CONCEPTUAL MANAGEMENT PLAN

FOR THE SEPULVEDA BASIN

WILDLIFE AREA

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SECTION 1 - INTRODUCTION

This Conceptual Management Plan for the wildlife area at the Sepulveda Dam Flood Control Basin provides conceptual guidelines and philosophy of action for the continued development of the wildlife area. This plan is subject to revision and refinement and also to the Department of the Army, Corps of Engineers (Corps) and the City of Los Angeles consensus. Implementation of a wildlife area management plan will be based on operation and maintenance considerations, available funds, and manpower. All features/elements presented in this conceptual plan will be carefully examined to determine practicality within the framework of existing requirements and permits and whether they meet all criteria for implementation in the basin.

The Sepulveda Basin Wildlife Management Area is located in the eastern portion of the Sepulveda Dam and Flood Control Basin. The Sepulveda Basin is located within the City limits of Los Angeles, California, in the San Fernando Valley. The public land within the Basin is administered by the U.S. Army Corps of Engineers, Los Angeles District. A majority of the basin land, including the Wildlife Management Area, is leased to the City of Los Angeles, Department of Recreation and Parks (DRP) for park and recreational purposes. The purpose of this document is to present a conceptual management plan for the Wildlife Management Area.

The goals of the management plan are to maintain the area for wildlife, develop self-sustaining habitats, and increase the interpretive and educational opportunities in the Wildlife Management Area. In addition to these goals, development of the conceptual management plan addresses the following Corps and DRP management considerations:

- the Wildlife Management Area is within the 50-year floodplain and will be subject to periodic flooding,
- the wildlife lake and pond will receive a constant flow of water,
- the management of the wildlife area will conform to the existing DRP management plan for the wildlife lake, and
- particular standards for public access and safety must be considered.

Section 2 describes the location and existing conditions of the wildlife area and alternative conceptual plans that were considered for implementation. Section 3 describes the preferred conceptual plan for maintenance and management of the Wildlife Management Area. Section 4 presents the bibliography of sources consulted to prepare the document, and Section 5 lists the persons and agencies consulted in relation to preparing the management plan. The list of preparers is presented in Section 5.

SECTION 2 - DEVELOPMENT OF MANAGEMENT ALTERNATIVES

This section describes the physical setting of the Wildlife Management Area and the existing biological resources at the site that were evaluated in development of management alternatives. The management alternatives considered are described, and the preferred management alternative is identified.

2.1 LOCATION OF WILDLIFE MANAGEMENT AREA

The Wildlife Management Area is located in the eastern portion of the Sepulveda Basin, south of the Tillman Water Reclamation Plant (TWRP), east of Woodley Avenue, west of the San Diego Freeway, and both north and south of Burbank Boulevard. The designated wildlife area comprises approximately 60 acres north of Burbank Boulevard and 48 acres south of Burbank Boulevard.

The Wildlife Management Area is buffered on the south and east by the Sepulveda Dam and on the west by Haskell Creek. Agricultural fields occupy the area west of Haskell Creek to Woodley Avenue, west of Woodley Avenue, and south of Woodley Avenue Park to Burbank Boulevard.

Most of the Sepulveda Basin open space is developed parkland or agricultural lands; however, of the 14,300 feet of the Los Angeles River that passes through the basin, approximately 8,000 feet of channel length include a dense native riparian habitat. This manmade, soft bottom portion of the Los Angeles River is west of the Wildlife Management Area.

2.2 EXISTING BIOLOGICAL RESOURCES

In general, the Sepulveda Basin is considered an important area for birds, especially migrating waterfowl. Approximately 200 species of birds have been identified in the basin, including some species that are considered rare. The Wildlife Management Area supports a freshwater lake, a small pond, and several vegetation communities, including willow-cottonwood woodland, willow scrub, mulefat scrub, and ruderal vegetation. Plate 1 shows the existing habitats in the Wildlife Management Area. Appendix A contains a complete list of the plants and wildlife observed during the surveys on December 4, 1992, January 28, and March 11, 1993.

Vegetation along portions of the east side of Haskell Creek includes dense riparian stands of cottonwoods and willows with adjacent stands of mulefat. The west side of the channel is vegetated with weedy species. Intermittent emergent vegetation exists in the channel.

The wildlife lake east of Haskell Creek and north of Burbank Boulevard supports few riparian species and is ringed with wild rhubarb. This reclaimed water lake encompasses 10 acres with a 1-acre island located in the lake. The wildlife lake presently supports no emergent vegetation and no submerged vascular plants. Although mosquito fish and bottom algal growth are present, no aquatic invertebrates or amphibians were observed in the lake. This lake has a capacity of 13.1 million gallons and is currently flushed with 4.7 million gallons of water each day from the TWRP. A detailed management plan for the lake has been developed that outlines lake operations and maintenance, including vegetation management and water quality monitoring (DRP 1991).

The lake and surrounding vegetation support a variety of wildlife species, including both migratory and resident species. Some of the wildlife observed using the lake include the Canada goose, American wigeon, blue-winged teal, green-winged teal, northern shoveler, Ross' goose and snow goose. The vegetation between the lake and Haskell Creek has been planted and includes cottonwoods, willows, golden currant, and wild rose. Some of the wildlife species using this vegetation include yellow-rumped warbler, palm warbler, Anna's hummingbird, song sparrow, California towhee, and red-winged blackbird. Evidence of the presence of other wildlife included coyote, fox and rabbit tracks, and scat from skunk, fox, and coyote.

The area east of the lake and extending to the dam contains ruderal species, including mustards, annual grasses, Russian thistle, and some mulefat. The open grasslands east of the lake provides forage for great egrets, snowy egret, Canada geese, and several raptor species, including American kestrel, and Cooper's hawk. At the south end of the pond is an ephemeral wetland that presently supports mustards and grasses, but few cattails or other marsh plants.

Revegetation has been initiated along the slopes north and south of Burbank Boulevard, and plantings include oaks, sugar bush, laurel sumac, fuchsia-flowering gooseberry, California sagebrush, and other coastal sage scrub components. Wildlife species typical of coastal sage scrub were observed in the scrub vegetation south of Burbank Boulevard. These include the California thrasher, white-crowned sparrow, California towhee, bushtit, western kingbird, and western fence lizard.

South of Burbank Boulevard, the Wildlife Management Area contains a small pond that has been surrounded with planted ash, bay laurel, and willows. Some of the wildlife species observed near this small pond include mallard, cinnamon teal, black-crowned night heron, belted kingfisher, American coot, common yellowthroat, and black phoebe. Large stands of mulefat and broom also occur. Approaching the southern part of the dam, annual grasses and cocklebur comprise a major component of the vegetation. The areas adjacent to the Los Angeles River are either devoid of vegetation or are densely vegetated with cocklebur, conditions likely caused by flooding in these areas. Turkey vulture, red-tailed hawk, Cooper's hawk, and American kestrel were observed foraging over the open areas south of Burbank Boulevard.

The riparian zones south of Burbank Boulevard along both sides of the Haskell Creek have dense willow and mulefat vegetation. The Los Angeles River in this area is channelized

with an earthen bottom. Both Haskell Creek and the Los Angeles River contain trash (e.g., plastic bags, shopping carts) from the recent flood events of the 1992-1993 winter season.

The agricultural fields west of the Wildlife Management Area provide forage areas for some of the waterfowl species found in the basin, especially the Canada goose. Other nearby resources for wildlife in the basin are the stretches of the Los Angeles River and the Encino Channel, outside the study area, that are lined with dense riparian vegetation. These riparian areas are adjacent to the southwestern tip of the Wildlife Management Area and follow the Los Angeles River north and the Encino Channel west.

2.3 WILDLIFE MANAGEMENT ALTERNATIVES

Three management alternatives were considered for enhancement of the wildlife area: (1) exclusive waterfowl management, (2) waterfowl/multispecies management, and (3) minimal management. Each alternative was evaluated for the following factors:

- maintenance management,
- wildlife value,
- educational opportunities,
- volunteer contribution, and
- public safety conditions.

The three alternatives are briefly described below.

2.3.1 Exclusive Waterfowl Management Alternative

This alternative would allow design of the Wildlife Management Area to attract waterfowl, with an emphasis on management for migrating species such as the Canada goose. The management emphasis would maintain an open area for wildlife foraging east of the wildlife lake. Forage could be provided through low-intensity farming of crops such as barley or sorghum in the open, flat fields of the Wildlife Management Area. Grain or seed crops would provide a food source for rodent and bird species; therefore, raptors would be expected to be key species in the area. Fallow fields would attract other bird species such as the California horned lark (*Eremophila alpestris actia*) and the tricolor blackbird (*Agelaius tricolor*). Enhancement of riparian vegetation would be conducted in the areas between Haskell Creek and the wildlife lake and in the area of the small pond south of Burbank Boulevard.

Management considerations would include routine maintenance of the wildlife lake and surrounding area. The low-intensity agricultural forage crop would require seasonal cultural (i.e., cultivating, planting, and harvesting) operations. Initial development of the riparian vegetation would involve planting and initial maintenance until well established. After establishment, the riparian habitat would be self-sustaining and would require little maintenance, except that necessary to keep trails clear of low or overhanging branches.

Maintenance after flooding could require replanting of those areas damaged by flood waters. If repair of damaged areas is delayed until after the potential flooding season, then a loss of potential foraging areas for migratory and wintering waterfowl could occur. Areas most frequently flooded could be managed by either leaving as is or developing the existing vegetation in these areas.

Wildlife value expected under this management approach could provide a stable food supply to increase the numbers and type of migratory and resident waterfowl. The foraging areas would be tailored for Canada geese, but other wildlife would also benefit. Raptors as well as a variety of passerine birds, small mammals, and reptiles, would be expected to use the grasslands. Small passerine birds, rodents, and reptiles would also use the shrubs in the vicinity of the existing lake; however, the primary benefit of the area would be for waterfowl.

Development of the wildlife lake would increase the diversity of the area if appropriate vegetation is added to the lake. Amphibian and aquatic species would increase the diversity of the Wildlife Management Area. However, the City of Los Angeles is responsible for maintaining the wildlife lake in accordance with the Tillman Water Reclamation Plant National Pollutant Discharge Elimination System (NPDES) Permit; therefore, any changes must conform to the permit specifications.

The waterfowl-exclusive approach would have some educational value in creating public awareness of migrating waterfowl. School groups and local Audubon chapters could use the area to observe resident and migratory waterfowl. In addition, the wildlife lake and pond would provide an opportunity to demonstrate aspects of pond ecology. The wildlife lake could provide habitat to introduce pond species, such as the California red legged frog (*Rana aurora draytorii*) and the southwestern pond turtle (*Clemmys marmorata pallida*). Limited educational benefits would be realized in regard to other types of wildlife, especially birds and invertebrates that would normally inhabit larger areas of riparian vegetation and scrub communities.

Volunteer groups could be enlisted to assist in keeping the area clear of trash and in performing limited maintenance of the area. Docent-led tours could be provided on a seasonal basis to enhance the educational value of this urban wildlife area.

Under this plan, safety for visitors to the wildlife area would be easy to accomplish because of the lack of dense vegetation. The areas around the lake would remain open with low-growing shrubs occurring around portions of the lake and wide expanses of crops or grasses around the remainder of the lake. This openness would provide little cover for unlawful activities.

2.3.2 Waterfowl/Multispecies Management Alternative

This alternative would provide for management of the Wildlife Management Area to increase the diversity of habitats and species, while still attracting waterfowl. Habitat enhancement would increase the riparian woodland and scrub to provide appropriate areas

for riparian species. Upland areas would be planted with native shrubs and grass species to allow as much diversity as possible. An increase in plant diversity would attract invertebrates, such as insects, to serve as a food source for insectivorous wildlife species. The wildlife lake habitat could be developed with addition of emergent and submergent vascular plants.

Management considerations should include routine maintenance of the wildlife lake vegetation and surrounding area. Initial development and revegetation of the native plant communities would involve high maintenance activities for planting and establishment. After establishment, the habitats would be self-sustaining and would require little maintenance, except that necessary to keep trails clear of low or overhanging branches and the periodic harvesting of emergent lake vegetation.

Maintenance after flooding could require replanting of those areas damaged by flood waters. The riparian species that would be planted are adapted to periodic inundation; therefore, mortality would not be expected to be high. Periodic checks following flooding incidents would be conducted to determine the survivorship of plantings. Those plantings damaged by intensive flooding episodes would have to be replaced once the flood season is completed.

The wildlife value of the area would be expected to be high. Riparian woodlands and associated aquatic habitats would support a high diversity of wildlife, including raptors, numerous passerine birds, waterfowl, reptiles, amphibians, rodents, and other small- and medium-sized mammals. Numerous sensitive wildlife species use riparian habitats and thus would have the potential to occur in the habitat in the Wildlife Management Area. Invertebrates would increase and enhancement of the wildlife lake would increase the diversity of communities and associated species in the wildlife area.

The waterfowl/multispecies alternative would have a high educational value for school and other community groups, as well as Audubon chapters. A good opportunity for education focused on the ecosystem concept would result because the area would support a high diversity of wildlife and plants over several habitat types. Although still present, less focus would be on migratory and resident waterfowl.

Volunteer groups could be used to assist in the initial and followup plantings of the various plant communities. In addition, they could also assist in trash pickup, trail clearing, and general maintenance of the Wildlife Management Area. Docent tours could be provided year-round.

Managing the wildlife area for a multitude of wildlife species would entail creation of a dense growth of vegetation. This would include tall trees and a dense understory. This type of habitat could create some safety hazards for the general public. The dense vegetation in trail areas could provide cover for unlawful activities.

2.3.3 Minimal Management Alternative

This alternative would rely on the range of existing habitats, wildlife species, and refurbished trails. In general, the area would be revegetated where practical. Perennial and annual native grasses would be used in the open areas to provide low-maintenance forage for migratory waterfowl. As with the other alternatives, the lake and pond would be available for educational opportunities; however, enhancement of the wildlife lake would not occur because of the maintenance that would be associated with the enhanced lake habitat.

