

## Appendix A: Project Review Form for Tank Removal

Appendix A: Project Review Form for Tank Removal, consists of a completed Golden Gate Recreation Area Project Review Form for NEPA Compliance and a Presidio of San Francisco Mountain Lake Irrigation Well Demolition Site Plan. Hard copies of these documents are available in the Presidio Trust Library, 34 Graham Street, Presidio of San Francisco, San Francisco, CA 94129. To reach the Library by phone, please call (415)561-5343.

## Appendix B: Birds Observed at Mountain Lake

<b>c = common</b>	<b>u = uncommon</b>	<b>* = tree nesters</b>
<b>fc = frequent</b>	<b>r = rare</b>	<b>** = ground nesters</b>

Species	Frequency
<b><u>Podicepsidae (Grebes)</u></b>	
Pied-billed Grebe*	<b>c</b>
Horned Grebe	<b>r</b>
<b><u>Phalacrocoracidae (Cormorants)</u></b>	
Double-crested Cormorant	<b>fc</b>
<b><u>Ardeidae (Hérons)</u></b>	
Black-crowned Night Heron*	<b>u</b>
Green Heron	<b>r</b>
Snowy Egret	<b>r</b>
Great Egret	<b>fc</b>
Great Blue Heron	<b>fc</b>
<b><u>Anatidae (Swans, Geese, and Ducks)</u></b>	
Mallard*	<b>c</b>
American Widgeon	<b>r</b>
Ring-necked Duck	<b>r</b>
Bufflehead	<b>r</b>

Ruddy Duck	<b>u</b>
Canvasback	<b>r</b>
<b><u>Cathartidae (American Vultures)</u></b>	
Turkey Vulture	<b>u</b>
<b><u>Accipitridae (Hawks, Eagles, Harriers)</u></b>	
Osprey	<b>u</b>
Sharp-shinned Hawk - Special Concern	<b>u</b>
Cooper's Hawk* - Special Concern	<b>u</b>
Red-shouldered Hawk*	<b>c</b>
Red-tailed Hawk*	<b>c</b>
<b><u>Falconidae (falcons)</u></b>	
American Kestrel*	<b>r</b>
Merlin - Special Concern	<b>r</b>
Peregrine Falcon	<b>r</b>
<b><u>Galliformes (Quail and Grouse)</u></b>	
California Quail*	<b>x</b>
<b><u>Rallidae (Rails, Gallinules and Coots)</u></b>	
American Coot*	<b>c</b>
Common Moorhen	<b>r</b>
Sora	<b>r</b>
<b><u>Charadriidae (Plovers)</u></b>	
Killdeer*	<b>u</b>
<b><u>Scolopacidae (Sandpipers and relatives)</u></b>	
Dowitcher spp.	<b>r</b>
Common Snipe	<b>r</b>
<b><u>Laridae (Gulls and Terns)</u></b>	
Mew Gull	<b>c</b>
Ring-billed Gull	<b>c</b>

California Gull	<b>c</b>
Herring Gull	<b>r</b>
Thayer's Gull	<b>r</b>
Western Gull*	<b>c</b>
Glaucous-winged Gull	<b>c</b>
Caspian Tern	<b>u</b>
<b><u>Columbidae (Doves and Pigeons)</u></b>	
Rock Dove*	<b>c</b>
Band tailed Pigeon*	<b>u</b>
Mourning Dove*	<b>c</b>
<b><u>Tytonidae (Barn Owls)</u></b>	
Barn Owl*	<b>r</b>
<b><u>Strigidae (Typical Owls)</u></b>	
Western Screech-Owl*	<b>x</b>
Great Horned Owl*	<b>u</b>
<b><u>Apodidae (Swifts)</u></b>	
White-throated Swift	<b>r</b>
<b><u>Trochilidae (Hummingbirds)</u></b>	
Anna's Hummingbird*	<b>c</b>
Rufous Hummingbird	<b>r</b>
Allen's Hummingbird *	<b>c</b>
<b><u>Alecinidae (Kingfishers)</u></b>	
Belted Kingfisher	<b>u</b>
<b><u>Picidae (Woodpeckers)</u></b>	
Acorn Woodpecker	<b>r</b>
Red-breasted Sapsucker	<b>u</b>
Downy Woodpecker*	<b>c</b>
Hairy Woodpecker*	<b>u</b>

Northern Flicker	<b>c</b>
<b><u>Tyranidae (Tyrant Flycatchers)</u></b>	
Olive-sided Flycatcher* - Special Concern	<b>u</b>
Western Wood-Pewee	<b>u</b>
Willow Flycatcher - State Endangered	<b>u</b>
Pacific-slope Flycatcher*	<b>fc</b>
Black Phoebe*	<b>c</b>
Say's Phoebe	<b>r</b>
Ash-throated Flycatcher	<b>r</b>
<b><u>Vireonidae (Vireos)</u></b>	
Solitary Vireo	<b>u</b>
Hutton's Vireo*	<b>fc</b>
Warbling Vireo	<b>u</b>
<b><u>Corvidae (Jays, Magpies, Crows and Ravens)</u></b>	
Steller's Jay*	<b>r</b>
Western Scrub-Jay*	<b>c</b>
American Crow*	<b>c</b>
Common Raven*	<b>c</b>
<b><u>Hirundinidae (Swallows)</u></b>	
Tree Swallow*	<b>u</b>
Violate-green Swallow*	<b>c</b>
N. Rough-winged Swallow	<b>u</b>
Cliff Swallow*	<b>c</b>
Barn Swallow*	<b>c</b>
<b><u>Paridae (Chickadees and Titmice)</u></b>	
Chestnut-backed Chickadee*	<b>c</b>
<b><u>Aegithalidae (Bushtits)</u></b>	
Bushtit*	<b>c</b>
<b><u>Certhiidae (Creepers)</u></b>	

