Elysian Park Natural Resources

Prepared for:

Withers & Sandgren, Ltd.
Landscape Architecture & Planning
3467 Ocean View Blvd., Suite A
Glendale, CA 91208
(818) 236-3006

Prepared By:

Verna Jigour Associates
Conservation Ecology & Design Services
3318 Granada Avenue
Santa Clara, CA 95051
(408) 246-4425

May 2005, Update: July 2006

TABLE OF CONTENTS

Elysian Park Natural Resources

HISTORIC CONTEXT

The Indigenous Landscape

No humans were likely present to witness a prehistoric Los Angeles landscape where Monterey pines once dotted the skylines; where redwoods may have reached up the canyons of the present-day Elysian Park during the Pleistocene Epoch that began the Quaternary Period 1.6 million years ago. For that matter, during the preceding Tertiary Period, these lands west of the San Andreas Fault were slowly creeping northward from their origin where Baja California lies today. By the time humans reached this area, during the present Holocene Epoch, beginning 10,000 years ago, the climate had warmed and dried, and the coniferous forests had been replaced by the sclerophyllous (hard-leaved) vegetation – oaks and chaparral – we are familiar with today.

The earliest written records describing the character of the southern California landscape were made by Juan Crespí, a Franciscan monk who served as chaplain and recorder on the first overland expedition from Mexico into California lead by Captain Gaspar de Portolá, in search of the ports of San Diego and Monterey, 1769-1770. On August 2, 1769, the group made their camp alongside the river to be named Los Angeles in the vicinity of the current North Broadway & North Spring Street, at the foot of Elysian Park's Buena Vista Hill. A recent translation by Alan K. Brown of CSUSD makes this record more accessible (Brown 2001).

Fray Crespí described the river as about seven yards wide and not deep on that day, but he noted the green lushness and apparent fertility of the surrounding valley ". . . looking from afar like nothing so much as cornfields . . . a most beautiful garden" and exuberantly pronounced it the best location "in soil, water, and trees, for the purpose of becoming in time a very large plenteous mission of Our Lady of the Angels of Porciuncula (Nuestra Señora de los Ángeles de la Porciúncula)".

". . . There is a dry creek to the northeast, with a very large bed, closing with the river here [Arroyo Seco]; it is plain what large torrents this must carry in season, with many dead trees that must have come down from the mountains." Crespí notes the riverside landscape on the river and this tributary as lush with "sycamores, willows, cottonwoods and very large live oaks. We found pine-nut cones and a great amount of nut shells." He also writes "there are great amounts of brambles, a great deal of grapevines, and a great many rose bushes having good sized roses . . ." Crespí notes gifts of shell beads, sage and grass seeds offered by the local people (Tongva), and of the sage refreshment (used for gruel) he noted "very delicious sage it is for that purpose, I having enjoyed it many times".

Crespí mentions a scout's discovery of a ravine "about half a league to the westward" with "forty springs of pitch, or tar, boiling in great surges up out of the ground, and [the scout] saw very large swamps of this tar, enough to have calked many ships with". He also states, "there are a great many antelopes at all these rivers, and very large hares, the latter especially here at this spot."

While Crespí doesn't tell us anything about the adjacent hillsides, the interest at that time being more in the fertility of the valley, we may assume that the slopes of the present-day Elysian Park were clothed in what we now refer to as chaparral, coastal sage scrub, coast live oak and walnut woodlands, their distributions determined by combinations of slope aspect, elevation, topography and soil type. Although the aboriginal people used fire and a host of other vegetation management techniques to support their economies, their management style left a landscape that appeared generally wild to European perceptions. The erosion of that indigenous character began in the wake of the Portola Expedition, with the founding of Mission de San Gabriel in 1771 and El Pueblo de Los Angeles in 1781.

Historic Imprint

Without doing an in-depth historical study, we may assume that the lands comprising Elysian Park were subject to influences similar to those experienced throughout portions of California affected by Spanish governance. Outside of the missions, the primary economy during the Spanish period centered on cattle for hides, since the meat would spoil by the time it reached Spain. This economy is believed to have influenced native ecologies in several ways. Chaparral was burned off in favor of pasture, with scrublands burned incidentally. Native grasses and grasslands succumbed to grazing pressure combined with the onslaught of Mediterranean annual grasses and forbs that were pre-adapted to this grazing economy in a Mediterranean climate. Possible wild beneficiaries of the Spanish economy may have been California Brown Bear (grizzly) and California Condor, whose numbers may have been artificially (and temporarily) boosted by all the unused beef laying around.

The subsequent Anglo period was marked by the influx of pioneers moving westward from the eastern U.S., and a shift to more agrarian economies, including beef cattle and sheep grazing. We may assume that by the mid-to-late 1800s much of the chaparral and associated coastal sage scrub of Elysian Park's slopes had succumbed to pasture development. For a period of time these rough and likely denuded lands were considered almost worthless, except for quarrying activities whose specific locations have apparently not been documented. But eventually sentiments changed and these last undeveloped 550 acres of the original 17,172 acre Spanish land grant to El Pueblo de Los Angeles were designated as Elysian Park on April 5, 1886.

Then incoming Mayor Henry Hazard became enthusiastic about developing the park for public enjoyment and enabled appropriations and assistance for beautification that began with tree planting and the introduction of several thousand eucalyptus trees. In appreciation of the Park's frost-free climate and excellent soils, the Los Angeles Horticultural Society established the first botanical garden in southern California here in 1893. Among the original plantings of what we now call Chavez Ravine Arboretum remain several expansive tipu trees, two of which flank the entry road; a magnificent cape chestnut that yields masses of lavender flowers in early summer; and a grove of exotic rubber trees. The double row of wild date palms (*Phoenix sylvestris*) planted from 1895-1900 along what is now Stadium Way, were a gift from a foreign country – likely India where they originate. Easily mistaken for the Canary Island date palms (*Phoenix canariensis*) we are accustomed to seeing across California landscapes, these statuesque beauties are a rarity in this country, while they are widespread in India, where they provide a source of palm sugar.

Over subsequent decades an array of other exotic species was planted throughout the park, including groves of deodar cedars, pines, olives and eucalyptus. Furthermore, the Los Angeles Department of Forestry and Fire Warden experimented with aerial seeding a variety of native and exotic plants over urban open spaces for many decades in an effort to reduce fire hazards. A likely artifact of those aerial sowings is a hybrid of the local native hollyleaf cherry (*Prunus ilicifolia* ssp. *ilicifolia*), for which Hollywood was named, and the Catalina cherry (*Prunus ilicifolia* ssp. *lyonii*), named for its island homeland. These hybrids and/or their offspring persist in the park and at least Mt. Washington (Elyria Canyon) today. From World War II through the present comparatively little planting was done, and along with the maturation of trees planted in earlier decades, the major changes in the park landscape arose first through the carving out of Dodger Stadium in the early 1960s, the 1970 landslide and most recently through the fire of the early 1990s (date?) that transformed the historic bank of deodar cedars above the Golden State Freeway. In the wake of that fire, remnants of the native landscape have re-emerged – most notably the California walnuts (*Juglans californica*) characteristic of such protected north-facing slopes.

