

NATURAL
RESOURCES
IN THE
PUENTE HILLS-
CHINO HILLS
CORRIDOR

*Implications for Land Use
and Planning*

*A Symposium
at Whittier College
March 18 and 19, 1994*

Abstracts of Presented Papers

U.S. ARMY CORPS OF ENGINEERS IN PUENTE HILLS/CHINO HILLS REGION

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Several branches of the LAD Corps of Engineers (COE) exercise ownership and/or management functions in this corridor area. The Operations Branch maintains Brea, Carbon Canyon, and Prado dams and dam basins which provide flood control, outdoor recreation, and habitat and water conservation; these basins also serve as riparian corridors along watercourses. The COE works cooperatively with U.S. Fish & Wildlife Service and CA Dept. of Fish & Game to preserve sensitive, listed, and non-game wildlife and their critical habitat, where possible and as required by Federal law such as the Clean Water Act, National Environmental Policy Act, and Endangered Species Act. Also, the LAD Regulatory Branch processes permits for construction projects which could impact wetlands resources or waters of the U.S. in this area.

HOME RANGES AND DIETS OF SELECTED RAPTORS OF THE SAN JOSE HILLS.

C. Brady, Department of Biological Sciences, California State Polytechnic University, Pomona. Pomona, CA 91768.

The Cal Poly campus, located in the San Jose Hills, hosts a wide variety of resident and migrant raptors. Residents include Golden Eagle (*Aquila chrysaetos*), Red-tailed Hawk (*Buteo jamaicensis*), Red-shouldered Hawk (*B. lineatus*), American Kestrel (*F. sparverius*), Cooper's Hawk (*A. cooperii*), and Black-shouldered (White-tailed) Kite (*Elanus caeruleus*). Migrants include Prairie Falcon (*Falco mexicanus*), Merlin (*Falco columbianus*), Sharp-shinned Hawk (*Accipiter striatus*), Ferruginous Hawk (*Buteo regalis*), and Northern Harrier (*Circus cyaneus*). These raptors utilize Coastal Sage Scrub, California Walnut Woodland, and Oak Woodland as well as agricultural and developed portions of the campus. Home ranges and diets of the Red-shouldered Hawks, Red-tailed Hawks, Cooper's Hawks, American Kestrels, and Black-shouldered Kites will be discussed.

POST-FIRE RECOVERY OF COASTAL SAGE SCRUB IN THE SAN JOSE HILLS: A PRELIMINARY ASSESSMENT

Curtis Clark, Biological Sciences, California State Polytechnic University, Pomona CA 91768.

In fall, 1987, and again in late winter, 1988, vegetation was sampled at 65 stations along seven transects in the portion of the San Jose Hills located on the campus of California State Polytechnic University, Pomona. At each station, the Braun-Blanquet cover class was estimated for each species in a circle of 15 m diameter. The data were initially gathered to provide an assessment of the vegetation for studies of small mammals, birds, and herpetofauna. On July 28, 1989, the entire area burned, along with much of the rest of the east side of the San Jose Hills. Sampling resumed after the fire, and continues to the present. An analysis of a selection of sampling stations shows that species diversity reached or exceeded pre-fire levels within a year after the fire, but that relative species abundances still differ. In the first two years after the fire, vegetation in many areas was dominated by annuals and geophytes. Shrub cover increased in subsequent years. *Lotus scoparius* and *Malacothamnus fasciculatus*, both uncommon before the fire, now form dense stands in some areas.

