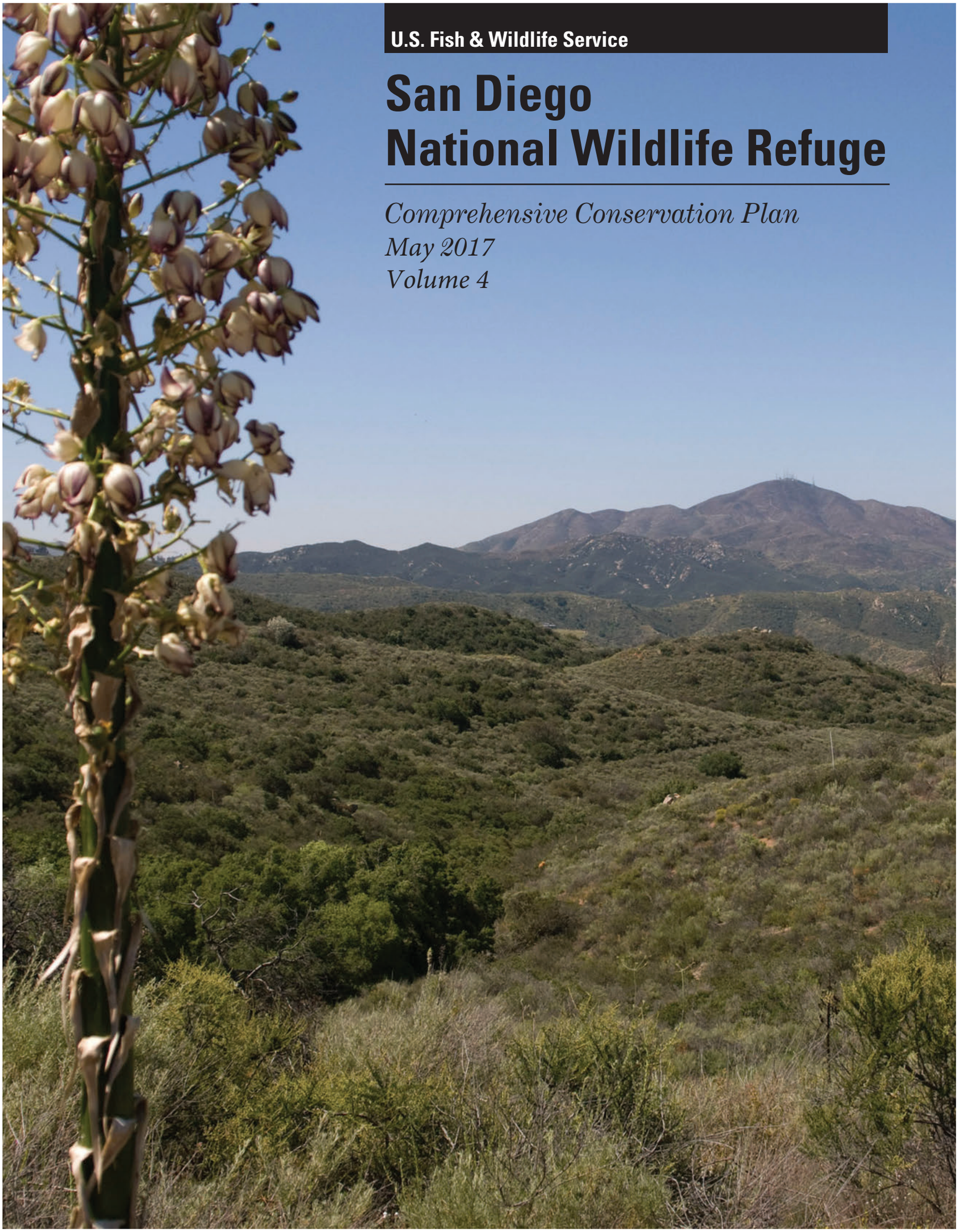

U.S. Fish & Wildlife Service

San Diego National Wildlife Refuge

Comprehensive Conservation Plan
May 2017
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San Diego
National Wildlife Refuge
Comprehensive Conservation Plan

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U. S. Fish and Wildlife Service
Pacific Southwest Region
2800 Cottage Way, Room W-1832
Sacramento, CA 95825-1846

May 2017

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Appendix H: Species Lists

Bird Species List

The following list includes bird species that have been observed within the San Diego NWR. The birds' common and scientific names are provided in accordance with the 7th edition (1998), 10th Supplement (2010) of the A.O.U. Checklist of North American Birds.

Common Name	Scientific Name
Cackling goose	*Branta hutchinsii*
Canada goose	*Branta canadensis*
Gadwall	*Anas strepera*
American wigeon	*Anas americana*
Mallard	*Anas platyrhynchos*
Northern pintail	*Anas acute*
Green-winged teal	*Anas crecca*
Canvasback	*Aythya valisineria*
Ring-necked duck	*Aythya collaris*
Bufflehead	*Bucephala albeola*
Ruddy duck	*Oxyura jamaicensis*
California quail	*Callipepla californica*
Ring-necked pheasant	*Phasianus colchicus*
Pied-billed grebe	*Podilymbus podiceps*
Western grebe	*Aechmophorus occidentalis*
Double-crested cormorant	*Phalacrocorax auritus*
American white pelican	*Pelecanus erythrorhynchos*
Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
Snowy egret	*Egretta thula*
Green heron	*Butorides virescens*
Black-crowned night heron	*Nycticorax nycticorax*
Turkey vulture	*Cathartes aura*
Osprey	*Pandion haliaetus*
White-tailed kite	*Elanus leucurus*
Bald eagle	*Haliaeetus leucocephalus*
Northern harrier	*Circus cyaneus*
Sharp-shinned hawk	*Accipiter striatus*
Cooper's hawk	*Accipiter cooperii*
Red-shouldered hawk	*Buteo lineatus*
Swainson's hawk	*Buteo swainsoni*
Red-tailed hawk	*Buteo jamaicensis*
Ferruginous hawk	*Buteo regalis*
Golden eagle	*Aquila chrysaetos*
Sora	*Porzana carolina*
Common gallinule	*Gallinula galeata*

Common Name	**Scientific Name**
American coot	*Fulica Americana*
Killdeer	*Charadrius vociferus*
Wilson's snipe	*Gallinago delicata*
Ring-billed gull	*Larus delawarensis*
Western gull	*Larus occidentalis*
Caspian tern	*Hydroprogne caspia*
Forster's tern	*Sterna forsteri*
Rock pigeon	*Columba livia*
Eurasian collared-dove	*Streptopelia decaocto*
White-winged dove	*Zenaida asiatica*
Mourning dove	*Zenaida macroura*
Common ground-dove	*Columbina passerina*
Greater roadrunner	*Geococcyx californianus*
Barn owl	*Tyto alba*
Western screech-owl	*Megascops kennicottii*
Great horned owl	*Bubo virginianus*
Burrowing owl	*Athene cunicularia*
Long-eared owl	*Asio otus*
Lesser nighthawk	*Chordeiles acutipennis*
Common poorwhill	*Phalaenoptilus nuttallii*
Black swift	*Cypseloides niger borealis*
Vaux's swift	*Chaetura vauxi*
White-throated swift	*Aeronautes saxatalis*
Black-chinned hummingbird	*Archilochus alexandri*
Anna's hummingbird	*Calypte anna*
Costa's hummingbird	*Calypte costae*
Rufous hummingbird	*Selasphoras rufus*
Allen's hummingbird	*Selasphoras sasin*
Calliope hummingbird	*Selasphorus calliope*
Belted kingfisher	*Megaceryle alcyon*
Acorn woodpecker	*Melanerpes formicivorus*
Red-breasted sapsucker	*Sphyrapicus ruber*
Nuttall's woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
Northern flicker	*Colaptes auratus*
American kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Peregrine falcon	*Falco peregrinus*
Prairie falcon	*Falco mexicanus*
Olive-sided flycatcher	*Contopus cooperi*
Western wood-peewee	*Contopus sordidulus*
Willow flycatcher	*Empidonax traillii*
Hammond's flycatcher	*Empidonax hammondii*
Dusky flycatcher	*Empidonax oberholseri*
Pacific-slope flycatcher	*Empidonax difficilis*
Black phoebe	*Sayornis nigricans*