Brown Creeper*	<b>c</b>
<b><u>Sittidae (Nuthatches)</u></b>	
Red-breasted Nuthatch	<b>r</b>
Pygmy Nuthatch*	<b>c</b>
<b><u>Troglodytidae (Wrens)</u></b>	
Bewick's Wren	<b>r</b>
House Wren	<b>r</b>
Winter Wren*	<b>c</b>
Marsh Wren	<b>c</b>
<b><u>Regulidae (Kinglets)</u></b>	
Golden-crowned Kinglet	<b>fc</b>
Ruby-crowned Kinglet	<b>c</b>
<b><u>Turdidae (Thrushes)</u></b>	
Swainson's Thrush*	<b>u</b>
Hermit Thrush	<b>c</b>
American Robin*	<b>c</b>
Varied Thrush	<b>u</b>
<b><u>Mimiidae (Mimic Thrushes)</u></b>	
Northern Mockingbird*	<b>u</b>
<b><u>Sturnidae (Starlings)</u></b>	
European Starling*	<b>c</b>
<b><u>Bombycillidae (Silky Flycatchers)</u></b>	
Cedar Waxwing	<b>fc</b>
<b><u>Parulinae (Wood Warblers)</u></b>	
Orange-Crowned Warbler**	<b>fc</b>
Nashville Warbler	<b>r</b>
Yellow Warbler ** - Special Concern	<b>u</b>
Yellow-rumped Warbler	<b>c</b>

Black-throated Gray Warbler	<b>u</b>
Townsend's Warbler	<b>c</b>
Hermit Warbler	<b>u</b>
Northern Waterthrush	<b>r</b>
Black-and-white Warbler	<b>r</b>
Black-throated blue Warbler	<b>r</b>
American Redstart	<b>r</b>
MacGillivray's Warbler	<b>r</b>
Common Yellowthroat	<b>u</b>
Wilson's Warbler**	<b>c</b>
<b><u>Thraupine (Tanagers)</u></b>	
Western Tanager	<b>fc</b>
<b><u>Emberizinae (Sparrows)</u></b>	
Spotted Towhee	<b>r</b>
California Towhee*	<b>fc</b>
Chipping Sparrow	<b>r</b>
Clay-colored Sparrow	<b>r</b>
Savannah Sparrow	
Fox Sparrow	<b>c</b>
Song Sparrow*	<b>c</b>
Lincoln's Sparrow	<b>fc</b>
Swamp Sparrow	<b>r</b>
White-throated Sparrow	<b>u</b>
Golden-crowned Sparrow	<b>c</b>
White-crowned Sparrow*	<b>c</b>
Dark-eyed Junco**	<b>c</b>
<b><u>Cardinalinae (Grosbeaks and Buntings)</u></b>	
Rose-breasted Grosbeak	<b>r</b>
Black-headed Grosbeak	<b>u</b>
<b><u>Icterninae (Blackbirds and Relatives)</u></b>	
Red-winged Blackbird	<b>c</b>

Tricolored Blackbird	<b>r</b>
Western Meadowlark	<b>u</b>
Brewer's Blackbird*	<b>c</b>
Brown-headed Cowbird*	<b>fc</b>
Hooded Oriole*	<b>u</b>
Bullock's Oriole	<b>u</b>
<b><u>Fringillidae (Finches)</u></b>	
Purple Finch*	<b>fc</b>
House Finch*	<b>c</b>
Red Crossbill*	<b>r</b>
Pine Siskin*	<b>fc</b>
Lesser Goldfinch*	<b>u</b>
American Goldfinch*	<b>u</b>
<b><u>Passeridae ( Old World Sparrows)</u></b>	
House Sparrow*	<b>c</b>
<p><i>Source: J. Clark, Point Reyes Bird Observatory; California Academy of Sciences</i></p>	

### Appendix C: USFWS List of Potential Special Status Species for Mountain Lake

ATTACHMENT A  
 Endangered and Threatened Species that May Occur in or be Affected by  
 PROJECTS IN SAN FRANCISCO COUNTY  
 Reference file No. 1-1-00-SP-3014  
 October 2, 2000

<b><i>Listed Species</i></b>
<b>Mammals</b>
sei whale, <i>Balaenoptera borealis</i> (E)
blue whale, <i>Balaenoptera musculus</i> (E)
finback (=fin) whale, <i>Balaenoptera physalus</i> (E)
right whale, <i>Eubalaena glacialis</i> (E)
humpback whale, <i>Megaptera novaeangliae</i> (E)

sperm whale, <i>Physeter catadon</i> (=macrocephalus) (E)
salt marsh harvest mouse, <i>Reithrodontomys raviventris</i> (E)
Guadalupe fur seal, <i>Arctocephalus townsendi</i> (T)
Critical Habitat, Steller (=northern) sea-lion, <i>Eumetopias jubatus</i> (T)
Steller (=northern) sea-lion, <i>Eumetopias jubatus</i> (T)
<b>Birds</b>
California brown Pelican, <i>Pelecanus occidentalis californicus</i> (E)
California clapper rail, <i>Rallus longirostris obsoletus</i> (E)
western snowy plover, <i>Charadrius alexandrinus nivosus</i> (T)
bald eagle, <i>Haliaeetus leucocephalus</i> (T)
<b>Reptiles</b>
leatherback turtle, <i>Dermochelys coriacea</i> (E)
loggerhead turtle, <i>Caretta caretta</i> (T)
green turtle, <i>Chelonia mydas</i> (incl. <i>agassizi</i> ) (T)
olive (=Pacific) ridley sea turtle, <i>Lepidochelys olivacea</i> (T)
<b>Amphibians</b>
California red-legged frog, <i>Rana aurora draytonii</i> (T)
<b>Fish</b>
tidewater goby, <i>Eucyclogobius newberryi</i> (E)
Critical habitat, winter-run chinook salmon, <i>Oncorhynchus tshawytscha</i> (E)
winter-run chinook salmon, <i>Oncorhynchus tshawytscha</i> (E)
delta smelt, <i>Hypomesus transpacificus</i> (T)
Central California Coastal steelhead, <i>Oncorhynchus mykiss</i> (T)
Sacramento splittail, <i>Pogonichthys macrolepidotus</i> (T)
<b>Invertebrates</b>
mission blue butterfly, <i>Icaricia icarioides missionensis</i> (E)
San Bruno elfin butterfly, <i>Incisalia mossii bayensis</i> (E)
<b>Plants</b>
Presidio manzanita, <i>Arctostaphylos hookeri</i> ssp. <i>ravenii</i> (E)

