Future Histories



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Location Map



Divided Across Time the Los Angeles River Watershed

The ecological history of the Los Angeles River and Watershed can be divided into four main eras

- i. Pleistocene Megafaunal (2.6mya 9000 BP
- ii. Indigenous (9000 BP 1769)
- iii. Euro-American Conquest (1770s-1870s)
- iv. Urban-Industrial-Global (1870s -present)

Most of the flora and fauna that are common and endemic to the region evolved during the Pleistocene and adapted to become suited for the eventual Mediterranean-type climate. Understanding the evolution of these species throughout historical ecological cycles is a useful precedent to understand how the region might accommodate current and future climate shifts.

The following three eras of human intervention, occupation, and exploitation varied greatly in their approach to management of the LA River Watershed. Indigenous landscape was shaped by intensive management of plant and animal special by the Chumash, Tongva, and their neighbors for thousands of years. Surprisingly uniform practices to cope with oscillating cycles of fire, flood, and drought across various tribes aided the collective in creating trading economies and relative abundance in food harvesting along the LA River's path.

After western colonizers stole this land from Indigenous tribes and eradicated their land management and cultural practices, the Euro-American Era and subsequent Urban-Industrial-Global eras were characterized by rapidly developing agricultural and pastoral economies dependent on grazing livestock.

Southern California is characterized by it's own unique Floristic Province, one of the top 25 biodiversity hotspots on the planet. Species native to this area were restricted by the ocean to the west, Sierra Nevada Mountains to the east, allowing for development of thousands of unique endemic plant and animal species. The LA River watershed lies at the very center of this region and shares every one of it's sub-regional ecological zones.

By it's nature, the Urban-Industrial-Global era caused rapid destruction and homogenization of the watershed and it's plant communities in order to serve burgeoning agricultural and military-industrial economies. Damming, channelization, and diversion of the Los Angeles River and the importation of water via major aqueducts transformed this critical hub of

HISTORICAL LANDSCAPE ECOLOGY OF THE LA RIVER



Chaparra

Riparian Forest

Riverwash

- Foothill and Valley Forest and Woodland
- California Grassland and Flowerbeds
- Freshwater Marsh
- Johnny Carson Park

Coastal Sage Scrub

Salt Marsh Meadow

Wet Meadow

PRESENT LA RIVER WATERSHED



Source: 'Historical Ecology of the Los Angeles River and Watershed' 2020, John Randolph Haynes and Dora Haynes Foundation

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biodiversity. Riparian habitats along the course of the river were extensively degraded and the formerly vast river-wash riparian terraces and plains surrounding the river were paved over - hardscaping almost the entire lower course of the Los Angeles and San Gabriel watersheds.

As one of the rarest habitats in the Western Hemisphere, the importance of western riparian areas cannot be overstated because of the high temperatures and dryness present adjacent these ecosystems. They are sanctuaries. As we look to the future, their restoration is an invaluable buffer against impacts from climate change and increased water demand.



Divided Across Time the Los Angeles River Watershed

Urban Boundaries

It's unique situation inside an urban area, and increased awareness of it's ecological and economic value has lead to many restoration efforts along the LA River in the past few decades.

As it exists now, the LA River is primarily an open concrete channel designed for capturing stormwater runoff and delivering it as quickly as possible out of the urban area to avoid flooding that would impact transportation, local business and residents, and utilities.

An ideal restoration effort, one that returns the river to a naturalized state with soft bottom areas for reduced flow and infiltration, diverse riparian and aquatic life, and broad floodplains to accommodate a 100-year flood capacity, would require broadening the current channel 3-7 times it's present width. The additional space needed for a plan like this would, at a minimum, result in displacement of 22,000 residents, major impacts on government and industrial land, 35 miles of freeway, 60 miles of transmission lines, and 20 miles of railroad would be affected.