EXISTING VEGETATION & HABITATS

Native Vegetation & Land Features

Some irony may be found in the fact that native vegetation has become more rare and desired in the park than the exotic species imported there a century ago. The most prominent native vegetation in the park today is expressed in the California walnut/ coast live oak woodlands re-emerging from the burned northern slopes. Apparently some walnuts have long remained in that area, as their presence was noted in the 1971 Master Plan. Some impressively mature coast live oaks dotted along these northern slopes suggest that early Angelinos did not completely eradicate native gene pools.

Along with California walnut (*Juglans californica*) and coast live oak (*Quercus agrifolia*), toyon (*Heteromeles arbutifolia*), Mexican elderberries (*Sambucus mexicana*), velvet ash (*Fraxinus velutina*), sticky monkey flower [*Mimulus (Diplacus) aurantiacus* (*M. longiflorus*)], California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), giant ryegrass (*Leymus condensatus*), fiesta flower (*Pholistoma auritum* var. *auritum*), checker mallow (*Sidalcea malvaeflora*), man-root (*Marah macrocarpus*) chaparral honeysuckle (*Lonicera subspicata*) and other native species are present but sporadic, with the majority of the understory dominated by nonnative annual grasses, punctuated by an assortment of exotic trees and shrubs, and with patches of black mustard reaching 6 to 8 feet high in areas with greater sun exposure (April, 2005).

Moving along the northernmost trail through this regenerating woodland, especially the portion south of Stadium Way, one passes some stunning exposed sedimentary rock formations, testifying to past uplift and contortion. In some areas wind and water erosion have carved out softer rock, leaving harder layers or intrusions projecting outward (Photos # 1-3, Appendix NR 1). The harder protrusions appear to be a type of sandstone, while the silty soil along this and other trail areas appears to be derived from siltstone, formed from mostly finer-grained sediments. This trail, once repaired and upgraded, would be suitable for introducing certain principles of geology.

Some of the rock outcrops support populations of lance-leaved live-forever (*Dudleya lanceolata*) and colorful lichens, while on the shadiest, moistest rock faces these mingle with other-worldly-looking liverworts (Photos 4 & 5 Appendix NR 1). Lichen specialist Kerry Knudsen, of UC Riverside Herbarium, conducted a winter 2005 survey of lichens in the Royce Canyon vicinity of nearby Griffith Park, documenting 20 lichen taxa, three of which had not previously been reported from the Santa Monica Mountains. These minute organisms get scant attention from most plant enthusiasts and can easily go unnoticed. Furthermore, they are known to be sensitive to air pollution and could easily slip away while we're not paying attention. This is significant because they often play important ecological roles in nitrogen fixation, rock weathering and soil crust functions. Lichens may provide critical ecological services key to rock-dwelling vascular plant species such as the live-forevers (*Dudleya* sp.). (Teresa Proscewicz, paraphrasing Kerry Knudsen 2005)

Unfortunately, some of these rock faces have also been invaded by eupatory [*Ageratina adenophora* (*Eupatorium adenophorum*)], an invasive species included on CalIPC's (formerly CalEPPC) List B. http://www.cal-ipc.org/ (Photos 6, 7 & 8 Appendix NR 1) This species typically invades riparian areas in southern California, so its colonization of rock faces on these north-facing slopes attests to their relative moisture, as does the native velvet ash (*Fraxinus velutina*), which typically colonizes riparian areas, but occurs occasionally along the steep drainages of the northern slopes.

It is likely that the siltier soil observed along most trail areas is present throughout much of the park, accounting for the celebrated soil quality of Chavez Ravine that prompted early horticulturalists to select it as the site for the arboretum. A silty loam would have greater moisture-holding capacity than one with a higher sand fraction. It should also be less susceptible to erosion.

However, under the historic land uses that resulted in loss of most of the native land cover, erosive forces have been whittling away at especially the steepest areas of the north-facing slopes. With the prehistoric covering of deep-rooted native trees, shrubs, grasses and herbs largely replaced by shallow-rooted annual species that die by early summer (adding to fuel build-up), these sometimes precipitously steep lands are rendered more susceptible to rilling, rock-fall and land slippage. Numerous landslides interrupt the trail along the northern slopes, limiting access and threatening hiker safety, as well as that of the freeway below. Historic irrigation pipes now skirt the air many feet out from the current trail where it crosses hillside drainages, providing references for the extent of earth that has been lost to gravity and runoff over the past century or less (Photos 9 & 10 Appendix NR 1). Deep linear fissures parallel to the trail/topographic contours suggest that thick layers of earth may potentially peel off in time (Photos 11 & 12 Appendix NR 1). Focused restoration efforts are warranted to stabilize and hasten the healing of these sheer slopes.

In addition to the smattering of mature coast live oaks tucked into canyons on the northern slopes, several handsomely mature specimens on Buena Vista Point lose some visual prominence in proximity to an assemblage of exotic trees and shrubs, some of which are in less than optimal condition. While many of the oaks along the northern slopes appear older than the century of park use, those at Buena Vista Point may have been planted as part of the original park plantings, since the species was included on lists of trees planted then. This questionable origin suggests that acorn collection for oak propagation may best be limited to trees known to be genetically wild, within the park and other nearby environments such as Griffith Park.

Elsewhere around the park, native shrub species may be observed here and there, often poking out through the veil of exotic shrubs like the South American shrub pepper (*Schinus polygamus*) that has come to dominate many areas of the park. But, with the exception of a few relatively recent native plantings, precious few natives appear outside the north slope woodlands. Of those California natives that have been planted in the past, some are species not indigenous to the area (e.g., certain *Ceanothus* sp. or cultivars) and others have been planted in environments that may be less than optimal for their long-term health and survival. Such mis-matches also confuse our perceptions of natural landscape patterns. One artifact of past introductions that may confuse amateur plant identifiers is the hybrid hollyleaf x Catalina cherry (*Prunus ilicifolia* ssp. *ilicifolia* x *P. ilicifolia* ssp. *lyonii*) that appears in at least some locations of the park. The native hollyleaf cherry tends to occur naturally in well-drained, open scrub areas with full sun exposure. The hybrid incorporating genes from the island subspecies may be especially well-adapted to environmental conditions fostered by the eucalyptus forest. However, it would probably be wise not to collect and propagate seeds of the hybrid for restoration purposes.

Wild Fauna & Habitats

Especially considering the historic removal of indigenous habitats, the park supports a noteworthy array of native wildlife, as well as exotic urban generalist species. Coyotes and foxes (native Gray and exotic Red?) reportedly find their way to and from the park, presumably along the partly-connected system of open spaces linked by the Los Angeles River. But deer do not occur in the park – likely much to the relief of the parks's historic horticulturalists. Skunks, squirrels and hares reported here are likely full-time residents of the park. Some of the hares may be descended from the large ones reported here by Juan Crespí in 1769.

Red-tail Hawks and Great Horned Owls find plentiful roosting and nesting opportunities in this tree-filled park. Their specific habitat and diet preferences in the park remain to be documented, but their obvious presence here confirms that their ecological needs are being met.

A few Red-shafted Flickers reportedly find nesting and foraging opportunities in the park, apparently within the eucalyptus woodlands, but possibly also among the deodars around the reservoir. The primary habitats for this member of the woodpecker family are native forests and woodlands but some populations have adapted to urban parklands throughout its range. Flickers depend on dead trees to peck their nesting holes into, so providing snags in a manner consistent with public safety will be important to sustaining Red-shafted Flickers in the park.

