

FROG POND WETLAND RESERVE MANAGEMENT PLAN

September 1994

SUMMARY

In an increasingly urban world, open spaces, such as the Frog Pond, provide a refuge for resident and migratory wildlife as well as people. Maintaining and enhancing the Frog Pond's undeveloped open space landscape is the District's number one objective. This landscape is composed of a unique arrangement of habitat types that provide a refuge for wildlife and recreation for people.

As an isolated remnant of a much larger ecosystem, the Frog Pond nevertheless embodies high intrinsic value as open space. The capacity for genetic interchange, wildlife migration, balanced natality and mortality rates, and other factors contributing to overall ecological health are all present. But as is often the case, over-developed and fragmented habitats resulting in remnant islands need human intervention to maintain their potential diversity. At the same time, we must acknowledge our inadequacy of understanding how organisms, their habitats, and ecological inter-relationships and systems work. At issue is how to maintain, and even enhance, the present plant and wildlife diversity, accepting that diversity for diversity's sake, even on a small scale, is fundamental.

Maintenance of the user developments, such as the accessway and trail, will continue to be a regularly occurring District activity. Applying successional interventions to manage habitat diversity will also occupy an equally important role. As long as the District owns this property, landscape conservation for diversity will continue to be our primary concern. At issue is the intensity and standards to which these efforts will conform.

The pond provides a unique habitat within the community of Del Rey Oaks for wildlife, nature study, education, recreation, and inspiration. Wetlands in general are considered to be one of the most biologically productive and important terrestrial habitats that deserve protection. Their function, value, and benefit to society are many and well documented (33). Loss of the pond, though inevitable, will reduce the wildlife habitat and diversity of the site. Loss of the pond would also affect aquatic and wetland educational field study. An associated concern is the appropriateness of successional intervention. If wildlife habitat and diversity are to be maintained or increased, succession will need to be interrupted and managed at a level that will sustain a pond.

With the rapid pace at which open space and natural areas are being developed, a fundamental concern is in how to maintain the intrinsic values inherent in those remaining open spaces as they become increasingly crowded in upon. Those values lie in the ecological processes and patterns of life that are all too absent from urban existence. For those values to produce any social good, they must be experienced, understood, and adopted by the public. Herein lies the District's ultimate dilemma: how to protect the ecological integrity of open space landscapes while facilitating experiential public use and enjoyment. As with finding the optimum successional level for maintaining a pond, so too there is a challenge in finding that optimum balance between protection and access. This plan hopes to do that.

CONTENTS

SUMMARY

1. INTRODUCTION	2
1. Location and General Description	3
2. History	3
3. Access	4
2. SITE INVENTORY	5
1. Natural Resources	5
a. geology and soils	5
b. hydrology	5
c. vegetation	6
d. wildlife	6
2. Cultural Resources	6
a. indigenous	6
b. non-indigenous	7
3. Developments	7
4. Adjacent Land Use	7
a. public	7
b. private	7
5. Existing Conditions/Public Safety Hazards	7
6. Sensitive Resources	8
a. vegetation	8
b. wildlife	8
c. artifacts	8
7. Inter-Governmental Requirements	8
3. MANAGEMENT STRATEGY	9
1. Master Plan Direction	9
2. Public Access and Allowable Use Intensity (with map)	10
3. Landscape Conservation	12
a. water	12
b. vegetation	13
c. wildlife	14
d. artifacts	14
e. aesthetics & open space values	14
f. adjacent land-use	14
4. Access Improvements	15
a. site plan	15
b. public safety	15
c. outdoor education and interpretation	16
4. ADMINISTRATION	17
5. Staffing and Budget	17
6. Planning Process	17
a. inter-governmental relations	18
b. public involvement	19
c. interim site management	20
d. monitoring and ammendments	21
5. APPENDICES	22
6. ENDNOTES	

INTRODUCTION

1. Location and general description

The Frog Pond Wetland Reserve [Frog Pond] is located in the City of Del Rey Oaks. This 17 acre seasonal wetland is situated between Carlton Drive, North-South Road, and Canyon Del Rey Boulevard/Highway 218 (Appendix 1.1.1). The Frog Pond is designated as open space by both the Monterey Peninsula Regional Park District [District] and the City of Del Rey Oaks [City] (1,2). It is comprised of six common California plant community types which provide habitat for numerous local species of wildlife (Appendix 1.1.2). At the same time, local residents use this open space reserve for a variety of recreational purposes including: nature study, hiking, bird watching, relaxation, and play.

2. History

In 1862, Senor Juan A. Munoz was granted a patent for the Rancho Noche Buena; a 4,411.6 acre tract of land which encompassed the Frog Pond (3). Although unremarkable in size at the time, this marks the beginning of documented use. Cattle grazing probably began at this time and lasted for more than a century. What this site looked like then is only speculation, may well have been part of the historic Canyon Del Rey Creek channel.

Other past owners of property containing portions of the Frog Pond were prominent residents of Monterey County: C.A. Ryan (c.1920); Lou Ryan (c. 1927); the David Jacks Corporation (c.1918); and T.A. Work, Pacific Grove's influential lumber and hardware entrepreneur (4).

Human influence upon the Frog Pond is still evident in several locations. An obscure spring water bottling works, established in the northwest corner of the site, is now part of a storm drain system. Though no documentation of this venture could be found (5), physical remains of the establishment include a small concrete foundation. There are also remnants of barbed wire fences and a grove of planted redwood trees. More recently, the construction of Highway 218, North-South Road, and the Noche Buena Subdivision has permanently disrupted the natural hydrologic cycle and system for the Frog Pond.