The main differences of this alternative from the preceding two alternatives is that the wildlife lake would not be intensively managed. In addition, the riparian areas would remain small and not be managed for structural diversity.

Management considerations would include routine maintenance of the wildlife lake and surrounding area. Under the minimal management approach, an initial cleanup phase would occur consisting of trash pickup and dead vegetation removal. In addition, trails would be added in the area. A minimal amount of planting of native vegetation would require initial maintenance efforts, followed by establishment maintenance in those areas where revegetation was implemented. The habitats should be self-sustaining with minimal maintenance required. Maintenance for trash cleanup and trail upkeep would be required. After flood incidents, maintenance would be required for trash and debris removal and potential minimal revegetation.

As the area currently exists, it supports a fair number of wildlife species. The habitat in the northern portion of the Wildlife Management Area is mainly used by waterfowl, a number of passerine birds, a few small- and medium-sized mammals, and a few reptiles. The southern portion of the Wildlife Management Area supports a higher diversity of wildlife because of the greater number of vegetation communities present. The existing riparian woodland, coastal sage scrub, and pond provide not only a wide variety of foraging opportunities for wildlife but also a wide structural diversity in the heights of the vegetation present. The riparian woodland provides roosting and nesting sites for raptors. The pond in the southern portion is surrounded by much heavier vegetation and, thus, is more attractive to wildlife because of the protection offered by the vegetation.

Wildlife value expected under this management approach would remain directed toward migratory and resident waterfowl. Raptors would be expected to use the existing ruderal areas. Small passerine birds, rodents, and reptiles would also use the shrubs in the vicinity of the existing lake. However, the primary benefit of the area would continue to be for waterfowl. Under this management plan, the lake would not support vascular plants, invertebrates, or amphibians.

The minimal management approach would have some educational value in creating public awareness of migrating waterfowl. School groups and local wildlife groups could use the area to observe resident and migratory waterfowl. In addition, the pond would provide an opportunity to demonstrate aspects of pond ecology. Limited educational benefits would be realized in regard to other types of wildlife, especially birds and invertebrates that would normally inhabit larger areas of riparian vegetation and scrub communities.

Table 1

COMPARISON OF MANAGEMENT ALTERNATIVES

Management Options	Routine Management	Flood Management	Wildlife Value	Educational Opportunities	Volunteer Help	Safety Conditions
Waterfowl Exclusive Management	• High annual maintenance in farming for Canada goose food crop • Some maintenance of pond vegetation	• Some maintenance in possible replanting of perennial plants	• Provides low height cover • Provides food resources for migratory and other waterfowl • Provides food resources for raptors • Freshwater habitat	• Pond ecology • Waterfowl identification and behavior • Raptor identification and behavior	• Medium requirement; planting and trash cleanup • Docent tours	• Fair, dense vegetation in a narrow band at wildlife lake
Waterfowl/ Multispecies Management	• Some maintenance of perennial plants for Canada goose food crop • High maintenance for initial establishment of perennial plants • Some maintenance of pond vegetation	• Some maintenance in potential replanting of perennial plants, and cleanup after flood events	• Provides multistoried cover for a diversity of wildlife • Provides food resources for waterfowl • Provides food resources for raptors • Freshwater habitat	• Pond ecology • Species interaction • Plant succession • Waterfowl identification and behavior • Raptor identification and behavior	• High requirement; planting and trash cleanup • Wildflower area displays • Docent tours	• Low, increased vegetation in many areas will be tall and dense
Minimal Management	• Some maintenance to maintain multistoried riparian vegetation • High maintenance for inital establishment of perennial plants	• Low maintenance in possible replanting of perennial plants, and cleanup after flood events	• Provides limited multistoried cover • Provides food resources for waterfowl • Provides food resources for raptors • No development of freshwater habitat	• Identification and behavior • Waterfowl identification and behavior • Raptor identification and behavior	• Medium requirement; planting and trash cleanup • Docent tours	• Fair, dense vegetation in a narrow band at wildlife lake

Volunteers could be used to assist in trash and debris pickup, as well as minimal maintenance duties. Docent tours could be conducted on a seasonal basis.

In general, under the minimal management approach, the character of the wildlife area would remain open as it currently exists north of Burbank Boulevard. The openness of the area would provide little cover for unlawful activities.

2.4 COMPARISON OF THE ALTERNATIVES

Table 1 provides a summary comparison of the three alternatives for maintenance, wildlife value, educational opportunities, volunteer contribution, and public safety conditions. The alternatives were presented in a public meeting at the Sepulveda Basin Garden Center on February 26, 1993. Details of the meeting and subsequent comments on the alternatives are presented in Appendix B. In general, the comments from the public and the City of Los Angeles focused on the issue of retaining a strong emphasis on waterfowl management while increasing the diversity of the area through the use of appropriate native species. All participants agreed that a comprehensive management plan must recognize the primary flood control purpose of the Sepulveda Basin. Therefore, revegetation plans should emphasize plants that can withstand inundation. Most participants agreed that no annual agricultural management of forage crops should occur for Canada geese east of the wildlife lake, but the agricultural fields were identified as areas for some type of managed forage crop for migrating waterfowl.

The optimal alternative to meet the management criteria of the Sepulveda Basin is the Waterfowl/Multispecies Alternative. This alternative incorporates most of the concerns of the citizen groups and the City of Los Angeles, as well as meets the requirements of flood control basin operations. Under this management plan, the diversity of vegetation communities would be increased, and, in turn, the diversity of wildlife using the habitats would be increased.

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SECTION 3 - CONCEPTUAL PLAN OF THE PREFERRED MANAGEMENT ALTERNATIVE

3.1 MANAGEMENT PLAN OVERVIEW

The waterfowl/multispecies plan for the Wildlife Management Area will require the development and creation of various habitats. The existing vegetation in and adjacent to the Wildlife Management Area suggests the potential for establishment of a mosaic of habitats that will attract a diversity of wildlife. The wildlife management plan includes the following eight communities to be created or enhanced through revegetation of the area.

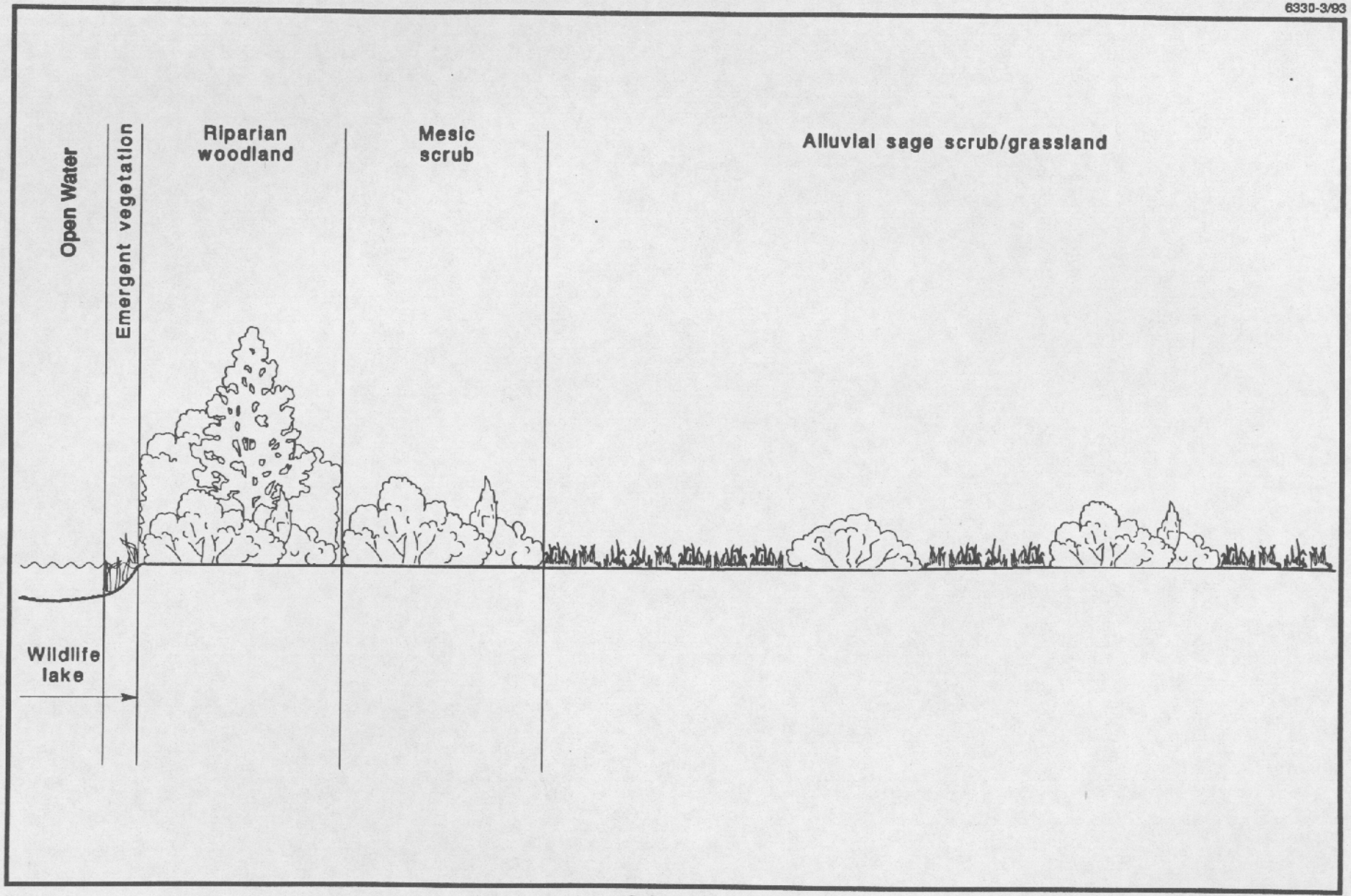
- grassland/herbaceous,
- alluvial sage scrub,
- chaparral,
- mesic scrub,
- riparian woodland,
- submergent vegetation,
- emergent vegetation, and
- seasonal pool.

Plate 2 shows the conceptual layout of the vegetation communities in the Wildlife Management Area. Details of the area are presented in cross-section views on Plate 3 through 6. These figures show the relationship of the different vegetation communities to each other and the physical features of the site.

The wildlife targeted for enrichment through the enhancement and creation of these habitats include the following categories:

- migratory and resident waterfowl,
- migratory and resident passerine birds,
- raptor species,
- freshwater fish species,
- amphibians,
- reptiles, and
- invertebrates.

The plan will augment the open vegetation that presently attracts waterfowl and raptors while developing riparian and scrub vegetation to attract songbirds, invertebrates, amphibians, and reptiles. The following sections provide an overview of management and development time for the Wildlife Management Area.



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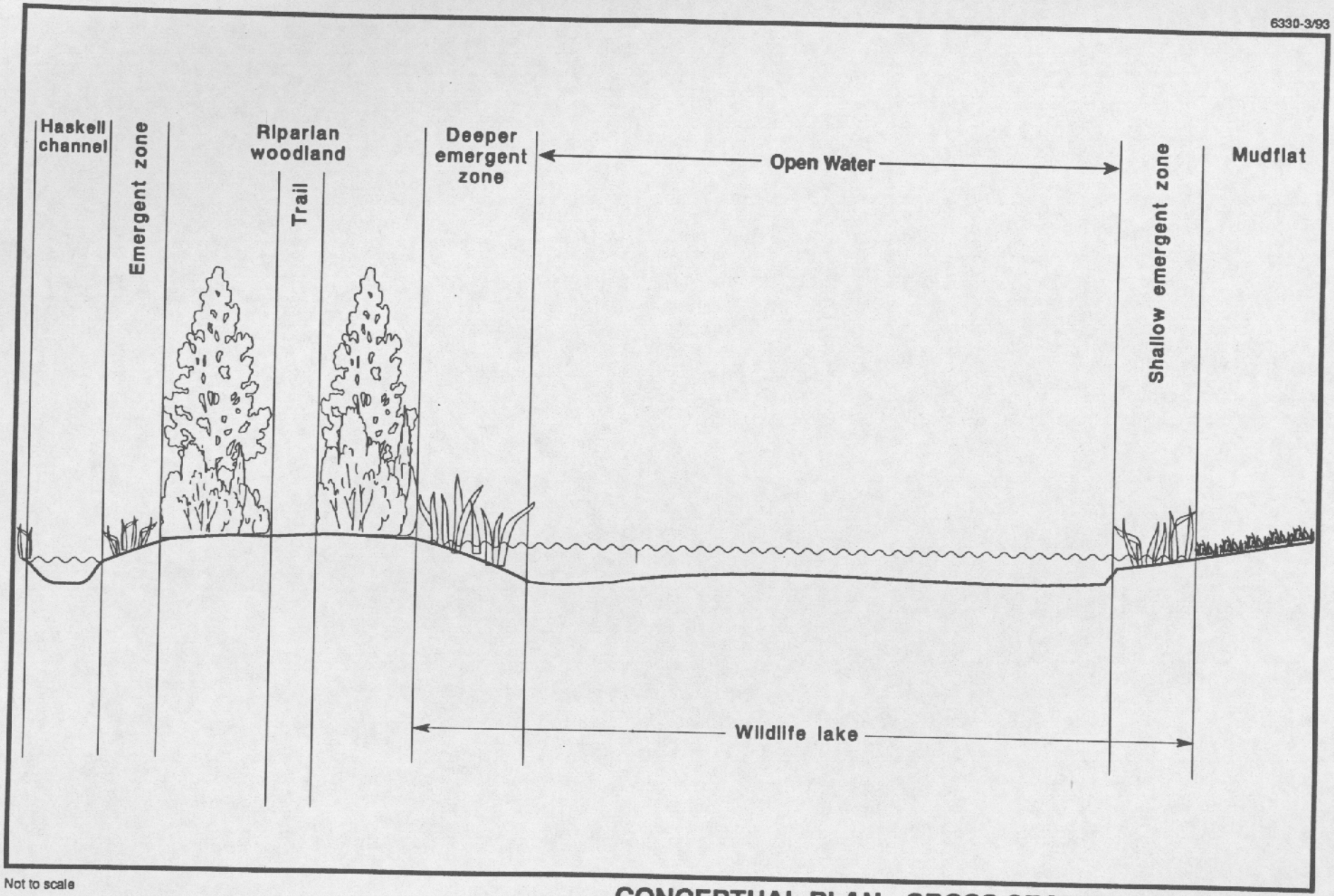
CONCEPTUAL PLAN - CROSS SECTION A (See Plate 2)
E/W ACROSS WILDLIFE LAKE, GRASSLAND, AND SAGE SCRUB
Plate 3