Perhaps the most surprising, and no doubt welcome reported wildlife resident of the park is California Quail. The quail's apparent continued presence here is remarkable in that quail have been documented as among the species that drop out early following habitat fragmentation, and ornithologists have watched its decline from urbanized Los Angles over the past several decades. For example, California Quail have retreated up the Arroyo Seco so that they no longer inhabit Debs Park, an area where they were present as recently as the mid-1980s. A goal for that watershed is to provide suitable habitat linkages along the Arroyo that may encourage the quail to someday return to Debs Park.

Quail have been reported as nesting among the brush around Elysian Reservoir, which likely fulfills their two primary habitat needs – for brushy areas and year-round water. However, the vegetation around the reservoir could hardly be considered optimal for quail. Focused habitat restoration efforts there should nurture the resident quail population.

Scrub Jays are a noticeable resident of the park. Less noticeable are the Brown Towhee, a scrub resident that has adapted to gardens and parks throughout its range. Whether other apparently more discriminate towhees, such as California or Spotted Towhee use the parklands remains to be documented. These birds require open brushy, or dense scrub habitats, respectively. Larry Haun's delightful little booklet, Birds and Flowers of Elysian Park, notes American Robin as among the migrants that may stop by the park and appropriately points out how pesticides could potentially enter the park food webs.

Ideally, some day there will be a running inventory of resident and migratory wildlife species observed in the park, their specific locations, plants and other features used, etc. This will be especially helpful as an adaptive management tool to support habitat restoration efforts. There are currently no known rare, threatened or endangered wildlife species in the park.

Historic Vegetation Resources

The Chavez Ravine Arboretum and the wild date palms along Avenue of the Palms constitute the most prominent and valuable historic vegetation resources in the park. These resources are valuable not just for the impressive maturity of the trees, but for what they tell us about cultural perspectives at a time when the City of Los Angeles was emerging. They remind us of the fresh delight our predecessors found in a growing climate and soils that could support plant species from the tropic and temperate zones of the world. The wild date palms tell us of the attention focused on the young city by a government on the opposite side of the world. The story behind those palms merits an effort to rediscover and document the specific details of the original gift for posterity.

While both of these singular resources should be treasured and highlighted, each has remained somewhat underappreciated, for different reasons.

The arboretum suffers from a lack of context on multiple levels. The layout does tells us about the prominent attitudes of the time – focus on individual species divorced from their ecological contexts and plopped down in an unintelligible arrangement that would never pass muster today for park design. Of course the founders were horticulturalists, not designers, but then the fields of ecology and landscape architecture were themselves in their infancy. People traveled less than today and all things exotic were of interest in themselves.

A century later our collective worldview has shifted from a narrower focus on ***objects*** toward a more ecological perspective of ***relationships*** – systems and processes. When we see a tree labeled with its origin we may remember it for its beauty and likely forget its origin. But when we experience it in a spatial context of other plant species that share its environment and ecological webs we get a better sense of those exotic places, while deepening our understanding of our own place and the features it has in common with distant lands. That may partly explain the feelings of imbalance and confusion a visitor may experience in attempting to access the resources there. There is an overall sense that something is missing – likely the unconscious spatial awareness that whole layers of vegetation between the canopy and the lawn ground plane are missing.

The context for people to experience the arboretum has been left up to the whims of chance, since there are no designated pathways and certainly no ADA accessible routes. The one feature that provides some unintentional access for wheeled transport is the linear concrete drainage swale coursing down the lawn toward the adjacent picnic area. This pavement bears no particular relationship to the trees and is somewhat an eyesore out of context with the historical significance of the arboretum. However, it at least serves the function of a stable walking surface. Once there, if they're lucky visitors *may* have a treasure map of the trees in hand to help them navigate, but the experience falls far short of its potential and the unprepared visitor is left to make sense of the place on their own.

The arboretum's broad lawn, welcoming shade and the buffering of the bowl from the nearby traffic noises have made it a popular place for weekend picnics, but there again, these historic and rare trees may be subject to abuse, as their root zones become trampled and sundry other threats abound. For example, the master plan team observed a pile of charcoal briquettes dumped against the root crown of one tree there. The conflicts go both ways – one dead Mexican fan palm there threatens to drop its top down – potentially on some unwary visitor. Its twin neighbor palm may be on its way out also. (Photo 22 Appendix NR-1) Documentation of the longevity of the exotic trees brought to the arboretum would enable adaptive planning and management.

In contrast with the arboretum, the allée of wild date palms benefits from a strong design, but in the absence of prominent interpretive features its true significance is lost on likely more than 99% of park visitors. As previously mentioned, these rare trees are largely mistaken for Canary Island date palms, which are ubiquitous in California landscapes. So visitors may appreciate the stature of the trees and the experience of moving through the allée, but they rarely realize their true identity and the story behind their establishment has become lost to public awareness.

The sustainability of the trees is also compromised by current public use patterns. As throngs of people pour into the park on weekends and holidays they seek places to park along Stadium Way. In the absence of defined parking areas, cars creep close to the base of the trees, with potential for significant impacts to their root zones.

Other Prominent Vegetation Features

Along with those vegetation resources of historic significance, and the reemerging walnut/oak woodlands on the north slope, other prominent vegetation features of the park include the Mexican fan palms against the skyline; the century-old stands of eucalyptus on the hillsides; and the forest of deodar cedar (*Cedrus deodar*) surrounding the reservoir.

The eucalyptus have deteriorated under the combined stress of drought, fire and disease. A few stands still remain in good health, but in many instances the dead and dying trees have created a fire hazard in the park. Maintenance crews have focused their efforts primarily in the 200' wide fuel modification zones adjacent residential property, to the neglect of the rest of the park. Along the northern slopes of the park the declining eucalyptus interface with the re-emerging walnut/oak woodland, indicating the transition nature intends and one that should be supported in the interest of more sustainable parklands.

Straight lines of Mexican fan palms (*Washingtonia robusta*) marking the grid of urban Los Angeles become submerged when they enter the steep contours of the park – to reemerge on the ridgeline as a whimsical, only-in-LA statement that triggers recognition of the park. Unfortunately, the close proximity of the park to the Los Angeles River renders it one of the nearest sources for invasion of the riparian area by invasive plant species such as the fan palms. California fan palms (*Washingtonia filifera*), native to oases in the Colorado Desert of San Diego and Riverside Counties, have the same invasive potential as their Mexican relative. If the tradition of fan palms is to be perpetuated, strategies must be developed to prevent their escape from the park.

Like the eucalyptus, the deodar cedars forming a near monoculture around the reservoir have suffered as access to irrigation water has been removed from the steeper slopes of the Park. "Dim" was the apt word used to described the light quality in the deodar forest in a 1965 Sunset magazine article on the park, "The

forgotten forest retreat right in central L.A". This dark, uniform forest blocks out not only light, but also ecological diversity and even aesthetic appeal, as the distinctive form of the deodars loses impact en mass. Its proximity to the precious water in the reservoir represents a missed opportunity in terms of wildlife habitat, although it nevertheless hosts a diversity of resident and migratory bird species.

Other notable vegetation stands include the carob tree grove near Elysian Reservoir, the regenerating scrub on Bishop's Canyon Landfill, the site of the 1970 landslide and the allee of Lombardy poplars lining the path to the Peter Shire kinetic environmental sculpture at Angel's Point.

