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**OAK RIDGE
NATIONAL
LABORATORY**

SPRING 1995 WILDLIFE AND VEGETATION SURVEY
NORTON AIR FORCE BASE, CALIFORNIA

MARTIN MARIETTA

July 18, 1995

Prepared for
HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM
ENVIRONMENTAL AND ENRICHMENT
FACILITY MANAGEMENT
OAK RIDGE, TENNESSEE 37831
and
UNITED STATES AIR FORCE HEADQUARTERS
AIR FORCE BASE CONVERSION AGENCY
NORTON OPERATING LOCATION
SAN BERNARDINO, CALIFORNIA 92409

by the
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831
managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the
DEPARTMENT OF ENERGY
under Contract No. DE-AC05-84OR21400
and
CDM FEDERAL PROGRAMS CORPORATION
1626 Cole Boulevard, Suite 100
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ACRONYMS

AFB	Air Force Base
BW	Basewide
DBH	Diameter at breast height
EPA	Environmental Protection Agency
ERA	Ecological Risk Assessment
GC	Golf Course Area
GCP	Golf Course Pond Area
IRP	Installation Restoration Program
IWTP	Industrial Waste Treatment Plant area
ORNL	Oak Ridge National Laboratory
SAW	Santa Ana River Wash
Site 2	Landfill No. 2, IRP Site 2
Site 5	Former Fire Training Area No. 1, IRP Site 5

1. INTRODUCTION

The wildlife and vegetation surveys were completed in April of 1995, at Norton Air Force Base (AFB), California (Fig. 1). Biologists from CDM Federal Programs, the U.S. Environmental Protection Agency (EPA), and the Oak Ridge National Laboratory (ORNL) conducted the surveys.

A habitat assessment of three Installation Restoration Project (IRP) sites at Norton AFB was also completed during the fall survey period (Sect. 5.4). The IRP sites include: Landfill No. 2 (Site 2); the Industrial Wastewater Treatment Plant (IWTP) area; and Former Fire Training Area No. 1 (Site 5) (Fig. 2). The assessments were designed to qualitatively characterize the sites of concern, identify potential ecological receptors, and provide information for Remedial Design/Remedial Action activities. A Reference Area (Santa Ana River Wash) and the base urban areas were also characterized. The reference area assessment was performed to provide a baseline for comparison with the IRP site habitats.

The early spring (March 1995) and spring (April 1995) wildlife and vegetation surveys were the last of four completed. The results of the other two surveys (wildlife survey in June of 1994 and wildlife and vegetation survey in October of 1994) have been previously published in ORNL/TM-12798 and ORNL/TM-12886, respectively. In order to develop a complete understanding of all plant and animal species using the base, these surveys were planned to be conducted over four seasons. Species composition can vary widely during the course of a year in Southern California and elsewhere, and therefore, seasonal surveys provide the most complete and reliable data to address changes in habitat structure and wildlife use of the site.

The results of the four surveys are presented in this Technical Memorandum. Information gathered will be used for the purposes noted in Section 2 below.

2. PURPOSE

The objectives of the 1994 and 1995 wildlife and vegetation surveys were to gather data to be used for various applications including: (1) basewide Environmental Risk Assessment (ERA) Work Plan (Scoping Document), (2) the completion of the basewide ERA, (3) determining remedial activities, and (4) determining the distribution of state and federal list plant and animal species on Norton AFB. Data gathering included an inventory of plant and animal species present, the

Fig. 1. Regional map showing location of Norton Air Force Base.

Fig. 2. General map of Norton Air Force Base.

identification of potential ecological receptors, mapping of habitats, and constructing the ecological food web present on or near the IRP sites of concern.

3. SCOPE

The focus of the 1994 and 1995 surveys for Norton AFB was at the eastern end of the base and in the southern area of the base, adjacent to the Santa Ana River Wash (SAW). These areas were the focus of the surveys for two reasons: (1) sites within this area (IWTP area, Site 2, and Site 5) were identified as IRP sites with sufficient soil contamination to warrant completing an ERA (CDM Federal 1993, CDM Federal 1994a and 1994b) (Fig. 2), and (2) most endangered and threatened species habitats on the base exist in these areas. The following tasks were completed during the 1994 and 1995 surveys:

- opportunistic sightings of mammals and reptiles;
- bird survey;
- vegetation survey; and
- habitat mapping and assessment;

4. METHODS

Qualitative surveys (mammals, birds, reptiles, and vegetation) were conducted in the eastern portion of the base, east and south of the runway. These surveys were completed by driving and walking transects through Site 2, the runway aprons, administration roads, golf course area, perimeter road, base area adjacent to the SAW, and the SAW itself (Fig. 2). Wildlife observations for the spring 1995 surveys were recorded on field sheets that are included in Appendix A. Species lists were then assembled. The vegetation survey also identified the dominant plant species associated with each habitat observed during the habitat assessment.

A habitat assessment was conducted throughout the base, including the three IRP sites, base area adjacent to the SAW, and the western urbanized portion of the base (Fig. 2). The habitat assessment consisted of a visual reconnaissance of the base to identify and map habitat or vegetation types. This was followed by walking through each habitat type to identify existing vegetation and assess its quality

relative to potential native plant communities. This included the identification of dominant vegetation components.

5. RESULTS

Results of the species inventories and habitat assessments are discussed in Sections 5.1 through 5.5.

5.1 MAMMALS

Mammals observed during the 1994 and 1995 surveys are listed in Table 1. In 1990, the Fish and Wildlife Service also documented, as a result of 100 trap nights on base, the presence of a number of small mammals, including Little Merriam's kangaroo rat (*Dipodomys merriami parvus*), deer mouse (*Peromyscus maniculatus*), cactus mouse (*Peromyscus eremicus*), house mouse (*Mus musculus*), and western harvest mouse (*Reithrodontomys megalotis*) in various habitats on the base. One individual of an additional species, Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), was trapped off the base adjacent to the base golf course in the SAW. Federal candidate species for listing are the Little Merriam's kangaroo rat (category 1E candidate) and the Los Angeles pocket mouse (category 2 candidate). A category 1 species is one for which a proposed ruling is anticipated. A category 2 candidate species is a taxa for which existing information indicates may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

5.2 BIRDS

A total of 86 species of birds were identified during the 1994 and 1995 surveys and are listed in Table 2. Noted in Table 2 is the survey period when each species was identified and the site with which it was associated. Federally or California state listed species identified during the four surveys are golden eagle (state-sensitive), Swainson's hawk (state-threatened), ferruginous hawk (federal-candidate), prairie falcon (state-sensitive), burrowing owl (state-sensitive), vermilion flycatcher (state-

Table 1. Mammals observed at Norton Air Force Base, San Bernardino, California

Common name	Scientific name	Site ^a
California ground squirrel	<i>Citellus beecheyi</i>	U, GC, IWTP, Site 2, Site 5
California vole	<i>Microtus californicus</i>	GC
Black-tailed jack rabbit	<i>Lepus californicus</i>	U, Site 2, Site 5, SAW
Desert cottontail	<i>Sylvilagus audubonii</i>	U, IWTP, Site 2, Site 5, SAW
Longtail weasel ^b	<i>Mustela frenata</i>	Site 5, SAW
Red fox ^c	<i>Vulpes vulpes</i>	U, GC, Site 2
Coyote	<i>Canus latrans</i>	U, Site 2, Site 5
Botta's pocket gopher (sign)	<i>Thomomys bottae</i>	U, GC, IWTP, Site 2
Mule deer	<i>Odocoileus hemionus</i>	Site 2, SAW

^aU—Urban

GC—Golf course area

IWTP—Industrial Waste Treatment Plant area

Site 2—Landfill 2, IRP site 2

Site 5—IRP site 5 area

SAW—Santa Ana River Wash

^bSouthwest variation (darker head than body and a white bridle across the face)^cBase employees have identified a pair of foxes denning in one of the hangers

sensitive), and loggerhead shrike (state-sensitive, federal-candidate). The shrike and owl breed on the base (see Spring 1994 Wildlife Survey for more detail on the burrowing owl). The golden eagle and ferruginous hawk seem to use the base area in the winter season. The breeding status of the Swainson's hawk, prairie falcon, and vermilion flycatcher on the base is not certain.

5.3 REPTILES AND AMPHIBIANS

The area of greatest reptile activity is along the southern base boundary adjacent the flood control levee and the SAW (Fig. 2). This area includes debris and rocks which provide habitat for reptiles. Site 2 also contains similar habitat. The reptiles and amphibians observed during 1994 and 1995 are listed in Table 3. Site 2 and the south base perimeter road were dominated by western fence and

Table 2. Birds observed at Norton Air Force Base, San Bernardino, California

Common name (federal protected status)	Scientific name	Survey period observed ^a	Site ^b
Pied-billed grebe	<i>Podilymbus podiceps</i>	S94, F94	GCP
Double-crested cormorant	<i>Phalacrocorax auritus</i>	ES95	flyover
Green-backed heron	<i>Butorides striatus</i>	S94, S95	GCP
Snowy egret	<i>Egretta thula</i>	ES95	GCP
Great egret	<i>Casmerodius albus</i>	S94, F94, S95	GCP
Great-blue heron	<i>Ardea herodias</i>	F94	GCP
Mallard	<i>Anas platyrhynchos</i>	S94, F94, ES95, S95	GCP
American wigeon	<i>Anas americana</i>	ES95, S95	GCP
Ruddy duck	<i>Oxyura jamaicensis</i>	ES95, S95	GCP
Lesser scaup	<i>Aythya affinis</i>	ES95	GCP
American coot	<i>Fulica americana</i>	S94, F94, ES95, S95	GCP
Killdeer	<i>Charadrius vociferous</i>	S94, F94, ES95, S95	U, Site 2, Site 5, SAW
Whimbrel	<i>Numenius phaeopus</i>	S95	flyover
Ring-billed gull	<i>Larus delawarensis</i>	S94	GCP
Golden Eagle ^c	<i>Aquila chrysaetos</i>	F94, ES95	Site 2, Site 5, SAW
Cooper's hawk	<i>Accipiter cooperii</i>	S94, F94, ES95, S95	GC, Site 2, SAW
Red-shouldered Hawk	<i>Buteo lineatus</i>	F94, S95	GC, SAW
Red-tailed hawk	<i>Buteo jamaicensis</i>	S94, F94, ES95, S95	U, Site 2, Site 5, SAW
Swainson's hawk ^d	<i>Buteo swainsoni</i>	S94, S95	SAW
Ferruginous hawk ^c	<i>Buteo regalis</i>	F94, ES95	Site 5, SAW
American kestrel	<i>Falco sparverius</i>	S94, F94, ES95, S95	U, GC, Site 2, Site 5
Prairie falcon ^c	<i>Falco mexicanus</i>	S94	Site 2, Site 5

Table 2. Continued

Common name (federal protected status)	Scientific name	Survey period observed ^a	Site ^b
Gambel's quail	<i>Callipepla gambelli</i>	S94, F94	Site 5, SAW
Band-tailed pigeon	<i>Columba fasciata</i>	ES95, S95	U
Rock dove	<i>Columba livia</i>	S94, F94	U, Site 2
Mourning dove	<i>Zenaida macroura</i>	S94, F94, ES95, S95	U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner	<i>Geococcyx californianus</i>	S94, F94, ES95	GC, Site 2, SAW
Great-horned owl	<i>Bubo virginianus</i>	S94, S95	GC, IWTP
Burrowing owl ^c	<i>Athene cunicularia</i>	S94, F94, ES95, S95	U, Site 2
Common nighthawk	<i>Chordeiles minor</i>	S94	LF
Lesser nighthawk	<i>Chordeiles acutipennis</i>	S94, S95	SAW
Black-chinned hummingbird	<i>Archilochus alexandri</i>	S94	SAW
Anna's hummingbird	<i>Calypte anna</i>	S94, F94, ES95, S95	U, Site 5
Belted kingfisher	<i>Ceryle alcyon</i>	F94	GCP
Northern flicker	<i>Colaptes auratus</i>	S94, F94, ES95, S95	GCP, GC, IWTP, Site 2, SAW
Acorn woodpecker	<i>Melanerpes formicivorus</i>	F94	U
Nuttall's woodpecker	<i>Picoides nuttallii</i>	F94, S95	GC, SAW
Western kingbird	<i>Tyrannus verticalis</i>	S94, F94, ES95, S95	U, GC, IWTP, Site 2, SAW
Ash-throated flycatcher	<i>Myiarchus conerascens</i>	S95	GC, SAW
Black phoebe	<i>Sayornis nigricans</i>	S94, F94, S95	U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe	<i>Sayornis saya</i>	F94	GC, SAW

