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Community Foundations, Committees, and Groups:

Arroyos & Foothills Conservancy: The non-profit conservancy “was founded to preserve and restore open, undeveloped land and associated trails and historic structures in the foothills of

Altadena.” The conservancy has involved itself in numerous environmental projects ranging from land-preservation acquisitions to educational outreach and film production.

<http://www.altadenafoothills.org/>

Altadena Watershed Committee: The Committee is comprised of a group of nine individuals with various backgrounds who are all interested in watershed issues and water conservation education. They have testified on behalf of the Arroyo Seco regarding opportunities for funding for the Arroyo Seco Watershed study. The website was last updated April 2007. Like the Altadena Foothills Conservancy they are listed on the webpage of the Altadena Town Council.

<http://altadenawatershed.org/>

Arlington Garden in Pasadena: Is a community foundation that aims to develop a water-wise garden that is in harmony with the regional climate. The gardens are designed to attract butterflies and birds, and demonstrate how beautiful, practical, water-wise and satisfying a well planned and maintained climate appropriate garden can be.

<http://www.arlingtongardeninpasadena.org/>

Arroyo Seco Foundation: Collection of community members and activists that promote “integrated, harmonious approach[es] to watershed and flood management, water conservation, habitat enhancement” in addition to expanding recreational opportunities. The foundation focuses much attention on replanting and rehabilitating the Arroyo Seco, and surrounding environments (such as the San Gabriel Mountains).

<http://www.arroyoseco.org/>

California Native Plant Society: The California Native Plant Society (CNPS) is dedicated to the preservation of native flora, and to the restoration of that flora where it has been damaged or destroyed. Thus CNPS will encourage the planting of trees where appropriate. Tree planting projects have been frequently damaging to local ecosystems, due primarily to poor planning. The intent of this policy statement is to encourage appropriate tree planting programs and discourage those which are inappropriate. The cumulative impact of development in California has removed so much native vegetation that appropriate native species should be planted wherever possible, even in the context of the urban garden. CNPS encourages persons planning a tree planting program to evaluate their program relative to this policy.

<http://cnps.org/cnps/archive/trees.php>

Cal Poly Pomona’s John T. Lyle Center for Regenerative Studies: A center with a mission to “advance the principles of environmentally sustainable living through education, research, demonstration and community outreach.” The Center demonstrates environmental sustainability by using “low-energy architectures, energy production technology, water treatment, organic agriculture, ecological restoration and sustainable community development.”

<http://www.csupomona.edu/~crs/>

Collaborative Eagle Rock Beautiful: The mission of this organization is to develop a better Eagle Rock by bringing together various agencies and volunteers. The group focuses on beautification projects and the preservation of open space. Projects include the planting of parkways with

drought resistant succulents, maintenance of hiking trails, garden tours, and showcasing Plein Air painters.

www.cerb.us

Hahamongna Watershed Park Advisory Committee (HWPAC): The watershed advisory committee was established to review, oversee, and provide recommendations for a variety of park activities – including the preparation of environmental documents, restoration projects, and operation financials.

<http://www.cityofpasadena.net/publicworks/PNR/ArroyoSeco/annex.asp>

North East Trees: a non-profit organization that plants trees, improves parklands and riparian corridors, and aims to strengthen communities through ecological engagement. North East Trees also develops urban forestry programs for agencies and communities to maximize the ecological benefit of urban forestry.

<http://www.northeasttrees.org/>

Pasadena Audubon Society: The Pasadena chapter of the Audubon Society is dedicated to sharing the excitement of birding and conservation through bird watching, education, and protection of bird habitats.

<http://www.pasadenaaudubon.org/>

Pasadena Beautiful Foundation: The purpose of the Pasadena Beautiful Foundation is to protect and enhance Pasadena's urban forest and streetscape by encouraging beautification and sustainable landscapes, both public and private.

<http://www.pasadenabeautiful.org/>

River Project: A non-profit organization “dedicated to planning for natural resource protection, conservation and enhancement in Los Angeles County.” Their mission has been to “encourage responsible management of our watershed lands and revitalization of our rivers for the social, economic and environmental benefit of our communities.” The Project has developed an educational program, organized coalitions to establish parks near rivers and to undertake studies, and has patterned with many policy makers.

<http://www.theriverproject.org/>

San Gabriel Mountains Regional Conservancy: This group’s mission it to “promote the preservation of land and/or buildings for historic, educational, ecological, recreational, or open space opportunities.”

<http://www.sgmrc.org/>

Sierra Club – Pasadena: The Pasadena Group is dedicated to conservation, preservation, and recreational efforts in the Pasadena area. The Sierra Club hosts outings and other events to introduce regional community members to conservation efforts.

<http://angeles.sierraclub.org/pasadena/>

Theodore Payne Foundation: promotes preservation of native plant species, in addition to restoration projects that teach Californians about native plants and wildflowers through constructive engagement and involvement.

<http://www.theodorepayne.org/>

Trust for Public Lands: The trust “is a national, nonprofit, land conservation organization that conserves land for people to enjoy as parks, community gardens, historic sites, rural lands, and other natural places,” with the aim of guaranteeing “livable communities for generations to come.”

<http://www.tpl.org/>

USC Center for Sustainable Cities: a University of Southern California research group dedicated to studying methods urban cities can employ to become more sustainable.

<http://college.usc.edu/geography/ESPE/>

Public/Private Partnerships

California Urban Water Conservation Council: With a goal of increasing efficient water use through creation of partnerships between various water agencies and public and private interests, the California Urban Water Conservation Council outlines and compiles Best Management Practices for members to take into consideration for water planning and management.

<http://www.cuwcc.org/default.aspx>

California Water Awareness Campaign: The California Water Awareness Campaign, of which the City of Pasadena is a member municipality, is focused on raising public awareness about water issues including conservation, supply, quality and distribution. Its main focus is education and outreach.

<http://www.wateraware.org/news.asp>

Green Cities California: To address the urgency and gravity of environmental, social, and economic issues confronting urbanized centers, sustainability professionals from a number of major cities in California met in late 2007 to create *Green Cities California* (GCC). The purpose of this new collaborative is to cooperatively and collectively take action to accelerate local, regional, national and international efforts to achieve sustainability.

Participating cities currently include Berkeley, Los Angeles, Pasadena, Oakland, Sacramento, San Diego, San Francisco, San Jose, Santa Barbara, Santa Monica, and the County of Marin, which together represent over eight million California residents.

The Pasadena City Council adopted a resolution in support of Green Cities California on February 4, 2008 and committed to take the following five actions in solidarity with the GCC member cities:

1. Purchasing 100% post-consumer recycled paper for municipal operations.

2. Prohibiting the purchase of bottled water for municipal operations and government sponsored events.
3. Adopting a carbon offset plan for municipal employee air travel.
4. Adopting municipal fleet fuel efficiency standards.
5. Promoting the purchase of California foods for municipal events and operations.

<http://www.greencitiescalifornia.org/>

Los Angeles & San Gabriel Rivers Watershed Council: The Los Angeles & San Gabriel Rivers Watershed Council grew out of conversations regarding the inadequate communication among the governmental agencies with responsibilities in the watershed. Five different kinds of water agencies were not exchanging information with the public or between themselves. This conversation resulted in a decision to bring representatives of all of these water agencies (supply, groundwater, stormwater, water quality, and wastewater), regulatory agencies, citizen groups and consultants together to figure out how best to remedy this situation.

<http://lasqrwc2.org/Default.aspx>

Government Agencies and Departments

California Air Resources Board: California's Legislature established the Air Resources Board (ARB) in 1967 to attain and maintain healthy air quality, conduct research into the causes of and solutions to air pollution, systematically attack the serious problems caused by motor vehicles, which are a major cause of air pollution in the State. Since its formation, the ARB has worked with the public, the business sector, and local governments to protect the public's health, the economy and the state's ecological resources through the most cost-effective reduction of air pollution.

