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## RESTORATION PLAN FOR LOBOS CREEK

Prepared for:

The Golden Gate National Recreation Area  
San Francisco, California

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## I. INTRODUCTION

Lobos Creek is the only remaining coastal creek in San Francisco, and provides unique ecological functions in an otherwise heavily-urbanized environment. Unlike most California coastal streams, Lobos Creek is fed almost entirely by groundwater seepage and flows steadily throughout the year. This has resulted in unique aquatic and riparian habitat that would be virtually irreplaceable if lost.

Lobos Creek originates near Mountain Lake, and flows into the Pacific Ocean at Baker Beach (Figure I-1). Although portions of the creek remain in a relatively natural state, the creek and its watershed have been substantially modified since the mid-1800's. Virtually all of the creek's flow is now diverted at Lincoln Boulevard for the Presidio's water supply, eliminating much of the historical aquatic and riparian habitat downstream. Upstream of Lincoln invasion by exotic vegetation poses a continual threat to the natural ecosystem.

Because of its ecological importance, restoration of the Lobos Creek valley is a key component of the Golden Gate National Recreation Area's (GGNRA) program for enhancing the Presidio's natural resources. The objectives of this restoration project are to:

1. Restore the historical riparian ecosystem to the extent possible given present day constraints.
2. Restore a creek ecosystem that functions naturally with minimal maintenance.
3. Improve habitat quality and expand habitat area for native plants and animals. Remove and control invasive exotic species.
4. Recreate conditions for sustainable populations of endangered and threatened plants and animals.
5. Restore the connection between the creek and the ocean, and provide continuous and connected aquatic habitat from the creek headwaters to the mouth at Baker Beach.
6. Educate and inform the public about the values and functions of the historical and restored creek/riparian ecosystem.
7. Design a diversion facility that is compatible with creek restoration and minimizes loss of riparian habitat.
8. Minimize adverse impacts of creek restoration on adjacent private properties.

As mitigation for the impacts of construction of the Richmond Transport Tunnel at Lincoln Boulevard, the City of San Francisco will provide funding for portions of the restoration project. Additional funding will be provided by the National Park Service for project planning and implementation.

To begin the restoration process, the GGNRA has contracted with KCA Engineers, Philip Williams & Associates, Ltd. (PWA) and Harding-Lawson Associates, Inc. (HLA) to develop a restoration plan for Lobos Creek. This plan addresses the following issues:

- What were the natural ecological and hydrologic conditions in the creek?
- How does the existing creek ecosystem function?
- What are the opportunities and constraints to creek restoration?
- What are the alternatives for creek restoration that are geomorphically stable, enhance habitat, and continue to provide water for the Presidio?
- What is the alternative that best meets the GGNRA objectives for the site?

This document addresses each of these issues, and provides a detailed conceptual design for restoration of the creek. The Environmental Assessment for the project, prepared as a separate document, addresses the impacts of the project.

This report will be used as the basis for construction plans and specifications. The restoration plan was prepared prior to the December 1995 sinkhole and hillslope failure near Lincoln Boulevard. Sediment and water from the failure have radically altered site conditions near the Lincoln crossing, and the restoration plan will have to be modified to reflect this. Elements that will need revision include reconstruction of the Lincoln Boulevard crossing, as well as grading and revegetation upstream of Lincoln. Most elements of the plan downstream of Lincoln will probably remain as described herein.

## II. SUMMARY AND CONCLUSIONS

This restoration plan summarizes historical and existing conditions in Lobos Creek, and provides a detailed conceptual design for enhancing the creek ecosystem. The following are the key findings of this report:

1. Prior to European settlement of the area Lobos Creek flowed unrestricted from its origin near Mountain Lake to its outlet at Baker Beach. The creek flowed through the dune fields that then covered much of western San Francisco, and derived most of its flow from groundwater seepage along the south bank. Creek bed elevations were controlled by the Colma formation, a sandy-clay material underlying the dune sands.
2. The historical creek supported a variety of native plant communities, including northern foredune near the coast, central dune scrub in upland areas, central coast arroyo willow riparian forest, and central coast live oak riparian forest.
3. Following European settlement significant changes occurred to the creek ecosystem. Grazing and firewood cutting during the Spanish settlement period removed much of the native vegetation from the dunes, and introduced a variety of exotic plants. Dams and diversions from the mid-1800's onward diverted most of the creek's flow below Lincoln Boulevard. The creek was altered by construction of utility and road crossings, and most of the historical watershed was urbanized.
4. Upstream of Lincoln Boulevard the creek still maintains a relatively healthy riparian ecosystem. Existing plant communities consist of mixed woodland, central coast live oak riparian forest, central coast riparian scrub, and riverine emergent wetland. Each of these communities is highly disturbed by the presence of non-native naturalized plants that dominate the landscape. Lobos Creek provides aquatic habitat for remnant native fauna including an isolated population of threespine stickleback.
5. At Lincoln Boulevard the creek flows through a box culvert into a diversion structure. At this point nearly all of the creek flow is diverted to the Presidio's water treatment plant. Little of the historical riparian habitat remains downstream of the diversion, and the plant community is dominated by invasive exotics. The creek eventually disappears underground into a culvert that discharges through the Baker Beach outfall.
6. The primary constraints to restoration are related to property boundaries and water supply needs. The Presidio boundary below Lincoln now lies near the center of the

historical creek bed, and restoration will require either moving the creek onto Presidio property or obtaining easements to reconstruct portions of the creek bed on private property. The Presidio will continue to use the creek for water supply, although demands should drop as the National Park Service takes over. The water treatment plant will continue to restrict the creek right-of-way near Baker Beach.