Concern for protection of the Frog Pond began in 1970 when the Utah Development Company, owners of the property, proposed a 175 unit townhouse development for the site. The District was created in November 1972 and proceeded to take up the cause as a partner with the City. A City bond initiative to raise money for purchase of the site failed in 1974 and culminated in the District's purchase in December 1977. The site was annexed from the County into the City in November of 1978 and zoning changed to open space. A community advisory group was subsequently established and suggested appropriate developments and use (Appendix 1.2.1). With assistance from the Monterey Chapter of the California Native Plant Society and Lee Dittman, a naturalist consultant for the District, the first interpretive brochures were published.

When purchased, the site was predominantly an open grassland (Appendix 1.2.2). However, with public ownership of the site, grazing ceased and a dense willow forest soon established itself (Appendix 1.2.3). Without a long-term management plan and regular maintenance activities, the trails, boardwalk, and interpretive markers slowly fell into disrepair. As the site vegetation changed, the interpretive brochure became out-dated and in need of revision.

In 1988 a full-time ranger was hired to manage the coastal units within the District. As one of these units, the Frog Pond has since received regular maintenance attention. In 1991, with the anticipated closure of Fort Ord, long-term management strategies were considered. Draft plans were conceptualized and

incorporated into the District's APPLICATION FOR SURPLUS FEDERAL REAL PROPERTY (6). Subsequently, the Frog Pond Wetland Reserve Management Plan document was initiated to formalize the long-term commitment to, and public involvement in, managing this site.

In developing management strategies, the cumulative impact of human activity upon the Frog Pond cannot be ignored. This impact has altered the processes of natural succession and obscured the natural conditions that might have otherwise developed. Therefore, when attempting to preserve or enhance the site's natural condition, the true level of succession cannot be determined due to a lack of documentation and over one hundred years of constant interruption. With this in mind, the District's intent is to maintain a healthy environment and haven for wildlife and a safe and educational open space for the community.

3. Access

Parking at the Frog Pond is limited. Adjacent to the entrance, there is space along the east shoulder of Highway 218. More distant, there is space at Del Rey Oaks City Hall and farther north and south along Highway 218. Stairs limit access to fully mobile visitors only. District ordinance prohibits access to dogs, bicycles, horses, motorized vehicles, cycles, and equipment. Camping and overnight use is strictly forbidden. There is no charge to enter or use the area.

SITE INVENTORY

1. Natural Resources

A. GEOLOGY: The Frog Pond lies approximately 20 southwest and approximately 5 miles northeast of the seismically active San Andreas and Sur-Nacimiento fault zones (7). These two fault zones form the boundaries of the Salinan block of granitic and regionally metamorphosed crystalline basement material. A series of northwesterly faults; Carmel Canyon, Cypress Point, Navy, Seaside, and Ord Terrace; run parallel across the peninsula. Associated with these faults are numerous subsurface structural contours, or folds, one of which underlays the Frog Pond. While both the Seaside and Ord Terrace faults are considered inactive, they are part of a broader and active fault zone system. For urban purposes the Frog Pond has thus been classified as a high hazard zone (8,9).

B. SOILS: Underlying soil of the Frog Pond is very old alluvium deposited during the Holocene (10). More recently, very poorly drained organic soils have formed over the older alluvium. These recent depositions are the result of decomposed plant material generated in a wetland marsh environment. This dark black organic soil is classified as rindge muck. Typically, these soils have very low erosion potential and create ponding conditions. With a high water table, these soils create excellent habitat for wetland plants and wildlife. During late winter and spring the site is characterized by areas of standing water and waterlogged soils. These soils are structurally weak, unable to support urban development, and are generally used for pasture, wildlife habitat, and/or recreation.

A sandy, silty soil, called Baywood Sand, covers the upland slopes (11). This soil type is formed from older stabilized sandhills. It is excessively drained with runoff and erosion not a problem until the vegetation cover is removed. If this occurs erosion can be significant. This soil supports annual grasses, oak woodlands, and maritime chaparral plant communities.

C. HYDROLOGY: The Frog Pond is a component of the Canyon Del Rey Watershed which begins in the upper coastal foothills near the summit of Laureles Grade (12). Canyon Del Rey Creek, the main channel within the watershed, which begins as a roadside ditch at Laureles Grade, flows west along the north side of Highway 68. The creek passes Laguna Seca Estates, Ryan Ranch Industrial Park, and Monterra Ranch

Subdivision before it is culverted under Highway 68 to the west side of Highway 218. Here, the creek flows north for about one-half mile before it is culverted under the highway to the east side. The creek continues to flow along the east until it reaches the Frog Pond where it is again culverted back under the highway to the west side. The creek flows past the Del Rey Golf Driving Range and is then culverted under the Monte Mart store where it empties into Laguna Grande and Robert's lakes. In wet years, and during heavy precipitation events, the creek flows out of Robert's Lake, across Monterey State Beach, and into Monterey Bay at the end of Canyon Del Rey Boulevard.

The Frog Pond used to act as a natural flood basin but, due to extensive channelization and culverting, flooding is now an event of the past. Though Canyon Del Rey Creek flows past the Frog Pond, urban runoff from the city of Del Rey Oaks' Noche Buena Subdivision is now the primary source of water (Appendix 2.1.c). A secondary source of water occurs as natural spring seeps within the site that flow into early summer. To the south, the historic extent of the wetland basin has been severed by the construction of North-South Road. Water movement from this area into the Frog Pond is negligible.

D. VEGETATION: The Frog Pond is comprised of six California plant community types: seasonal wetland; riparian willow woods; oak woodland; grassland; coastal sage scrub; and redwoods (Appendix 1.1.2). This combination of communities produces a unique area of plant diversity within an urban environment. For a comprehensive list of plants (Appendix 2.1.d). Within this diversity, there are no known protected species or species of special concern.

