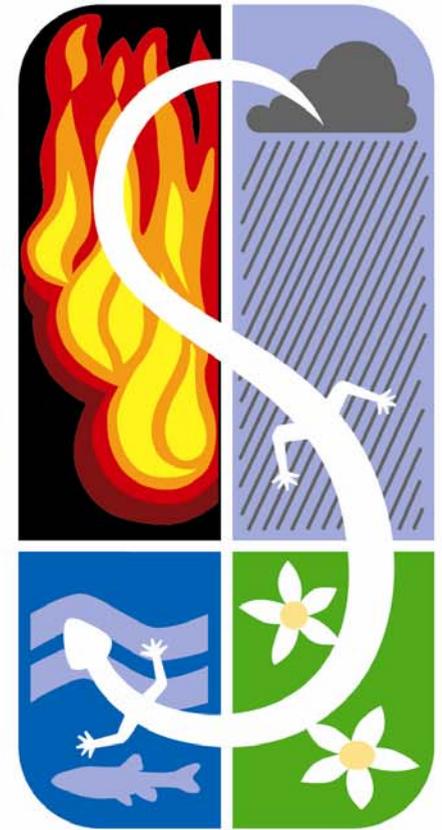


Lytle Creek Watershed Plan

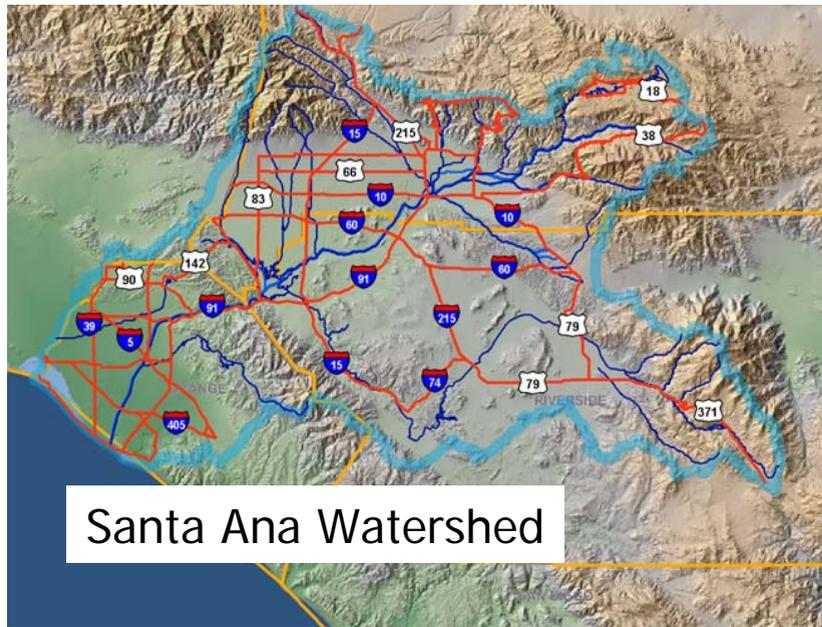


A Framework for Community Action



THE SLENDER
SALAMANDERS

OF THE CALFED BAY-DELTA
AUTHORITY WATERSHED
PARTNERSHIPS SEMINAR
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The purpose of this plan is multi-pronged:

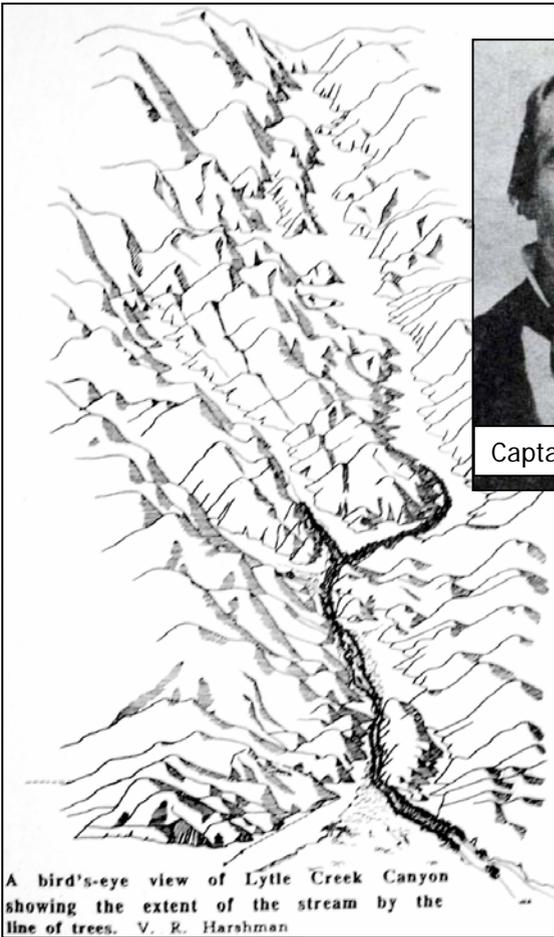
- Provide for the multiple goals of water quality and supply, public safety, open space, habitat protection for flora and fauna to thrive.
- Identify “connectivity” opportunities, or ways to link existing and new open spaces along Lytle Creek and in the larger Santa Ana River Watershed. Our hope is to reconnect communities at these parks and alleviate stress put on recreational locations in the upper Creek area.

Human Needs and Nature’s Ways: Making Connections

The natural shape of creeks and rivers – meandering like a salamander – is predictable and performs particular functions. Historically, human beings have lived by these waterways. Native people established villages nearby the Lytle Creek and the Santa Ana River.

The focus area of the Lytle Creek Watershed Plan stretches from the headwaters of the Creek to where it joins the Santa Ana River. This plan breaks up the study area into different and similar needs of the three sections of the Creek, referred to as the upper, middle and lower Lytle Creek sub-watersheds. The three sub-watersheds’ challenges range from natural hazards and habitat alteration to competition for recreational uses and concrete-lined waterways.

- New home development, moving onto the alluvial fan and up to the foothills, covering up much of the land with cement and asphalt and adding to demand put on recreational resources in the upper sub-watershed.
- Meanwhile, there’s a socio-economically disadvantaged community living in an open space-deficient area in the lower watershed.
- In addition, water is treated as a nuisance and to be managed for public safety, channeling rainfall and urban run-off to the ocean as fast as possible.