PUENTE HILLS WASTE MANAGEMENT FACILITIES NATIVE HABITAT PROGRAMS

T. Dodge, and S. Maguin, Solid Waste Management Department, Sanitation Districts of Los Angeles County

A presentation will be given on the status of the four native habitat projects which resulted from the permitting the Puente Hills Waste Management Facilities in 1993. The first is the preservation of over 225 acres of existing coast live oak woodland and coastal sage scrub communities in the southernmost canyons of the PHWMF project site. The second project results from the oak tree replacement required as a part of the project and ongoing consultations with the County Forester. The program will preserve genetic diversity by utilizing acorns from the coast live oak onsite to grow and plant approximately 1700 trees within the project boundaries. In order to further develop a restoration program for the PHWMF site, the Sanitation Districts will be implementing a native oak woodland understory revegetation program on 8.5 acres already containing numerous coast live oak trees planted in 1985/1986. The third native habitat project results from an agreement with the California Department of Fish and Game for the replacement of 0.85 acres of riparian area through the enhancement and/or creation of at least 4.0 acres of native riparian habitat onsite. The fourth program is the establishment of the Puente Hills Landfill Native Habitat Enhancement Joint Powers Authority consisting of the Sanitation District, the County of Los Angeles and the City of Whittier with the participation of a representative of the Hacienda Heights Improvement Association. The JPA is established for the purpose of acquiring, restoring and/or maintaining additional open space in the La Puente/Whittier Hills areas. The JPA is funded by an annual payment by the Sanitation Districts of one dollar per ton of refuse disposed of at the Puente Hills Landfill during its operation under the 1993 land use permit. The site could provide funding of up to \$3.7 million per year over the ten year permit.

POSTER: POTENTIAL WILDLIFE MOVEMENT ROUTES IN LA HABRA HEIGHTS

John R. Easton and Michael Pantoja, Tierra Madre Consultants, Inc., 1159 Iowa Ave., Suite E, Riverside, CA 92507.

The proposed Powder Canyon Country Club site is within a narrow portion of the Puente Hills-Chino Hills corridor. The site may function as a wildlife movement route between open space areas to the east and west. We will present maps and exhibits depicting developed areas, potential wildlife routes, existing conflicts with those routes, and proposed land uses on the Powder Canyon Country Club site.

BEYOND THE PROJECT BOUNDARIES-RECOMMENDATIONS FOR ADEQUATE DISCLOSURE OF POTENTIAL ECOSYSTEM-LEVEL IMPACTS

Paul M. Edelman, Santa Monica Mountains Conservancy, 3700 Solstice Canyon Road, Malibu, CA 90265.

Short of either land acquisition or the local adoption, and enforcement, of comprehensive ecological protection plans, ordinances, and zoning, ecosystem preservation must be achieved through the environmental review process. However, in all but a few cases, current environmental review processes fail to adequately address or provide for ecosystem sustainability. While analyses become increasingly sophisticated in regards to specific natural resources within subject property boundaries, the disclosure and discussion of potential ecosystem-level impacts lags seriously behind. In turn, decisionmakers face the adoption of mitigated negative declarations, and more importantly, statements of overriding considerations, based on nebulous discussions of "ongoing incremental loss of wildlife habitat in Southern California." To partially address this problem, an immediately implementable list of easily obtainable information is recommended to be included in all relevant environmental documents. This simple, but critical, information base is designed to show geographical, topographical, ecological and cultural relationships between a subject property and surrounding natural and cultural conditions.

MAMMALS AND MAMMAL POPULATIONS IN THE WHITTIER HILLS

G. Foley. Friends of the Whittier Hills.

A look at the mammals that live in and pass through the Whittier Hills section of the Puente Hills, using data from individual surveys done from 1971 through 1993. Studies have included trapping and identification of rodents and documented sightings, track and signs of the larger mammals. A discussion of habitat needs and preferences of individual species is included, as well as perceived changes in particular populations of animals. The need for further study of mammal populations in these "Islands of Wildlife" and the effects of human activity, including increasingly constricted migration corridors for local mammals, is included.

THE HERPETOFAUNA OF THE PUENTE HILLS

D.J. Fretz Department of Biology, Rio Hondo College, 3600 Workman Mill Road, Whittier, California 90608

A description of the status of the herpetofauna of the Puente Hills based on pertinent records and observations made by the author and a variety of public and private sources. General comments on distribution, ecology, and species richness in reference to vegetational associations and disturbance history are included. Species richness of the herpetofauna is, as would be expected, typically greater in areas dominated by native vegetational communities, and lower in areas disturbed by grazing, grading, and other human activities. In general, while population numbers of most species are undoubtedly low in comparison to historical abundances, the species richness of the Puente Hills herpetofauna is strong in comparison to the recorded herpetofauna of the Los Angeles County coastal plain and foothill region. Recovery of native habitat should produce increases in species abundance, distribution, and richness.

HERPETOFAUNA OF THE WHITTIER HILLS

Stephen R. Goldberg, Department of Biology, Whittier College, Whittier, CA 90608.

