
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Atriplex prostrata	10	Y	FacW
2. Conyza floribunda	5	Y	Upl
3. Limonium perezii	20	Y	FacUp
4. Polypogon monspeliensis	12	Y	FacW
5. Beta vulgaris	20	Y	FacUp
6. Spergularia bocconii	8	Y	Fac
7. Chenopodium ambrosioides	12	Y	Fac
8. Atriplex suberecta	10	Y	Upl
Melilotus indica	3	N	Fac
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species	22	x 2 = 44
FAC species	20	x 3 = 60
FACU species	40	x 4 = 160
UPL species	15	x 5 = 75
Column Totals:	100 (A)	339 (B)

Prevalence Index = B/A = 3.39

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50% No
- ___ Prevalence Index is ≤3.0[1] No
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:

SOIL

Sampling Point: ___________

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
	10YR 4/2		no mottles				Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5) (**LRR C**)
- __ 1 cm Muck (A9) (**LRR D**)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- __ 1 cm Muck (A9) (**LRR C**)
- __ 2 cm Muck (A10) (**LRR B**)
- __ Reduced Vertic (F18)
- __ Red Parent Material (TF2)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___________

Depth (inches): ___________

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- __ Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Water-Stained Leaves (B9)
- __ Salt Crust (B11)
- __ Biotic Crust (B12)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water Marks (B1) (**Riverine**)
- __ Sediment Deposits (B2) (**Riverine**)
- __ Drift Deposits (B3) (**Riverine**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ________

Water Table Present? Yes ____ No X Depth (inches): ________

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ________

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oxford Basin City/County: LA County Sampling Date: 6/12/10

Applicant/Owner: ______ State: CA Sampling Point: 5

Investigator(s): Bramlet Riefner Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Upper basin Local relief (concave, convex, none): Convex Slope (%): 3%

Subregion (LRR): ______ Lat: 33 59 734 Long: 118 27 225 Datum: NAD83

Soil Map Unit Name: ______ NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ______, or Hydrology ______ significantly disturbed? Yes Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ______	Is the Sampled Area within a Wetland? Yes ✓ No ______
Hydric Soil Present?	Yes ✓ No ______	
Wetland Hydrology Present?	Yes ✓ No ______	

Remarks:

10ft wide

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Digitaria sanguinalis	20	Y	Facup
2. Agrostis viridis	10	Y	Obl
3. Portulaca oleracea	3	N	Fac
4. Melilotus indica	2	N	Fac
5. Washingtonia robusta	17	Y	Facw
6. Spergularia marina	10	Y	Obl
7. Spergularia bocconii	15	Y	Fac
8. Eragrostis cilianensis	5	Y	Facup
Plantago lanceolata 3 N Fac			
= Total Cover	85		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	20	x 1 = 20
FACW species	17	x 2 = 34
FAC species	23	x 3 = 69
FACU species	25	x 4 = 100
UPL species		x 5 =
Column Totals:	85 (A)	223 (B)

Prevalence Index = B/A = 2.62

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:

SOIL

Sampling Point: ______

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
	10YR4/2		7.5YR5/6	20	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes X No ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ______

Water Table Present? Yes ____ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ______

Wetland Hydrology Present? Yes X No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Oxford Basin City/County: LA County Sampling Date: 6/12/10

Applicant/Owner: LA County Flood Control State: CA Sampling Point: 6

Investigator(s): Bramlet Riefner Section, Township, Range: ____

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): Convex Slope (%): 3%

Subregion (LRR): ____ Lat: 33 59 08.7 Long: 118 27 20.23 Datum: NAD83

Soil Map Unit Name: ____ NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Salicornia virginica	70	Y	Obl
2. Atriplex prostrata	20	Y	FacW
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species	20	x 2 =	40
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	90 (A)		110 (B)

Prevalence Index = B/A = 1.22

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: