6.0 NATURAL RESOURCES MANAGEMENT

6.1 INTRODUCTION

This section provides a management framework for protecting, preserving and enhancing the natural resources – biological, cultural and visual – of the Project Area. This section summarizes existing practices that should be continued and presents comprehensive strategies for managing, protecting and enhancing the natural resource values over the long term. When taken together, Section 6.0 through Section 9.0 present strategies that will serve to balance public access demands with resource conservation needs for the next several decades.

All of the recommendations in Sections 6.0 through 9.0 are based on the availability of City resources such as personnel and funding. The RMP addresses lands currently owned by the City as Hillside Wilderness Preserve, the 40-acre Leonard property if purchased, the Lower Clamshell Motorway and Truck Trail, and the Hillside Recreation designated lands under the provisions of Measures A and B and those additional lands that may be purchased under these provisions in the future.

Where recommendations are pertinent to both the Hillside Wilderness Preserve and the Hillside Recreation Areas, no distinction has been made under the reference "Project Area." Where practices apply to one or the other of these areas, the distinctions are identified. In some cases, the recommendations apply only to a specific area (e.g., an access point) or specific habitat type (e.g., chaparral). In these cases those specific situations are also identified.

The recommendations in Sections 6.0 through 9.0 do not include specific management practices for private in-holdings, although they do take into account private residents' access requirements and identify habitat improvements that are appropriate for the private in-holdings as well as the private residences that border the southern perimeter of the Project Area.

6.2 BIOLOGICAL RESOURCES MANAGEMENT

The fundamental objective for the RMP is to identify the best way to manage, protect, and enhance the biological resource values of the Project Area. The primary resource management guidelines proposed by the RMP include the management of native habitat and sensitive species, habitat enhancement and restoration, exotic plant control, wildlife corridor maintenance and acquisition of additional land for wildlife corridor enhancement, managing the Wildland Urban Interface zones, biological research and monitoring within an adaptive management framework, and data keeping and database management.

6.2.1 Management Strategies to Protect and Maintain Existing Vegetation Communities of Special Interest

Communities of special interest listed by the California Department of Fish and Game (CDFG) in the California Natural Diversity Data Base (CNDDB) (2006) as occurring within the Project Area are southern coast live oak woodland, southern sycamore/alder riparian woodland, and Riversidian alluvial fan sage scrub. Communities of special interest that may potentially occur within or in the

vicinity of the Project Area are southern California arroyo chub/Santa Ana sucker stream, open Engelmann oak woodland, and canyon live oak ravine forest. This section describes management strategies and actions for protecting and maintaining populations of native plants and vegetation communities of special interest for the two management zones: Hillside Wilderness Preserve and the Hillside Recreation Area.

1. Protect and maintain existing populations of threatened or under-protected vegetation communities such as coastal sage scrub, oak woodlands, and riparian areas from human disturbance to allow these communities to thrive. Areas that should be targeted for protection include:
    - *Major Drainages and their Associated Hillsides* – These areas include Clamshell and Ruby Canyons.
    - *Lands Adjacent to Contiguous Wildlands* – These lands include areas adjacent to wildand areas associated with the Angeles National Forest and the Arcadia Wilderness Park.
    - *Southern Coast Live Oak Woodlands* – These woodlands of varying densities are typically located on the north-facing slopes where the densest stands of oaks form a closed canopy.
    - *Engelmann Oaks* – These species have been observed during multiple biological surveys near the Lower Clamshell Motorway along the north slopes of Lower Clamshell Canyon.
    - *Leather Oak, an Oak Species Endemic to the San Gabriel Mountain Foothills* – This species has been identified on slopes with mixed chaparral and oak woodlands in the Lower Clamshell Motorway and Ruby Canyon drainages.
    - *Sycamore/Alder Riparian Woodland Habitat* – This habitat type is found along Clamshell Creek, Ruby Creek, a downstream portion of Monrovia Creek, and a tributary to Santa Anita Creek.
    - *White Alder Riparian Forest* – This habitat occurs along the perennial streams within Monrovia Canyon, Sawpit Canyon, and their associated tributaries and canyons.
2. Coordinate with the California Department of Fish and Game to obtain authorization (e.g., Streambed Alteration Agreement) prior to commencing work where improvements are planned within Riparian Habitat and Oak Woodland Habitat (associated with a drainage course), as these habitat types are protected.
3. Preserve the large stands of existing scrub vegetation consisting primarily of low-growing, drought-tolerant native shrubland communities, including coastal sage scrub and alluvial fan scrub. Areas that contain these vegetation types are described below.
    - *Alluvial Fan Scrub* – Located in the Santa Anita Wash area on the extreme western periphery of the Project Area.
    - *Chaparral Vegetation* – Chaparral is found in large areas throughout the Project Area across all soil associations and all aspects generally on steep slopes.
4. Monitor/survey for sensitive species and maintain a centralized GIS database to document populations of locally uncommon, sensitive, federally-threatened or endangered species and other sensitive resources in the Project Area and their responses to management actions. A description of these species follows.

- The Rare[4] Plummer's mariposa lily *(Calochortus plummerae)* and federally-listed Endangered Braunton's milk-vetch *(Astragalus brauntonii)* – Observed in the vegetation sub-community Sage Scrub-Chaparral Ecotone above and west of Ruby Canyon and along the Lower Clamshell Motorway.
- Endangered slender-horned spineflower – Occurs in alluvial sand in coastal scrub, chaparral, and cismontane woodland and along well-drained slopes in chaparral. Although this species has not been observed during the biological surveys, there is potential for its occurrence within the Project Area.
- Moreover, as focused botanical surveys have not been completed for the majority of the Project Area, the presence of several species that have a moderate to high potential of occurring within the project boundaries cannot be definitively ruled out.

5. Continue to maintain public safety as the highest priority and give discretion to the Fire Chief in taking whatever action is necessary to provide for public safety. With that in mind, the City will implement, whenever practical, practices recommended by the California Department of Fish and Game for protection and recovery of *Astragalus brauntonii* (Braunton's milk-vetch) (C.F. Raysbrook, Regional Manager, South Coast Region, September 30, 2004) as follows:

   Short-term Management Strategies:

   - Limit the grading of the roadbed to the existing width, which will remove vegetation in a swath wide enough to safely allow automobiles to egress in an emergency (The Fire Chief can require that a wider access road be cleared for emergency apparatus access and fuel reduction strategies).
   - Use hand crews for:
     - Clearing the Lower Clamshell Motorway road edges in the vicinity of existing Braunton's milk-vetch plants with the goal of retaining as many Braunton's mik-vetch as feasible in groups/patches scattered along the road edges.
     - Collecting seed material for propagation of individual plants in the fall.
     - Creating localized openings in nearby areas on terrain and soils that appear suitable for growth of Braunton's milk-vetch, and removing weeds and/or trimming selected non-sensitive shrubs to create some localized areas with more suitable growing conditions for the plants. Native material that is removed to create openings can be relocated to a nearby area of the roadway for chipping.

   Long-term Management Strategies:

   - Monitor to observe whether milk-vetch plants are stimulated to germinate naturally following vegetation clearing and light ground disturbance from foot traffic. If milk-vetch plants do not appear on their own following treatments, inoculate the treatment sites with seed collected from the Lower Clamshell Motorway.
   - Minimize introduction of weeds from the Lower Clamshell Motorway into the treatment sites (e.g., *Bituminaria bituminosa*, bush pea) by exploring: 1) options for removal of this species

[4] Although this species does not have an official federal or State listing, it is designated as rare throughout its range in the California Native Plant Society (CNPS) inventory of rare and endangered plants (2006).

along the roadsides west of the milk-vetch area; and 2) methods to minimize introduction of seed from this weed further into the wilderness area.

6.2.2 Habitat Enhancement and Restoration

Invasive plants are a threat to open space because they colonize disturbed areas and degrade existing native habitat. These plants include exotic weed species and ornamental plants planted in the former agricultural use areas, within urban edges located along the southern boundary, and on the in-holding properties. Invasive plants are generally more aggressive than most native plants, will out-compete the natives, and can prevent certain native species from germinating. Once these non-native invasive plants become established, they are very difficult to eradicate.

Restoration practices in these disturbed areas will require intensive manipulation and management to rid these sites of introduced exotic plants and reestablish a native plant community. Restoration efforts should focus on those areas that have been modified by humans for agricultural/nursery purposes, but are no longer maintained or used in that capacity. Additionally, monitoring should occur along boundaries adjacent to development where landscaping and agricultural ornamentals are present to ensure that these species do not escape from and spread into surrounding native habitat. Prior to restoration, each site should be evaluated for its development potential (e.g., staging areas, picnic areas, etc.) as it is generally best to locate new improvements in already disturbed areas rather than encroaching further into pristine areas of the Project Area.

Figure 8 shows the distribution of exotic species problem areas within the Project Area. More information is included in Section 3.3 within Appendix C. A description of disturbed areas that have been colonized by invasive exotics and ornamental plants within the Project Area and management strategies for controlling these plant species and restoring disturbed areas follows. Figure 15 shows existing and future restoration and enhancement priority areas.

1. Develop a revegetation and monitoring program to reestablish California coastal sage scrub at the old borrow area located in a saddle on the ridgeline to the west of the Cloverleaf Tank Reservoir in the western portion of the Project Area.
2. Develop a long-term invasive species management plan for areas of the Project Area that have been previously disturbed and currently exhibit a significant population of invasive exotic weed species and/or and ornamental trees. These areas include:
    - Wilderness Fire Station – Former Agricultural Area (San Lorenzo Nursery).
    - Bowden Parcel – Former Agricultural Area (former house site with ornamental trees and shrubs).
    - Parts of the Monrovia Canyon within Canyon Park and portions of the Lower Clamshell Motorway containing eupatory (*Ageratina adenophora*) and bush pea *(Bituminaria bituminosa)*.
    - Some of the areas bordering residential developments and the privately held parcels along the Lower Clamshell Motorway.
    - Areas that have been cleared for fuel modification or graded including roads and trails.
    - Developed areas within Canyon Park and the Trask Boy Scouts Camp.