Presidio clarkia, <i>Clarkia franciscana</i> (E)
San Francisco lessingia, <i>Lessingia germanorum</i> (E)
Marin dwarf-flax, <i>Hesperolinon congestum</i> (T)
marsh sandwort, <i>Arenaria paludicola</i> (E)*
beach layia, <i>Layia carnosa</i> (E)*
<b>Proposed Species</b>
<b>Birds</b>
short-tailed albatross, <i>Diomedea albatrus</i> (PE)
<b>Invertebrates</b>
white abalone, <i>Haliotes sorenseni</i> (PE)
<b>Candidate Species</b>
<b>Amphibians</b>
California tiger salamander, <i>Ambystoma californiense</i> (C)
<b>Invertebrates</b>
black abalone, <i>Haliotes cracherodii</i> (C)
<b>Species of Concern</b>
<b>Mammals</b>
gray whale, <i>Eschrichtius robustus</i> (D)
Pacific western big-eard bat, <i>Corynorhinus (=Plecotus) townsendii townsendii</i> (SC)
greater western mastiff-bat, <i>Eumops perotis californicus</i> (SC)
long-eared myotis bat, <i>Myotis evotis</i> (SC)
fringed myotis bat, <i>Myotis thysanodes</i> (SC)
long-legged myotis bat, <i>Myotis volans</i> (SC)
Yuma myotis bat, <i>Myotis yumanensis</i> (SC)
San Francisco dusky-footed woodrat, <i>Neotoma fuscipes annectens</i> (SC)
salt marsh vagrant shrew, <i>Sorex vagrans halicoetes</i> (SC)

<b>Birds</b>
little willow flycatcher, <i>Empidonax traillii brewsteri</i> (CA)
black rail, <i>Laterallus jamaicensis coturniculus</i> (CA)
bank swallow, <i>Riparia riparia</i> (CA)
American peregrine falcon, <i>Falco peregrinus anatum</i> (D)
Black-Crowned Night Heron, <i>Nycticorax nycticorax</i> (MB)
tricolored blackbird, <i>Agelaius tricolor</i> (SC)
grasshopper sparrow, <i>Ammodramus savannarum</i> (SC)
Bells sage sparrow, <i>Amphispiza belli belli</i> (SC)
American bittern, <i>Botaurus lentiginosus</i> (SC)
ferruginous hawk, <i>Buteo regalis</i> (SC)
Vaux's swift, <i>Chaetura vauxi</i> (SC)
lark sparrow, <i>Chondestes grammacus</i> (SC)
olive-sided flycatcher, <i>Contopus cooperi</i> (SC)
hermit warbler, <i>Dendroica occidentalis</i> (SC)
white-tailed (=black shouldered) kite, <i>Elanus leucurus</i> (SC)
Pacific-slope flycatcher, <i>Empidonax difficilis</i> (SC)
common loon, <i>Gavia immer</i> (SC)
saltmarsh common yellowthroat, <i>Geothlypis trichas sinuosa</i> (SC)
loggerhead shrike, <i>Lanius ludovicianus</i> (SC)
Alameda (South Bay) song sparrow, <i>Melospiza melodia pusillula</i> (SC)
long-billed curlew, <i>Numenius americanus</i> (SC)
ashy storm-petrel, <i>Oceanodroma homochroa</i> (SC)
rufous hummingbird, <i>Selasphorus rufus</i> (SC)
Allen's hummingbird, <i>Selasphorus sasin</i> (SC)
red-breasted sapsucker, <i>Sphyrapicus ruber</i> (SC)
elegant tern, <i>Sterna elegans</i> (SC)
Xantus' murrelet, <i>Synthliboramphus hypoleucus</i> (SC)
Bewick's wren, <i>Thryomanes bewickii</i> (SC)
<b>Reptiles</b>
northwestern pond turtle, <i>Clemmys marmorata marmorata</i> (SC)
southwestern pond turtle, <i>Clemmy marmorata pallida</i> (SC)
California horned lizard, <i>Phrynosoma coronatum frontale</i> (SC)

<b>Amphibians</b>
foothill yellow-legged frog, <i>Rana boylei</i> (SC)
<b>Fish</b>
green sturgeon, <i>Acipenser medirostris</i> (SC)
river lamprey, <i>Lampetra ayresi</i> (SC)
Pacific lamprey, <i>Lampetra tridentata</i> (SC)
longfin smelt, <i>Spirinchus thaleichthys</i> (SC)
<b>Invertebrates</b>
Opler's longhorn moth, <i>Adela oplerella</i> (SC)
sandy beach tiger beetle, <i>Cicindela hirticollis gravida</i> (SC)
globose dune beetle, <i>Coelus globosus</i> (SC)
Ricksecker's water scavenger beetle, <i>Hydrochara rickseckeri</i> (SC)
bumblebee scarab beetle, <i>Lichnanthe ursina</i> (SC)
<b>Plants</b>
San Francisco Bay spineflower, <i>Chorizanthe cuspidata</i> var. <i>cuspidata</i> (SC)
San Francisco wallflower, <i>Erysimum franciscanum</i> (SC)
fragrant fritillary, <i>Fritillaria liliacea</i> (SC)
San Francisco gumplant, <i>Grindelia hirsutula</i> var. <i>maritima</i> (SC)
Marin checkermallow, <i>Sidalcea hickmanii</i> ssp. <i>viridis</i> (SC)
Mission Delores campion, <i>Silene verecunda</i> ssp. <i>verecunda</i> (SC)
San Francisco owl's clover, <i>Triphysaria floribunda</i> (SC)
San Francisco popcornflower, <i>Plagiobothrys diffusus</i> (CA)*
alkali milk-vetch, <i>Astragalus tener</i> var. <i>tener</i> (SC)*
compact cobweb thistle, <i>Cirsium occidentale</i> var. <i>compactum</i> (SC)*
Diablo helianthella (=rock-rose), <i>Helianthella castanea</i> (SC)*
Kellogg's (wedge-leaved) horkelia, <i>Horkelia cuneata</i> ssp. <i>sericea</i> (SC)*
adobe sanicle, <i>Sanicula maritima</i> (SC)*
San Francisco manzanita, <i>Arctostaphylos hookeri</i> ssp. <i>franciscana</i> (SC)**
coast lily, <i>Lilium maritimum</i> (SC)?*

**KEY:**

(E) - <i>Endangered</i> - Listed (in the Federal Register) as being in danger of extinction.
(T) - <i>Threatened</i> - Listed as likely to become endangered within the foreseeable future.
(P) - <i>Proposed</i> - Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX) - <i>Proposed Critical Habitat</i> - Proposed as an area essential to the conservation of the species.
(C) - <i>Candidate</i> - Candidate to become a <i>proposed</i> species.
(SC) - <i>Species of Concern</i> - Other species of concern to the Service.
(D) - <i>Delisted</i> - Delisted. Status to be monitored for 5 years.
(CA) - <i>State-Listed</i> - Listed as threatened or endangered by the State of California.
* - <i>Extirpated</i> - Possibly extirpated from the area.
** - <i>Extinct</i> - Possibly extinct.
<i>Critical Habitat</i> - Area essential to the conservation of a species.