Table 2. Continued

Common name (federal protected status)	Scientific name	Survey period observed ^a	Site ^b
Vermillion flycatcher ^c	<i>Pyrocephalus rubinus</i>	S94	GC
Western flycatcher	<i>Epidonax difficilis</i>	S94	GC
Horned lark	<i>Eremophila alpestris</i>	S94, F94, ES95, S95	U, GC, Site 2, Site 5
Tree swallow	<i>Tachycineta bicolor</i>	ES95, S95	GC, IWTP
Violet-green swallow	<i>Tachycineta thalassina</i>	F94, S95	Site 5, SAW
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	S94	Site 5, SAW
Cliff swallow	<i>Hirunda pyrrhonota</i>	S95	GCP, GC, Site 2, Site 5, SAW
Barn swallow	<i>Hirundo rustica</i>	S94, S95	GCP, GC, Site 2, Site 5, SAW
Scrub jay	<i>Aphelocoma coerulescens</i>	S94, F94, ES95, S95	U, GC, SAW
American crow	<i>Corvus brachyrhynchos</i>	S94, F94, ES95, S95	U, GCP, GC, IWTP, Site 2, SAW
Common raven	<i>Corvus corax</i>	S94, F94, ES95, S95	U, GC, Site 2, Site 5, SAW
Bushtit	<i>Psaltirparus minimus</i>	F94, ES95, S95	GC, Site 5, SAW
Bewick's wren	<i>Thryomanes bewickii</i>	F94	Site 5, SAW
Cactus wren	<i>Campylorhynchus brunneicapillus</i>	S94	Site 2, Site 5, SAW
Western bluebird	<i>Sialia mexicana</i>	F94, ES95, S95	U, GC, Site 5, SAW
American robin	<i>Turdus migratorius</i>	S94, F94, ES95, S95	GC, SAW

Table 2. Continued

Common name (federal protected status)	Scientific name	Survey period observed ^a	Site ^b
Loggerhead shrike ^{c,e}	<i>Lanius ludovicianus</i>	S94, F94, ES95, S95	U, Site 2, Site 5, SAW
Northern mockingbird	<i>Mimus polyglottos</i>	S94, F94, ES95, S95	U, GCP, GC, IWTP, Site 5, SAW
American pipit	<i>Anthus rubescens</i>	ES95, S95	Site 2
European starling	<i>Sturnus vulgaris</i>	S94, F94, ES95, S95	U, GCP, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler	<i>Dendroica magnolia</i>	F94, ES95, S95	GC, IWTP, SAW
Townsend's warbler	<i>Dendroica townsendi</i>	S95	GC
Common yellowthroat	<i>Geothlypis trichas</i>	F94	SAW
Northern cardinal	<i>Cardinalis cardinalis</i>	S94	GC
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>	S95	GC
Brown towhee	<i>Pipilo fuscus</i>	F94, ES95, S95	GC, SAW
Song sparrow	<i>Melospiza melodia</i>	S94, S95	U, Site 2
Lark sparrow	<i>Chondestes grammacus</i>	S94, F94, ES95, S95	GCP, GC, Site 2, Site 5, SAW
Chipping sparrow	<i>Spizella passerina</i>	ES95, S95	GC, Site 5, SAW
Dark-eyed junco	<i>Junco hyemalis</i>	ES95	GC, Site 5
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	F94, ES95, S95	GC, IWTP, Site 2, Site 5, SAW
Western meadowlark	<i>Sturnella neglecta</i>	S94, F94, ES95, S95	U, GCP, GC, IWTP, Site 2, Site 5
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	S95	U

Table 2. Continued

Common name (federal protected status)	Scientific name	Survey period observed ^a	Site ^b
Red-winged blackbird	<i>Agelaius phoeniceus</i>	S94, F94, S95	U, GCP, GC
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	S94, F94, ES95, S95	U, GCP, GC, IWTP
Brown-headed cowbird	<i>Molothrus ater</i>	S94	GC, SAW
Bullock's or Northern oriole	<i>Icterus galbula bullockii</i>	ES95, S95	GC, SAW
Hooded oriole	<i>Icterus cucullatus</i>	S95	GC, SAW
Western tanager	<i>Piranga ludoviciana</i>	S94	GC, IWTP
House sparrow	<i>Passer domesticus</i>	S94, ES95, S95	U
Lesser goldfinch	<i>Carduelis psaltria</i>	ES95, S95	GC, Site 5, SAW
Laurence's goldfinch	<i>Carduelis lawrencei</i>	ES95, S95	GC, Site 5, SAW
House finch	<i>Carpodacus mexicanus</i>	F94, ES95, S95	U, GCP, GC, IWTP, Site 2, Site 5, SAW

^aS94(June 1994), F94(October 1994), ES94(March 1995), S95(April 1995)^bU—Urban

GCP—Golf course pond area

GC—Golf course area

IWTP—Industrial Waste Treatment Plant area

Site 2—Landfill 2, IRP site 2

Site 5—IRP site 5 area

SAW—Santa Ana River Wash

^cSensitive: Designated by the California Department of Fish and Game as a species of concern, for which more scientific information is needed to determine its biological status.^dState Threatened^eFederal Category 2 Candidate: Taxa which existing information indicates may warrant listing, but for which substantial biological information to support a proposed ruling is lacking.

California side-blotched lizards. Other species noted in the wash were western whiptail, Gilbert skink, and a possible orange-throated whiptail. Bullfrogs were identified in the golf course ponds and within the IWTP.

**Table 3. Reptiles and amphibians observed at Norton Air Force Base,
San Bernardino, California**

Common name (federal protected status)	Scientific name	Site ^a
A. Reptiles		
Western fence lizard	<i>Sceloporus occidentalis</i>	Site 2, Site 5, SAW
California side-blotched lizard	<i>Uta stansburiana</i>	Site 2, Site 5, SAW
Western whiptail	<i>Cnemidophorus tigris</i>	SAW
Gilbert skink	<i>Eumeces gilberti</i>	SAW
Orange-throated whiptail (possible) ^{b,c}	<i>Cnemidophorus hyperythrus</i>	SAW
B. Amphibians		
Bullfrog	<i>Rana catesbeiana</i>	GCP, IWTP

^aGCP—Golf course ponds

IWTP—Industrial Waste Treatment Plant area

Site 2—Landfill 2, IRP site 2

Site 5—IRP site 5 area

SAW—Santa Ana River Wash

^bSensitive: Designated by the California Department of Fish and Game as a species of concern, for which more scientific information is needed to determine its biological status.

^cCandidate Category 2: Taxa which existing information indicates may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

In 1990, the Fish and Wildlife Service stated the possibility that the San Diego horned lizard (*Phrynosoma coronatum blainvillei*) might be using the sandy soil/scrub vegetation habitats and the southwestern pond turtle (*Clemmys marmorata pallida*) may occur in the golf course ponds of Norton AFB. Both are federal category 2 candidates and state sensitive species. Neither species was identified during the four seasonal surveys.

5.4 VEGETATION

Plant species observed during 1994 and 1995 are listed in Table 4. A total of 62 species were observed during surveys, including numerous individuals of Santa Ana River woolly star, a species

Table 4. Plants observed at Norton Air Force Base, San Bernardino, California

Common name (federal protected status)	Scientific name	Site ^a
Amaranthus	<i>Amaranthus sp.</i>	U
Beavertail Cactus	<i>Opuntia basilaris</i>	SAW
Bermuda Grass	<i>Cynodon dactylon</i>	U, Site 2, GCA
Black Mustard	<i>Brassica nigra</i>	U, IWTP, Site 2, Site 5, SAW
Black Willow	<i>Salix gooddingii</i>	Site 5, SAW
Bunchgrass	<i>Bromus sp.</i>	U, IWTP, Site 2, Site 5
California broom	<i>Lotus scoparius</i>	Site 2, Site 5, SAW
California buckwheat	<i>Eriogonum fasciculatum ssp. fasciculatum</i>	IWTP, Site 2, Site 5, SAW
California croton	<i>Croton californicus</i>	IWTP, Site 2, Site 5, SAW
California evening primrose	<i>Oenothera californica</i>	Site 2
California juniper	<i>Juniperus californica</i>	SAW
Castor bean	<i>Ricinus communis</i>	U, IWTP, SAW
Cattail	<i>Typha latifolia</i>	GC, U
Chia	<i>Salvia columbariae</i>	Site 2, SAW
Coast live oak	<i>Quercus agrifolia</i>	U, IWTP
Cottonwood	<i>Populus fremontii var. fremontii</i>	IWTP, Site 5, SAW
Elderberry	<i>Sambucus sp.</i>	Site 5
Eucalyptus	<i>Eucalyptus sp.</i>	U, IWTP, Site 2, SAW,
Fan palm	<i>Washingtonia filifera</i>	U, IWTP
Fern leaf phacelia	<i>Phacelia distans</i>	SAW, Site 2, Site 5
Fescue	<i>Festuca sp.</i>	GC
Fiddleneck	<i>Amsinckia intermedia</i>	IWTP, Site 2, Site 5, SAW
Filaree	<i>Erodium botrus</i>	IWTP, Site 2, Site 5, SAW
Giant reed	<i>Arundo donax</i>	SAW
Groundsel	<i>Senecio flaccidus ssp. douglasii</i>	Site 2, Site 5, SAW
Honeylocust	<i>Gleditsia triacanthos</i>	U

Table 4. Continued

Common name (federal protected status)	Scientific name	Site ^a
Horehound	<i>Marrubium vulgare</i>	Site 5, SAW
Horseweed	<i>Conyza canadensis</i>	SAW
Jimson weed	<i>Datura stramonium</i>	SAW
Juniper	<i>Juniperus sp.</i>	U, GC
Kentucky bluegrass	<i>Poa pratensis</i>	GC
Miner's lettuce	<i>Montia perfoliata</i>	SAW
Mulefat	<i>Baccharis glutinosa</i>	IWTP, Site 2, Site 5, SAW
Nutgrass	<i>Cyperus eragrostis</i>	GC
Oleander	<i>Nerium oleander</i>	U, GC, IWTP, Site 2
Olive tree	<i>Olea europea</i>	IWTP, Site 2
Owl clover	<i>Orthocarpus purpurascens</i>	Site 2
Palo verde	<i>Cercidium floridum</i>	Site 2
Pepper tree	<i>Schinus sp.</i>	U
Pine	<i>Pinus sp.</i>	U, GC, IWTP
Prickly pear cactus	<i>Opuntia littoralis</i>	U, Site 2, Site 5, SAW
Ripgut brome	<i>Bromus diandrus</i>	IWTP, Site 2, Site 5, SAW
Sand bur	<i>Ambrosia acanthicarpa</i>	U, IWTP, Site 2, Site 5
Santa Ana River wooly star (endangered) ^b	<i>Eriastrum densifolium ssp. sanctorum</i>	Site 2, Site 5, SAW
Scale broom	<i>Lepidospartum squamatum</i>	Site 2, Site 5, SAW
Schismus Grass	<i>Schismus barbatus</i>	Site 2, SAW
Sedge	<i>Carex sp.</i>	GC
Slender wild oats	<i>Avena barbata</i>	Site 2
Spanish bayonet	<i>Yucca whipplei</i>	Site 2, SAW
Sun cup	<i>Camissonia bistorta</i>	Site 2, SAW
Sunflower	<i>Helianthus annuus</i>	Site 2
Sycamore	<i>Platanus sp.</i>	SAW
Telegraph weed	<i>Heterotheca grandiflora</i>	U, IWTP, Site 2, Site 5, SAW

Table 4. Continued

Common name (federal protected status)	Scientific name	Site ^a
Tree tobacco	<i>Nicotiana glauca</i>	U, Site 2, Site 5, SAW
Turkey mullein	<i>Eremocarpus setigerus</i>	Site 5
Valley cholla	<i>Opuntia parryi</i> var. <i>parryi</i>	SAW
Wild black cherry	<i>Prunus</i> sp.	SAW
Wild lettuce	<i>Lactuca</i> sp.	Site 5, SAW
Yellow sweet clover	<i>Melilotus indica</i>	IWTP
Yerba santa	<i>Eriodictyon trichocalyx</i>	Site 2, SAW
Yucca	<i>Yucca</i> sp.	U

^aU = Urban area

GC = Golf course area

IWTP = Industrial Waste Treatment Plant area

Site 2 = Landfill 2, IRP site 2

Site 5 = IRP site 5 area

SAW = Santa Ana River wash

^bEndangered: Designated as endangered by both the federal government and the State of California.

designated as endangered at both the federal and state level. This species was observed both on base and in the reference area. The occurrence of Santa Ana River wooly star on the base has been mapped (see Sect. 5.5.6). A special effort was made to look for the state and federally endangered slender-horned spine flower (*Centrostegia leptoceras*). None were identified on base.