The Whittier Hills has a depauperate herptile fauna dominated by one species, the western fence lizard. Common snakes include the Southern Pacific rattlesnake, gopher snake and California striped racer. There are currently two amphibian species (slender salamander and Pacific chorus frog) which are seasonally common in moist relictual pockets. Urbanization of the San Gabriel Valley has isolated the Whittier Hills and eliminated a dispersal route from the nearby San Gabriel Mountains which has a much richer herptile fauna. Home construction, cattle grazing, fires, soil erosion and increased recreation have contributed to habitat destruction and the demise of amphibians and reptiles in the Whittier Hills.

STUDY ON THE REPRODUCTIVE ECOLOGY OF THE SOUTHWESTERN POND TURTLE, *Clemmys marmorata pallida*, IN THE CHINO HILLS STATE PARK

Robert Goodman, Department of Biology, California State Polytechnic University, Pomona, CA 91768.

The number of reproductively viable populations of the southwestern pond turtle, *Clemmys marmorata pallida*, in southern California is in rapid decline. With perhaps only six known viable populations remaining in southern California, this species of native turtle was petitioned for a federal endangered listing. Though the listing was turned down, further research on this species is a high priority. By

having the opportunity to study the pond turtle in the Chino Hills State Park, a better understanding of some critical aspects on the life history of this native turtle can be achieved. In the park, gravid female pond turtles have been tagged and monitored using radio-telemetry to acquire detailed activity data. Over the last two years, preliminary data have been collected on population dynamics, activity patterns, clutch size, nesting sites, and predation. This information can be used to develop management procedures for the preservation of the this species and the habitat on which it depends.

LANDSLIDE AND MUDFLOW POTENTIAL IN THE PUENTE HILLS

J.W. Holliday, El Camino College, Torrance, CA 90506

The Puente Hills are susceptible to the California landslides and mudflows that are famous throughout the world. Numerous factors that lead to mass wasting in Southern California exist in the Puente Hills, including steep terrain, earthquakes, dry climate, and periodic flash floods. The soft Miocene sedimentary rock beds are particularly dangerous because they dip downhill in most areas of the Puente Hills. Contributing to the geologic instability of the area are man-made activities such as road building, cut and fill grading practices, and diverting rain runoff. Urban development also increases the most important factor in mass wasting, the water content in the ground, due to landscape irrigation, pipe leaks, and concentrated rain runoff.

HELLMAN PARK:WHITTIER WILDERNESS AREA

H.Ibrahim, Department of Physical Education and Recreation, Whittier College, Whittier, CA 90608.

Attempts to utilize the hills north of the city began in the early 1960's. The owners of a hilly parcel north of Uptown, insisted on retaining the southerly section for future housing development. The city paid \$300,000 for 50% interest in 200 acres and the owners donated the other 50% to the city. The original concept of an elaborate park gave way to the idea of a wilderness area with controlled trails that take the hiker from canyon bottoms to top ridges.

DIVERSITY AND DISTRIBUTION OF BIRDS IN THE PUENTE HILLS

S. Ingersoll, B. Heimbecher, and F. Owens, Whittier Hills Ecological Survey.

An ongoing study, which began in February 1992, is being conducted to determine the diversity and distribution of bird species found in the Puente Hills. Diversity was much greater than expected: 100 species, including residents, migrants and visitors, have been recorded in six transect areas. The distribution of both resident and non-resident species is mainly dependent upon habitat type and degree of disturbance. The greatest abundance of species has been observed in areas of relatively undisturbed oak woodland and riparian habitat. The identification of bird species and their habitat utilization can be used to determine proper management policies for the remaining open space in the Puente Hills.

SIGNIFICANT ECOLOGICAL AREAS IN THE PUENTE HILLS-CHINO HILLS CORRIDOR

Betsey Landis, California Native Plant Society, 3908 Mandeville Canyon, Los Angeles, CA 90049.

Following a brief definition of Significant Ecological Areas (SEAs), the SEAs in the Puente Hills-Chino Hills corridor are identified and described. A comparison is made of the original 1976 condition of these SEAs and their present status as natural resources. Problems and possible solutions are discussed relating to preserving and assessing the remaining ecosystems, not only from the standpoint of plant communities, but as wildlife linkages between the Santa Ana Mountains, the San Gabriel River channel and the San Gabriel Mountains.

