

Public natural areas
Áreas naturales públicas

Local parks like Topanga, Griffith & Kenneth Hahn State Park welcome visitors w/ picnic areas, hiking & more. Most trees in SM Mountain range. The rainier western side of mountains shuts water down canyons into SM Bay during the rainy season. These canyons provide seasonal streamside habitat that sustains native plant & animal communities. Many canyons have disturbed habitat & invasive exotic plants.

Drinking water
Agua potable

Bringing water to LA's semi-arid metropolis is a dramatic tale retold in movies and books. Currently, 15% of the freshwater used in Southern California is groundwater from local sources. The remainder is imported from Sacramento Delta, Colorado River, & Sierra Nevada via large aqueducts & pumps. Locations on map designate chlorination, purification & storage facilities.

Greenways
Vía verde

Whether they originate from underground springs or carry rainwater down from canyons, both intermittent & year-round streams play a role in the hydrologic cycle. Neighboring riparian vegetation, such as sycamores, willows, mulefat & lilies, adapt to extreme rain & drought. Most streams, like Ballona Creek, are subject to flood control measures & carry urban runoff to the sea.

Native vegetation
Vegetación nativa

California Live Oaks feed nearly 800 species of insects & butterflies, which in turn feed many birds. Native plants have co-evolved with fauna for millions of years & provide food & shelter for several times more species of birds, insects & butterflies than do exotic species. In fact, many exotics are bred for resistance to insects. Loss of open space has also reduced native habitat.

Butterfly habitat
Habitat de las mariposas

There are 106 species of butterflies left in So. Cal. of which 21 are "urban." The other 85 species cannot survive without native plants. The El Segundo Blue spends its entire life cycle with coastal buckwheat flowerheads. Loss of native habitat has accelerated decline in butterfly species. Butterfly gardens need 2 kinds of plants - those whose flowers supply nectar for adults & those that supply food for caterpillars.

Pacific flyway
Camino de vuelo por el Pacífico

LA is a stop for birds along the Pacific Flyway. Some birds, like the Pacific Brant, start their 3000 mile journey in the Bering Sea/Alaska & feed in LA Ballona Wetlands before continuing on to winter in Mexico. Others, like Yellow-Rumped Warblers & White-crowned Sparrows, winter here. As native habitat is lost, birds no longer stop in LA. As distances between rest & food stops increase, whole populations become stressed.

Wetlands
Pantano

Wetlands are home to rare & endangered plant species, migrating & resident birds, & marine & mudflat creatures. 60% of wetlands in greater LA have been drained or filled to create farmland, oil & gas fields, industrial sites & disposal areas for trash or soil. La Ballona Wetlands is the last remaining wetland in the LA Basin. As such, it presents a number of opportunity sites for LA.

Environmental school
Programas escolares del medio ambiente

Encouraged by DWP & LAUSD Cool Schools and School Greening Programs, LA schools have increased ground cover, reduced polluted runoff, created habitat, lowered energy needs and increased environmental learning opportunities by strategically planting trees/shrubs and removing asphalt! Combined, these schools have planted over 700 trees and removed at least 20% asphalt!

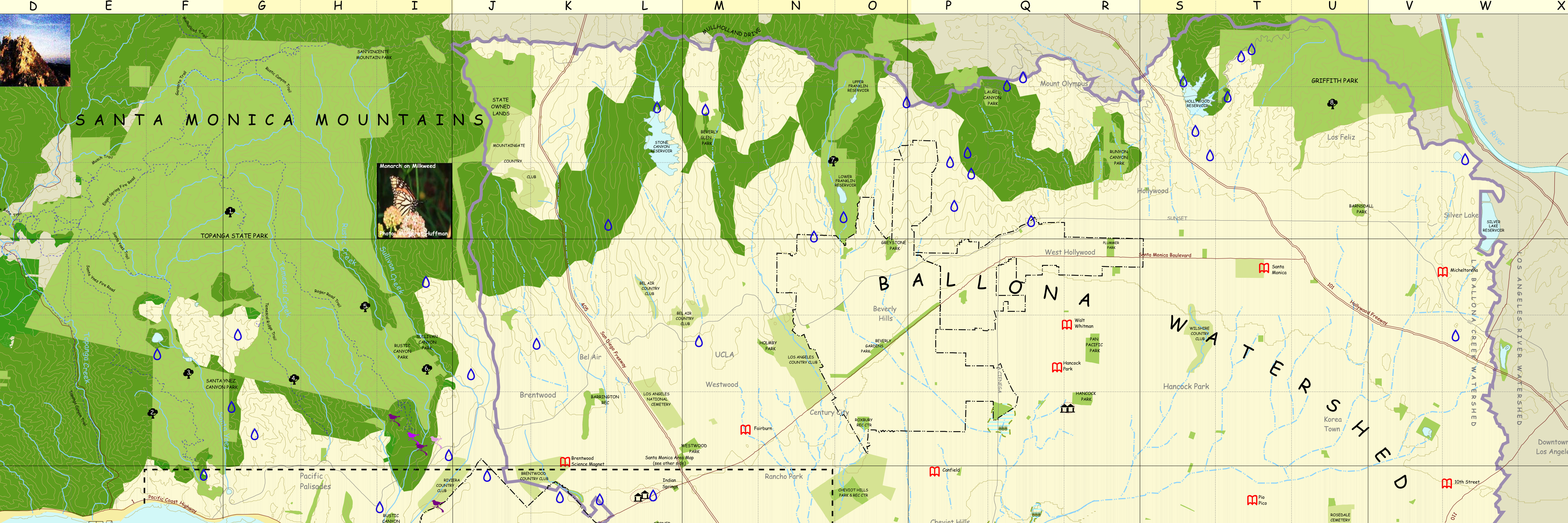
WHAT IS A WATERSHED?
A watershed is an area of land that drains all water that falls within it to a common point. This map identifies environmental features and resources in the Ballona Watershed, which is part of the larger Santa Monica Bay Watershed. The Ballona Watershed drains through Ballona Creek to Santa Monica Bay. A watershed is an important way to organize how we think about natural relationships between water, earth, & people. Watersheds provide habitat for plants and animals and provide important environmental benefits such as water filtration and storage. The hydrologic cycle (precipitation, percolation and evaporation) interacts with the earth's topography, contributing to unique combinations of plant and animal species. People are also part of watersheds, relying on their water and unique environments, yet, by channeling streams & paving over the earth humans have drastically altered the original percolation & filtration zones of the watershed. It is our hope that the reader will contemplate these changes, and also dream of how we might restore some of the watershed while continuing to enjoy living an urban life in Southern California.