Common Name	**Scientific Name**
Eastern phoebe	*Sayornis phoebe*
Say's phoebe	*Sayornis saya*
Ash-throated flycatcher	*Myiarchus cinerascens*
Cassin's kingbird	*Tyrannus vociferans*
Western kingbird	*Tyrannus verticalis*
Loggerhead shrike	*Lanius ludovicianus*
White-eyed vireo	*Vireo griseus*
Bell's vireo	*Vireo bellii*
Cassin's vireo	*Vireo cassinii*
Hutton's vireo	*Vireo huttoni*
Warbling vireo	*Vireo gilvus*
Western scrub-jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Horned lark	*Eremophila alpestris*
Purple martin	*Progne subis*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Bank swallow	*Riparia riparia*
Cliff swallow	*Petrochelidon pyrrhonota*
Barn swallow	*Hirundo rustica*
Oak titmouse	*Baeolophus inornatus*
Bushtit	*Psaltriparus minimus*
Rock wren	*Salpinctes obsoletus*
Canyon wren	*Catherpes mexicanus*
House wren	*Troglodytes aedon*
Marsh wren	*Cistothorus palustris*
Bewick's wren	*Thryomanes bewickii*
Cactus wren	*Camphylorhynchus brunneicapillus*
Blue-gray gnatcatcher	*Polioptila caerulea*
California gnatcatcher	*Poliptila californica*
Ruby-crowned kinglet	*Regulus calendula*
Wrentit	*Chamea fasciata*
Western bluebird	*Sialia mexicana*
Swainson's thrush	*Catharus ustulatus*
Hermit thrush	*Catharus guttatus*
American robin	*Turdus migratorius*
Northern mockingbird	*Mimus polyglottos*
Sage thrasher	*Oreoscoptes montanus*
California thrasher	*Toxostoma redivivum*
European starling	*Sturnus vulgaris*
American pipit	*Anthus rubenscens*
Cedar waxwing	*Bombycilla cedrorum*
Phainopepla	*Phainopepla nitens*
Lapland longspur	*Calcarius lapponicus*

Common Name	**Scientific Name**
Chestnut-collared longspur	*Calcarius ornatus*
Northern waterthrush	*Parkesia noveboracensis*
Black-and-white warbler	*Mniotilta varia*
Orange-crowned warbler	*Oreothlypis celata*
Nashville warbler	*Oreothlypis ruficapilla*
MacGillivray's warbler	*Geothlypis tolmiei*
Common yellowthroat	*Geothlypis trichas*
Magnolia warbler	*Setophaga magnolia*
Yellow warbler	*Setophaga petechia*
Palm warbler	*Setophaga palmarum*
Yellow-rumped warbler	*Setophaga coronata*
Black-throated gray warbler	*Setophaga nigrescens*
Townsend's warbler	*Setophaga townsendi*
Hermit warbler	*Setophaga occidentalis*
Wilson's warbler	*Cardellina pusilla*
Yellow-breasted chat	*Icteria virens*
Green-tailed towhee	*Pipilo chlorurus*
Spotted towhee	*Pipilo maculatus*
California towhee	*Melozone crissalis*
Rufous-crowned sparrow	*Aimophila ruficeps*
Chipping sparrow	*Spizella passerina*
Brewer's sparrow	*Spizella breweri*
Black-chinned sparrow	*Spizella atrogularis*
Vesper sparrow	*Pooecetes gramineus*
Lark sparrow	*Chondestes grammacus*
Sage sparrow	*Artemisiospiza belli*
Savannah sparrow	*Passerculus sandwichensis*
Grasshopper sparrow	*Ammodramus savannarum*
Fox sparrow	*Passerella iliaca*
Song sparrow	*Melospiza melodia*
Lincoln's sparrow	*Melospiza lincolnii*
Swamp sparrow	*Melospiza georgiana*
White-crowned sparrow	*Zonotrichia leucophrys*
Golden-crowned sparrow	*Zonotrichia atricapilla*
Dark-eyed junco	*Junco hyemalis*
Western tanager	*Piranga ludoviciana*
Rose-breasted grosbeak	*Pheucticus ludovicianus*
Black-headed grosbeak	*Pheucticus melanocephalus*
Blue grosbeak	*Passerina caerulea*
Lazuli bunting	*Passerina amoena*
Indigo bunting	*Passerina cyanea*
Red-winged blackbird	*Agelaius phoeniceus*
Tricolored blackbird	*Agelaius tricolor*
Western meadowlark	*Sturnella neglecta*
Brewer's blackbird	*Euphagus cyanocephalus*
Great-tailed grackle	*Quiscalus mexicanus*

Common Name	Scientific Name
Brown-headed cowbird	*Molothrus ater*
Hooded oriole	*Icterus cucullatus*
Bullock's oriole	*Icterus bullockii*
Purple finch	*Haemorhous purpureus*
House finch	*Haemorhous mexicanus*
Pine siskin	*Spinus pinus*
Lesser goldfinch	*Spinus psaltria*
Lawrence's goldfinch	*Spinus lawrencei*
American goldfinch	*Spinus tristis*
House sparrow	*Passer domesticus*

Reptile and Amphibian Species List

Amphibians and reptiles present or potentially present within the acquisition boundary of San Diego NWR are based on range maps from *A Field Guide to Western Reptiles and Amphibians* (Stebbins and Peterson 1985); the presence of suitable habitat within the acquisition boundary of the Refuge; research captures; and biological reports for and near the Refuge. The first name listed is the species name; the second name listed (in parenthesis) is the subspecies, if any, potentially found in the Refuge.

Common Name	Scientific Name
Ensatina (Monterey salamander)	*Ensatina eschscholtzii (eschscholtzii)*
Arboreal salamander	*Aneides lugubris*
Pacific slender salamander	*Batrachoseps pacificus*
Garden Slender Salamander	*Batrachoseps major*
Western spadefoot	*Scaphiopus hammondii*
Western toad (California toad)	*Bufo boreas (halophilus)*
Arroyo southwestern toad	*Bufo microscaphus californicus*
Red-spotted toad	*Bufo punctatus*
California treefrog	*Hyla cadaverina*
Pacific treefrog	*Hyla regilla*
Red-legged frog (California red-legged frog)	*Rana aurora (draytonii)*
Bullfrog	*Rana catesbeiana*
African clawed frog	*Xenopus laevis*
Southwestern pond turtle	*Clemmys marmorata (pallida)*
Slider (Red-eared slider)	*Pseudemys scripta (elegans)*
Spiny softshell (Western spiny softshell)	*Trionyx spiniferus (hartwegi)*
Western banded gecko (San Diego banded gecko)	*Coleonyx variegatus (abbotti)*
Desert spiny lizard	*Sceloporus magister*
Granite spiny lizard	*Sceloporus orcutti*
Western fence lizard (Great Basin fence lizard)	*Sceloporus occidentalis (biseriatus)*
Sagebrush lizard (Southern sagebrush lizard)	*Sceloporus graciosus (vandenburgianus)*
Side-blotched lizard	*Uta stansburiana*