<http://www.arb.ca.gov/homepage.htm>

Council of Arroyo Seco Agencies: Recognizing that watershed issues do not conform to jurisdictional boundaries, the Council brings key agencies and stakeholders with operational or regulatory responsibilities for the Arroyo Seco into conversation to promote cooperation in the watershed area.

<http://www.arroyoseco.org/casa.htm>

Los Angeles County Flood Control Maintenance Division (LA County Flood Control): is a division of the Los Angeles County Department of Public Works. It operates and maintains dams, open channels, storm drains, debris basins, check dams and pumping plants. As part of its flood control and water supply responsibilities, the department has 15 major dams and 27 spreading grounds in the county.

<http://dpw.lacounty.gov/>

Mountains Recreation Conservation Authority: The Mountains Recreation and Conservation Authority (MRCA) is a local government public entity established in 1985 pursuant to the Joint Powers Act. The MRCA is a local partnership between the Santa Monica Mountains Conservancy, which is a state agency established by the Legislature, and the Conejo Recreation and Park District and the Rancho Simi Recreation and Park District both of which are local park agencies established by the vote of the people in those communities.

<http://www.mrca.ca.gov/>

San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC): One of nine conservancies set up by the State of California, this conservancy is tasked with preserving open space and habitat in order to provide for low-impact recreation and educational uses, wildlife habitat restoration and protection, and watershed improvements within its jurisdiction.

<http://www.rmc.ca.gov/about/intro.html>

San Gabriel Valley Council of Governments: A body of San Gabriel municipalities that collectively advocate at the regional and state level. This advocacy has produced tangible changes in many areas of the San Gabriel Valley, ranging from health care to open space.

- **Energy, Environment, and Natural Resources Committee:** This committee addresses a number of issues related to the environment including open space, water and air quality.
 - **Water Working Group:** This group is one of five committee working groups (Air Quality, Energy, Open Space, Solid Waste being the others) developed to tackle issues more thoroughly and with the involvement of important stakeholders. The group works on issues and makes recommendations to the full EENR Committee and then to the Governing Board.

<http://www.sgvcoq.org/>

Santa Monica Mountains Conservancy: “Through direct action, alliances, partnerships, and joint powers authorities, the Conservancy’s mission is to strategically buy back, preserve, protect, restore, and enhance treasured pieces of Southern California to form an interlinking system of urban, rural and river parks, open space, trails, and wildlife habitats that are easily accessible to the general public.”

<http://smmc.ca.gov/>

Southern California Association of Governments (SCAG): SCAG is primarily concerned with long-range planning, and fostering education and work networks that cultivate creative solutions to challenging regional problems. SCAG also tracks and publishes statistical data about the region – such as air quality, goods movement, etc.

<http://www.scaq.ca.gov/>

U.S. Army Corps of Engineers: The mission of the USACE is to provide vital public engineering services in peace and war to strengthen our Nations security, energize the economy, and reduce risks from disasters.

<http://www.usace.army.mil/CEHR/Pages/Home.aspx>

U.S. Forest Service: The Forest Service was established in 1905 and is an agency of the U.S. Department of Agriculture. The Forest Service manages public lands in national forests and grasslands, which encompass 193 million acres.

<http://www.fs.fed.us/>

Geographic Places:

Altadena Crest Trail: A proposed trail network that would span the length of unincorporated Altadena. The network would increase trail interconnectivity, especially at the north-east intersection of Altadena and Pasadena, and at the north-west intersection of Altadena and Hahamongna Watershed Park.

<http://losangelescounty.externaldocuments.com/>

Angeles National Forest: Established in 1892, the Angeles National Forest covers over 650,000 acres and is highly accessible to the San Gabriel Valley. The forest is accessible via trails, fire roads, and a limited number of paved roads.

<http://www.fs.fed.us/r5/angeles/>

Annandale Canyon: The City recently acquired a collection of 37 privately owned parcels of land on the east side of Scholl Canyon in Glendale, north of Glen Oaks, San Rafael and Patrician Way choke point and west of Glen Oaks Blvd.

Arlington Mediterranean Garden: The former site of the Durand Mansion, CalTrans razed the building in order to use the site for construction staging. In the interim, the vacant, 3-acre lot is being used as a water-saving garden. The Garden is located at the northwest corner of Arlington Drive and Pasadena Avenue.

http://www.pasadenaneighborhoods.com/arlington_garden_pasadena_california.htm

Eaton Canyon / Wash: "Eaton Wash is a long linear sub-watershed extending from its headwaters deep in the San Gabriel Mountains above eastern Pasadena and then south through unincorporated portions of Los Angeles County, Temple City to its confluence with the Rio Hondo near the border of El Monte and South El Monte. Its headwaters form an extensive network of tributaries including Pasadena Glen and Harvard Branch, in addition to Eaton Wash."

http://www.rmc.ca.gov/rio_hondo/latest_%20plan/Ch%20I%20-%20INTRODUCTION%20.pdf

Golden Necklace Trail Project: "The Golden Necklace Multi-Use Trail System project proposes to reclaim portions of the underutilized river corridors in the greater Los Angeles area. The Golden Necklace project specifically identifies and assesses the opportunities for a regional trail system connecting the San Gabriel Mountains to the Pacific Ocean via the Los Angeles and San Gabriel River corridors."

The Golden Necklace Trailway Project Report (California State Polytechnic University, Pomona, Urban and Regional Planning Graduate Capstone)

http://www.arroyoseco.org/goldennecklace/Golden_Necklace_Trailway_Project2.pdf

Hahamongna: Hahamongna Watershed Park (HWP) consists of approximately 1300-acres of open space that extends from Devil's Gate Dam north and into the Arroyo Seco Canyon, on the northwestern edge of the city. The Park provides a transition from the urban land uses in Pasadena to the wilderness of Angeles National Forest. The area is mostly characterized by oak

groves, hiking trails, picnic areas, a multi-purpose playing field, and the world's first disc golf course.

<http://ww2.cityofpasadena.net/publicworks/PNR/ArroyoSeco/HahamongnaWatershedPark.asp>

Hahamongna Annex: A 30 acre property previously owned by the Metropolitan Water District of Southern California. The land was purchased with the stipulation that future uses of this property must support open space and recreation. The advisory body overseeing the planning process for the Annex is the Hahamongna Watershed Park Advisory Committee.

<http://www.cityofpasadena.net/publicworks/PNR/ArroyoSeco/annex.asp>

La Casita del Arroyo Garden: This garden demonstrates drought-tolerant plants. The project was started to help the unemployed during the Great Depression.

Lower Arroyo Seco: The Lower Arroyo runs for approximately 1.75 miles, bounded by the Colorado Street Bridge on the north, and South Pasadena's city limit on the south, and developed residential streets to the east and west. This section includes such uses as the casting pond, archery range, low-flow streams, La Casita del Arroyo, Memorial Grove, the Camel's Hump, and trails.

<http://www.cityofpasadena.net/publicworks/PNR/ArroyoSeco/default.asp>

Orange County Great Park: The Orange County Great Park Plan will provide a wide array of active and passive uses, including a 2.5 mile canyon and lake, miles of walking and biking trails, a cultural terrace, Orange County's largest sports park, a botanical garden, and a tethered helium observation balloon that will be an icon for the Great Park. More than 3,885 of the 4,700 acres will be dedicated to open space, education, and other public uses.

<http://www.ocgp.org/default.asp>

Raymond Basin: The Raymond Basin covers approximately 40 square miles. It is bounded on the north by the San Gabriel Mountains, on the south and east by the San Gabriel Valley and on the west by the San Rafael Hills. Because of its natural formations and barriers, the Raymond Basin is replenished by surface water flows from the San Gabriel Mountains, including the Arroyo Seco, Eaton Wash and Santa Anita Wash.