7. In addition to the No Action Alternative, two restoration alternatives have been identified that could meet the restoration objectives for Lobos Creek. These are:

- **Alternative B: Restoration Along the Historical Creek Alignment**  
The creek would be restored as close as possible to its natural (pre-European) condition. Native plant communities would be restored in the creek bed and banks. Below Lincoln the creek would be graded to restore its historical alignment, and the connection with the Pacific Ocean at Baker Beach would be re-established. Grading would occur on both Presidio and adjacent private properties, requiring easements below Lincoln for grading as well as for vegetation management.
- **Alternative C: Restoration and Realignment of the Creek onto Presidio Land**  
The creek would be restored as in Alternative B, except that all of the grading downstream of Lincoln would occur on Presidio land. This would be accomplished by shifting the alignment of the creek 5- to 15-feet northward away from the Presidio boundary. This would avoid the need for grading easements on private property, but could raise legal issues regarding the location of the Presidio boundary.

After staff review of the alternatives and their impacts, the GGNRA has selected Alternative B as their preferred alternative (pending public review and comment on the Environmental Assessment). Section IX of this report describes the detailed conceptual design for restoration of the creek, and will be the basis for developing construction plans and specifications.

Table IV-4. Vascular Flora of Lobos Creek,  
Presidio of San Francisco, California

| DIVISION<br>CLASS<br>Family | Scientific Name                                                                                     | Common Name                                                                            | Plant Community <sup>1</sup> | Status <sup>2</sup>            |
|-----------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------|--------------------------------|
| <b>SPHENOPHYTA</b>          |                                                                                                     | <b>HORSETAILS</b>                                                                      |                              |                                |
| Equisetaceae                | <i>Equisetum hyemale</i><br>ssp. <i>affine</i>                                                      | Horsetail Family<br>Common scouring rush                                               | OF, RS, MS, EW               | native                         |
| <b>PTEROPHYTA</b>           |                                                                                                     | <b>FERNS</b>                                                                           |                              |                                |
| Dennstaedtiaceae            | <i>Pteridium aquilinum</i><br>var. <i>pubescens</i>                                                 | Bracken Family<br>bracken fern                                                         | RU, OF, MW,<br>MS, EW, RS    | native                         |
| Dryopteridaceae             | <i>Dryopteris expansa</i>                                                                           | Woodfern Family<br>spreading woodfern                                                  | RS, EW                       | native                         |
| <b>CONIFEROPHYTA</b>        |                                                                                                     | <b>GYMNOSPERMS</b>                                                                     |                              |                                |
| Cupressaceae                | <i>Cupressus macrocarpa</i>                                                                         | Cypress Family<br>Monterey cypress                                                     | MW                           | alien                          |
| Pinaceae                    | <i>Pinus radiata</i>                                                                                | Pine Family<br>Monterey pine                                                           | MW                           | alien                          |
| <b>ANTHOPHYTA</b>           |                                                                                                     | <b>FLOWERING PLANTS</b>                                                                |                              |                                |
| Dicotyledones               |                                                                                                     | <b>Dicots</b>                                                                          |                              |                                |
| Aizoaceae                   | <i>Carpobrotus edulis</i><br><i>Mesembryanthemum nodiflorum</i><br><i>Tetragonia tetragonioides</i> | Fig-Marigold Family<br>hottentot fig<br>slender-leaved iceplant<br>New Zealand spinach | RU<br>RU<br>MW, NF           | noxious weed<br>alien<br>alien |

**DIVISION**  
**CLASS**  
**Family**

|                      | Scientific Name                                                                                                                                                                                                                                                                                                                | Common Name                                                                                                                                                                                              | Plant Community <sup>1</sup>                                                                       | Status <sup>2</sup>                                                                                         |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Anacardiaceae</b> | <i>Toxicodendron diversilobum</i>                                                                                                                                                                                                                                                                                              | Sumac Family<br>western poison oak                                                                                                                                                                       | OF, RS, MW, MS                                                                                     | native                                                                                                      |
| <b>Apiaceae</b>      | <i>Conium maculatum</i><br><i>Heracleum lanatum</i><br><i>Oenanthe sarmentosa</i>                                                                                                                                                                                                                                              | Carrot Family<br>poison hemlock<br>cow parsnip<br>American oenanthe                                                                                                                                      | MS, RS<br>MS, RS<br>EW                                                                             | alien<br>native<br>native                                                                                   |
| <b>Apocynaceae</b>   | <i>Vinca major</i>                                                                                                                                                                                                                                                                                                             | Dogbone Family<br>greater periwinkle                                                                                                                                                                     | MS, MW                                                                                             | alien                                                                                                       |
| <b>Araliaceae</b>    | <i>Hedera canariensis</i><br><i>Hedera helix</i>                                                                                                                                                                                                                                                                               | Ginseng Family<br>Algerian ivy<br>English ivy                                                                                                                                                            | OF<br>OF, MS, RS                                                                                   | alien<br>alien                                                                                              |
| <b>Asteraceae</b>    | <i>Ambrosia chamissonis</i><br><i>Baccharis pilularis</i><br><i>Carduus pycnocephalus</i><br><i>Conyza canadensis</i><br><i>Ericameria ericoides</i><br><i>Erigeron glaucus</i><br><i>Lactuca serriola</i><br><i>Picris echioides</i><br><i>Senecio mikanioides</i><br><i>Sonchus oleraceus</i><br><i>Taraxacum officinale</i> | Sunflower Family<br>beach-bur<br>coyote brush<br>Italian thistle<br>horsetweed<br>mock heather<br>Seaside daisy<br>prickly lettuce<br>bristly ox-tongue<br>German ivy<br>common sow thistle<br>dandelion | RU<br>RU, MW, OF<br>OF, MW, RU<br>RU<br>RU<br>NF<br>RU<br>RU<br>MS, OF, RS, MW, EW<br>RU<br>RU, MW | native<br>native<br>alien<br>native<br>native<br>native<br>alien<br>alien<br>noxious weed<br>alien<br>alien |
| <b>Betulaceae</b>    | <i>Alnus rhombifolia</i>                                                                                                                                                                                                                                                                                                       | Birch Family<br>white alder                                                                                                                                                                              | RS                                                                                                 | native                                                                                                      |
| <b>Brassicaceae</b>  | <i>Brassica nigra</i><br><i>Cakile maritima</i><br><i>Cardamine oligosperma</i>                                                                                                                                                                                                                                                | Mustard Family<br>black mustard<br>sea rocket<br>bitter cress                                                                                                                                            | RU, MS<br>NF<br>RU, MW, OF                                                                         | alien<br>alien<br>alien                                                                                     |