A bird's-eye view of Lytle Creek Canyon showing the extent of the stream by the line of trees. V. R. Harshman

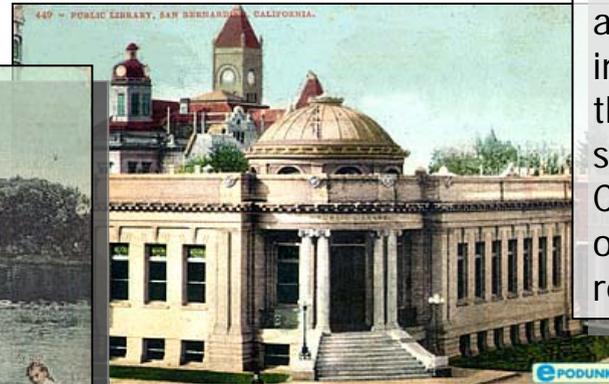


Captain Andrew Lytle



Vision Statement:

In honor of existing community efforts towards the preservation of the Lytle Creek community character, protection of lives and properties and implementation of programs that support the protection and sustainability of the Lytle Creek's watershed habitats, we offer the following items for recommendation.



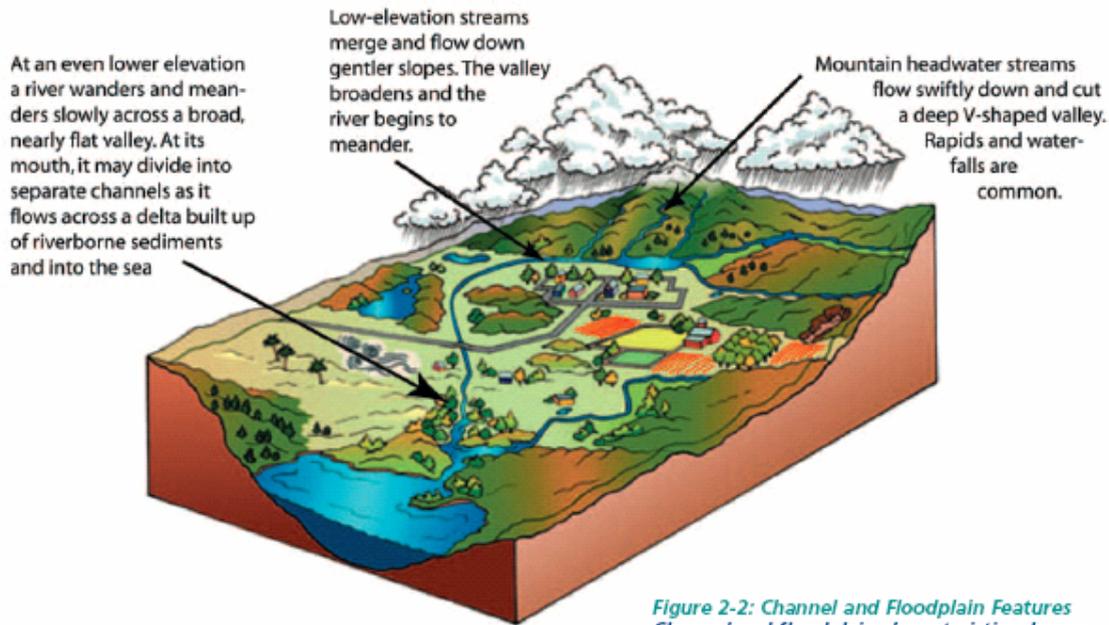


Figure 2-2: Channel and Floodplain Features
Channel and floodplain characteristics change from headwaters to mouth

Lytle Creek Watershed Plan – Controlling (Human) Nature

“The way we treat rivers reflects the way we treat each other.” Aldo Leopold

This plan is rooted in the hope that we can involve the community at all levels the opportunity to create a balance an enjoyable life with ecological protection and social equity.



Our plan pays particular focus to:

- Maintaining the community character, safety and ecological integrity of the upper Creek sub-watershed
- Seeking to preserve and protect remaining alluvial fan acreage in the middle Creek sub-watershed
- Seeing water as a resource and thus identifying sites to utilize natural processes to capture and clean water while creating open spaces and habitat in the lower Creek sub-watershed.

Elements of the Plan:

- Identifying stakeholders and their interests (Community Based Management) – involves any person or entity that feels they have an interest in a watershed community; an on-going process
- An assessment of physical and social aspects
- Policy Changes and Hands-on Actions
- Education and Outreach
- Monitoring and Feedback



Connectivity

Natural and Human issues of connectivity within the Lytle Creek watershed offers challenges within the context of environmental justice, sustainable land use management and resource management. These three topics inter-relate with a wide range of issues and potential remedies.

- Groundwater contamination issues (Perchlorate and other contaminants)
- Air Quality and Health issues- especially for children and seniors
- Recreational concentrations in the National Forest and lack of parks and open spaces areas within the lower reach watershed & alluvial fan.
- Improved exchanges through educational events and outreach between the stakeholders in the upper and lower sections.
- Wildlife corridor linkage challenges due to a geographic narrow canyon.
- Transportation opportunities within the Cajon Pass which could improve movement of people and animals.
- Greenway opportunities that include historical content of place and people.





Significance of Myth in Motivating Community: The Slender Salamander Theme

Amphibious: Balances life between water and land (the “watershed”)

Endemic: A native to the watershed, adapted to the environment

Sensitive: Indicator of water and environmental quality

Regenerative: Able to re-grow lost appendages (re-“connections”)

Endangered: Like amphibians worldwide, its existence is threatened by human activities

Mythic: Legendary creature born of fire – bold, impervious, fearless, capable of great deeds (the “dragon” of lore)