Common Name	**Scientific Name**
Coast horned lizard (San Diego horned lizard)	*Phrynosoma coronatum (blainevillei)*
Granite night lizard	*Xantusia vigilis*
Western skink (Coronado skink)	*Eumeces skiltonianus (interparietalis)*
Gilbert skink (Western red-tailed skink)	*Eumeces gilberti (rubricaudatus)*
Orange-throated whiptail (Belding's orange-throated whiptail)	*Cnemidophorus hyperythrus (beldingi)*
Western whiptail (Coastal whiptail)	*Cnemidophorus tigris (multiscutatus)*
Southern alligator lizard (San Diego alligator lizard)	*Elgaria multicarinatus (webbi)*
California legless lizard (Silvery legless lizard)	*Anniella pulchra (pulchra)*
Western blind snake	*Leptotyphlops humilis*
Rosy boa (Coastal rosy boa)	*Lichanura trivirgata (roseofusca)*
Western yellow-bellied racer	*Coluber constrictor mormon*
Ringneck snake (San Diego ringneck snake)	*Diadophis punctatus (similis)*
Red coachwhip	*Masticophis flagellum (piceus)*
Baja coachwhip	*Masticophis fuiginosus*
California whipsnake (Chaparral whipsnake) (Striped racer)	*Masticophis lateralis (lateralis)*
Western patch-nosed snake (Coast patch-nosed snake)	*Salvadora hexalepis (virgultea)*
Glossy snake (California glossy snake)	*Arizona elegans (occidentalis)*
Gopher snake (San Diego gopher snake)	*Pituophis melanoleucus (annectens)*
Common kingsnake (California kingsnake)	*Lampropeltis getulus (californiae)*
California mountain kingsnake (San Diego mountain kingsnake)	*Lampropeltis zonata (pulchra)*
Long-nosed snake (Western long-nosed snake)	*Rhinocheilus lecontei (lecontei)*
Two-striped garter snake (Hammond two-striped garter snake)	*Thamnophis hammondii (hammondii)*
California black-headed snake	*Tantilla planiceps*
Lyre snake (California lyre snake)	*Trimorphodon biscutatus (vandenburghi)*
Night snake	*Hypsiglena torquata*
Red diamond rattlesnake (Northern red rattlesnake)	*Crotalus ruber (ruber)*
Speckled rattlesnake (Southwestern speckled rattlesnake)	*Crotalus mitchellii (pyrrhus)*
Western rattlesnake (Southern Pacific rattlesnake)	*Crotalus viridis (helleri)*

Fish Species List

Fish species present within the San Diego NWR based on *A list of freshwater, anadromous, and euryhaline fishes of California* (Moyle and Davis 2000); the presence of suitable habitat; and observations of Refuge staff. All are non-native species.

Common Name	Scientific Name
Carp	*Cyprinus carpio*
Mosquitofish	*Gambusia afinis*
Green sunfish	*Lepomis cyanellus*
Largemouth bass	*Micropterus salmoides*

Mammal Species List

Mammals present or potentially present within the acquisition boundary of San Diego NWR based on range maps from *National Audubon Society Field Guide to North American Mammals* (Whitaker 1996); the presence of suitable habitat for the species within the acquisition boundary; research captures; and biological reports for and near the Refuge.

Common Name	Scientific Name
Virginia opossum	*Didelphis virginiana*
Ornate shrew	*Sorex ornatus*
Desert shrew	*Notiosorex crawfordi*
Broad-footed mole	*Scapanus latimanus*
California leaf-nosed bat	*Macrotus californicus*
Mexican long-tongued bat	*Choeronycteris mexicana*
California myotis	*Myotis californicus*
Western small-footed myotis	*Myotis ciliolabrum*
Long-eared myotis	*Myotis evotis*
Occult little brown myotis	*Myotis lucifugus occultus*
Fringed myotis	*Myotis thysanodes*
Long-legged myotis	*Myotis volans*
Yuma myotis	*Myotis yumanensis*
Western red bat	*Lasiurus blossevillii*
Hoary bat	*Lasiurus cinereus*
Western yellow bat	*Lasiurus xanthinus*
Western pipistrelle	*Pipistrellus hesperus*
Big brown bat	*Eptesicus fuscus*
Townsend's big-eared bat	*Plecotus townsendii*
Pallid bat	*Antrozous pallidus*
Mexican free-tailed bat	*Tadarida brasiliensis*
Pocketed free-tailed bat	*Nyctinomops femorosaccus*
Big free-tailed bat	*Nyctinomops macrotis*
Western mastiff bat	*Eumops perotis californicus*
Desert cottontail	*Sylvilagus audubonii*
Brush rabbit	*Sylvilagus bachmani*

Common Name	**Scientific Name**
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*
Merriam's chipmunk	*Tamias merriami*
California ground squirrel	*Spermophilus beecheyi*
Golden-mantled ground squirrel	*Spermophilus lateralis*
Western gray squirrel	*Sciurus griseus*
Botta's pocket gopher	*Thomomys bottae*
Dulzura California pocket mouse	*Perognathus (= Chaetodipus) californicus femoralis*
Northwestern San Diego pocket mouse	*Perognathus (= Chaetodipus) fallax fallax*
Agile kangaroo rat	*Dipodomys agilis*
Merriam's kangaroo rat	*Dipodomys merriami*
Western harvest mouse	*Reithrodontomys megalotis*
Brush mouse	*Peromyscus boylii*
California mouse	*Peromyscus californicus*
Cactus mouse	*Peromyscus eremicus*
Deer mouse	*Peromyscus maniculatus*
Southern grasshopper mouse	*Onychomys torridus*
Dusky-footed woodrat	*Neotoma fuscipes*
San Diego desert woodrat	*Neotoma lepida intermedia*
California vole	*Microtus californicus*
Norway rat	*Rattus norvegicus*
Black rat	*Rattus rattus*
House mouse	*Mus musculus*
Coyote	*Canis latrans*
Kit fox	*Vulpes velox*
Gray fox	*Urocyon cinereoargenteus*
Ringtail	*Bassariscus astutus*
Raccoon	*Procyon lotor*
Long-tailed weasel	*Mustela frenata*
American badger	*Taxidea taxus*
Western spotted skunk	*Spilogale gracilis*
Striped skunk	*Mephitis mephitis*
Domestic cat	*Felis catus*
Mountain lion	*Felis concolor*
Bobcat	*Lynx rufus*
Mule deer	*Odocoileus hemionus*

References Cited:

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Appendix I: Table of Acquisition History for the San Diego NWR

Table of Acquisition History for the San Diego NWR

Acquisition Date	Tract Name	Method of Acquisition	Acreage Acquired
04/10/1996	FDIC	Donation	1,168.44
04/10/1996	FDIC	Donation	25.88
04/10/1996	FDIC	Donation	128.63
04/10/1996	FDIC	Donation	28.05
04/10/1996	FDIC	Donation	475.08
08/06/1997	National Fish and Wildlife Foundation	Donation	255.38
08/27/1997	Emerald Properties Corp	Monetary Purchase	500.00
08/28/1997	Emerald Properties Corp	Donation	1,186.00
03/09/1998	CMR Properties	Monetary Purchase	19.70
03/27/1998	Trust for Public Land	Monetary Purchase	322.32
03/27/1998	Hervey	Monetary Purchase	32.82
04/13/1998	Singing Hills (Duncan)	Donation	74.30
08/25/1998	Hamel	Monetary Purchase	52.66
08/28/1998	Mozaffarian	Monetary Purchase	5.00
08/28/1998	Mozaffarian	Monetary Purchase	10.00
10/28/1998	Doenges	Monetary Purchase	85.82
11/19/1998	Liker	Monetary Purchase	8.16
12/30/1998	Trust for Public Land	Monetary Purchase	631.44
02/25/1999	Trust for Public Land	Monetary Purchase	582.11
04/01/1999	Hamel	Monetary Purchase	79.41