| DIVISION<br>CLASS<br>Family                  | Scientific Name                           | Common Name                                             | Plant Community <sup>1</sup> | Status <sup>2</sup> |
|----------------------------------------------|-------------------------------------------|---------------------------------------------------------|------------------------------|---------------------|
| Caprifoliaceae<br>— <i>Lonicera japonica</i> | <i>Lobularia maritima</i>                 | sweet alyssum                                           | RU, MW                       | alien               |
|                                              | <i>Raphanus sativus</i>                   | radish                                                  | RU, MS                       | alien               |
|                                              | <i>Rorippa nasturtium-aquaticum</i>       | watercress                                              | EW                           | native              |
|                                              | <i>Sisymbrium officinale</i>              | hedge mustard                                           | RU                           | alien               |
| Caryophyllaceae                              | honeysuckle                               | Honeysuckle Family                                      | alien                        |                     |
|                                              | <i>Viburnum tinus</i>                     | MS<br>laurustinus                                       | RS                           | alien               |
| Chenopodiaceae                               | <i>Cardionema ramosissimum</i>            | Pink Family                                             | RU                           | native              |
|                                              | <i>Stellaria media</i>                    | cardionema<br>common chickweed                          | MW, OF                       | alien               |
| Cornaceae                                    | <i>Chenopodium multifidum</i>             | Goosefoot Family                                        | RU                           | alien               |
|                                              | <i>Cornus sericea</i> ssp. <i>sericea</i> | goosefoot<br>Dogwood Family<br>American dogwood         | RS                           | native              |
| Crassulaceae                                 | <i>Sedum amecamecanum</i>                 | Stonecrop Family                                        | MW                           | alien               |
|                                              | <i>Crassula multica</i>                   | Mexican sedum<br>crassula                               | MW                           | alien               |
| Cucurbitaceae                                | <i>Marah fabaceus</i>                     | Gourd Family                                            | MW, OF                       | native              |
|                                              | <i>Elaeagnus angustifolius</i>            | California man-root<br>Oleaster Family<br>Russian olive | RU                           | alien               |
| Fabaceae                                     | <i>Acacia longifolia</i>                  | Legume Family                                           | MW                           | alien               |
|                                              | <i>Acacia melanoxylon</i>                 | Sydney golden wattle                                    | MW                           | alien               |
|                                              | <i>Acacia retinoides</i>                  | blackwood acacia                                        | MW                           | alien               |
|                                              | <i>Albizia lophantha</i>                  | everblooming wattle                                     | RS, MW                       | alien               |
|                                              | <i>Genista monspessulana</i>              | plume acacia<br>French broom                            | MS                           | alien               |

| DIVISION<br>CLASS<br>Family | Scientific Name                                                                                                   | Common Name                                                                                           | Plant Community <sup>1</sup> | Status <sup>2</sup>               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------|
| Fagaceae                    | <i>Lupinus arboreus</i><br><i>Vicia gigantea</i>                                                                  | yellow bush lupine<br>giant vetch                                                                     | RU, MW<br>RS, MS, OF, MW, EW | native<br>native                  |
|                             | <i>Quercus a. var. agrifolia</i>                                                                                  | Oak Family<br>coast live oak                                                                          | OF                           | native                            |
| Geraniaceae                 | <i>Erodium botrys</i><br><i>Erodium cicutarium</i><br><i>Geranium carolinianum</i><br><i>Geranium robertianum</i> | Geranium Family<br>long-beaked storkbill<br>red-stemmed storkbill<br>Carolina geranium<br>herb robert | RU<br>RU<br>RU<br>RS, MW     | alien<br>alien<br>native<br>alien |
| Hippocastanaceae            | <i>Aesculus californica</i>                                                                                       | Horsechestnut Family<br>California buckeye                                                            | MW                           | native                            |
| Hydrophyllaeae              | <i>Phacelia malvifolia</i>                                                                                        | Waterleaf Family<br>stinging phacelia                                                                 | OF, RS, MW                   | native                            |
| Lamiaceae                   | <i>Stachys</i> sp.                                                                                                | Mint Family<br>hedge nettle                                                                           | OF, MW                       | native                            |
| Lauraceae                   | <i>Persea americana</i>                                                                                           | Laurel Family<br>avocado                                                                              | RS                           | alien                             |
| Malvaceae                   | <i>Abutilon hybridum</i><br><i>Malva neglecta</i><br><i>Malva parviflora</i>                                      | Malvaceae Family<br>flowering maple<br>common mallow<br>cheeseweed                                    | MS<br>RU<br>RU               | alien<br>alien<br>alien           |
| Myoporaceae                 | <i>Myoporum laetum</i>                                                                                            | Hyoporaceae Family<br>myoporaceae                                                                     | MW                           | alien                             |
| Myricaceae                  | <i>Myrica californica</i>                                                                                         | Wax Myrtle Family<br>wax myrtle                                                                       | RS, MW                       | native                            |