LYTLE CREEK STAKEHOLDER TASK FORCE

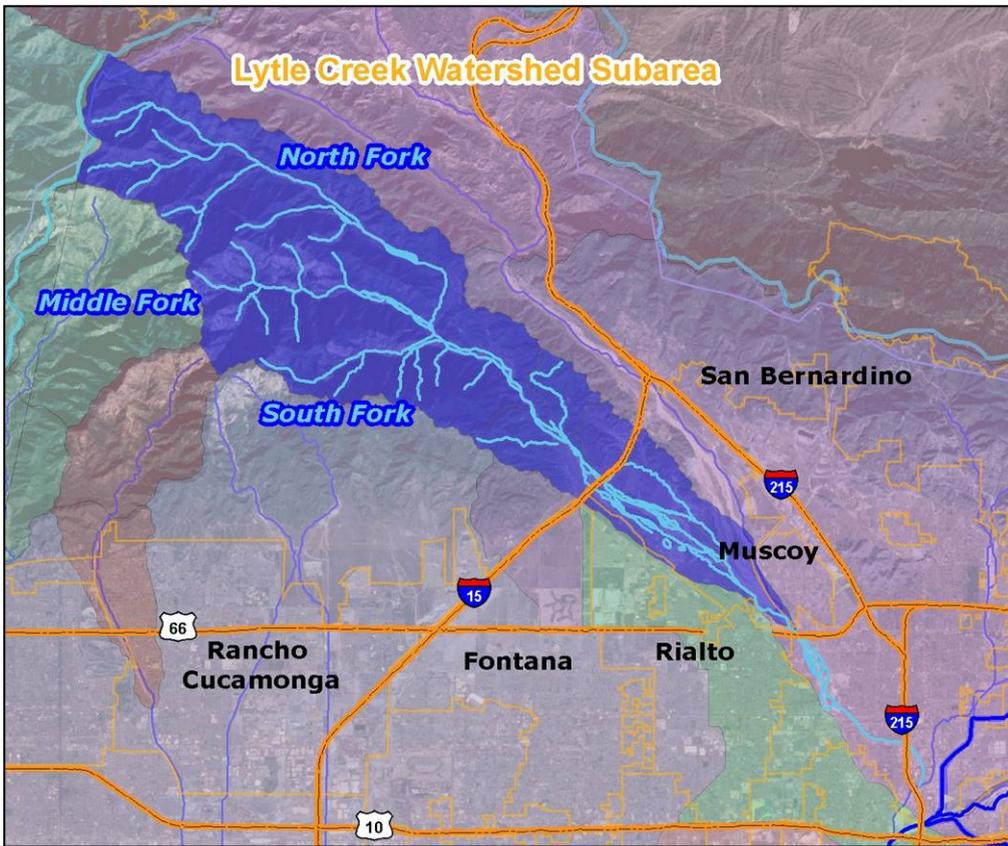
Participants, Structure, Process and Funding

Structure:

- The perceived and real differences between the upper and lower reaches makes recommendations about a recommended organizational structure dependent on many factors. A Watershed Council offers an opportunity for connections between upper and lower participants while enhancing their local character and unique needs.
- In May 20th 2006, the Upper Santa Ana Watershed Foundation was announced as an organizational entity in the upper reaches of the Santa Ana to strive for better collaboration in achieving grants. This entity is just in it's beginning phase of development and will incorporate the Educational Outreach Action plan in our source materials section.
- This proposed working group will promote sharing methods in regional ecosystems management through regional science and monitoring efforts. These will include water quality and atmospheric pollutants, land use and local policy support and dissemination of techniques among the cooperating stakeholders. The education action plan outlines some initial options.

The Objectives of this Foundation will:

- Promote the collection, exchange and dissemination of information and techniques in the field of monitoring of broader watershed health and the evaluation of the effects of habitat changes on this unique region.
- Help develop monitoring programs for local water quality and habitat sustainability based on the monitoring of a this regional group.
- Foster Santa Ana Watershed wide improved cooperation, among scientists and resource managers and local resource agencies, focusing on upper watershed connections with the total watershed based efforts.



Upper Lytle Creek Watershed

- From upper mountain divides to the mouth of Lytle Canyon
- Includes the sub-watersheds drained by North Branch, Middle Branch, and South Branch of Lytle Creek

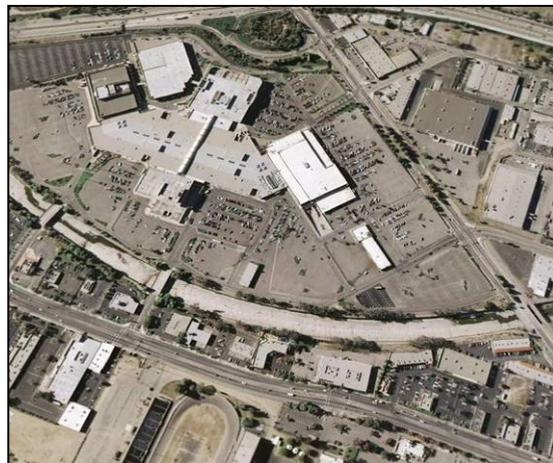


Lower Lytle Creek Watershed

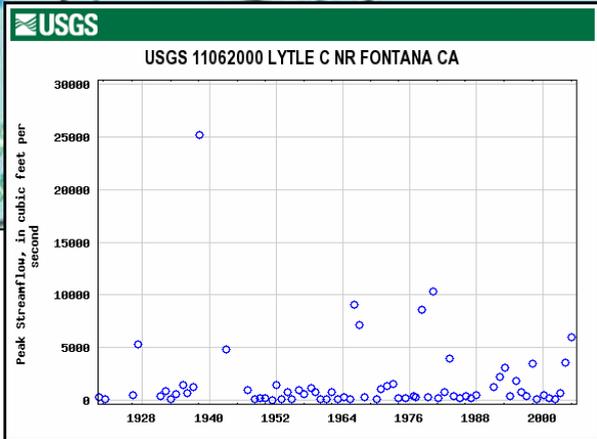
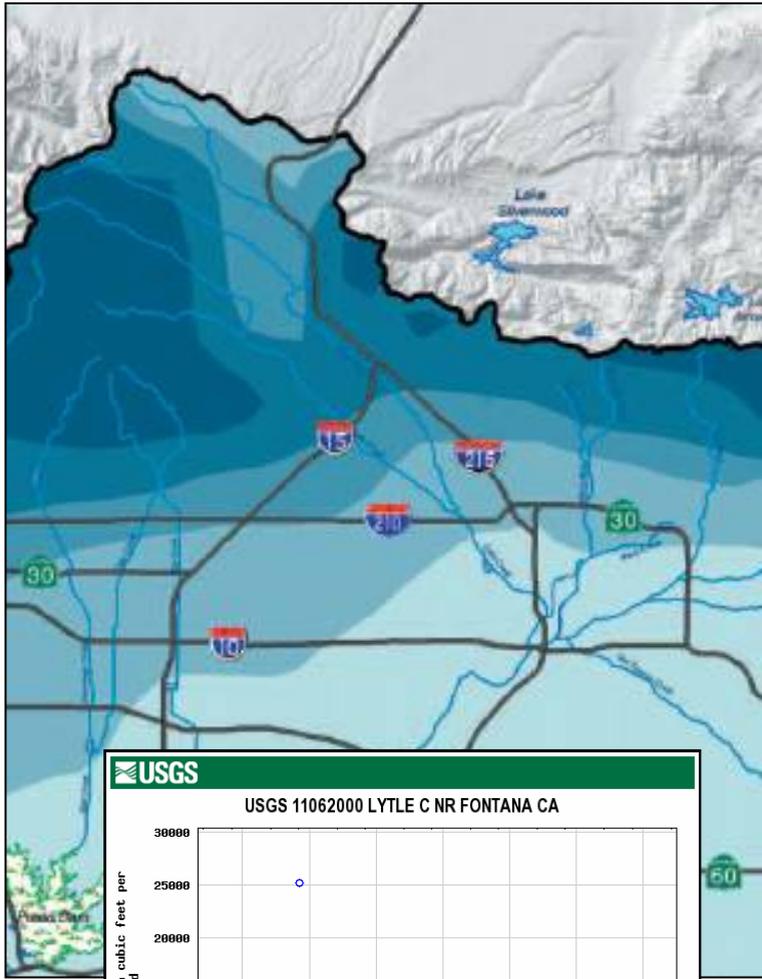
- From mouth of Lytle Canyon to confluence with Cajon Canyon
- Alluvial Fan