Acquisition Date	Tract Name	Method of Acquisition	Acreage Acquired
04/06/1999	Miller/Rust	Monetary Purchase	0.75
04/06/1999	Miller/Rust	Monetary Purchase	6.75
06/11/1999	Department of Treasury	Primary Transfer	88.00
06/14/1999	Trust for Public Land	Donation	116.40
08/12/1999	Desert Pacific Council/Boy Scouts	Monetary Purchase	82.68
10/28/1999	Beitmann	Monetary Purchase	5.00
11/01/1999	Deguzman	Monetary Purchase	40.00
12/09/1999	Deguzman	Monetary Purchase	34.00
12/30/1999	Deguzman	Monetary Purchase	40.00
04/27/2000	Trust for Public Land	Monetary Purchase	160.00
05/26/2000	Grant	Monetary Purchase	14.62
06/05/2000	Immenschuh (Easement)	Monetary Purchase	1.01
06/05/2000	Immenschuh (Easement)	Monetary Purchase	0.00
06/05/2000	Immenschuh	Monetary Purchase	640.70
07/31/2000	Trust for Public Land	Monetary Purchase	10.00
08/18/2000	Rice (Easement)	Monetary Purchase	0.00
08/18/2000	Rice (Easement)	Monetary Purchase	0.00
08/18/2000	Rice	Monetary Purchase	0.70
08/18/2000	Rice	Monetary Purchase	253.30
05/16/2001	Trust for Public Land	Monetary Purchase	80.73
06/15/2001	Rice	Monetary Purchase	301.88
11/27/2001	Clarke	Monetary Purchase	37.76

Acquisition Date	Tract Name	Method of Acquisition	Acreage Acquired
02/26/2002	Trust for Public Land	Monetary Purchase	39.54
05/24/2002	Sampo	Monetary Purchase	69.44
06/07/2002	Mills	Monetary Purchase	18.77
02/12/2004	Trust for Public Land	Monetary Purchase	324.08
04/27/2004	Baker Trust	Monetary Purchase	1.00
04/27/2004	Baker Trust	Monetary Purchase	19.91
06/18/2004	Asisto/SDMR Holdings	Monetary Purchase	40.00
07/15/2004	Chula Vista 186 LLC	Monetary Purchase	186.33
05/20/2005	Trimark	Monetary Purchase	5.86
07/14/2005	King	Monetary Purchase	5.07
08/15/2005	Roberts	Monetary Purchase	10.14
08/23/2005	Mitchell	Monetary Purchase	3.44
12/02/2005	County of San Diego	Donation	18.91
12/14/2005	Robinson	Monetary Purchase	10.00
08/04/2006	Kelly, et al	Monetary Purchase	4.66
10/27/2006	The Environmental Trust Inc.	Monetary Purchase	50.00
06/11/2007	Brown	Monetary Purchase	40.00
06/13/2007	Wilhite	Monetary Purchase	40.00
05/18/2009	Catholic Diocese	Monetary Purchase	30.00
08/28/2009	Hovnanian	Donation	76.73
11/25/2009	The Environmental Trust, Inc.	Donation	357.63
02/11/2010	Jones	Monetary Purchase	20.00

Acquisition Date	Tract Name	Method of Acquisition	Acreage Acquired
06/10/2010	The Environmental Trust, Inc.	Donation	253.55
05/12/2011	Kennerly	Monetary Purchase	10.00
05/24/2011	Salerno	Monetary Purchase	10.00
07/07/2011	Nauman	Monetary Purchase	1.72
07/27/2011	Sevel	Monetary Purchase	1.00
08/08/2011	Evans	Monetary Purchase	2.00
01/06/2012	Peppard	Monetary Purchase	10.00
06/27/2012	Hidden Valley (The Nature Conservancy)	Donation	1,904.81
10/11/2012	Cuevas	Monetary Purchase	10.20
04/19/2013	Trimark (Tract 102 lots c,d,q,r)	Donation	59.83
04/19/2013	Trimark (Tract 102a lot a)	Donation	24.60
04/19/2013	Trimark (Tract 102b North)	Donation	166.00
06/17/2013	Heuschele	Monetary Purchase	6.00
07/23/2013	Lee	Donation	6.00
08/09/2014	Trimark (Tract 102d lot o)	Donation	102.36
Total Acres Acquired as of August 09, 2013			**11,527.15**

REQUEST FOR CULTURAL RESOURCE COMPLIANCE
U.S. Fish and Wildlife Service, Region 1 and 8

Project Name:					**FWS Program:** (ES, Refuges, Fisheries, Fire…)	
					Funding Program: (Partners, Refuges, TEA 21, HCP, NAWCA…)	
State: CA, ID, HI, NV, OR, WA		**EcoRegion:** CBE, IPE,KCE, NCE			**FWS Unit: Org Code:**	
Project Location:	**County**	**Township**	**Range**	**Section**	**FWS Contact:** Name, Tel#, Address	
USGS Quad:					**Date of Request:**	**Proposed Project Start Date:**
Total project acres/ linear ft/m:		**APE Acres / linear ft/m** (if different)				

Have you consulted with Tribe(s)?				Have you consulted with other interested parties?			
Yes	◯	No	◯	Yes	◯	No	◯

Is there another federal agency involved with this project?	◯	No	If yes, provide name:	
	◯	Yes		
If yes, which agency is taking lead for Section 106 compliance?	◯	FWS	◯	Other Agency

MAPS Attached	**Check below**		
Copy of portion of USGS Quad with project area marked clearly **(required)**			Project (sketch) map showing Area of Potential Effect with locations of specific ground altering activities **(required)**
Photocopy of aerial photo showing location **(if available)**			Any other project plans, photographs, or drawings that may help CRT in making determination **(if available)**

Directions to Project: (if not obvious)	

Description of Undertaking:	Describe proposed project and means to facilitate (e.g., provide funds to revegetate 1 mile of riparian habitat, restore 250 acres of seasonal wetlands, and construct a 5-acre permanent pond). How is the project designed (e.g., install 2 miles of fence and create approximately 25' of 3' high check dam)?

Return Form and maps to: Virginia_parks@fws.gov
If unable to send digitally, mail or fax to USFWS Region 1 Cultural Resources Team, 20555 SW Gerda Lane, Sherwood, OR 97140
Questions: 503-625-4377 or fax 503-625-4887

Area of Potential Effects (APE):	Describe where disturbance of the ground will occur. What are the dimensions of the area to be disturbed? How deep will you excavate? How far apart are fenceposts? What method are you using to plant vegetation? Where will fill be obtained? Where will soil be dumped? What tools or equipment will be used? Are you replacing or repairing a structure? Will you be moving dirt in a relatively undisturbed area? Will the project reach below or beyond the limits of prior land disturbance? Differentiate between areas slated for earth movement vs. areas to be inundated only. Is the area to be inundated different from the area inundated today, in the recent past, or under natural conditions? Provide acres and/or linear ft/m for all elements of the project.
Environmental and Cultural Setting:	Briefly describe the environmental setting of the APE. **A)** What was the natural habitat prior to modifications, reclamation, agriculture, settlement? **B)** What is land-use history? When was it first settled, modified? How deep has it been cultivated, grazed, etc.? **C)** What is land use and habitat today? What natural agents (e.g., sedimentation, vegetation, inundation) or cultural agents (e.g., cultivation) might affect the ability to discover cultural resources? **D)** Do you (or does anybody else) know of cultural resources in or near the project area?
Please return this RCRC and map showing APE digitally, if possible, to virginia_parks@fws.gov. Questions, call 503-625-4377	

Return Form and maps to: Virginia_parks@fws.gov
If unable to send digitally, mail or fax to USFWS Region 1 Cultural Resources Team, 20555 SW Gerda Lane, Sherwood, OR 97140
Questions: 503-625-4377 or fax 503-625-4887

Appendix K: Federal Laws and Executive Orders Relevant to the San Diego National Wildlife Refuge

Legal mandates and policies of the U.S. Fish and Wildlife Service (Service) govern the Service's planning and management of the National Wildlife Refuge System (Refuge System)A description of these legal mandates can be found at the "Division of Congressional and Legislative Affairs, USFWS" Web site (http://www.fws.gov/laws/Lawsdigest.html). In addition, the Service has developed policies to guide NWRS planning and management, which can be found at the "NWRS Policies Web site" (http://www.fws.gov/refuges/policiesandbudget/refugepolicies.html).