Planting Strategy	Remaining Channel Capaci	ity
Planted Banks and Concrete Channel	40-50%	
Grassed Banks and Grassed Channel	55%	
Grassed Banks and Concrete Channel	75%	
Low Flow Channel with Shrubs/ Trees and Concrete Channel	80%	
Low Flow Channel with Grasses and Concrete Channel	95%	

Planting and flow velocity have an inverse relationship. When flow is reduced, a wider channel is required to accommodate the volume of water. Source: LARMP



The LA River's 51 miles stretches across 17 municipalities and countless neighborhood communities each with their own culture, amenities, and composition. Over 1,000,000 people live within a mile of the LA River.

Ecological restoration efforts need to take into account the human context and local conditions in order to be successful and sustainable. Systemic deficiencies in shade, access to recreation, nature, and cultural space for art and events often most affect the urban adjacencies to the LA River and should be considered in tandem with an ecological solution. The stretch of river adjacent to our site is surrounded by primarily media district commercial, and low and high density residential space.



3X 7X 5X Widening Widening Widening Could Impact Could Impact **Could Impact** 60,000 Residents 21,000 Residents 107,000 Residents 50 mi. of Freeway 35 mi. of Freeway 60 mi. of Freeway 30 mi. of Railroad 20 mi. of Railroad 30 mi. of Railroad 75 mi. of Transmission Lines 60 mi. of Transmission Lines 90 mi. of Transmission Lines 93 Bridges 82 Bridges 108 Bridges 385 Critical Facilities 169 Critical Facilities 620 Critical Facilities

Impact scenarios for widening the river channel to restore to a natural soft bottom. Figures are approximate. Source: LARMP



There is no other site along the river in the city of Burbank that is available for open space or recreational development, and the next closest green space is over a mile away.

These urban areas exist over what was once a historic riverwash, riparian forest, and grassland. These ecologies should be the inspiration for restoration efforts in conjunction with the needs of the now urban composition of the landscape.





A diverse range of communities and conditions exist along the LA River. Residential, industrial, commercial uses are built in close proximity. Design elements for recreation, restoration, and other amenities can unite these disparate demands on the space.

Riparian Ecosystems

Riparian habitats are characterized by highly varied vegetative structure, density, and diversity. In combination with the availability of water, they make excellent breeding and foraging grounds for reptiles, amphibians, and birds. Loss of riparian habitat has led to local extirpation of several Federal and state sensitive bird species that can no longer find the shelter and food they need along the river.

Southern California has lost over 90% of its riparian habitat, 95% of its wetlands, and 40% of its reptiles and amphibians.

Urbanization and habitat fragmentation has led to decreasing numbers of several populations and is forcing terrestrial animals to live on the urban edge becoming a threat to human life.



Mountain Lion

Coyote

Bobcat







Riparian Ecosystems

In the southwest region, approximately 80% of all wildlife use the riparian ecosystem at some life stage.

Historically, riparian habitats occupied 1% of the land mass in western North America. Within the past century, an estimated 95% of this habitat has been altered, degraded, or destroyed due to such land use activities as river channelization and urbanization.

Native species of fish in the LA river are now rarely observed.

Some native species that once thrived in the river



Arroyo Chub



Steelhead



Threespine Stickleback



Santa Ana Sucker



Pacific Lamprey



Chinook Salmon



Present Day River

1896 River

Some exotic species that now live in the river



Mosquitofish



Green Sunfish

Connectivity and Corridor Ecology



The unprecedented rate of climate change reduces the ability of species and ecosystems to adapt and survive. Increased urbanization and subsequent loss of habitat for wildlife have resulted in increased habitat fragmentation. Isolation weakens genetic diversity as it increases in-breeding and disease. Enhancing wildlife movements allows for increased genetic diversity and healthier, more resilient species populations.

Our site can contribute to increased connectivity between large habitat nodes (significant ecological areas) and smaller habitat nodes (which act as peripheral refuge habitat).

A complex network of nodes and corridors is critical to restoration in an urban environment, as suitable habitat often remains unused if isolated. A study in the Simi Valley found that tunnels, equipment passages, corrugated culverts, paved roadways, and pathways were utilized by skunks, opossum, raccoons, grey fox, coyote, mule deer, mountain lions, and bobcat.