- Annual grassland in disturbed areas, including areas graded for trails and firebreaks and the area in the vicinity of the Cloverleaf Tank Reservoir.
- Invasive exotic weed species that should be controlled include: annual and perennial nonnative grasses, bush pea *(Bituminaria bituminosa)*, Spanish broom (*Spartium junceum*), eupatory (*Ageratina adenophora*), Castor bean (*Ricinus communis*), tree tobacco (*Nicotiana glauca*), and periwinkle (*Vinca major).*
- Ornamental trees that should be addressed in the long-term invasive management plan include: macadamia *(Macadamia integrifolia)*, avocado (*Persea americana*), lemon (*Citrus limon*), pomegranate (*Punica granatum*), passion fruit vine (*Passiflora edulis*), edible fig, bougainvillea (*Bougainvillea* sp.), Brazilian pepper (*Schinus terebinthifolius*), oleander (*Nerium oleander*), Peruvian pepper (*Schinus molle*), queen palm (*Syagrus romanzoffiana*), Mexican fan palm (*Washingtonia robusta*), and bottle tree (*Brachychiton populneus*).

3. A variety of tools and techniques can be used to control non-native (exotic) species that are creating a threat to a significant natural resource or inhibiting or causing a hazard to visitors. General guidelines for controlling invasive exotic weed species and ornamental trees include: 1) removal by hand pulling or pruning with weed whips, 2) adding organic mulch, 3) biological controls (e.g., "beneficial insects" and/or fungi), 4) herbicide applications and the biological controls, and 5) prescribed burns. In the case of biological controls, expert entymologists or mycologists should be consulted prior to implementation of such measures.
   - Herbicide applications and biological controls should only be used as approved by the City. Prescribed burns must be coordinated with the City Fire Department, Los Angeles and U.S. Forest Service Fire Service Department and the California Department of Forestry.
   - Habitat restoration and enhancement must be site specific, with prescriptions developed based on the site's conditions. The feasibility of restoration/enhancement and the type of habitat most appropriate to be restored on a given site are determined by a number of factors. These include physical characteristics, such as soil type, soil compaction, hydrology, topography, aspect and insolation. Biotic characteristics include current vegetation types (e.g., extent of weed growth), previous use of soil sterilants, and proximity of native communities. Other key factors include access for equipment used in restoration (e.g., hydroseeding equipment) and suitability of terrain for restoration (e.g., ability to use equipment and erosion potential).
4. Conduct educational forums oriented to adjacent landowners of private in-holdings and residents along the southern boundary. The focus of this outreach program should be on creating appropriate buffer zones to minimize spread of ornamental plants into native habitat where native plant communities interface with ornamental landscaping.
5. Develop educational brochures focused on backyard garden design guidelines, development of fuel modification landscape plans, and promotion of revegetation of denuded areas with low fire hazard plants that are compatible with native species found in the Project Area.
6. Bi-annually update Figure 15 – Restoration and Enhancement Priorities, to show existing and future restoration and enhancement priority areas. Use the map to evaluate effectiveness and progress of enhancement and restoration activities and seek to identify new enhancement and restoration opportunities and priorities within the Project Area.
7. Every five years at a minimum (with exotic species of greatest threat surveyed annually) update Figure 8 – Distribution of Exotic Species. Use this GIS map database to document dates,

locations, and types of exotic control methods (e.g., mechanical or hand removal, herbicide applications, and/or prescribed burns) and their effectiveness.

8. Develop a seed collection program for some of the sensitive species located within the Project Area to ensure that the genetic diversity of the on-site populations is not lost as a result of fire, habitat degradation, or other catastrophic events.
    - Collect seed in conjunction with other management measures to maintain or improve habitat quality and in a manner that does not impact existing populations. Seed should be collected from a percentage of all populations on the property in order to preserve the full genetic spectrum. A take authorization will be necessary for the collection of seed from any listed species if such species are found within the Project Area in the future.
    - Store collected seed in a recognized seed collection facility. Seed from distinct populations should be stored separately. Seed should be available for post-burn seeding, enhancement, or reintroduction efforts, as determined necessary. Seed should be used for restoration within three years of collection.
    - Collect seed from within the Project Area for restoration efforts, wherever feasible. All shrub species and herbaceous species used in the restoration efforts will offset impacts from the exotic species present within the Project Area. With proper planning efforts, seed collection should be initiated 1–2 years in advance of the restoration to allow for the collection of seed from species that flower at different times throughout the year.