ATTACHMENT A  
Endangered and Threatened Species that May Occur in  
oe be Affected by Projects in the Selected Quads Listed Below  
Reference File No. 1-1-00-SP-3014  
October 2, 2000

<b>QUAD : 466 SAN FRANCISCO NORTH</b>
<i>Listed Species</i>
<b>Mammals</b>
Guadalupe fur seal, <i>Arctocephalus townsendi</i> (T)
sei whale, <i>Balaenoptera borealis</i> (E)
blue whale, <i>Balaenoptera musculus</i> (E)
finback (=fin) whale, <i>Balaenoptera physalus</i> (E)
right whale, <i>Eubalaena glacialis</i> (E)
Critical Habitat, Steller (=northern) sea-lion, <i>Eumetopias jubatas</i> (T)
Steller (=northern) sea-lion, <i>Eumetopias jubatas</i> (T)
sperm whale, <i>Physeter catadon</i> (=macrocephalus) (E)
salt marsh harvest mouse, <i>Reithrodontomys raviventris</i> (E)*
<b>Birds</b>

western snowy plover, <i>Charadrius alexandrinus nivosus</i> (T)
bald eagle, <i>Haliaeetus leucocephalus</i> (T)
California brown pelican, <i>Pelecanus occidentalis californicus</i> (E)
California clapper rail, <i>Rallus longirostris obsoletus</i> (E)*
<b>Amphibians</b>
California red-legged frog, <i>Rana aurora draytonii</i> (T)
<b>Fish</b>
delta smelt, <i>Hypomesus transpacificus</i> (T)
Critical Habitat, coho salmon - central CA coast, <i>Oncorhynchus kisutch</i> (T)
coho salmon - central CA coast, <i>Oncorhynchus kisutch</i> (T)
Central California Coastal Steelhead, <i>Oncorhynchus mykiss</i> (T)
Critical Habitat, winter-run chinook salmon, <i>Oncorhynchus tshawytscha</i> (E)
winter-run chinook salmon, <i>Oncorhynchus tshawytscha</i> (E)
Central Valley spring-run chinook salmon, <i>Oncorhynchus tshawytscha</i> (T)
Sacramento splittail, <i>Pogonichthys macrolepidotus</i> (T)
<b>Invertebrates</b>
mission blue butterfly, <i>Icaricia icarioides missionensis</i> (E)
San Bruno elfin butterfly, <i>Incisalia mossii bayensis</i> (E)
<b>Plants</b>
Presidio manzanita, <i>Arctostaphylos hookeri ssp. ravenii</i> (E)
marsh sandwort, <i>Arenaria paludicola</i> (E)*
Presidio clarkia, <i>Clarkia franciscana</i> (E)
Marin dwarf-flax, <i>Hesperolinon congestum</i> (T)
beach layia, <i>Layia carnosa</i> (E)*
San Francisco lessingia, <i>Lessingia germanorum</i> (E)
<b>Proposed Species</b>
<b>Birds</b>
short-tailed albatross, <i>Diomedea albatrus</i> (PE)

<b>Fish</b>
Critical Habitat, Central Valley spring-run chinook, <i>Oncorhynchus tshawytscha</i> (PX)
<b>Invertebrates</b>
white abalone, <i>Haliotes sorenseni</i> (PE)
<i>Candidate Species</i>
<b>Amphibians</b>
California tiger salamander, <i>Ambystoma californiense</i> (C)
<b>Fish</b>
Central Valley fall/late fall-run chinook salmon, <i>Oncorhynchus tshawytscha</i> (C)
<b>Invertebrates</b>
black abalone, <i>Haliotes cracherodii</i> (C)
<i>Species of Concern</i>
<b>Mammals</b>
Pacific western big-eared bat, <i>Corynorhinus (=Plecotus) townsendii townsendii</i> (SC)
gray whale, <i>Eschrichtius robustus</i> (D)
greater western mastiff-bat, <i>Eumops perotis californicus</i> (SC)
long-eared myotis bat, <i>Myotis evotis</i> (SC)
fringed myotis bat, <i>Myotis thysanodes</i> (SC)
long-legged myotis bat, <i>Myotis volans</i> (SC)
Yuma myotis bat, <i>Myotis yumanensis</i> (SC)
San Francisco dusky-footed woodrat, <i>Neotoma fuscipes annectens</i> (SC)
Point Reyes jumping mouse, <i>Zapus trinotatus orarius</i> (SC)
<b>Birds</b>
tricolored blackbird, <i>Agelaius tricolor</i> (SC)
Bell's sage sparrow, <i>Amphispiza belli belli</i> (SC)
ferruginous hawk, <i>Buteo regalis</i> (SC)
little willow flycatcher, <i>Empidonax traillii brewsteri</i> (CA)