| DIVISION<br>CLASS<br>Family | Scientific Name                                                                                           | Common Name                                                                                      | Plant Community <sup>1</sup> | Status <sup>2</sup>                |
|-----------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------|------------------------------------|
| Myrtaceae                   | <i>Eucalyptus ficifolia</i><br><i>Eucalyptus globulus</i><br><i>Leptospermum laevigatum</i>               | Myrtle Family<br>red-flowering gum<br>blue gum<br>Australian tea tree                            | MW<br>MW<br>MW               | alien<br>alien<br>alien            |
| Nyctaginaceae               | <i>Abronia latifolia</i>                                                                                  | Four O'clock Family<br>sand verbena                                                              | NF                           | native                             |
| Oleaceae                    | — <i>Ligustrum japonicum</i>                                                                              | Olive Family<br>Japanese privet                                                                  | MW                           | alien                              |
| Onagraceae                  | — <i>Fuchsia hybrida</i>                                                                                  | Evening Primrose Family<br>hybrid fuchsia                                                        | MS                           | alien                              |
| Orchidaceae                 | <i>Piperia</i> sp.                                                                                        | Orchid Family<br>wood rein orchid                                                                | OF                           | native                             |
| Oxalidaceae                 | <i>Oxalis pes-caprae</i>                                                                                  | Oxalis Family<br>Bermuda buttercup                                                               | RU, OF, MW                   | alien                              |
| Papaveraceae                | <i>Eschscholzia californica</i><br><i>Fumaria parviflora</i>                                              | Poppy Family<br>California poppy<br>small-flowered fumitory                                      | RU, OF<br>MW                 | native<br>alien                    |
| Pittosporaceae              | <i>Pittosporum crassifolium</i>                                                                           | Pittosporum Family<br>karo                                                                       | MW                           | alien                              |
| Plantaginaceae              | <i>Plantago lanceolata</i><br><i>Plantago major</i><br><i>Plantago erecta</i><br><i>Plantago maritima</i> | Plantaginaceae Family<br>English plantain<br>common plantain<br>dwarf plantago<br>coast plantain | RU<br>EW<br>MW<br>RU, NF     | alien<br>alien<br>native<br>native |
| Polygonaceae                | <i>Muhlenbeckia complexa</i>                                                                              | Buckwheat Family<br>maidenhair vine                                                              | MS, EW, MW, RS               | noxious weed                       |

**DIVISION**  
**CLASS**  
**Family**

| Scientific Name                              | Common Name                                | Plant Community <sup>1</sup> | Status <sup>2</sup> |
|----------------------------------------------|--------------------------------------------|------------------------------|---------------------|
| <i>Polygonum arenastrum</i>                  | common knotweed                            | RU                           | alien               |
| <i>Polygonum aubertii</i>                    | silver lace vine                           | MS, RS                       | alien               |
| <i>Polygonum punctatum</i>                   | punctate knotweed                          | EW                           | native              |
| <i>Polygonum cuspidatum</i>                  | Japanese knotweed                          | MS                           | alien               |
| <i>Polygonum paronychia</i>                  | beach knotweed                             | RU                           | native              |
| <i>Rumex crispus</i>                         | curly dock                                 | RU, EW, RS, MS               | alien               |
| <i>Rumex obtusifolius</i>                    | bitter dock                                | EW                           | alien               |
| <i>Claytonia perfoliata</i>                  | Purslane Family<br>miner's lettuce         | OF, MW                       | native              |
| <i>Rhamnus c.</i><br><i>ssp. californica</i> | Buckthorn Family<br>California coffeeberry | OF, MW                       | native              |
| <i>Cotoneaster lacteus</i>                   | Rose Family<br>red cluster berry           | RS                           | alien               |
| <i>Heteromeles arbutifolia</i>               | toyon                                      | OF, MW                       | native              |
| <i>Prunus avium</i>                          | sweet cherry                               | MS                           | alien               |
| <i>Prunus ilicifolia</i> ssp. <i>lyonii</i>  | Catalina cherry                            | OF                           | alien               |
| <i>Rubus discolor</i>                        | Himalayan blackberry                       | MS, RS, OF, MW               | alien               |
| <i>Rubus ursinus</i>                         | California blackberry                      | OF, RS, MS, MW               | native              |
| <i>Coprosma repens</i>                       | Hadder Family<br>mirror plant              | OF                           | alien               |
| <i>Galium aparine</i>                        | goose-grass                                | OF                           | native              |
| <i>Salix lasiolepis</i>                      | Willow Family<br>arroyo willow             | RS, MS                       | native              |
| <i>Salix lucida</i> ssp. <i>lasianдра</i>    | shining willow                             | RS, MS                       | native              |
| <i>Salix hookeriana</i>                      | coastal willow                             | RS                           | native              |
| <i>Escallonia rubra</i>                      | Saxifragaceae Family<br>red escallonia     | RS                           | alien               |

| DIVISION<br>CLASS<br>Family | Scientific Name                                                                           | Common Name                                                                       | Plant Community <sup>1</sup>   | Status <sup>2</sup>      |
|-----------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------|--------------------------|
| Scrophulariaceae            | <i>Mimulus guttatus</i><br><i>Scrophularia c. ssp. californica</i>                        | Figwort Family<br>monkeyflower<br>California figwort                              | EW, RS<br>OF, MW, RS, MS       | native<br>native         |
| Solanaceae                  | <i>Salpichroa origanifolia</i><br><i>Solanum americanum</i><br><i>Solanum aviculare</i>   | Nightshade Family<br>lily-of-the-valley vine<br>American nightshade<br>Nightshade | MS<br>RS, EW, MS, OF, MW<br>MS | alien<br>native<br>alien |
| Tiliaceae                   | <i>Sparmania africana</i>                                                                 | Linden Family<br>African linden                                                   | MS, MW                         | alien                    |
| Tropaeolaceae               | <i>Tropaeolum majus</i>                                                                   | Nasturtium Family<br>garden nasturtium                                            | MS, RS, EW, OF, MW             | noxious weed             |
| Urticaceae                  | <i>Urtica dioica ssp. gracilis</i>                                                        | Nettle Family<br>American stinging nettle                                         | MS, RS, EW, OF, MW             | native                   |
| MONOCOTYLEDONES             |                                                                                           |                                                                                   |                                |                          |
| Araceae                     | <i>Arum italicum</i><br><i>Zantedeschia aethiopica</i>                                    | Arum Family<br>Italian arum<br>calla lily                                         | OF<br>EW                       | alien<br>alien           |
| Cyperaceae                  | <i>Carex obnupta</i><br><i>Scirpus microcarpus</i>                                        | Sedge Family<br>slough sedge<br>small-fruited bulrush                             | EW, RS<br>EW                   | native<br>native         |
| Iridaceae                   | <i>Crocasmia x crocosmiiflora</i>                                                         | Iris Family<br>montbretia                                                         | MW                             | alien                    |
| Juncaceae                   | <i>Juncus effusus</i> var. <i>pacificus</i><br><i>Juncus effusus</i> var. <i>brunneus</i> | Rush Family<br>wire grass<br>wire grass                                           | EW, RS, RU<br>EW, RS, RU       | native<br>native         |