The combined loss of grazing, hydrological disruption, and unimpeded growth of willows has converted the once open flood basin marsh and grassland into a densely overgrown willow forest. This vegetational succession cannot be construed as natural but rather inevitable given the degree of human influences.

E. WILDLIFE: The Frog Pond is home, and namesake, for the pacific tree frog (13). This small (3/4" - 2") green to tan colored amphibian is found from southern British Columbia to Baja California and as far east as Montana, Idaho, and Nevada (14). It is diurnal, usually dwelling close to the ground and near water; including ponds, springs, grasslands, roadside ditches, woodlands, golf links, and parks (15). It breeds from January to August (16) and can be found year round except during periods of cold or drought (17). These frogs are particularly susceptible to frost. Like most amphibians, they are experiencing an alarming decline in the west and are considered indicators of environmental health. A comprehensive list of reptiles and amphibians has not yet been completed.

A bird list specific to the Frog Pond has been compiled by the Monterey Peninsula Audubon Society (Appendix 2.1.e). Don Roberson, author of *Monterey Birds* states that:

"Chickadees, Downy Woodpeckers, and Swaisons Thrushes (in summer) frequent the riparian, with Hutton's Vireos, Orange-crowned Warblers (summer) and Purple Finches in the oaks. There are records of such seasonal rarities as Wilson's and Yellow Warbler here; its potential in spring and fall migration has yet to be tested. . . ." (18) .

Other birds, like Townsend's warbler, Anna's hummingbird, rufous-sided towhee, mallard, American bittern, and black crowned / green backed heron have been spotted (19).

Mammals that utilize the area include deer, skunks, dusky-footed wood rats, voles, bats, and opossums (20). However the most conspicuous organism is the mosquito. Their presence creates a nuisance for neighbors, visitors, and the Northern Salinas Valley Mosquito Abatement District [Mosquito Abatement] (21). They are responsible for eliminating this nuisance from urban areas. As such, they regularly apply chemical pesticides to the pond water during the mosquito breeding season (March through July).

2. Cultural Resources

A. INDIGENOUS: The Frog Pond does not contain any evidence or artifacts of indigenous occupancy according to a survey of the area conducted in the late 1970's (22).

B. NON-INDIGENOUS: Historical evidence is equally limited with the exception of an alleged spring water bottling works which lacks any definitive documentation (23). There are also remnant barbed wire fences assumed to date to grazing times, and a planted grove of redwood trees.

3. Developments

Constraints produced by the nature of the area and public policies have precluded construction of permanent structures upon the property. This has made the need for utilities and other infrastructural improvements unnecessary. This has also left the area as open space while all of the higher and dryer land surrounding the site has been developed with residential subdivisions, roadways, utility corridors, and drainage ditches. As when purchased, the District believes that the highest and best use remains as a natural open space protected for its wildlife habitat value and experiential educational potential (24).

The District has provided minimal visitor serving improvements that include a stairway from the Canyon Del Rey entrance (1979), a boardwalk across the pond portion of the site (1979, removed in 1993), a network of interconnected trails (1979, reduced to a single perimeter loop in 1993), a rustic redwood trailside bench at the eastern end (1991), and 24 interpretive sign posts that correspond to a nature trail guide (1979, removed in 1993).

4. Adjacent Land Use

A. PUBLIC: The site is bounded on the west by State Highway 68. Transfer of this roadway from the county to the state took place in 1959. Construction of the roadway involved ditching and diking of Canyon Del Rey Creek along this boundary of the Frog Pond. On the south, the Frog Pond is bounded by North-South Road, owned and maintained by the Department of Defence. When this roadway was established, it effectively severed the historic floodplain, ephemeral wetland and hydrologic patterns of overland flow affecting the Frog Pond. Military activities conducted on these lands tend to severely degrade the vegetative cover and allow extreme erosion conditions to occur. On the north and east, Carlton Avenue, a municipal road owned and maintained by the city of Del Rey Oaks, services a residential subdivision and has storm drains that empty into the Frog Pond.

B. PRIVATE: Along the north and east, the Frog Pond is bordered by backyards of the Noche Buena Subdivision. Gardening appears to be the primary activity occurring within the backyards of the subdivision. This subdivision is wholly dependent upon individual residential septic systems which probable extend, or drain, into the Frog Pond. Canyon Del Rey Creek flows seasonally and is increasingly exposed to urban runoff produced by private developments within the watershed.

5. Existing Conditions and Public Safety Hazards

As basically unmanaged open space, the Frog Pond is constantly undergoing succession. Once an open meadow, the area is now densely vegetated, primarily by arroyo willow. The wetland portion of the site will continue to provide excellent habitat for increasing willow growth. The remainder of the site is likely to remain stable with the exception of exotics such as English ivy.

The entrance sign and stairs have been recently refurbished. The perimeter trail is in good condition as the vegetation and tread are cut-back and cleared as needed. The interpretive signposts and boardwalk have all been removed as a result of vandalism and lack of public use and care. Though not allowed, bicycle use is regular but appears light. Unlawful cutting of trees and vegetation is common

but not wide-spread. Feral and domestic cats are of real concern though their impact has not been documented but inferred (25). There are no on-site recycling or trash receptacles as litter is not a level of concern at this time. Public use appears to be mostly local Del Rey Oaks residents. Other less frequent users include the Lyceum of the Monterey Peninsula and Del Rey Woods School. The District does not regularly use this site in its interpretive program.

The Pacific tree frog population is historically low (26) but still persists, though it fluctuates with environmental conditions. A late season frost in 1991 is believed to have had a role in that year's low population numbers. Mosquito abatement continues on a regular basis in the Spring and early Summer with traditional chemical treatments. Bird populations appear to be strong and, as with the frogs, tend to indicate relative health of the pond. Water quality tests over a two year span verify this apparent healthy condition.