Laws and Executive Orders Applicable to the San Diego NWR CCP

All projects and step-down plans described in a CCP will be required to comply with the National Wildlife Refuge System Improvement Act of 1997 and the National Environmental Policy Act (described in Chapter 1 of the CCP), as well as a variety of other Federal regulations, Executive Orders (Eos), and legislative acts. A brief description of the laws and EOs applicable to the San Diego NWR CCP, as well as a statement indicating how each relates to the CCP, is provided in Table 1.

Applicable Laws and Executive Orders

Agency Coordination

Executive Order No. 12372, Intergovernmental Review of Federal Programs, requires that Federal agencies afford other agencies review of documents associated with Federal programs. The San Diego NWR CCP complies as the availability of the environmental assessment (EA) was advertised in the Federal Register and interested Federal, State, and local agencies and tribes were provided notices.

Effects on the Environment

The National Environmental Policy Act of 1969 (42 USC 4321 et seq.) (NEPA) requires analysis, public comment, and reporting of environmental impacts for federal actions. The San Diego NWR CCP complies as an EA was prepared jointly with the draft CCP and the public was notified of its availability for review and comment.

Human Rights

The Architectural Barriers Act of 1968, as amended, (42 U.S.C. §§ 4151 et seq.) requires all new federal buildings and facilities constructed or altered with federal funds since 1968 to be accessible to and usable by individuals with disabilities. It also requires that modifications be made to existing facilities to ensure equal access for employees or visitors. New buildings and other facilities on the Refuge will comply with these requirements. New trails and outdoor facilities will be laid out and designed per the draft accessibility guidelines for outdoor developed areas.

Executive Order 12898, Environmental Justice, mandates federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Implementing the CCP will not have a disproportionately high and adverse human health or environmental effect on minority or low-income populations. The CCP promotes compatible uses of the land that protect the natural resources and provide accessible opportunities for wildlife-dependent recreational uses.

Biological Resources

Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), as amended, provides for protection of plants, fish, and wildlife that have a designation as threatened or endangered. An Intra-Service Section 7 biological evaluation has been completed in association with the CCP that evaluates the effects of the plan's proposed actions on endangered and threatened species.

Fish and Wildlife Act of 1956 (16 USC 742a-743j, not including 742d-742l), provides the Secretary of the Interior with authority to protect and manage fish and wildlife resources. The Service will continue to comply with this Act under the CCP.

Fish and Wildlife Conservation Act of 1980 (16 USC 661-667e), as amended, requires the Service to monitor non-game bird species, identify species of management concern, and implement conservation measures to preclude the need for listing under ESA. Listed and MSCP-covered species will be monitored per adopted protocols; measures to protect and manage species of concern, along with the conservation of large blocks of native habitat, will assist in conserving trust species.

Fish and Wildlife Coordination Act of 1958 requires equal consideration and coordination of wildlife conservation with other water resource development programs. The CCP

acknowledges the need to coordinate Refuge actions with the agencies that maintain reservoirs downstream of the Refuge.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, January 10, 2001, instructs federal agencies to conserve migratory birds, in part through the incorporation of strategies and recommendations found in Partners in Flight Bird Conservation Plans, the North American Waterfowl Plan, the North American Waterbird Conservation Plan, and the United States Shorebird Conservation Plan, into agency management plans and guidance documents. The Service has incorporated the strategies and recommendations of these bird conservation plans into the CCP. The Service will continue to comply with this Order under the CCP.

Executive Order 13112, Invasive Species, requires federal agencies to use relevant programs and authorities to prevent, control, monitor, and research invasive species and coordinate complementary, cost-efficient, and effective activities concerning invasive species by relying on existing organizations already in place that address invasive species issues. The CCP addresses the need to work with others to address invasive species issues on the Refuge. In addition, an Integrated Pest Management Plan has been prepared for the Refuge in association with the CCP.

The Bald and Golden Eagle Protection Act of 1940 (16 USC 668 et seq.) provides protection for bald and golden eagles. Measures are addressed in the CCP to protect nesting golden eagles on the Refuge.

Migratory Bird Treaty Act (MBTA) of 1918, as amended, provides protection for bird species that migrate across state and international boundaries. The Service will continue to comply with this Act as it implements the proposals and management plans included within the CCP.

Federal Noxious Weed Act of 1990 requires the use of integrated management systems to control or contain undesirable plant species, and an interdisciplinary approach with the cooperation of other Federal and State agencies. An Integrated Pest Management Plan has been prepared for the Refuge in association with the CCP.

Emergency Wetlands Resources Act of 1986 promotes the conservation of migratory waterfowl and offsets or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitats. The CCP includes strategies to protect, restore, and enhance the wetlands that occur on the Refuge.

Cultural Resources

Antiquities Act of 1906 authorizes the scientific investigation of antiquities on federal land, and also prohibits and provides penalties for unauthorized search for or collection of artifacts or other objects of scientific interest on federal lands. The Act authorizes the President to establish national monuments and cultural areas on federal lands. The Service will continue to comply with this Act under the CCP.

Native American Graves Protection and Repatriation Act of 1990 (PL 101-601; 25 USC 3001 et seq.) (NAGPRA) regulates the treatment of Native American graves, human remains, funeral objects, sacred objects, and other objects of cultural patrimony and requires consultation with Native American Tribes during federal project planning. The San Diego NWR Complex has initiating discussions with the appropriate Native American Tribes to develop an MOU to implement the inadvertent discovery clause of NAGPRA.

Executive Order No. 11593, Protection and Enhancement of the Cultural Environment, requires that if the Service proposes any activities that may affect archaeological or historical sites, the Service shall consult with Federal and State Historic Preservation Officers to comply with Section 106 of the National Historic Preservation Act of 1966, as amended. Anu cultural resources that are identified will be protected, and steps to avoid any inadvertent impacts to subsurface deposits that have yet to be identified will be taken.

Executive Order 13007, Indian Sacred Sites. 24 May, 1996 Provides for access to, and ceremonial use of, Indian sacred sites on Federal lands used by Indian religious practitioners and direction to avoid adversely affecting the physical integrity of such sites. Tribes have been contacted regarding the CCP and have been invited to provide information necessary to protect sacred sites and other resources.

Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95; 93 STAT 722; 16 USC 470aa-47011), as amended, protects materials of archeological interest from unauthorized removal or destruction and requires federal managers to develop plans to locate archaeological resources. Cultural resources that have been identified will be protected, and steps to avoid any inadvertent impacts to subsurface deposits that have yet to be identified will be taken. The Service will continue to comply with this Act under the CCP.

American Indian Religious Freedom Act 1978 (PL 95-341; 92 STAT 469; 42 USC 1996) provides for freedom of Native Americans to believe, express, and exercise their traditional religion, including access to important sites. The Tribes have been contacted regarding the CCP and have been invited to provide information necessary to protect sacred sites and other resources.