**DIVISION**

**CLASS**

**Family**

**Scientific Name**

**Common Name**

**Plant Community<sup>1</sup>**

**Status<sup>2</sup>**

**Lemnaceae**

*Lemna miniscula*

**Duckweed Family**  
duckweed

EW

native

**Liliaceae**

*Allium triquetrum*

**Lily Family**  
wild onion

MW, OF

alien

*Amaryllis belladonna*

naked lady

MW

alien

*Cordyline australis*

cordyline

EW

alien

**Poaceae**

*Aira caryophyllea*

**Grass Family**  
silver European hairgrass

OF

alien

*Ammophila arenaria*

European beachgrass

NF

alien

*Avena barbata*

slender wild oat

RU

alien

*Briza maxima*

large quaking grass

OF

alien

*Bromus diandrus*

ripgut grass

RU

alien

*Ehrharta erecta*

veldtgrass

MW

alien

*Hordeum jubatum*

foxtail barley

RU

native

*Hordeum murinum* ssp. *glaucum*

wild barley

MW, OF

alien

*Lagurus ovatus*

hare's tail

OF

alien

*Leymus mollis*

American beachgrass

NF

native

**1 Plant Community**

OF = Central Coast Live Oak Riparian Forest

MW = Non-native Mixed Woodland

RS = Central Coast Riparian Scrub

MS = Non-native Mixed Scrub

EW = Riverine Emergent Wetland

NF = Northern Foredune

RU = Ruderal

**2 Status**

native: Native to area

alien: introduced taxa

noxious weed: exotic, invasive taxa

Table IV-5. Vertebrate Fauna of Lobos Creek  
Presidio of San Francisco, California

| CLASS<br>Family       | Scientific Name                                                                                        | Common Name                                                                                            | Habitat Associations <sup>1</sup>                      |
|-----------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| <b>OSTEICHTHYES</b>   |                                                                                                        | <b>FISH</b>                                                                                            |                                                        |
| <b>Gasterosteidae</b> | <i>Gasterosteus aculeatus</i>                                                                          | Sticklebacks<br>threespine stickleback                                                                 | EW                                                     |
| <b>AMPHIBIA</b>       |                                                                                                        | <b>AMPHIBIANS</b>                                                                                      |                                                        |
| <b>Bufonidae</b>      | <i>Bufo boreas halophilus</i>                                                                          | True Toads<br>California toad                                                                          | OF, RS, MS, EW, RU                                     |
| <b>Hylidae</b>        | <i>Hyla regilla</i>                                                                                    | Treefrogs and their Allies<br>Pacific treefrog                                                         | OF, RS, MS, EW, RU                                     |
| <b>Plethodontidae</b> | <i>Aneides lugubris</i><br><i>Batrachoseps attenuatus</i><br><i>Ensatina eschscholtzi xanthroptica</i> | Lungless Salamanders<br>arboreal salamander<br>California slender salamander<br>yellow-eyed salamander | OF, MW, RS, MS<br>OF, MW, RS, MS, RU<br>OF, MW, RS, MS |
| <b>Ranidae</b>        | <i>Rana aurora drakonii</i><br><i>Rana catesbeiana</i>                                                 | True Frogs<br>California red-legged frog<br>bullfrog                                                   | RS, MS, EW<br>RS, MS, EW                               |
| <b>Salamandridae</b>  | <i>Taricha t. torosa</i>                                                                               | Newts<br>coast range newt                                                                              | OF, MW, RS, MW, EW                                     |

| CLASS<br>Family     | Scientific Name                      | Common Name                    | Habitat Associations <sup>1</sup> |
|---------------------|--------------------------------------|--------------------------------|-----------------------------------|
| <b>REPTILIA</b>     |                                      | <b>REPTILES</b>                |                                   |
| <b>Anguidae</b>     |                                      | <b>Alligator Lizards</b>       |                                   |
|                     | <i>Gerrhonotus c. coeruleus</i>      | San Francisco alligator lizard | OF, MW, RS, MS, RU                |
|                     | <i>Gerrhonotus m. multicarinatus</i> | California alligator lizard    | OF, MW, RS, MS, RU                |
| <b>Boidae</b>       |                                      | <b>Boas</b>                    |                                   |
|                     | <i>Charina b. bottae</i>             | Pacific rubber boa             | OF, MW, RS, MS                    |
| <b>Colubridae</b>   |                                      | <b>Colubrids</b>               |                                   |
|                     | <i>Contia tenuis</i>                 | sharp-tailed snake             | OF, MW, RS, MS                    |
|                     | <i>Diadophis punctatus amabilis</i>  | Pacific ringneck snake         | OF, MW, RS, MS, RU                |
|                     | <i>Thamnophis couchi atratus</i>     | Santa Cruz garter snake        | RS                                |
|                     | <i>Thamnophis elegans terrestris</i> | coast garter snake             | OF, MW, RS, MS                    |
| <b>Emyridae</b>     |                                      | <b>Pond and Marsh Turtles</b>  |                                   |
|                     | <i>Clemmys marmorata pallida</i>     | southwestern pond turtle       | RS, MS, EW                        |
| <b>Iguanidae</b>    |                                      | <b>Iguanids</b>                |                                   |
|                     | <i>Sceloporus o. occidentalis</i>    | northwestern fence lizard      | OF, MW, RS, MS, NF/B, RU          |
| <b>Scincidae</b>    |                                      | <b>Skinks</b>                  |                                   |
|                     | <i>Eumeces s. skiltonianus</i>       | western skink                  | OF, MW, RS, MS, RU                |
| <b>AVES</b>         |                                      | <b>BIRDS</b>                   |                                   |
| <b>Accipitridae</b> |                                      | <b>Hawks</b>                   |                                   |
|                     | <i>Accipiter cooperii</i>            | Cooper's hawk                  | OF, MW, RS                        |
|                     | <i>Accipiter striatus</i>            | sharp-shinned hawk             | OF, MW, RS                        |
|                     | <i>Buteo jamaicensis</i>             | red-tailed hawk                | OF, MW, RS, MS, RU                |
|                     | <i>Buteo lineatus</i>                | red-shouldered hawk            | OF, MW, RS, MS                    |