Some erosion, since controlled, had begun to occur on a section of the perimeter trail in the northwest and does not appear to be a significant problem. The entrance stairway has washed out in the past (most recently in March of 1993) but has been improved with an asphalt berm that directs storm overflow from the stairway into the Canyon Del Rey creek.

6. Sensitive Resources

A. VEGETATION: There are no known species of protected or sensitive plants occurring within the Frog Pond (27). The fact that the site is a seasonal wetland in itself makes the entire site a sensitive and protected habitat site.

B. WILDLIFE: There are no known species of protected or sensitive wildlife occurring within this site (28). Pacific tree frogs, though not legally protected, do occur within the site and are extremely vulnerable to environmental impacts. They, like almost all amphibians, are on a precipitous decline.

C. ARTIFACTS: No known protected artifacts are, or have been, found within this site. The few historically recent artifacts that do remain, such as the water cistern and fences, are not registered or protected by law.

7. Inter-Governmental Requirements

The site is fully within the boundary of the City and is zoned as open-space. Under the City's General Plan and Zoning Ordinance, the District is required to follow specific land-use and development standards (Appendix 2.7) when managing the site.

The State Department of Fish and Game has proprietary jurisdiction over wildlife management activities and review authority over wetlands. Regulatory authority over wetlands is held by the US Army Corps of Engineers under the federal Clean Water Act.

The North Salinas Valley Mosquito Abatement District has statutory jurisdiction over mosquito populations and breeding sites under health code regulations.

MANAGEMENT STRATEGY

1. Master Plan Direction

The District's mission contains four essential functions:

- 1) To acquire the maximum amount of significant open space lands within the financial capability of the District for public benefit and enjoyment.
- (2) To protect native plants and wildlife, cultural sites and artifacts, watersheds and wetlands, visual resources and public viewsheds, public access to public lands, and the overall environmental quality of life within the District.
- (3) To provide best management practices in land stewardship and public health and safety, high quality environmental education and interpretation programs, diversity in recreational opportunities, effective advocacy of public land-use and open space interests, and productive organizational leadership and development.
- (4) To encourage public and local government involvement in the acquisition, protection, planning, development, and maintenance of a comprehensive public open space system of lands, waters, and trails, through cost-sharing, political support, and cooperative regional planning.

In addition, specific policies based on land classification give further management direction.

4.2 Preserve

- a. **Definition:** Significant undeveloped areas which contain outstanding natural or cultural features to be preserved and protected for the benefit of the public.
- b. **Minimum Criteria:** Areas classified a regional preserve should be of sufficient size to ensure the protection and enjoyment of the area's essential features (there is no minimum size). While regional parks emphasize recreational use of an open space, preserves focus on protection of potentially fragile and threatened features. While recreational and educational uses of preserves may still be encouraged, use may be limited to ensure resource protection. In addition, preserves may be inaccessible. The area must contain one of the following:
 - (1) Lands that contribute significantly to the scenic quality of the region (policy 2.31).
 - (2) Presence of wildlife, vegetation, or other environmental features (policy 2.32).
 - (3) Sites of cultural or historic significance (policy 2.35).
- c. **Appropriate Facilities:** Limited parking, hiking, interpretive trails/center.

2. Public Access and Allowable Use Intensity

Public access and use in preserves is secondary to landscape conservation and protection. In this regard, public access and use will not be maximized through management practices. The focus on access and use will continue to place emphasis on school groups and local residents. The site consists of a unique wetland habitat all but lost within the city of Del Rey Oaks and relatively rare within the District. Access and use strategy will be to maintain the passive educational and recreational uses historic to the District's public ownership over the past twenty years. In order to protect the internal character and values of the site, use limits must be established. The District uses four levels of allowable use that follow a graduated scale of user intensity and site development/hardening.

Use Category	Type of Use	Area Description
High	Passive pedestrian, equestrian, and vehicular use by temporary special event groups up to 250 people, or more based on the activity/event. These events will generally require advance District approval and be consistent with use permit restrictions.	Garland Ranch Regional Park Visitor Center, office complex, and other hardened sites, primary access points, and gathering/event locations. The Monterey Bay Coastal Trail and the various local Community Parks.
Moderate	Passive pedestrian, equestrian, and vehicular use by non-organized and dispersed individuals in pursuit of	Primary trails of Garland Park and primary access points of Preserves, unless limited

	recreational/educational activities. Generally, up to 5 persons/site mile of trail. Small groups of less than 25.	otherwise.
Low	Passive pedestrian use by dispersed and non-organized individuals in pursuit of recreational/educational activities. Generally, up to 5 persons/site mile of trail. Groups are not encouraged but limited to less than 25.	Secondary (pedestrian only) trails of Garland Park and primary trails of Preserves.
Very Low	None, with the exception of District and other official government patrol.	All lands outside of designated trails in Regional Parks and Preserves. All Open Spaces and Sanctuaries.

These allowable use intensities are designed as guides and may not always fit every situation for every site. However, every attempt will be made to adhere to the spirit of these limits on access and use in our dedicated efforts to protect the inherent natural values of the landscapes the District manages.