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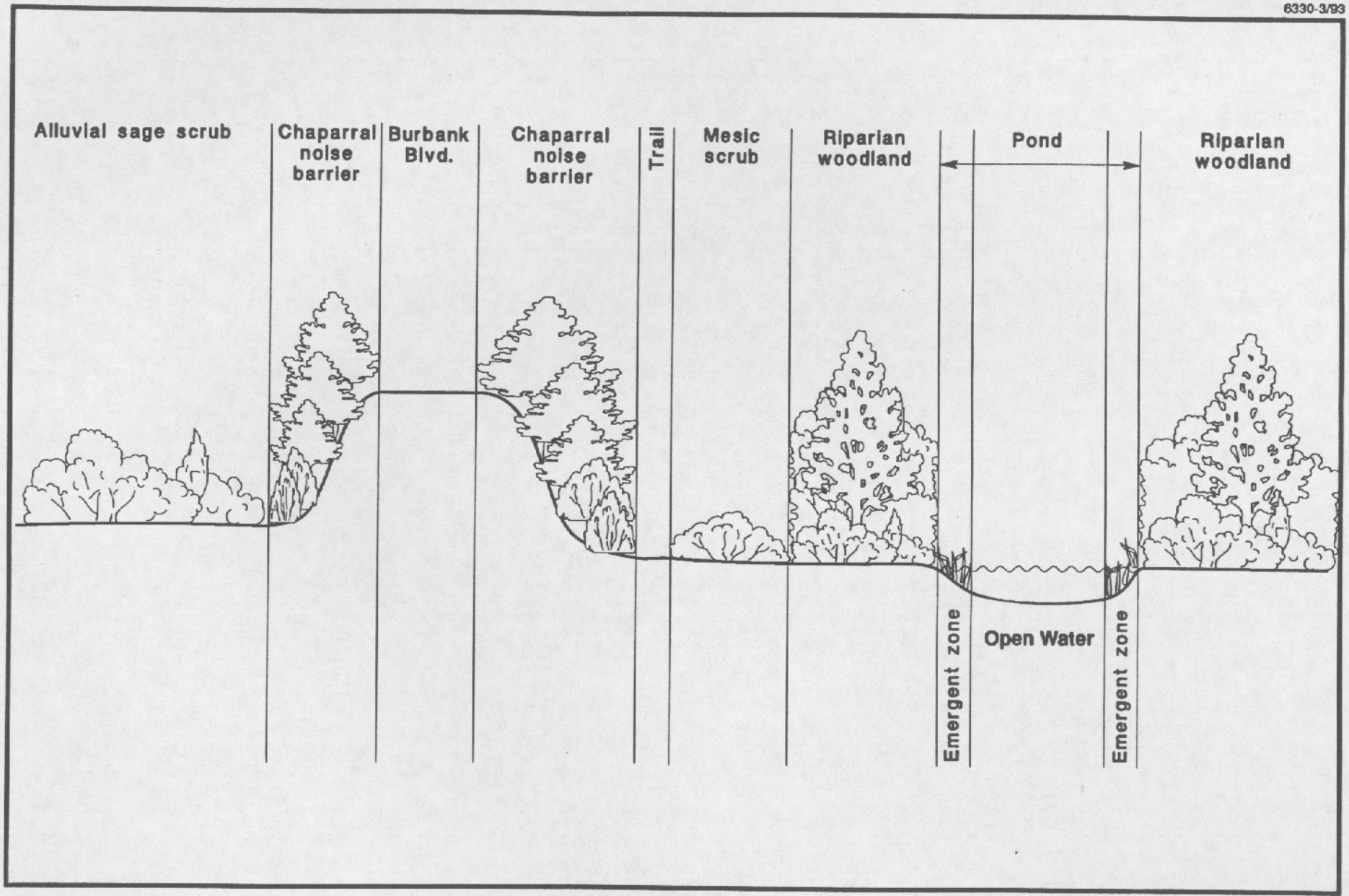
CONCEPTUAL PLAN - CROSS SECTION B (See Plate 2)
E/W ACROSS WILDLIFE LAKE
Plate 4



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CONCEPTUAL PLAN - CROSS SECTION C (See Plate 2)
N/S ACROSS BURBANK BLVD.
Plate 5

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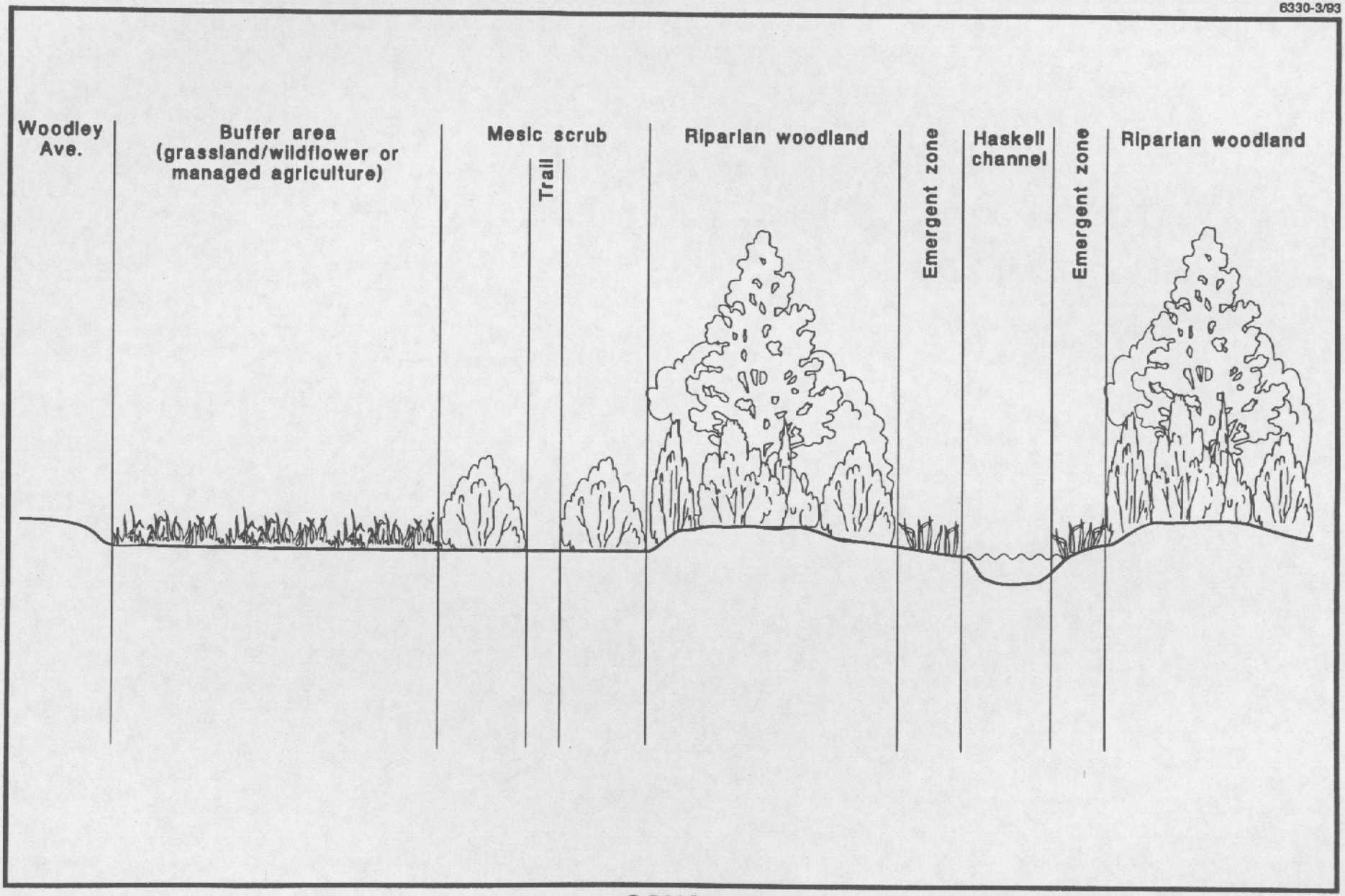

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CONCEPTUAL PLAN - CROSS SECTION D (See Plate 2)
E/W ACROSS HASKELL CHANNEL AND BUFFER AREA
WEST OF WILDLIFE MANAGEMENT
Plate 6

3.1.1 Wildlife Management

The ability of the area to support both waterfowl and passerine birds will depend on development of the riparian corridors and mesic shrub vegetation, and the use of buffers as forage areas for waterfowl. In addition, development of the wildlife lake to enhance its usage by fish, waterfowl, amphibians, and invertebrates is a key element for increasing the diversity of wildlife at the site.

3.1.1.1 Riparian and Upland Habitats

Because of the productive nature of riparian habitat and its association with fresh water, it is very valuable for wildlife and usually supports a higher density and diversity of species than drier upland areas. Amphibians and reptiles can be abundant in riparian habitats. Some of the birds that commonly use riparian habitats include the belted kingfisher, black-crowned night heron, ash-throated flycatcher, and black phoebe. Nearly all of the bird species found in adjacent upland habitats also frequent riparian areas at some point in time. The riparian, mesic scrub, and upland habitats planned for the management area will complement the existing natural riparian corridors of the Sepulveda Basin and increase the potential for wildlife use of the management area.

3.1.1.2 Buffer Areas

The buffer areas identified on Plate 2 are not part of the Wildlife Management Area. At this time, the buffer areas are designated for park and recreational use. However, the buffer areas could be managed as forage areas for the migratory and resident waterfowl. Management could include low-intensity agriculture, using cultural methods designed to increase the amount of forage in these areas. Management could include a rotation of crops in these buffer areas to ensure food during critical periods of waterfowl migration.

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The management of the buffer areas for wildlife could potentially provide for the linkage of the natural riparian corridors along the Encino Channel and the Los Angeles River with the Wildlife Management Area.

3.1.1.3 Wildlife Lake Management

The wildlife lake is a main feature of the management area, and several habitats are suggested to be revegetated adjacent to the lake (see Plates 2 and 4). Management of the lake itself has been detailed previously (DRP 1991), and any conceptual enhancement of this aquatic environment must conform to the existing management plan. Revegetation of adjacent habitats is not incompatible with the lake management goals, but careful management will be required.

3.1.2 Wildlife Management Area Development and Timeframe

The following section outlines the recommendations for implementation of a revegetation plan. Suitable areas for wildlife presently using the areas must be provided during development and construction operations. The revegetation work is divided into phases so that all areas are not under disturbance at the same time. Estimates on average maturation rates for each community are given. Trails and signage will follow implementation of revegetation in each area.

3.1.2.1 Implementation Sequence

Hummingbird Hill
OAK WOODLAND
WALNUT WOODLAND

First Revegetation Phase

In order to minimize the overall disturbance to wildlife in the revegetation areas, the following actions are recommended:

- Riparian and mesic scrub areas north of Burbank Boulevard should be revegetated, including site preparation, installation of optional irrigation, and introduction of container plants, cuttings, and seed.

- Buffer areas west of Haskell Creek could be temporarily planted with a high nutritional crop such as corn (*Zea mays*) or sorghum (*Sorghum* sp.) that will be an important food source for waterfowl that may be temporarily displaced by construction activity around the wildlife lake. The existing agricultural fields may provide some forage for displaced waterfowl.

- Expected time for implementation of the above should be approximately 2 years, accounting for site preparation and access to appropriate plant materials.

- Establishment of revegetation areas would require 2 to 5 years of monitoring and maintenance after implementation.

Second Revegetation Phase

- Revegetation south of Burbank Boulevard (grassland, alluvial sage scrub, and chaparral areas) should be completed, including site preparation and introduction of container plants and seed.

- Alluvial sage scrub and grassland/herbaceous areas east of the wildlife lake should be revegetated simultaneously to efficiently reduce weed problems. Revegetation should include site preparation, hydroseeding, and introduction of container plants and cuttings.

- Chaparral areas north of Burbank Boulevard should be revegetated, including site maintenance and introduction of container plants and seed.

- Buffer areas west of Haskell Creek could transition to agricultural crops managed for waterfowl forage.

- The riparian and mesic areas should be monitored. Any required weed control or replanting in those areas should be implemented.

- Expected time for implementation of the second phase revegetation should be approximately 2 to 5 years.

- Establishment of revegetation areas would require 2 to 5 years of monitoring and maintenance after implementation.

3.1.2.2 Habitat Development

The planned habitats will develop at different rates, primarily because of the growth rates of the species involved. Expected maturation of the habitats can be estimated, barring potential disturbance which is always a factor in the Sepulveda Basin. Aquatic habitats will mature in 1 to 2 years. With vigilant weed control, grassland/herbaceous areas will mature within 3 to 5 years. Riparian and mesic scrub habitats should be well established in 4 to 5 years. The upland habitats will be the slowest to mature, expecting to take 7 to 8 years to reach maturity.