Urban Reach – Lytle Creek

- From alluvial fan through urban reaches to confluence with Santa Ana River
- Urban drainage system and storm channels



**3. ASSESSMENT
Watershed Boundaries**



Headwaters

- High precipitation (rain and snow)
- Steep slopes and highly erodible substrate lead to rapid runoff, debris flows, and high sediment loads
- Broad, cobbly stream beds; small perennial channels
- Perennial streams fed by surface runoff and spring sources
- Creek discharge diverted by water utility



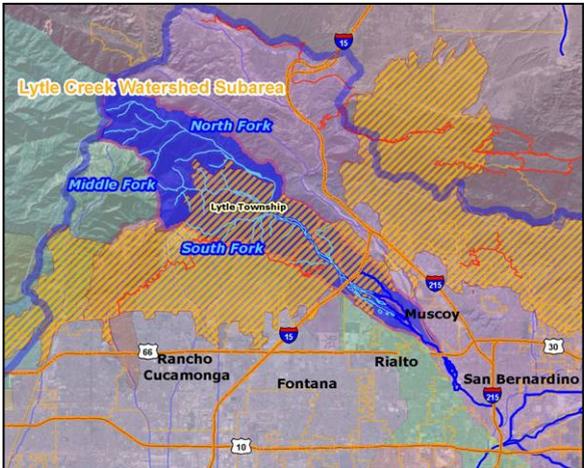
Alluvial Fan

- Broad alluvial outwash plain
- Cobbly, sandy soils with high infiltration rates
- Debris flow dominated
- Ephemeral stream channels
- Broken hydraulic connection

Floodplain

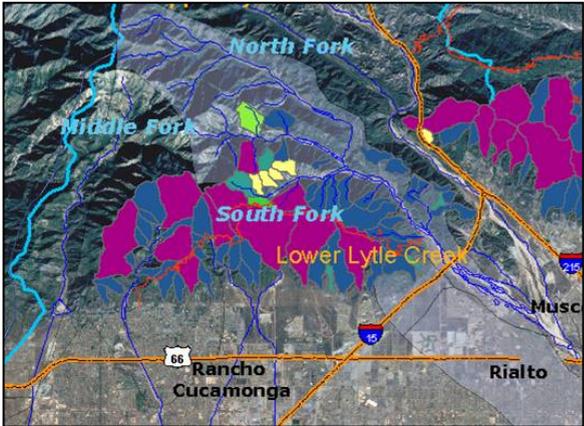
- Historic floodplain and wetland area
- Hydraulic system greatly modified by development and engineered channels
- Storm channels engineered to pass storm runoff through area as quickly as possible





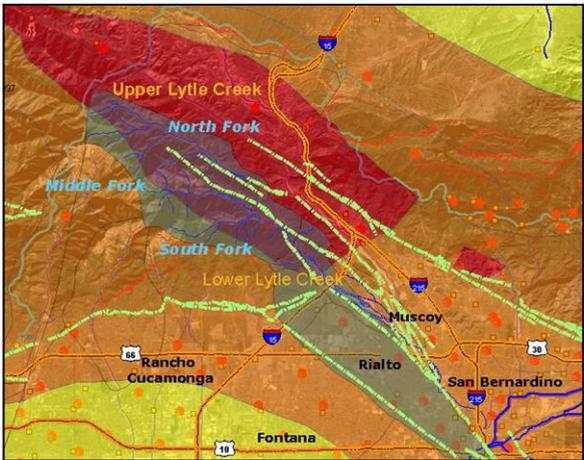
Wildfire

- Conifer forests and chaparral highly susceptible to wildfire
- More frequent wildfires may result in vegetation type conversion
- Regional wildfires caused by widespread watershed and ecological damage



Floods / Debris Flows

- Large scale firestorms result in devastating loss of vegetation and soil cover
- Hydrophobic chaparral soils induce rapid runoff
- High intensity runoff events lead to slope failures and debris flows



Seismic Activity

- Area adjacent to San Andreas fault
- Region susceptible to major earthquakes



Natural Hazards



Upper Watershed

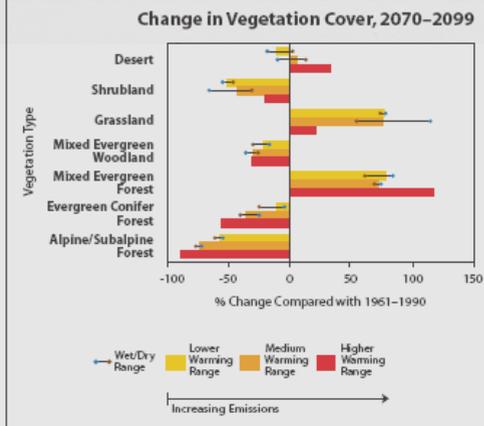
Reduced precipitation may lead to drier conditions and vegetation type conversion from coniferous forest and high chaparral to desert brush habitats.

Middle Watershed

Increased fire hazard in upper watershed could increase risk of floods and debris flows on the alluvial fan.

Lower Watershed

Statewide reduction in precipitation and more rapid snowmelts may reduce the availability of imported water.