American peregrine falcon, <i>Falco peregrinus anatum</i> (D)
saltmarsh common yellowthroat, <i>Geothlypis trichas sinuosa</i> (SC)
black rail, <i>Laterallus jamaicensis coturniculus</i> (CA)
ashy storm-petrel, <i>Oceanodroma homochroa</i> (SC)
<b>Reptiles</b>
northwestern pond turtle, <i>Clemmys marmorata marmorata</i> (SC)
southwestern pond turtle, <i>Clemmys marmorata pallida</i> (SC)
California horned lizard, <i>Phrynosoma coronatum frontale</i> (SC)
<b>Amphibians</b>
foothill yellow-legged frog, <i>Rana boylei</i> (SC)
<b>Fish</b>
longfin smelt, <i>Spirinchus thaleichthys</i> (SC)
<b>Invertebrates</b>
Opler's longhorn moth, <i>Adela oplerella</i> (SC)
sandy beach tiger beetle, <i>Cicindela hirticollis gravida</i> (SC)
globose dune beetle, <i>Coelus globosus</i> (SC)
Ricksecker's water scavenger beetle, <i>Hydrochara rickseckeri</i> (SC)
bumblebee scarab beetle, <i>Lichnanthe ursina</i> (SC)
<b>Plants</b>
San Francisco manzanita, <i>Arctostaphylos hookeri ssp. franciscana</i> (SC)**
alkali milk-vetch, <i>Astragalus tener var. tener</i> (SC)*
San Francisco Bay spineflower, <i>Chorizanthe cuspidata var. cuspidata</i> (SC)
San Francisco gumplant, <i>Grindelia hirsutula var. maritima</i> (SC)
Kellogg's (wedge-leaved) horkelia, <i>Horkelia cuneata ssp. sericea</i> (SC)*
San Francisco popcornflower, <i>Plagiobothrys diffusus</i> (CA)*
adobe sanicle, <i>Sanicula maritima</i> (SC)*
Marin checkermallow, <i>Sidalcea hickmanii ssp. viridis</i> (SC)
Mission Delores campion, <i>Silene verecunda ssp. verecunda</i> (SC)
San Francisco owl's clover, <i>Triphysaria floribunda</i> (SC)

<b>KEY:</b>
(E) - <i>Endangered</i> - Listed (in the Federal Register) as being in danger of extinction.
(T) - <i>Threatened</i> - Listed as likely to become endangered within the foreseeable future.
(P) - <i>Proposed</i> - Officially proposed (in the Federal register) for listing as endangered or threatened.
(PX) - <i>Proposed Critical Habitat</i> - Proposed as an area essential to the conservation of the species.
(C) - <i>Candidate</i> - Candidate to become a proposed species.
(SC) - <i>Species of Concern</i> - May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(MB) - <i>Migratory Bird</i> - Migratory bird.
(D) - <i>Delisted</i> - Delisted. Status to be monitored for 5 years.
(CA) - <i>State-Listed</i> - Listed as threatened or endangered by the State of California
(*) - <i>Extirpated</i> - Possibly extirpated from this quad.
(**) - <i>Extinct</i> - Possibly extinct.
<i>Critical Habitat</i> - Area essential to the conservation of a species.

#### **Appendix D: Control of Non-Native Aquatic Species at Mountain Lake**

Central to the success of the enhancement of aquatic vegetation, of common, native aquatic species, and to the reintroduction of special-status native aquatic species is the sustainable control of non-native aquatic species. The control of non-native fish, especially carp, is important to the successful re-establishment of submergent vegetation. Carp have been shown to reduce macrophyte densities by increasing turbidity through the resuspension of bottom sediments (reduced light penetration) and uprooting (Parkos and Wahl, 2000; Nico, 1999). In fact, the introduction of triploid grass carp (sterile) have been heavily discussed as a biocontrol method for controlling particular rooted aquatic plant weeds. Carp also indirectly affect submergent plant establishment by increasing the amount of available nutrients in the water column for algae growth. Resuspension of sediments by carp have been shown to increase the amount of total phosphorus in the water (Parkos and Wahl, 2000).

Several species of exotic fish are found in Mountain Lake. Fish present in Mountain Lake include carp, channel catfish, bass, hitch (*Lavinia exilicauda*), and fathead minnows (*Pimephales promelas*). Exotic crayfish (*Pacifasticus leniusculus*) have also been recorded at Mountain Lake. This preponderance of larger fish are probably lowering the

numbers of smaller planktivorous fish and zooplankton (e.g., *Daphnia*), thereby contributing to algae blooms that have been recorded in the lake (Horne, 2000).

A variety of options are available to control non-native aquatic species (Wiley and Wydosky, 1993). The control options include:

- Biological Control
- Water level manipulation
- Mechanical removal of fish including seines, electricity, gill nets, trawls, fishing
- Chemical treatment

None of these options, with the possible exception of chemical treatment, are typically successful with single applications. In addition, an aggressively enforced "no dumping" of fish policy would be required to prevent reintroductions. The most common option of biological control would be to release a non-breeding fish that would prey on the non-native fish species. Currently, spotted bass are abundant within the lake and likely control the recruitment of bullfrogs and to some extent, common carp. However, the spotted bass at Mountain Lake are breeding.

Water level manipulations are a common means of controlling fish. Ponds can be entirely drained to strand fish or drained to the extent that fish are concentrated in a small area and perish because of oxygen depletion. The potential to use this approach is unknown because Mountain Lake is groundwater fed and may not be possible to drain fully.

Mechanical removal of fish can be conducted in a variety of ways. Seines are limited in use to shallow areas lacking obstructions and need to be timed to occur during localized concentrations of fish (e.g., carp spawning aggregations). Conversely, boat operated trawls are ineffective in shallows, but could be an effective way to harvest fish from deeper portions of the lake if there are no obstructions. Boat-based electrofishing equipment can be used to deplete the amount of fish present in the lake, but is rarely successful at removing all fish. Gill nets are often used to remove certain size classes of fish. However, gill nets deployed over long periods of time can cause accidental mortality for diving birds and turtles that may get entangled in the net. They are also ineffective on small fish. Fishing often helps reduce certain sizes of gamefish (e.g., bass) but are generally ineffective for non-gamefish (e.g., carp). These mechanical removal methods would assist in reducing the number of non-native fish. However, these mechanical methods also would require repeated applications for the foreseeable future.