Perhaps the design intent of those poplars was to hide the sculpture so that it would only be revealed upon entering the space – it succeeds on that point. (*Why couldn't the backflow prevention device have been camouflaged as successfully?*) However, the placement of these nonnative, moisture-loving poplars on a breezy ridgeline repeats the unsustainable mistakes of past over-reliance on irrigation to allow trees to grow in environments for which they are unsuited.

Ideally some interested entity will monitor the progression of vegetation on the landfill, using documentation of the type of soil imported to cap it and what was planted there as baseline information. Currently there is reportedly a mix of native and nonnative species there. It would be interesting, and helpful for adaptive management, to know whether the canyon sunflower (*Venegasia carpesioides*) growing there now was part of a seeding mix. Also ideally, some entity will apply adaptive management to guide the developing vegetation toward a native scrub mix that will support native scrubland wildlife.

Landscape Relationships

While certain areas of the park have received landscape treatments to enhance their usability by park visitors, these stand out as individual elements, separate from the surrounding jumble of the more or less wild vegetation matrix. And while the surrounding vegetation has gone wild, most of it is dominated by well-adapted nonnative species that have apparently spread from their original plantings, as well as other invasive weedy species. Probably the best example of this disharmony is the broad lawn area at the head of Chavez Ravine, where the manicured landscape bumps uneasily into a wall of wild shrubs – especially the South American shrub pepper (*Schinus polygamus*) – that impinge on security and lack aesthetic appeal. Some of these shrubs may have been part of past plantings, but given that parts of the par course there are now obscured from the lawn area by clumps of shrubs and weeds, it appears that certain plants are spreading adventitiously.

As the parklands progress into their second century a prominent goal should be the integration of disparate elements of the park through a matrix of sustainable native plant associations with landscape transition zones among the matrix and park feature vegetation elements. Well-designed transition zones will enhance the character of the manicured spaces, as well as park visitors' sense of safety while using those areas.

SUSTAIN L.A. APPROACH

Parklands Matrix & Landscape Transition Zones

A failure of past plantings that now comprise the parklands matrix is that assumptions were apparently made about the feasibility of long-term irrigation. As these plantings have matured, and in certain cases expanded, a few more drought-tolerant species have come to dominate the landscape in ways likely never intended, while others have declined, compromising public safety and aesthetic appeal. As a consequence, these matrix areas have not sustained park uses over time.

Recommended Actions:

- Adopt an overall policy of gradually replacing declining matrix tree plantations with naturally adapted native plant associations that will eventually become the self-sustaining matrix of the parklands. Begin establishing replacement trees long before the original tree plantings have succumbed.

- Commission certified arborists to re-evaluate the health of parkland trees at regular intervals, calling for removal of trees posing fire or other hazards, while maintaining snags in appropriate locations.

- Site replacement tree plantings to emulate natural tree distribution patterns. For example, the only trees that appear natural and, in fact, are sustainable along the ridgelines are coast live oaks and California walnuts. California sycamores naturally emerge down-slope from sun-soaked drainages among coastal sage scrub – they would never be clustered around ridgelines. Leave native tree plantings unstaked to ensure development of strong and more natural-appearing trunks. Where stakes are deemed necessary orient them so that prevailing winds will move the trees, stimulating the physiological reaction that develops stronger trunks.

- Begin removing the nonnative understory shrubs and replacing them with naturally sustainable associations of appropriate native plant species including the entire range of vegetation layers, from herbaceous species through multiple layers of diverse shrubs to tree canopies. Use ecological restoration techniques and strategies as indicated in that section.

- Beginning with matrix areas adjacent park focal areas, establish landscape transition zones by removing extraneous nonnative shrubs and replanting with native plant associations, emphasizing wildflowers, herbaceous species and subshrubs in areas adjacent to open lawns. This same strategy should be applied to fuel modification zones, emphasizing conditions that will favor low-growing plant species, beneath healthy canopies of drought tolerant native trees.

- The landscape transition zones are an appropriate place to use California native plant cultivars, in addition to wild genotypes. These transition zones should receive regular maintenance, so they do not need to become completely self-sustaining as do the matrix areas.

- Remember, the objective of these native matrix areas is not so-called “purism”. The objective is to establish a unifying parklands matrix that will sustain itself over time, reducing maintenance costs while providing a sound context in which to show off other vegetation features. Fringe benefits may accrue as native wildlife species return to the area, adding value to the park recreational experience.

Community Sustainability

The proximity of several dense urban neighborhoods to the park presents opportunities for community stewardship and interpretative activities that can profoundly help sustain the parklands, as well as community spirit. The community can also help sustain the park through the participation of academic institutions in the development of parkland information resources and community service.

Recommended Actions:

- Provide space and resources to facilitate community stewardship and docent programs for the park, including space to store park historical, horticultural and natural history documents, as well as stewardship tools and resources. Documentation of all new plantings in the park should be stored in this centrally accessible location.

- Designate one or more point person(s) within the City administration to serve as contacts for the stewardship and docent programs, but generally the community should organize themselves for these purposes, with the full support of the City as needed. If affiliated with Friends of Elysian Park or a similar nonprofit these park support groups can pursue grant funding for projects in the park, in cooperation with City administration. One example of what an urban park support group can accomplish in less than a decade is the Friends of Guadalupe River Park & Gardens in downtown San Jose. http://grpg.org/

- The stewardship group should seek funding to develop a manual of stewardship activities, hiring professionals as appropriate to help define stewardship goals, approaches and methodologies, as may be applicable to each activity.

- Similarly, the docent group should seek local funding to develop a structure and manual for that program. Areas of docent concentration could be: 1.) arboretum and special trees/plants of the park, 2.) history/culture, and 3.) natural history.

- Initiate and house a collection of photos, color photocopies and/or pressed specimens (special environments needed for that) of focal plants and animals in the park, such as invasive pest plants to be on the lookout for, as well as incipient natives, to be sure they aren't unintentionally removed during weed efforts.

- Initiate and house log books and/or electronic logs for community members to record their observations of wildlife, transitioning park landscapes, repairs needed along trails or at picnic areas, etc.

- Work with local academic institutions to help fill parkland information needs.

- Provide opportunities for high school students to earn community service credits at the park.

- Provide opportunities for university and corporate groups to participate in stewardship activities.

- Provide opportunities for individuals, businesses and other groups to donate resources to the park.

Regional Sustainability

Elysian Park occupies a key position in the system of regionally significant open spaces linked by the Los Angeles River and Arroyo Seco parkways. Together, especially with ongoing restoration of habitats and movement linkages, this system can help sustain the ecological integrity of wildlife habitats from the Santa Monica Mountains to the San Gabriels.

Recommended Actions:

- Support the restoration of this open space system as a viable landscape linkage by restoring wildlife habitats on parklands in close proximity to the river and confluence, including control of invasive species.

Global Sustainability – Pacific Flyway

The proximity of the park to the soft-bottom section of the Los Angeles River places it in a key position to enhance the function of this area as a stop on the Pacific Flyway.

Recommended Actions:

- Restore native woodland habitats that enhance the viability of nearby riparian woodlands.
- Create wetland habitats within the park that will become synergistic with the viability of riparian wetlands along the river.
- Establish a system of wetlands linking the Elysian Reservoir vicinity to the Los Angeles River.