6.2.3 Wildlife Habitat and Corridor Maintenance

The biological assessment identified five primary natural wildlife habitat types: scrub, chaparral, grassland, riparian, and southern coast live oak woodland. Riparian areas and adjacent habitats often serve as corridors for the local and regional movement of wildlife species, particularly large mammals. The contiguous nature of the Monrovia foothills and the adjacent Angeles National Forest allows access to the area for large mammals such as mountain lions and black bears, particularly in the slopes and canyons of Canyon Park. Preservation of the San Gabriel foothills as they extend into the Angeles National Forest through the passage of Measures A and B and the subsequent sale of private lands by willing sellers have created significant unimpeded wildlife corridors. Without this commitment by the community, development could have resulted in isolated islands of habitat that would inhibit the movement of wildlife and plant seeds and increase the risk for local extirpation. Management Strategies to ensure habitat connectivity and minimize fragmentation are described below.

1. Work with willing adjacent property owners to develop a more comprehensive approach to wildlife management. This approach would occur on a cooperative basis with those landowners interested in maintaining and improving the wildlife habitat on their property. In general, the improvements should focus on increasing the amount of native habitat, while adhering to fire safety management objectives (e.g., maintaining defensible space from wildfire around all structures).
2. Work with adjacent jurisdictions and private landowners to minimize habitat fragmentation for off-site areas that may serve as connection routes for large mammals between the Project Area and other open space. These areas include the Angeles National Forest owned and managed by the U.S. Forest Service to the north, wildlands within the City of Arcadia to the west, the City of Duarte to the east and Los Angeles County to the east.

3. Acquire properties that are contiguous to the Project Area from willing sellers. The City should coordinate and partner with other public land and natural resource management agencies, land conservancies, and other organizations in property acquisitions and in planning regional open space and resource (habitat, wildlife corridors) preservation needs.
4. Consider wildlife corridors within the Project Area and between open space lands when developing trail plans and habitat management plans (Since 1911 Monrovia Canyon Park Creek has been a prime corridor in which animals and man have co-existed). Maximizing connectivity between open spaces will ensure that animal movement constraints are minimized, thus creating a more natural environment for highly mobile species. Figure 10 displays natural wildlife corridor and man-made corridor areas that should be targeted for maintaining connectivity for wildlife.

6.2.4 Managing Wildland Urban Interface Zones

The ecology of the wildland urban interface, comprised largely of highly flammable chaparral shrublands, is not simply a combination of urban ecosystems and wildland ecosystems. This interface area has ecological functions and processes uniquely its own. Therefore, vegetation treatments and habitat restoration strategies within the buffer lands along the southern boundary will need to focus research efforts on integration of vegetation management with human activity and disturbances.

Common maintenance and management concerns voiced by residents living within or in proximity to the boundary include issues such as: the potential for trespassing onto private property, constraints regarding access and parking adjacent to their homes and evacuation during emergencies, loss of privacy for adjoining uses, overgrown weeds, litter, vandalism, and increased fire risk.

In addition to dealing with the concerns of adjacent landowners, residential areas in proximity to the Project Area also have the potential to cause negative effects. Some of these effects include the introduction of light, air, or water pollution; domestic/feral pets that could roam and compete with native animals for food, prey upon the native animals themselves, or introduce disease to native populations; introduction or spread of exotic plants and/or pests; fire; physical encroachments; dumping; abandoned vehicles and junk; and creation of illegal entry points.

Some of the wildland interface conflicts are more easily controlled than others. Suggested management strategies to minimize urban edge effects are described below.

Management Strategies to minimize urban edge effects:

1. Educate the public who live adjacent to the Project Area about behaviors that may deter animals from using the habitat along the edge of the Project Area (e.g., light pollution, exotic pests, feral pets, exotic plants, diseases, fire, and pollution), which in turn can reduce the overall usable acreage of the Project Area for wildlife.
2. Educate the public on the following Wildlife Response Policy that was developed and practiced by the Monrovia Police Department. The Monrovia Police Department "Wildlife Response Policy" was developed to establish guidelines in dealing with the Police Department's response to wildlife incidents and assists police supervisors and field officers in identifying resources that may be called upon in a wildlife incident.
3. Monitor the direct and indirect effects of adjacent land uses on habitats using the City's GIS system. Investigate the causes and develop a remedial action to remedy human-induced effects on native habitat values.

4. Prohibit the installation of new fencing with sharp edges as required by Monrovia Municipal Code Section 17.12.040(B)(1) (see below) and considered a program to require phasing out existing spiked or sharp fencing/gates adjacent to the Project Area to prevent harm to wildlife.

   Monrovia Municipal Code Section 17.12.040(B)(1)(f) reads as follows:

   (f) Wrought iron fences without points, spikes or sharp edges on the end of any vertical bar shall be permitted a maximum height of eight feet, and spacing between vertical bars shall not exceed six inches along the rear and side property lines enclosing the backyard area behind a house on hillside lots that back up to unimproved wilderness area. POINTS, SPIKES AND SHARP EDGES shall mean any end of a vertical bar that is capable of causing, or is likely to cause injury to persons, pets, or undomesticated animals.

5. Monitor ongoing use and maintenance of trails and staging areas to ensure that management strategies do not create negative impacts on target species or sensitive habitat. Carefully consider what is necessary to keep these areas safe for intended recreational uses recognizing that all vegetation management actions have the potential to change habitat conditions. Removal of a perceived weed or overgrowth of native vegetation may result in a different weed problem, even within one growing season. In short, vegetation management may affect plant and animal habitats, in some cases improving them, and in others having unintended, undesirable consequences.