Chemical treatment of waterbodies with a fish toxicant is common, and is perhaps the most effective means of fish control. Four toxicants are currently registered for use as piscicides in the United States (rotenone, antimycin, and two lampricides) (Wiley and

Wydoski, 1993). Rotenone is the most commonly used piscicide and is a natural substance derived from the stems and roots of certain tropical plants (Mississippi State University Extension Service, 1999). Rotenone treatment works best when the surface area and volume to be treated is low. Unlike many of the mechanical treatments, it can be used successfully to remove small fish. Rotenone's break-down rate depends on temperature, alkalinity, light, and oxygen. At 80o F, treated water would detoxify in about 4 days (Mississippi State University Extension Service, 1999). Treated lakes are generally considered safe for restocking after 5 weeks (Mississippi State University Extension Service, 1999). The mobility of rotenone in soils is slight because it is strongly bound to organic matter in soil. In sandy soils, the expected leaching distance is 8 cm (Oregon Department of Fish and Wildlife, n.d.). At concentrations used to control fish, rotenone is toxic to certain zooplankton and larval amphibians, but common aquatic invertebrates less so (Oregon Department of Fish and Wildlife, n.d.).

### **Appendix E: Reintroducing Special Status Species to Mountain Lake**

Mountain Lake represents an opportunity to re-establish special-status native aquatic fauna. However, educational and ecological benefits should be weighed against operational costs, sustainability, and benefits to the recovery of the species. Re-establishment of special-status aquatic species provide the following benefits:

#### Educational

- Provide opportunities for the general public to learn about an endangered species in an urban and accessible environment.
- Provide research opportunities for local colleges and universities to evaluate the success/failure of restoring sensitive species in an urban environment and provide opportunities for adaptive ecological management.

#### Ecological

- Facilitate an exciting Presidio-wide ecological planning process because of the need for several interconnected localities to have populations of special-status aquatic species to ensure long-term viability (e.g., Tennessee Hollow/Crissy Wetland, Lobos Creek, Fort Scott/Dragonfly Creek).
- Establishment of threatened and endangered species would protect essential habitat features for all species that may be threatened by adverse activities (e.g., protection of wildlife movement corridors, facilitate garbage control)
- A potential source of propagules should localized extirpation occur at other localities within the Park.

However, the costs and potential constraints include:

- Uncertain ability to have sustainable control of non-native aquatic animals.
  - Inability to protect essential habitat features outside the footprint of the lake.
  - Potential public concern regarding control methods for non-native aquatic animals.
  - Permitting issues.
  - Identification of suitable donor populations.
  - Concerns regarding the legitimate benefits to the recovery of the species.
- To assist in evaluating these issues, we used the draft recovery plan for the California red-legged frog, which has established criteria for evaluating the feasibility of reintroduction efforts for the frog (USFWS 2000). These criteria are as follows:
1. The California red-legged frog formerly occupied the general area;
  2. The habitat appears to be suitable, it is under long-term protection, and predators (especially exotic fishes and frogs) can be eliminated or kept to manageable levels;
  3. The reasons for the species' absence have been determined and eliminated or minimized;
  4. No reproducing populations of the California red-legged frog remain in the area, and it is not likely to be reinvaded from surrounding populations in the near future;
  5. The effort can commit to:
    - Releases of propagules at each site through at least 5 consecutive years, preferably at several sites within the area; and
    - Monitoring for at least 10 years after the last release.

This criteria has been used at the GGNRA to assess the feasibility of establishing both red-legged frogs and western pond turtles.

**Criteria 1:** The California red-legged frog (and turtle) formerly occupied the general area.

Historically, the federally threatened California red-legged frog (*Rana aurora draytonii*) and species of concern western pond turtle (*Clemmys marmorata*) were likely abundant at Mountain Lake. The California Academy of Science has a record of red-legged frog specimen from Mountain Lake collected prior to 1906 (J. Vindum, pers. comm. 1999). Currently, there is only one known population of California red-legged frogs in San Francisco (E. Ely pers. comm., 1996).

No historic references to western pond turtles at Mountain Lake have been found,

although references to western pond turtles from San Francisco between 1856 and 1892 have been identified in museum collections by M.R. Jennings and M.P. Hayes. At Mountain Lake, no western pond turtles were found in surveys conducted for the Presidio General Management Plan or in visual surveys in 1996 by the Park. Only introduced red-eared sliders and soft-shelled turtles have been observed at Mountain Lake.

**Criteria 2:** The habitat appears to be suitable, it is under long-term protection, and predators (especially exotic fishes and frogs) can be eliminated or kept to manageable levels.

Under existing conditions, poor habitat exists for both western pond turtles and red-legged frogs. The draft frog recovery plan suggests that feasible re-introduction sites have a "favorable mix of breeding, rearing, and summer habitats relatively free from predators." Re-introduction of red-legged frogs without any sustainable habitat improvements and long-term protection would not be successful or likely even permitted by the U.S. Fish and Wildlife Service.

To assist in assessing this criteria, habitat requirements for the critical life stages of pond turtles and frogs and the abilities to achieve such habitat requirements are evaluated below.

### **Western Pond Turtles**

Nesting success and juvenile rearing habitat are likely limiting factors for establishing a sustainable population at Mountain Lake. Turtle nest sites are typically in well drained soils, low slope (<25%), and south, southeast or southwest facing slopes (Holland, 1994; Holland, 1991). Vegetation at nest sites are usually characterized by grasses and/or forbs with shrubs and trees generally uncommon (Holland, 1994). Pond turtle eggs exposed to significant amounts of moisture either fail to develop or produce a lower overall rate of hatching success (Holland, 1994).

These variables were used to model the suitability of potential nest sites around Mountain Lake. Model output indicates that suitable nest sites are limited. At Mountain Lake, the only south facing slopes occur on the golf course side of the lake. The irrigated golf course (assuming turtles can climb fences) would also prevent successful egg development. The southeast facing slopes near the Public Health Hospital are bisected by Park Presidio, and likely inaccessible unless turtles can find and use the pedestrian undercrossing. Removal of eucalyptus trees along the northeast shore and development of an open woodland/grassland would provide some potential nesting location for turtles. Increased nesting habitat may also be possible by reducing the area of irrigated greens and relocation of golf course fence. Nesting habitat may also be available by relocating

the fence that bisects the east arm of Mountain Lake and removal of shade-producing eucalyptus trees.

The urban nature of Mountain Lake would likely hinder nesting success unless measures to reduce unnatural levels of predators are instituted. Typical nest predators include skunks, raccoons, and coyote (Holland, 1994). Raccoon predation have reportedly resulted in the loss of up to 97% of turtle nests in a given area (Holland, 1994). It is likely that presence of accessible garbage and pet food has resulted in unnaturally elevated levels of skunks and raccoons.