Watershed Links to the L.A. River

The Los Angeles River is the unfortunate first recipient of the nonpoint source water pollutants of its watershed, on their way to the Santa Monica Bay and Pacific Ocean. A TMDL for trash has been established for the watershed. The parklands are a source of the typical urban trash that gets washed through storm drains into the river. But one type of water-borne trash (i.e., cultural waste) that is concentrated in the park environment is the seeds and other propagules of pest plant species that can invade riparian wetlands, destroying habitat values. Foremost among these are the Mexican fan palms that have become a park icon.

Wind-blown seeds may also contaminate the river from sources in the parklands. Among the wind-blown seeds of greatest concern are fountain grass (*Pennisetum setaceum* – CalIPC List A1) that has broadly colonized lands along the river, along with eupatory [*Ageratina adenophora* (*Eupatorium adenophorum*)] CalIPC List B. As presumed future efforts to eradicate such invasive plants along the river proceed, it will be important to keep these species in check in the nearby parklands.

Recommended Actions:

- Retrofit storm drain catch basins to screen out not only large trash, but fine materials such as exotic plant seeds, using sand filters or other mechanisms to separate out fine-scale trash. If Elysian Park lies within one of the high trash generation areas the City is focusing catch basin retrofits on, this action may be expedited fortuitously.

- Control invasive plant species on parklands, beginning with those recognized as most invasive by inclusion on the CalIPC or similar weed alert lists. Community stewards can assist in this task, especially in remote areas where park maintenance crews don't typically operate.

ECOLOGICAL RESTORATION APPROACH

Native Plant Association & Wildlife Habitat Restoration

Ecological restoration is an important strategy that can render many areas of the park more self-sustaining over time. Additionally, restoration of indigenous wildlife habitats can enhance park visitors' recreational experience, while supporting regional and global ecosystems.

Since so much of the park's native biodiversity was eradicated over the past two centuries it will need some help to regain ecological stability.

Along with targeting the major invasive plant species, the most challenging restoration issue will be the nonnative annual grassland that has become the defacto understory for all woodland areas with enough light, that aren't already dominated by exotic shrubs. Strategy will be needed to shift the balance from this vegetation type that has so successfully colonized lands subject to historic overgrazing.

Some who would demean ecological restoration with a vague, uninformed notion of so-called "purism" may rightly ask, "Is it worth it?" So some reminders are appropriate here.

In the case of the steep northern slopes dangling above the Golden State Freeway (I-5), the replacement of the indigenous walnut/oak woodland understory by shallow-rooted, nonnative annual grasses that die at the end of each spring has rendered the slopes more susceptible to erosion and land slippage. In addition to posing potentially huge safety issues for the freeway below, the safety of park users on the trail is acutely compromised. Furthermore, parklands are being incrementally lost to erosion. Restoration of the full complement of indigenous vegetation can help reduce erosion problems.

As for the annual grasslands with their 6 foot black mustard cloaking the ground beneath the declining eucalyptus woodlands, these constitute a fire hazard that park maintenance workers must deal with each year. In the context of a transition, as the eucalyptus die off, toward an oak/walnut woodland, restoration of a self-sustaining native woodland understory will reduce maintenance costs over time, while reducing dead fuel loads and reestablishing an ecosystem that will better support native and migratory wildlife.

Finally, nonnative annual grasses impact soil water relations by consuming water rapidly during the spring and then dying. In addition to impacting slope stability, this has been shown to be a factor in the regeneration of valley oaks and may impact regeneration of even the hardy coast live oak. Certainly weed management is an essential component of oak woodland restoration.

Adaptive Management Tools

GIS & Community Stewardship Facility

A Geographic Information System (GIS) can be a valuable tool for keeping track of restoration efforts over time. In addition to the mapping capabilities, other records, including photos, may be kept in the system, linked to the spatial attributes. The GIS can be made accessible to the public, especially community stewards and docents, via the internet. While the GIS can store huge amounts of data in very little space, some physical space will also be needed to support community stewards involved in restoration activities.

Recommended Actions:

- Partner with a local academic department to develop an interactive GIS of the park that may be accessed by the public via the internet.

- Provide space in the central facility allotted for community stewardship and docent functions for the storage of tools and records pertaining to restoration. As feasible, provide satellite locations for storage of tools in other areas of the park, to make them easily accessible to community stewards.

Parkland Soils

A map of parkland soils is needed in order to complete a general restoration prescription for the entire park. Soils observed in the vicinity of the northern slopes (where they have not been eroded away) are presumed to be a silty loam, as are the soils underlying much, if not all of the eucalyptus woodland. But since sandstone outcrops occur, pockets of sandier soils may be distributed around the parklands. These would indicate opportunities for compositionally different plant associations from the siltier soils, so it will be important to know where they lie.

Furthermore, it would be helpful to know specifically where historic quarrying activities have taken place, to understand where topsoil has been removed. In the case of Bishop's Canyon Landfill, it would be helpful to know what type of soil was imported to cap the landfill. In the absence of such general soil mapping and historical knowledge, soil testing may be done at individual sites to confirm conditions. But general knowledge of soil texture should be enough to support most community-based restoration efforts.

Recommended Action:

- Using consultants as needed, develop GIS soil maps, ideally representing historic, as well as current soil conditions, and make these accessible to community stewards and docents.

Slope Aspect & Topography

Along with general soil texture, slope aspect – the compass direction a slope faces – will be a determining factor in identifying suitable plant associations for a given site. The slope aspect determines how much direct sunlight a slope receives daily and annually, and is an especially critical factor in vegetation distribution in sunny southern California.

It is important to remember that even in the northern part of the park there are slopes with southern exposures – for example, many of those just north of Stadium Way. One clue to the sunnier spots is where black mustard currently grows tall. However, some of those same spots may receive precious little sun during winter, due to the low sun angle and the opposing hills. Community stewards should pay attention to light levels at potential restoration sites over the course of a year. But a GIS with accurate topographic information can easily generate a map of basic slope aspects and even insolation (the actual amount of sunlight received).

Recommended Action:

- Use the GIS to develop a map of slope aspects throughout the park and make this accessible to community stewards and docents.

Vegetation Mapping

Digital orthophotos may be used to map existing vegetation. GIS vegetation mapping is strongly recommended for Elysian Park because of the changes in vegetation cover that may be expected over time. Such a GIS may be used to track broad vegetation trends, as well as fine details such as individual trees in the arboretum. Documentation of vegetation trends over time can lend valuable insights for adaptive management, as well as bolster community stewards with tangible evidence of the rewards for their efforts.

Recommended Actions:

- Using consultants skilled in interpreting aerial photos, develop a baseline GIS vegetation map, adding detail as time and resources permit. The GIS should have spatial layers for canopy and understory vegetation.
- Plot the location of restoration projects in the GIS; store other applicable data there.
- Update the vegetation map at five-to-ten-year intervals and evaluate overall progress.