| CLASS<br>Family | Scientific Name                                                                                                                                          | Common Name                                                                                                 | Habitat Associations <sup>1</sup>                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| Aegithalidae    | <i>Psaltiriparus minimus</i>                                                                                                                             | Bushtit<br>bushtit                                                                                          | OF, MW, RS, RU                                     |
| Alcedinidae     | <i>Ceryle alcyon</i>                                                                                                                                     | Kingfishers<br>belted kingfisher                                                                            | OF, MW, RS, MS                                     |
| Anatidae        | <i>Anas americana</i><br><i>Anas platyrhynchos</i>                                                                                                       | Swans, Geese, and Ducks<br>American wigeon<br>mallard                                                       | EW<br>EW                                           |
| Ardeidae        | <i>Egretta thula</i><br><i>Nycticorax nycticorax</i>                                                                                                     | Hérons and Bitterns<br>snowy egret<br>black-crowned night-heron                                             | MW, RS, MS, EW<br>MW, RS, MS, EW                   |
| Bombycillidae   | <i>Bombycilla cedrorum</i>                                                                                                                               | Waxwings<br>cedar waxwing                                                                                   | OF, MW                                             |
| Cathartidae     | <i>Cathartes aura</i>                                                                                                                                    | American Vultures<br>turkey vulture                                                                         | OF, MW, RU                                         |
| Certhiidae      | <i>Certhia americana</i>                                                                                                                                 | Creepers<br>brown creeper                                                                                   | OF, MW                                             |
| Charadriidae    | <i>Charadrius alexandrinus</i><br><i>Charadrius semipalmatus</i><br><i>Charadrius vociferus</i><br><i>Pluvialis fulva</i><br><i>Pluvialis squatarola</i> | Plovers<br>snowy plover<br>semipalmated plover<br>killdeer<br>Pacific golden plover<br>black-bellied plover | NF/B<br>NF/B<br>NF/B, RU<br>NF/B<br>NF/B           |
| Columbidae      | <i>Columba fasciata</i><br><i>Columba livia</i><br><i>Zenaidura macroura</i>                                                                             | Pigeons and Doves<br>band-tailed pigeon<br>rock dove<br>mourning dove                                       | OF, MF, RS, RU<br>OF, MF, RS, RU<br>OF, MF, RS, RU |

**CLASS**  
**Family**

**Scientific Name**

**Common Name**

**Habitat Associations<sup>1</sup>**

**Corvidae**

*Aphelocoma coerulescens*  
*Corvus brachyrhynchos*  
*Corvus corax*  
*Cyanocitta stelleri*

Jays, Magpies, and Gulls  
scrub jay  
American crow  
common raven  
Steller's jay

OF, MW, RS, MS, NF/B, RU  
OF, MW, RS, RU  
OF, MW, RS, RU  
OF, MW

**Emberizidae**

*Agelaius phoeniceus*  
*Dendroica coronata*  
*Dendroica nigrescens*  
*Dendroica occidentalis*  
*Dendroica palmarum*  
*Dendroica striata*  
*Dendroica magnolia*  
*Dendroica petechia*  
*Euphagus cyanocephalus*  
*Geothlypis trichas*  
*Icterus cucullatus*  
*Icterus galbula*  
*Junco hyemalis*  
*Melospiza lincolni*  
*Melospiza melodia*  
*Mniotilta varia*  
*Molothrus ater*  
*Oporornis tolmiei*  
*Parula americana*  
*Passerina amoena*  
*Passerella iliaca*  
*Pheucticus melanocephalus*  
*Pipilo erythrophthalmus*  
*Pipilo fuscus*  
*Piranga ludoviciana*  
*Spizella passerina*  
*Vermivora celata*

Wood Warblers, Sparrows, Blackbirds, and Relatives  
red-winged blackbird  
yellow-rumped warbler  
black-throated gray warbler  
Townsend's warbler  
palm warbler  
blackpoll warbler  
magnolia warbler  
yellow warbler  
Brewer's blackbird  
common yellowthroat  
hooded oriole  
northern oriole  
dark-eyed junco  
Lincoln's sparrow  
song sparrow  
black-and-white warbler  
brown-headed cowbird  
MacGillivray's warbler  
northern parula  
Lazuli bunting  
fox sparrow  
black-headed grosbeak  
rufous-sided towhee  
California towhee  
western tanager  
chipping sparrow  
orange-crowned warbler

RS, EW  
OF, MW, RS  
OF, MW, RS,  
OF, MW  
OF, MW  
MW  
MW  
OF, MW, RS  
OF, MW, RS, MS, NF/B, RU  
RS  
MW, RS  
OF, MW, RS  
OF, MW, RS, RU  
RS  
RS, RU  
MW, RS  
RS, RU  
RS  
RS  
OF, MW, RS  
RS  
OF, MW, RS  
OF, MW, RS  
OF, MW, RS, RU  
OF, MW, RS  
OF  
OF, MW, RS