5.5 HABITAT ASSESSMENT

Habitat assessments were completed for Site 2, the IWTP area, Site 5, the base adjacent to the SAW, and base urban area (Fig. 2). Figure 3 shows the overall habitat types of the base while Additional figures show vegetation types identified individually at each area. Lines indicating the extent of vegetation communities maps are approximate and have not been surveyed. Transects were walked to compile lists of plant species observed, and to look for occurrences of Santa Ana River Wooly Star and Slender-horned Spineflower, both federally and state listed plant species. Driving

Fig. 4. Vegetation map of Site 2, Norton Air Force Base.

Fig. 5. Vegetation map of the Industrial Wastewater Treatment Plant Area, Norton Air Force Base.

Fig. 6. Vegetation map of Site 5, Norton Air Force Base.

Fig. 7. Vegetation map of Reference Area, Norton Air Force Base.

transects were completed on the base to map woolly star habitat. The following observations (Sect. 5.5.1 through 5.5.5) and habitat mapping were initiated during the fall 1994 survey, and refined during the surveys conducted in the spring of 1995.

5.5.1 Site 2, Landfill Number 2

Site 2, or Landfill No. 2, is located in the northeast portion of the base along the base boundary east of Building 248 (Fig. 4). This landfill was used between 1958 and 1980 for the disposal of general refuse, as well as industrial wastes including spent solvents, acids, refrigerants, paint strippers, paints, thinners, waste oils, and sludge from the IWTP. The landfill reportedly covered an area of approximately 31 acres. The northern and eastern boundaries of the landfill area are bordered by the base perimeter fence and run parallel to Third Street and Alabama Street, respectively. These areas are characterized by heavy traffic and support commercial, residential, and light industrial uses.

Trench and fill procedures with daily cover were the usual practice at the landfill. In general, the trenches were approximately 300 to 400 yards long, 25 feet wide, and between 20 and 40 feet deep. Contaminants detected in the landfill soil include non-halogenated semivolatiles (including benzo(a)anthracene at concentrations up to 100 ug/kg, pyrene at concentrations up to 120 ug/kg, and up to 4600 ug/kg of bis(2ethylhexyl)phthalate), PCBs (i.e., Aroclor 1254 ranging from 83 to 87 ug/kg), and metals (including arsenic and beryllium concentrations up to 0.2 mg/kg, zinc concentrations up to 125 mg/kg, and lead concentrations up to 148 mg/kg).

The landfill itself has been disturbed by grading, compaction, and moving of soil. Typical of the vegetation in southern California, the dominant plant species, especially in disturbed areas, changes throughout the growing season. For example, the landfill is characterized by an herbaceous layer dominated by black mustard in the fall, and dominated by numerous non-native grasses (e.g., ripgut brome) in the spring, all of which are opportunistic species common to disturbed areas. In the fall, the vegetation associated with the black mustard is characterized by numerous grasses, sandbur, and groundsel, whereas in the spring, weedy herbaceous species, such as filaree and sun cup grow in association with the non-native grasses. Other plant species observed in the landfill area include California croton, Santa Ana River woolly star, California broom, and slender wild oats. These were observed extending northwards from the landfill perimeter road, approximately 100 feet west of an olive grove along the landfill perimeter. Open patches of barren, sandy fill were also noted

throughout the landfill area, while construction debris and landfill trenches result in minor topographical relief in the area.

The landfill perimeter is characterized by various plant associations, including an olive grove, urban landscaping, and components of both ruderal (i.e., weedy) and native plant associations (including patches of the endangered Santa Ana River wooly star). Ruderal habitat dominates in areas that have been temporarily disturbed, allowing exotic plant species such as black mustard and European grasses to colonize and dominate. Native vegetation is represented by the Riversidean alluvial fan sage scrub community typically found along the Santa Ana River. The Riversidean alluvial fan sage scrub is an easily disrupted native plant community characterized by California buckwheat, scale broom, prickly pear, and Santa Ana River Wooly Star [U.S. Air Force 1992]. In many parts of the base, intergradations between ruderal and native vegetation types occur. Descriptions of the various plant associations observed throughout the landfill area are provided below, and a list of plant species observed is provided in Table 4.

Approximately three acres in the northeast portion of Site 2 is dominated by a grove of introduced European olive trees (Fig. 4), the most noticeable vegetative feature in this part of the base. Individual trees within the grove range from 15 to 18 feet in height and have diameters at breast height (DBH) ranging from nine to ten inches. The soil in this area consists mainly of sandy fill material. Seasonal changes result in filaree and schismus grass with scattered patches of ripgut brome being the dominant understory vegetation in the spring, and black mustard the dominant understory vegetation in the fall. Isolated occurrences of California broom were also noted. A large patch of Santa Ana River wooly star was noted east of the grove, and incidental occurrences were noted within the grove, along with fiddleneck and sun cup. Mosses were observed to cover moist soil under the olive trees. Construction debris, rebar, and scrap metal are located sporadically throughout the grove area.

The vegetation outside the olive grove is generally characterized by California buckwheat, intergrading in some areas with ruderal vegetation. Particularly in the ruderal areas, dominant vegetation changes seasonally. Throughout the area, a dense ground cover of ripgut brome, filaree, and patches of slender oats is present, as well as infrequent occurrences of prickly pear and yucca. Wildlife including Cooper's hawk, roadrunner, cottontails, ground squirrels, and coyotes have been observed in the area.

North of the olive grove, to the northern base perimeter, the dominant vegetation is represented by both California broom and California buckwheat (Fig. 3). Understory vegetation observed in

association with these shrubs include filaree, slender wild oats, ripgut grass, fiddleneck, and California croton. The California broom becomes less dense approaching the northern base perimeter fence, and a few Oleander shrubs were noted along the fence.

The area south of Site 2 shows minimal topographical relief, and is dominated by native California buckwheat (Fig. 4). The buckwheat stand is characterized by intermittent patches of barren sandy soil in fall, which is densely covered by filaree, ripgut brome, and schismus grass in spring. Less frequently occurring species observed in this portion of the base include Santa Ana River wooly star, prickly pear cactus, California broom, and sun cup. The buckwheat type intergrades with ruderal vegetation to the east, where incidental occurrences of owl clover, mulefat, tree tobacco, californa broom, and sunflower were observed, and is associated with yerba santa to the south. The buckwheat continues to the east and south, with intergradations of yerba santa and Santa Ana River wooly star, until it is interrupted in both directions by the base perimeter road.

The area southwest of Site 2 is primarily ruderal, characterized by a dense stand of ripgut brome, with gradations into a dense groundcover of filaree. Scattered Santa Ana River wooly star occurs in this area, approaching the road.

The western portion of Site 2, north of the landfill perimeter road, is a highly disturbed area characterized by construction debris and evidence of landfill trenching activities. Black mustard dominates the herbaceous layer in the fall, while a dense groundcover of various introduced grasses dominates in the spring. Seasonal plant associations vary, with sand bur, schismus grass, and California croton occurring in the fall, and a mixture of non-native introduced grasses occurring in the earlier part of the year. The soil substrate is typically characterized by intermittent patches of barren sandy fill material.

In the northwest section of the landfill, several individual Palo Verde trees were noted (Fig. 4). The herbaceous vegetation is characterized by ruderal vegetation, dominated by black mustard and oats in the fall, and by filaree and non-native grasses in the spring. The ruderal vegetation continues to the northern extent of the landfill where it is interrupted by the base perimeter road. At the extreme northwest of the landfill area, base landscape vegetation occurs, as a 70 foot long row of eucalyptus trees, averaging 8 to 12 inches DBH.

Moving east, landfill trenching activities created disturbed, uneven terrain, with debris mixed in with the soil. Within this area, burrowing owl nests were noted during the spring 1994 survey, although no activity was observed during the fall 1994 or spring 1995 surveys. The ruderal vegetation continues to the east, over the landfill, until the vegetation mixes with native California buckwheat.

The ruderal vegetation is dominated by black mustard in the fall, and California broom, filaree, and a mixture of non-native grasses such as ripgut brome in the spring.

Wildlife using the landfill are noted in Tables 1, 2, and 3.

5.5.2 Industrial Wastewater Treatment Plant Area

The IWTP area (Fig. 5) is located in the southeastern section of Norton AFB near the southwest portion of GCA. The on-site treatment plant operated from 1960 to 1987. Treated wastewater from the plant was discharged and collected in the plant's outfall area, from where it ultimately discharged to the SAW. The 1993 Remedial Investigation (RI) Report (CDM Federal, 1993) indicated that arsenic was detected in the outfall area soils at concentrations of 0.2 to 8.1 mg/kg, which are above background levels.

The IWTP area is bordered to the north and west by the base golf course. The boundary to the east is an open field and a dirt road is to the south. The SAW is approximately 1,100 feet south of the IWTP area.

The IWTP area is generally a paved area which is no longer active and is surrounded by a perimeter fence. A mixture of non-native grasses, sand bur, and mulefat grow in the sandy fill along the western fence line. A complete list of plant species observed at the base, including the IWTP area is provided in Table 4.

The northern area of the IWTP, outside the fence, is characterized by the introduced, ornamental species of the base golf course such as eucalyptus, live oak, Italian cypress, and fan palm. These ornamental species are representative of the golf course landscaping. The golf course turf is predominantly comprised of bermuda grass with fescue and bluegrass. The area continues approximately 150 feet to the north before it is interrupted by the golf course road. Landscape species were noted along the northeastern fence line of the IWTP. A south running culvert, which appears to collect golf course drainage, is surrounded by an herbaceous layer three feet in height dominated by sand bur in the fall and non-native grasses and yellow sweet clover in the spring. This herbaceous layer also contains telegraph weed and California croton later in the season.

The eastern edge of the IWTP area, inside the fence, supports ruderal vegetation characteristic of early successional stages. Outside the fence, the eastern area is highly disturbed and supports ruderal vegetation, including cottonwood trees to the east (Fig. 5). Incidental occurrences of California buckwheat ranging from two to three feet high were also noted. The herbaceous layer is underlain by

sandy soil. The eastern area extends from south to north for approximately 600 feet to its border with the base golf course. It continues from west to east for approximately 1500 feet to the golf course parking lot. The southern boundary of the eastern area is a road, leading to the golf course, and the SAW (Fig. 5).