3.2 TERRESTRIAL REVEGETATION

The Sepulveda Basin is subject to inundation, depending on precipitation and runoff in the surrounding area. The basin has been subject to deposition of as much as 100,000 cubic feet of silt in the recent past, with variability of siltation being associated with drought years and fire in the watershed. Because the primary purpose of the basin is flood control, inundation by flood waters is a major focus when evaluating candidate plant species for use in developing the Wildlife Management Area. The secondary purpose of the area as a proposed wildlife area is a feasible and complementary use for the area. Different communities in California have evolved under the pressures of periodic disturbance (i.e., flood, fire) and are adapted to endure and prosper from the disturbance. Therefore, many plants proposed for use in the wildlife area are native to California and tolerant of water inundation and disturbance. Even some typically xeric plants (e.g., oaks) can endure inundation for up to 3 months without detriment.

3.2.1 Revegetation Methodology

To assure successful revegetation, several factors must be evaluated, including soil, hydrological and climatological regimes, and weed bank. Site preparation, plant propagule specifications, and proper plant installation are addressed in the following sections.

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3.2.1.1 Soil Evaluation

Generalized soils onsite are comprised of alluvium made up of clays, silts, silty sands, and some gravels. Some soil compaction is apparent onsite, presumably from dam construction and debris removal.

A thorough soil analysis from each area to be revegetated should be conducted. Tests should be performed on as many different onsite areas as economically feasible; the more complete the composite picture is of onsite soil, the better.

Factors to be evaluated include the following (Soil Improvement Committee 1990):

- pH,
- permeability,
- texture,
- compaction (by bulk density),
- saline or toxic contamination, and
- nutrient levels.

Soil pH affects the availability of nutrients to the plants. In general, favorable soil pH can range from 5 to 8. Soils with a low pH (acid soils) are generally low in calcium, and phosphorus is not readily available for plant uptake. Soils with a high pH (alkaline soils) frequently have excess calcium, high levels of sodium, and poor nutrient availability for plants.

Soil permeability can be assessed by percolation or infiltration tests, or can be calculated from tables for a particular soil type. The way that water interacts with the soil particles is important when evaluating plants that are most effective with prevailing soil conditions.

Soil texture describes the size of soil particles, while soil structure describes the way the soil aggregates together. Both texture and structure should be defined prior to implementation of any revegetation plan. Soil structure will affect the nutrient and water holding capacity of soils.

Soil compaction can be a serious problem, especially on engineered sites. Severe soil compaction impedes root growth and water permeability, and must be relieved before revegetation is implemented. A good evaluation of soil compaction is bulk density, which will indicate problems in specific soil types.

Soils must be assessed for salt content. Based on the history of irrigation in the Wildlife Management Area, it will be necessary to know whether salts have accumulated in particular areas.

Finally, nutrients levels, including nitrogen, phosphorous, and potassium, should be evaluated. Although soil amendment is only a transient fix on large-scale revegetation, appropriate vegetation can be planted to assist in long-term soil enrichment, if necessary. Excessive levels of nitrogen and phosphorus may predicate troublesome weed problems.

Micronutrients, including zinc, manganese, iron, and copper, should also be evaluated. Although micronutrients are found in small quantities in soils, these nutrients are essential for plant function and growth.

3.2.1.2 Hydrological and Climatological Regimes and Irrigation

Information on groundwater availability is not complete over the entire basin. However, depth to groundwater is reported to range from approximately 15 to 130 feet (Corps 1987). The surface water in the Wildlife Management Area from the wildlife lake, pond, as well as Haskell Creek most likely provides some lateral infiltration of water along their boundaries. Borings should be drilled to assess soil saturation zones from these sources to determine the width of the area suitable for revegetation with riparian species.

Temperature ranges in the Sepulveda Basin are severe, ranging from freezing in the winter to extended summer periods with daytime temperatures above 100°F (Ginevan, personal communication). These temperature ranges should be considered in planning the initial establishment monitoring of the vegetation. Temperature affects the evapotranspiration rate; as the temperature rises, so does the evapotranspiration rate. Evapotranspiration equals the evaporation of water from the soil and plant transpiration. Other variables that influence evapotranspiration rates are the species of plants, season, and availability of soil water. Consideration of native species that are adapted to conditions found in the Sepulveda Basin is essential to a successful self-sustaining revegetation plan.

Upland Habitats

- Grassland/herbaceous
- Alluvial sage scrub
- Chaparral

Nonirrigated systems recently have begun to be recommended in native upland revegetation and habitat creation projects in southern California (see Section 5). Irrigated systems are in many cases not successful in the long term in upland revegetation, primarily because irrigation encourages plant root systems to develop strongly in the upper soil layers where water from drip irrigation or overhead irrigation is abundant (St.John, personal communication). If irrigation is discontinued or interrupted, the plants do not have deep enough root systems to exploit deeper water storage in the soil, and mortality results. Irrigation also encourages weeds, which rely solely on shallow roots. Irrigation systems are expensive to install and maintain, and once plants are reliant upon it, maintenance within a wildlife management area may be at cross purposes with the overall goal of a self-sustaining system. However, if irrigation is implemented in the upland revegetation areas, the system should be used only if a shortfall of precipitation is expected in particular years.

The plants in the grassland/herbaceous, alluvial sage scrub and chaparral habitats are adapted to withstand summer drought (Lenz and Dourley 1981; Perry 1989). Mid-summer and fall are their most quiescent time. Growth is at a minimum and a bulk of reproduction is finished; therefore, water requirements are at a minimum. If watering is to be used

during this quiescent period, a monthly, very slow drip irrigation system is recommended. The unseasonal water will percolate into the very deep soil layers, encouraging deep root growth. Water will quickly evaporate off the surface layers, discouraging weed growth around the drip emitter.

Riparian Habitats

- Mesic scrub
- Riparian woodland

Establishment irrigation may be used advantageously in some areas of planned mesic scrub vegetation west of Haskell Creek and adjacent to the riparian woodland surrounding the wildlife lake (see Plates 2, 4, and 6). The other mesic scrub areas south of Burbank Boulevard presently support mesic species (mulefat), which indicates that irrigation may not be necessary in that area.

To extend the riparian woodland areas around the wildlife lake and along Haskell Creek, the proper soil-water conditions should be present to support this community. The width of the riparian community in these areas will depend on the pattern of lateral infiltration of water from the creek and lake. A model for the riparian woodland can be found in the dense riparian growth that presently exists along Encino Channel and Haskell Creek south of Burbank Boulevard (Plate 1). Although outside the project area and dependent on management requirements, these naturally vegetated areas indicate that water from these channels provides enough soil saturation for development of a riparian community. These areas should be used as the model for creation of a similar habitat within the Wildlife Management Area.

If soil saturation assessments in areas planned for riparian revegetation indicate that not enough water exists to support a riparian community, then alternative water sources could be considered. One alternative is the installation of bubblers in the riparian woodland area. Because of the dense understory planned for this habitat, use and maintenance of a drip irrigation system may not be practical over the long term.

3.2.1.3 Site Preparation

To assure successful revegetation, soils on site must be prepared for planting. Areas of the Sepulveda Basin have been compacted primarily because of heavy equipment in construction of the wildlife lake and sediment removal from postflood areas. Prior to any seeding or planting, problem areas should be loosened mechanically by ripping with an 8- to 10-inch tooth set 8 to 10 inches apart. Although this treatment may not be necessary in all areas of revegetation, it is essential to initial weed abatement in areas with a weed problem. This loosening of the soil will also provide protected sites for seed germination, as well as easy root penetration in early establishment of seedlings and container plants.

3.2.1.4 Weed Control

Effective weed control can make the difference between successful revegetation and failure. Initial weed control can greatly reduce the amount and cost of subsequent weed abatement methods. Areas of large weed cover (particularly east of wildlife lake) will benefit from initial weed control. Two methods, mechanical and/or manual removal and herbicide treatments, described below can be used individually or combined to address initial and ongoing weed problems. Burning of weeds is not considered an option for weed control because of regional air quality issues. Solarization is also not considered an option because of basin management conditions.

Mechanical/Manual Removal

Mechanical removal is feasible over large weedy areas prior to revegetation. Mechanical removal, coupled with solarization, should provide the most comprehensive initial assault on weed problems.

Manual removal may be necessary once planting has taken place and weeds become a problem, and, coupled with solarization, can effectively solve a weed threat.

Herbicides

Large-scale herbicides are not economically feasible and are intrinsically detrimental to the wildlife habitat trying to be established because of water and soil contamination. However, spot herbicide treatments are sometimes the only effective way to deal with tenacious weeds such as tree tobacco (*Nicotiana glauca*).

3.2.1.5 Container Plant and Seed Palette

The areas slated for revegetation require several different container plant and seed palettes for the following vegetation community development:

- grassland/herbaceous,
- alluvial sage scrub,
- chaparral,
- mesic scrub,
- riparian woodland, and
- seasonal pool.

Container plants provide three important functions in revegetation. First, they allow established plants, plants past that vulnerable seedling stage, to be introduced to the community. Although every revegetation plan has some container plant die-off after transplantation, container plants are essential to define the mature community. Second, some plants do not germinate well from seed and are most successfully propagated by

cuttings (woolly blue curls, giant wild rye, barberry and others). Consequently, the only way to get these plants onsite is by planting container plants. Container plants provide a "head start" in establishing certain species in particular areas. Third, container plants are an efficient way to introduce the beneficial soil organisms, known as mycorrhizae, onsite. Mycorrhizae are soil fungi found in association with many native plant roots. These fungi increase the uptake nutrients and water in plants. Because native plants typically grow in nutrient-poor soils, the roots of many native plants form associations with mycorrhizae. The mycorrhizae receive photosynthates (sugars) from the plant as a result of their close association. This mutualism benefits both plants and mycorrhizae and results in healthy plant growth. Most of the container plants for the revegetation plan have been selected for their ease to establish mycorrhizal associations. Mycorrhizal introductions help assure successful revegetation projects.

Container plants will be both clumped and scattered in such a way as to simulate natural distribution for an overall natural appearance for all habitat types.

Although the container planting for each area will define the particular community or habitat, seed mixes for the areas are also important in revegetation. The seed mixes will contain early successional species that will provide cover and soil erosion control. Additionally, the seed mix will provide an initial seed bank to allow the vegetation to rebound from potential disturbance.

Grassland/Herbaceous

Only two grass species are introduced as container plants in the grassland/herbaceous community. Table 2 presents the container plant palette for this community. These two species are good hosts for mycorrhizae and are used to inoculate the grassland/herbaceous site. The density of planting ensures that mycorrhizae will be spread to the seeded species.

Table 3 presents the seed palette for the grassland herbaceous areas (see Plates 2 and 3). All the species included in the seed mix are native grasses and wildflowers selected specifically as wildlife forage and for the management constraints of the area. Young grass shoots are a preferred food for Canada geese; therefore, a variety of species have been included to tempt their palates. The seeds from these species will provide a food source for both avian and mammalian seed-eaters. Therefore, there will be a seasonal food source for migrating waterfowl as well as habitat for the year-round wildlife residents. Wildflowers, which naturally occur in grasslands, will add a display of color to the area in early spring. These annual species will reseed themselves; however, potential reseeding on a multiannual basis (every 3 to 5 years) will assure continued wildflower shows. At that point, other wildflower species could be introduced to increase diversity of the grassland, or the area could be managed to increase the density of grasses through mowing of the wildflowers.

Alluvial Sage Scrub — see next page ~~Missing section~~

Table 2

CONCEPTUAL CONTAINER PLANT PALETTE FOR GRASSLAND/HERBACEOUS HABITAT
(14.7 acres approximately)

Plants Per Acre	Scientific Name	Common Name	Size[1] (gal)	Flowering Time
150 - 170	*Nassella lepida**	foothill needlegrass	1	March - May
150 - 170	*Nassella pulchra**	purple needlegrass	1	March - May
300 - 340	**TOTAL**			

* **Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)**

[1] **Smaller plant size (1- by 6-inch pine leach tubes) can be used at 350-400 plants per acre per needlegrass species.**

Alluvial Sage Scrub

The container palette for alluvial sage scrub assures a diverse mature community that will withstand periodic flooding. The alluvial scrub community is located east of the wildlife lake (see Plates 2 and 3). Table 4 presents the container plant palette for this community. All of the listed species are drought-tolerant and survive well on minimal water availability. Many of the plants were included in the palette to provide forage for birds and mammals. Other shrubs display colorful flowers during spring and summer, attracting insects and birds. Most of the plants on the palette are good hosts for mycorrhizae and are used to inoculate the alluvial sage scrub site. The density of planting ensures that mycorrhizae will be spread to the seeded species.

Table 5 presents the seed mix palette. This seed mix is tailored for use in both the sage scrub and chaparral habitats. The similar species composition and ecological requirements of these two communities allow a shared seed palette, thereby reducing costs in hydroseed installation. Plants in this palette are included for one or more functions. Initial concern of all revegetation projects is to select plants that will provide quick cover for weed and erosion control. These plants are typically short-lived and are not expected to persist in the area. They can be thought of as "early successional" species that provide a function and are eliminated. In fact, they modify the habitat to the extent that they can no longer exploit it. Three or four of the species are included in the list to specifically perform this function.

Also in the seed mix are seeds that will give rise to "permanent" members of the habitats. These plants will eventually outcompete the "early successional" species in 2 to 4 years and mature the area into the planned community.