Potential Water Resource Impact	Expected Consequence
Reduction of the State's average annual snowpack	<ul style="list-style-type: none"> Potential loss of 5 million acre-feet or more of average annual water storage in the State's snowpack Increased challenges for reservoir management and balancing the competing concerns of flood protection and water supply
Changes in the timing, intensity, location, amount, and variability of precipitation	<ul style="list-style-type: none"> Potential increased storm intensity and increased potential for flooding Possible increased potential for droughts
Long-term changes in watershed vegetation and increased incidence of wildfires	<ul style="list-style-type: none"> Changes in the intensity and timing of runoff Possible increased incidence of flooding and increased sedimentation
Sea level rise	<ul style="list-style-type: none"> Inundation of coastal marshes and estuaries Increased salinity intrusion into the Sacramento-San Joaquin River Delta Increased potential for Delta levee failure Increased potential for salinity intrusion into coastal aquifers (groundwater) Increased potential for flooding near the mouths of rivers due to backwater effects
Increased water temperatures	<ul style="list-style-type: none"> Possible critical effects on listed and endangered aquatic species Increased environmental water demand for temperature control Possible increased problems with foreign invasive species in aquatic ecosystems Potential adverse changes in water quality, including the reduction of dissolved oxygen levels
Changes in urban and agricultural water demand	Changes in demand patterns and evapotranspiration rates

Source: California Department of Water Resources, 2005. Progress on Incorporating Climate Change into Management of California's Water Resources.





Headwaters

- Aquatic
- Montane hardwood forest
- Mixed Oak-Conifer forest
- Coniferous forest
- Chaparral

Alluvial

- Alluvial fan sage scrub

Lower Valley

- Urban lands
- Induced species

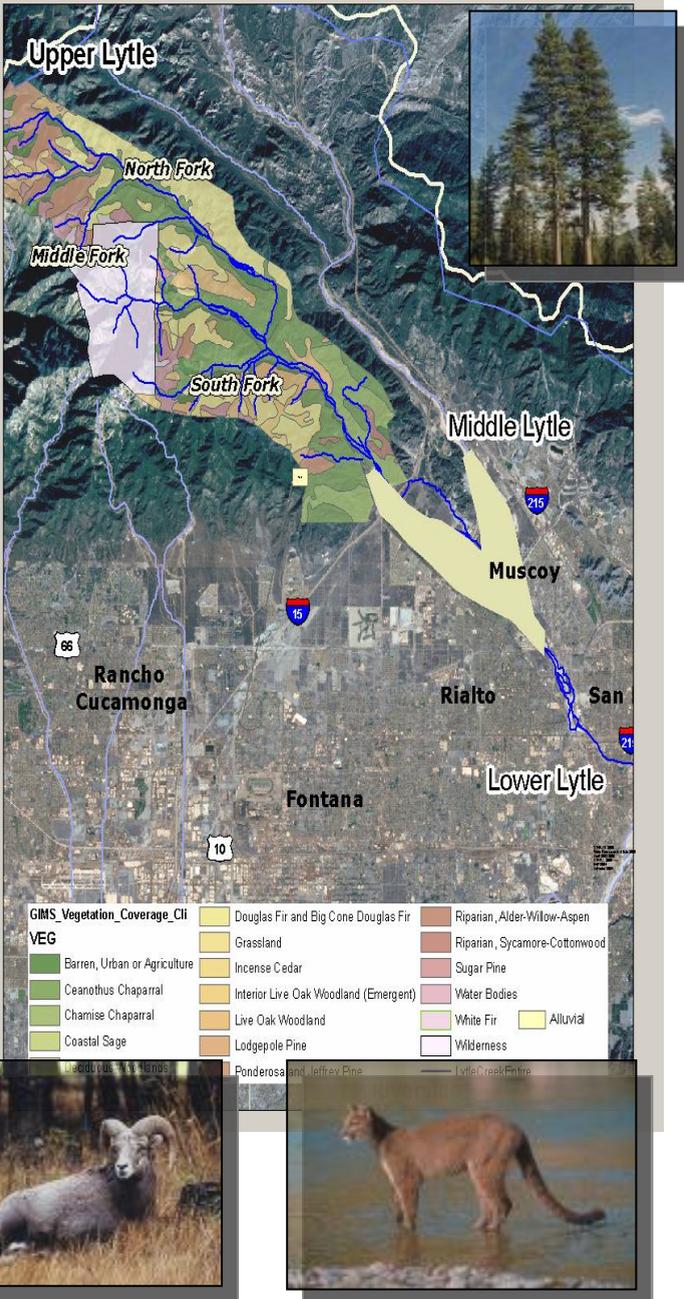
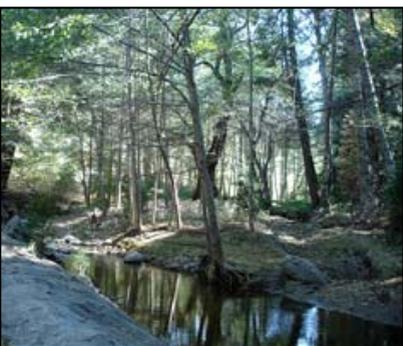
Soils

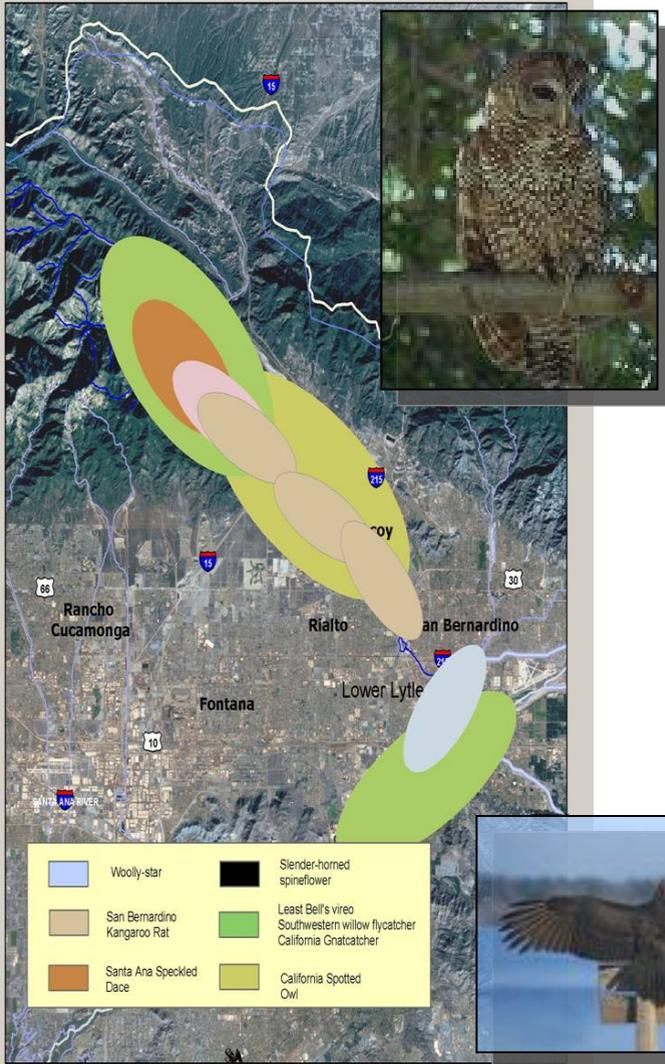
Lytle creek from the headwaters to the Santa Ana River confluence are predominantly Psamment with occasional Fluvent soils. Psamment is defined as an Entisol which consists basically of unconsolidated sand deposits, often found in shifting sand dunes but also in areas of very coarse-textured parent material subject to millions of years of weathering.