USING THIS MAP
This green map identifies environmental features and resources of the Ballona Watershed. The map on the reverse side provides detail in the Santa Monica area. The icons around the perimeter of the map describe the unique resources and features found in the area. Find specific sites on the map by matching the grid references in the Master Legend.

MASTER LEGEND

- Hiking Trail
- City boundary
- SM Area Map boundary
- Watershed boundary
- Streets
- Freeways
- Land contours
- Ocean contours
- Former creek
- Rivers and creeks
- Ocean and lakes
- Former lake
- Former Native American village description to the map grid
- Former wetland
- Wetland
- Native habitat private land
- Native habitat public land
- Parks
- Golf courses/country clubs/cemeteries
- Beach

Sources: SCAG; Thomas Bros; USGS 1893 & 1989



Coastal Plains
Year-round river draining 130 sq. miles & largest storm drain in watershed which accounts for 25% of pollutants entering Bay. Dry weather flow is 10-15 million gals per day, wet weather flow is 10 billion gals per day of polluted runoff, trash & debris. Originally lined with sycamores, willows & tules & fed by springs. Although trees are gone, 50 species of resident & migrating birds use the creek for feeding, resting & nesting, including herons, egrets & terns. Opportunities for "greening" La Ballona Creek are now being reviewed & encouraged by a wide range of groups.

Mountains
Santa Monica Mountains (A17-X1/2)
This east-west trending range defines the northern boundary of the watershed. Water flows from urban elevations down to the basin, sustaining diverse plant communities of sage scrub, woodlands & chaparral. These serve as the basis of a food chain that includes insects, lizards, road runners, snakes, coyotes, badgers, mountain lions & bobcats. I-405 & I-101 freeways are disruptions in wilderness wildlife corridors. Grizzly bear shot in 1853.

Coastal Zone
Ballona Wetlands (M12)
Contains diverse ecologies: salt marsh, fresh water wetlands, fresh & brackish water channels. Wetlands suffer from lack of tidal flushing and encroachment by developers. Adjoining uplands serve critical functions as habitat refuge, food chain support and corridors.

Opportunity site
SitiOS de oportunidad

Pending improvement of existing conditions, "opportunity sites" have the potential to sustain many wildlife species through preservation or restoration of degraded or ungraded lands. Locations on A to F of Baldwin Hills & La Ballona Creek are prime examples. These sites will provide residents of LA the ability to interact with & demystify nature while learning value of biodiversity & importance of co-existence with it.

Coastal Plains
La Ballona Creek (L12-Q8)
Year-round river draining 130 sq. miles & largest storm drain in watershed which accounts for 25% of pollutants entering Bay. Dry weather flow is 10-15 million gals per day, wet weather flow is 10 billion gals per day of polluted runoff, trash & debris. Originally lined with sycamores, willows & tules & fed by springs. Although trees are gone, 50 species of resident & migrating birds use the creek for feeding, resting & nesting, including herons, egrets & terns. Opportunities for "greening" La Ballona Creek are now being reviewed & encouraged by a wide range of groups.

Coastal Zone
Ballona Sand Dunes & Fresh Water Habitat. County-registered Significant Ecological Area. Ungrazed dunes vulnerable to development.