Chaparral — ~~Barbour~~ Sawyer pg 31

Table 3

CONCEPTUAL SEED PALETTE FOR NATIVE GRASSLAND/HERBACEOUS HABITAT (14.7 acres approximately)

Pounds of Bulk Seed	Scientific Names	Common Names	Flowering Time
ANNUAL WILDFLOWERS			
0.1 - 0.2	*Achillea millefolium*	yarrow	March - November
0.2 - 0.4	*Dichelostemma pulchella*	blue dicks	March - May
0.2 - 0.4	*Eriophyllum confertifolium*	golden yarrow	April - August
0.3 - 0.5	*Eschscholzia californica*	California poppy	February - September
0.1 - 0.2	*Lasthenia glabrata*	goldfields	April - May
0.2 - 0.4	*Layia platyglossa*	tidy tips	March - May
0.5 - 1.0	*Lupinus bicolor*	lupine	March - June
0.2 - 0.4	*Nemophila menziesii*	baby blue eyes	February - June
0.1 - 0.2	*Orthocarpus purpurescens*	owl's clover	March - May
0.1 - 0.2	*Phacelia minor*	Canterbury bells	March - June
0.1 - 0.2	*Sisyrinchium bellum*	blue-eyed grass	March - May
GRASSES			
1.3 - 2.0	*Aristida purpurea**	purple triple awn	May - July
1.1 - 2.0	*Elymus glaucus**	blue wild rye	June - August
1.5 - 2.3	*Elymus triticoides**	creeping wild rye	June - July
0.3 - 1.0	*Melica californica**	California melic	April - May
0.3 - 1.0	*Melica imperfecta**	coastal melic	April - May
0.5 - 1.0	*Poa secunda ssp. secunda**	pine bluegrass	February - June
1.1 - 2.0	*Nassella cernua**	nodding needlegrass	April - May
1.0 - 2.0	*Nassella lepida**	foothill needlegrass	March - May
2.5 - 3.0	*Nassella pulchra**	purple needlegrass	March - May
11.7 - 20.4	**TOTAL**		

* **Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)**

Table 4

CONCEPTUAL CONTAINER PLANT PALETTE FOR ALLUVIAL SAGE SCRUB
(20.2 acres approximately)

Plants Per Acre	Scientific Name	Common Name	Size	Flowering Time
40 - 50	*Artemisia californica*	California sagebrush	1 gal	August - December
20 - 25	*Baccharis pilularis consanguinea*	coyote bush	4 inch	August - December
25 - 30	*Ceanothus crassifolius*	California lilac	1 gal	Jan. - April
15 -20	*Elymus condensatus*	giant wild rye	4 inch	June - August
20 - 25	*Encelia californica*	California encelia	4 inch	February - June
20 - 25	*Epilobium californica*	California fuchsia	4 inch	August - October
10 - 15	*Eriogonum fasciculatum*	California buckwheat	4 inch	March - October
10 - 15	*Isomeris arborea*	bladderpod	1 gal	Most of the Year
15 -20	*Keckiella cordifolia*	heart-leafed penstemon	1 gal	May - June
5 - 10	~~*Mahonia*~~ Berberis *nevinii*	Nevin's barberry	1 gal	March - April
10 - 15	*Penstemon centranthifolius*	scarlet bugler	4 inch	April - July
10 - 15	*Penstemon heterophyllus*	foothill penstemon	4 inch	April - July
10 - 15	*Penstemon spectabilis*	showy penstemon	4 inch	May - July
15 - 20	*Rhamnus californica*	redberry	1 gal	May - July
15 - 20	*Rhamnus crocea*	coffeeberry	1 gal	March - April
15 - 20	*Rhus integrifolia**	lemonadeberry	1 gal	February - May
15 - 20	*Rhus ovata**	sugar bush	1 gal	March - May
20 - 25	*Salvia apiana*	white sage	1 gal	April - July
20 - 25	*Salvia mellifera*	black sage	4 inch	April - July
20 - 25	*Trichostemma lanatum*	woolly blue curls	4 inch	May - August
330 - 435	**TOTAL**			

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*** Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)**

Table 5

CONCEPTUAL SEED PALETTE FOR ALLUVIAL SAGE SCRUB AND CHAPARRAL HABITATS (22.7 acres approximately)

Pounds of Bulk Seed	Species	Common Name	Flowering Time
0.2 - 0.4	*Achillea millefolium*	yarrow	March - November
0.3 - 0.5	*Artemisia californica*	California sagebrush	August - December
0.2 - 0.3	*Atriplex lentiformis**	quailbush	August - October
2.6 - 3.5	*Encelia californica*	California encelia	February - June
3.7 - 4.5	*Eriogonum fasciculatum*	buckwheat	March - October
0.3 - 0.5	*Eriophyllum confertifolium*	golden yarrow	April - August
0.8 - 1.0	*(Haplopappus venetus)* Isocoma menziesii	golden bush	April - November
0.5 - 0.7	*Lotus scoparius*	deer weed	March - August
1.1 - 2.0	*Lupinus bicolor*	lupine	March - June
1.1 - 2.0	*Nassella cernua**	nodding needlegrass	April - May
0.5 - 1.0	*Plantago (insularis*) ovata*	woolly plantain	February - April
0.4 - 0.6	*Salvia apiana*	white sage	April - July
0.2 - 0.4	*Salvia mellifera*	black sage	April - July
12.3 - 18.0	**TOTAL**		

* **Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)**

MAY BE ALIEN NATURALIZED VERY EARLY FLOWERING

The container plant palette for chaparral assures a diverse mature community. Table 6

Table 6

CONCEPTUAL CONTAINER PLANT PALETTE FOR CHAPARRAL HABITAT (2.5 acres approximately)

Plants Per Acre	Species	Common Name	Size (gal)	Flowering Time
15 - 20	*Ceanothus crassifolius*	California lilac	1	January - April
15 - 20	*Cercocarpus betuloides*	mountain mahogany	1	March - April
15 - 20	*Fremontodendron californicum*	flannel bush	1	May - June
20 - 25	*Heteromeles arbutifolia*	toyon	1	June - July
20 - 25	*Mahonia nevinii*	Nevin's barberry	1	March - April
20 - 25	*Malosma laurina*	laurel sumac	1	June - July
15 - 20	*Prunus ilicifolia*	holly-leafed cherry	1	April - May
20 - 25	*Quercus berberidifolia*	scrub oak	1	March - May
15 - 20	*Rhamnus californica*	coffeeberry	1	May - July
15 - 20	*Rhamnus crocea*	redberry	1	March - April
10 - 15	*Rhus integrifolia**	lemonadeberry	1	February - May
10 - 15	*Rhus ovata**	sugar bush	1	March - May
15 - 20	*Ribes speciosum*	fuchsai-flowering gooseberry	1	January - May
205 - 270	TOTAL			

* Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)

Chaparral

The container palette for chaparral assures a diverse mature community. Table 6 presents the container plants for this community. The areas that will be planted with chaparral, north and south of Burbank Boulevard (see Plates 2 and 5), will not be subject to the flooding disturbance that many of the other areas will; however, human disturbance is still a factor. These tough, drought-tolerant plants, which grow thick and relatively tall (12 to 15 feet), will form a mature community that can shield the wildlife from street noise. They also discourage human disturbance because of their dense growth habit and thorny or prickly nature.

Mesic Scrub

The mesic scrub container plant palette is presented in Table 7. This palette shows a diverse group of species that either require or tolerate some summer water. Many of these plants have a low, dense growth form and provide good food sources for birds and small mammals.

In the mesic areas with no preexisting mesic vegetation, this palette should be planted densely, as shown in Table 7 at 200 to 300 plants/acre. The plants in the palette will mature into a lower growing (3 to 15 foot) cover that is diverse in color and texture. Most of the plants on the palette are good hosts for mycorrhizae and are used to inoculate the mesic scrub site.

Because much of the mesic scrub area below Burbank Boulevard is already densely vegetated with mulefat (see Plates 1, 2, and 5), the container plants should be interspersed at a low plant density (50 to 70 plants/acre). Several of the plants have a climbing habit, which suits them for establishing in habitats with preexisting vegetation.

The mesic scrub seed mix palette is presented in Table 8. This table shows an average seed density for the mesic scrub areas. As previously mentioned some of the mesic scrub areas are already densely vegetated with mulefat, particularly in the areas south of Burbank Boulevard. Lightly seeding these preexisting mesic scrub areas (3 to 4 pounds/acre) will introduce a greater diversity of species into the area and enrich the seed bank. This enriched seed bank will be especially important after any disturbance (such as flooding) by providing appropriate propagules for subsequent colonization of the mesic scrub areas. Alternatively, some of the areas slated for mesic scrub are currently devoid of vegetation and need to be more heavily seeded (13 to 19 pounds/acre) to provide enough propagules for subsequent germination and to develop a seed bank. These areas are located near the wildlife lake and along the west side of Haskell Creek.

Some of the species in the seed palette are not expected to persist onsite, but are included in the mix to provide quick cover and prevent erosion during the first year after seeding takes place.

Riparian Woodland

Table 9 presents the riparian woodland container plant palette. This palette has been divided into three categories by plant height: understory, mid-canopy, and upper canopy (see Plates 2 through 6).

The understory plants provide dense cover around 4 feet in height. Some of the species will do well in shaded, as well as sunny, conditions, so planting them early will not affect their longevity.

Mid-canopy vegetation will reach 20 to 35 feet at maturity and represent a diversity of species. Grouping the California walnuts in close proximity in a single area would create

Table 7

CONCEPTUAL CONTAINER PLANT PALETTE FOR MESIC SCRUB HABITAT (22.8 acres approximately)

Plants Per Acre	Species	Common Name	Size (gal)	Flowering Time
20 - 25	*Baccharis emoryi*[1]	Emory's baccharis	1	August - December
20 - 30	*Baccharis salicifolia*[1]	mulefat	1	most of the year
8 - 10	*Lonicera subspicata*	wild honeysuckle	1	June - July
20 - 25	*Prunus ilicifolia*	holly-leafed cherry	1	April - May
12 - 15	*Rhamnus californica*	coffeeberry	1	May - July
6 - 8	*Rhus integrifolia**	lemonadeberry	1	February - May
10 - 12	*Ribes aureum*	golden currant	1	February - April
10 - 12	*Ribes speciosum*	fuchsia-flowering gooseberry	1	January - May
20 - 25	*Rosa californica*	wild rose	1	May - August
15 - 20	*Rubus ursinus**	wild blackberry	4 inch	May - June
10 - 15	*Vitis californica**	wild grape	1	May - June
111 - 142	TOTAL			

* Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)

[1] Planted in mesic areas north of Burbank Boulevard, already present south of Burbank Boulevard.

Table 8

CONCEPTUAL SEED PALETTE FOR MESIC SCRUB
(22.8 acres approximately)

Pounds of Bulk Seed	Species	Common Name	Flowering Time
0.2 - 0.4	*Achillea millefolium*	yarrow	March - November
1.0 - 1.5	*Artemisia douglasiana*	mugwort	June - October
0.3 - 0.5	*Eriophyllum confertifolium*	golden yarrow	April - August
1.0 - 2.0	*Lupinus bicolor*	lupine	March - June
0.5 - 1.0	*Phacelia minor* SMM	Canterbury bells	March - June
0.5 - 1.0	*Phacelia ramosissima* SMM	branching phacelia	May - August
0.5 - 1.0	*Phacelia tanacetifolia*	lacy-leaf phacelia	March - May
1.5 - 2.0	*Plantago (insularis*) ovata*	woolly plantain	February - April
5.5 - 9.4	TOTAL		

SANDY TO GRAVELLY SLOPES OPEN AREAS NEED good drainage

* Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)

Table 9

CONCEPTUAL CONTAINER PLANT PALETTE FOR RIPARIAN WOODLAND
(12 acres approximately)

Plants Per Acre	Species	Common Name	Size (gal)	Flowering Time
Understory Vegetation				
10 - 15	*Ribes aureum*	golden currant	1	February - April
10 - 15	*Ribes malvaceum*	chaparral currant	1	January - March
20 - 25	*Rosa californica*	wild rose	1	May - August
20 - 25	*Rubus ursinus**	wild blackberry	4 inch	May - June
15 - 20	*Vitis californica**	wild grape	1	May - June
Mid Canopy Vegetation				
10 - 15	*Cornus occidentalis*	American dogwood	1	May - June
25 - 30	*Juglans californica*	California walnut	1	April - May
20 - 25	*Prunus ilicifolia*	holly-leafed cherry	1	April - May
10 -25	*Rhamnus californica*	coffeeberry	1	May - July
15 - 20	*Salix laevigata**[1]	yellow willow	1	March - May
15 - 20	*Salix lasiandra**[1]	red willow	1	March - May
15 - 20	*Salix lasiolepis**[1]	arroyo willow	1	March - May
25 - 30	*Sambucus mexicana**	elderberry	1	March - September
Upper Canopy Vegetation				
20 - 25	*Platanus racemosa*	western sycamore	1	February - April
25 - 30	*Populus fremontii*	cottonwood	1	March - April
15 - 20	*Salix goodingii**[1]	Gooding's willow	1	March - May
260- 360	**TOTAL**			

* **Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)**

[1] **Cuttings may be planted directly**

a walnut woodland habitat. This habitat type is becoming more and more rare in southern California.

Upper canopy vegetation can reach 40 to 50 feet at maturity and provide shade and cover for plants, animals, birds, and water underneath them.
Most of the plants on the palette are good hosts for mycorrhizae and are used to inoculate the riparian woodland site, both seeded and preexisting vegetation.

The riparian woodland seed palette is presented in Table 10. Although the dominant species in this community will be planted as containers, the seeds included in this palette provide two functions. First, some of the species are not expected to persist onsite, but are included in the mix to provide quick cover and prevent erosion during the first year after seeding takes place. The remainder of the species will provide the important understory plants found in riparian areas. Additionally, a seed bank will be established, which will enable quicker community recovery from disturbance.

Seasonal Pool

Seasonal pools are interesting features of California. Seasonally, the environment in such a pool changes dramatically. Most species that inhabit such pools are adapted to rapid changes of environment and tend to complete their lifecycles quickly. A seasonal pool could be located at the southern end of the wildlife lake as shown on Plate 2.