6. Conduct a pre-maintenance biotic survey prior to initiating weed abatement, pruning and other maintenance activities to determine if there are any federal or state listed endangered or threatened animal or plant species or any other sensitive habitat (e.g., plants identified on California Native Plant Society lists) in the proposed work area that are protected under various laws. If any sensitive wildlife species are found during the pre-maintenance survey and the maintenance work would have the potential to harass nesting animals, revise the timing for the proposed maintenance work in this area to avoid the nesting period. If an occupied bird nest is identified in vegetation that must be trimmed or removed (including poison oak), defer maintenance in the area until the nestlings have fledged.

Management strategies to minimize urban edge effects on the private lands within and adjacent to the Project Area:

1. Monitor ongoing use and maintenance of recreation activities and trails to ensure that management strategies do not create negative impacts on adjacent residents. The Traffic Safety Committee shall monitor ongoing parking issues at access points.

2. Provide a forum for landowners and visitors to address management and maintenance concerns to the City through the Community Services Commission.

3. Provide education to landowners about the appropriate actions to take and the department to contact if emergency situations arise.

4. Work with willing adjacent property owners to develop a fencing plan that delineates clear boundaries between the public trail and private property.

5. Educate property owners of in-holdings on proper disposal of brush and storage for inoperable vehicles. Enforce the Monrovia Municipal Code, if necessary.

6.2.5 Biological Monitoring and Adaptive Management

One of the challenges of natural resource management is that there is a practical need to manage vital resources while the scientific information base is still evolving. Moreover, natural vegetation is not static. The vegetation communities in the Project Area can change and shift from one type to another over time based on the prevailing physical, biological, and human-caused conditions or influences. Adaptive management offers a path through these dilemmas. Adaptive management is a systematic process that allows for continually improving management policies and practices throughout the life of the Resource Management Plan as an understanding of San Gabriel Mountains system as a whole evolves.

Adaptive management can be broadly defined as a method for examining alternative strategies for meeting measurable biological goals and objectives, and then if necessary, adjusting future management actions according to what is learned through active participation and learning, evolving experimentation, review and response. This process: 1) minimizes the uncertainty where there are gaps in the available scientific information regarding biological requirements; 2) reflects new information as it is learned; 3) ensures that the recommended management strategies are being appropriately implemented; and 4) that the goals and objectives for the Project Area are being met.

For an adaptive management process to be an effective approach there needs to be a system for collecting and analyzing data. The results of implementing the RMP need to be monitored against the agreed environmental values of: 1) environmental and viewshed preservation, 2) outdoor and nature education, 3) fire safety, and 4) public access management.

Essential, integrated components to achieve desired outcomes and/or to address changed or unforeseen circumstances arising from the implementation of the Resource Management Plan then become:

- Ongoing Monitoring
- Reviewing and Analyzing Results
- Identifying possible modifications that could be made to maximize benefits
- Continuing research

To extend this evolving base of knowledge, the City should coordinate and share restoration and management program monitoring and research results with neighboring entities (e.g., the U.S. National Forest Service, City of Arcadia) with jurisdiction over wildland areas. This strategy will help to develop collaborative and efficient natural resource management partnerships on a regional scale as is necessary to truly benefit the San Gabriel Mountains ecology and wildlife habitat.

Monitoring and targeted studies for the Project Area should be designed to assist management decision-making. Under this model, management would move forward in a scientifically-based way that involves monitoring, conducting targeted studies, and applying management activities as experimental treatments. The City should coordinate with the biological departments at local colleges and universities to conduct studies and experimental treatments. The results would feed back into decision-making, thus reducing uncertainty and improving the effectiveness of the program through time. Management strategies for monitoring habitat quality are described below.

Management strategies to monitor habitat quality within the Project Area:

1. Establish photo points documenting key vantage points within the Project Area. Take annual photographs at these locations on the same date and time. Spring would allow for easier identification of the habitats and species. Compare photographs taken over time to determine whether additional management actions are necessary to maintain habitat quality.
2. Conduct focused surveys once every five years to verify and further develop the list of wildlife species identified in this Resource Management Plan (Appendix E). Maintain the information in a GIS database that is updated after each monitoring cycle to evaluate the quality of habitats and monitor long-term presence of species in the Project Area. Wildlife movement studies also should be conducted every 5 years to confirm the movement of animals across or through the Project Area. Close monitoring of the results of these investigations will allow staff to redirect or focus additional studies or actions to address specific conservation or restoration needs as they are identified. Flexibility and responsiveness to changing situations will be critical to the success of this effort. Proactive monitoring and management programs conducted within the Project Area will play a vital role in the conservation of natural resources within the region.
3. Once every ten years, revise the habitat map using the habitat classification system provided in this Resource Management Plan. This update would include new acquisitions, habitat restoration projects, and mapping post-fire vegetation. Use this map to track changes in habitat distribution, with a particular emphasis on detecting displacement of native vegetation types. If such losses and/or significant native habitat type conversion occur, investigate the causes and develop a remedial action to remedy human-induced effects on native habitat values. Continue to allow natural succession to occur.
4. Inventory sensitive species on a regular basis to keep track of the current status of the species within the Project Area. Populations of sensitive plant species should be inventoried every year in the spring to identify the status, health, threats, problems, and the trend of the populations. Every 5 years, suitable habitat in other areas of the Project Area should be surveyed during the spring for the presence of sensitive plant species. Survey frequency should be determined by management need. A list of sensitive species observed within the Project Area can be found in Appendix F.
5. Document the location and dates of wildfire occurrences. Investigate the causes and develop a remedial action plan to remedy human-induced effects on native habitat values and potential adverse water quality impacts on drainages and creeks. Continue to allow natural succession to occur.
6. Periodically reassess the presence of nonnative and other pest animal species to determine their effect on the Project Area. The City should document and track the occurrences of European starlings, brown-headed cowbirds, and Argentine ants during general wildlife surveys. As new invasive animal species are observed or reported, the City will determine the number, along with impacts to the Project Area.
7. Perform pilot restoration experiments utilizing different techniques to determine the most cost-effective methods for the habitats of the Project Area. Site-specific restoration plans will be developed on an as-needed basis.

6.2.6 Biological Resource Data Keeping

The City's Geographic Information System (GIS) provides an effective format for collecting and analyzing data gathered as part of the adaptive management process using Figure 7 – Vegetation

Communities as the baseline for measuring future changes resulting from the implementation of the Resource Management Plan. As this map was formulated in a GIS format, this base map can also accommodate Global Positioning System (GPS) as a source of data input for mapping resource changes throughout the life of the Plan.

The existence of both GIS information and a resource database allows for the linkage of a multitude of data regarding the Project Area's resources. For example, geographical locations can be linked with specific project information including reports and other site documentation, site and/or collection photographs, and the scientific status of the resource. Creating these data resources with this level of technology will aid in resource identification, investigation, evaluation, determination, and interpretation, as well as the documentation of these resources for future generations.

Maps created using GIS programs will allow for the presentation of either the base maps and/or the resource maps in both small and large scale formats. On a smaller scale, these data can be used to monitor areas where sensitive cultural resources may occur. Larger formats will aid in presentations to the public. Recommended management strategies pertaining to biological resource data keeping are described below.

1. Regularly update the GIS database by expanding the layers associated with special status plants and animals and invasive exotic plant infestations. Incorporate new observations from Project Area's personnel and/or volunteers and from such sources as the CNDDB, the USFWS, Audubon Society bird counts, and studies conducted under CEQA/NEPA documentation for projects near the Project Area. Standard protocols would help to facilitate ongoing observations and monitoring using GPS. The use of a data dictionary to store images and other data should be incorporated into the GIS database.
2. Facilitate long-term habitat restoration and management efforts in the Project Area, particularly with regard to special status biota and invasive exotic species by maintaining current data in the GIS system for each layer. Include the following key attributes in the GIS database for each community:

Vegetation Attributes	Wildlife Attributes
Dominant overstory plant species	Common animal species
Dominant understory plant species	Observed special status animal species
Dominant ground cover	Observed exotic species
Common plant species	Introduced animal species
Observed special status plant species	Observed roosting, nesting, and
Potential special status plant species	burrowing sites
Invasive exotic plant species	Other notable species
Typical overstory density	Special habitat features
Typical understory density	
Typical ground cover density	

6.3 CULTURAL RESOURCES MANAGEMENT

The overall goal of the cultural component of the Resource Management Plan is to identify the best way to manage, protect and enhance the Project Area's cultural resources while providing a safe recreational environment, as well as educational opportunities for the public. Cultural resource sites are susceptible to impacts from a number of vectors including: unintentional impacts through a

permitted activity, vandalism, theft through illegal collecting, erosion, fire impacts, pedestrian impacts, compaction of sediments, and invasive plants. Recommended management actions for cultural and paleontological resources within the Project Area are described below.

