4.0 KEY ISSUES AND MANAGEMENT ZONES

4.1 KEY ISSUES AND POTENTIAL IMPACTS TO NATIVE HABITAT

Key management challenges stem from the Project Area's proximity to residential development, while certain issues, such as invasive plant infestations, stem from historical land uses and are exacerbated by current environmental conditions. In identifying key resource management issues, Table D identifies the most significant issues for management within the Project Area and lists the potential impacts these issues could have on native habitat and sensitive species. Habitat fragmentation, invasive plant species, the urban edge effect, public use, and erosion constitute these main issues and are discussed in more detail below. The RMP is designed to address these issues and minimize the impacts while upholding the City's Mission, Core Values, and Goals. Detailed management guidelines to address these issues are provided in Sections 6.0 through 9.0.

Table D: Analysis of Main Issues and Potential Impacts

Issues	Potential impacts
Habitat Fragmentation	
Biocorridors become increasingly important for plants and wildlife as human development encroaches upon natural areas or isolates them from other protected areas, yet even the biocorridors within the Project Area are threatened by human development.	• Movement of wildlife and genetic material is hindered, resulting in the extirpation or isolation of species • Habitat fragmentation contributes to the "urban edge effect"
Invasive Plant Species	
Invasive plant species are outcompeting native species in areas of the Project Area.	• Invasive plant species degrade existing native habitat and reduce the biodiversity • Invasive plant species compete with native plants for resources and habitat and prevent seedling establishment • Invasive plant species may displace native wildlife
Urban Edge Effect	
The Project Area is bordered by urban development along its southern boundary. Several private parcels are located within the Hillside Wilderness Preserve west of Canyon Boulevard, including three landlocked parcels with residential dwellings and a few undeveloped properties. Fuel modification required within these areas can further increase the effects to natural resources.	• Introduced exotic plant and animal species degrade the natural environment by outcompeting or preying on native species • The proximity to urban areas can prevent native wildlife from using adjacent habitat and can put them at risk for predation by feral or domesticated animals when they do move out into this region • Contributes to an increase in frequency and severity of wildfires • Fragmentation caused by unauthorized trails adjacent to residential areas • Anticoagulants, which are used to kill rodents, have rippling, harmful effects on all levels of carnivores

Issues	Potential impacts
	in the ecosystem • Ambient lighting and noise can disturb wildlife and ecosystem functioning • Artificial water sources and public feeding of wildlife can disrupt natural cycles • Unauthorized collecting and harassing of wildlife at the Wildland Urban Interface (WUI) • Unsecured backyards can act as artificial food sources for wildlife • Existing fencing with spikes creates hazard for animals, particularly deer • Use of pesticides and herbicides can pollute runoff water and adjacent native plants and degrade the environment • Dumping of brush and plant materials in the hillsides by private in-holdings on Lower Clamshell Motorway creates fire hazard and environmental degradation • Inoperable vehicles and storage by private in-holdings is readily visible from Lower Clamshell Motorway • Dogs and other domestic animals running freely along the Lower Clamshell Motorway can create predation on wild animals and disrupt hikers and bicyclists
Public Use	
Public access and recreational use of the Project Area, particularly the Hillside Wilderness Preserve has the potential for impacts on resources and neighboring communities.	• Overuse and inappropriate uses of trails—both authorized and unauthorized—contribute to erosion, alteration of natural drainage patterns, introduction of exotic vegetation, littering, vandalism, degradation of native vegetation, and increased human-wildlife interactions • Degraded trails create difficult or unsafe trail conditions for visitors • Expanding and eroding trails may contribute to habitat fragmentation. • Traffic and a demand for public parking cause more congestion on neighboring residential streets.
Erosion	
Poorly designed roads, trails, and slopes without vegetation are the most susceptible to erosion in the Project Area.	• Increases sedimentation in streams and watercourses • Degrades water quality (increased turbidity) • Reduces habitat value in riparian and wetland ecosystems due to siltation • May create hazardous trail conditions from rills and gullies for hikers, bikers, and equestrians; stimulates