<http://www.iinet.com/~rbmb/about-us/background.html>

Rim of the Valley Trail Corridor (ROVTC): Within the boundaries of the Santa Monica Mountains Conservancy, this is a corridor created to form a link between parks, trails, open space, wildlife habitat, and recreational opportunities within and between the Santa Monica, Santa Susana, and San Gabriel Mountains. The Corridor surrounds the San Fernando/La Crescenta Valley with the long term purpose of providing for long term biological diversity and protection of its aesthetic, recreational, and wildlife resources.

<http://smmc.ca.gov/ROV%20Master%20Plan.pdf>

Rio Hondo: This River has its headwaters in the Angeles National Forest above the cities of Monrovia and Arcadia. This tributary of the Los Angeles River stretches 20 miles in length and has

a 142 square mile watershed. The river parallels the San Gabriel River, approximately two miles to the east. It travels through the Whittier Narrows, while staying separate from the San Gabriel River, and heads west to meet the Los Angeles River in South Gate.

[http://en.wikipedia.org/wiki/Rio_Hondo_\(California\)](http://en.wikipedia.org/wiki/Rio_Hondo_(California))

ROVTC: See *Rim of the Valley Trail Corridor*.

Upper/Central Arroyo Seco: This portion of the Arroyo Seco includes the Rose Bowl, Brookside Golf Course, and connects to the Devil's Gate Dam and Hahamongna Watershed Park. It is heavily utilized by bicyclists, runners, walkers, and provides space for many recreational activities.

<http://www.cityofpasadena.net/publicworks/PNR/ArroyoSeco/default.asp>

Plans and Documents:

California Assembly Bill AB32 (Nunez and Pavley): Background on the Global Warming Solutions Act (AB 32): On September 27, 2006, Governor Schwarzenegger signed AB 32, the Global Warming Solutions Act. The Act caps California's greenhouse gas emissions at 1990 levels by 2020. It also requires California to reduce its emissions to 80% below 1990 levels by 2050. This legislation represents the first enforceable state-wide program in the U.S. to cap all GHG emissions from major industries that includes penalties for non-compliance. It requires the State Air Resources Board to establish a program for statewide greenhouse gas emissions reporting and to monitor and enforce compliance with this program. The Act authorizes the state board to adopt market-based compliance mechanisms including cap-and-trade, and allows a one-year extension of the targets under extraordinary circumstances.

California Proposition 84: Authorized \$5,399,000,00 in general obligation bonds to fund projects relating to safe drinking water, water quality and supply, flood control, waterway and natural resource protection, water pollution and contamination control, state and local park improvements, public access to natural resources, and water conservation efforts. Proposition was approved by the voters in November, 2006.

California Senate Bill SB375 (Steinberg): Signed by Governor Schwarzenegger on September 30, 2008, SB 375 aims to curb greenhouse gas emissions and reduce VMT (vehicle miles traveled) through integrated planning of land use, transportation, and housing. The law aims to limit suburban sprawl by providing incentives as well as preference for development projects that reduce GHG emissions. It establishes the California Air Resources Board as the overseer of California's 18 metropolitan planning organizations (MPOs) to ensure that they are meeting concrete GHG reduction goals. Although much of the content of the bill is implicit in AB32, SB 375 places a greater emphasis on land use planning as a specific way of meeting the goals of AB 32.

City of Pasadena Arroyo Seco Master Plans: The Arroyo Seco Master Plan consists of four separate planning documents: Hahamongna Watershed Park Master Plan, Central Arroyo Master Plan, Lower Arroyo Master Plan, and Design Guidelines for the Arroyo Seco. The plans collectively provide a vision for the future of the Arroyo Seco area, which are independent of the general plan.

<http://ww2.cityofpasadena.net/publicworks/pnr/arroyoseco/>

City of Pasadena Comprehensive Water Conservation Plan: The plan outlines six approaches to water conservation by which the City of Pasadena can meet its state-mandated and Urban Environmental Accords goals of reducing per capita water consumption 10% by 2015 and 20% by 2020. The plan's conservation approaches are as follows:

1. Implement water conservation rate design – This measure creates a water pricing structure where heavy users of water are charged more in an effort to reduce demand.
2. Adopt sustainable water supply ordinances – Some of the ordinances suggested are a water waste prohibition ordinance, modification of the existing water shortage ordinance, an efficient landscape ordinance, evaluation of a fixture replacement on resale ordinance, review of the gray water systems and storm water capture ordinances, and adopting water use limitations and mitigation measures for new development.
3. Provide incentives for use of water efficient technology and practices – This approach would provide economic incentives for community members to install more water-efficient indoor fixtures, irrigation technologies, and water-efficient landscaping.

4. Provide direct installation and distribution of efficient technologies
5. Provide water use audits, whereby water consumer
6. Provide water use information, education, and outreach – This approach would provide data on bills, appropriate water use standards and guidelines, and information on efficient water use practices.

A combination of supply and demand management practices, the plan adopts a holistic view of water issues that is necessary for reducing consumption in accordance with the City's goals. In terms of short-term conservation measures associated with water shortages, the plan evaluates the feasibility and cost impacts of reducing water consumption by 10%, 20%, and 30%. This is part of Pasadena Water and Power's Water Integrated Resource Plan, which is being undertaken over the next year.

http://www.cityofpasadena.net/waterandpower/watershortage/CompWaterConsPlan_4docs41309.pdf

City Of Pasadena Environmental Charter: The City of Pasadena elects to be an environmental advocate and a leader in environmental compliance and protection. The City shall cultivate superior environmental standards that will provide for sustainable municipal development.

The City recognizes that growth and opportunity cannot be conducted at the expense of environmental protection and enhancement, and that growth and environmental stewardship are intimately related.

The City believes that the implementation of an environmental ethic need not interfere with economic development, and that practicing such environmental ethic can ultimately be expected to enhance economic affairs and provide for responsible, farsighted development.

The City believes that the protection of the urban and natural environments is a social responsibility and a fundamental obligation of a democratic government, and that an ecologically impoverished and polluted environment adversely impacts human health.

The City is striving to become a model for environmental excellence and a prevailing force in environmental protection. To accomplish these goals, the City shall establish policies that will incorporate environmental responsibility into its daily management of urban and industrial growth, education, energy and water use, air quality, transportation, waste reduction, economic development, and open space and natural habitats.

http://www.ci.pasadena.ca.us/GreenCity/#ENVIRONMENTAL_CHARTER

City Of Pasadena General Plan Land Use Element Definition Of Open Space: This category is for a variety of active and passive public recreational facilities and for City-owned open space facilities. This includes natural open spaces and areas, which have been designated as environmentally and ecologically significant. This category also applies to land, which is publicly owned, though in some instances public access may be restricted. Most importantly, this designation only applies to lands owned by the City.

City of Pasadena Green City Action Plan: Pasadena's Green City Action Plan is the plan by which the City hopes to meet the goals of the 2005 United Nations Urban Environmental Accords in the areas of energy, waste reduction, urban design, urban nature, transportation, environmental health, and water. The plan outlines attainable goals that the City can achieve through

governmental leadership and community participation. The Green City Action Plan is pushing Pasadena toward environmental sustainability while meeting the city's economic needs.

<http://www.cityofpasadena.net/permitcenter/GreenCity/GreenActionplanWeb.pdf>

City of Pasadena Hahamongna Watershed Park Master Plan: The Upper Arroyo Seco provides a transition from the urban land uses in Pasadena, the other neighboring foothill communities and the vast open space areas of the Angeles National Forest. The Hahamongna Watershed Park(HWP) Master Plan is one of the three park master plans that make-up the Arroyo Seco Master Plans and addresses the southern-most 300 acres of Hahamongna Watershed Park which lie within the Upper Arroyo Seco. Thirty new acres were recently purchased and added to the park. The Hahamongna Annex, as it is tentatively being called, will bring a variety of equestrian facilities to the City along with a future environmental education center. The future of the Hahamongna Annex is currently being planned and an update to the HWP Master Plan to incorporate the vision for this area of the park is also underway.