Legend

- Site Significant Ecological Area
- Peripheral Refuge Habitat
- Habitat Areas
- Potential for Enhanced Aquatic Habitat
- Potential for Increased \leftrightarrow Connectivity
- \leftrightarrow Potential for increased connectivity that should be explored further
 - Griffith Park

1.

- 2. Verdugo Mountains
- San Rafael Hills 3.
- 4. Mt Washington
- 5. Elysian Park
- 6. Montecito Heights
- Santa Monica Mountains 7. 8.
 - Sepulvada Basin

Legend Above

- Riparian corridor through 1. memorial park – 1.1 miles
- 2. River corridor to nearest softbottom channel – 1.5 miles
- 3. Corridor through defunct highway
- 4. Potential corridor that could be explored in the future that runs under power-lines

Direct access across Forest Lawn Dr. -0.25 miles

Context Map



Legend

- Commercial Entertainment
- Recreation
- Commercial
- Public School
- Private Cemetery
- Public Infrastructure Project
- Single-Family Residential
- 8 Lane Highway
- -- Site Boundary

Context Legend

- 1. Burbank Studios
- 2. The Pointe
- 3. Providence Medical Center
- 4. Providence High School
- 5. The Walt Disney Studios
- 6. Warner Brothers
- 7. Residential Neighborhood
- 8. Forest Lawn Cemetery

Observations

There is a stark contrast between Northern and Southern edges of this site. The primary views direct you South, toward the green hills of Griffith but there is no access. Noisy, high traffic edges surround on the East, West, and Northern sides. The residential area is the best connected zone to the site's amenities

Topography



Legend

- Site Boundary
- LP Low Point Outside Site Boundary 150m
- HP High Point Outside Site Boundary 460m
- Low Point Inside Site Boundary 161m
- High Point Inside Site Boundary 169m

Observations

The LA River is the low point of this region, stormwater and surface flow from both urban areas North of the site and Griffith Park to the South is directed to this channel.

Inside the site boundary the high point along Parkside Ave. Provides views of Griffith and Forest Lawn

Contour interval: 4m

1000 ft

Analysis: Sun, Noise, Views



Views

From the highest point at Johnny Carson Park there are views of the freeway and Griffith Park. From the freeway and the below the freeway there are views of Griffith Park.





Noise

A freeway, streets, hospital, and high-school all generate noise. Most notably is the noise generated by the highway as well as ambulances traveling to the nearby hospital.

Legend

= Site Boundary



Views of Griffith Park throughout site.



Sun Pattern

Building shade affects the North part of the site.

Legend



Site Boundary Sun Path

Circulation



Vehicular

Legend

- Highway Traffic
- Primary Vehicular
- Circulation
- Secondary Vehicular Circulation
- Street Parking
- Site Boundary
- \bigcirc Pick Up/Drop Off
- Transit
- 0 Providence Parking
- **Electric Vehicle Charging**

Context Legend

- 1. Burbank Studios
- 2. The Pointe
- Providence Medical Center 3.
- Providence High School 4.
- The Walt Disney Studios 5.
- Warner Brothers 6.
- 7. Residential Neighborhood
- 8. Forest Lawn Cemetery

Observations

The site is split and framed by streets and highways. Parking is limited.

- Primary Pedestrian Circulation Secondary Pedestrian ____

Pedestrian

Legend

- Circulation
- **Tertiary Pedestrian** ____ Circulation
- Crosswalk
 - Site Boundary
- **Public Transportation**

Context Legend

- 1. Burbank Studios
- 2. The Pointe
- Providence Medical Center Providence High School The Walt Disney Studios Warner Brothers Residential Neighborhood
- 3. 4. 5. 6. 7. 8. Forest Lawn Cemetery

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Observations

Pedestrian circulation is very sparse on the site, primarily limited to sidewalks along the main streets. The access to pedestrian walking paths along the river is primarily available to the residential area.