Restoration Goals & Objectives

Northern Slope Aspect Walnut/Oak Woodland

Goal: California walnut/coast live oak woodland with an understory of deep-rooted native shrubs and grasses – Develop and implement a restoration program for these areas including the following objectives:

- Inventory and stabilize acutely eroding slope faces and drainages with appropriate native species, using biotechnical stabilization measures where appropriate. Strategically implemented hydroseeding can address parts of the problem areas.
- Use biotechnical stabilization, in concert with engineered solutions as may prove necessary, to repair and stabilize the trail. Implement water bars and other drainage devices to reduce erosion potential.
- Where access permits, initiate restoration of deep-rooted native understory species to reclaim the slopes from the exotic annual grasses and mustard. It is anticipated that once these natives become reestablished in accessible areas they will eventually spread to other areas of the slopes. (See Appendix NR 2 for plant lists)
- ***Strategic*** and careful use of herbicides will be necessary to affect this transformation – especially since some desirable native species are regenerating in the area.
- Mycorrhizal inoculation will likely hasten the transformation from annual grassland to woodland understory. Inoculation will be less important in zones surrounding existing native shrub species.
- Remember that even on these northeast-facing slopes there are patches with greater sun exposure, so, as may be applicable, include scrub species adapted to full sun.
- Document the locations of existing mature or young coast live oaks in the GIS. California walnuts may be mapped as patches of vegetation, rather than individual trees.
- Trees: Initiate coast live oak acorn planting in suitable locations that can be safely accessed, as discussed in the following section. California walnuts are typically well distributed and planted by squirrels, and probably won't need human help to colonize suitable locations. Mexican elderberry are currently important colonizers of these slopes, but more can be planted. Furthermore, if a source of elderberry wood occurs near an area needing stabilization, elderberry stakes can be useful for soil pinning and may root from cuttings used that way.

Coast Live Oak Woodland

Goal: Coast live oak woodland with an understory of native shrubs, herbs and grasses; with oak density and topographic position dependant on slope aspect – Develop and implement a restoration program to transition suitable areas of the parkland matrix toward self-sustaining oak woodlands, rich with native understory species.

Coast live oaks naturally occur on all slope aspects but reach their greatest density on northern exposures, where true oak forests may develop in response to greater moisture. Remember that, technically, in a woodland there are spaces among the oaks where an assortment of other trees, shrubs and grasses may access light and grow, enhancing biodiversity. Nature spaces oaks to ensure optimal soil water relations. Moving toward drier locations with southern and western exposures, the density of oaks will decrease as shrub species tend to dominate.

Growing oaks from acorns is the most sustainable method, as it requires no irrigation and the young seedlings never become rootbound, as they always do when grown in containers.

- In the interest of restoring self-sustaining oak woodlands, develop a general plan for oak woodland restoration emulating natural oak distribution patterns. Using the GIS, define potential oak woodland restoration areas, including the declining eucalyptus woodlands. Determine naturalistic density and distribution patterns of coast live oaks based on slope aspect, using the Oak Revegetation Strategy for Los Angeles County (Lyle and Stafford 1997) – refer to Appendix NR 3 for an excerpt. To access the full document contact Teresa Proscewicz, Principal Forester and Maintenance Supervisor for Griffith Region Recreation and Parks Department, City of Los Angeles (213) 485-5520

- Engage community stewards and school groups in the planting of coast live oak acorns in suitable locations according to the general plan. Collect acorns from trees known to be wild, in locations near and with similar conditions to Elysian Park. Distribute the acorn plantings over space and time to avoid the appearance of a plantation, as well as to establish a more natural rhythm for the regenerating woodland, yielding a diversity of age classes among the oaks and their associates. Protect the young oaks from encroachment by exotic annual grasses, mustard and other weeds. Ideally, stewards will monitor the success of the plantings over time, using the GIS. The California Oak Foundation publishes the brochure, How to Collect, Store and Plant Acorns, that may be downloaded at http://www.californiaoaks.org/html/oak_tree_care.html but is also included here as Appendix NR 4.

- Plant suitable native plant associates to act as nurse crops for the young oaks and help thwart weeds. (See Appendix NR 2 for plant lists.) Ideally, use hydroseeding or other seeding methods to extend limited resources, as well as to ensure a sustainably diverse ecosystem by incorporating native species available only as seed.

- Using a nucleus or island approach, convert patches of the exotic annual grass understory to native woodland understory. Work outward from these "secured" locations, which should coincide with areas where eucalyptus have been removed and acorns have been planted.

- As noted previously, strategic use of herbicides will be necessary, and mycorrhizal inoculation will likely hasten the effort, although eucalyptus may support both the endomycorrhiza associated with most native shrubs, and also certain ectomycorrhiza that may support coast live oaks.

- Erect temporary fencing in key locations as may be necessary to prevent trampling of young plants by people or dogs.

- Document the locations of any existing mature or young coast live oaks in the GIS.

- Continue to remove diseased and dead eucalyptus as needed for fuel modification, but leave some dead trees/snags standing to serve as nesting habitat for cavity nesters like the Red-shafted Flicker. Site designated snags in locations where they will not impinge on public safety and buffer them with barrier plantings.

- As the oak woodlands are maturing in areas now dominated by eucalyptus, affect a gradual transition by maintaining some living and/or dead eucalyptus trees to serve as roosting (possibly nesting) sites for hawks and owls. As feasible, plan tree removal to occur during the months of October to December to avoid potentially disturbing nesting raptors. Otherwise, nesting surveys prior to disturbance may be required under CEQA.

- The eucalyptus also provide shade that may facilitate regeneration of the oak woodland. However, the young plants will need some access to light. Ideally, a happy transition will allow enough light to favor the incoming native species and a continuity of habitat for raptors through the transitional period.

Elysian Reservoir & Surroundings

The 1971 Master Plan called for thinning the deodar forest here (p. 77). It appears this was never done and the dank forest is even more in need of thinning now. Furthermore, this apparently homogeneous forest falls far short of offering the habitat diversity that might be hoped for in such close proximity to water. The longevity of these exotic trees in this environment remains to be learned, but a transition to better emulate an indigenous landscape appears timely now.

And while the ultimate disposition of the reservoir remains uncertain, it is appropriate for the current master plan to outline a vision for this area. If the reservoir becomes covered it will allow opportunities for park visitor access to lands currently off-limits (and removal of the concertina wire that clashes with the park setting) as well as potential creation of functional wetlands to enhance wildlife habitat diversity.

Goal: Enhance the structural and biological diversity of vegetation in the reservoir area to better support native and migratory wildlife, while providing opportunities for human visitors to view and access water features in an aesthetically pleasing environment that will become primarily self-sustaining over time.

- Employ certified arborists to evaluate the deodars, select the best to conserve, and work with a restoration ecologist, ornithologist and landscape architect to develop a plan and prescription for thinning the deodars down to a few select patches that will serve habitat and aesthetic needs as oak and walnut woodlands, along with patches of scrub, regenerate in the cleared openings.

- Document the status of the reported California Quail population and pertinent conservation issues.

- Plan and implement phasing that will ensure sustainability of the existing California Quail population through the thinning and restoration process. Quail require patches of brush/scrub and daily access to water through the dry summer season.

- Conserve select deodars in patches, within which some trees should be girdled to serve as snags for wildlife and help admit light in to the transitioning understory. As may be indicated by the conditions of the trees, conserve deodar patches on each of the slope aspects around the bowl, allowing also for patches at stratified elevations. Establish temporary fenced buffers around the root zones of the conserved trees to ensure minimal disturbance during land management activities.

- Remove the majority of deodars as indicated by the removal plan and prescription. As feasible, plan tree removal to occur during the months of October to December to avoid potentially disturbing nesting raptors. Otherwise a raptor nesting survey may be required under CEQA. Recycle the harvested trees for construction of park benches, fences, art and other amenities, as well as for mulch to be used throughout the park.

- The restoration ecologist should consider testing soils on representative slope aspects to determine how their character may have been affected by the tenure of the overgrown deodar forest.