<http://www.ci.pasadena.ca.us/publicworks/PNR/ArroyoSeco/HahamongnaWatershedPark.asp>

City of Pasadena “Sensitive Lands Inventory” / Private Land with Open Space Potential: City of Pasadena Sensitive Lands Inventory – Final Report May 2003. The report presented findings of an inventory of vacant, residentially zoned parcels located in the Linda Vista and Eaton Canyon areas of Pasadena. The study was undertaken between May, 2002 and March, 2003. The report evaluated the potential for these parcels to be acquired or otherwise conserved as long-term open space resources.

City of Pasadena Zoning Code Definition of Open Space: The OS district is applied to sites with open space, parks, and recreational facilities of a landscaped, open character having a minimum contiguous site area of two acres. The OS zoning district is consistent with and implements the Open Space land use designation of the General Plan.

Emerald Horseshoe / Necklace: “The Emerald Necklace is a vision for a 17 mile loop of parks and greenways connecting 10 cities and nearly 500,000 residents along the Río Hondo and San Gabriel Rivers. The intent of the Emerald Necklace is to unify more than 1,500 acres of parks and open spaces along an interconnected greenway around two major urban rivers.”

<http://www.amigodelosrios.org/necklace.htm>

Integrated Regional Water Management Plan: An integrated approach to water management is the way to address a broad range of water resource management issues, competing water demands, water supply reliability, and financing of projects. Hundreds of local agencies, organizations, cities, and county governments are participating in the Integrated Regional Water Management Plan (IRWMP) effort of the Greater Los Angeles Region that is inclusive and provides opportunities for cost-effective solutions to address the water resource needs of the Region. The IRWMP will serve to position the Region for obtaining funding from local, State, and Federal sources to implement projects.

<http://www.ladpw.org/wmd/irwmp/>

Pasadena Water and Power’s Integrated Resource Plan: Adopted unanimously by City Council on March 16, 2009, PWP’s Integrated Resource Plan establishes a framework for meeting Pasadena’s future electricity needs through a combination of energy efficiency measures, demand-side management, renewable energy policies, and expanding supply. The plan establishes a

preferred resource portfolio by which Pasadena will meet its energy requirements over the next 20 years. In compliance with AB 32's greenhouse gas emission reduction goals, the Preferred Resource Plan aims to reduce coal-based power (a heavy emitter of GHGs) from 62% to 23% of total energy and to increase renewable-based electricity (including local and remote solar, wind, and geothermal energy) from 10% to 40% of total energy consumer.

United Nations Green Cities Declaration and Urban Environmental Accords: The United Nations Green Cities Declaration is a collaborative platform and a call to action for cities across the globe to take in recognition that a majority of the world's population now reside in cities, and that cities consume 75% of the world's natural resources creating environmental challenges. The Urban Environmental Accords contain 21 action items that lay the groundwork for addressing universal urban environmental issues on energy, waste reduction, urban design, urban nature, transportation, environmental health, water issues.

More information on the United Nations Green Cities Declaration and Urban Environmental Accords can be found on the World Environment day website at <http://www.wed2005.org/3.1.php>

US Conference of Mayors Climate Protection Agreement: The US Conference of Mayor's Climate Protection Agreement seeks for cities across the United States to commit to reducing global warming pollution levels to 7 percent below 1990 levels by 2012 in accordance with the Kyoto Protocol. In order to achieve this goal, cities are asked to take actions in their own operations and communities. The Agreement offers twelve measures for cities to take that that will contribute to reducing greenhouse gas emissions (GHG). The goals are compatible with the Urban Environmental Accords although the focus is directed towards reducing global warming.

General Definitions:

Aquifer: An underground geological formation, or group of formations, containing water. Are sources of groundwater for wells and springs.

<http://www.epa.gov/OCEPAterms/aterms.html>

Catchment: Any structure or land feature which catches and holds water.

<http://en.wiktionary.org/wiki/catchment>

Class I - Bike Path: Completely separated right-of-way for bicycles and pedestrians that minimizes cross-flow traffic. The routes are often marked and landscapes (depending on the environment). *Bike paths are paved facilities designated for bicycle use that are physically separated from roadways by space or a physical barrier. (City of Pasadena 2004 Mobility Element)*

Class II - Bike Lane: A striped lane for one-way bike travel on a street or highway.

Bike lanes are lanes on the outside edge of roadways reserved for the exclusive use of bicycles, and designated with special signing and pavement markings. (City of Pasadena 2004 Mobility Element)

Class III - Bike Route: Shared use with pedestrian or vehicle traffic. Bike routes are typically marked with signage.

<http://www.santa-clarita.com/cityhall/parks/trails/trailclassifications.asp>

Bike routes are roadways recommended for bicycle use and often connect to bike lanes and bike paths. They are designated with signs only and may not include additional pavement width. (City of Pasadena 2004 Mobility Element)

Conjunctive Use: In California the term has many definitions that vary from locations and stages of land development. Its meaning is unclear to many experienced water resources professionals, let alone the public, community planners & politicians, and is evolving over time. It is one of the most complex and important water-resources issues that will truly take a consensus of community leaders to address toward long-term development goals. It embraces the basic concept of optimal use of available water supplies and land uses. For more than the last 50 years this includes understanding the limitations of available surface water and groundwater supplies along with the active planning and management of facilities to satisfy the water-supply needs for a community.

http://www.awra.org/state/socal/conjunctive_use/conjunctive_use_main.htm

Conservation (use): The protection or wise use of natural resources that ensures their continuing availability to future generations; the intelligent use of natural resources for long-term benefits.

Conservation Easements: A **conservation easement** is an encumbrance — sometimes including a transfer of usage rights (easement) — which creates a legally enforceable land preservation agreement between a landowner and a government agency (municipality, county, state, federal) or a qualified land protection organization (often called a "land trust"), for the purposes of conservation. It restricts real estate development, commercial and industrial uses, and

certain other activities on a property to a mutually agreed upon level. The property remains the private property of the landowner.

DBH: Diameter-at-breast height is an arborist standard to measure the diameter of a tree trunk at 4½ feet above grade.

Debris Basin: Sometimes called catch basin - a large excavated basin into which a debris flow runs or is directed, and where it quickly dissipates its energy.

<http://www.landslides.usgs.gov/learning/glossary.php>

Developed v. Non-Developed Land

- **Developed** - land which is or was occupied by a permanent structure (excluding agricultural or forestry buildings), and associated fixed surface infrastructure.

<http://www.southampton.gov.uk/building-planning/planning/ldf/localplanreview/planreview-textinweb/glossary.asp>

- **Undeveloped** - Land that has not had improvements made either to the land or on the land. The term raw land is sometimes used to refer to this type of land.

<http://godenverhomes.com/glossary/glossu.html>

Development Pressure: undeveloped land that is subject to development due to market conditions or other needs.

Endangered Species: U.S. Department of the Interior, Bureau of Land Management definitions:

- **Federal Endangered** consists of animal or plant species, subspecies or varieties in danger of extinction throughout all or a significant portion of their range. These are considered “Federally-listed” or “listed” because a final rule has been published in the Federal Register.
- **Federal Threatened** consists of species; subspecies or varieties like to become endangered within the foreseeable future throughout all or a significant portion of their range. These are considered “Federally-listed” or “listed” because a final rule has been published in the Federal Register.
- **Federal Rare (Not listed)**
- **California State Endangered** animals or plants are in serious danger of becoming extinct throughout all, or a significant portion, of their range due to one or more causes, including loss of habitat, over-exploitation, competition or disease.
- **California State Threatened** animals or plants, although not presently threatened with extinction, are likely to become endangered in the foreseeable future without special protection and management efforts.
- **California Species of Special Concern** animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless (1) are declining at a rate that could result in listing, or (2) historically occurred in low numbers and known threats to their persistence currently exist.
- **California State Rare** plants or animals, although not presently threatened extinction, are in such small numbers throughout their range that they may become endangered if their present environment worsens.