National Historic Preservation Act (NHPA) of 1966 (PL 89-665; 50 STAT 915; 16 USC 470 et seq.; 36 CFR 800), as amended, requires federal agencies to consider the effects of any actions or programs on historical properties. The EA prepared to accompany the draft CCP addressed the potential effects of the actions proposed in the CCP and included measures for incorporation into the CCP to ensure that no adverse effects to historical properties will occur.

Archaeological and Historic Preservation Act of 1974 (PL 93-291; 88 STAT 174; 16 USC 469) provides for the preservation of historical buildings, sites, and objects of national significance. Potential historical resources have been identified in the CCP and those of national significance will be preserved. The Service will continue to comply with this Act under the CCP.

Curation of Federally-Owned and Administered Archaeological Collections (36 CFR 79) requires federal agencies to ensure proper care of federally-owned and administered archaeological collections, including ensuring that significant prehistoric and historic artifacts, and associated records, are deposited in an institution with adequate long-term curatorial capabilities that can provide professional, systematic, and accountable curatorial services on a long-term basis. Archaeological resources from the San Diego NWR that may become part of a federally owned and administered archaeological collection would be curated at the San Diego Archaeological Center, which accepts for accession archaeological collections from federal agencies.

Tribal Coordination

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, requires federal agencies to implement an accountable process to ensure meaningful and timely input by tribal officials as policies are developed that have tribal implications. Tribal governments in San Diego County were consulted prior to publication of the Notice of Intent and have continued to be updated on the progress of the CCP.

Paleontological Resources

Paleontological Resources Preservation Act of 2009 (P.L. 111-11, Title VI, Subtitle D) requires the management and protection of paleontological resources on federal lands using scientific principals and expertise; requires the development of plans for the inventory, monitoring, and scientific and educational use of paleontological resources; addresses the collection and curation of resources; identifies prohibited acts, and establishes criminal and civil penalties. The potential effects of Refuge actions on paleontological resources have been evaluated and there is a low potential for these resources to be present on the Refuge. The Service will however comply with the provision of this Act as applicable under the CCP.

Hazardous Materials

Oil Pollution Act of 1990 (PL 101-380; 33 USC 2701, et seq.) provides oil pollution policies and protections. The Service will continue to comply with this Act under the CCP.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (PL 96-510; 42 USC 9601, et seq.) provides mechanism for hazardous waste cleanup. The CCP proposes continued coordination with the Contaminants Program of the Carlsbad Fish and Wildlife Office when issues related to contaminants are identified on the Refuge.

Water Quality

The Clean Water Act of 1972, Section 404 (33 USC 1344 et seq.), as amended, establishes a program to regulate the discharge of dredged or fill material into waters of the United States (U.S.), including wetlands and requires a permit from the U.S. Army Corps of Engineers before dredged or fill material may be discharged into waters of the U.S. The CCP requires the implementation of best management practices during ground-disturbing activities to minimize siltation and run-off into adjacent wetlands, as well as during the application of pesticides, all to protect water quality.

Clean Water Act, Section 401, requires that an applicant for a federal license or permit provide a certification that any discharges will comply with the Act, including water quality standard requirements. A Stormwater Pollution Prevention Plan will be prepared in

compliance with the regulations of the California State Water Board for projects requiring grading or other significant land disturbance.

Land and Water Use

The National Wildlife Refuge System Administration Act of 1966 (16 USC 668dd-668ee), National Wildlife Refuge System Improvement Act of 1997 (PL 105-57) Administration, management, and planning for National Wildlife Refuges, amends the National Wildlife Refuge System Administration Act of 1966, and requires development of CCPs for all refuges outside of Alaska. The Service determined that hunting, wildlife observation, photography, environmental education, interpretation, research, and recreational trails are compatible with the purposes for which the Refuge was established. Implementation of the CCP will therefore satisfy the intent of this Act.

The Refuge Recreation Act of 1962, as amended, provides for recreation use that is compatible with the primary purpose of a refuge. The Service determined that hunting, wildlife observation, photography, environmental education, interpretation, and recreational trails are compatible with the purposes for which the Refuge was established.

Executive Order No. 11990, Protection of Wetlands, provides for the conservation of the natural and beneficial values of wetlands and their associated habitats. The CCP includes strategies to protect, restore, and enhance the wetlands that occur on the Refuge.

Executive Order No. 12996, Management and General Public Use of the National Wildlife Refuge System, directs the Secretary of the Interior to recognize compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education/interpretation as priority general public uses on refuges. The CCP addresses the compatibility of these uses on the San Diego NWR.

Executive Order No. 13690, Establishing a Federal Flood Risk Management Standard Amended EO 11988 (Floodplain Management), addresses the Federal Flood Risk Management Standard, which is intended to reduce the risk and cost of future flood disasters by ensuring that federal investments in and affecting floodplains are constructed to better withstand the impacts of flooding. Structures, such as trail bridges, that have the potential to influence the movement of floodwater will be designed to take into consideration the hydrology of the site, thus the proposed action is consistent with this Executive Order.

Fish and Wildlife Improvement Act of 1978 improves the administration of fish and wildlife programs and amends earlier laws including Refuge Recreation Act, NWRS Administration Act, and Fish and Wildlife Act of 1956. The Act authorizes the Secretary of the Interior to

accept gifts or real and personal property on behalf of the U.S. It also authorizes the use of volunteers on Service projects and appropriations to carry out a volunteer program. The CCP acknowledges the continued acquisition of lands within the approved Refuge boundary and that some parcels may come into the Refuge as a gift or donation. Volunteers are also an important part of successful Refuge management.

Refuge Policies that Guide Refuge Planning and Management

Statutory authority for Service management and associated habitat management planning on units of the NWRS is derived from the National Wildlife Refuge System Improvement Act. Section 4(a)(3) of the Improvement Act states, "With respect to the National Wildlife Refuge System, it is the policy of the United States that – (A) each refuge shall be managed to fulfill the mission of the System, as well as the specific purposes for which that refuge was established."

The Improvement Act provides clear standards for management, use, planning, and growth of the NWRS. Its passage followed the promulgation of Executive Order 12996 (April 1996), "Management of Public Uses on National Wildlife Refuges," reflecting the importance of conserving natural resource for the benefit of present and future generations of people. The Improvement Act recognizes that wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation, when determined to be compatible with the mission of the NWRS and purposes of the Refuge, are legitimate and appropriate public uses of the Refuge System.

The following policies have been developed to help guide the implementation of the Improvement Act and the administration of Refuge lands.

Compatibility Policy

The Improvement Act states, "The Secretary shall not initiate or permit a new use of a Refuge or expand, renew, or extend an existing use of a Refuge, unless the Secretary has determined that the use is a compatible use and that the use is not inconsistent with public safety." The Improvement Act also states that "compatible wildlife-dependent recreational uses [hunting, fishing, wildlife observation and photography, or environmental education and interpretation] are the priority general public uses of the System and shall receive priority consideration in Refuge planning and management; and when the Secretary determines that a proposed wildlife–dependent recreational use is a compatible use within a refuge, that activity should be facilitated, subject to such restrictions or regulations as may be necessary, reasonable, and appropriate."

In accordance with the Improvement Act, the Service has adopted a Compatibility Policy (*Fish and Wildlife Service Manual, Part 603 FW 2*) that includes guidelines for determining if a use proposed on a NWR is compatible with the purposes for which the refuge was established. A compatible use is defined in the policy as a proposed or existing wildlife-dependent recreational use or any other use of a NWR that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the NWRS mission or the purposes for which the Refuge was established. The Policy also includes procedures for documentation and periodic review of existing refuge uses.