AVIAN RESOURCES AND LAND USE IN THE WHITTIER NARROWS BASIN AND SAN GABRIEL RIVER RIPARIAN AREA

Michael C. Long, Los Angeles County Natural Areas, 1750 N. Altadena Dr., Pasadena, CA 91107

The 1100 acre Whittier Narrows Recreation Area and adjacent San Gabriel River supports a remarkable diversity of bird species. Particularly important to birds is the presence of year round surface water in the form of ponds, lakes and streams and the associated riparian vegetation. A total of 278 bird species have been recorded in the area through December 1993. Analysis of over thirty years of records resulted in the recent publication of the first comprehensive, annotated work on bird species occurrence and seasonal use of the area. Early development of the wildlife lakes area is briefly presented and current land use conflicts and management difficulties are detailed. Movements of selected bird species north and south along the San Gabriel River and east and west through the Whittier Hills/Montebello Hills corridors are discussed. Recent changes in the status of several species, such as establishment of heron rookeries and increase in great-tailed grackles, and the use of the area by Rare, Endangered and other listed species are detailed.

A CULTURAL RESOURCES OVERVIEW OF THE PUENTE HILLS-CHINO HILLS CORRIDOR

J. McKenna, McKenna et al., Whittier, CA 90601.

The Puente Hills-Chino Hills Corridor is one of the few areas in Southern California which still has the potential to provide us with cultural resource information on the prehistoric and historic occupants and respective land uses. Modern development and land alterations have destroyed many of the natural habitats which attracted Native population to these areas and which, in turn, provided the historic settlers with ample lands for settlement and exploitation. McKenna et al. summarizes the current level of information on the prehistoric Tongva/Gabrieleno and the historic Spanish/Mexican/American Periods in the southern boundary of the San Gabriel Valley and presents some current avenues of study which may be pursued if studies continue within this corridor.

RESOURCE USE BY COYOTES, *Canis latrans*, AND RACCOONS, *Procyon lotor*, AT AN URBAN-WILDLAND INTERFACE

K. Middleton and R. Quinn, Department of Biological Sciences, California State Polytechnic University, Pomona, CA 91768.

Radio telemetry studies of 9 coyotes and 8 raccoons in the San Jose Hills, characterized by urban, agricultural, and wildland habitats, revealed differences between the species in use of resources. Coyotes restricted their activities to undeveloped and agricultural areas, with a mean range length of 1.5 km. Three coyotes made long distance moves (2.3 to 23.6 km) to the Chino and Puente Hills. Both species often used urban corridors, such as flood control channels and railroad tracks, for travel between disjunct habitat patches and as range boundaries. Raccoons relied heavily on resources associated with humans, using urbanized habitats almost exclusively, displaying a mean range length 0.7 km, and a maximum movement of 6.75 km. Anthropogenic foods occurred at high frequencies in raccoon scats (domestic fruit - 77%, garbage - 3%) and lower frequencies in 159 coyote scats (domestic fruit - 38%, pets - 9%, and garbage - 13%). The raccoons studied were intimately associated with humans and frequently became economic pests. In contrast the coyotes avoided close contact with human development and consumed few domestic animals.

WILDLIFE CORRIDORS IN THE PUENTE HILLS-CHINO HILLS

Phyllis Noonan, Cheryl Swift, Department of Biology, Whittier College, Whittier, CA 90608

The Puente Hills, located in the northeastern section of Los Angeles County and extending into the northwestern section of Orange County, encompass about 6000 acres of open space. The Chino Hills section of this corridor begins at approximately the 57 freeway and extends eastward. The hills are bisected by four large roadways and a major freeway and are virtually surrounded by urban development; however, there is evidence that animals move between the Puente Hills and the Chino Hills to the southeast. Road kill records for the last decade were obtained and the location of road kills plotted in order to determine patterns of movement and to identify wildlife corridors within these hills. In addition to using records of road kills, the four main roadways through the hills were monitored on a weekly basis. These data along with the road kills have identified habitat linkages within the hills, changes in movement patterns as a result of urban development, and seasonal changes in wildlife movement.

ECOLOGICAL CORRIDORS IN URBAN SOUTHERN CALIFORNIA

R. Quinn, Department of Biological Sciences, and J. Lyle, Department of Landscape Architecture, California State Polytechnic University, Pomona, CA 91768.