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Climate Conditions: Mediterranean



The Mediterranean ecosystem occurs only in five relatively small areas around the planet: the area bordering the Mediterranean Sea, central Chile, the Cape region of South Africa, southwestern and southern Australia, and, of course, southern California and northern Baja California. These areas are distributed between roughly 30 and 40 degrees latitude – north and south – and are located along the western edges of continents where the climate, characterized by mild, rainy winters and warm, dry summers, is moderated by cold ocean currents offshore.

Throughout the world, the Mediterranean ecosystem is characterized by evergreen or drought deciduous shrublands. The chaparral of southern California is echoed in the old world Mediterranean maguis, the Chilean matorral, South African fynbos and the Australian mallee scrub communities. Due to the limited extent and isolation (almost island-like) of each area of the Mediterranean ecosystem, there is frequently a high degree of endemism in the flora and fauna.



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75.0		
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57.5		
55.0		
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50.0	46.8	
47.5		
45.0		
42.5		
	Jan Feb	



Tree Canopy



Legend

- Area with greatest potential for tree canopy cover improvements, as the existing percent is low and possible percent is high.
- Area with high existing and possible tree canopy cover percent.
- Area with a low potential for tree canopy cover improvement, as the existing percent is already high.
- Quercus agrifolia
- Platanus racemosa
- Not native

Drainage



Legend

- Open Storm-water Channel
- Storm-water Drainage Channel
- Main Line Water
- Sewer System
- LA River Open Channel
- Catch Basin
- Site Boundary

2040 at a Glance



Site Conditions

1. Defunct Highway

Because of reduced automobile ownership, enhanced coordination between vehicles, and more remote work, the 134 freeway will be a defunct corridor.

2. Rapid Bus Transit

A rapid bus corridor on Olive will enhance public transportation options.

3. Headworks Project

The Los Angeles city Headworks Project which will store 110 million gallons of water and will also provide space for wildlife and recreation.

- 4. Ecological Conditions (climate)
- A. Temperature Rise

Global annual average surface air temperature has increased by about 1.8 F from 1901 to 2016 and it is expected to keep rising.

- Magnify adverse effects of pollutants. This can alter _ water chemistry with negative implications for riparian habitats.
- Increase invasion of non-native species that have a _ competitive advantage.
- Expand range of pest species or pathogens _
- Heat island effect in heavily paved areas _
- B. Ecological conditions fire Fire which is a natural and historic process will still be a concern and the site's proximity to open space and Sennett Creek will be noted.

Annual Average Temp



Extreme Heat Days

100)
90	
80	
70	
60	
50	
40	
30	
20	
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	1960

- C.
- 5. Automated Vehicles
- 6. Anticipated Population



Broader Ecological Conditions (flood) Erratic weather patterns may increase the chance of heavy rainfall. The Los Angeles River as a flood control mechanism will need to be maintained.

Technological advancement facilitates expansion of alternate forms of transportation.

Increase in population will further strain all systems.

Opportunities and Constraints



Hard Divisions

Constraint:

Hard Divisions of Space due to highway, river, streets and topography.

Opportunity: Improve connectivity with bridges, paths, traffic diversion, and safety medians. Repurposed defunct highway for recreation and habitat generation.





Environmental

Constraint:

Drought, climate change, lack of biodiversity and presence of invasive species, 20th century urban development

Opportunity:

Reduce hard surfaces and introduce more permeable materials, create historic native habitat, up-cycle materials, create wildlife and water system connections, increase tree canopy.



Accessibility

Constraint: Lack of accessibility.

Opportunity: Create access for disabled people, pedestrians, hikers, wildlife, public transportation, and cyclists.

Flood Control

Constraint: Channelization of river to control flooding.

Opportunity: Introduce riparian habitat by removing concrete which would promote infiltrations and habitat generation.

Concept























Project Goals



Reconnect

Ecological Connection Creation of wildlife bridge Direct Connection of Sennett and Tujunga Wash with LA river. Softening of the river surface for habitat generation.

<u>Community Connection</u> Improved access with bike lanes, crosswalks, and pathways as well as connecting both sides of river.

Experiential Connection Create a singular site specific experience with a cohesive system.





Sustain

Design a landscape that will last and that will have the capacity to adapt to future conditions and demands.