Issues	Potential impacts
	creation of alternate unauthorized trails and widening of existing travelways • Reduces soil productivity and water-holding capacity • Alters natural drainage patterns • Increases velocity and amount of storm water runoff • Scarred/barren areas reduce aesthetic values • Results in habitat loss

4.1.1 Habitat Fragmentation

Habitat fragmentation may occur on either a local or regional level. Local fragmentation of habitat can be caused by activities within the area that damage the functionality of the habitat. Examples of these are trails, roads, erosion, invasion by exotic weeds, and development. Regional fragmentation results from isolating large tracts of open space from other large tracts of undeveloped land. If corridors are not kept between these lands, they become isolated, and the movement/dispersal of wildlife and genetic material (seed, spores, pollen, offspring etc.) of plants and animals is diminished. This in time will reduce the viability and health of the smaller patches of isolated habitat, eventually resulting in the loss of certain species or even entire habitats.

The Monrovia foothills provide contiguous open habitat with the expansive Angeles National Forest lands, permitting the movement of large mammals such as the black bear and mountain lion into and out of the area. Within the Project Area, unimpeded corridors existing along the major drainages and foothill faces are of tremendous significance in the densely urbanized Los Angeles Basin where open space is very limited. The preservation of these areas will maintain the connectivity of the area comprising the San Gabriel foothills as they extend into the Angeles National Forest, where development would have resulted in isolated islands of habitat that would inhibit the movement of wildlife and plant seeds and increase the risk for local extirpation. Currently, wildlife movement is restricted by residential development along the southern boundary of the Project Area and by residential in-holdings within the Hillside Wilderness Preserve.

4.1.2 Invasive Plant Species

Invasive plants are a threat to open space because they colonize disturbed areas and degrade existing native habitat. The invasive plants "alter ecosystem functions such as nutrient cycles, hydrology, and wildfire frequency, outcompete and exclude native plants and animals, harbor dangerous animal invaders, and hybridize with native species" (Bossard et al. 2000).

Invasive and exotic species in the Project Area are almost exclusively located adjacent to developed areas such as residential landscaping, former agriculture and nursery sites, firebreaks, or roads and trails. In some of these areas the weeds have caused significant damage and are not allowing the disturbed areas to recover and fill in with native vegetation. The management of the invasive plants will be an important component of the continued health and vitality of the Project Area.

4.1.3 Urban Edge Effect

Urban areas in proximity to the Project Area may cause negative effects. Some of these effects are light and noise pollution, exotic pests, domestic/feral pets, exotic plants, diseases, fire, and pollution. These effects can deter animals from using the habitat along the edge of the Project Area, which in turn reduces the overall usable acreage of the Project Area. Interactions may occur along the urban edge from animals in the Project Area venturing into the urban area to roam and forage.

The Project Area has urban development along its southern boundary and private residential in-holdings within its boundary. One of the obvious effects of the urban edge is the fuel modification required along these areas (Figure 12). Fuel modification impacts the native habitat and reduces the overall acreage of the Project Area. Additionally, brush and other organic material are dumped over the hillside along the Clamshell Motorway and inoperable vehicles and other private property are stored along the Clamshell Motorway.

The ornamental plants in the urban areas may move into the Project Area and if not monitored can become established. Domestic/feral pets enter the Project Area to roam and forage for food. These animals may compete with native animals for food or prey on the native animals themselves and may also introduce disease to native populations. The best way to reduce these and other urban edge effects is to educate the public who live along the edge and in in-holdings concerning the importance of the Project Area and ways they can reduce impacts to it.