In 1930 a greenspace system was proposed for the County of Los Angeles. It consists of a network of parks and connecting corridors generally following the streambeds, mountain ridges and bases of the mountains. Portions of this system still exist in some form. In places like the Puente and San Jose Hills the potential remains to develop it further. Green corridors connecting patches of greenspace contribute significantly to the effectiveness of urban park systems as wildlife habitat by allowing animals to move between habitat patches. Our recent studies show that some of the corridors within this system can serve the needs of wildlife. A plan for the Arroyo Seco in the City of Pasadena calls for removal of the concrete flood control channel and restoration of the natural streambed. This will make possible reestablishment of a nearly complete riparian and canyon ecosystem. We expect some missing species of animals to return to the Arroyo along a corridor from the nearby San Gabriel Mountains. In the San Jose Hills radio-tracking of coyotes (*Canis latrans*) and raccoons (*Procyon lotor*) showed that coyotes generally avoid urban areas, while raccoons spend their entire lives in limited urban areas. Male coyotes moved over long distances through both natural and urban corridors. The raccoons depended on humans for food, water, and occasionally shelter. They used wildlands, but did not require green corridors for movement. Discontinuous natural corridors are adequate for some species of larger mammals such as coyotes, but unnecessary for others such as raccoons. It is worthwhile to reexamine the possibilities for preserving and restoring what remains of natural corridor systems in heavily urbanized regions, even when they have been degraded.

SMALL MAMMAL COMMUNITIES AND HABITAT DISTURBANCE IN SHRUBLANDS SURROUNDING THE SAN GABRIEL VALLEY

R. Quinn and V. Rosales, Department of Biological Sciences, California State Polytechnic University, Pomona, CA 91768

Characteristics of small mammal communities were compared among 4 southern California coastal sage scrub and chaparral habitats in the foothills and mountains surrounding the San Gabriel Valley. Three of 4 sites were subject to disturbance by fire or adjacent

land development. Rodents at all sites were derived from the same species pool, but there were differences between sites in community characteristics. The 2 sites with continuous habitat contained large and predictable rodent communities (3-8 species, 20-61% trap success), with or without the natural disturbance of fire. The site with habitat fragmentation and fire had fewer species per habitat (1-4), and lower trap success (1-5%). The site with severe habitat fragmentation and human disturbance had only a small population (0.25% trap success) of one species of native rodent (*Neotoma fuscipes*). At least 4 additional species of rodents had become locally extinct. Fire alone does not permanently change the rodent communities studied, but habitat fragmentation and degradation reduces both species richness and abundance. The loss of species in isolated patches is probably permanent for small mammals, and for other taxa with low powers of dispersal such as reptiles and amphibians, and some plants and birds.

OBSTRUCTIONS TO WILDLIFE MOVEMENT PUENTE/CHINO HILLS CORRIDOR--FROM SANTA ANA MOUNTAINS TO WHITTIER

G. Robertson, D. Fretz, and D. Zacovic, Whittier Hills Ecological Survey, P.O. Box 247, Whittier, CA 90608

Animal life observed in the Whittier area must have negotiated an astounding array of fences, highways, barriers, and hazards in order to traverse the Puente/Chino Hills Corridor. The obstructions impeding wildlife movement between the Santa Ana Mountains and the western Puente Hills are highlighted. Notably, the connection over the Puente Hills of Harbor Boulevard in La Habra and Fullerton Road in Rowland Heights, along with the Shea Homes housing developments, has denied wildlife virtually any safe crossing at this crucial corridor constriction. The authors recommend required retrofitting of tunnels beneath Fullerton Road and/or alternative passageways through this development. No further development should take place until successful crossing structures are established.

AN OPEN SPACE NETWORK FOR THE CITY OF CHINO HELLS

J. Rodriguez, Claremont McKenna College. Claremont, CA 91711.

In the last ten years the City of Chino Hills has experienced explosive growth. Development has fragmented much of the remaining natural open space, resulting in the formation of numerous habitat islands within the City. A great deal of biological resources still exist in the City including four sensitive plant communities and nine sensitive species. However, if isolation continues they may be in jeopardy. A contiguous open space reserve within the City with connections to the nearby Chino Hills State Park could help prevent the further decline of the City's biological resources. The reserve would take the form of an open space network. Its route would follow drainages and ridgelines. Sensitive areas would have limited public access, and adjacent land uses would be limited. An open space network could provide corridors for wildlife movement and dispersal, supplement food resources and provide habitat heterogeneity. It would also generate numerous recreational opportunities for City residents and potentially increase housing values as well. Establishment of the network would be achieved when landowners donate a percentage of their property in order to develop the land.

A HABITAT ASSESSMENT OF THE WHITTIER HILLS

Katie Ross and Michelle Fischler (C. Sw if 0, Biology Department, Whittier College.