Floodplain: The flat or nearly flat land along a river or stream or in a tidal area that is covered by water during a flood.

<http://www.epa.gov/OCEPATERMS/fterms.html>

Native Plant: A "native" plant is one that is living, growing, and reproducing naturally in a particular region. The focus in using native plants should be on plants that are native to the region and that are well-adapted to the specific site where they will be planted.

Public v. Private Open Space

- **Private** - Open space that is usually privately owned and is not usually accessible by members of the public.

www.planningportal.gov.uk/england/professionals/en/1115310689486.html.

- **Public** - An undeveloped piece of land adding ecological, scenic or recreational value to an urban area that is publicly accessible. Examples include forests, marshes and wildlife sanctuaries.

http://www.opb.org/programs/oregonstory/land_trusts/glossary/index.html

Preservation (preserve): The act of protecting a natural and cultural resource against eventual damage through control of human activity or natural phenomena.

www.pc.gc.ca/apprendre-learn/prof/sub/eco/itm7/index_e.asp

Public Utility Easements: Property easements established between utility providers, land owners, and municipal staff. In Pasadena, major utility easements are owned by California Edison.

Riparian Habitat: Areas adjacent to rivers and streams with a differing density, diversity, and productivity of plant and animal species relative to nearby uplands.

<http://www.epa.gov/OCEPATERMS/rterms.html>

Sustainability: The most widely quoted definition internationally is the "Brundtland definition" of the 1987 Report of the World Commission on Environment and Development – that sustainability means "*meeting the needs of the present without compromising the ability of future generations to meet their own needs.*"

<http://epa.gov/sustainability/basicinfo.htm>

Sustainable Development: The concept and practice of development that ensures that use of a resource or environment does not degrade the usefulness of the resource for future generations.

http://www.pc.gc.ca/apprendre-learn/prof/sub/eco/itm7/index_e.asp

Sustainable Use: Using a natural resource responsibly, so it will still be available in the future. For example, making sure that trees grow in areas where the older ones have been cut down.

http://www.pc.gc.ca/apprendre-learn/prof/sub/eco/itm7/index_e.asp

Urban Forest: The total collection of trees and associated plants growing in a city or town. It includes trees in parks and yards, along roadways and paths, and in other areas.

<http://instaar.colorado.edu/outreach/trees-and-vocs/glossary.html>

Urban Forestry: Urban Forestry is the careful care and management of urban forests, i.e., tree populations in urban settings for the purpose of improving the urban environment.

http://en.wikipedia.org/wiki/Urban_forestry

Urban Runoff: with an abundance of non-porous paving materials and urban pollution, much polluted water is funneled into creeks, rivers, and riparian areas without undergoing treatment. Water from urban areas can not only pollute waterways, but also increase erosion, introduce non-native plant or animal species, and can alter water temperatures enough to harm existing or native riparian species.

Watershed: The land area that drains into a stream; the watershed for a major river may encompass a number of smaller watersheds that ultimately combine at a common point.

<http://www.epa.gov/OCEPATERMS/wterms.html>

Watershed Approach: A coordinated framework for environmental management that focuses public and private efforts on the highest priority problems within hydrologically-defined geographic areas taking into consideration both ground and surface water flow.

<http://www.epa.gov/OCEPAterms/wterms.html>

Watershed Area: A topographic area within a line-drawn connecting the highest points uphill of a drinking water intake into which overland flow drains.

<http://www.epa.gov/OCEPAterms/wterms.html>

Wetland: For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

<http://www.epa.gov/owow/wetlands/what/definitions.html>

Wildlife Corridor: a strip or collection of land that connects wildlife populations separated by the built environment – such as buildings and other urban barriers.

Xeriscape: This term is the patented name for an approach to landscaping that involves using drought-resistant or tolerant, generally native, plants in dry areas to reduce the need for watering. It's a landscape that works with the climate, rather than against it.

<http://www.blueegg.com/Green-Glossary/Xeriscape.html>

Definitions from PASADENA, THINK GREEN:
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Carbon Footprint: The total amount of CO₂ and other greenhouse gases emitted over the full life cycle of a product or service.

Fossil Fuels: Hydrocarbons found within the top layer of the earth's crust. It is generally accepted that they formed from the fossilized remains of dead plants and animals by exposure to heat and pressure in the Earth's crust over hundreds of millions of years.

Global Warming: The increase in the average temperature of the Earth's near-surface air and oceans in recent decades and its projected continuation.

Green: Lifestyle practices that encompass global environmental protection and social responsibility. Consumers can make green choices by purchasing recycled paper, driving hybrid vehicles, or carefully recycling paper and plastic.

Green Building: A relatively new term that relates to land use, building design and construction strategies that reduce impacts on the environment.

Greenhouse Gasses: Any of the atmospheric gases that contribute to the greenhouse effect, including carbon dioxide, methane, ozone, and the fluorocarbons.

Greenhouse Effect: The effect produced as greenhouse gases allow incoming solar radiation to pass through the Earth's atmosphere, but prevent most of the outgoing infrared radiation from the surface and lower atmosphere from escaping into outer space.

LEED: The Leadership in Energy and Environmental Design Green Building Rating System is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.

Mixed-Use: A building with combined uses such as office and retail, industrial-retail-entertainment, or industrial and office space.

Definitions from Rio Honda Watershed Management Plan (Chapter 1) (Rivers and Mountains Conservancy):

Creation: The construction of an ecological system, such as a wetland or lake, in an area that was not a wetland or lake in the recent past (within the last 100-200 years) and that is isolated from existing similar natural systems. (2)

Enhancement: Improving the structure or function(s) of an already existing ecological system, such as a watershed.

Green Space, Recreation and Parks Element: Adopted by City Council in November of 2007, the Green Space, Recreation and Parks Element is an optional element of general plans not required by state statute. The role of the element is to provide "the community's vision for natural open space, developed parkland, urban open spaces, and recreation facilities and programs." In conjunction with the Open Space and Conservation Element, the Green Space Element governs the development and maintenance of open space.

Mitigation: The creation, restoration, enhancement, or preservation of an ecological system designed to offset permitted losses to the natural ecological functioning of another site.

Although the term “restore” is frequently used to describe all activities intended to improve watershed functioning, when the term is used more precisely it would apply to only a small subset of all watershed projects. As the definition for “restoration” makes clear, it will not be possible or desirable to return the Rio Hondo Watershed to its pre-human conditions. Instead, the overall effort stemming from this watershed plan can be characterized as a watershed “enhancement” program. In some instances, however, individual projects within this watershed plan may be characterized as “creation,” “mitigation”, or “restoration” efforts depending upon the specific opportunities present at those sites and their intended goals.

The above definitions are based upon wetlands restoration terminology found in the following sources:

1. Compensating for Wetland Losses Under the Clean Water Act, National Academy of Sciences, 2001.
2. Gwin, S. E., M.E. Kentula, and P.W. Shaffer. 1999. Evaluating the Effects of Wetland Regulation through Hydrogeomorphic Classification and Landscape Profiles. Wetlands
3. Middleton, B. 1999. Wetland restoration, flood pulsing, and disturbance dynamics. John Wiley & Sons, Inc., New York.

http://www.rmc.ca.gov/rio_hondo/rh_index.html

Preservation: The protection of an existing and well-functioning ecological system; such as a watershed, wetland, etc; from prospective future threats. Preservation does not involve alteration of the site. (1)

Restoration: The return of a watershed (or other ecological system) from a disturbed or altered condition by human activity to a previously existing condition.

Definitions from Green Space, Recreation and Parks Element:

Acreage Standard: A numerical ratio which represents the number of usable parkland acres per thousand residents that the City has the ability to require as dedication under the provisions of the 1985 Quimby Act. The acreage standard for Pasadena is currently 2.17 acres per thousand residents, not including natural open space, school grounds, and golf courses.