The southern portion of the IWTP area, inside the fence, is primarily unvegetated. The southern area outside the IWTP fence, extending approximately 1,500 feet to the wash, has been greatly disturbed by road construction activities. This area is characterized by barren, devegetated rocky soil showing evidence during the spring survey of recent plowing. Sporadic patches of ruderal vegetation, including filaree, fiddleneck, and ripgut brome were noted in this area.

Remnants of the original riparian vegetation were noted southwest of the IWTP. The residual vegetation is dominated by Fremont cottonwoods. These trees range from 20 to 25 feet high and from 10 to 12 inches DBH. Other vegetation associated with the cottonwood stand include willow, baccharis, giant reed, horehound, and California croton.

Although the IWTP area is located in a highly impacted and disturbed habitat, various wildlife species (including Botta's pocket gopher, California ground squirrel, and desert cottontail), have been observed using the forest and field habitats on the edges of the IWTP area. A complete list of mammals and birds using the base and the IWTP area is included in Tables 1 and 2. A bullfrog and tadpoles were observed in the western cement enclosure inside the southern fence of the IWTP.

5.5.3 Site 5

Site 5 is located on a lot near the northeast corner of the golf course (Fig. 6). This lot area extends to the east and south for approximately 200 feet in both directions. The site is bounded by the pistol range on the west, the southern perimeter road on the north, and the SAW on the south and east. The area was used to conduct fire control and abatement exercises from the late 1950s through the 1970s. During the 1970s, fire training exercises were conducted as often as five times a week.

Fire training exercises involved the routine procedure of floating a layer of oil, fuel, or other combustible material on a layer of water within the confines of an unlined berm and repeatedly igniting and extinguishing the material. Prior to 1973, waste fuels, waste oils, and some combustible waste chemicals (e.g., spent solvents) were reportedly used during fire training exercises. After 1973, only uncontaminated JP-4 fuel was used for these exercises. Approximately 500 to 1,000 gallons of fuel were used for each exercise without provisions for containment or collection of residual liquids.

The 1993 Remedial Investigation (CDM Federal, 1993) identified lead (ranging from 2. to 5,760 mg/kg), semivolatiles (up to 970 ug/kg for pyrene and up to 5,100 ug/kg for naphthalene), arsenic (ranging from 0.27 to 29.5 mg/kg), and dioxins (ranging from 2.5×10^{-7} to 0.010 ug/kg) in the soil at Site 5.

The habitat surrounding Site 5 has been highly impacted by site activities (grading, soil removal, etc.). At the time of the fall 1994 and spring 1995 vegetation surveys, no remnants of native vegetation were observed. The site is largely devoid of vegetation with barren, sandy fill throughout the area. During the spring 1995 survey, several brush piles were observed that had been created within the site and on top of a berm at the western edge, acting as attractants for wildlife. Fiddleneck predominates in an area used to dump grass clippings. Opportunistic plant species, common to disturbed areas, such as black mustard, sand bur, and turkey mullein were identified in the herbaceous layer. Base plant species observed, including site 5, is provided in Table 4.

The northern part of the site slopes upward to the perimeter road. It is characterized by an herbaceous layer dominated by black mustard in the fall and ripgut brome and black mustard in the spring. Other plants observed in this area in the fall include sand bur and turkey mullein. Several individuals of tree tobacco grow along the northern perimeter. The substrate is sandy fill and small gravel.

The western part of the site borders the base firing range. The site is separated from the firing range by a steeply sloped berm which is constructed of fill material containing sand, rocks, and gravel. The berm's slope is covered with an herbaceous layer dominated in the fall by black mustard in association with sand bur, California croton, telegraph weed, tree tobacco, and turkey mullein. In the spring, ripgut brome is dominant, interspersed with patches of exposed soil. Several brush piles have been created on top of and along the slope of the berm. At the base of the berm slope, the area has been filled and flattened. A 20 foot tall elderberry occurs at the southwest corner of the site.

The eastern area, bordered to the west by the lot area, continues along the north base perimeter road and parallels the southern Santa Ana flood control levee. The northeastern section of the area is characterized by ruderal vegetation, such as black mustard, telegraph weed, California croton, and sand bur in the fall, and non-native grasses in the spring. A few California buckwheat plants ranging from two to three feet high were also noted. The soil is sandy.

The southern portion of the site, outside the fence, extends approximately 250 feet to the south before intersecting the Santa Ana flood control levee. This area is characterized by an herbaceous layer dominated by black mustard in the fall and other ruderal vegetation in the spring, including

filaree, fiddleneck, black mustard, and horehound. Occurrences of Tree tobacco, sand bur, croton, and telegraph weed were also noted, but grasses were not observed in this area. The SAW is approximately 100 to 150 feet south of the flood control levee. A dirt road occurs approximately 100 feet south of the fence. From the dead vegetation observed, it appears that herbicide has been sprayed about 15 feet along both sides of the dirt road. A longtail weasel was observed in this area during the fall 1994 survey.

Approximately 500 feet southeast of Site 5, the SAW occurs in a topographic depression created by the Santa Ana flood control levee and past road construction activities was observed (Fig. 6). The SAW runs parallel to the southern base perimeter and contains remnants of a marginally impacted riversidean alluvial fan scrub community.

The eastern area of the SAW is characterized by a herbaceous layer dominated by California buckwheat, up to four feet high. Other components of the herbaceous layer are mixed grasses, filaree, Santa Ana River wooly star, and prickly pear cactus. The soil is slightly undulating white sandy and small gravel. A few individual Fremont cottonwoods were also observed in this area.

A slight slope was noted within the topographical depression with the elevation increasing from south to north. Along the northern edge the vegetation is denser and more varied. California buckwheat is the dominant shrub layer, and the understory is characterized by prickly pear cactus, with telegraph weed and groundsel in the fall, and occurrences of yellow sun cup and fiddleneck in the spring. Incidental occurrences of scale broom were also observed in this area. While the California buckwheat remains the dominant vegetation type in the topographic depression, this species is more widely spaced in a southerly direction.

In the northwest portion of the SAW, just southeast of Site 5, a stand of Fremont cottonwoods occurs, with a stand of black willow approximately three hundred feet further west. The extreme western portion of the area is noticeably devoid of vegetation and impacted by road construction activities.

Basewide wildlife species observed, including Site 5 and the immediate vicinity, are listed in Tables 1, 2, and 3.

5.5.4 Reference Area

As part of the field survey, a reference area was selected for a comparative wildlife and vegetation survey and habitat assessment. The reference wash area is located in the southeastern

section of the base along the SAW (Fig. 7). It borders the base Perimeter Road to the north and the Santa Ana river to the south. The reference area is relatively undisturbed and contains a remnant plant community that is representative of the original vegetation type found in this area (i.e., Riversidean Alluvial Fan Sage Scrub). This vulnerable community has greatly declined due to channelization of the Santa Ana River and intense development in the area (U.S. Air Force 1992). The area was selected as a reference site since it reflects the components of native vegetation prior to disturbances.

In an effort to thoroughly evaluate the reference area, four transects were located between the base area and the wash, within the reference area (Fig. 7). Transects were walked from the southern extent of the reference area, approximately five to ten feet above the wash, to its northern boundary, eight feet below the perimeter road. Dominant vegetation observed in the reference area are described below, whereas a complete list of basewide plant species observed is provided in Table 4.

Transect 1 was initiated in the southwest corner of the reference area. At the transect's starting point, an herbaceous layer of groundsel is the dominant vegetation type in the fall, whereas in the spring, plants such as California buckwheat, scale broom, and wooly star are dominant. Vegetation is widely scattered, as the area is predominantly comprised of bare, sandy soil and gravel deposits.

Moving north along the transect and up a gentle slope of approximately five degrees, the vegetation changes into a California buckwheat dominated shrub layer. The percent vegetative ground cover is greater in this area, as the shrubs are closer together. The understory is characterized by an herbaceous layer dominated by Santa Ana River wooly star, California Broom, and prickly pear cactus. Incidental occurrences of scale broom, valley cholla, and chia were noted. The vegetation is underlain by sandy soils, gravel deposits, and gently undulating terrain.

The northernmost point of Transect 1 is characterized by scale broom which occurs up to six and a half feet high, and a scattered understory of prickly pear cactus. California buckwheat occurs sporadically in the shrub layer. The substrate is characterized by large gravel. Field observations indicate that vegetative species diversity increases from south to north.

Transect 2 is located approximately 200 feet east of Transect 1. The initiation point for Transect 2 is characterized by an herbaceous layer, dominated by groundsel in the fall and ripgut brome in the spring, in association with Santa Ana River wooly star. The substrate is composed of sandy and gravel deposits. As observed at Transect 1, the ground slopes approximately 2 degrees in a northward direction. With the slight increase in slope, the vegetation intergrades into a shrub layer dominated by California buckwheat, with incidental occurrences of scale broom. The understory is

characterized by an herbaceous layer dominated by Santa Ana River wooly star, and herbaceous vegetation such as ripgut brome, chia, and schismus grass.

Again, as in Transect 1, the slope of the land increases in a northerly direction. With the increase in elevation, the vegetation composition changes to a scale broom/california buckwheat dominated shrub layer. The understory is characterized by valley cholla and Santa Ana River wooly star, with widely scattered individuals of sun cup and schismus grass. The substrate in this area is mostly characterized by bare soil and large rocks, with moss growing in low lying areas or around edges of shrubs.

Transect 3 was initiated 200 feet east of Transect 2. The initiation point for Transect 3 is characterized by an herbaceous layer dominated by groundsel. The gently undulating sandy soil is intermixed with gravel deposits. The understory includes Santa Ana River wooly star and prickly pear cactus, in association with scattered individuals of chia and California broom.

As seen in Transects 1 and 2, the land elevation increases in a northerly direction. However, the increase in slope was noticeable less in Transect 3 than in the previous sample areas. As elevation increases, the vegetation intergrades into a shrub layer dominated by California buckwheat. The shrubs extend northward in a corridor approximately 200 feet wide, and is associated with incidental occurrences of Santa Ana River wooly star, prickly pear cactus, ripgut brome, and schismus grass.

The vegetation in transect 3 changes at the northern extent of the transect into a shrub layer dominated by scale broom. The scale broom extends to six feet high, and is associated with California buckwheat, prickly pear cactus, wooly star, sun cup, chia, and valley cholla.

Transect 4 was initiated 200 feet east of Transect 3, and is located in a disturbed area impacted by the installation of a monitoring well approximately 50 feet east of the transect line. The initiation point for Transect 4 was characterized by a shrub layer dominated by California buckwheat. The understory was characterized by an herbaceous layer dominated by Santa Ana River wooly star with incidental occurrences of prickly pear cactus, groundsel, California croton, Yucca, and California broom. This vegetative community continues northward for 20 feet before being interrupted by a dirt access road.

A slight increase in elevation results in a change in vegetation composition, with an herbaceous layer co-dominated by Santa Ana River wooly star and groundsel, intermixed with Yerba Santa. The herbaceous layer continues northward in a corridor approximately 60 feet wide. Its substrate is characterized by sandy soil and gravel deposits, with widely scattered individuals of schismus grass, sun cup, and prickly pear cactus. Continuing northward and increasing in elevation, the vegetation

changes to California buckwheat as the dominant shrub layer. The shrub clumps are thinly spaced at intervals from one to ten feet with incidental occurrences of Santa Ana River wooly star. The California buckwheat dominated shrub layer continues 120 feet to the north before being interrupted by the base perimeter road. A few scattered cottonwood trees occur in this northern portion of the reference area.