Marina del Rey (L11-12)
The largest small-craft harbor in world. Constructed on Ballona Creek Estuary in 1960-1962. Serves important role as refuge for marine life, especially eggs, larvae & young adults, which spend life cycle in warmer & protected waters. 90 species of fish observed. Contaminants found are lead, mercury, zinc, DDT, PCBs, petroleum hydrocarbons from engine operation, detergents and trash/debris.

Water pollution source
Fuente de la contaminación del agua

Most of SM Bay pollution comes from urban runoff. Trash, cigarettes & grease dumped in streets enter stormdrains & flow to SM Bay. Heal the Bay, an environmental organization, grades beaches on A to F scale based on water quality monitoring. Map shows dry feet weather grades at outfalls indicated as A-F. 2 out of 50 miles of coastline are polluted in summer, but water quality drops dramatically during rainstorms, rebounding within days. Not all outfalls are shown.

Coastal Plains
La Ballona Creek Greenway (L12-Q8)
Planned bike path improvement is opportunity for creating a place that celebrates our creek with greenway & bikeways, habitat, recreation areas & interpretive signs. Native riparian shrubs & trees, such as sycamores & cottonwoods, could form green corridor with pedestrian & commuter recreational bikeways. Linear river plantings could widen into parks: some restored natural habitat, others recreational facilities. Collapsible coasts could create water rec. areas. Portions of creek, which are broad & soft-bottomed, could look & work as they did hundreds of years ago w/ creek bed hundreds of feet wide & fish, birds & wildlife. For more information see Ballona Creek Watershed Management Plan (ladwp.org/wmd/watershed/bcr) & Ballona Creek & Trail Focus Special Study (www.culvercity.org/bctfss)

Coastal habitat
Habitat costero

Coastal habitat is found along SM Bay shoreline. Tidal lagoons, saltmarshes & beaches serve as feeding, resting & nesting areas for resident & migrating birds such as Least Tern, Snow Egret, Kingfisher, Cormorant & Western Grebe. Much of coastal habitat is degraded, destroyed or endangered by shoreline development, pollution, & predation by domestic animals. Remnants offer restoration opportunities.

Marine habitat
Habitat marina

Brookwaters provide shelter and nourishment for many species of fish such as California Halibut, Surf Perch, Sandlines, Lobster & Smelt. Warmer, protected waters of Harbor & Lagoons serve as nursery & habitat for young marine & mudflat creatures such as Long-jawed Mustardcrab, Shadow Goby, Fiddler & Mudflat Crab, Ghost Shrimp, & Sea Hare.

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Native American site
Sitio indigena Norte Americano

Before Spanish & other European Americans came to California, the Tongva (Gabrielino) Indians lived around wetlands & natural springs in LA for thousands of years. The Karwanga Springs, a sacred Tongva site and once the location of a thriving village of the Tongva, is now located on the campus of University High School. The Gabrielino Tongva Springs Foundation hosts visitors to the springs on the first Saturday of each month.

Urban Green Corridor
Bird Watching

In 2000 the Wildlife Club at SAHO High School investigated opportunity of creating wildlife corridors to connect open spaces. The Wildlife Club & Audubon Society conducted a bird count along these corridors.

SEAWEED STORY
SANTA MONICA BAY
Santa Monica Bay is a national treasure extending from Point Dume to Palos Verdes Point. The bay teems with life, serving as home to over 5,000 species of birds, fish, mammals, plants and other wildlife. The bay also provides recreational opportunities for an estimated 45 million visitors each year - more than 500,000 a day at the height of summer.

A BAY RECOVERING
Not so long ago Santa Monica Bay was one of the most polluted bodies of water in the country. Many important steps have been taken by the community to reverse years of neglect and the health of the bay has greatly improved. Still, urban runoff, the surface wastewater flowing from our homes and businesses, poses a serious threat to the health of Santa Monica Bay.

KELP (SEAWEED) EDUCATION
The presence of kelp in the Santa Monica Bay is an indication of greater health. Much of the kelp native to Santa Monica Bay has been destroyed due to a number of factors attributable to human intervention. Since 1998, the Santa Monica BayKeeper and the City of Santa Monica have worked together to develop and implement a comprehensive kelp educational program in Santa Monica public middle schools to actively include students in a community-based conservation effort underway to bring kelp back to our local waters.

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A Green map is a map that locates and promotes sustainable urban features, both natural and manmade. All over the world, cities & towns are being Green Mapped. This map, for more info visit greenmap.org.

This map is for informational purposes only. While every effort has been made to be accurate, information herein is not guaranteed by GreenMap System.

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Map development and printing was funded by the City of Santa Monica Environmental Programs Division and WWP.

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David Down - Cowan Communion Arts - Cover Design
Camille Kirk - Context Research & Mapping
Dorina Korn, Moa Kyum Pye, Soe, Rosa Bruno - GIS Analysts
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Santa Monica & Ballona watershed green map

Revised - 2004