3. Landscape Conservation

A. WATER: As a remnant wetland habitat, the Frog Pond is especially important to protect. Water for wildlife is a critical issue for their survival and gets very little attention in urban communities. With all the alterations, modifications, and developments of natural hydrologic systems, even in so called wet years, wildlife is confronted with chronic water shortages. Consultation with the California Department of Fish and Game [Fish & Game] and Mosquito Abatement confirm the benefit of ponded water which remains longer into the spring and early summer (Appendix 3.3.a.1). Increased sunlight and wildlife access to ponded water will meet the District's concern of enhancing wildlife diversity by improving aquatic wildlife habitat. Standing bodies of water and wetlands have been significantly reduced in the area and habitat diversity, especially the retention of ponds, is considered vital for retaining diversity of wildlife. To accomplish this the lower lying edges of the ponding areas will be bermed. This project may require the use of mechanized equipment and a temporary access off North-South Road. This site was chosen for its relationship to the District's interest in adjacent surplus lands of Fort Ord which envisions a trail connector to the expansion area south of North-South Road.

Ponding of water will be further enhanced by the removal of willows in areas of natural water collection. A third element designed to provide more ponding is the diverting of Canyon Del Rey Creek into the Frog pond at the southwest corner of the site. This water, currently by-passing the site, will be able to flow through the site and into the two ponding areas (Appendix 3.3.a.2). This will allow water entering the site to pond deeper and longer into the season. This will have positive benefits for wildlife, especially those species, such as waterfowl, amphibians, and invertebrates, that require standing water for breeding. An alternative is to develop an on-site water source, and this will be investigated as to feasibility, suitability, and probability. The pond will be limited in size and depth with a large portion of the area remaining seasonally wet. All habitat manipulation will be conducted under the guidance of Fish and Game and in consultation with the City and Mosquito Abatement.

Water quality is an indicator of environmental health, for both wildlife and humans. Protecting the Frog Pond's water quality is key to maintaining a healthy open space landscape able to support a high diversity of plants and animals, and human health and safety as well. Of specific concern is off-site, non-point sources of pollution incorporated in urban, commercial, and highway runoff. Any pesticides, herbicides, household chemicals and cleaners, or fertilizers associated with off-site developments could have adverse affects (Appendix 3.3.a.3). This concern stretches to our inability to

control such off-site pollutants as they occur. However, water monitoring will continue in an on-going basis. In addition to the pond, sampling sites will include the Carlton Avenue storm drain and Del Rey Creek ditch. Sampling dates will correspond with storm flows and mosquito abatement applications. Water quality records will be maintained at the District Office and published in the "Friends" spring newsletter (Appendix 3.3.a.4).

Our concern for water quality includes the use of insecticides, larvacides, and petroleum products by Mosquito Abatement. As long as water collects and ponds here, mosquitos will thrive and Mosquito Abatement will take necessary steps to control them. Until an alternative method is agreed upon, traditional methods of chemical and oil application to the standing waters of the Frog Pond will continue to be a necessary but non-conforming activity. Our primary concern is the affect these poisons have on non-target organisms. In addition, we receive numerous complaints each year for the oil sheen that results from the application of *Golden Bear Oil* or other petroleum products. Aquatic amphibians and birds are extremely sensitive to toxins, and without extensive baseline studies, we rely on the general premise that toxins are a threat to their welfare. Our concern is not over the actions or need for controlling the mosquito nuisance, but on the methods. The Park District will continue to work with Mosquito Abatement and Fish & Game in an effort to develop a site specific policy of pest management for the Frog Pond that accomplishes the dual goal of mosquito abatement and pond integrity (Appendix 3.3.a.5). We will continue to monitor the chemical applications in an effort to post the site for public information purposes and to determine any correlation with wildlife populations and water quality samples. In the meantime, Mosquito Abatement has expressed interest in working with the Park District to improve pond design and in offering innovative Integrated Pest Management methods of vector control. The Park District will work closely with Mosquito Abatement as a partner in all these efforts.

B. VEGETATION: Existing habitat will be actively protected from exotics and displacement. This means that the ice-plant and English ivy will be removed. Other exotics, as identified and assessed, will follow. The willow forest will be reduced by approximately 15% in an effort to preserve and enhance the pond habitat. In addition, the oat grassland will be converted to a native grassland. This is consistent with the District's goal of protecting native plant species, maintaining "natural conditions", and enhancing habitat diversity (Appendix 3.3.a.2).

Removal of exotic vegetation will be labor intensive, but after the initial removal the need for this type of maintenance will decrease. At both the north and south ends of the willow forest, 100' diameter clearings will be established. The slash will be piled, allowed to dry-out, hand-carried to the entrance, and chipped into a drop-box. This will prevent the undesirable affects of smoke entering neighborhood residents. On-site chipping is not an acceptable alternative as the mulch will place an undesirable biological oxygen demand (BOD) upon the ponded water and negatively impact aquatic organisms. Other species, such as ice-plant and English ivy will be easier to remove. The ice-plant will be manually pulled and left to desiccate and biodegrade on-site. The English ivy will be treated similarly. All vegetation removal will be conducted with hand tools by supervised crews.

The non-native oat-grassland will be chemically treated with *Roundup*. Native grasses will then be plug-planted in winter to take advantage of seasonal rain. Irrigation is not anticipated. A concerted effort will be made to get this grassland revegetation project completed with school students, and as a part of their environmental science curriculum (Appendix 3.3.a.6).

C. WILDLIFE: To compliment the vegetational intervention, we will work with Fish and Game in

establishing wildlife species (especially amphibians and reptiles, and those with special status) that would normally be found in the Frog Pond's various habitat types but are currently absent. The Frog Pond provides good habitat for introduction of California tiger salamanders, western pond turtles and other common pond inhabitants (30). The salamander breeds during the rainy season in temporary ponds (31) and lives in burrows found along adjacent grasslands and open woodlands (32). The western pond turtle requires a more permanent source of water which is possible at this site, especially with an on-site source of water. This strategy is aimed at enhancing wildlife diversity, with a focus on native migratory waterfowl, amphibians, reptiles, and plants.