Community Park: A park classification described in the General Plan as meeting the active recreation needs of several neighborhoods. Generally, these facilities are larger than neighborhood parks and contain a variety of elements.

Developed Open Space: These include all city parks, urban open spaces, and non city-owned open spaces that are intended primarily for human use. This category includes playgrounds, sports fields, picnic areas, courtyards, golf courses, and joint-use school facilities.

Green Space: Parkland plus open space land. In Pasadena, the term Green Space has been used since the 1994 General Plan as an umbrella category to encompass all natural and developed open spaces in the City.

Modified Open Space: Open space that has been altered or artfully restored to make it more accessible for human use. Alterations can include walking paths or hiking trails. May also provide

wildlife habitat and be used for conservation. The Lower Arroyo Seco is an example of a modified open space.

Multi-Use Paved Trail: A paved trail utilized by pedestrians, cyclists, and in some cases equestrians, and for which the design is significantly consistent with required designs for Class I bike paths.

Natural Open Space: Open space in which the original type of vegetation and topography predominates. Undeveloped land that has been maintained in a relatively undisturbed state. This category includes wild and planned open space areas.

Neighborhood Park: Generally, neighborhood parks provide informal, general-use areas developed with children's play areas, multi-purpose open turf areas, and other amenities used for smaller social gatherings. Some larger neighborhood parks may include active recreation elements such as ball fields. Neighborhood parks play an important role in providing neighborhood focus and identity.

Open Space: A Land Use Element category that includes natural open spaces as well as active and passive recreational facilities. The designation applies to lands owned by the City.

Open Space or OS Zone: Open space is also a category used in Pasadena's Zoning Code and in the General Plan Land Use diagram. OS is included within Green Space. In the General Plan diagram, OS is defined as follows:

This category is for a variety of active and passive public recreational facilities and for City-owned open space facilities. This includes natural open spaces and areas, which have been designated as environmentally and ecologically significant. This category also applies to land, which is publicly owned, though in some instances public access may be restricted. Most importantly, this designation only applies to lands owned by the City.

Parks: Parks can be classified by type based primarily on their size, function and character. The Pasadena Municipal Code (Section 4.17.040) contains three park classifications: Neighborhood, Community and Citywide parks.

Pocket Park: Smaller, special recreation facility serving a neighborhood or local area generally taken to be smaller than a neighborhood park.

Public Park or Park Land: An outdoor area owned by a public entity generally available for passive and/or active recreation usage.

Reasonable Walking Distance: Within 1/4 to 1/2 mile.

Undeveloped Lands: The City of Pasadena is largely built out, but a few significant areas of non-city owned undeveloped open space remain. Each of these areas may have the potential for use as an open space or recreational area.

Unimproved Park Land: Property which has in the past been identified as potential park land, but which has not yet been improved or developed.

Urban Open Space: Pasadena has a large variety of public outdoor open spaces that cannot be classified as parks but these spaces do fulfill many of the same functions as public parks. These urban open spaces and special facilities can be either city-owned or privately-owned. Public plazas, paseos, golf courses and the grounds of museums and historic sites are all examples of this type of open space. Another good example of this form of land use is a community garden. These are public spaces that can contain passive features such as paths, benches and landscaping or could include plots for residents to grow fruits and vegetables. A pocket park (also known as a vest pocket or mini-park) is typically much the same as a community garden, except the emphasis would tend to be less on horticulture and more on site amenities such as picnic facilities and small playgrounds.

Wild Open Space: Open space left wild. Completely undeveloped and used for wildlife habitat and conservation. An example is the 1,000 acres of city-owned open space north of Hahamongna Watershed Park.

Court Interpretations of Open Space Elements:

Save El Toro Association v. Days (1977) – The California Court of Appeal held that because the City of Morgan Hill could not acquire, regulate, or restrict open-space land, nor could it approve a subdivision map due to the fact that it had not adopted an open space element.

Sierra Club v. Board of Supervisors of Kern County (1981) – The California Court of Appeal establishes that all elements of a general plan have equal legal standing, and that no one element is to take priority over another.

No Oil, Inc. v. City of Los Angeles (1988) – Interpreted that “open space for the managed production of resources” allowed for oil extraction to occur on land designated as open space.

Vegetation Descriptions—South Coast and Montane Ecological Province - Zone 7

Land Use and Non-Vegetated Classes

Barren

Landscapes generally devoid of vegetation as seen from a high-altitude image source such as aerial photography, are labeled as Barren. This category includes mappable landscape units in which surface lithology is dominant, such as exposed bedrock, cliffs, interior sandy or gypsum areas, and the like. It does not include areas considered as modified or developed, as in urban areas but may include quarries and mine sites.

Urban or Developed

This category applies to landscapes that are dominated by urban structures, residential units, or other developed land use elements such as highways, city parks, cemeteries and the like. In those cases in which the managed landscapes may have a considerable vegetation component, other land use categories may be more appropriate, such as Ornamental Conifer and Hardwood mixtures within city parks.

Shrubs, Subshrubs and Chaparral

Ceanothus Chaparral Alliance

Southern California chaparral is occasionally dominated in small areas by species of Ceanothus in contrast to the more extensively occurring mixed genera chaparrals. The Ceanothus Chaparral Alliance has been mapped extensively at low to mid elevations. This Alliance is identified by any of the following dominant or combinations of species: Hoaryleaf Ceanothus (Ceanothus crassifolius) and Wedgeleaf Ceanothus (Ceanothus cuneatus) in the western portions of the Transverse Ranges (Ventura and Los Angeles Counties), northern Peninsular Ranges and Santa Ana Mtns. of San Diego and Riverside Counties; Cupleaf Ceanothus (Ceanothus greggii var. perplexans) in the eastern Transverse Ranges (San Bernardino County) and Peninsular Ranges of San Diego and Riverside Counties; Chaparral Whitethorn (Ceanothus leucodermis) forming dense post-fire stands in many areas, and Greenbark Ceanothus (Ceanothus spinosus). Other species in this Alliance include Hairy Ceanothus (Ceanothus oliganthus) in the western Transverse Ranges and Santa Ana Mountains, Woollyleaf Ceanothus (Ceanothus tomentosus) in the Santa Ana Mountains and Peninsular Ranges, and Bigpod Ceanothus (Ceanothus megacarpus) nearer the coast in the western Transverse Ranges. Sites range from mesic and coastal (Bigpod Ceanothus) to xeric (Cupleaf Ceanothus) with elevations ranging from near sea level in the Coast Section to about 6000 ft (1828 m) in the Mountains Section. Chamise (Adenostoma fasciculatum) occurs throughout this area and is commonly associated with these species.

Lower Montane Mixed Chaparral Alliance

This mixed shrub Alliance occurs extensively on cismontane low to moderate elevation slopes in southern California. The species mixture is highly variable and includes any combination of non-dominant Wedgeleaf (Ceanothus cuneatus), Cupleaf (Ceanothus greggii perplexans), Hoaryleaf (Ceanothus crassifolius) or Hairy Ceanothus (Ceanothus oliganthus); non-dominant Scrub Oak (Quercus berberidifolia), Bigberry (Arctostaphylos glauca), Eastwood (Arctostaphylos glandulosa) or other species of Manzanita (Arctostaphylos spp.), Toyon (Heteromeles arbutifolia), Chaparral Yucca (Yucca whipplei), Silktassels (Garrya spp.), Chaparral Whitethorn (Ceanothus leucodermis), Sugar Bush (Rhus ovata), shrub Interior and Canyon Live Oaks (Quercus wislizenii, Quercus chrysolepis), Hollyleaf Redberry (Rhamnus ilicifolia) and Hollyleaf Cherry (Prunus ilicifolia). Chamise (Adenostoma fasciculatum) is usually abundant but not dominant in this Alliance. In the Coast Section, it has been mapped at elevations from sea level to 4800 ft (1462 m), and at higher elevations in the Mountains Section but is usually found lower than the Montane Mixed Chaparral Alliance and above the Southern Mixed Chaparral Alliance in San Diego and Riverside Counties. Slope aspects and gradients are variable in this Alliance.