6.3.1 Management Strategies for Identifying Cultural Resources

1. Contract with a qualified archaeologist to conduct a systematic reconnaissance survey throughout the entire Project Area. Survey work should be completed to a level that will satisfy the requirements of Section 106 of the National Historic Preservation Act and the California Environmental Quality Act (CEQA). In order to help staff this endeavor, volunteer groups could be utilized to assist in the survey of the Project Area, possibly using students from local archaeological field schools, members of local professional societies, or interested Native American groups. When sites and/or isolates are located during survey, they should be recorded on California DPR 523 series forms and these records deposited at the South Central Coastal Information Center. Locational data should be recorded using a handheld GPS unit, so that the data can be imported into existing resource management databases. Site updates, including photos and maps, should be completed for previously documented sites that are reevaluated. Site updates can augment or correct information that is known about a specific resource by corroborating that the existing record remains accurate. Previously recorded information that appears to be erroneous should be noted, especially when changes occur to the resource or its immediate setting. A resource should have a completely new DPR 523 form filled out only when extensive changes are visible to the resource. For resource protection, confidentiality should be maintained for all records of cultural site locations. Surface collection is recommended for any materials encountered if the site appears to be threatened by natural or human factors.
2. Coordinate with the Native American Heritage Commission (NAHC) for Sacred Lands File search for the lands within the Project Area in order to identify Traditional Cultural Areas. These areas include ceremonial and/or procurement sites. Native American groups should be involved along with Project Area management personnel in checking sacred sites and/or natural resources procurement areas if they are found to exist within the Project Area. Further discussion of this involvement can be found below in discussing stewardship programs for the Project Area.
3. Immediately notify the County Coroner if human remains are encountered in the Project Area during survey activities. State Health and Safety Code Section 7050.5 states that the County Coroner should make a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the City of Monrovia or their authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

6.3.2 Management Strategies for Recording Cultural Sites and Artifacts

1. A site inventory checklist should be created from the record search for the Project Area. This information should serve as an instrument for inventorying all of the known archaeological sites in the Project Area. A major feature of the checklist should be a section that details the existing threats to the cultural resources. Threats to resources vary from natural processes of weathering,

fire, and erosion, to unauthorized trails running close to or through site locations, to vandalism and theft of cultural resources. Once this checklist is drafted and subsequently approved, archaeologists, Project Area staff, and stewards will have a greater ability to systematically inventory and document cultural resources. Thus, the site inventory checklist can be used as a resource management tool.

2. Implement an emergency response plan for sites that have been exposed by erosion. When cultural resources, including artifacts or features, are encountered, either during a planned patrol or in another unexpected manner, a qualified archaeologist should be consulted. The archaeologist will both recommend and, with City approval, implement mitigation measures that are appropriate for the impacts to the sites (Section 110 of the National Historic Preservation Act [NHPA]).
3. Establish a cultural resource records management system that incorporates previously recorded sites within the Project Area, in addition to the discovered resources of the future. The first step should be the creation of a relational database system in Microsoft Access for site inventory information, including photographs and location maps. Once in place for the existing resources, this database can be continually updated to include new information about the resources, as well as to document newly discovered cultural resources.

6.3.3 Management Strategies for Managing Cultural Collections

1. Establish formal management for the care of existing collections within the Project Area. Collections that are given to the City by private collectors, as well as discovered collections, should be included in the discussion of the existing Project Area resources. The proper curation of artifacts will aid in future scientific study of any given collection, in addition to cutting down on storage bulk. Standards for proper collection, preparation, curation and long-term management are provided in 36 CFR 79 and these policies should be used as a guide for working with the collections.
2. Place the current cultural resource collection from the Project Area, as well as donated and discovered resources in a suitable repository within Los Angeles County. Canyon Park Nature Center should play a central role as a custodian in the work pertaining to the area's collections and records. The center currently displays artifacts and photos from the Deer Park Lodge Site (CA-LAN-2035H) and would be a logical repository that could not only maintain the collection for future scientific study, but could also continue to exhibit cultural resources to the public.
3. Enlist a qualified archaeologist to prepare a Research Design Program that identifies research strategies to be implemented by subsequent research within the Project Area. Topics of the Research Design should include the appropriate research to be conducted on sites that are known to occur within the Project Area, but which were not addressed as part of the mitigation program. These sites should include those which are not anticipated to undergo either a direct or indirect impact. The Research Design shall also address what additional research may be appropriate for sites that have been preserved and/or tested as a result of the mitigation program. As field work proceeds in the Project Area, this Research Design Program should be periodically updated.

6.3.4 Restoration and Construction Monitoring

The area has a variety of recorded cultural resources within the Project Area, all with different levels of impacts associated with proposed usage. The potential effects on archaeological resources that

would occur as the result of the construction of a trail may differ from those caused by the maintenance of facilities such as biological restoration activities, weed removal and fire management practices. Artifacts that are unearthed during this construction should be collected with provenience information, when available. Archaeological monitors should have the authority to divert construction if cultural features are encountered during construction until the discovery can be assessed by a qualified archaeologist. Implementation of the management strategies to protect cultural resources during restoration and construction activities, as cited below, will successfully avoid and/or reduce impacts to cultural resources to a level below significance.

1. When site-specific plans are created that detail future improvements, compare these plans with the resource constraints map to identify cultural resource sites that are known to be significant in the area.
2. Consult with a qualified archaeologist to both recommend and implement mitigation measures that are appropriate for the impacts if a known significant site will undergo direct impacts. Preference shall be given to avoidance of impacts through project design to eliminate site disruption. Impact avoidance may be paired with other measures to protect the resource, such as capping, fencing, or planting native vegetation that would be difficult to penetrate.
3. Enlist a qualified archaeologist to provide a Cultural Resources Survey of the specific area within the Project Area prior to activities that may impact sites, both known or unknown for exposed artifacts and/or features. The surveys should be completed with both their findings and recommendations incorporated into the mitigation program prior to any grading or development in these areas and may include test level excavations prior to any grading or development in the vicinity of the site to determine whether their would be direct impacts from the proposed activities and to provide recommendations for further action based on the findings of test level excavations. Recommendations may include:
   - Adjustments to site specific development plans to avoid disturbance of the site
   - Preservation of the site through capping, fencing, or planting of impenetrable vegetation
   - Complete excavation
   - No further action required.