Fluvent soils are floodplain soils. These are for soils found on river bottoms or areas that frequently flood. The soils frequently have layers of different color due to frequent depositions.

Alluvial Fan

At the topographic apex (the point of columniation), it drains approximately 50 square miles of the San Gabriel Mountains, which are composed of highly fractured rock at steep slopes. Erosion from the watershed produces a high yield of very coarse sediment. The fan slope is almost 3 percent. The main channel is incised as it leaves the mountains. Since the 1940s a series of spur dikes and levees have been built to confine the flows to a narrow corridor along the fan. Lytle Creek eventually combines with Cajon Creek before entering the Santa Ana River.





	Species of Concern	Threaten Species	Endangered Species
Headwaters	Santa Ana speckled dace	Silvery legless lizard	Coastal California Gnatcatcher
	Slender-horned spineflower	San Bernardino ringneck snake	Least Bell's vireo
		Two-striped garter snake	Southwestern willow flycatcher
		Turkey vulture	
		California spotted owl	
Alluvial	Slender-horned spineflower	California spotted owl	San Bernardino kangaroo rat
	Santa Ana River woolly-star		Least Bell's vireo
	Santa Ana speckled dace		Coastal California Gnatcatcher
Lower Lytle	Santa Ana River woolly-star	California spotted owl	San Bernardino kangaroo rat

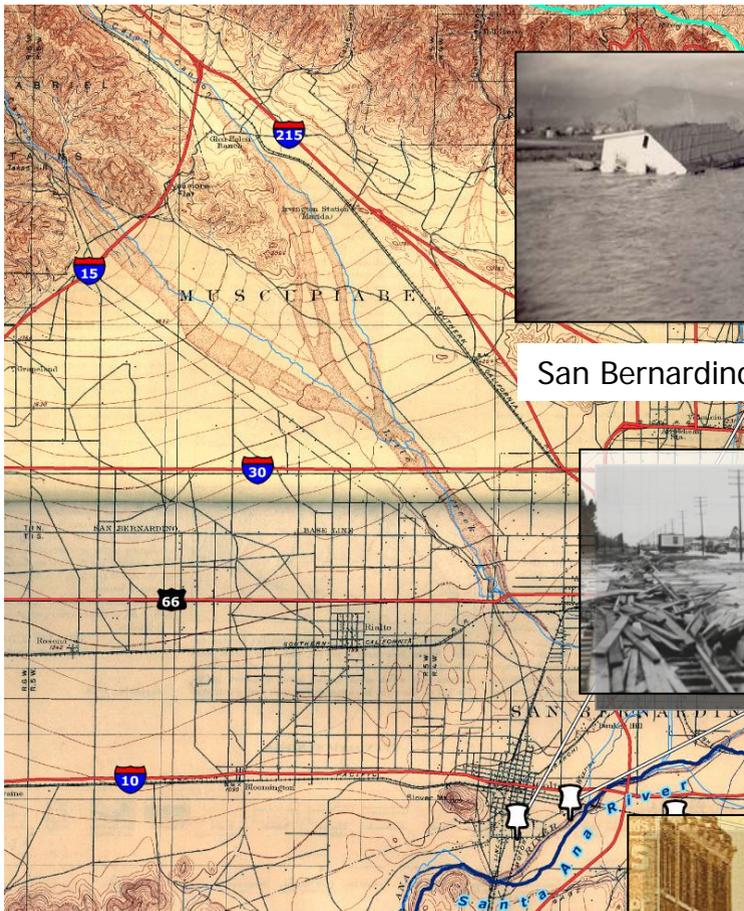


Low-elevation, alluvial areas along Lytle and Low-elevation, alluvial areas along Lytle and Cajon creeks and their adjacent floodplain terraces contain several imperiled species and vegetation types. The San Bernardino kangaroo rat, California gnatcatcher, slender-horned spineflower, and Santa Ana woollystar known to occur in this area. It is a historic locality for the Los Angeles pocket mouse, coastal black-tailed jackrabbit, and badger, Santa Ana Sucker and these species may still occur here.

Urban development is occurring at a rapid rate along the border of the national forest in the uplands surrounding Lytle and Cajon washes. Sand and gravel mining is also a major activity in portions of these washes.

Species of Concern





San Bernardino, 1938 flood

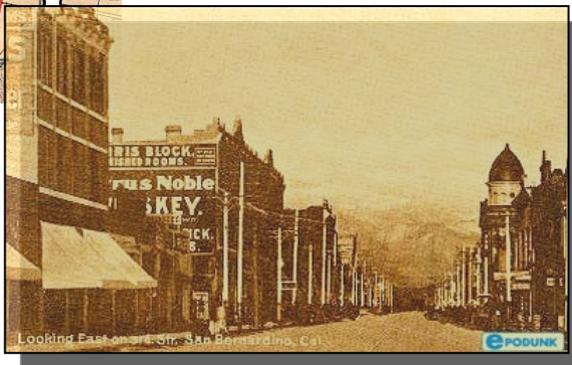


Some History of Lytle Creek and Canyon

The area was later discovered by the Spanish in the late 1700s and settled by Mexico by the 1800s. The Mormons "Americanized" the area in the 1860s.

Based on recordings, Lytle Creek and Canyon was home to three Native American tribes. One of the tribes gave the Creek its first name, Arroyo de los Negros, after a tribe of very dark-skinned Indians. The tribe lived in the upper reaches of the canyon and seldom came out into the plains. It is possible that these early tribes were splinter or spin-off tribes of the great Aztec Nation. The Aztec Queen Califa may have been a member of the Arroyo del Los Negros tribe. No one could say why this group of Indians was darker than other groups in the area.

The two other tribes that lived in the area are known as the Serrano and the Cahuillas. They were wiped out from diseases such as measles, Scarlet Fever, small pox, syphilis and dysentery.



Early Events of Lytle Creek and Canyon

1843 – Land granted to Michael White who later changed his name to Miguel Blanco. Named his ranch located at the mouth of the canyon, Rancho Muscupiabe.

1847 – Sold to Victor Prudhomme. Changed name to Rancho Cajon de Los Negros

1851 – The land was sold to a man Davis Clyde and he gave it its present day name after Captain Andrew Lytle.