Shallow water habitat for hatchlings and young-of-the-year is currently limited and no improvements are included in the existing design. Hatchlings and young-of-the-year typically require waters (<30 cm in depth) with emergent vegetation and downed woody materials (Holland, 1994). In addition, juvenile turtles face a high risk of predation from introduced spotted bass, bullfrogs, raccoons, and dogs.

Other key habitat features for the turtles are either present or would be improved under the proposed project. These features include estivation, cover, food, and thermoregulation sites.

### **California Red-Legged Frog**

Suitable habitat for developing tadpoles likely poses the greatest obstacle to the successful establishment of frogs at Mountain Lake. Many introduced fish such as mosquito fish (*Gambusia* spp.) are predators on red-legged frog tadpoles (USFWS 2000). An overview of studies found a negative correlation between the abundance of introduced fish species and red-legged frogs (Hayes and Jennings 1986, 1988). This may be most evident in simplified aquatic systems that lack habitat diversity and structure that may afford protection for developing tadpoles. For instance, shallow water habitats with abundant aquatic vegetation may preclude use of large, predatory fish.

Control of non-native fish could be problematic within the lake. The most effective means of controlling non-native aquatic species would require chemical treatment with a toxicant such as Rotenone. The various fish control methods are discussed separately.

It is possible to focus re-introduction efforts within the east arm of Mountain Lake. The east arm of Mountain Lake is seasonally inundated. Open water is absent in the late summer until the onset of winter rains. This dry period precludes use of the Project Area by fish and bullfrogs. Analyses would be required to determine whether the Project Area

could be modified to maintain ponded water until August under normal to wet years. This duration of ponding would allow the metamorphosis of both Pacific tree frog and red-legged frogs from their tadpole stages.

**Criteria 3:** The reasons for the species' absence have been determined and eliminated or minimized.

Pre-1900 frog harvest data suggests a short-lived, but heavy exploitation to supply demand in San Francisco markets (Jennings and Hayes 1985). They suggest that the reduced availability of the California red-legged frog and the continued market demand for frogs may have led to the introduction and spread of bullfrogs from the eastern U.S. As with the California red-legged frogs, a considerable market was present for turtles in the late 1800's (Holland 1991).

Commercial harvest likely caused the demise of pond turtles and red-legged frogs from Mountain Lake. Such activities along with rapid urbanization and loss of wetland habitats in San Francisco likely eliminated all nearby sources of frogs and turtles that could recolonize Mountain Lake.

Commercial harvest pressures are no longer relevant in the Project Area. However, maintenance of suitable habitat for critical life stages of the red-legged frog and turtle remains an issue and is addressed in Criteria 2.

**Criteria 4:** No reproducing populations of the California red-legged frog (and turtle) remain in the area, and it is not likely to be reinvaded from surrounding populations in the near future;

No California red-legged frogs were found in surveys conducted for the Presidio Forest Management Plan or in recent 1995-1996 late spring surveys by the Park. Only non-native bullfrogs and native Pacific tree frogs have been observed at Mountain Lake. In addition, the closest water body, Lobos Creek, was surveyed for frogs in 1993 without any detection (Ely 1993). Natural recolonization of Mountain Lake by California red-legged frogs is highly unlikely. The nearest location of frogs are ponds, roughly 1.5 miles (as the crow flies) away. However, the intervening area includes the Richmond District with a less-than-hospitable corridor of streets and buildings.

For western pond turtles, the closest known locality is Lake Merced. While only a couple miles away from Mountain Lake, the intervening streets and vehicles make it highly unlikely that a western pond turtle could recolonize the Project Area.

**Criteria 5:** The effort can commit to releases of propagules at each site through at least 5 consecutive years, preferably at several sites within the area; and monitoring for 10 years after last release.

For California red-legged frogs, it is likely that sufficient propagules can be obtained for reintroduction. The draft recovery plan recommends the use of at least 1,000 eggs and that no more than 10% of the donor egg masses be used for this effort (USFWS 2000). Individual egg masses may contain between 2,000-5,000 eggs (USFWS 2000). There are sufficient localities within the park where the removal of one or more egg masses would represent less than 10% of the donor egg production for that year. The period of monitoring should not be a problem.

### Appendix F: Proposed Native Plant Species

<u>Species</u>	<u>Common Name</u>
<b>Jurisdictional Wetland</b>	
<i>Carex harfordii</i>	Sedge
<i>Eleocharis acicularis</i>	Spikerush
<i>Eleocharis macrostachya</i>	Spikerush
<i>Hydrocotyle verticillata</i>	Hydrocotyle
<i>Nuphar luteum ssp. polysepalum</i>	Yellow pond-lily
<i>Polygonum amphibium var. emersum</i>	Swamp knotweed
<i>Polygonum lapathifolium</i>	Willow weed
<i>Polygonum punctatum</i>	Water smartweed
<i>Rumex maritimus</i>	Golden dock
<i>Rumex salicifolius var. salicifolius</i>	Willow-leaf dock
<i>Scirpus californicus</i>	California tule
<i>Scirpus microcarpus</i>	Bulrush
<i>Typha latifolia</i>	Cattail
<b>Transitional Wetland</b>	
<i>Aster chilensis</i>	California aster
<i>Cirsium brevistylum</i>	Indian thistle
<i>Juncus effusus var. brunneus</i>	Rush
<i>Juncus patens</i>	Rush