| CLASS<br>Family | Scientific Name                   | Common Name                               | Habitat Associations <sup>1</sup> |
|-----------------|-----------------------------------|-------------------------------------------|-----------------------------------|
|                 | <i>Vermivora ruficapilla</i>      | Nashville warbler                         | OF, MW, RS                        |
|                 | <i>Vermivora peregrina</i>        | Tennessee warbler                         | EW                                |
|                 | <i>Wilsonia pusilla</i>           | Wilson's warbler                          | OF, MW, RS                        |
|                 | <i>Zonotrichia albicollis</i>     | white-throated sparrow                    | RS                                |
|                 | <i>Zonotrichia atricapilla</i>    | golden-crowned sparrow                    | OF, MW, RS                        |
|                 | <i>Zonotrichia leucophrys</i>     | white-crowned sparrow                     | OF, MW, RS, RU                    |
| Falconidae      | <i>Falco sparverius</i>           | Caracaras and Falcons<br>American kestrel | OF, MW, RU                        |
| Fringillidae    | <i>Carduelis pinus</i>            | Finches<br>pine siskin                    | OF, MW, RS                        |
|                 | <i>Carduelis psaltria</i>         | Lesser goldfinch                          | OF, MW, RS, RU                    |
|                 | <i>Carduelis tristis</i>          | American goldfinch                        | OF, MW, RS, RU                    |
|                 | <i>Carpodacus mexicanus</i>       | house finch                               | OF, MW, RS, RU                    |
|                 | <i>Carpodacus purpureus</i>       | purple finch                              | MW                                |
|                 | <i>Coccothraustes vespertinus</i> | evening grosbeak                          | MW                                |
|                 | <i>Loxia curvirostra</i>          | red crossbill                             | MW                                |
| Haematopodidae  | <i>Haematopus bachmani</i>        | Oystercatchers<br>black oystercatcher     | NF/B                              |
| Hirundinidae    | <i>Tachycineta bicolor</i>        | Swallows<br>tree swallow                  | OF, MW, RS                        |
| Laridae         | <i>Larus argentatus</i>           | Gulls and Terns<br>herring gull           | NF/B                              |
|                 | <i>Larus californicus</i>         | California gull                           | NF/B                              |
|                 | <i>Larus canus</i>                | mew gull                                  | NF/B                              |
|                 | <i>Larus delawarensis</i>         | ring-billed gull                          | NF/B                              |
|                 | <i>Larus glaucescens</i>          | glaucous-winged gull                      | NF/B                              |
|                 | <i>Larus heermanni</i>            | Heermann's gull                           | NF/B                              |
|                 | <i>Larus hyperboreus</i>          | glaucous gull                             | NF/B                              |
|                 | <i>Larus occidentalis</i>         | western gull                              | NF/B                              |

**CLASS**  
**Family**

Scientific Name      Common Name      Habitat Associations<sup>1</sup>

*Larus philadelphia*  
*Larus thayeri*  
*Sterna antillarum*  
*Sterna caspia*  
*Sterna elegans*  
*Sterna forsteri*

Bonapart's gull  
Thayer's gull  
least tern  
Caspian tern  
elegant tern  
Forster's tern

NF/B  
NF/B  
NF/B  
NF/B  
NF/B  
NF/B

**Mimidae**

Mockingbirds and Thrashers  
northern mockingbird

*Mimus polyglottos*

OF, MW, RS, MS, RU

**Muscicapidae**

Old World Warblers, Gnatcatchers

*Catharus guttatus*  
*Catharus ustulatus*  
*Ixoreus naevius*  
*Poliophtila caerulea*  
*Regulus calendula*  
*Regulus satrapa*  
*Turdus migratorius*

hermit thrush  
Swainson's thrush  
varied thrush  
Blue-gray gnatcatcher  
ruby-crowned kinglet  
golden-crowned kinglet  
American robin

OF, MW, RS  
RS  
OF, MW, RS  
OF, MW, RS  
MW  
OF, MW, RS  
OF, MW, RS, MS, RU

**Paridae**

Titmice  
chestnut-backed chickadee

*Parus rufescens*

OF, MW

**Phasianidae**

Quails and Pheasants  
California quail

*Callipepla californica*

OF, MW, RS, MS, RU

**Picidae**

Woodpeckers and Wrynecks  
northern flicker  
acorn woodpecker  
Nuttall's woodpecker  
downy woodpecker  
hairy woodpecker  
red-breasted sapsucker

*Colaptes auratus*  
*Melanerpes formicivorus*  
*Picoides nuttallii*  
*Picoides pubescens*  
*Picoides villosus*  
*Sphyrapicus ruber*

OF, MW, RS  
OF  
OF, MW  
OF, MW, RS  
OF, MW, RS  
OF, MW, RS

**CLASS**  
**Family**

|                     | Scientific Name                    | Common Name                                   | Habitat Associations <sup>1</sup> |
|---------------------|------------------------------------|-----------------------------------------------|-----------------------------------|
| <b>Rallidae</b>     | <i>Fulica americana</i>            | Ralls, Gallinules, and Coots<br>American coot | EW, NF/B                          |
| <b>Scolopacidae</b> | <i>Calidris mauri</i>              | Sandpipers and Relatives<br>western sandpiper | NF/B                              |
|                     | <i>Calidris minutilla</i>          | least sandpiper                               | NF/B                              |
|                     | <i>Calidris alpina</i>             | dunlin                                        | NF/B                              |
|                     | <i>Calidris alba</i>               | sanderling                                    | NF/B                              |
|                     | <i>Catoptrophorus semipalmatus</i> | willet                                        | NF/B                              |
|                     | <i>Gallinago gallinago</i>         | Common snipe                                  | NF/B                              |
|                     | <i>Limnodromus griseus</i>         | short-billed dowitcher                        | MW, EW, NF/B                      |
|                     | <i>Limnodromus scolopaceus</i>     | long-billed dowitcher                         | NF/B                              |
|                     | <i>Limosa fedoa</i>                | marbled godwit                                | NF/B                              |
|                     | <i>Numenius americanus</i>         | long-billed curlew                            | NF/B                              |
|                     | <i>Numenius phaeopus</i>           | whimbrel                                      | NF/B                              |
|                     | <i>Phalaropus lobatus</i>          | red-necked phalarope                          | NF/B                              |
|                     | <i>Tringa melanoleuca</i>          | greater yellowlegs                            | EW, NF/B                          |
| <b>Sittidae</b>     | <i>Sitta canadensis</i>            | Nuthatches<br>red-breasted nuthatch           | OF, MW, RS                        |
|                     | <i>Sitta carolinensis</i>          | white-breasted nuthatch                       | OF, MW, RS                        |
|                     | <i>Sitta pygmaea</i>               | Pygmy nuthatch                                | OF, MW, RS                        |
| <b>Strigidae</b>    | <i>Bubo virginianus</i>            | Typical Owls<br>great horned owl              | OF, MW, RS, RU                    |
|                     | <i>Otus kennicottii</i>            | western screech-owl                           | OF, MW, RS, RU                    |
| <b>Sturnidae</b>    | <i>Sturnus vulgaris</i>            | Starlings<br>European starling                | OF, MW, RS, MS, EW, NF/B, RU      |
| <b>Trochilidae</b>  | <i>Calypte anna</i>                | Hummingbirds<br>Anna's hummingbird            | OF, MW, RS, MS, RU                |
|                     | <i>Selasphorus rufus</i>           | rufous hummingbird                            | OF, MW, RS                        |
|                     | <i>Selasphorus sasin</i>           | Allen's hummingbird                           | OF, MW, RS                        |