Upper

- High usage by day visitors
- Provides natural passive recreational opportunities
- Insufficient facilities to meet demand

Middle

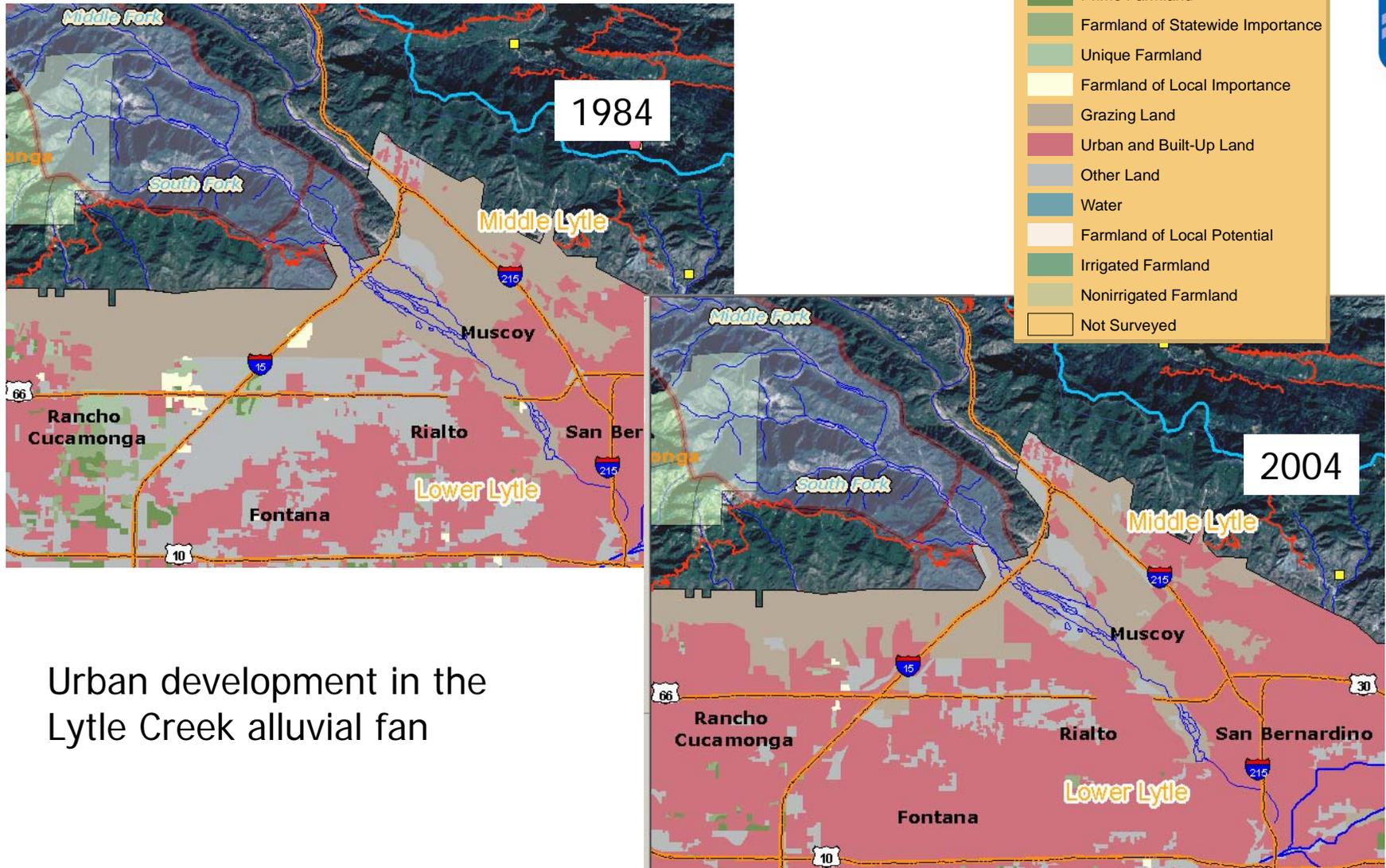
- Rapidly developing area
- Recreational activities concentrated on private property
- Opportunities for recreational and wildlife connections between upper and lower watersheds (could be lost if not included in current development plans)

Lower

- Lack of park space (below national average)
- Opportunities to develop river-based recreational / educational venues
- Environmental justice issues regarding lack of access to clean / safe green recreational facilities