4.1.4 Public Use

Human use has the potential to cause extensive degradation of the natural and cultural resource values of open space areas. Overuse and inappropriate uses of the trail network within the Project Area can have negative environmental effects through alteration of natural drainage patterns, erosion and deposition of soil, introduction of exotic vegetation, degradation of native vegetation and habitat for special-status species, and increasing human-wildlife interactions. Degraded trails also diminish the quality of the visitor experience by creating difficult or unsafe trail conditions, promoting trail use conflicts, and impacting the scenic quality of the landscape. In addition, off-trail use by people and pets tramples native vegetation, degrades habitat, disturbs wildlife, and promotes invasive exotic species growth. Factors that are considered in the provision of a public access system within the Project Area include: adjacent neighborhood and private in-holding impacts, security and circulation requirements, protection of natural and cultural resources within public access corridors, utility access requirements, and fire hazard conditions and operational plans.

4.1.5 Erosion

Erosion, the process by which soil particles are displaced and transported by wind or water, occurs naturally from weather or runoff. Human land use practices such as unrestricted construction, agriculture, improper/excessive irrigation, removal of vegetation or mulch, paving, or heavy repeated trampling can cause accelerated erosion beyond natural levels. Erosion reduces soil quality and water-holding capacity by removing the nutrient-rich upper layers of the soil. Erosion can result in increased sedimentation in wetlands, streams (including riparian habitats), and watercourses; degradation of water quality; and reduction of water storage capacity. Erosion often results in the actual loss of native habitat. The extent of erosion depends on a combination of factors, including the amount and intensity of rainfall, soil type, slope length and steepness, and ground cover (vegetation, litter/mulch, rocks).

Soil erodibility is a function of texture, organic matter content, structure, and permeability. In general, areas with erosive soils on long steep slopes with little or no cover will be most susceptible to erosion.

The steep slopes, intermittent streams, and rapid rate of geologic degradation found in the San Gabriel Mountains combine to produce large amounts of debris. The debris carried down from the mountains erodes waterways, accumulates and blocks the channels and storm drains, and causes flooding. Water moving into blocked channels has the potential to seek other courses, leading to more erosion and possible slope wasting. Due to high erosion rates, flood hazards and potential mudflow problems, the City of Monrovia and the Los Angeles County Flood Control District (LACFCD) have determined that the area has a "drainage deficiency" (potential to experience flooding during a storm event). The Project Area is subject to potential flood, mud, and erosion hazards, which could pose a threat to the health and safety of the public.

4.1.6 Existing Fuels and Fire Hazard Conditions

The Mediterranean climate of the San Gabriel Mountains region—which is characterized by wet, mild winters and dry, hot summers—is conducive to producing an abundance of fire fuel because of the long growing season. However, just as the vegetation in the Project Area is adapted to long periods without rain, there are certain plant communities such as chaparral that have fire-based regeneration requirements. Fire suppression, heavy rains, and seasonal or prolonged drought can all yield excessive fuel (e.g., plant material) accumulation. Excessive fuel loads have the potential to result in wildfires that pose a threat to surrounding homes and communities and even the native vegetation itself. Major wildfires can adversely impact native habitat in several ways. A very hot fire, due to high fuel loads, can sometimes completely destroy plants that would otherwise recover from lighter burn damage. The increased potential for postfire erosion and subsequent invasion of exotic plant species can also have detrimental effects on natural communities. Finally, firefighting activities, such as creating fuel breaks with bulldozers, can permanently damage natural vegetation. In summary, while native plant communities are well-adapted to natural fires, the human perturbations of the natural cycles adversely affect these communities.

4.2 BIOLOGICAL CONSTRAINTS AND MANAGEMENT ZONES

The Project Area is an ecologically-significant area that supports a wide diversity of species and native vegetation communities. A biological constraints map (Figure 13) was created to provide an overview of the relative value and importance of the biological resources within the Project Area. The constraints map is intended to guide the City in land use planning (such as public use) and prioritize resource management activities. The biological constraints identified in Figure 13 show sensitive habitats, including those areas where Braunton's milk-vetch and Plummer's mariposa lily are known to occur.