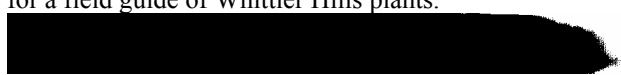
The decision to conserve or develop a particular parcel requires a thorough assessment of the existing biological resources. This is especially important in a heavily populated area, such as the Los Angeles Basin, where the open space allotted for conservation is limited as a result of the expanding population. This study evaluated existing un-subdivided public and privately held parcels in the western portion of the Puente Hills. A map of the existing vegetation was prepared and parcels were ranked according to criteria developed to independently assess overall habitat value, including total acreage, degree of isolation, and relative representation of existing community types within the entire study area. Large parcels dominated by Chaparral or Coastal Sage plant communities but supporting extensive Southern Oak and Riparian Woodland were ranked highest. Smaller parcels in general, ranked lowest unless large expanses of Oak or Riparian Woodland were present. The study provided a means of unbiased evaluation of parcels under consideration for suitability of development versus conservation, facilitating knowledgeable decisions by responsible agencies.

AN ANNOTATED CHECKLIST OF THE VASCULAR PLANTS OF THE WHITTIER HILLS

J. A. Schneider- Ljubenkov, Friends of the Whittier Hills, 1468 Montgomery Drive, Vista. CA 92084.

T. S. Ross. Rancho Santa Ana Botanic Garden. 1500 N. College Avenue, Claremont, CA 91711.

The Annotated Checklist of the Vascular Plants of the Whittier Hills was compiled from various sources: specimens and written materials available within the Rio Hondo College biology department, past Environmental Impact Reports. Field observations, and additional specimens collected in the Hills as herbarium vouchers. The list accompanies a collection of color slides and a manuscript for a field guide of Whittier Hills plants.



AVIAN USE OF MODIFIED COASTAL SAGE SCRUB. Cynthia J. Shannon, Department of Biology, Mount San Antonio College, Walnut, CA 91789

Bird species diversity and activity were compared between areas of mature coastal sage scrub which had been burned, unburned and used for landfill activities. A damping of bird species cycling was seen in a recovering coastal sage scrub burn area. Bird species in mechanically modified areas that lacked vertical plant structure, showed a tendency to react similarly to severely burned areas in repetitive cycling trends. Disturbances such as clearing of coastal sage scrub were found to decrease bird species diversity and lead to a predominance of introduced bird species. Areas which sustain vertical heterogeneity were preferred by a greater diversity of birds for a wider variety of behaviors. The knowledge gained from this study will assist in the planning of future environmental modifications and fire management.

COAL CANYON CORRIDOR: KEY TO MOUNTAIN LION SURVIVAL IN THE CHINO-PUENTE HILLS. Connie Spenger, Friends of the Tecate Cypress, 1318 East Glenwood Avenue, Fullerton, CA 92631.

Linking the Cleveland National Forest and the Chino-Puente Hills complex, Coal Canyon is the last remaining pathway for cougars to cross the Riverside (91) Freeway. Habitat in the 100-square-mile Hills complex is of good quality, but is probably not large enough to support one male cougar's range. Using Coal Canyon drainage culverts or underpass, a collared male cougar moves under the 91 Freeway between the south half of his territory in the Santa Ana Mountains, and north half in Chino Hills (Beier, 93). Territories for two or three female cougars exist in Chino Hills State Park, and reliable cougar sightings have been reported in Tonner Canyon, Diamond Bar and the Puente Hills. However, without a resident male and genetic interchange, the existing cougar population, both within and outside the Park, would die without leaving kittens. Housing developments, hotel construction, commercial areas and expansion of a golf course threaten the Coal Canyon corridor. Action to save this cougar pathway, which could then be restored for use by deer, is needed immediately. Preserving the corridor would also protect endangered species and ensure cougar survival in the Santa Anas.

STATUS OF AMPHIBIANS AND REPTILES IN THE PUENTE HILLS - SAN JOSE HILLS - CHINO HILLS CORRIDOR
G. Stewart, K. Condon, and R. Goodman, Biological Sciences Department, California State Polytechnic University, Pomona, CA 91768

The herpetofauna of the subject area includes 3 salamanders, 6 frogs (counting 2 introduced species), 1 turtle, 6 lizards, and 16 snakes. Nine of the native species are naturally rare because the area is ecologically and/or geographically marginal for them. Nine other native species appear to have declined during the last 30 years. One of these has been extirpated. Ten of the species native to the area currently are on state and/or federal lists indicating concern for their long-term survival. Only 4 out of 8 formerly common native species presently may be considered common.