The establishment of bird and bat boxes, release of compatible amphibians and reptiles, and other related wildlife habitat and population enhancing techniques will be an on-going effort in the long-term maintenance of the Frog Pond's biological diversity (Appendix 3.3.b).

D. ARTIFACTS: There are no known or suspected artifacts that require special management considerations. The suspected Work bottling site will be left as is and kept clear of over-growth.

E. OPEN SPACE VALUE AND AESTHETICS: Visual aesthetics associated with standing water, open views, wildlife viewing, and landscape discontinuity will be maintained and improved. A pond encroachment zone will be kept clear of willow growth. Sound and visual screening will be kept intact along the perimeter of the site. Trails will be safe yet provide a sense of naturalness. Litter, though not a problem, will continually be monitored to prevent a problem from developing. Patrol of the site will likewise prevent unlawful and inappropriate uses of the site, especially transient occupancy.

F. ADJACENT LAND USE: Urban impacts, both on-site and off-site, will undoubtedly continue to occur. Regular monitoring of the Frog Pond's indicators of health (water quality, wildlife populations, visual aesthetics) will be required. Though the District cannot control adjacent land use, we can cooperate with neighbors in an effort to mitigate and minimize it's impact. The developed state of the surrounding environment is of concern as it continues to play an increasing role in off-site and non-point impacts. These include water quality and quantity, air quality, noise, visual aesthetics, impediments to wildlife movements, increased fragmentation and loss of external habitat, and biological isolation. Urban development patterns are equally of concern as they affect habitat and wildlife within the site and the quality of visitor experiences. New developments adjacent to the site are likely to be associated with the down-sizing and conversion of Fort Ord. Our concern is over the impact of these developments upon the wildlife, water, and habitats of the Frog Pond, and upon the educational and interpretive potential of the site.

Efforts at monitoring off-site developments will be increased. Land use planning documents, environmental impact statements, and development proposals will be critically reviewed for changes in the external environment that may affect the Frog Pond. Effort will be made to contact adjacent and up-stream land owners and users to explain their relationship to the Frog Pond and actions they can take to help protect it.

With the closure and down-sizing of Fort Ord, a unique opportunity exists to increase the Frog Pond's biological diversity, educational potential, and recreational aesthetics. There are currently two applications before the Army regarding land to the south of the Frog Pond. The District's pending application requests approximately 32 acres to the south across North-South Road to be added to the Frog Pond. This area includes the historic extent of the Frog Pond's wetlands and an endangered plant reserve as well (Appendix 3.3.e.1). This application is in conflict with the City of Del Rey Oaks' application which envisions a conference center and health spa complex on 17 of the 32 acres the Park

District has applied for (Appendix 3.3.e.2). The opportunity to realize a smaller expansion integrated with a larger urban development (the City's application) is not the District's preferred alternative. However, this scenario may provide the mechanisms for contributing financially to the restoration and maintenance of the Frog Pond expansion through a revenue sharing arrangement. Though there are many other opportunities that could occur, these two are the most attractive from the District's point of view. Until the competition between the two applications is cooperatively resolved, the potential for anything happening in the short term is unlikely. However, if and when there is a change of land use for this site, the District will take an active role in protecting the integrity of the Frog Pond.

4. Access Improvements

A. SITE PLAN: The redesigned trail loop will include a few more benches and a group seating area for interpretive and school group talks. Such amenities will give visitors the opportunity to slow down and enjoy the area, provide a place to rest, allow lessons to be given in a more controlled situation, and minimize the trampling of vegetation in certain areas (Appendix 3.3.a.2).

B. PUBLIC SAFETY: Public safety is the District's primary concern related to public use. At issue is the condition of user developments, like the entranceway stairs, and natural hazards, such as tree limbs. In addition, but not yet a problem, is the sense of personal safety while at the site. Part of the appeal of the Frog Pond, and indeed all the District's sites, is its freedom from fear of compromised personal safety. The District wants to keep it this way.

In the past six years there have been two small fires that originated within the site by human causes (Appendix 3.4.b.1). In addition, there has been evidence of casual and infrequent use of the site for camping purposes. Our concern is with the potential spread of gang, drug, and social violence to this place of relative peace and tranquility.

Maintenance and repair of safety problems will continue to proceed on an as needed basis with repairs implemented and safety problems corrected within 24 hours of discovery. If repairs or correction cannot be accomplished within this time-line, sufficient posting, and possible closure, of the site will be established until timely repairs or corrections can be completed. Natural conditions will be left to nature unless they affect any of the above developments. The District will work closely with the City in developing a patrol and monitoring system that will prevent and detect problems before they become established. A main component of this strategy will involve the City's Neighborhood Watch Program (Appendix 3.4.b.2).

Vandalism, sadly, is a reality that must be addressed if the open space values are to be sustained. The District is limited in its response to these senseless acts. The main problem is the destruction of visitor improvements installed to help enjoy the peaceful and educational aspects of the site. Interpretive signposts are hacked with hatchets, the entranceway stairs and boardwalk planks are pulled, pried, and jumped on until they break. Signs posting rules, maps, and other information are pulled down. These acts of violence demonstrate a severe disregard for community property and complete lack of social and personal responsibility. A more troubling aspect of this destructive behavior are the acts of violence against nature. Thankfully less frequent, the indiscriminant hacking of willows, redwoods, and other plants demonstrate a deplorable disregard for life. Answering the question of why our society has failed to instill positive values that respect public property and other forms of life in some of our members is not within the District's ability. The issue is how to become a part of the solution that reduces, with the goal of eliminating, this type of social pathology as a factor site management.