When a determination is made as to whether a proposed use is compatible or not, this determination is provided in writing and is referred to as a compatibility determination. An opportunity for public review and comment is required for all compatibility determinations. Compatibility determinations prepared concurrently with a CCP are included in the public review process for the draft CCP and associated NEPA document. The Refuge has completed draft compatibility determinations for hunting, fishing, wildlife observation, photography, interpretation, and environmental education, as well as trail use and research. These compatibility determinations are available for review and comment in Appendix A.

Appropriate Use Policy

Refuges are first and foremost national treasures for the conservation of wildlife. Through careful planning, consistent system-wide application of regulations and policies, diligent monitoring of the impacts of uses on wildlife resources, and preventing or eliminating uses not appropriate to the Refuge System, the conservation mission of the Refuge System can be achieved, while also providing the public with lasting opportunities to enjoy and appreciate the resources protected within the Refuge System. The Appropriate Use Policy (*Fish and Wildlife Service Manual, Part 603 FW* 1) provides a national framework for determining appropriate refuge uses and outlines the procedures refuge managers must follow when deciding if a new or existing use is an appropriate use on the refuge. If an existing use is not appropriate, the refuge manager will eliminate or modify the use as expeditiously as practicable. If a proposed use is not determined to be appropriate, the use will not be allowed, and a compatibility determination will not be prepared.

To be considered appropriate, a proposed or existing use on a refuge must meet at least one of the four conditions described below. All uses determined to be appropriate are also reviewed for compatibility.

1) The use is a wildlife-dependent recreational use as identified in the Improvement Act (i.e., hunting, fishing, wildlife observation and photography, and environmental education and interpretation).

2) The use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in an approved refuge management plan.

3) The use involves the take of fish and wildlife under State regulations. (States have regulations concerning take of wildlife that includes hunting, fishing, and trapping. Take of wildlife under such regulations is considered appropriate; however, the refuge manager must determine if the activity is compatible before allowing it on a refuge.)

4) The use has been found to be appropriate after considering specific criteria.

For a use to be found appropriate, the Service must have jurisdiction over the use. If the Service does not have jurisdiction over the use or the area where the use would occur, no authority exists to consider the use. In addition, use must comply with all applicable laws and regulations (e.g., Federal, State, tribal, and local). Uses prohibited by law are not appropriate. The use must be consistent with applicable Executive Orders and Department and Service policies. If a use conflicts with an applicable Executive Order or Department or Service policy, the use is not appropriate.

The use must be consistent with public safety. If a use creates an unreasonable level of risk to visitors or refuge staff, or if the use requires refuge staff to take unusual safety precautions to assure the safety of the public or other refuge staff, the use is not appropriate.

The use must be consistent with refuge goals and objectives in an approved management plan or other document. If a use, either itself or in combination with other uses or activities, conflicts with a refuge goal, objective, or management strategy, the use is generally not appropriate.

If the use has been previously considered in a refuge planning process or under this policy and was rejected as not appropriate, it need not be considered further unless circumstances or conditions have changed significantly.

The use cannot divert management efforts or resources away from the proper and reasonable management of a refuge or the implementation of a wildlife-dependent recreational use. A use, other than a wildlife-dependent recreational uses (i.e., hunting, fishing, wildlife observation and photography, and environmental education and interpretation) that diverts available resources is generally not appropriate.

The use must be manageable in the future within existing resources. If a use would lead to recurring requests for the same or similar activities that will be difficult to manage in the future, then the use is not appropriate. However, if the use can be managed so that impacts to natural and cultural resources are minimal or inconsequential, or if clearly defined limits can be established, then the use may be further considered.

The use should contribute to the public's understanding and appreciation of the refuge's natural or cultural resources or is beneficial to the refuge's natural or cultural resources. If this is not the case, such a use would generally be considered not appropriate.

The use should be able to be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality, compatible, wildlife-dependent recreation into the future. If this is not the case, such a use would generally be considered not appropriate.

This Policy also states that if, during preparation of the CCP, a previously approved use can no longer be considered appropriate on the refuge, the reasons for this determination must be clearly explained to the public and a description of how the use will be eliminated or modified must also be provided. The documentation for both appropriateness findings and compatibility determinations are provided in Appendix C of the Final CCP.

Although a refuge use may be both appropriate and compatible, the refuge manager retains the authority to not allow the use or to modify the use. For example, on some occasions, two appropriate and compatible uses may be in conflict with each other. In these situations, even though both uses are appropriate and compatible, the refuge manager may need to limit or entirely curtail one of the uses in order to provide the greatest benefit to refuge resources and the public.

Biological Integrity, Diversity and Environmental Health Policy

Section 4(a)(4)(B) of the Improvement Act states, "In administering the System, the Secretary shall . . . ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans . . ." This legislative mandate represents an additional directive to be followed while achieving refuge purposes and the NWRS mission. The Improvement Act requires the consideration and protection of a broad spectrum of fish, wildlife, plant, and habitat resources found on a refuge. To implement this mandate, the Service has issued the Biological Integrity, Diversity and Environmental Health Policy (*Fish and Wildlife Service Manual, Part ,601 FW 3*), which provides policy for maintaining and restoring, where appropriate, the biological integrity,

diversity, and environmental health of the NWRS. This policy provides a refuge manager with an evaluation process to analyze his/her refuge and recommend the best management direction to prevent further degradation of environmental conditions; and where appropriate, and in concert with refuge purposes and the NWRS mission, to restore lost or severely degraded resource components. Within section 3[3.7B] of the policy, the relationships among biological integrity, diversity, and environmental health; the NWRS mission; and refuge purposes are explained as follows, "…each refuge will be managed to fulfill refuge purpose(s) as well as to help fulfill the System mission, and we will accomplish these purposes(s) and our mission by ensuring that the biological integrity, diversity, and environmental health of each refuge are maintained and where appropriate, restored."

When evaluating the appropriate management direction for refuges, refuge managers will use sound professional judgment to determine their refuge's contribution to biological integrity, diversity, and environmental health at multiple landscape scales. Sound professional judgment incorporates field experience, an understanding of the refuge's role within an ecosystem, and the knowledge of refuge resources, applicable laws, and best available science, including consultation with resource experts both inside and outside of the Service.

The priority public uses of the NWRS are not in conflict with this policy when they have been determined to be compatible. The directives of this policy do not envision or necessitate the exclusion of visitors or the elimination of visitor use structures from refuges; however, maintenance and/or restoration of biological integrity, diversity, and environmental health may require spatial or temporal zoning of visitor use programs and associated infrastructures. General success in maintaining or restoring biological integrity, diversity, and environmental health will produce higher quality opportunities for wildlife-dependent recreational uses.

Wilderness Stewardship Policy

The Wilderness Stewardship Policy, described in Part 610 FW 1 – 5 of the Fish and Wildlife Service Manual, provides an overview and foundation for implementing the National Wildlife Refuge System Administration Act of 1966, as amended, and the Wilderness Act of 1964. In the Wilderness Act, Congress called for the establishment of a National Wilderness Preservation System to secure an ''enduring resource of wilderness'' for the American public. Wilderness, as defined in Section 2(c) of the Wilderness Act, is an area that ". . . generally appears to have been affected primarily by the forces of nature with the imprint of man's work sustainably unnoticeable . . . has outstanding opportunities for solitude or a primitive and unconfined type of recreation . . . [and] has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition…"

The Wilderness Stewardship Policy provides refuge managers with guidance on conducting wilderness reviews on Refuge System lands to determine if these lands should be recommended for wilderness designation. It also establishes policy for managing wilderness study areas and recommended and proposed wilderness. The Policy also prescribes how refuge managers will preserve the character and qualities of designated wilderness while managing for refuge establishing purpose(s).

