

erosion control, debris removal, weed and pest control, irrigation scheduling and cessation, and protective fencing.

- Specify performance standards by which the restoration will be judged. These are usually developed from a combination of existing reference site data and prior measurements in other restoration endeavors. Design monitoring of restoration sites to supply data to evaluate these standards. Develop remedial measures in advance of project implementation should performance standards not be met.

B. Recreation and Public Access

Management Issues

Public access is appropriate in selected areas of the preserve to allow entry to recreational areas and promote understanding and appreciation of the natural resources. Excessive or uncontrolled access, however, can result in habitat degradation through trampling and erosion (e.g., along trails) and disruption of breeding and other critical wildlife functions at certain times of the year.

Passive recreational activities (e.g., hiking, bird watching) are anticipated within the preserve and are generally compatible with HMP conservation goals. In general, passive activities pose a significant threat to biological resources only when the level of recreational use becomes too intense. Active recreational activities such as picnicking, and mountain biking may also occur in or adjacent to the preserve, if restricted to selected areas, as determined by the Management Plan in consultation with the Wildlife Agencies. These activities are conditionally compatible with biological objectives.

Most active recreational uses require some additional level of development, such as access roads, parking lots, service facilities, maintenance buildings, and landscaping. Construction of these facilities can cause habitat fragmentation and can result in increased traffic, auto emissions, and petrochemical runoff; pesticide and fertilizer runoff; use of invasive nonnative plants in landscaping; use of outdoor lighting; and changes in local drainage patterns. These activities may have adverse impacts to air and water quality as well as wildlife use of the area and should not be sited within the preserve boundaries.

Adverse impacts of off-road vehicle use include reductions in air quality due to automotive exhaust and creation of dust, soil erosion and sedimentation into local waters, noise, and habitat degradation. Disturbance from off-road vehicles can also disrupt breeding activities. For these reasons, off-road vehicle use is not compatible in the preserve.

Management Recommendations

Although the primary purpose of conserved lands is protection of plant and wildlife species, some types of recreational uses can be appropriate within the preserve system. Recreational uses of the preserve, where allowed, must be consistent with the protection and enhancement of biological resources. Existing recreational facilities should be managed to promote the maintenance of habitat value surrounding these facilities. New recreational facilities or uses will be considered based on the following guidelines:

- 1) Follow Guidelines for Future Recreational Expansion
 - Recognize that conservation is the first priority for the preserve system; new recreational uses can be allowed only where compatible with the conservation objectives.
 - Determine appropriate levels of activity within the preserve, depending on the resources to be protected, season, and successional stage.
 - Avoid construction or excessive recreational activities on highly erosive soils or implement appropriate erosion control measures.
 - Ensure proper drainage of roads and parking areas to prevent erosion.
 - Use native species for landscaping at the edges of the preserve, and avoid the use of nonnative invasive plant species.
 - Locate roads, trails, and other recreational use areas away from sensitive or high value biological areas.
 - Require dust, erosion, and noise controls on new recreational construction.
 - Require lighting use restrictions consistent with existing city lighting guidelines within 200 feet of the preserve. Direct lighting in adjacent areas away from the preserve.

- 2) Develop a Recreation Plan or Review Existing Plans for Compliance
 - Identify opportunities and constraints to future recreational use development and for monitoring existing recreational activities that are consistent with biological goals.
 - Concentrate facilities in disturbed areas or lower quality habitats away from sensitive plant populations or sensitive breeding areas.
 - Develop design standards for new trail construction that address the avoidance of sensitive species, unique habitats, erosion control, and developed access to major features.
 - Establish a volunteer program to patrol the trails and monitor use of the preserve.
 - Emphasize the use of "fire-safe" native plants in landscaping along preserve edges. Prohibit the use of invasive exotics, and adopt an exotic plant control plan.
 - Require any recreational construction projects to control dust, noise, and erosion, and to adhere to seasonal and time-of-day restrictions.

- 3) Specific Recreational Activities
 - Passive Uses

- ◇ Limit or restrict passive uses in critical wildlife areas during the breeding season, as determined appropriate.
 - ◇ Minimize adverse effects of passive recreation, such as trampling vegetation and erosion.
 - ◇ Provide litter control measures, such as closed garbage cans and recycling bins, at access points for the preserve.
 - Day Use
 - ◇ Site picnic areas or other day use facilities at the edges of the preserve lands or in buffer zones.
 - ◇ Collect garbage frequently and instruct day users not to feed wildlife.
 - Mountain Biking
 - ◇ Limit mountain bike trails to areas not highly susceptible to erosion and out of wetlands and other sensitive areas.
 - ◇ Construct trails wider than foot trails (minimum 6 feet) to prevent trail edge disturbance and on grades no greater than 25 percent.
 - ◇ Rotate bike use by closing trails periodically to prevent trail degradation if a problem develops.
 - ◇ Construct barriers to restrict access to sensitive areas.
- 4) Public Access
- Ensure that public access of the preserve is consistent with the protection and enhancement of biological resources. Monitor existing access areas to ensure that they do not degrade or inhibit biological values, and prioritize future access areas for protection of biological resources.
 - ◇ Seasonally restrict access to certain trails if deemed necessary to prevent disturbance of breeding activities.
 - ◇ Close unnecessary trails to minimize biological impacts. Abandon and revegetate steep eroding trails.
 - ◇ Locate new trails away from sensitive resources or restrict their use.
 - ◇ Construct trails to any prominent features or viewpoints that are likely to attract hikers, thereby preventing extensive trampling and compaction.
 - ◇ Install waterbreaks on steep trails to prevent accelerated runoff and erosion.

- ◇ Establish patrols to identify trail maintenance needs, garbage, vandalism, and habitat degradation.

C. Hydrology and Flood Control

Management Issues

Native habitats have evolved based, in part, on the distribution and flow characteristics of water. Key water-related issues potentially affecting the preserve include the magnitude, quality, and duration of flows; episodic disturbances; and sediment transport.

The seasonal and annual variations in the flows of many streams and coastal lagoons have changed over the years as a result of flow regulation, discharge of treated effluents, groundwater pumping, channelization, agricultural and urban runoff, and reservoir construction. Urban runoff and treated effluent discharges can contribute toxic substances to surface waters, and channelization can alter sediment transport regimes which can change certain habitat characteristics and quality.

Episodic disturbance associated with floods, extensive wildfires, or large landslides are characteristic of channels and riparian corridors in coastal watersheds. These events periodically establish new bed conditions and patterns of habitat along drainages. The frequencies and magnitudes of disturbance will often determine the composition and structure of habitats along drainages, and disturbance is integral for maintenance of high wildlife quality in many habitats.

Sediment transport in drainages can be altered by factors such as mineral extraction operations, upland land uses, control structures, channelization, and habitat alteration.

Management Recommendations

- 1) Magnitude, Quality, and Duration of Flows
 - Maintain existing natural drainages and watersheds and restore or minimize changes to natural hydrological processes.
 - Evaluate proposed structures and activities for effects on hydraulics, and implement remedial actions as needed.
 - Use Best Management Practices both within and outside the preserve system to maintain water quality.
- 2) Episodic Disturbances
 - Design construction within and adjacent to preserve areas to accommodate large floods and debris flows.
 - Design detention basins with earthen berms to allow growth of natural vegetation.