Integrated into the public safety program will be a vandalism reduction effort. This will be accomplished primarily through education, increased patrol presence, neighborhood watch, and site design. Education will include signs that target violence against nature, flyers to neighbors and residents regarding the natural values embodied by the site, and increased public contact and law enforcement. The District will develop an educational and interpretive program that highlights open space values, community responsibility, and experiential restoration activities. All vandalism will be repaired as needed to meet safety concerns. As a preventative, site design will incorporate vandal resistant materials for the trail markers, signs, benches, and boardwalks.

C. EDUCATION & INTERPRETATION: Interpretation/education is believed to be one of the keys to improved public ownership and care of public property. An informed and involved public is known to be more pro-active in taking positive actions to protect their park or open space. At issue is to what degree the District will develop and promote an interpretive program and to what degree will it appeal to individuals and groups who do, or may, use the site.

Environmental education programs will be actively advocated in an attempt to "market" the Frog Pond as an outdoor laboratory to local schools. The potential for research and study provide a variety of opportunities for students of all ages. Broadbased involvement of local schools and resident volunteers, combined with a safe and healthy environment, will lead to long-term support, awareness, and protection.

Other interpretive opportunities included wildlife habitat enhancement projects, unobtrusive wildlife viewing blinds; plant and wildlife brochures; habitat fieldbooks and study guides; and a research/study projects. Priority will be given to rewriting the interpretive trail booklet for the interpretive trail and incorporating more experiential and activity oriented lessons (Appendix 3.4.c).

ADMINISTRATION

1. Staffing and Budget

2. Planning Process

A. INTER-GOVERNMENTAL RELATIONS: Of major concern to the District are the inter-governmental relationships needed to implementation best management practices for the long-term health and welfare of the Frog Pond. Our concern is the fact that governing bodies, economic conditions, and social values come and go while the needs of the Frog Pond remain the same. Likewise, we are concerned with overlapping jurisdictions, competing interests, and effective expenditure of public funds.

The Frog Pond lies entirely within the political jurisdiction of the City. Location, size, use patterns, and administration of this site all combine to create a more or less community open space for the benefit of residents within the City. As such, and rightly so, the relationship between the District, the City, and the site is extremely important. Both the District and the City are concerned with the welfare of people. The issues facing both governments are how to mutually assist one another in maintaining and enhancing the quality of urban life within the City. Similarly, both governments are concerned with environmental health and law compliance. There is also concern over each others ability to overcome differences, reach mutual understanding, resolve conflict with win:win outcomes, and move ahead jointly. Concern is for the tendency of "politics" to interfere with the opportunities

for cooperation.

Fish and Game has proprietary jurisdiction over wildlife and the staff competence to assist the District in maintaining and enhancing the Frog Pond's biological integrity. Both governments serve the public's interest in a healthy environment, and our professional working relationship with the Department will continue to be an important conservation partnership. At issue is how both governments can improve communication and mutually assist each other in the protection of the pond's plants and wildlife.

Mosquito Abatement has jurisdiction, under public health and safety codes, over mosquito breeding sites and problem areas (Appendix 4.2.a). As such a place, the Frog Pond will continue to play a role in Mosquito Abatement's mission. At issue is how they respond to the problem and how both districts can help each other address the problem in a mutually satisfying and cost effective way. The District is concerned with the affects of pesticide and petroleum applications upon the water and wildlife inhabiting the pond. The District considers the application of toxic chemicals into the Frog Pond environment a legitimate, but non-conforming and undesirable, activity. There is also concern over the potential for this difference to overshadow the opportunities for cooperative management strategies.

The California Department of Transportation [Cal Trans] has jurisdiction over highway maintenance that directly affects conditions adjacent to the Frog Pond. This is particularly true with work done to divert and control surface water flow in Canyon Del Rey Creek. At issue is the impact of roadwork on water entering the Frog Pond from Highway 218. During heavy precipitation events excessive storm runoff has exceeded the capacity of the storm drain below Carlton and the ditch that is Canyon Del Rey Creek. On two occasions the entryway stairs were washed out, while Canyon Del Rey Creek has backed up into the pond. Our concern is with the cost and effort needed to repair such damages, and the potential for off-site pollutants entering the pond. A long-term concern is the potential for highway widening to impact conditions at the Frog Pond.

Lastly, the District is concerned with the continuing build-out of the Highway 68 corridor and the affects this development may have on water passing by and entering into the Frog Pond. The City of Monterey and the County of Monterey both have jurisdiction over land-use decisions in this watershed. Maintaining a positive working relationship with them will continue to be an important aspect of managing the Frog Pond.

The District will take a pro-active approach to cooperating with residents, local and state government, and District constituents in the protection, maintenance, and stewardship of the Frog Pond. The District will provide quarterly information on management activities and problems, visitor use, water quality, maintenance costs, vandalism, restoration, etc, in "Friends" newsletter. We will send copies of the newsletter to the City of Del Rey Oaks, Mosquito Abatement District, Department of Fish and Game, Cal-trans, the city Neighborhood Watch Program, County and City of Monterey, and any individuals or organizations interested in being on the mailing list. At every opportunity, the District will encourage efforts of mutual assistance and coordination.

B. PUBLIC INVOLVEMENT: To encourage community involvement, the District will establish a Citizen's Advisory Committee (CAC). At least one Del Rey Oaks City Council Person, four citizens of Del Rey Oaks, two Monterey Peninsula School District teachers, a District staff member, and two peninsula residents (not from Del Rey Oaks) will be invited to participate. This group will then be

assigned the responsibility to advise the District on implementing, monitoring, and revising the management plan while at the same time acting as community advocates for the Frog Pond's welfare. Associated with the CAC could be the establishment of a Technical Advisory Group (TAG) composed of District constituents/volunteers who are interested in the technical management of the Frog Pond. These persons would help in periodic water quality sampling, exotic plant removal, native grass restoration, pond restoration, wildlife monitoring and inventorying, interpretive programs, and maintenance activities.