The Project Area is comprised of two zoning designations: Hillside Wilderness Preserve and Hillside Recreation Area. The entire Clamshell Motorway and the Leonard property are also included in the Project Area and should be considered as Hillside Wilderness Preserve. Each zone has a range of existing and potential resource values, and fire safety, utility and private access requirements. The Hillside Recreation zone also includes a number of education and recreation uses and facilities, which require a specific management approach. Figure 14 shows the primary management zones with an overlay of the biological constraints identified in Figure 13 in order to spatially define the general management scheme for the Project Area. Management zones allow for describing management goals by area or showing relationships between areas in terms of land use and management strategies. Zones may be based on geographic relationships; resource values; ecological parameters; management issues, goals, or objectives; types and intensities of land use; or visitor use and experiences.

The general definition and overall recommended management strategies for each land use designation are presented below.

4.2.1 Hillside Wilderness Preserve

The Hillside Wilderness Preserve management zone protects open space land left in its natural state including the preservation of endangered habitat. This land should be retained as undeveloped open space, including preservation of endangered habitats and species, wildlife habitats, and wildlife corridors; open space for passive recreation uses such as hiking and nature studies; and utility easements and reservoirs. Protection of resource values should take precedence over recreational opportunities in this management zone. Land use and management recommendations focus on resource protection, restoration, habitat restoration, and utility and fire management operations, while taking into account opportunities to incorporate passive recreation and education. A description of the general management characteristics and strategies for this management zone are included below.

Resource Protection Management Strategies. For the most part, these management strategies will be applied to those areas that already provide high quality resources. These resources will be protected and enhanced through selective improvements. Public access will be restricted.

Restoration Management Strategies. These management efforts will be focused on restoring former agricultural/nursery sites and/or developed areas that now contain a variety of ornamental landscaping and/or exotic, invasive non-native weed species. The emphasis will be on implementation measures that will benefit biological and cultural resources. Public use will be limited to existing trails where travelways exist (e.g., utility roads, Lower Clamshell Motorway). Many of the areas along existing travelways, areas adjacent to residential areas, and historical agricultural areas will require long-term restoration management.

Passive Recreation Management Strategies. Recommendations for developing and maintaining trails will be identified to accommodate passive recreation and outdoor education/ interpretation needs along with complimentary recreation and education programs (e.g., guided nature walks), while protection and enhancement of sensitive biological and cultural and resources will continue to be emphasized. Use of existing trails and roadways will be emphasized such as the Lower Clamshell Motorway, Lower Clamshell Truck Trail and Highland Place for hiking and bicycling. Where trails are proposed (e.g., trail connection between Canyon Park and the Lower Clamshell Motorway near Ridgeside Drive), biological and cultural considerations will take precedence; already disturbed areas may be preferred locations for future trails and other amenities over disturbance of new areas.

Utility and Fire Management Strategies. The operational and maintenance requirements of these maintenance and safety functions take priority where there are utility (e.g., water tanks) and fire management facilities (e.g., Wilderness Fire Station) though biological and cultural resource protection/restoration requirements of regulatory agencies (e.g., California Department of Fish and Game, USFWS) will be followed.

4.2.2 Hillside Recreation

The *Hillside Recreation* management zone is designated for public wilderness parks and private recreational camp facilities. Passive recreation use is the primary focus in this management zone. Recreational uses such as hiking and bicycling on trails, picnicking, and environmental education associated with outdoor recreation are permitted. Within the Project Area, Monrovia Canyon Park, and Trask Boy Scouts Camp are currently within this management zone.[3] These areas include developed facilities, such as parking areas, restrooms, picnic areas, nature centers, and other use areas and facilities required to accommodate public passive recreation use of the *Hillside Recreation* area. Although resource protection and enhancement are also management objectives in these areas (refer to *Resource Protection and Restoration Management Strategies* above), they are not the primary objective. Providing the public with opportunities to interact with the natural environment and have a safe and enjoyable recreation experience are the primary management objectives. Public education through habitat restoration educational programs would be appropriate in this zone.

[3] Although Arcadia Wilderness Park is located within the Monrovia City limits and within the area designated as Hillside Recreation, it is not included within the Project Area and is therefore not discussed in this RMP.