Generally, the western portions of the reference area (Transects 1 and 2) are characterized as areas supporting greater plant species diversity than the remainder of the reference area. The eastern portion of the reference area is apparently impacted by biotic and mechanical stresses (i.e., soil compaction and grading). Both transects in the eastern section are less vegetated than the western transects. The southern extent of all four transects was noted to be sparsely vegetated with low species diversity. One explanation could be the low nutrient availability of younger river deposits. Conversely, the northern extent of all four transects were noted to be the most densely vegetated and diverse areas. These areas could represent older river deposits with higher nutrient availability, or areas that are less scoured by flooding.

Wildlife species observed using the reference area and adjacent SAW are summarized in Tables 1, 2, and 3.

5.5.5 Base Urban Areas

A survey of the base urban areas was conducted in an effort to informally characterize the flora and fauna common to those areas. Base areas are grouped by parcel designation (Fig. 8), and urban areas occur in different parts of the base. All habitats in the base urban areas have been highly impacted by base urban activities. Please note that the parcel designations shown in Fig. 8 represent historical designations that were in place prior to conducting the 1994 and 1995 biological surveys. These parcel designations are currently being re-defined by the Base, and will be updated in accordance with the most recent designations in the Basewide Ecological Risk Assessment report.

Parcels B and D are located in the northeast section of the base. Both parcels consist of mostly paved and concrete areas. There are several base buildings located in both parcels which are no longer used. Landscape species such as oleander, fan palm, coast live oak, eucalyptus, and juniper line the streets. Open fields and areas no longer maintained for weed control support ruderal vegetation such as sand bur, black mustard, castor bean, telegraph weed, and ripgut brome.

Fig. 8. Map of Base Urban Area, Norton Air Force Base. Letters represent historical parcel designations. Designations are currently under revision and will be updated in the Basewide Ecological Risk Assessment Report.

The central base consists of parcels J, G, H1, H2, I, and K. Base housing, warehousing operations, and offices were all once located within these parcels. Many of the existing buildings are no longer used by the base; however, the areas are still maintained for weed control. Mowing and irrigation activities were observed at the time of the assessment. Landscape and ornamental species were identified throughout the central base parcels. These include coast live oak, fan palm, pine, and oleander. Most buildings had maintained grass lawns, and burrowing owls have been documented in the area (Wade and Barnett 1994).

Parcels A and L are located in the western section of the base. These parcels consist mainly of abandoned warehousing buildings and paved or concrete surfaces. Vegetation is limited to opportunistic species lining the base roads and base perimeter fence. These species include tree tobacco, black mustard, ripgut brome, and sand bur.

Wildlife species observed in the base urban areas are provided in Tables 1, 2 and 3, and plant species observed are listed on Table 4.

5.5.6 Threatened and Endangered Plant Species

Based on known habitat requirements and distribution, two Federal and State listed plant species may occur on Norton AFB. These include the Santa Ana River wooly star (*Eriastrum densifolium ssp. sanctorum*) and the slender-horned spineflower (*Dodecahema leptoceras*) (U.S. Air Force 1992). Both species are listed as endangered by both the Federal government and the State of California. Site surveys confirmed the occurrence of the wooly star on the Base, although no individuals of the spineflower were found in the four surveys conducted. The general biology and habitat requirements of the wooly star are discussed below.

5.5.6.1 Santa Ana River Wooly Star Biology

The wooly star is a short lived erect perennial of the Phlox family (Polemoniaceae) and is an early successional species with a life expectancy of approximately 5 years (U.S. Fish and Wildlife Service 1995). Populations may exist for 50 to 150 years. Individual plants range from 25 to 74 cm in height and have many branches that emerge from a woody base, with 2 to 5 cm long, irregularly pinnatifid leaves. The terminal bracteate heads produce clusters of blue flowers with salverform corollas ranging from 16 to 32 mm in length.

5.5.6.2 Santa Ana River Woolly Star Habitat

The Santa Ana River woolly star inhabits Riversidean Alluvial Fan Scrub, which is characterized by flood flows, scouring, and the deposition of Entisol-type alluvium (U.S. Fish and Wildlife Service 1995). Because this habitat is subject to scouring every 50 to 150 years, the actual distribution of plants can be relatively dynamic. These plants were historically found in the Riversidean Alluvial Fan Scrub community type along the Santa Ana River. These early successional species are dependent on the soil scouring that occurs during periodic flooding in order to reduce competition and remain viable. In the absence of scouring, the woolly star is replaced by other species as competition increases and succession progresses.

Due to the limited range of this species, which is endemic to the Santa Ana River alluvial plain, and the enormous developmental pressure on this area, this species was listed as a Federally endangered species in 1986 (U.S. Fish and Wildlife Service 1995).

A large population of the Santa Ana River woolly star occurs in the eastern portion of the base. Driving transects were used to map the occurrence of woolly star on the base. The approximate extent of woolly star habitat is shown in Fig. 9. Lines indicating the extent of woolly star habitat are approximate and have not been surveyed.

6. CONCLUSIONS

6.1 HABITAT ASSESSMENT

Norton Air Force Base has covered a portion of the original Santa Ana River floodplain. A flood control levee has also been constructed out of fill material along the southern portion of the base. These actions have replaced the native soil and have increased the elevation of the soil substrate. Both actions probably inhibit the natural succession of vegetation that originally occurred prior to the base and the flood control levee construction. In addition, Sites 2 and 5 have been impacted from clearing, grading, and compaction of soil. These factors also inhibit the natural succession process.

Current habitat on the base includes components of native and ruderal vegetation, landscaped areas, and large expanses of paved areas in the airport area and developed urban areas. Most wildlife habitat occurs in the eastern portion of the base, although burrowing owls have been observed using

Fig. 9. Woolly Star Habitat, Norton Air Force Base.

▲ 2'61

SCALE IN FEET
400 0 1000 2000

drains, culverts, and excavated burrows in the urban areas. The ruderal as well as native vegetation communities support a wide variety of small mammals, birds, and reptiles, providing a food source for numerous higher trophic level predators, including hawks, eagles, owls, shrikes, coyotes, and weasels. The eastern portion of Norton AFB comprises in excess of 1,000 acres of mixed habitats of varying quality that meet requirements for a wide variety of wildlife species. This is particularly true in an area surrounded by widespread urbanization. Some species' (e.g., small mammals, lizards, etc.) home ranges are contained entirely within the Base boundaries, whereas others (coyote, hawks, eagles, etc.) may utilize the base as only part of their home range. Numerous bird species were observed nesting on the base.

Since Santa Ana River woolly star requires regular scouring from flooding to reduce competition and remain viable, the existence of the levee to the south of the base may result in an adverse effect on the Norton AFB population of this endangered species. Under current base management conditions, regular mowing near the runways may simulate these conditions, and may be one factor resulting in the maintenance of the vegetation in an early successional stage in this area.

6.2 ECOLOGICAL RECEPTORS

One result of the 1994 and 1995 wildlife surveys was the identification of the potential ecological receptors as shown in Table 5. These animals are potential ecological receptors because they are key components of the Norton AFB ecological food web, they use habitats on or near the IWTP area and Sites 2 and 5 (sites warranting the preparation of an ERA), and there is sufficient toxicological data available for these species or acceptable surrogate species. Site-specific food webs will be constructed and detailed in the ERA. To develop a site conceptual model, this information will be combined with information regarding contaminant sources, release mechanisms, ecological receptors, and routes of exposure.

Table 5. Potential ecological receptors

California ground squirrel (<i>Citellus beecheyi</i>)
Black-tailed jackrabbit (<i>Lepus californicus</i>)
Desert cottontail (<i>Sylvilagus audubonii</i>)
Botta's pocket gopher (<i>Thomomys bottal</i>)
Longtail weasel (<i>Mustela frenata</i>)
Red Fox (<i>Vulpes vulpes</i>)
Coyote (<i>Canis latrans</i>)
Western fence lizard (<i>Sceloporus occidentalis</i>)
American kestrel (<i>Falco sparverious</i>)
Gambel's quail (<i>Callipepla gambelli</i>)
Red-tailed hawk (<i>Buteo jamaicensis</i>)
Mourning dove (<i>Zenaida macroura</i>)
Burrowing owl (<i>Athene cunicularia</i>)
Great horned owl (<i>Bubo virginianus</i>)
Loggerhead shrike (<i>Lanius ludovicianus</i>)
Western meadowlark (<i>Sturnella neglecta</i>)
Horned lark (<i>Eremophila alpestris</i>)
Lark sparrow (<i>Chondestes grammacus</i>)

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APPENDIX A

1995 FIELD DATA SHEETS

Transect Location: South Base Area

Length of Transect: 292 31.2 = 2 mile

Driven or walked

What Sign observed?

Date and Time of day: 1pm / 80° clear / 3/29/95

Length of time - transect: 1pm start - 55pm 55min.

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

~~Mallard *Anas platyrhynchos* GCP~~

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW

Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW //

Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaida macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttalli* GC, SAW

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltirparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5 //

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

^aU—Urban, GCP—Golf course pond area, GC—Golf course area, IWTP—Industrial Waste Treatment Plant area, Site 2—Landfill 2, IRP site 2, Site 5—IRP site 5 area.

SAW—Santa Ana River Wash

^bSensitive: Designated by the California Department of Fish

and Game as a species of concern, for which more scientific information is needed to determine its biological status.

^cC2—Federal Category 2 Candidate: Taxa which existing information indicates may warrant listing, but for which substantial biological information to support a proposed ruling is lacking.

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP

Ring-billed gull *Larus delawarensis* GCP

Swainson's hawk (C (3C))^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

^aBW—Basewide: occurs in various areas throughout the base, GCP—Golf course ponds, GC—Golf course area, IWTPA—Industrial Waste Treatment Plant area, LF—Landfill 2, IRP site 2, S5—IRP site 5 area, SAW—Santa Ana River Wash

^bCandidate category 3C: Taxa for which the Fish and Wildlife Service has sufficient biological information to indicate that the taxa is apparently more common than previously thought, and thus is not currently under consideration for listing.

New Birds

Snowy Egret GC
(2) Ruddy Duck (GC - 2nd pond to Enstr)
Chipping Sparrow
Slate-colored Junco

Transect Location: *Swire Urea* $\frac{1}{2}$ of 1.6
Length of Transect: 31.2 - 32.8 *0.8 mile*
Driven or walked

What Sign observed?

Date and Time of day: 3/24/45 / 2 pm

Length of time - transect: 2 pm, 2:55 pm **55 MIN**

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferans* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
Red-shouldered Hawk *Buteo lineatus* GC, SAW
Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 5
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttallii* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW
Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
Scrub jay *Aphelocoma coerulescens* U, GC, SAW
American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltirparus minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottus* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

^aU—Urban, GCP—Golf course pond area, GC—Golf course area, IWTP—Industrial Waste Treatment Plant area, Site 2—Landfill 2, IRP site 2, Site 5—IRP site 5 area, SAW—Santa Ana River Wash

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and Game as a species of concern, for which more scientific information is needed to determine its biological status.

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Birds from Spring TM

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Ring-billed gull *Larus delawarensis* GCP
Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW
Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5
Great horned owl *Bubo virginianus* GC, IWTPA
Common nighthawk *Chordeiles minor* LF
Lesser nighthawk *Chordeiles acutipennis* SAW
Black-chinned hummingbird *Archilochus alexandri* SAW
Vermillion flycatcher *Pyrocephalus rubinus* GC
Western flycatcher *Epidonax difficilis* GC
Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW
Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
Northern cardinal *Cardinalis cardinalis* GC
Song sparrow *Melospiza melodia* LF
Brown-headed cowbird *Molothrus ater* GC, SAW
Western tanager *Piranga ludoviciana* GC, IWTPA
House sparrow *Passer domesticus* BW

^aBW—Basewide: occurs in various areas throughout the base, GCP—Golf course ponds, GC—Golf course area, IWTPA—Industrial Waste Treatment Plant area, LF—Landfill 2, IRP site 2, S5—IRP site 5 area, SAW—Santa Ana River Wash

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New Birds

Laurence's Goldfinch - SAW
Desert Cottontail
California G Squirrels
Side-Blotched Lizard *with tank*
W. Fence Lizard
Small-sealed Lizard
Hooded Oriole

Transect Location: CC / SOUTH perimeter
Length of Transect: 32.8 33.5 = .7 miles
Driven or walked
What Sign observed?