The conditions for a seasonal pool over the course of a year can be divided into four phases. First, a wetting phase commences with the onset of fall rains. The initial rains saturate the soils with water and allow accumulation of standing water in the pool. This leads to the second phase, an aquatic phase that occurs in winter. Seeds begin to germinate, invertebrate eggs, algae and bacteria begin growth, and vertebrates use the pools as breeding and foraging habitat. Upland species that may have invaded the area the previous summer/fall will be outcompeted under the new aquatic conditions. As the temperatures increase and rainfall decreases in the spring, a drying phase occurs. As the water level in the pool recedes, a variety of plant species begin to flower in bands on the shore of the pool. Invertebrates reproduce and their dormant stages settle on the pool bottom. By the end of spring, all plants in the pool are terrestrial. During the summer, the drought phase occurs. The annual plants have set seed and dispersed it, and perennial plants flower. The duration of each of these phases is variable, depending on rainfall, evapotranspiration, water storage in adjacent soils, and subsurface seepage losses.

Management of a seasonal pool would pose a challenge because of seed availability. Some species typically found in such pools (Barbour and Major 1988) are rare and endangered, so seeds are difficult or impossible to acquire. Table 11 presents a conceptual seed mix for the seasonal pool area (see Plate 2). While a few of the species on the seed palette are rare, a majority of the seeds are available. Some are showy wildflowers that are also found in the grasslands, while others are more subtle-looking, but important components of the seasonal pool. The conditions in the pool become harsh as evaporation leaves salt/mineral residues in the pool bottom. Annual summer invasion of grasses and forbs into the seasonal pool is a natural process and should not be a concern.

Table 10

CONCEPTUAL SEED PALETTE FOR RIPARIAN WOODLAND
(12 acres approximately)

Pounds of Bulk Seed	Species	Common Name	Flowering Time
0.2 - 0.4	*Achillea millefolium*	yarrow	March - November
0.4 - 0.6	*Artemisia douglasiana*	mugwort	June - October
1.0 - 1.5	*Camissonia cheiranthifolia*	BEACH! evening primrose	April - August
0.3 - 0.5	*Eriophyllum confertifolium*	golden yarrow	April - August
1.1 - 2.0	*Lupinus bicolor*	lupine	March - June
0.5 - 1.0	*Phacelia minor*	Canterbury bells	March - June
0.5 - 1.0	*Phacelia ramosissima*	branching phacelia	May - August
0.5 - 1.0	*Phacelia tanacetifolia*	lacy-leaf phacelia	March - May
0.5 - 1.0	*Plantago (insularis*)* ovata	woolly plantain	February - April
5.0 - 9.0	**TOTAL**		

* Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)

Sandy slopes, flats, coastal dunes

Table 11

CONCEPTUAL SEED PALETTE FOR SEASONAL POOL
(0.8 acres approximately)

Pounds Per Acre	Scientific Name	Common Name	Flowering Time
1.0 - 1.5	*Callitriche* sp.	water star-wort	March - May
0.5 - 0.7	*Camissonia cheiranthifolia*	BEACH primrose	April - August
0.5 - 1.0	*Lasthenia glabrata*	goldfields	April - May
1.0 - 1.5	*Layia platyglossa*	tidy tips	March - May
2.0 - 2.5	*Lepidium nitidum**	pepper grass	February - May
1.0 - 2.0	*Ludwigia palustris**	ludwigia	June - September
2.0 - 2.5	*Lupinus bicolor*	lupine	March - June
0.5 - 0.8	*Orcuttia californica*	orcuttia	May - June
0.1 - 0.3	*Orthocarpus purpurescens*	owl's clover	March - May
1.0 - 2.0	*Nassella lepida**	foothill needlegrass	March - May
4.0 - 4.5	*Nassella pulchra**	purple needlegrass	March - May
13.6 - 19.3	**TOTAL**		

ONAGRACEAE

*** Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)**

pool is a natural process and should not be a concern.

3.2.1.6 Container Plant Propagules and Seed Sources

Two sources of seed and plant propagules are possible. One option is the purchase of plant material from an experienced native plant nursery or seed company. The other option is contract custom collection of plant material. Because the Sepulveda Basin is surrounded by suburban development, few native plants are available onsite or in areas directly adjacent to the site. Collection of seed from the more distant surrounding areas, such as the Angeles National Forest, the Santa Susanna Mountains, and the Santa Monica Mountains, is an option.

Field collection of cuttings has the restraints of permitting, collection expense, and plant propagation expense once the cuttings are taken. "Lead time" for propagation must also be taken into account, so that the mature plants are ready and available for planting. Regardless if cuttings are taken offsite or plants are ordered from a nursery, expect up to 2 years of advance planning for some species.

The Forest Service allows seed collection on its property with permits at a cost of $0.10 per pound of seed collected. The typical rate for seed collection is $30.00 per hour. Several trips are required for field collection because not all plants flower and fruit at the same time. Seed purity and germination rates will need to be determined for the field-collected seed so that the correct amount can be used in the seed mix (rough estimates will be determined prior to collection so appropriate amounts will be collected). If seed is not to be used immediately, provisions must be made to store the seed properly and to maintain its viability. Seed companies provide seed to the customer with known purity and germination rates, although the genetic diversity of the seeded population may be more uniform. The original source of the seeds or cuttings may not be adapted to conditions in the area.

These two options actually address two different concerns: maintaining genetic diversity versus cost feasibility. Plant material collected in the field have a much more diverse genetic base. Collection of plant material in areas near the Sepulveda Basin should produce plants that are better adapted to specific conditions that occur in the Sepulveda Basin than plant material collected in another part of the state. Theoretically, the diversity of the genome in field-collected plant material will give the plant a better chance of success than a plant grown from a less genetically diverse plant crop (the type of plant material produced by nurseries and culture). This lack of diversity could limit the plants' abilities to cope with catastrophic events, such as flood or disease. The overall costs are reduced when purchasing (versus harvesting) plant material.

3.2.1.7 Installation of Container Plants

All container plants should be planted in late November or early December, or shortly before the first fall rains. This encourages the native plants to develop a good root system before the summer drought. Directly preceding planting, the soil should be brought to field capacity (soil saturated with water), which is often accomplished by a water truck. Holes should be dug to twice the size of the container and backfilled slightly for easy root

expansion into moist native soil. The plant should be removed from its container and placed into the hole. Native soil should then be backfilled around the plant. A small berm should be formed around the base of the plant and filled with water. No fertilizer/vitamins should be used when transplanting.

3.2.1.8 Seeding Methods

Large-scale seeding is most cost-effective when spread by a hydroseeder, which includes seed dispersal in a slurry of organic mulch, soil binder and water. However, a two-step operation that first hydroseeds, and second hydromulchs over the seeded area, allows more seed to be in direct contact with the ground. The two-step method offers better sites for seed germination. Fertilizer is not included in the slurry because it only encourages weed growth. The area to be seeded should be imprinted with a sheepsfoot roller. Imprinting provides a rough surface for the seeds to fall for protected areas of germination. All large-scale seeding should take place after container planting is accomplished. Seeding over small areas, or spot seeding, can easily be accomplished manually. Here also, the seeds/soil benefit from imprinting, and a manual sheepsfoot is available.

3.2.2 Management of Site

3.2.2.1 Monitoring

Monitoring should be conducted during container plant installation. During the first year, biweekly monitoring of the site is essential to evaluate and implement weed and pathogen control, and to recommend replacement planting. Container plantings will have to be monitored for supplemental establishment watering if precipitation is low or nonexistent in the year of planting.

Regardless of the preparation and care onsite, some plant die-off should be expected. Rates as high as 50 percent are not uncommon in good revegetation plans, although 25-percent die-off is not an unreasonable goal. Provisions for replanting should be made well in advance of replacement. As the site establishes, the monitoring can be reduced to monthly visits. The need for early detection of problems cannot be overemphasized.

During this initial horticultural monitoring phase, management and maintenance crews from DRP could be trained in native plant maintenance.

3.2.2.2 Maintenance

Long-term vegetation maintenance should be minimal. Leaf litter, dead wood, and other vegetative byproducts are essential additions to a functioning ecosystem that is self-sustaining and attractive to wildlife. All biotic litter should remain onsite and be allowed to decompose naturally.

Signs for trash disposal should be placed prominently, and containers should be easily accessible. Containers should be emptied frequently to discourage wildlife from exploiting trash as a food source. Transient trash should be removed periodically (especially in the areas south of Burbank along the Haskell Creek). Not only is trash unsightly, but the sight of trash often encourages more littering.

3.3 AQUATIC REVEGETATION

The wildlife lake located on the north side of Burbank Boulevard has been designed and is operating as a flow-through lake. The quality of the lake outflow to the Los Angeles River is governed by the Tillman Water Reclamation Plan NPDES Permit No. 0056227. This permit was issued to the City of Los Angeles by the Los Angeles Regional Water Quality Control Board (WQCB). Both the Bureau of Sanitation and Department of Recreation and Parks have specific compliance responsibilities under the permit. Because the permit for this lake's reclaimed water flow-through system was the first of its kind to be issued by the WQCB, great time and effort were involved in establishing compliance criteria for the permit. Additionally, the NPDES permit requires a comprehensive and expensive water quality monitoring program. The Sepulveda Basin Wildlife Lake Area Management Plan (DRP 1991) was prepared to provide a specific design and methodology of lake management for achieving the NPDES permit compliance criteria. The data collected under the plan become part of a database that will allow standardization of the operating procedures toward optimum water quality.

Changes in the design and management of the lake would require prior approval of all three agencies mentioned above. Therefore, it would be necessary to provide documentation that changes would lead to equal or improved water quality before any of the measures outlined in this wildlife management plan could be implemented. Changes to the existing wildlife lake management plan would also require development of a new water quality monitoring program and creation of a new management database. The cost of undertaking these steps may be prohibitive during these times of budgetary constraints; however, this section of the conceptual plan is presented in an attempt to assess a range of possibilities for enhancing the wildlife area at Sepulveda Basin.

Currently, the wildlife lake is characterized by low productivity and low biodiversity. These conditions appear to be at least partly related to the lack of aquatic and emergent vegetation in the lake and around its perimeter. Vegetation is important to both the water quality and wildlife habitat functions of the lake ecosystem. Plants provide surfaces for the growth and proliferation of microbial populations (i.e., bacteria, fungi, algae, and protozoa), that, together with the aquatic plants, constitute the base of the food chain and play a significant role in maintaining water quality. Increasing plant biomass and providing for development of microbial populations would foster the proliferation of macroinvertebrates (e.g., insects), which are a food source for amphibians, fishes, and wading birds, as well as a key indicator of water quality.

Waterfowl and other wildlife species are selective in their choice of habitat. The wildlife lake and its associated wetland habitats would realize the most successful wildlife utilization

if they were designed to accommodate a variety of critical habitat requirements, including vegetation cover, nesting sites, protection from predators, low disturbance levels, and food supplies. During the fall and winter, migratory waterfowl rely mainly on seeds and plant foliage for food. Seed production within the wildlife lake should be enhanced by creating and maintaining a shallow water zone at the lake's margin where annual (or nonpersistent) emergent vegetation (such as millets, smartweeds, and spikerushes) would germinate and produce seed.

Existing transitional habitats between the aquatic habitat of the wildlife lake and the adjacent upland areas are poorly developed. A major factor in the ecological value of wetlands is their ability to act as transition zones or ecotones between habitats. Two types of emergent habitats are proposed for the wildlife lake's transition zone: (1) a deeper emergent zone dominated by persistent (i.e., perennial) vegetation on the western margin of the lake, and (2) an open mudflat and shallow emergent area designed for use by migratory waterfowl on the eastern margin of the lake. Plate 4 presents a cross section of the conceptual plan of the transitional habitats.

Species of emergent plants suitable for installation in the deeper emergent zone are members of the reed, rush, sedge, and grass families. A design using a variety of species would be preferred over a monoculture because variety increases habitat diversity and the likelihood of establishment success.

The shallow emergent zone would be planted with annual species characterized by high seed production and would be slowly dewatered periodically to encourage natural reseeding and germination of the annuals.

Above the emergent zone on the western side of the lake, the habitat would transition to riparian woodland consisting primarily of willows, cottonwoods, and sycamores. Upslope of the riparian woodland, a diverse assemblage of mesic scrub (e.g., elderberries, currants, wild rose, coffeeberry, and mulefat) would be planted.

Above the mudflat and shallow-water habitats on the eastern side of the lake, the slopes would be revegetated with an assemblage of mesic grasses, herbs, and subshrub species.

3.3.1 Revegetation Methodology

To assure successful aquatic wildlife habitats, several factors must be evaluated. Water management and plant maintenance are addressed in the following sections.

3.3.1.1 Water Regulation/Management

Waterflow rate, water depth, and soil quality are factors that will be pertinent to the establishment success of the lake's transition zone as well as to its ultimate biodiversity. Waterflow rate and depth can greatly affect plant growth and distribution in wetlands because of the direct relationship between these factors and erosion.

Measures that would reduce the effects of erosion on newly planted areas of the wildlife lake include (1) exposing the shoreline of the lake through dewatering during the period when the planted shoreline vegetation is becoming established, and (2) delaying flooding of the bottom of the lake until the bottom has been stabilized.

For natural seed production to occur in the shallow emergent areas on the lake's eastern margin, it may be necessary to periodically draw down the water in the shallow water zone in the spring and reflood in the fall. Drawdown is a commonly used management practice that encourages food production for migratory waterfowl by emulating the drying out process that occurs seasonally at natural pond and lake margins. Drawdown can be partial and performed on either an annual or less frequent basis, depending of the level of waterfowl usage desired. Partial drawdown exposing substrate in the shallow emergent zone only would be the likely management option for the Sepulveda Basin wildlife lake.

3.3.1.2 Water Quality

Waterflows in Haskell Creek are comprised primarily of industrial, agricultural, and storm runoff, as well as effluent from the TWRP outlet. According to the TWRP Flood Protection Project Environmental Assessment, the TWRP effluent entering Haskell Creek complies with the waste discharge requirements of permits issued by the WQCB. The analysis of water quality from TWRP shows the lake to be nutrient rich but nitrogen limited in relation to phosphorus levels (DRP 1991). The salinity of the water (total dissolved solids and chloride content) is within acceptable levels for aquatic plant and animal species. The runoff component in Haskell Creek comes from street and valley drainage and contains nutrients (nitrogen and phosphorus), trace metals, suspended solids, oil and grease, and coliform bacteria during periods of low flow and storms.