WHY THE NATURAL COMMUNITIES CONSERVATION PLANNING PROGRAM FACILITATES REGIONAL HABITAT PLANNING

William E. Tippets, California Department of Fish and Game, San Diego, CA 92108.

The Natural Communities Conservation Planning (NCCP) program was established by state law in 1991 as an alternative to existing single species and single project conservation planning processes. Conservation principles developed for the NCCP are robust and can be applied to a wide variety of biological and socio-political conditions. The first attempt to implement NCCP planning focuses on coastal sage scrub (CSS) in a five county area in southern California. Applying the NCCP approach to the Puente Hills area presents challenges because of the configuration of extant habitats and developments as well as future development pressures. This paper illustrates how the NCCP approach is used to create a regional habitat conservation plan.

LIFE HISTORIES AND- SITE CHARACTERISTICS OF DOMINANT PLANTS IN PUENTE HILLS SHRUBLANDS

Scott D. White, Tierra Madre Consultants, Inc., 1159 Iowa Ave., Suite E, Riverside, CA 92507.

Shrublands at Powder Canyon in La Habra Heights are composed of plant species typically associated with coastal sage scrub (*Salvia leucophylla*, *S. mellifera*, *Encelia californica*) and others commonly recognized as resprouting chaparral species (*Rhus integrifolia*, *Malosma laetina*, *Rhynchospora ilicifolia*, *Heteromeles arbutifolia*). Species of the two categories occur together, but one category or the other is usually dominant. Vegetation structure (density, height) is generally consistent with coastal sage scrub or chaparral, depending on which species category is dominant. Coastal sage scrub and chaparral intergrade into one another at their margins, and vegetation classification is sometimes ambiguous. The co-occurrence of both species categories in varying densities indicates that coastal sage scrub and chaparral may coexist in a continuum in the Puente Hills. In this paper, I compare vegetation at the Powder Canyon site to topography and soils and consider long-term vegetation development in terms of dominant species' life histories.

TWENTY-FIVE YEARS OF NATURE STUDY IN THE RIO HONDO COLLEGE WILDLIFE SANCTUARY

Ray E. Williams, Biology Department, Rio Hondo College, Whittier, CA 90608.

Known as "Ecology Canyon" on Los Angeles County Sanitation Districts maps, the eightyacre Rio Hondo College Wildlife Sanctuary is listed as one of the several Significant Ecological Areas (SEA's) in Los Angeles County. It is located at the western edge of the Puente Hills. During the past twenty-five years of casual study while using the area to teach students how to study nature, Rio Hondo investigators have identified some 12 species of mammals, 99 species of birds, 9 of reptiles, 26 kinds of insects, and 89 species of Plants. Cattle were still present during the first five years of study (1968-73); with their removal, succession proceeded. The dominant annual grasses have been largely replaced by several species of small shrubs. California sagebrush is almost gone, having been succeeded by coyote brush. Most toyon is decadent as are several laurel sumac. A coast live oak which died in 1966 and fell in 1973, is now reduced to one or two small pieces in 1994. Ecology Canyon remains connected to other open lands in the Puente Hills via a narrow corridor between the active landfill and Rose Hills Cemetery. RHC staff and students maintain a three-quarter mile foot trail within the area and restrict access to appropriate classes within the Biology and Physical Science Departments.

ADDENDUM

RECRUITMENT OF WALNUTS IN A PUENTE HILLS Walnut Woodland. J.E.Keeley, C.J. Fotheringham, and D.W. Schwilk, Department of Biology, Occidental College, Los Angeles, CA 90041

The recruitment of new individuals into an existing Walnut Woodland in the eastern Puente Hills was investigated by sampling the number of seedlings in plots. Results of this study suggest that this population of California Walnut, *Juglans californica* (juglandaceae) is a viable population with a high rate of reproduction and recruitment of new individuals into the population. Recently, there has been increasing evidence that existing populations of California Walnuts show little reproduction and recruitment of new individuals leading to populations with an uneven age structure. The lack of reproduction reported in previous studies of Walnut Woodlands coupled with the destruction of this community as a result of land conversion have resulted in the identification of this community as sensitive. The high rate of recruitment observed in this study warrant the preservation of this population in the East end of the Puente Hills.