- The restoration ecologist should examine and potentially test the duff left by the deodars to help determine its potential role in the restoration process. Cedars foster endomycorrhizal fungi, which may help facilitate

the establishment of many native shrub and grass species. The duff may play an important restoration role in ensuring the mycorrhizas are there.

- Inoculation of the soil with ectomycorrhizal fungi may help support regenerating coast live oaks, but is probably most applicable to specimens installed from containers. Oaks grown from acorns will likely accumulate the necessary symbionts over time.

- Establish barrier plantings around conserved deodar patches containing snags to keep the public out of potential harms way.

- Develop a general plan for reestablishing oak and walnut woodlands, including native understory species, according to slope aspect around the reservoir bowl, as indicated in previous sections.

    - Walnut/oak woodlands on the most protected north-to-east-facing slopes

    - Oak woodland transitioning to oak-dotted scrub from east- to west-facing slope aspects

    - California sycamore riparian woodland emerging mid-slope from the drainage at the north end of the reservoir

- Plant coast live oak acorns and California walnut seeds at suitable locations around the slopes of the reservoir, as indicated in the previous section. Plant some container-grown coast live oaks in focal areas. Remove staking as soon as feasible to allow the trunks to develop stronger structures in the wind, as well as to assume more natural forms. Look around at some of the oaks clearly planted in past decades – though maturing nicely, their regular trunks and often age classes give them a plantation appearance that one may easily spot. Nature's way seems to offer greater aesthetic appeal. Aim for a look that future residents may never notice as the hand of humans. Seek to establish a diversity of age classes among the oaks.

- Plant suitable woodland understory species, according to the general plan, to serve as nurse crops for the young oaks and habitats for existing and desired wildlife species.

- Assuming that the reservoir is to be capped and retrofitted to allow other uses, design and construct a system of cells that will alternately hold wetland soils and plants, or circulating treated water suitable for public enjoyment. The design team should include expertise in engineering, restoration ecology and landscape architecture. Above the capped reservoir, where the depth and weight of water and soil must be limited, design and establish wetland cells that can be partially self-sustaining, provided an ongoing supply of water. Design and establish complementary cells that will allow visitors access to treated water near the wetlands.

- Include in the design areas of wetland removed and buffered from public interface to serve as optimal wildlife habitats. Provide opportunities for birdwatching and general enjoyment of views from key areas on the slopes, with trails established accordingly.

- Extend the drainage flanked by proposed California sycamores into a willow riparian woodland with muelfat scrub that con continue around the edge of the covered reservoir as drainage and visitor features permit.

Scrub Associations

Native scrub associations can provide valuable understory for reestablishing woodlands, but can also stand alone on the sunnier, drier southern and especially western exposures and ridgelines, and provide critical erosion control on slopes. Native scrub areas attract an assortment of native scrubland birds that may not currently reside in the park. Contrary to earlier notions of dependence on frequent fire, if they are buffered from urban fire threats (e.g., tossed cigarettes, etc.) these scrub associations can mature for many decades without needing to burn. In the urban context of the park, the most flammable species should be omitted (e.g., chamise – *Adenostoma fasciculatum*) but periodic thinning (perhaps done by community stewards) could easily stand in for fire and allow for the colorful array of native wildflowers associated with native coastal sage scrub to be displayed in the clearings.

Goal: Establish self-sustaining, drought-tolerant native scrub associations in suitable locations of the parklands matrix, to help stabilize slopes and support native scrub wildlife species.

- Hydroseeding, or other seeding methods, and incorporation of mycorrhizal inoculum are recommended to facilitate an efficient restoration process – giving the most "bang for the buck".

- Include a diversity of appropriate herbaceous species – wildflowers and native grasses – typical of natural coastal sage scrub and likely long lost to the parklands. These species will be important in fuel modification and other zones.

- Monitor the developing scrub on Bishop's Canyon Landfill, comparing what is there to what was originally planted to understand the true nature of the environmental conditions there. Apply adaptive management to shift the species composition toward native scrub associations as may be applicable.

Invasive Plant Management

Controlling and monitoring invasive pest plants will be an important part of the restoration process – for the sake of the parklands, the nearby Los Angeles River and the watershed as a whole.

- Maintain a collection of photos and/or color photocopies of pressed specimens of the major invasive pest plant species of concern in the park, to be available for use by park maintenance crews and community stewards.

- Document populations of invasive pest plants throughout the park on dedicated layers of the GIS. Update the maps regularly to track pest populations and provide insight for adaptive management.

- Develop a program for controlling invasive pest plants with priority on those species acknowledged as serious pests by CalIPC (formerly CalEPPC) http://www.cal-ipc.org/ or other noxious weed lists. Community stewards may provide the best control in outlying areas of the park.

- Eradicate apparently incipient stands of eupatory [*Ageratina adenophora* (*Eupatorium adenophorum*)] CalIPC List B, on rock faces along the north slope walnut woodland trail, before they spread any farther. This species poses a serious threat to the park and the Los Angeles River.

CONCEPTS FOR ENHANCING OTHER PARK VEGETATION FEATURES

Chavez Ravine Arboretum

The arboretum is a true historic resource that merits special attention to: 1.) protect the resource and ensure its sustainability through the next century, 2.) enhance visitor access, and 3.) refine the spatial attributes of the arboretum experience in concert with the significance of the resources there (i.e., sound design).

Recommended Actions:

- Commission an interdisciplinary design team including horticultural, landscape architectural and ecological perspectives to develop a retrofit master plan for the arboretum that will address the above concerns. Forestall further tree planting until the arboretum master plan is approved. As part of the master planning, negotiate an arrangement with the community stewardship and docent groups that will define community commitment to maintaining/supporting the additional garden plantings. Docents can seek community pledges of volunteer and financial contributions. Planning and design of additional plantings should be based on the specified level of community commitment.

- As feasible, given the constraints of existing tree placement, develop complementary plantings to represent ecological associates of each tree in its native environment.

    - Researching the ecological associations of a given tree would be a great class assignment for horticulture, landscape architecture or ecology students. If pertinent instructors were to assign this year after year, a good deal of information could be amassed. Such records should be stored electronically and/or physically in the space devoted for docents and community stewards.

    - As the community stewardship program develops, a special group should focus on supporting the arboretum, arranging training as necessary to learn how to maintain the plantings proposed to ecologically complement the historic trees. Again, referring to the example of the Friends of Guadalupe River Park and Gardens in San Jose, volunteers are trained in advanced gardening skills and then maintain the Heritage Rose Garden, Historic Orchard and other gardens of the park. These volunteers can then apply their skills to their own yards, as well as reaping the satisfaction of knowing they are sustaining a community resource. http://grpg.org/

The Allée of Wild Date Palms

The wild date palms are somewhat underappreciated, as most visitors do not recognize their significance. Their health is also potentially threatened by incompatible public use patterns. Furthermore, the trees could potentially be threatened by the Fusarium wilt of date palm (*Fusarium oxysporum* f. sp. *albedinis*) also known as “bayoud”, that has been killing Canary Island date palms throughout California (Allen 2005). Special attention is needed to ensure this historically significant landscape statement will be sustained for the trees’ anticipated life spans.

- Commission a certified arborist with experience in palm diseases and management to evaluate the health of the trees and measures needed to sustain them. Until this can be implemented the following interim precautions are imperative to ongoing maintenance operations:

    - Standard maintenance of palm trees includes pruning off the dead fronds. Because chain saws cannot be adequately disinfected they present the potential for transfer of Fusarium wilt to these valuable trees. Kenneth Allen, Consulting Arborist and Palm Specialist based in San Francisco, advises that while it may take crews some getting used to, hand tools are recommended for pruning susceptible date palm species. Allen recommends a sharpened spade blade or reciprocating saw.