Plant Material

Climate appropriate selections that can withstand future climate conditions and will require minimal irrigation.

Hardscape Materials

Up-cycle site materials and create permeability. Minimize use of new material and manufacturing. Reduce waste that leaves site.

<u>Water Capture</u> Reduce irrigation by creating network of water on-site.



Rehabilitate

Expand Native Planting Using historical reference create habitat and plant communities that are appropriate for site.

Improve Permeability and Infiltration

Decrease concrete on river and highway and introduce bioswales to capture and clean water on site. Replace lawn with robust native planting.

Biodiversity

Create habitat that supports species diversity and enhance connectivity for genetic diversity.

Inspire

Establish a sense of stewardship with the site's ecology through signage and guided experience

Promote site's sustainable features and practices.

Offer solutions and ways to replicate systems on other sites.

Process





Planting Plan



Existing and Proposed Tree Canopy



 Proposed
Valley Oak
Oak
Sycamore
California Laurel
Redbud
Chilopsis

- Black Walnut
- Sulix
- Fremont Cottonwood
- Native/Climate Appropriate

Legend Right





Existing Tree Canopy



Proposed Planting Communities

Planting Plan



Southern Oak Woodland A community of oaks and pines, tall and short shrubs, and openings of wildflowers and grasses.



Engelmann Oak Quercus engelmannii



Coast Live Oak Quercus agrifolia



Manzanita Arctostaphylos glauca



Toyon Heteromeles arbutifolia



Hummingbird Sage Salvia spathacea



Creeping Snowberry Symphoricarpos mollis



Coastal Sage Scrub Also known as soft chaparral, this is a community of low-growing, aromatic, drought-tolerant plants.



Lemonade Berry Rhus integrifolia



California Sagebrush Artemisia californica

California Buckwheat

White Sage

Salvia apiana

Monkey Flower

Coyote brush

Baccharis pilularis

Diplacus aurantiacus

Eriogonum fasciculatum



Bioswale

Grasses and beautiful flowering trees and shrubs adapted to wet and dry conditions. They purify water and prevent erosion.



Desert Willow Chilopsis linearis

California Lilac

Ceanothus spp.



Common Yarrow Achillea millefolium



Wild Hyacinth Dipterostemon capitatus



Blue-eyed Grass Sisyrinchium bellum



California Oat Grass Danthonia californica



Purple Owl's Clover Castilleja exserta



Deergrass Muhlenbergia rigens



Common Rush Juncus patens



Grassland/Flower Meadow

A community of wildflowers, grasses, herbs, forbs, geophytes and subshrubs. It has little to no cover of woody species.

Longleaf Bush Lupine Lupinus longifolius

California Poppy







Red Fescue Festuca rubra





Sycamore Understory

These shade-loving plants were chosen for their ecological value and beauty for the understory of the existing striking Sycamores.

Eschscholzia californica



Western Sycamore Platanus racemosa

Western Redbud Cercis occidentalis



Mulefat Baccharis salacifolia



Blue Elderberry Sambucus mexicana



Douglas Iris Iris douglasiana



California Wild Rose Rosa californica



LEGEND

- 1 RAMP ACCESS
- 2 DIVERTED 1-WAY VEHICULAR, EXPANDED BIKE AND PED ACCESS
- (3) ENTRY PLAZA WITH DISSOLVED PAVING DETAIL AND RAIN GARDEN
- (4) RAISED BIOSWALE PATHWAY
- 5 SEATING LOUNGE DECKS
- 6 RIVER OVERLOOK DECK
- (7) RIVER BRIDGE WITH BIKE LANE AND INTEGRATED SEATING
- 8 RIVER STEP-STONE CROSSING
- (9) AMPHITHEATER SEATING / RIVER ACCESS
- (10) EXISTING RAMP ACCESS
- (1) OVERPASS PLAZA WITH SKYLIGHT CUTOUT
- 12 ENTRY PLAZA
- (3) RE-CONNECTED LITTLE TUJUNGA WASH
- (14) WILDLIFE RIVER ACCESS
- (15) WILDLIFE CROSSING
- (16) CONNECTION TO SENNET CREEK GRIFFITH PARK



