Scrub Oak Alliance

Scrub Oak (Quercus berberidifolia) or other species of shrubby oaks may become dominant on north-facing and often steep, mesic slopes at low to moderately high elevations in southern California. The Scrub Oak Alliance has been mapped extensively in the Mountains Section, and less frequently in the Coast Section at elevations as low as near sea level and as high as about 8800 ft (2682 m). Any combination of Scrub Oak, Tucker or Muller Shrub Oak (Quercus john-tuckeri, Quercus cornelius-mulleri), Shrub Interior Live Oak (Quercus wislizenii var. frutescens) and Shrub Canyon Live Oak (Quercus chrysolepis var. nana) may be present in this Alliance. Common chaparral associates are the shrubs Chamise (Adenostoma fasciculatum), Birchleaf Mountain Mahogany (Cercocarpus betuloides), Toyon (Heteromeles arbutifolia), and species of Ceanothus and Manzanita (Arctostaphylos spp.). In drier areas closer to the distribution of Tucker and Muller Oak, Redshank (Adenostoma sparsifolium), California Juniper (Juniperus californica), Singleleaf Pinyon Pine (Pinus monophylla), and Joshua Tree (Yucca brevifolia) may associate with species of this Alliance. Vines such as Poison Oak (Toxicodendron diversilobum), Cucumber Vine (Marah macrocarpus) and Honeysuckle (Lonicera spp.) also are common in this Alliance.

Baccharis (Riparian) Alliance

This riparian or dry wash Alliance is dominated by any species of *Baccharis* occupying wet habitats, including the most common, Mulefat (*Baccharis salicifolia*), Desert *Baccharis* (*Baccharis sergiloides*), Shortleaf *Baccharis* (*Baccharis brachyphylla*), Marsh *Baccharis* (*Baccharis douglasii*), Broom *Baccharis* (*Baccharis sarothroides*) and Emory *Baccharis* (*Baccharis emoryi*). Tree willows (*Salix* spp.), California Sycamore (*Platanus racemosa*), Fremont Cottonwood (*Populus fremontii*) and Coast Live Oak (*Quercus agrifolia*) are some associated hardwoods in this Alliance. It has been mapped below 2000 ft (610 m) or so in the Coast Section and within the elevation range 200 - 4400 ft (60 - 1340 m) in the Mountains Section on low gradient slopes.

Alluvial Fan Sage Scrub Alliance

Alluvial fans in xeric, interior areas of the Montane Section close to developed areas may contain a mixture of species, of which Scalebroom (*Lepidospartum squamatum*), California Buckwheat (*Eriogonum fasciculatum*), California Sagebrush (*Artemisia californica*), White Sage (*Salvia apiana*), and *Encelia* spp., may be prominent. Since the history of ground disturbance is a factor in the species composition of this Alliance, other species may also occur, including *Opuntia* spp., Chaparral Yucca (*Yucca whipplei*), *Rhus* spp. and California Juniper (*Juniperus californica*). This Alliance has been mapped as patchy areas of San Bernardino and Riverside Counties at elevations 600 - 3600 ft (182 - 1096 m) on low-gradient slopes. It merges with the California Buckwheat and California Sagebrush Alliances.

Sumac Scrub Alliance

This Alliance is dominated by species of *Rhus* or *Malosma*. Associated hardwoods include Coast Live Oak (*Quercus agrifolia*) and California Walnut (*Juglans californica*). Other shrubs often found in this Alliance are California Sagebrush (*Artemisia californica*), California Buckwheat (*Eriogonum fasciculatum*), Toyon (*Heteromeles arbutifolia*), Bush Monkeyflower (*Mimulus aurantiacus*), Poison Oak (*Toxicodendron diversilobum*), and Black Sage (*Salvia mellifera*). In the Coast Section, it mainly occurs as an Alliance below about 2800 ft (852 m) on moderate to steep slopes. Laurel Sumac (*Malosma laurina*) and Lemonadeberry (*Rhus integrifolia*) are important components in this region. The occurrence of the Sumac Scrub Alliance in the Mountains Section is more often on steep slopes below about 4000 ft (1220m). Sugarbush (*Rhus ovata*) is more commonly represented as a dominant shrub there. Skunkbush (*Rhus trilobata*) may be present, but rarely becomes an important component of the Alliance.

Mixed Soft Scrub Chaparral Alliance

Ground disturbances such as fire and urban development often initiate the development of this short-lived shrub Alliance. This Alliance is a mixture of subshrubs, forbs and woody shrubs, having a woody shrub component comprising more than one-quarter and less than half of the total shrub canopy cover. It has been mapped in areas transitional between the California Sagebrush and Lower Montane Mixed Chaparral Alliances. These sites are typically at elevations below 2000 ft (610 m) on moderately steep slopes in the Coast Section and below about 4800 ft (1462 m) in the Mountains Section on steep slopes there. Indicator species include California Sagebrush (*Artemisia californica*), California Buckwheat (*Eriogonum fasciculatum*), White Sage (*Salvia apiana*), Deerweed (*Lotus scoparius*), Coyote Brush (*Baccharis pilularis*), California *Encelia* (*Encelia californica*), Bush Monkeyflower (*Mimulus aurantiacus*), Bush Poppy (*Dendromecon rigida*), Yerba Santa (*Eriodictyon* spp.) and Goldenbush (*Ericameria* spp.). In addition, Chamise (*Adenostoma fasciculatum*), species of *Ceanothus*, scrub Interior and Canyon Live Oaks (*Quercus wislizenii* var. *frutescens*, *Quercus chrysolepis* var. *nana*) may become minor components of this Alliance.

California Sagebrush Alliance

This Alliance occurs in several habitats, including coastal environments such as the dunes south of Point Conception and coastal slopes of the Coastal Section. It also is found in more interior low-

elevation locations below the Lower Montane Mixed Conifer Alliance and in local pockets of disturbed or dry sites, typically at elevations below about 4600 ft (1402 m) in the Mountains and Coastal Sections. The Alliance usually has a prominent California Sagebrush (Artemisia californica) component along with a varying mixture of other shrubs, subshrubs and perennials. These associates include Black or Purple Sage (Salvia mellifera, Salvia leucophylla), Laurel Sumac (Malosma laurina), Lemonade Berry (Rhus integrifolia), California Buckwheat (Eriogonum fasciculatum), Coyote Brush (Baccharis pilularis), California Encelia (Encelia californica), minor amounts of Chamise (Adenostoma fasciculatum), Deerweed (Lotus scoparius) and grasses. These species produce a vegetative cover which rapidly invades disturbed areas.

Conifer Forest / Woodland

Bigcone Douglas-Fir Alliance

Bigcone Douglas Fir (Pseudotsuga macrocarpa) stands are found in the Transverse and Peninsular Ranges from the Mt. Pinos region south. It occurs in pure or mixed stands at lower elevations, generally in the range 1400 - 4600 ft (426 - 1402 m) in the Coast Section, and somewhat higher 1400 - 6800 ft (426 - 2072 m) in the Mountains Section. On protected, mesic canyon slopes, Bigcone Douglas Fir may become locally dominant with Canyon Live Oak (Quercus chrysolepis) as an associate at elevations as low as 1000 ft (305 m) or less up to about 8000 ft (2438 m) or more, but it is not dominant at the highest elevations. Sites in this Alliance are usually steep and north-facing, especially in the Coast Section. In the Coast Section, where it occasionally occurs in the Santa Ynez Valleys and Hills, Santa Ynez - Sulphur Mountains and Simi Valley - Santa Susana Mountains Subsections, understory species in mixed stands commonly are Canyon and Coast Live Oaks (Quercus agrifolia). Associated hardwoods of Bigcone Douglas-fir stands in the Mountains Section include Canyon Live Oak more frequently than Coast Live, Interior Live (Quercus wislizenii), and Black (Quercus kelloggii) Oaks. White Alder (Alnus rhombifolia) may occasionally be associated as an understory species in this Section as well. Shrub associates include species of Ceanothus and Manzanita (Arctostaphylos spp.), Chamise (Adenostoma fasciculatum), and shrub forms of the Live Oaks.