Part 610 FW 4 of the Service Manual describes the wilderness review process, a process that must be followed when identifying and recommending for congressional designation Refuge System lands and waters that merit inclusion in the National Wilderness Preservation System. Wilderness reviews are to be conducted as part of a scheduled CCP or CCP revision, but can also be conducted at any time if significant new information becomes available, ecological conditions change (including the restoration of significant acreage to natural conditions so that area now meets the definition of wilderness), or major refuge expansion occurs. The process must include interagency and tribal coordination, public involvement, and NEPA compliance. The wilderness review conducted for the San Diego NWR as part of the CCP process is presented in Appendix L of this document.

Appendix L: Wilderness Inventory

Introduction

A National Wilderness Preservation System composed of federally owned areas designated by Congress as "wilderness areas" has been created as a result of the passage of the Wilderness Act of 1964 (16 USC 1131-1136, 78 Stat. 890). The purpose of this act is "to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." Areas designated as wilderness are to be administered "for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness." No Federal lands are to be designated as "wilderness areas" except as provided for in the act.

Consistent with the intent of the Wilderness Act, wilderness reviews are a required element of CCPs and are conducted in accordance with the refuge planning process outlined in Section 602 FW 1 and 3 of the Service Manual, including public involvement and NEPA compliance. The three phases of the wilderness review are: 1) inventory; 2) study; and 3) recommendation.

If, through the inventory process, a determination is made that a refuge or area on a refuge meets the criteria for wilderness, the area, referred to as a wilderness study area (WSA), is further evaluated as part of the study phase. In the study phase, all values (e.g., ecological, recreational, cultural, economic, symbolic), resources (e.g., wildlife, water, vegetation, minerals, soils), public uses, and refuge management activities within the area are analyzed. This analysis also includes an evaluation of whether the WSA can be effectively managed to preserve its wilderness character. These elements are analyzed through the refuge planning process to determine the most appropriate management direction for the WSA.

The recommendation phase consists of forwarding or reporting recommendations for wilderness designation from the Director through the Secretary of the Interior and the President to Congress in a wilderness study report.

If the inventory does not identify any areas that meet the WSA criteria, these findings are documented in the administrative record for the CCP, fulfilling the planning requirement for a wilderness review. We inventoried the lands and waters within the San Diego NWR and found no areas that meet the eligibility criteria for a WSA as defined by the Wilderness Act. This appendix summarizes the wilderness inventory for the San Diego NWR.

Inventory Criteria

The wilderness inventory is a broad look at the planning area to identify wilderness study areas (WSAs). WSAs are roadless areas that meet the minimum criteria for wilderness identified in Section 2(c) of the Wilderness Act.

"A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions, and which: (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic, or historical value."

A WSA must be a roadless area or island, meet the size criteria, appear natural, and provide outstanding opportunities for solitude or primitive recreation. The process for identification of roadless areas and islands in the San Diego NWR and application of the wilderness criteria are described in the following sections.

Identification of Roadless Areas and Roadless Islands

Identification of roadless areas and roadless islands required gathering and evaluating land status maps, land use and road inventory data, and aerial photographs for the San Diego NWR. "Roadless" refers to the absence of improved roads suitable and maintained for public travel by means of motorized vehicles primarily intended for highway use.

Evaluation of the Size Criteria

Roadless areas or roadless islands meet the size criteria if any one of the following standards applies:

- An area with over 5,000 contiguous acres. State and private lands are not included in making this acreage determination.
- A roadless island of any size. A roadless island is defined as an area surrounded by permanent waters or that is markedly distinguished from the surrounding lands by topographical or ecological features.
- An area of less than 5,000 contiguous Federal acres that is of sufficient size as to make practicable its preservation and use in an unimpaired condition, and of a size suitable for wilderness management.
- An area of less than 5,000 contiguous Federal acres that is contiguous with a designated wilderness, recommended wilderness, or area under wilderness review by another Federal

wilderness managing agency such as the U.S. Forest Service, National Park Service, or Bureau of Land Management.

Evaluation of the Naturalness Criteria

In addition to being roadless, a WSA must meet the naturalness criteria. Section 2(c) defines wilderness as an area that "... generally appears to have been affected primarily by the forces of nature with the imprint of man's work substantially unnoticeable." The area must appear natural to the average visitor rather than "pristine." The presence of historic landscape conditions is not required. An area may include some human impacts, provided they are substantially unnoticeable in the unit as a whole. Significant human-caused hazards, such as the presence of unexploded ordnance from military activity, and the physical impacts of refuge management facilities and activities are also considered in evaluation of the naturalness criteria. An area may not be considered unnatural in appearance solely on the basis of the "sights and sounds" of human impacts and activities outside the boundary of the unit.

Evaluation of Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

In addition to meeting the size and naturalness criteria, a WSA must provide outstanding opportunities for solitude or primitive recreation. The area does not have to possess outstanding opportunities for both solitude and primitive and unconfined recreation, and it does not need to have outstanding opportunities on every acre. Further, an area does not have to be open to public use and access to qualify under this criteria; Congress has designated a number of wilderness areas in the Refuge System that are closed to public access to protect resource values.

Opportunities for solitude refer to the ability of a visitor to be alone and secluded from other visitors in the area. Primitive and unconfined recreation means non-motorized, dispersed outdoor recreation activities that are compatible and do not require developed facilities or mechanical transport. These primitive recreation activities may provide opportunities to experience challenge and risk, self-reliance, and adventure.

These two "opportunity elements" are not well defined by the Wilderness Act but, in most cases, can be expected to occur together. However, an outstanding opportunity for solitude may be present in an area offering only limited primitive recreation potential. Conversely, an area may be so attractive for recreation use that experiencing solitude is not an option.

Evaluation of Supplemental Values

Supplemental values are defined by the Wilderness Act as "...ecological, geological, or other features of scientific, educational, scenic, or historic value." These values are not required for wilderness, but their presence should be documented.

Inventory Findings

As documented here, the lands and waters within the San Diego NWR do not meet the criteria for a WSA.

Roadless Areas and Roadless Islands

Many unpaved and two paved roads extend through the Refuge that are used by the Refuge, San Diego Gas and Electric, Otay Water District, communications facilities, and private landowners. The lands within the Refuge do not meet the criteria for roadless areas.

Size criteria

The San Diego NWR consists of approximately 11,163 acres of land distributed among five separate areas. Although the largest contiguous area consists of approximately 6,700 acres, this area is traversed by several power transmittal lines and associated maintenance easements, as well as a road that provides access to private property at the top of San Miguel Mountain. None of the areas contain undisturbed land of sufficient size to meet the wilderness size criteria. No islands are included within the San Diego NWR.

Naturalness Criteria

The majority of wetland and upland habitats within the San Diego NWR represent historic, natural coastal foothill, valley, and riparian habitats. However, other portions serve as mitigation (e.g., Palmer's ericameria restoration in uplands adjacent to the Sweetwater River). The restored vernal pools at Shinohara mimic the historic natural conditions of the area. In addition, evidence of past agricultural development is present in various locations throughout the Refuge.

Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation

Much of the San Diego NWR is located adjacent to urban and suburban development, with other areas that are more remote from human activity. Although the Refuge can provide opportunities for escape from the urban environment, the sights and sounds of urbanization are often apparent within the Refuge boundary.

Supplemental Values

The San Diego NWR protects some of what remains of the historic, natural coastal foothill, valley, and riparian habitats, and these areas of the Refuge provide significant scenic value and provide significant ecological benefits to wildlife.

Conclusions

The lands and waters included within the San Diego NWR do not meet the minimum criteria for wilderness as identified in Section 2(c) of the Wilderness Act. No further analysis related to wilderness issues is therefore required.