C. INTERIM SITE MANAGEMENT:

D. MONITORING AND AMMENDMENTS:

APPENDICES

- 1.1.1 AREA MAP
- 1.1.2 HABITAT MAP
- 1.2.1 FROG POND ADVISORY GROUP AND RECOMMENDATIONS
- 1.2.2 SITE PHOTO (CIRCA 1950's)
- 1.2.3 SITE PHOTO (CIRCA 1990's)
- 2.1.C STORM DRAIN AND URBAN RUNNOFF SOURCES
- 2.1.D PLANT LIST
- 2.1.E BIRD LIST
- 2.7 DEL REY OAKS GENERAL PLAN AND ZONING ORDINANCE GUIDLINES
- 3.3.A.1 CORRESPONDENCE WITH FISH & GAME AND MOSQUITO ABATEMENT
- 3.3.A.2 SITE PLAN
- 3.3.A.3 OFF-SITE SOURCE POLLUTION ARTICLE
- 3.3.A.4 WATER QUALITY RECORDS
- 3.3.A.5 JURISDICTIONAL GOALS AND OBJECTIVES
- 3.3.A.6 GRASSLAND RESTORATION PLAN
- 3.3.B WILDLIFE SPECIES LIST
- 3.3.E.1 SURPLUS FORT ORD LAND AND PLANT PRESERVE #1
- 3.3.E.2 DEL REY OAKS SITE PLAN
- 3.4.B.1 FIRE REPORTS
- 3.4.B.2 DISTRICT/CITY MOU FOR PATROL AND PROTECTION, INCLUDING THE NWP
- 3.4.C ENVIRONMENTAL EDUCATION AND OUTDOOR INTERPRETATION
- 4.2.A MOSQUITO ABATEMENT HEALTH AND SAFETY CODES

3.4.C. ENVIRONMENTAL STUDY AREA PLAN POLICY

Environmental Education: Ecology is as important a concept to learn and understand as any in school. To assist local schools in teaching this concept, District Staff will work closely with teachers and their curriculum for supplemental environmental education purposes. In-service classroom visits to present multi-media programs, site visit preparations, and laboratory demonstrations will constitute the main focus of this effort.

Outdoor Interpretation: To compliment in-class studies, staff will develop attractive interpretive opportunities and resources that emphasis the study of plants and animals in their environments

through empirical observations in the field (outdoors!). This approach is often the most stimulating and rewarding for students and adults lacking the interest in the formal structure of a classroom. To accomplish this District staff will develop several study guides that will present ideas and concepts, learning objectives, lists of equipment and materials, and basic site orientation. These guides will be enhanced with separate identification lists for plants, animals, insects, fungus, and soils. These guides may act as stand alone learning resources, or used as a series of interrelated mini-studies. Park staff will make themselves available to assist these field studies.

ENDNOTES

1. City of Del Rey Oaks., 1995 General Plan (1975).
2. Monterey Peninsula Regional Park District., Draft Master Plan (June 1990).
3. Howard, Donald. Ranchos of Monterey County. Monterey: Angel Press (1978).
4. Hunter, Bettie L. and Harold M. Samuelson. Appraisal Report of "Frog Pond" Del Rey Oaks. Monterey: Real Estate Appraisers (1974).
5. Personal conversation and file search with Mona Grugel, Monterey County Historical Society (Sept. 1991).
6. Monterey Peninsula Regional Park District. Application For Surplus Federal Real Property (for Park and Recreation Purposes) Public Law 91-485, (nd).
7. USDA Soil Conservation Service. Soil Survey of Monterey County (1978).
8. Monterey County Planning Department. Monterey County General Plan (1982).
9. City of Del Rey Oaks. 1995 General Plan (1975).
10. USDA Soil Conservation Service (1978).
11. Ibid.
12. Monterey County Flood Control and Water Conservation District. Monterey County Master Drainage Plan, Canyon Del Rey Watershed (1977).
13. Monterey Peninsula Regional Park District. Frog Pond Interpretive Trail (1982).
14. Behler, John L. and F. Wayne King. The Audubon Society Field Guide to North American Reptiles and Amphibians. New York: Knopf (1979).
15. Stebbins, Robert. Amphibians and Reptiles of California. Berkeley: University of California Press (1972).
16. Behler and King, 1979.
17. Stebbins, 1972.
18. Roberson, Don. Monterey Birds. Carmel: Monterey Peninsula Audubon Society (1985).
19. Personal observations.
20. Personal observations.
21. Personal conversation with Peter Ghormley, Manager, Northern Salinas Valley Mosquito Abatement District (September 9, 1991).
22. Personal conversation with Dr. Gary S. Breschini, Archaeologist, Archaeological Consulting (July 25, 1991).
23. Personal conversation with a representative of the T.A. Work Estate (August 13, 1991).
24. Hunter and Samuelson (1974).
25. Personal observations.
26. Lee Dittman, Naturalist Consultant. Frog Pond Natural Area: Problems and Plans. (ND).
27. IBID.

28. Personal observations and lack of to-date documentation.
29. Personal conversation with Peter Ghormley (1991).
30. Personal conversation with Debra Johnson, Environmental Specialist, California Department of Fish and Game, June 29, 1994.
31. Behler and King (1979).
32. Stebbins (1972).
33. Sather, J. M. and Smith, R. D.. An Overview of Major Wetland Functions and Values. Washington, D. C. : U. S. Fish and Wildlife Service, FWS/OBS-84/18 (1984).