Herbaceous

Annual Grass - Forb Alliance

Low to mid-montane areas of southern California may develop extensive or restricted areas of dry grasslands in otherwise well-vegetated shrub or coniferous regions. Conditions that restrict the the growth and maintenance of species of the surrounding vegetation include the occurrence of pockets of fine-textured (clayey) soils, a frequent fire regime, and ground-disturbing activities such as grazing, crop agriculture and mining. Many exotic grasses are characteristic of this type, including species of wild oats (Avena spp.), various Bromes (Bromus spp.), Foxtail Fescue (Vulpia myuros), and Kentucky Bluegrass (Poa pratensis). This Alliance also includes perennial grasses that develop on coarse, well-drained soils occurring within sunny openings of Jeffrey and Ponderosa Pine (Pinus jeffreyi, Pinus ponderosa) savannas. In addition to species mentioned above, the Alliance may also include more natives such as some Sedges (Carex spp.), Melic Grass (Melica spp.) and Checker Bloom (Sidalcea malvaeflora). This type has been mapped typically on sites up to 3200 ft (974 m) in the Coast Section and up to about 5600 ft (1706 m) in the Mountains Section.

Non-Native Vegetation

Non-Native / Ornamental Grass Alliance

Ornamental or non-native grass species define this Alliance. Other non-native conifers, hardwoods and shrubs may be associated as minor elements. Mapped areas of this Alliance are usually in

developed areas, including urban and residential landscapes, parks, recreational areas, highways, cemeteries, etc.

Non-Native / Ornamental Conifer / Hardwood Alliance

A mixture of ornamental or non-native conifer and hardwood species comprise the dominant species of this Alliance. Small amounts of non-native pure stands of hardwood, conifer, shrubs and grasses may be also associated with this Alliance. Mapped areas of this Alliance are usually in developed areas, including urban and residential landscapes, parks, recreational areas, highways, cemeteries, etc.

Hardwood Forest / Woodland

Coast Live Oak Alliance

Coast Live Oak (*Quercus agrifolia*) is abundant in southern and central California in coastal valleys and lower slopes of montane areas. It has been mapped throughout the Transverse, Peninsular and South Coast Ranges at elevations from as near sea level in the Coast Section to over 5000 ft (1524 m) in the Mountains Section. Stands may form open savanna-like grasslands in interior sites or dense forests near the coast depending on site conditions such as climate, lithology and slope angle. Elevations of this hardwood are generally below 4000 ft (1220 m) in the Coast Section, with a tendency for sites to occupy north-facing slopes in that Section. Coast Live Oak stands intergrade with *Ceanothus* dominated chaparral in the Santa Ynez Mountains of Santa Barbara County; with species in the California Sagebrush and Lower Montane Mixed Chaparral Alliances such as California Sagebrush (*Artemisia californica*), Sages (*Salvia* spp.), California Buckwheat (*Erigonum fasciculatum*), Chamise (*Adenostoma fasciculatum*), species of *Rhus* or *Malosma*, etc. in the southern portions of the San Gabriel Mountains of Los Angeles County; and with dry grasslands, Engelmann Oak (*Quercus engelmannii*) and Lower Montane Mixed Chaparral species in the southern Peninsular Ranges of San Diego County. Canyon Live Oak (*Quercus chrysolepis*) is often present and abundant in this Alliance.

Canyon Live Oak Alliance

Canyon Live Oak (*Quercus chrysolepis*) forms extensive pure stands throughout southern California as a tree and shrubby species on steep, north-facing, and often rocky canyon slopes. This Alliance has been mapped predominantly within the range 1000 - 3800 ft (305 - 1160 m) in the Coast Section and mainly in the range 1600 - 7400 ft (488 - 2256 m) in the Mountains Section. The geographic distribution is also wide-ranging, enabling its association with Bigcone Douglas-Fir (*Pseudotsuga macrocarpa*) in canyon bottoms and with Coulter Pine (*Pinus coulteri*) on gentle slopes and more xeric sites in this area. Other conifer associates include Knobcone Pine (*Pinus attenuata*), White Fir (*Abies concolor*), Sugar Pine (*Pinus lambertiana*), Incense Cedar (*Calocedrus decurrens*) and Singleleaf Pinyon Pine (*Pinus monophylla*). In sheltered slopes and in mesic ravines closer to the coast, its hardwood associates include Madrone (*Arbutus menziesii*) and California Bay (*Umbellularia californica*), especially in Santa Barbara County. This oak often associates with Coast Live (*Quercus agrifolia*) and Blue (*Quercus douglasii*) Oaks, with tree and shrub forms of Interior Live Oak (*Quercus wislizenii*), especially in the Transverse Ranges, and with Black Oak (*Quercus kelloggii*) in the Peninsular Ranges. Deerbrush (*Ceanothus integerrimus*), Chaparral Whitethorn (*Ceanothus leucodermis*), Birchleaf Mountain Mahogany (*Cercocarpus betuloides*), Poison Oak (*Toxicodendron diversilobum*) and Manzanitas (*Arctostaphylos* spp.) are common chaparral shrub associates.

Willow Alliance

The Willow Alliance is defined by the dominance of any single or combination of species of Willow (*Salix* spp.). It has been mapped along streambanks below 1400 ft (426 m) in the Coast Section and mainly below about 3600 ft (1096 m) in the Mountains Section. Slopes are low-gradient.

Associates may include riparian species such as Fremont Cottonwood (Populus fremontii) and California Sycamore (Platanus racemosa) and a variety of perennial and annual forbs. Coast Live Oak (Quercus agrifolia) is also commonly associated with this Alliance.

California Sycamore Alliance

Riparian areas dominated by California Sycamore (Platanus racemosa) occasionally were mapped in southern California. The California Sycamore Alliance is more abundant in the Coast Section, where it has been mapped below 2600 ft (792 m) on low-gradient slopes. It has been mapped sparsely in the Mountains Section at elevations up to about 4800 ft (1462 m). Common associates include Fremont Cottonwood (Populus fremontii), Willows (Salix spp.), White Alder (Alnus rhombifolia) and Coast Live Oak (Quercus agrifolia).

California Walnut Alliance

California Walnut (Juglans californica), a species endemic to the state, historically occurs in a restricted range of southern California at elevations from 500 - 2500 ft (152 - 762 m). It has been planted widely up to about 3600 ft (1096 m) in this area. Walnuts are usually widely spaced and have various associates, including Coast Live Oak (Quercus agrifolia), California Bay (Umbellularia californica), Foothill Ash (Fraxinus dipetala), Mexican Elderberry (Sambucus mexicana), Sugar Bush (Rhus ovata) and Skunkbush (Rhus trilobata). Sites are usually mesic to moist such as north slopes, creek beds, seeps, canyon bottoms and alluvial terraces with deep soils. This species has been mapped abundantly in Riverside County (Mountains Section) and in northern counties of the Coast Section, and more sparsely elsewhere. Slopes are often north-facing and usually with moderate to high gradients.

Eucalyptus Alliance

Species of Eucalyptus (Eucalyptus globulus, Eucalyptus polyanthemos, and Eucalyptus tereticornis) have been planted and now occur in dense, pure stands at lower elevations, below 1600 ft (488 m) in the Coast Section and below 2600 ft (792 m) in the Mountains Section of southern California. These stands are widely scattered and are seldom extensive in nature, having been initially established through cultivation. Naturalization has occurred in disturbed areas, augmented by the ability of this genus to resprout after disturbance. Some of these Eucalyptus plantations are included within the Non-Native Alliance groups (Non-Native Ornamental Hardwood Alliance, etc.).