3.3.1.3 Plant Palette/Seed Mixes

The primary role of emergent vegetation at the lake's margin is to provide wildlife habitat, but it also assists in maintaining water quality. Table 12 indicates plant material suitable for use in emergent areas of the lake. To the extent possible, whole plants and seeds for planting the lake's transition zone would be obtained from healthy populations in the vicinity of Sepulveda Basin. Propagules would be collected in discontinuous patches to avoid excessive disturbance of the host populations and would be installed at the wildlife lake on the same day as collected. Plantings would be supplemented with materials from a local native plant nursery if achieving the desired vegetation cover at the wildlife lake would result in overcollection at host sites. Materials would be installed according to planting methods prescribed by the Society of Ecological Restoration (SER) (1992) and the supplier of the native plants.

~~Persistent Emergent Zone~~

Table 12

CONCEPTUAL CONTAINER PLANT PALETTE FOR LAKE VEGETATION[1]
(9.5 acres approximately)

Scientific Name	Common Name	Flowering Time
Emergent Vegetation - 2.8 Acres		
Anemopsis californicus	yerba mansa	March - September
Callitriche palustris NOT IN SEASON	water star-wort	March - May
Carex sp.*	sedge	Summer
Cyperus sp.*	sedge	July - Nov.
Eleocharis sp.*	spike rush	May - August
Equisetum palustre	horsetail	---
Juncus sp.	rush	May - August
Mimulus guttatus	monkey flower	March - August
Lemna sp.*	duckweed	Summer
Lythrum californicum	California common loosestrife	April - October
*Polygonum hydropiperoides**	water smartweed	June - October
Scirpus sp.*	bulrush	May - August
Typha latifolia	cat-tail	June - July
*Sagittaria calycina**	arrowhead	July - August

* **Plant species known to occur in the diet of waterfowl (Bennet 1938; Johnson et al. 1985; Van Wormer 1968)**

[1] **Density of plant material should be determined in conjunction with the Wildlife Lake Management Plan (DRP 1991)**

Lythraceae

Persistent Emergent Zone

The deeper water emergent zone on the western side of the lake could be comprised predominantly of bulrushes, with the addition of spike rushes, sedges, and other herbs. For the most part, whole plants could be transplanted in this zone. Transplanted bulrushes, for example, would have a minimum of a 3-inch rhizome mass and would be installed in 6-inch planting holes. The remaining species would also be installed according to SER and the native plant supplier's specific planting instructions.

Shallow Emergent Zone

Seeding would be the primary means of vegetating the lake's shallow emergent zone, although smartweed cuttings are known to perform well and might also be used. Seeds would be broadcast on the exposed substrate within the shallow emergent zone well in

advance of the arrival of migratory waterfowl to avoid overgrazing. After germination of the seeds, the area would be gradually reflooded.

3.3.2 Establishment Monitoring/Management

Successful revegetation and management of the lake as described above would require an ongoing maintenance program. The following section outlines maintenance aspects of the program that would be necessary in addition to the present program prescribed by the Wildlife Lake Management Plan (DRP 1991). Maintenance (specifically, weed eradication) of the open mudflat and shallow water areas on the lake's eastern margin would be required to prevent invasion by either persistent emergents (e.g., cattails) or riparian species (e.g., willows).

Specific aspects of the water level regulation, including timing, frequency, and extent of drawdown, would be determined within the constraints of the Wildlife Lake Management Plan (DRP 1991). Some of the objectives relating to wildlife utilization and habitat management that can be achieved through water level regulation include the following:

- drawdown provides mudflat areas and natural (or artificial) reseeding of waterfowl food plants;
- reflooding increases production of invertebrates on submerged vegetation for ducks and geese;
- fall drawdown increases duck and shorebird predation on invertebrates and minnows;
- cyclic drawdown and reflooding consolidates the lake bottom and releases accumulated nutrients, thus improving light penetration and plant growth;
- drawdown encourages recovery of desirable plant cover within the lake following storm or flood scouring;
- cyclic drawdown and reflooding flush excess salts from the system; and
- flooding eradicates undesirable invasive plants.

The design of the revegetation plan for the lake and implementation of the plan would have to work within the limits of the existing Wildlife Lake Management Plan, which dictates the water quality requirements of the NPDES permit and the mosquito abatement district, and ensures prevention of waterfowl botulism outbreaks (DRP 1991).

The lake management plan described above could be downscaled and applied to the pond located on the south side of Burbank Boulevard (Plate 2). Unlike the lake, the pond currently relies on potable water, which would be a cost consideration. The pond is not addressed under the existing NPDES permit because it is not connected to Haskell Creek and does not receive reclaimed water from TWRP. However, the pond is in need of water

quality improvement. Implementation of a downscaled version of the lake management plan at the pond and an analysis of the results would provide valuable information that could be used to evaluate the plan's potential benefits and costs if implemented at the wildlife lake.

To reduce cost, makeup water from TWRP could potentially be used in the pond. The water from TWRP would not be allowed to flow through to Haskell Creek; therefore, no changes to the existing NPDES permit would be required. The scaled-down development plan at the pond could include planting of aquatic vegetation within the submergent zone and management of the existing emergent vegetation and the new aquatic vegetation for improved water quality.

3.4 RECREATION DEVELOPMENT

In order for the wildlife reserve to be accessible to organized groups and private citizens, certain design aspects of the area should be considered. These include a staging area and parking access, trail design, signage, fencing, and bridges. Possible features are discussed below. All facilities would be disability accessible or would not be developed.

3.4.1 Staging Area and Parking

The parking area to be used for access to the Wildlife Management Area is the preexisting parking lot north of the Wildlife Management Area in Woodley Avenue Park. A staging area could be located between the parking lot and the entrance to the wildlife area.

3.4.1.1 Access and Use

The parking lot for the wildlife area will be accessible from Woodley Avenue and the Woodley Avenue bike path. Turnaround areas are already present to keep traffic flowing smoothly through the area. The trailhead access to the wildlife reserve is directly adjacent to the parking area.

The staging area could include a covered ramada, which could house interpretive exhibits and displays (see Section 3.5). The ramada could be adjacent to the wildlife reserve trailhead and the parking area. Restroom facilities are already present in Woodley Avenue Park; however, consideration should be given to the need for augmenting these facilities to accommodate anticipated increased public use.

3.4.1.2 Materials

The staging area interpretive center ramada should have a concrete pad foundation and have one wall where interpretive exhibits could be displayed. The remaining roof supports would form three open sides. The roof supports could be made from steel columns with natural stone facing. The ramada should be designed to blend with the natural setting. Bike racks may be placed adjacent to the interpretive center. Picnic tables and benches

could be located in the ramada and should be secured to the concrete slab to prevent vandalism.

3.4.2 Trails

Some of the existing trails have been incorporated into the management plan, while others (especially around the perimeter of wildlife lake) should be revegetated to discourage use and reduce human impacts on vegetation and wildlife. Additional trails have been proposed in the management plan to facilitate the movement of visitors into different wildlife habitats with the minimum impact on vegetation and wildlife.

3.4.2.1 Access

The trailhead should start at the entrance to the wildlife area on the south end of Woodley Avenue Park. Side trails, off of the main trail, would lead to wildlife blinds and viewing areas. Because the main trail is designed as a loop trail, the end of the trail would be west of the trailhead on the opposite side of Haskell Creek. Limited access to the wildlife area helps to ensure minimal impact on the site, while providing safe, maintained trails for the public to use.

3.4.2.2 Materials

Consideration should be given to constructing trails ranging in width from 6 to 10 feet. This type of trail permits universal accessibility to the wildlife area and must meet the standards described in the Americans With Disabilities Act of 1990 (ADA) and federal standards. Dirt footpaths should not be established in the wildlife area, except for maintenance purposes, and those would be off limits to the public.

3.4.3 Signage and Fences

Signage and fences are essential to protect the habitats in the wildlife area from human disturbance. Three types of signage would be required within the wildlife reserve: directional, interpretive, and boundary. All signage would be in accordance with the designated sign manual.

3.4.3.1 Placement

Perimeter fencing in high impact areas should be placed effectively to prevent access to the wildlife reserve from points other than the main entrance. Locked gates should be installed in certain areas for maintenance/emergency access. Bollards allow public access but eliminate auto traffic. Metal fencing should be installed prior to revegetation, and the

vegetation should be allowed to grow through the fence, effectively covering it from casual view.

Directional/informative signs should be designed and installed according to the sign manual. They should be placed at the wildlife area entry point and all trail intersections. Maps showing onsite trails, the location of that particular sign, and all regulations for public use should be included on each sign. Special points of interest may also be included.

Additionally, directional/informative signage may be placed at key points on the perimeter of the wildlife area to provide information on days/times of operation, access to the wildlife area, and phone number for access information.

Interpretive signage is addressed in Section 3.5.

Signs should be located where the wildlife area adjoins other areas, such as Burbank Boulevard and Woodley Avenue. These signs should identify the wildlife area and inform the public about the sensitivity of the area. The signs should not be restrictive but rather be informative.

Signs should be placed adjacent to the wildlife trail also to eliminate access to off-trail areas, and stress the fragility of off-trail areas.

3.4.3.2 Materials

Fencing material should be metal for long-term durability. Optional painting of the fence should be considered to blend into the landscape. Shrubs should be planted adjacent to the fence to provide screening.

Signage should be metal or other material, and installed to minimize vandalism. Systematic maintenance of signs will ensure that the information is always legible and available to visitors.

3.4.4 Blinds and Viewing Areas

The blinds and viewing areas are an integral part of the wildlife reserve. Blinds allow people to observe wildlife at close proximity without disturbing it and are especially important when viewing waterfowl. Humans, hidden by the blind, pose a smaller perceived threat to wildlife than when in full view. Viewing areas provide panoramic views of wildlife areas and allow adjacent areas to be scrutinized more closely.

3.4.4.1 Access

Blinds and viewing areas would be accessed by trails previously described. Two blinds have already been constructed west of the wildlife lake. An additional blind should be

constructed west of Haskell Creek overlooking the buffer area, where avian foraging will take place.

One existing viewing area is found on the southwest bank of the wildlife lake. One additional viewing area should be constructed on the east side of the pond, south of Burbank Boulevard. This viewing area would be adjacent to the trail that surrounds the pond.

3.4.4.2 Materials

The additional blind could be constructed from steel with viewing ports of various height and number. A slight overhang back over the viewing area would shield visitors from view of the waterfowl that fly overhead and land in the wildlife lake (some waterfowl will not use the lake if they see people are in close proximity), and provide shade to visitors viewing wildlife. These blinds can be used for lengthy observation of waterfowl behavior and should add to the comfort of users. Benches should be provided in the blind areas. Informative panels can be incorporated into the blind construction (see Section 3.5). The blind should be painted an unobtrusive color to blend in with the surrounding foliage.

The additional viewing areas adjacent to the pond and lake should include informative kiosks (see Section 3.5) and concrete or metal benches. Metal railings should be installed in both the preexisting and proposed viewing area to keep visitors from entering wildlife lake or pond.

3.4.5 Pedestrian Bridge

Construction of a pedestrian bridge over Haskell Creek, just north of Burbank Boulevard, would link the riparian/mesic and upland zones to the grassland habitat west of Haskell Creek.

3.4.5.1 Access

The pedestrian bridge would be part of the main loop trail, providing good upstream and downstream viewpoints.

3.4.5.2 Materials

The pedestrian bridge across Haskell Creek could be constructed of steel and rustic wood, designed to fit with the natural character of the wildlife reserve. It would be designed to support only pedestrian traffic, not vehicular traffic of any type, and will have permanent bollards placed at either end to prevent vehicular use. The bridge will be designed to provide universal accessibility.

3.5 PUBLIC EDUCATION RESOURCES

The several distinctive and accessible habitats present in the Sepulveda Basin are potentially valuable to the public as outdoor education resources. The general approach in this conceptual plan is to develop public education support resources at Sepulveda Basin that meet the following goals:

- offers both self-guided and instructor-led educational support to the public;
- effectively communicates the importance of the wildlife area and Sepulveda Basin as a local and regional recreational and environmental resource;
- provides accessibility to a wide range of educational scenarios, including primary, secondary, and college fieldtrips; environmental organizations; and private citizen outings;
- provides compatibility with the environmental concerns and constraints in the Sepulveda Basin and surrounding areas;
- promotes the use of volunteer docents and curators;
- is low cost with regard to implementation; and
- uses low maintenance facilities.

The components of the educational facilities would include information kiosks, environmental information and question stations, observation stations, and outdoor classroom facilities. These facilities would be placed at entrances to the site, as well as near particular habitats (such as at the blinds overlooking the lake) and along the established trails. The information kiosks and environmental information stations will provide information on a specific species and habitat along the trail or use a question format to focus the visitor's attention on a particular resource.

The general public education approach proposed for the Sepulveda Basin is similar to that currently found at the nature center at Whittier Narrows County Recreational Area. This environmental resource includes a small museum, restroom facilities, group meeting areas, information kiosks, and a variety of local habitats and trails dominated by several small lakes. These small lakes and the surrounding habitats attract a variety of wildlife, particularly bird species, and are popular sites for bird-watching and educational groups, as well as the general local public.

Plate 7 provides the locations of proposed educational facilities. A brief description of each facility is provided below.

1. Bus and Automobile Parking and Dropoff

This site would use the existing facilities, with the modification of some parking to accommodate buses. A kiosk would provide an introduction to the site, identifying the location and nature of the major facilities.

2. Covered Staging Area and Open Classroom

This facility should consist of a large covered structure with sufficient and appropriate seating (such as picnic tables) to accommodate large groups of people. The facility should provide the proper shelter for students and visitors to gather for introductory presentations, activities, or general recreational use, such as picnics. Information panels would be provided to present information about activities and resources available elsewhere in Sepulveda Basin.