| CLASS<br>Family         | Scientific Name                                                                                                                                                                                                                               | Common Name                                                                                                                                                                                                      | Habitat Associations <sup>1</sup>                                                                  |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Troglodytidae</b>    | <i>Cistothorus palustris</i><br><i>Thryomanes bewickii</i><br><i>Troglodytes aedon</i><br><i>Troglodytes troglodytes</i>                                                                                                                      | <b>Wrens</b><br>marsh wren<br>Bewick's wren<br>house wren<br>Winter wren                                                                                                                                         | RS, EW<br>OF, MW, RS<br>OF, MW, RS<br>OF, MW, RS                                                   |
| <b>Tyrannidae</b>       | <i>Contopus borealis</i><br><i>Contopus sordidulus</i><br><i>Empidonax difficilis</i><br><i>Empidonax hammondi</i><br><i>Empidonax oberholseri</i><br><i>Myiarchus cinerascens</i><br><i>Sayornis nigricans</i><br><i>Tyrannus verticalis</i> | <b>Tyrant Flycatchers</b><br>olive-sided flycatcher<br>western wood-pewee<br>Pacific-slope flycatcher<br>Hammond's flycatcher<br>dusky flycatcher<br>ash-throated flycatcher<br>black phoebe<br>western kingbird | OF, MW, RS<br>OF, MW, RS<br>RS<br>OF, MW<br>OF, MW<br>OF, MW<br>OF, MW, RS, MS, EW, NF/B, RU<br>RS |
| <b>Tytonidae</b>        | <i>Tyto alba</i>                                                                                                                                                                                                                              | <b>Barn Owls</b><br>barn owl                                                                                                                                                                                     | MW, RU                                                                                             |
| <b>Vireonidae</b>       | <i>Vireo gilvus</i><br><i>Vireo huttoni</i><br><i>Vireo solitarius</i>                                                                                                                                                                        | <b>Typical Vireos</b><br>warbling vireo<br>Hutton's vireo<br>solitary vireo                                                                                                                                      | OF, MW, RS<br>OF, MW, RS<br>OF, MW                                                                 |
| <b>MAMMALIA</b>         |                                                                                                                                                                                                                                               | <b>MAMMALS</b>                                                                                                                                                                                                   |                                                                                                    |
| <b>Molossidae</b>       | <i>Tadarida brasiliensis</i>                                                                                                                                                                                                                  | <b>Freetail Bats</b><br>Mexican freetail bat                                                                                                                                                                     | OF, MW, RS, EW, RU                                                                                 |
| <b>Vespertilionidae</b> | <i>Myotis californicus</i>                                                                                                                                                                                                                    | <b>Plainnose Bats</b><br>California myotis                                                                                                                                                                       | OF, MW, RS, EW, RU                                                                                 |
| <b>Cricetidae</b>       | <i>Microtus californicus</i>                                                                                                                                                                                                                  | <b>Deer Mice, Voles, and Relatives</b><br>California Vole                                                                                                                                                        | OF, MW, RS, MS, RU                                                                                 |

| CLASS<br>Family | Scientific Name                  | Common Name                                        | Habitat Associations <sup>1</sup> |
|-----------------|----------------------------------|----------------------------------------------------|-----------------------------------|
| Didelphidae     | <i>Peromyscus maniculatus</i>    | deer mouse                                         | OF, MW, RS, MS, RU<br>RS, MS, RU  |
|                 | <i>Reithrodontomys megalotis</i> | western harvest mouse                              |                                   |
| Geomyidae       | <i>Didelphis virginiana</i>      | Opossums<br>Virginia opossum                       | OF, MW, RS, MS, RU                |
|                 | <i>Thomomys bottae</i>           | Pocket Gophers<br>valley pocket gopher             |                                   |
| Muridae         | <i>Rattus rattus</i>             | Old World Rats and Mice<br>black rat               | RS, MS, RU                        |
|                 | <i>Mephitis mephitis</i>         | Weasels, Badgers, and Relatives<br>striped skunk   |                                   |
| Procyonidae     | <i>Procyon lotor</i>             | Raccoons and Relatives<br>raccoon                  | OF, MW, RS, MS, EW, NF/B, RU      |
| Sciuridae       | <i>Sciurus griseus</i>           | Squirrels, Chipmunks, and Marmots<br>gray squirrel | OF, MW, RU                        |
| Soricidae       | <i>Sorex ornatus</i>             | Shrews<br>ornate shrew                             | RS, MS                            |
| Talpidae        | <i>Scapanus latimanus</i>        | Moles<br>California mole                           | OF, MW, RS, MS                    |

Sources: DFG, 1988, 1990a, 1990b  
 Eli, 1993  
 Harding Lawson Associates, 1993  
 Harris, 1994  
 Jones & Stokes Associates, 1994  
 Person and Rainey, 1995

Notes:

OF = Central Coast Live Oak Riparian Forest  
 MW = Non-native Mixed Woodland  
 RS = Central Coast Riparian Scrub  
 MS = Non-native Mixed Scrub  
 EW = Riverine Emergent Wetland  
 NF/B = Northern Foredune  
 RU = Ruderal