<i>Juncus phaeocephalus</i>	Rush
<i>Mimulus guttatus</i>	Seep monkey flower
<i>Oenanthe sarmentosa</i>	Water parsley
<i>Potentilla anserina ssp. pacifica</i>	Cinquefoil
<i>Sisyrinchium californicum</i>	Yellow-eyed grass
<i>Stachys chamissonis</i>	Hedge nettle
<i>Trifolium wormskioldii</i>	Coast clover
<i>Urtica dioica ssp. holosericea</i>	Coast nettle
<b>Riparian Woodland</b>	
<i>Alnus rubra</i>	Red alder
<i>Cornus sericea ssp. sericea</i>	American dogwood
<i>Myrica californica</i>	Wax myrtle
<i>Salix lasiolepis</i>	Arroyo willow
<i>Salix lucida ssp. lasiandra</i>	Yellow willow
<i>Sambucus racemosa</i>	Red elderberry
<b>Understory:</b>	
<i>Artemisia douglasiana</i>	Mugwort
<i>Aster chilensis</i>	California aster
<i>Chenopodium californicum</i>	California goosefoot
<i>Claytonia perfoliata</i>	Miner's lettuce
<i>Fragaria chiloensis</i>	Beach strawberry
<i>Galium aparine</i>	Bedstraw
<i>Heracleum lanatum</i>	Cow parsnip
<i>Iris douglasiana</i>	Douglas iris
<i>Leymus triticoides</i>	Valley wild-rye
<i>Lonicera hispidula var. vacillans</i>	California honeysuckle
<i>Lonicera involucrata var. ledebourii</i>	Twinberry
<i>Marah fabaceus</i>	Man-root, wild cucumber
<i>Mimulus aurantiacus</i>	Sticky monkey flower
<i>Oemleria cerasiformis</i>	Oso berry
<i>Phacelia distans</i>	Wild heliotrope
<i>Phacelia malvifolia</i>	Stinging phacelia
<i>Polypodium californicum</i>	California polypody fern
<i>Polystichum munitum</i>	Western sword fern

<i>Pteridium aquilinum</i> var. <i>pubescens</i>	Bracken fern
<i>Rhamnus californica</i> ssp. <i>californica</i>	Coffee berry
<i>Ribes sanguineum</i> var. <i>glutinosum</i>	Pink-flowering currant
<i>Rosa californica</i>	California wild rose
<i>Rosa gymnocarpa</i>	Wood rose
<i>Sanicula crassicaulis</i>	Pacific snakeroot
<i>Satureja douglasii</i>	Yerba buena
<i>Scrophularia californica</i>	California figwort
<i>Stachys ajugoides</i> var. <i>rigida</i>	Hedge nettle, rigid hedge nettle
<i>Symphoricarpos mollis</i>	Creeping snowberry, trailing snowberry
<b>Native Woodland</b>	
<i>Aesculus californica</i>	California buckeye
<i>Arbutus menziesii</i>	Pacific madrone
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	Coast live oak
<i>Quercus chrysolepis</i>	Maul oak, canyon live oak
<i>Umbellularia californica</i>	California bay laurel
<b>Midstory:</b>	
<i>Corylus cornuta</i> var. <i>californica</i>	California hazelnut
<i>Garrya elliptica</i>	Silk tassel bush
<i>Heteromeles arbutifolia</i>	Toyon
<i>Lonicera involucrata</i>	Coast twinberry
<i>Myrica californica</i>	California wax myrtle
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Holly-leaved cherry
<i>Ribes sanguineum</i> var. <i>glutinosum</i>	Coast Red Flowering Currant
<i>Rubus parviflorus</i>	Thimbleberry
<i>Sambucus callicarpa</i>	Red elderberry
<i>Sambucus mexicana</i>	Blue elderberry
<i>Vaccinium parvifolium</i>	Red bilberry, red huckleberry
<i>Ceanothus thyrsiflorus</i>	Coast blue blossom
<b>Understory:</b>	
<i>Anaphalis margaritacea</i>	Pearly everlasting
<i>Artemesia douglasiana</i>	Mugwort
<i>Aster chilensis</i>	California aster

<i>Cardamine californica</i> var. <i>integrifolia</i>	Milkmaids
<i>Chenopodium californicum</i>	California goosefoot
<i>Chlorogalum pomeridianum</i>	Soap plant, amole
<i>Claytonia perfoliata</i>	Miner's lettuce
<i>Cynoglossum grande</i>	Hound's tongue
<i>Fragaria chiloensis</i>	Beach strawberry, dune strawberry
<i>Fritillaria affinis</i>	Checker lily, mission bells
<i>Galium aparine</i>	Bedstraw
<i>Galium californicum</i>	California bedstraw
<i>Heracleum lanatum</i>	Cow parsnip
<i>Iris douglasiana</i>	Douglas Iris
<i>Leymus triticoides</i>	Valley wild-rye
<i>Lonicera hispidula</i> var. <i>vacillans</i>	California honeysuckle
<i>Marah fabaceus</i>	Man-root, wild cucumber
<i>Mimulus aurantiacus</i>	Sticky monkey flower
<i>Oemleria cerasiformis</i>	Oso berry
<i>Osmorhiza chilensis</i>	Sweet cicely
<i>Phacelia californica</i>	California coast phacelia
<i>Phacelia distans</i>	Wild heliotrope
<i>Phacelia malvifolia</i>	Stinging phacelia
<i>Piperia elegans</i>	Green rein-orchid, coast piperia
<i>Polypodium californicum</i>	California polypody fern
<i>Polystichum munitum</i>	Western sword fern
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	Bracken fern
<i>Pterostegia drymarioides</i>	Pterostegia
<i>Rosa californica</i>	California wild rose
<i>Rosa gymnocarpa</i>	Wood rose
<i>Rhamnus californica</i>	California coffeeberry
<i>Sanicula bipinnatifida</i>	Purple sanicle
<i>Sanicula crassicaulis</i>	Pacific snakeroot
<i>Satureja douglasii</i>	Yerba buena
<i>Scrophularia californica</i>	California figwort
<i>Stachys ajugoides</i> var. <i>rigida</i>	Hedge nettle, rigid hedge nettle
<i>Symphoricarpos mollis</i>	Creeping snowberry, trailing snowberry

<i>Trifolium willdenovii</i>	Tomcat clover
<b>Buffer Strip</b>	
<i>Acer macrophyllum</i>	Big leaf maple
<i>Alnus rubra</i>	Red alder
<i>Arbutus menziesii</i>	Pacific madrone
<i>Heteromeles arbutifolia</i>	Toyon
<i>Myrica californica</i>	California wax myrtle
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Holly-Leaved Cherry
<i>Sambucus mexicana</i>	Blue elderberry
<i>Umbellularia californica</i>	California bay laurel
<p><b>Source: National Park Service. 2000. S. Farrell, J. Cannon, M. Albert, and A. Lambert. <i>Vegetation Analysis in Support of Mountain Lake Habitat Restoration Planning and EA Efforts: A Memorandum.</i> May</b></p>	