3. Open Activities Area

The existing open lawn area would provide recreational space for the general public, as well as an unobstructed play and meeting area for instructors to conduct activities such as outdoor games. These areas prove to be very useful to instructors needing to lower the energy level of anxious and hyperactive students.

4. Main Information Kiosk

The main information kiosk would be placed at the beginning of the established trail access to the wildlife areas. This kiosk would include important information about the site, including some historical background, and could include general questions to provoke the visitors to think about the values and problems associated with urban wildlife settings. The answers to these questions will be found through subsequent locations and kiosks through the site. The kiosk will also establish the proper conduct of visitors before they enter the natural/seminatural habitats and distribute handouts/brochures for a self-guided nature trail tour.

5. Information Stations

The wildlife area panels containing information and instructive questions about particular resources within the wildlife area of Sepulveda Basin would be developed and placed along the established trail near specific resources (e.g., native plant assemblages, wildlife areas). They would be facing both directions along the trail, to provide different kinds of information to visitors, depending on whether they are coming or leaving the site. An effective and more entertaining format for these panels is the "Burma-Shave" advertisement approach in which roadside signs collectively communicate information about upcoming stops.

6. Viewing Blinds

The existing viewing blinds will be modified to permit universal accessibility use. Information panels will provide suggestions and information about bird watching. These blinds will provide the opportunity for the public to unobtrusively observe wildlife behavior.

7. Swallow Viewing Tunnel

The existing underpass under Burbank Street currently supports a nesting swallow population that builds mud nests along the roof of the tunnel. The swallows provide an excellent opportunity to observe up-close bird behavior, such as nest building, brooding, and feeding of young. Artificial rock surface can be placed along portions of the walls to induce nest-building closer to the floor of the tunnel for easier viewing. Groups can be invited to paint murals along the tunnel walls depicting various aspects of swallow biology, as well as general information about wildlife in Sepulveda Basin.

8. Outdoor Classroom (Freshwater Pond)

The freshwater pond will be the basis for a wide range of activities focusing on this aquatic community. Several viewing decks can be constructed around the pond amongst the emerging vegetation. From these vantage points, visitors can observe wildlife activities and vegetation at the pond. Student groups can perform simple activities at the site, such as water testing, pond life sampling, and plant studies. Information kiosks will provide suggestions regarding activities, as well as establish proper pondside conduct. The trail to the pond site will continue around the pond as a loop to provide several opportunities to

observe the pond resources. A rustic meeting area, consisting of log/railroad tie benches, can be provided near the pond. This meeting area will permit teachers and group leaders to gather for group discussions.

SECTION 4 - ORGANIZATIONS AND PERSONS CONSULTED AND CONTRIBUTING

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APPENDIX A

RESULTS OF BIOLOGICAL RECONNAISSANCE

Vegetation surveys were conducted on January 28, 1992, and March 11, 1993, in the Sepulveda Basin wildlife area. The area of the proposed wildlife management plan was surveyed by a site walkover, at which time the vegetation was mapped and a plant species list was developed (see Table A-1). Adjacent areas of the Sepulveda Basin were surveyed also, but much more cursorily because most of the areas were already managed as agricultural farmland, parkland, golf courses, playing fields, and other recreational areas.

Two wildlife surveys have been conducted in the Sepulveda Basin Wildlife Area; the first on December 4, 1992, and the second on January 28, 1993. These surveys consisted of walking the trails and looking for wildlife species or evidence of the presence of wildlife, such as tracks or scat. All species or sign seen during the surveys were documented. In addition, those species reported by Audubon Society members or Parks Department employees who were bird-watching or conducting maintenance work during the same time as the wildlife survey were also documented.

The weather conditions during the first survey consisted of overcast skies and light showers during the latter part of the survey. The second survey was conducted under clear skies with temperatures in the mid-70s. The names of those species observed or reported during each of the two surveys are presented in Table A-2.

Table A-1

PLANT SPECIES LIST - EXISTING VEGETATION

Scientific Name	Common Name
ANACARDIACEAE	**SUMAC FAMILY**
Malosma laurina	laurel sumac
Rhus ovata	sugar bush
APIACEAE	**CARROT FAMILY**
*Foeniculum vulgare**	sweet fennel
ASTERACEAE	**SUNFLOWER FAMILY**
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Baccharis emoryi	mulefat
Baccharis salisifolia	sunflower
Helianthus annuus	telegraph weed
Heterotheca grandiflora	horseweed
*Conyza canadensis**	cocklebur
*Xanthium strumarium**	
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica geniculata**	short-pod mustard
*Brassica nigra**	black mustard
*Rorippa nasturtium-aquaticum**	water-cress
CACTACEAE	**CACTUS FAMILY**
Opuntia littoralis	beavertail cactus
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**
Sambucus mexicana	elderberry
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
*Atriplex semibaccata**	Australian saltbush
Atriplex sp.	saltbush
Chenopodium sp.*	goosefoot
*Salsola iberica**	Russian thistle
CONVOLVULACEAE	**MORNING-GLORY FAMILY**
Cuscuta sp.	dodder
EUPHORBIACEAE	**SPURGE FAMILY**
*Ricinus communis**	castor bean

Table A-1

PLANT SPECIES LIST - EXISTING VEGETATION

Scientific Name	Common Name
FABACEAE	**LEGUME FAMILY**
Lotus sp.	clover
Lupinus sp.	lupine
*Melilotus albens**	white clover
FAGACEAE	**OAK FAMILY**
Quercus agrifolia	coast live oak
Quercus lobata	valley oak
GERANIACEAE	**GERANIUM FAMILY**
Erodium sp.*	filaree
HYDROPHYLLACEAE	**WATER-LEAF FAMILY**
Phacelia sp.	phacelia
MYRTACEAE	**MYRTLE FAMILY**
Eucalyptus sp.*	eucalyptus
LAMIACEAE	**MINT FAMILY**
*Marrubium vulgare**	horehound
Salvia apiana	white sage
Salvia leucophylla	purple sage
LAURACEAE	**LAUREL FAMILY**
Umbellularia californica	California bay laurel
MALVACEAE	**MALLOW FAMILY**
*Malva parviflora**	cheeseweed
OLEACEAE	**OLIVE FAMILY**
Fraxinus dipetala	flowering ash
POLYGONACEAE	**BUCKWHEAT FAMILY**
Eriogonum fasciculatum	California buckwheat
Rumex hymenosepalus	wild rhubarb
PLANTAGINACEAE	**PLANTAIN FAMILY**
*Plantago major**	common plantain
RHAMNACEAE	**BUCKTHORN FAMILY**
Ceanothus crassifolius	California lilac
Rhamnus californica	coffeeberry

Table A-1

PLANT SPECIES LIST - EXISTING VEGETATION

Scientific Name	Common Name
ROSACEAE	**ROSE FAMILY**
Heteromeles arbutifolia	toyon
Rosa californica	wild rose
Prunus ilicifolia	holly-leaved cherry
SALICACEAE	**WILLOW FAMILY**
Populus fremontii	cottonwood
Salix lasiolepis	arroyo willow
Salix sp.	willow
SAXIFRAGACEAE	**SAXIFRAGE FAMILY**
Ribes aureum	golden currant
Ribes speciosum	fuchsia-flowering gooseberry
SOLANACEAE	**NIGHTSHADE FAMILY**
*Nicotiana glauca**	tree tobacco
AGAVACEAE	**AGAVE FAMILY**
Yucca whipplei	our Lord's candle
ARECACEAE	**PALM FAMILY**
Washingtonia filifera	fan palm
POACEAE	**GRASS FAMILY**
*Arundo donax**	giant reed
Bromus sp.*	brome
*Sorghum halpense**	Johnson grass
TYPHACEAE	**CAT-TAIL FAMILY**
Typha sp.	cat-tail

*** non-native species**

Table A-2

ANIMAL SPECIES LIST

Species Observed		Dates Observed	
Scientific Names	Common Names	12-04-92	01-28-93
Reptiles			
Sceloporus occidentalis	Western fence lizard		X
Avians			
Accipiter cooperii	Cooper's hawk		X
Agelaius phoeniceus	red-winged blackbird		X
Anas americana	American wigeon		X
Anas clypeata	Northern shoveler		X
Anas crecca	green-winged teal		X
Anas cyanoptera	cinnamon teal	X	X
Anas discors	blue-winged teal	X	
Anas platyrhynchos	mallard	X	X
Ardea herodias	great blue heron		X
Branta canadensis	Canada goose	X	X
Bucephala albeola	bufflehead	X	X
Buteo jamaicensis	red-tailed hawk		X
Calypte anna	Anna's hummingbird	X	X
Carduelis tristis	American goldfinch	X	
Carpodacus mexicanus	house finch		X
Casmerodius albus	great egret		X
Cathartes aura	turkey vulture		X
Ceryle alcyon	belted kingfisher	X	
Columba livia	rock dove		X
Corvus corax	common crow	X	
Dendroica coronata	yellow-rumped warbler		X
Dendroica palmarum	palm warbler		X
Egretta thula	snowy egret		X
Falco sparverius	American kestrel		X
Fulica americana	American coot	X	X
Geothlypis trichas	common yellow throat		X
Melospiza melodia	song sparrow		X
Mimus polyglottos	mockingbird		X
Nycticorax nycticorax	black-crowned night heron	X	
Oxyura jamaicensis	ruddy duck	X	X
Pipilo crissalis	California towhee		X
Podiceps nigricollis	eared grebe		X
Podilymbus podiceps	pied-billed grebe	X	X
Psaltriparus minimus	bushtit		X
Sayornis nigricans	black phoebe	X	X
Sturnella neglecta	western meadow lark		X

Table A-2

ANIMAL SPECIES LIST

Species Observed		Dates Observed	
Scientific Names	Common Names	12-04-92	01-28-93
Avians (Continued)			
Sturnus vulgaris	European starling		X
Toxostoma redivivum	California thrasher		X
Tyrannus verticalis	Western kingbird		X
Zenaida macroura	mourning dove	X	
Zonotrichia albicollis	white-crowned sparrow		X
Mammals			
Family Canidae	fox scat	X	
Family Leporidae	rabbit sp.	X	X
Thomomys bottae	Valley pocket gopher		X

APPENDIX B

WILDLIFE MANAGEMENT PROGRAM WORKSHOP

A public workshop on the Sepulveda Basin Wildlife Area was held on Friday, February 26, 1993. This workshop was a public open forum and included the U.S. Army, Corps of Engineers (Corps), Los Angeles Department of Recreation and Parks (DRP), Chambers Group personnel, citizen's groups, and concerned citizens. The agenda for the open forum included the following:

- Welcome, introduction, and purpose of meeting - Debbie Lamb, Army Corps of Engineers
- Remarks from the Corps - Ted Carr/Carvel Bass
- Remarks from DRP - Dick Ginevan/Bob Fawcett
- Presentation of three proposed management plans - Margot Griswold, Chambers Group
- Open roundtable discussion of all attendees on different aspects of the proposed management plans
- Summary of workshop - Margot Griswold, Chambers Group
- Wrap-up - Debbie Lamb, Corps

The roundtable open discussion yielded many ideas from all involved and are briefly summarized below.

- Main purpose of area is flood control, and only a comprehensive management plan should be initiated.
- The Sierra Club views this area as an oasis for valley residents. The area already has thriving wildlife, but the area east of the lake should not be used for forage; the western areas are more appropriate.
- Some Audubon Society members would like to see no trails implemented other than those existing, no educational emphasis, no forage area in wildlife, and the Haskell Creek restored farther north of where it is presently.
- Some Audubon Society members agreed to some human viewing as long as it did not interfere with wildlife, no crop management in wildlife area, and only dedicated bird watchers be allowed in certain areas.

- Presently, Audubon leads twice weekly bird walks through the area from March 11 through April.
- TreePeople offered services in installation and planting trees, as well as maintenance.
- L.A. City has money for development, but very little for maintenance, so it is looking for sustainable habitat with little need for maintenance.
- Friends of Los Angeles River suggest keeping options open for tapping into expansion/restoration of the Los Angeles River.
- Some groups would like to see the western areas presently used as agricultural fields become part of the wildlife plan.
- Potentially use additional creeks as barriers to human access of strictly wildlife areas.
- Include reasonable access, including handicapped parking and access.
- Improve visuals for parking lot overlook.

Maps were passed out to all attendees, for plans and specific points of concern to be addressed. The maps and any comments were to be returned to Margot Griswold, Chambers Group, by March 10, 1993.

The following list includes the names of all workshop participants and their affiliation.

SEPULVEDA BASIN WILDLIFE MANAGEMENT PLAN WORKSHOP

Name	Affiliation
Lem Arnow	TreePeople
A.C. Flen	Concerned Citizen
Dick Ginevan	Los Angeles Recreation and Parks
Peter Ireland	Coalition to Save Sepulveda Basin
Muriel Kotin	San Fernando Valley Audubon
Kris Ohlenkamp	San Fernando Valley Audubon
Denis Schure	Sierra Club Friends of Los Angeles River
Jill Swift	Sierra Club
Sandy Wohlgemuth	Los Angeles Audubon

The only written communication on the wildlife management alternatives was received from a representative from the California Native Plant Society (CNPS). While the complete document was not provided to the representative, his concerns included the viability of seeding grain crops annually, unaddressed weed control issues, expansion of the plants to include areas adjacent to the Wildlife Management Area, the viability of implementing nonirrigated habitats, actual size of habitat requirements for least Bell's vireo and yellow-breasted chat, the costs of implementing such a plan, and time estimate on establishment of proposed communities. Also, his concerns on the implementation of the original revegetation plan DACW 09-87-B(?)-0024, District File No. 256/31-256-48 was noted. The importance of Haskell Creek as a riparian corridor and proposed creation of a vernal pool onsite were stressed in the comments.