Date and Time of day: 2:56 pm / 3/29/95
Length of time - transect: 2:56 pm 3:35 = 41 minutes
75° Breezy

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
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Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaida macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Atene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 5
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttalli* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW
Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
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American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltirparus minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

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SAW—Santa Ana River Wash

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Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5
Great horned owl *Bubo virginianus* GC, IWTPA
Common nighthawk *Chordeiles minor* LF
Lesser nighthawk *Chordeiles acutipennis* SAW
Black-chinned hummingbird *Archilochus alexandri* SAW
Vermillion flycatcher *Pyrocephalus rubinus* GC
Western flycatcher *Epidonax difficilis* GC
Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW
Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
Northern cardinal *Cardinalis cardinalis* GC
Song sparrow *Melospiza melodia* LF
Brown-headed cowbird *Molothrus ater* GC, SAW
Western tanager *Piranga ludoviciana* GC, IWTPA
House sparrow *Passer domesticus* BW

^aBW—Basewide: occurs in various areas throughout the base, GCP—Golf course ponds, GC—Golf course area, IWTPA—Industrial Waste Treatment Plant area, LF—Landfill 2, IRP site 2, S5—IRP site 5 area, SAW—Santa Ana River Wash

^bCandidate category 3C: Taxa for which the Fish and Wildlife Service has sufficient biological information to indicate that the taxa is apparently more common than previously thought, and thus is not currently under consideration for listing.

New Birds

Chipping Sparrow
Vole ~~California~~ ~~California~~ ~~California~~ -- Small, Brown, T
Side - Blotched Lizard
Glate - Colored Juncos

Transect Location: Southern Base Boundary

Length of Transect: 33.5 - 31.5 = 2 miles

Driven or walked

What Sign observed?

Date and Time of day: 3:37 pm 3/29/94

Length of time - transect: 3:37 pm 4:35 pm

80° clear

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW

Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaida macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nunaillii* GC, SAW

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltiriparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

^aU—Urban, GCP—Golf course pond area, GC—Golf course area, IWTP—Industrial Waste Treatment Plant area, Site 2—Landfill 2, IRP site 2, Site 5—IRP site 5 area.

SAW—Santa Ana River Wash

^bSensitive: Designated by the California Department of Fish

and Game as a species of concern, for which more scientific information is needed to determine its biological status.

^cC2—Federal Category 2 Candidate: Taxa which existing information indicates may warrant listing, but for which substantial biological information to support a proposed ruling is lacking.

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP

Ring-billed gull *Larus delawarensis* GCP

Swainson's hawk (C 3C)^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

^aBW—Basewide: occurs in various areas throughout the base, GCP—Golf course ponds, GC—Golf course area, IWTPA—Industrial Waste Treatment Plant area, LF—Landfill 2, IRP site 2, S5—IRP site 5 area, SAW—Santa Ana River Wash

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New Birds

OLD NESTS - Cactus Wren
Hawk activity much less

pair-nests

Transect Location: LF 2 - Site 2 / Olive Grove

Length of Transect: 7.2 - 8 = 0.6 Miles

Driven or walked

What Sign observed?

Date and Time of day: 3/30/95

Length of time - transect: 7:21 AM - 8:09 AM = 48 min

50°F Clear

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW

Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttalli* GC, SAW

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bush tit *Psaltirparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

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Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

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IWTPA—Industrial Waste Treatment Plant area,

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New Birds

Chipping Sparrows - Olive Grove

American Pipit (Flock of 50)

Cal. Ground Squirrel

Numerous Olive Grove

Transect Location: IWTP
Length of Transect: Inside FENCE
Driven or walked: 1500' approx.
What Sign observed?

Date and Time of day: 3/30/95
Length of time - transect: 8:50 AM - 9:30 40 min

Weather 70° windy

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
Red-shouldered Hawk *Buteo lineatus* GC, SAW
Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 5
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttalli* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW
Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
Scrub jay *Aphelocoma coerulescens* U, GC, SAW
American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltirparus minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

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SAW—Santa Ana River Wash
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Birds from Spring TM

Green-backed heron *Butorides striatus* GCP
Ring-billed gull *Larus delawarensis* GCP
Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW
Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5
Great horned owl *Bubo virginianus* GC, IWTPA
Common nighthawk *Chordeiles minor* LF
Lesser nighthawk *Chordeiles acutipennis* SAW
Black-chinned hummingbird *Archilochus alexandri* SAW
Vermillion flycatcher *Pyrocephalus rubinus* GC
Western flycatcher *Epidonax difficilis* GC
Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW
Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
Northern cardinal *Cardinalis cardinalis* GC
Song sparrow *Melospiza melodia* LF
Brown-headed cowbird *Molothrus ater* GC, SAW
Western tanager *Piranga ludoviciana* GC, IWTPA
House sparrow *Passer domesticus* BW

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New Birds

Southern-Flycatcher
Bull Frog w/ Young on Square Water Base
Lawrence's GOLDFINCH
Tree Swallow

ORANGE
RACE

Transect Location: Level EAST OF ClubHouse

Length of Transect: 78.0 - 78.8 = .8 miles

Driven or walked

What Sign observed?

Date and Time of day: 3/30/95

Length of time - transect: 10:30 AM - 11:31 AM (61 min)
75°C clear

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW

Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cucularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttallii* GC, SAW

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltirparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

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Birds from Spring TM

Green-backed heron *Butorides striatus* GCP

Ring-billed gull *Larus delawarensis* GCP

Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

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New Birds

Lesser Goldfinch + nest
Northern Oriole ♀ + ♂

Bonaparte's Gulls (?)

Desert Cotton-tail

Lawrence's Goldfinch

Singing ♂

Transect Location: Level top / SE Boundary
Length of Transect: .25 miles
Driven or walked
What Sign observed? Coyote / scat / tracks
Date and Time of day: 3/30/95

Length of time - transect: 3pm - 3:30pm 30 min.

80° Clear

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferans* U, Site 2, Site 5, SAW

Golden Eagle (sensitive) *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2) *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaida macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

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Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

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Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltiriparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

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Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

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Song sparrow *Melospiza melodia* LF

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New Birds

3 Side-blotched Lizards
Desert Cottontail
Cal. Ground Squirrel
Coyote Tracks / scat
Cal. Jack Rabbit

Transect Location: Levee - South Base Boundary
Length of Transect: 49.7 - 51.3 = 1.6 miles
Driven or walked twice - Back & Forth
What Sign observed?

Date and Time of day: 5:46 AM 3/31/95

Length of time - transect: 5:46 AM 6:15 = 29 min

Weather Clear 45°F

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW

Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous-hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelii* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaida macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttallii* GC, SAW

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltiriparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottus* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

^aU—Urban, GCP—Golf course pond area, GC—Golf course

area, IWTP—Industrial Waste Treatment Plant area, Site

2—Landfill 2, IRP site 2, Site 5—IRP site 5 area.

SAW—Santa Ana River Wash

^bSensitive: Designated by the California Department of Fish

and Game as a species of concern, for which more scientific information is needed to determine its biological status.

^cC2—Federal Category 2 Candidate: Taxa which existing information indicates may warrant listing, but for which substantial biological information to support a proposed ruling is lacking.

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP

Ring-billed gull *Larus delawarensis* GCP

Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

^aBW—Basewide: occurs in various areas throughout the base, GCP—Golf course ponds, GC—Golf course area, IWTPA—Industrial Waste Treatment Plant area, LF—Landfill 2, IRP site 2, S5—IRP site 5 area, SAW—Santa Ana River Wash

^bCandidate category 3C: Taxa for which the Fish and Wildlife Service has sufficient biological information to indicate that the taxa is apparently more common than previously thought, and thus is not currently under consideration for listing.

New Birds

Lesser Goldfinch

Cooper's Hawk

Des. Cotton-tails (3)

BT JACK Rabbit

DC Cormorant (V)

Northern Oriole

Transect Location: Ponds - Circle

Length of Transect: 0.5 mile

Driven or walked

What Sign Observed?

Date and Time of day: 3/31/95

Length of time - transect: 6:20 AM - 7:03 = 43 min

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP ♀ ♂

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferans* U, Site 2, Site 5, SAW

Golden Eagle (sensitive) *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaida macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttallii* GC, SAW

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltirparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

^aU—Urban, GCP—Golf course pond area, GC—Golf course area, IWTP—Industrial Waste Treatment Plant area, Site 2—Landfill 2, IRP site 2, Site 5—IRP site 5 area.

SAW—Santa Ana River Wash

^bSensitive: Designated by the California Department of Fish

and Game as a species of concern, for which more scientific information is needed to determine its biological status.

^cC2—Federal Category 2 Candidate: Taxa which existing information indicates may warrant listing, but for which substantial biological information to support a proposed ruling is lacking.

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP

Ring-billed gull *Larus delawarensis* GCP

Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

^aBW—Basewide: occurs in various areas throughout the base, GCP—Golf course ponds, GC—Golf course area, IWTPA—Industrial Waste Treatment Plant area, LF—Landfill 2, IRP site 2, S5—IRP site 5 area, SAW—Santa Ana River Wash

^bCandidate category 3C: Taxa for which the Fish and Wildlife Service has sufficient biological information to indicate that the taxa is apparently more common than previously thought, and thus is not currently under consideration for listing.

New Birds

American Wigeons ♂ ♀

Lesser Scaup ♂ ♀

Rv. Duck (2)

Bull Frog

50+

(Total 44)
-50

Transect Location: GC Pond

Length of Transect:

Driven or walked

What Sign observed?

Date: 4/19/95

Weather: 50°F

Length of time - transect: 7:55 am - 8:21 = 26 min

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Egretta albus* GCP 4 Flyover

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW

Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypso anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttalli* GC, SAW

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltirparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP

Ring-billed gull *Larus delawarensis* GCP

Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5,

SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

Birds from Early Spring 95

Double crested cormorant (*Phalacrocorax auritus*) (flyover)

American wigeon (*Anas americana*) GCP

Lesser scaup (*Aythya affinis*) GCP

Ruddy duck (*Oxyura jamaicensis*) GCP

Snowy egret (*Egretta thula*) GCP

Great-horned owl (*Bubo virginianus*) GC, U

American pipit (*Anthus rubescens*) Site 2

Tree Swallow (*Tachycineta bicolor*) IWTP

Bullock's oriole (*Icterus galbula bullockii*) GC, SAW

Hooded oriole (*Icterus cucullatus*) GC SAW

Chipping sparrow (*Spizella passerina*) GC, Site 5

Dark-eyed junco (*Junco hyemalis*) GC, Site 5

Lesser goldfinch (*Carduelis psaltria*) SAW

Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds

Domestic Duck

Cal. Gr. Squirrel

~~Eastern~~ Whipbird (Flyover)

orange

Transect Location: GC Edge (East)
Length of Transect: GC Edge (East)
Driven or walked: GC Edge (East)
What Sign observed?
Date: 4/19/95
Weather: 55°F
Length of time - transect: 8:23 - 9:17 = 54 min.

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaida macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 2

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttalli* GC, SAW

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltiriparus minimus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP

Ring-billed gull *Larus delawarensis* GCP

Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

Birds from Early Spring 95

Double crested cormorant (*Phalacrocorax auritus*) (flyover)

American wigeon (*Anas americana*) GCP

Lesser scaup (*Aythya affinis*) GCP

Ruddy duck (*Oxyura jamaicensis*) GCP

Snowy egret (*Egretta thula*) GCP

Great-horned owl (*Bubo virginianus*) GC, U

American pipit (*Anthus rubescens*) Site 2

Tree Swallow (*Tachycineta bicolor*) IWTP

Bullock's Oriole (*Icterus galbula bullockii*) GC, SAW

Hooded oriole (*Icterus cucullatus*) GC, SAW

Chipping sparrow (*Spizella passerina*) GC, Site 5

Dark-eyed junco (*Junco hyemalis*) GC, Site 5

Lesser goldfinch (*Carduelis psaltria*) SAW

Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds

Whimbrel (Flyover)

Transsect Location: South Edge - GC

Length of Transsect:

Driver or walked

What sign observed?