These tools should be disinfected in 50% aqueous solutions of Chlorox, denatured (rubbing) alcohol, Pinesol, etc. (Allen 2005)

- Fusarium wilt can also be transmitted through mulch or soil, so any mulches applied must be scrutinized with respect to source and potential for disease transmission. Until a palm specialist has evaluated the situation, err on the side of caution.

- Potential: Sustain the health of the trees by installing suspended pavement over de- or noncompacted soil in areas where visitor trampling of root zones may occur. The certified arborist/ palm specialist must supervise the retrofit process. Note that suspended pavement over noncompacted soil was shown to provide far better tree health results than two structural soil types in a recent trial (Smiley et al. 2006). While the trees used in the trial were not palms, the results (including impressive oblique aerial photo) are cautionary in general that there's no substitute for healthy, noncompacted soil and that suspended pavement offers an alternative that can allow for healthy trees in urban environments.

- Define designated parking a safe distance from the trees' root zones.

- Design and implement interpretive features to highlight the significance of these trees and their history.

- As part of the suggested retrofit of root zone areas impacted by visitor trampling, consider a mosaic mural(s) that would tell the story of the trees in graphic form on the ground plane – never impinging on the vertical scale of the trees.

Future Public Art & Vegetation

Public art projects enhance the value of the park and the park provides numerous fabulous settings for showing off art. However, major vegetation associated with art pieces should conform to the environmental sustainability of their sites, as well as the evolving aesthetics of the parklands.

- Develop and implement a review process to ensure that vegetation proposed to accompany public art works is appropriate for and sustainable in its environment.

1970 Landslide

The status of revegetation on the 1970 landslide is outside the scope of this report, but is an issue that can best be approached from an ecological restoration perspective – using natural processes to most efficiently heal the scars while reclaiming natural resource values of those parklands.

- Commission a team including pertinent expertise in engineering and restoration ecology to evaluate the status of vegetation on the landslide, relative to the existing engineered treatment.

- Develop a program to enhance the existing vegetation for 1.) slope stabilization, 2.) aesthetics, and 3.) native plant and wildlife habitat functions.

REFERENCES

Personal Communications

Teresa Proscewicz, Principal Forester and Maintenance Supervisor for Griffith Region, Recreation and Parks Department, City of Los Angeles (213) 485-5520 www.lacity.org/RAP/dos/forest/urbanforest.htm

Literature, including principle sources used in compiling Plant Lists

Abrams, LeRoy. 1917. Flora of Los Angeles and Vicinity. Stanford University.

Allen, Kenneth. 2005. Presentation on Palm Diseases at Western Chapter International Society of Arborists Workshop on Pest Management, November 30, 2005, Milpitas, CA. Kenneth Allen, Consulting Arborist and Palm Specialist, San Francisco, CA 94133 415-440-5157 kallen@AllenArbor.com

Bakker, Elna. 1984. An Island Called California: An Ecological Introduction to its Natural Communities. 2nd Edition. University of California Press, Berkeley and Los Angeles. 484 pp.

Brown, Alan K., Editor and Translator. 2001. A Description of Distant Roads: Original Journals of the First Expedition into California, 1769-1770 by Juan Crespí. San Diego State University Press. 848 pp.

Haun, Larry. 1999. Birds and flowers of Elysian Park.

Hawaii-Pacific Weed Risk Assessment. (Regarding invasion potential for *Washingtonia filifera*) http://www.botany.hawaii.edu/faculty/daehler/WRA/full_table_f.asp

Hickman, James C., editor. 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley and Los Angeles.

Keeley, Jon E. 1990. Demographic structure of California black-walnut (Juglans californica) woodlands in southern California. *Madroño* 37:237-248. http://www.werc.usgs.gov/seki/jkproducts.asp

Lewis, Henry. 1993 (1973). Patterns of Indian burning in California: ecology and ethnohistory. Pages 55-116 in Before the Wilderness. Blackburn, Thomas C. and Kat Anderson, editors. Ballena Press, Menlo Park. 476 pp.

Liberty Hyde Bailey Hortorium. 1976. Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada. Initially compiled by Liberty Hyde Bailey and Ethel Zoe Bailey, revised and expanded by The Staff of the Liberty Hyde Bailey Hortorium, Cornell University. Macmillan Publishing Co., New York.

Lyle, John T. and Joan Safford. 1997. Oak revegetation strategy for Los Angeles County. Volume 1: General summary. California State Polytechnic University, Pomona Department of Landscape Architecture. Prepared for County of Los Angeles Fire Department, Forestry Division. Sponsor: Browning-Ferris Industries, Inc.

City of Los Angeles. Undated. Chavez Ravine Arboretum brochures.

City of Los Angeles. 1971. Elysian Park: A master plan of development. Cornell, Bridgers and Troller, Landscape Architects and Planners.

Proscewicz, Teresa. Undated. Elysian Park wildflower walks (brochure). City of Los Angeles Department of Parks and Recreation.

Radtke, Klaus. 1978. Wildland plantings & urban forestry: native and exotic 1911-1977. Los Angeles County Dept. Forestry and Fire Warden, Forestry Div. 135p.

Raven, Peter H., Henry J. Thompson and Barry A. Prigge. 1986. Flora of the Santa Monica Mountains. 2nd Edition. Southern California Botanists Special Publication No. 2. University of California, Los Angeles.

Raven, Peter H. and Daniel I. Axelrod. 1978. Origin and Relationships of the California Flora. University of California Press. Berkeley and Los Angeles. 134 pp.

Smiley, E. Thomas, Lisa Calfee, Bruce R. Fraedrich, and Emma Smiley. 2006. Comparison of structural and noncompacted soils for tree surrounded by pavement. Arboriculture and Urban Forestry 32 (4) July 2006: 164-169.

Sunset. 1965. The forgotten forest retreat right in central L.A. Sunset Magazine, Menlo Park.

T., Walter, San Diego. 2004. Web post regarding invasion potential for *Washingtonia filifera*: "The California Fan Palm is native to the desert canyons of the southernmost part of the state. Palm Springs, the famous desert resort town, derives it name from this tree. Said plant is very invasive here and the stems of the fronds are covered with very sharp, tough, shark-like teeth on both edges. See my image posted elsewhere of a "leaf" from one of many CFP plants that have invaded my garden from next door." Dec. 6, 2004. http://davesgarden.com/pf/go/51473/

University of California, Los Angeles. Undated web page. The Tongva. http://cogweb.ucla.edu/Chumash/Tongva.html

University of Southern California. Undated web page. El Pueblo de Los Angeles. http://www.usc.edu/isd/archives/la/historic/el_pueblo.html

ELYSIAN PARK NATURAL RESOURCES
APPENDICES

Appendix NR 1: Selected Photos

Appendix NR 2: Plant Lists

Appendix NR 3: The California Oak Foundation's
How to Collect, Store and Plant Acorns

Appendix NR 4: Excerpt: Pages 36-39 *In* Lyle and Stafford (1997)
Oak Revegetation Strategy for Los Angeles County
Vol. 1 • General Summary Contact Teresa Proscewicz (see references) for access to the entire document, or try the Cal Poly libraries