1

8

(10)

11

(A)

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(4)

6)

5

LEGEND

- 1 RIVER BRIDGE WITH BIKE LANE AND INTEGRATED SEATING
- (2) RIVER STEP-STONE CROSSING
- (3) AMPHITHEATER SEATING / RIVER ACCESS
- (4) CONCRETE RIVERBED REMNANTS
- 5 GRASSLAND MEADOW
- 6 OAK SAGE SCRUB
- (7) ENTRY PLAZA WITH DISSOLVED PAVING DETAIL AND RAIN GARDEN
- 8 INTEGRATED PLANTER MEDIAN AND BENCH SEATING
- (9) PEDESTRIAN ACCESS ACROSS FOREST LAWN DRIVE
- (10) RIVER WALK AND BIKE TRAIL
- (1) SYCAMORE UNDERSTORY PLANTING













Кеу Мар

6





Key Map



80' N 1" = 40'





Legend

- 1. Concrete Benches
- Permeable Surface for Planting
 Retained Asphalt Walkway

- Skylights
 Shaded Trellis and Benches
 Raised Planter

- Shrub Planting
 Wildlife Bridge



Key Map









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Plaza and High-walk-way: Perspective



1. View of Entry Plaza



3. View of shade structure along pathways



2. View of transition to raised planters

4. View inside shade structure





	Ecological	Communit
Bioswale		
Bioswale planting		
Prairy planting		
Oak woodland planting		
Sycamore understory planting		
Ramp connecting to Freeway		•
Reclaimed concrete path		•
Path connecting to Entry Plaza		•
Wooden path over bioswale		•
Seating area + shade structure		•
DG path by the river		•

12 Softened river bed







Кеу Мар





Bioswale: Section







Bioswale: Perspective

A space for reconnecting with nature and observing the passage of time with the flowering of the Redbuds, the abscission of sycamore leaves, the joy of the butterflies around the ceanothus, and the rippling surface of water after rain.

The bioswale filters and cleans the water, removing harmful pollutants and replenishing this thirsty and depleted earth with vital nutrients.

It is a habitat for diverse plant and animal species, creating a vibrant ecosystem that supports life on a grand system.

The area can be observed from different angles and elevations. The freeway and the ramp leading to it afford a bird's eye view, while the wooden boardwalk that bridges and the seating deck allow for a more immersive experience.

The design of the deck and its shade structure draws inspiration from the gentle curves flowing water carves in the earth.





Hope for the Future



Reconnect

Ecological Connection

Further integration of ecological corridors to bolster and restore wildlife connections and plant communities along highway, river, and high voltage lines that run north to Angeles National Forest.

Community Connection

Extend design along 134 and LA River, integrating communities that have been historically separated by infrastructure and urban development. Provide safe, equitable green space for all to use.

Experiential Connection

Provide design tools and material selections for development of similar inter-connected sites along these corridors.

Sustain

Design a landscape that will last and that will have the capacity to adapt to future conditions and demands.

Plant Material

Eliminate turf grass and non-native plantings, refocus on natives and more robust, layered palettes that can provide habitat and are climate resilient.

Hardscape Materials

Eliminate new materials where appropriate, encourage local sourcing when possible, and prioritize permeability and water capture.

Water Capture

Consider the water impact of the design at each stage, place water capture and retention at the forefront of park planning.



Rehabilitate

Expand Native Planting

Acknowledge historical damage to native ecosystems, and work to re-establish those communities

Improve Permeability and Infiltration

Remove concrete and replace with permeable, sustainable materials that promote water capture and infiltration. Select layered native plant palettes with extensive root systems to maintain soil ecology. Biodiversity

Expanded wildlife corridors between sites and more thoughtful native planting will enhance biodiversity and restore habitat.

Inspire

Establish stewardship and better understanding of the entire LA River system and history through signage and guided experience between sites. HIghlight sustainability efforts, and offer opportunities for community initiatives and involvement.