Date: 4/19/95

Weather: 55°F

Length of time - Transsect: 9:20 - 9:42 - 22 min

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferans* U, Site 2, Site 5, SAW

Golden Eagle (sensitive) *Aquila chrysaetos* Site 2, Site 5, SAW

SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GCP, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2) *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GCP, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaidura macroura* U, GCP, IWT, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GCP, Site 2, SAW

Burrowing owl (sensitive) *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypso anna* U, Site 5

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWT, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttalli* GCP, SAW

Western kingbird *Tyrannus verticalis* U, GCP, IWT, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GCP, IWT, Site 2, SAW

SAW

Say's phoebe *Sayornis saya* GCP, SAW

Horned lark *Eremophila alpestris* U, GCP, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GCP, SAW

American crow *Corvus brachyrhynchos* U, GCP, GCP, IWT, SAW

Site 2, SAW

Common raven *Corvus corax* U, GCP, Site 2, Site 5, SAW

Bushy *Psittacus nigrinus* GCP, Site 5, SAW

Bewick's wren *Troglodytes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GCP

American robin *Turdus migratorius* GCP

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GCP, IWT, SAW

Site 5, SAW

European starling *Sturnus vulgaris* U, GCP, IWT, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magna* GCP, IWT, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

SAW

Western meadowlark *Sturnella neglecta* U, GCP, GCP, IWT, SAW

Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GCP

Brewer's blackbird *Euphagus cyanocephalus* GCP, GCP, IWT

IWT

House finch *Carpodacus mexicanus* U, GCP, GCP, IWT, Site 2, Site 5, SAW

New Birds

Lawrence's goldfinch (*Carduelis lawrencei*) SAW

Lesser goldfinch (*Carduelis psaltria*) SAW

Dark-eyed junco (*Junco hyemalis*) GCP, Site 5

Chipping sparrow (*Spizella passerina*) GCP, Site 5

Hooded oriole (*Icterus cucullatus*) GCP, SAW

Bullock's oriole (*Icterus galbula bullockii*) GCP, SAW

Tree swallow (*Iachycineta bicolor*) IWT

American pipit (*Ampelis rubescens*) Site 2

Great-horned owl (*Bubo virginianus*) GCP, U

Snowy egret (*Egretta thula*) GCP

Ruddy duck (*Oxyura jamaicensis*) GCP

Lesser scaup (*Aythya affinis*) GCP

American wigeon (*Anas americana*) GCP

Double crested cormorant (*Phalacrocorax auratus*) (flyover)

Birds from Early Spring 95

House sparrow *Passer domesticus* BW

Western tanager *Piranga ludoviciana* GCP, IWT, PTA

Brown-headed cowbird *Molothrus ater* GCP, SAW

Song sparrow *Melospiza melodia* LF

Northern cardinal *Cardinalis cardinalis* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Barn swallow *Hirundo rustica* GCP

SAW

Northern rough-winged swallow *Stelgidopteryx serripennis* S5,

Western flycatcher *Epidonax difficilis* GCP

Vermilion flycatcher *Pyrocephalus rubinus* GCP

Black-chinned hummingbird *Archilochus alexandri* SAW

Lesser night hawk *Chordeiles acuminatus* SAW

Common night hawk *Chordeiles minor* LF

Great horned owl *Bubo virginianus* GCP, IWT, PTA

Prairie falcon (sensitive) *Falco mexicanus* LF, S5

Swainson's hawk (C3) *Buteo swainsoni* SAW

Ring-billed gull *Larus delawarensis* GCP

Green-backed heron *Butorides striatus* GCP

Birds from Spring TM

Adult
2 February

Transect Location: Soft GCCH. Cottonwoods

Length of Transect:

Driven or walked

What Sign observed?

Date: 4/19/95

Weather: 60°F

Length of time - transect: 10:23 AM 11:26 - 1 hr. 3 min

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP

Great egret *Casmerodius albus* GCP

Great-blue heron *Ardea herodias* GCP

Mallard *Anas platyrhynchos* GCP

American coot *Fulica americana* GCP

Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW

Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW

Cooper's hawk *Accipiter cooperii* Site 2, SAW

Red-shouldered Hawk *Buteo lineatus* GC, SAW

Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW

Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW

American kestrel *Falco sparverius* U, GC, Site 2, Site 5

Gambel's quail *Callipepla gambelli* Site 5, SAW

Rock dove *Columba livia* U, Site 2

Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW

Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW

Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2

Anna's hummingbird *Calypte anna* U, Site 5 CK,

Belted kingfisher *Ceryle alcyon* GCP

Northern flicker *Colaptes auratus* IWTP, Site 2

Acorn woodpecker *Melanerpes formicivorus* U

Nuttall's woodpecker *Picoides nuttallii* GC, SAW →

Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2

Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW

Say's phoebe *Sayornis saya* GC, SAW

Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5

Violet-green swallow *Tachycineta thalassina* SAW

Scrub jay *Aphelocoma coerulescens* U, GC, SAW

American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW

Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW

Bushtit *Psaltirius murinus* GC, Site 5, SAW

Bewick's wren *Thryomanes bewickii* Site 5, SAW

Western bluebird *Sialia mexicana* GC

American robin *Turdus migratorius* GC

Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW

Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW

European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW

Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW

Common yellowthroat *Geothlypis trichas* SAW

Brown towhee *Pipilo fuscus* SAW

Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW

White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW

Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5

Red-winged blackbird *Agelaius phoeniceus* GCP, GC

Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP

House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP

Ring-billed gull *Larus delawarensis* GCP

Swainson's hawk (C (3C))^b *Buteo swainsoni* SAW

Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5

Great horned owl *Bubo virginianus* GC, IWTPA

Common nighthawk *Chordeiles minor* LF

Lesser nighthawk *Chordeiles acutipennis* SAW

Black-chinned hummingbird *Archilochus alexandri* SAW

Vermillion flycatcher *Pyrocephalus rubinus* GC

Western flycatcher *Epidonax difficilis* GC

Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW

Barn swallow *Hirundo rustica* GCP

Cactus wren *Campylorhynchus brunneicapillus* BW

Northern cardinal *Cardinalis cardinalis* GC

Song sparrow *Melospiza melodia* LF

Brown-headed cowbird *Molothrus ater* GC, SAW

Western tanager *Piranga ludoviciana* GC, IWTPA

House sparrow *Passer domesticus* BW

Birds from Early Spring 95

Double crested cormorant (*Phalacrocorax auritus*) (flyover)

American wigeon (*Anas americana*) GCP

Lesser scaup (*Aythya affinis*) GCP

Ruddy duck (*Oxyura jamaicensis*) GCP

Snowy egret (*Egretta thula*) GCP

Great-horned owl (*Bubo virginianus*) GC, U

American pipit (*Anthus rubescens*) Site 2

Tree Swallow (*Tachycineta bicolor*) IWTP

Bullock's oriole (~~*Icterus galbula bullockii*~~) GC, SAW

Hooded oriole (*Icterus cucullatus*) GC SAW

Chipping sparrow (*Spizella passerina*) GC, Site 5

Dark-eyed junco (*Junco hyemalis*) GC, Site 5

Lesser goldfinch (*Carduelis psaltria*) SAW

Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds

Domestic Dogs (3)

Desert Cottontail

Mammal dens

0 Townsend's Warbler

Hawk nest on top of Cottonwood - R.S.

0 Ash-Throated Flycatcher

Scraping - Tree - Coyote?

Ant. Hills

Small nest on ...

Scraping ...

Transect Location: North Perimeter Road
Length of Transect: 46.0 - 47.2 - 1.2 miles
Driver or walked
What Sign observed?
Date: 4/19/95
Weather: 65°F
Length of time - transect: 4:10 - 4:39 = 19 min

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
Red-shouldered Hawk *Buteo lineatus* GC, SAW
Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 5
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttallii* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW
Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
Scrub jay *Aphelocoma coerulescens* U, GC, SAW
American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltirius minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP
Ring-billed gull *Larus delawarensis* GCP
Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW
Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5
Great horned owl *Bubo virginianus* GC, IWTPA
Common nighthawk *Chordeiles minor* LF
Lesser nighthawk *Chordeiles acutipennis* SAW
Black-chinned hummingbird *Archilochus alexandri* SAW
Vermillion flycatcher *Pyrocephalus rubinus* GC
Western flycatcher *Epidonax difficilis* GC
Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW
Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
Northern cardinal *Cardinalis cardinalis* GC
Song sparrow *Melospiza melodia* LF
Brown-headed cowbird *Molothrus ater* GC, SAW
Western tanager *Piranga ludoviciana* GC, IWTPA
House sparrow *Passer domesticus* BW

Birds from Early Spring 95

Double crested cormorant (*Phalacrocorax auritus*) (flyover)
American wigeon (*Anas americana*) GCP
Lesser scaup (*Aythya affinis*) GCP
Ruddy duck (*Oxyura jamaicensis*) GCP
Snowy egret (*Egretta thula*) GCP
Great-horned owl (*Bubo virginianus*) GC, U
American pipit (*Anthus rubescens*) Site 2
Tree Swallow (*Tachycineta bicolor*) IWTP
Bullock's oriole (*Icterus galbula bullockii*) GC, SAW
Hooded oriole (*Icterus cucullatus*) GC SAW
Chipping sparrow (*Spizella passerina*) GC, Site 5
Dark-eyed junco (*Junco hyemalis*) GC, Site 5
Lesser goldfinch (*Carduelis psaltria*) SAW
Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds

Cal. Ground Sq.

Transect Location: S. Level ADT. SAW
Length of Transect: 81.7 - 82.5 = .8 mile
Driven or walked
What Sign observed?
Date: 4/20/95
Weather: 48°F / overcast
Length of time - transect: 7:55 - 8:39 AM = 44 min.

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP SAW
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
Red-shouldered Hawk *Buteo lineatus* GC, SAW
Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 2
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttallii* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW, Sites
Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
Scrub jay *Aphelocoma coerulescens* U, GC, SAW
American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltiriparus minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC, Sites
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP
Ring-billed gull *Larus delawarensis* GCP
Swainson's hawk (C (3C))^b *Buteo swainsoni* SAW
Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5
Great horned owl *Bubo virginianus* GC, IWTPA
Common nighthawk *Chordeiles minor* LF
Lesser nighthawk *Chordeiles acutipennis* SAW 4/19/95 (2)
Black-chinned hummingbird *Archiochus alexandri* SAW
Vermillion flycatcher *Pyrocephalus rubinus* GC
Western flycatcher *Epidonax difficilis* GC
Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW
Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
Northern cardinal *Cardinalis cardinalis* GC
Song sparrow *Melospiza melodia* LF
Brown-headed cowbird *Molothrus ater* GC, SAW
Western tanager *Piranga ludoviciana* GC, IWTPA
House sparrow *Passer domesticus* BW

Birds from Early Spring 95

Double crested cormorant (*Phalacrocorax aurinus*) (flyover)
American wigeon (*Anas americana*) GCP
Lesser scaup (*Aythya affinis*) GCP
Ruddy duck (*Oxyura jamaicensis*) GCP
Snowy egret (*Egretta thula*) GCP
Great-horned owl (*Bubo virginianus*) GC, U
American pipit (*Anthus rubescens*) Site 2
Tree Swallow (*Tachycineta bicolor*) IWTP
Bullock's oriole (*Icterus galbula bullockii*) GC, SAW
Hooded oriole (*Icterus cucullatus*) GC SAW
Chipping sparrow (*Spizella passerina*) GC, Site 5
Dark-eyed junco (*Junco hyemalis*) GC, Site 5
Lesser goldfinch (*Carduelis psaltria*) SAW, Sites
Lawrence's goldfinch (*Carduelis lawrencei*) SAW, Sites

New Birds

Desert Cottontail - Site 5 - on brush pile.
ASH Throated Flycatcher - Site 5
A Lot of bird Activity Ent around sites
Yellow-Headed Blackbird - U - 4/19/95

Sites
on brush
piles

Pair

Transect Location: SAW
Length of Transect: +8 mile
Driven or walked
What Sign observed? Prints - Dog
Date: 4/20/95
Weather: 55°F
Length of time - transect: 8:41 AM - 9:10 = 29 min.