   When a project will indirectly impact sites where the significance of a resource is unknown, the site should undergo test excavation followed by recommendations for further action.
4. Enlist a trained archaeologist to monitor any project that involves earth disturbing activities in culturally rich soils, including, but not limited to, biological enhancement programs, fire prevention activities, or general construction activities. Artifacts that are unearthed during construction should be collected with provenience information, when available. Archaeological monitors should have the authority to divert construction if cultural features are encountered during construction until the discovery can be assessed by a qualified archaeologist.
5. Implement an emergency response plan for sites that have been exposed by erosion. When cultural resources including artifacts or features are encountered, either during a planned patrol or by another unexpected manner, consult a qualified archaeologist to establish appropriate mitigation measures for the impacts to the sites. Immediately notify the County Coroner if human remains are encountered in the Project Area during earth disturbing activities in culturally rich soils, including, but not limited to, biological enhancement programs, fire prevention activities, or general construction activities.

6. As the Natural History Museum of Los Angeles County LACM has indicated that deep excavations into the Quaternary Alluvium always has the possibility of uncovering significant vertebrate, a qualified paleontologist should be on-site to monitor excavations so that any specimens can be quickly and professionally collect without impeding development. Any fossils recovered should be deposited into an accredited and scientific institution for the benefit of current and future generations.

6.3.5 Paleontological Resource Strategies

1. Prior to any significant ground-disturbing activities within sensitive sediments within the Project Area, conduct a paleontological assessment survey under the direction of a qualified paleontologist to identify both the rock types present in the area and the potential for significant fossil resources to be discovered (PRC Section 5097.5).
2. If significant fossils are identified, they should be scientifically salvaged prior to initiation of construction activities. A qualified paleontologist should develop a Paleontological Resources Impact Mitigation Program (PRIMP) consistent with guidelines developed by the SVP (1995) to direct resource monitoring of excavations in order to collect and properly curate any fossils that may be discovered during the ground-disturbing activities.
3. When fossil localities are identified, they should be recorded on fossil locality sheets that will document important information about the find such as a temporary field number, tentative identification of the find(s), description of the sediments, formation name, location of the find within the Project Area, elevation, and GPS locational information. Every effort should be made to preserve the site in situ for future generations. Collection is recommended for any materials encountered if the fossil appears to be threatened by natural or human factors. Copies of the locality forms should be forwarded to the LACM.
4. Implement an emergency response plan for sites that have been exposed by erosion or planned Project Area maintenance. When paleontological resources are encountered, a qualified paleontologist should be consulted. The paleontologist will recommend mitigation measures that are appropriate for the impacts to the locality.

6.4 VIEWSHED AND AESTHETIC PROTECTION

Preservation of the scenic and aesthetic values represented by the Project Area is one of the key expectations of the community as set forth in the Mission, Core Values, and Goals. Identifying key resources and employing sensitive and appropriate design and maintenance strategies will help to ensure their protection and preservation. The following guidelines will ensure the protection of scenic and aesthetic resources:

1. Consider scale and design of new improvements. Locate site structures (e.g., restrooms and interpretive kiosks) to be sensitive to scenic views from and into the Project Area.
2. Protect and enhance views and distinctive landscape features that contribute to the setting, character, and visitor experience of the Project Area.
3. Require camouflage or stealth treatment to disguise utilities (e.g. towers and tanks) that would be highly visible from the Project Area or from downtown, roads, historic sites.
4. Develop a GIS database of key visual components in the Project Area.

5. Establish maintenance procedures for clearing and brushing that protect and enhance significant views and distinctive landscape features that contribute to the setting, character, and visitor experience of the Project Area.
6. Identify scenic vista point locations (trail routes or overlooks) that will provide opportunities to appreciate the regional context (e.g., Los Angles Basin, San Gabriel Mountains), the immediate landscape (e.g., chaparral, oak woodland) or the influence of historic development (e.g., Deer Park Cabin Resort).
7. Maintain existing trails and develop new trail alignments to take advantage of natural and scenic features.
8. Expand recreation and interpretive opportunities associated with the visual and scenic resources of the Project Area. Opportunities include view-oriented day-use facilities and interpretive programming in key locations.
9. Protect views from within the Project Area to outlying properties. Evaluate proposed projects on adjacent properties with a priority to retain the visual quality of the undeveloped landscape.
10. Orient scenic vista points to minimize views toward those elements that detract from the quality of views and the scenic character of the Project Area, including visual intrusion from adjacent development as well as utilities within the Project Area (e.g., water tanks, power lines).
11. Use native plantings to visually buffer developed areas, enhance visual quality, and integrate with the surrounding native landscape.