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
Red-shouldered Hawk *Buteo lineatus* GC, SAW
Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaida macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 5
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttallii* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW
Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
Scrub jay *Aphelocoma coerulescens* U, GC, SAW
American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltiriparus minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP
Ring-billed gull *Larus delawarensis* GCP
Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW 2
Prairie falcon (sensitive)^b *Falco mexicanus* LF, SS
Great horned owl *Bubo virginianus* GC, IWTPA
Common nighthawk *Chordeiles minor* LF
Lesser nighthawk *Chordeiles acuiipennis* SAW
Black-chinned hummingbird *Archilochus alexandri* SAW
Vermillion flycatcher *Pyrocephalus rubinus* GC
Western flycatcher *Empidonax difficilis* GC
Northern rough-winged swallow *Stelgidopteryx serripennis* SS, SAW
Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
Northern cardinal *Cardinalis cardinalis* GC
Song sparrow *Melospiza melodia* LF
Brown-headed cowbird *Molothrus ater* GC, SAW
Western tanager *Piranga ludoviciana* GC, IWTPA
House sparrow *Passer domesticus* BW

Birds from Early Spring 95

Double crested cormorant (*Phalacrocorax auritus*) (flyover)
American wigeon (*Anas americana*) GCP
Lesser scaup (*Aythya affinis*) GCP
Ruddy duck (*Oxyura jamaicensis*) GCP
Snowy egret (*Egretta thula*) GCP
Great-horned owl (*Bubo virginianus*) GC, U
American pipit (*Anthus rubescens*) Site 2
Tree Swallow (*Tachycineta bicolor*) IWTP
Bullock's oriole (*Icterus galbula bullockii*) GC, SAW
Hooded oriole (*Icterus cucullatus*) GC SAW
Chipping sparrow (*Spizella passerina*) GC, Site 5, SAW
Dark-eyed junco (*Junco hyemalis*) GC, Site 5
Lesser goldfinch (*Carduelis psaltria*) SAW
Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds

Cal. BT Jack Rabbit

Cal. GR. Sq. - ADT sites

Song on Base

Transect Location: Cottonwood Grove 5/6 GCCH parking
Length of Transect: 0.25 mile
Driven or walked
What Sign observed?
Date: 4/20/95
Weather: 550 Cloudy / Humid
Length of time - transect: 9:23 AM - 10:04 = 41 min.

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferans* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
Red-shouldered Hawk *Buteo lineatus* GC, SAW
Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 5
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttallii* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW
Horned lark *Erenophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
Scrub jay *Amphelocoma coerulescens* U, GC, SAW
American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltirparus minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP
Ring-billed gull *Larus delawarensis* GCP
Swainson's hawk (C (3C))^b *Buteo swainsoni* SAW
Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5
Great horned owl *Bubo virginianus* GC, IWTPA
Common nighthawk *Chordeiles minor* LF
Lesser nighthawk *Chordeiles acutipennis* SAW
Black-chinned hummingbird *Archilochus alexandri* SAW
Vermillion flycatcher *Pyrocephalus rubinus* GC
Western flycatcher *Epidonax difficilis* GC
Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW
Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
Northern cardinal *Cardinalis cardinalis* GC
Song sparrow *Melospiza melodia* LF
Brown-headed cowbird *Molothrus ater* GC, SAW
Western tanager *Piranga ludoviciana* GC, IWTPA
House sparrow *Passer domesticus* BW

Birds from Early Spring 95

Double crested cormorant (*Phalacrocorax auritus*) (flyover)
American wigeon (*Anas americana*) GCP
Lesser scaup (*Aythya affinis*) GCP
Ruddy duck (*Oxyura jamaicensis*) GCP
Snowy egret (*Egretta thula*) GCP
Great-horned owl (*Bubo virginianus*) GC, U
American pipit (*Anthus rubescens*) Site 2
Tree Swallow (*Tachycineta bicolor*) IWTP
Bullock's oriole (*Icterus galbula bullockii*) GC, SAW
Hooded oriole (*Icterus cucullatus*) GC SAW
Chipping sparrow (*Spizella passerina*) GC, Site 5
Dark-eyed junco (*Junco hyemalis*) GC, Site 5
Lesser goldfinch (*Carduelis psaltria*) SAW
Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds

Desert Cottontails
+ Ash-Throated Flycatcher
+ Rufous-sided Towhee GC, SAW
+ Barn Swallow

Transect Location: SOUTH Base Perimeter East of GC
Length of Transect: 84 - 87.2 = 3.2 mile
(Driven) or walked
What Sign observed?
Date: 4/20/95
Weather: 55°F
Length of time - transect: 10:15 AM - 1:04 = 49 min.

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
Red-shouldered Hawk *Buteo lineatus* GC, SAW
Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 5
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttallii* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW
Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
Scrub jay *Aphelocoma coerulescens* U, GC, SAW
American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltiriparus minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP
Ring-billed gull *Larus delawarensis* GCP
Swainson's hawk [C (3C)]^b *Buteo swainsoni* SAW
Prairie falcon (sensitive)^c *Falco mexicanus* LF, S5
Great horned owl *Bubo virginianus* GC, IWTPA
Common nighthawk *Chordeiles minor* LF
Lesser nighthawk *Chordeiles acutipennis* SAW
Black-chinned hummingbird *Archilochus alexandri* SAW
Vermillion flycatcher *Pyrocephalus rubinus* GC
Western flycatcher *Epidonax difficilis* GC
Northern rough-winged swallow *Stelgidopteryx serripennis* S5, SAW
Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
Northern cardinal *Cardinalis cardinalis* GC
Song sparrow *Melospiza melodia* LF
Brown-headed cowbird *Molothrus ater* GC, SAW
Western tanager *Piranga ludoviciana* GC, IWTPA
House sparrow *Passer domesticus* BW

Birds from Early Spring 95

Double crested cormorant (*Phalacrocorax auritus*) (flyover)
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Lesser scaup (*Aythya affinis*) GCP
Ruddy duck (*Oxyura jamaicensis*) GCP
Snowy egret (*Egretta thula*) GCP
Great-horned owl (*Bubo virginianus*) GC, U
American pipit (*Anthus rubescens*) Site 2
Tree Swallow (*Tachycineta bicolor*) IWTP
Bullock's oriole (*Icterus galbula bullockii*) GC, SAW
Hooded oriole (*Icterus cucullatus*) GC SAW
Chipping sparrow (*Spizella passerina*) GC, Site 5
Dark-eyed junco (*Junco hyemalis*) GC, Site 5
Lesser goldfinch (*Carduelis psaltria*) SAW
Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds

+ Cliff Swallow
+ Barn Swallow

Transect Location:
Length of Transect:
Driven or walked
What Sign observed?
Date:
Weather:
Length of time - transect:

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
Cooper's hawk *Accipiter cooperii* Site 2, SAW
Red-shouldered Hawk *Buteo lineatus* GC, SAW
Red-tailed hawk *Buteo jamaicensis* U, Site 2, Site 5, SAW
Ferruginous hawk (C2)^c *Buteo regalis* Site 5, SAW
American kestrel *Falco sparverius* U, GC, Site 2, Site 5
Gambel's quail *Callipepla gambelli* Site 5, SAW
Rock dove *Columba livia* U, Site 2
Mourning dove *Zenaidura macroura* U, GC, IWTP, Site 2, Site 5, SAW
Greater roadrunner *Geococcyx californianus* GC, Site 2, SAW
Burrowing owl (sensitive)^b *Athene cunicularia* U, Site 2
Anna's hummingbird *Calypte anna* U, Site 5
Belted kingfisher *Ceryle alcyon* GCP
Northern flicker *Colaptes auratus* IWTP, Site 2
Acorn woodpecker *Melanerpes formicivorus* U
Nuttall's woodpecker *Picoides nuttallii* GC, SAW
Western kingbird *Tyrannus verticalis* U, GC, IWTP, Site 2
Black phoebe *Sayornis nigricans* U, GCP, GC, IWTP, Site 2, SAW
Say's phoebe *Sayornis saya* GC, SAW
Horned lark *Eremophila alpestris* U, GC, Site 2, Site 5
Violet-green swallow *Tachycineta thalassina* SAW
Scrub jay *Aphelocoma coerulescens* U, GC, SAW
American crow *Corvus brachyrhynchos* U, GCP, GC, IWTP, Site 2, SAW
Common raven *Corvus corax* U, GC, Site 2, Site 5, SAW
Bushtit *Psaltiriparus minimus* GC, Site 5, SAW
Bewick's wren *Thryomanes bewickii* Site 5, SAW
Western bluebird *Sialia mexicana* GC
American robin *Turdus migratorius* GC
Loggerhead shrike *Lanius ludovicianus* U, Site 2, Site 5, SAW
Northern mockingbird *Mimus polyglottos* U, GCP, GC, IWTP, Site 5, SAW
European starling *Sturnus vulgaris* U, GC, IWTP, Site 2, Site 5, SAW
Yellow-rumped warbler *Dendroica magnolia* GC, IWTP, SAW
Common yellowthroat *Geothlypis trichas* SAW
Brown towhee *Pipilo fuscus* SAW
Lark sparrow *Chondestes grammacus* Site 2, Site 5, SAW
White-crowned sparrow *Zonotrichia leucophrys* IWTP, Site 5, SAW
Western meadowlark *Sturnella neglecta* U, GCP, GC, IWTP, Site 2, Site 5
Red-winged blackbird *Agelaius phoeniceus* GCP, GC
Brewer's blackbird *Euphagus cyanocephalus* GCP, GC, IWTP
House finch *Carpodacus mexicanus* U, GCP, GC, IWTP, Site 2, Site 5, SAW

Birds from Spring TM

Green-backed heron *Butorides striatus* GCP
Ring-billed gull *Larus delawarensis* GCP
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Barn swallow *Hirundo rustica* GCP
Cactus wren *Campylorhynchus brunneicapillus* BW
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Chipping sparrow (*Spizella passerina*) GC, Site 5
Dark-eyed junco (*Junco hyemalis*) GC, Site 5
Lesser goldfinch (*Carduelis psaltria*) SAW
Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds

Transect Location: SAW - S of Base + E of Golf Course
Length of Transect: 98.7 - 99.7 = 1 mile
(Driven) or walked
What Sign observed?
Date: 4/20/95
Weather: Good Drizzle
Length of time - transect: 3:48pm - 4:05 = 22 min.

Birds from Fall TM

Pied-billed grebe *Podilymbus podiceps* GCP
Great egret *Casmerodius albus* GCP
Great-blue heron *Ardea herodias* GCP
Mallard *Anas platyrhynchos* GCP
American coot *Fulica americana* GCP
Killdeer *Charadrius vociferous* U, Site 2, Site 5, SAW
Golden Eagle (sensitive)^b *Aquila chrysaetos* Site 2, Site 5, SAW
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Dark-eyed junco (*Junco hyemalis*) GC, Site 5
Lesser goldfinch (*Carduelis psaltria*) SAW
Lawrence's goldfinch (*Carduelis lawrencei*) SAW

New Birds + WILDLIFE

(1) Coyote
Desert Cottontail
Beavertail Cactus - Blooming
BT Jack Rabbit

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