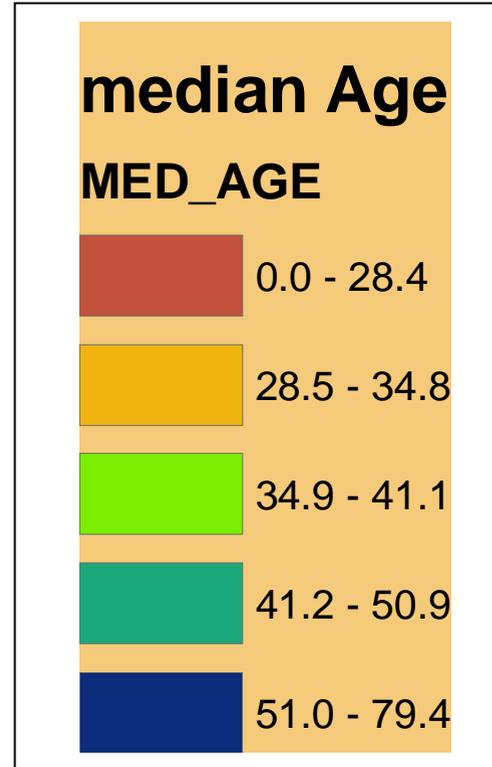
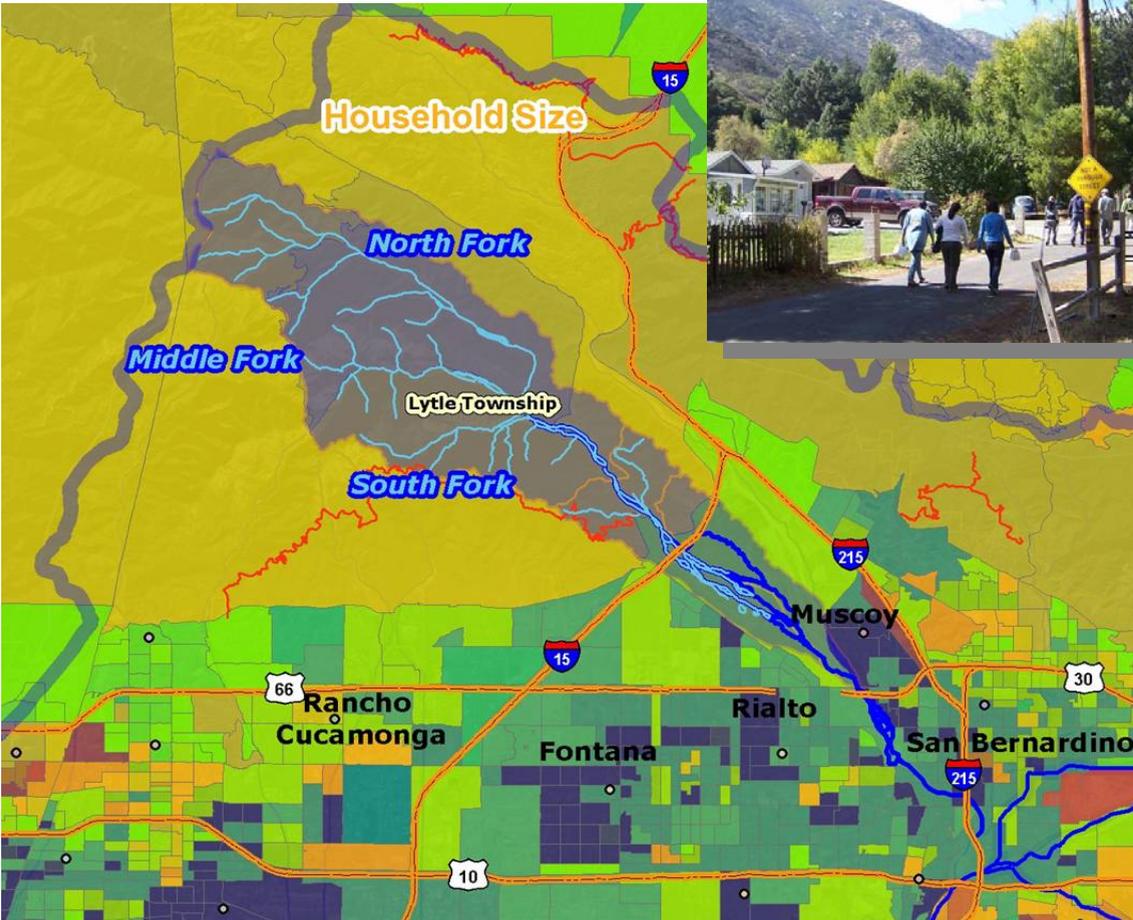


Lytle Creek Lower Study Area - Land Use Change Between 1984 - 2004



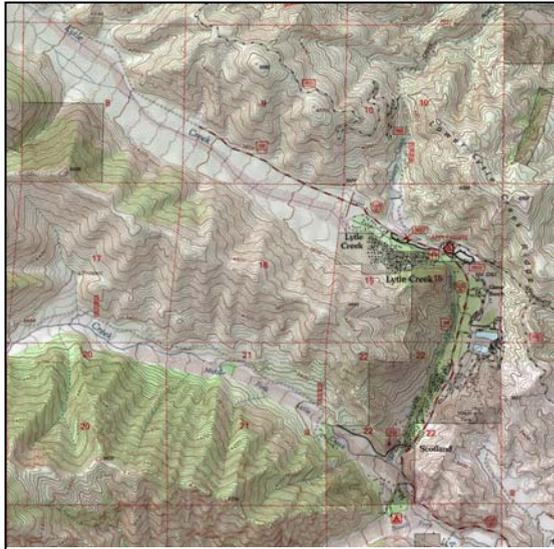
Urban development in the Lytle Creek alluvial fan

Land Use



Socio-Economics

Policy Recommendations



Headwaters

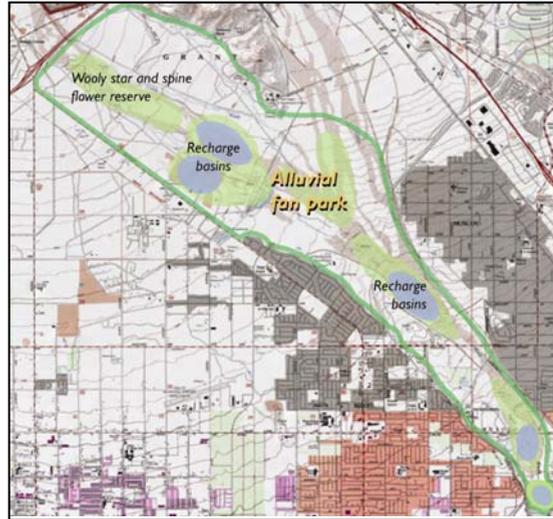
Encourage further collaboration between mountain communities and U.S. Forest Service.

Support efforts to establish AQMD clean air plan that is more effective than ARB standards.

Conduct outreach efforts in Spanish and English.

Ensure genetic diversity and habitat connectivity.

Actively support strategies articulated in the “Ridges to Reefs” document.

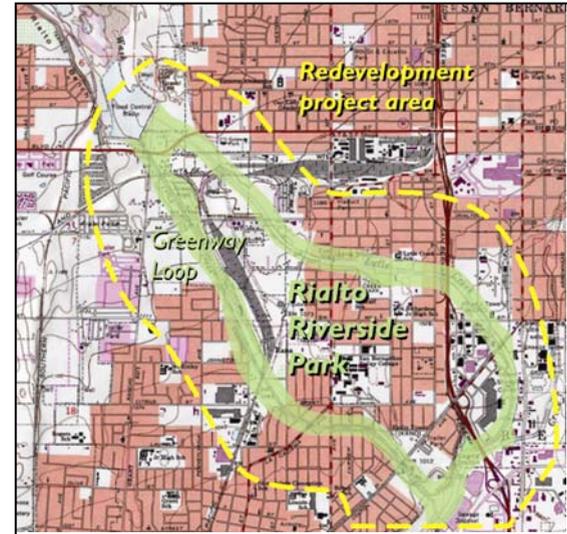


Alluvial Fan

Convert sand and gravel mines to ground water recharge basins, when abandoned.

Construct regional recreation park based upon edges of flood plain.

Prohibit, prevent or discourage housing development in the alluvial fan.



Lower Valley

Integrate urban redevelopment concepts with ambitious riverside park plan.

Adopt water pricing policies to ensure moderation in water use among residential customers.

Conduct outreach efforts in Spanish and English.

Develop groundwater augmentation through structural approaches in urban areas where soils are naturally porous.

Create redevelopment project area and develop riverfront park in Rialto.

Encourage gray water use and water conservation practices.



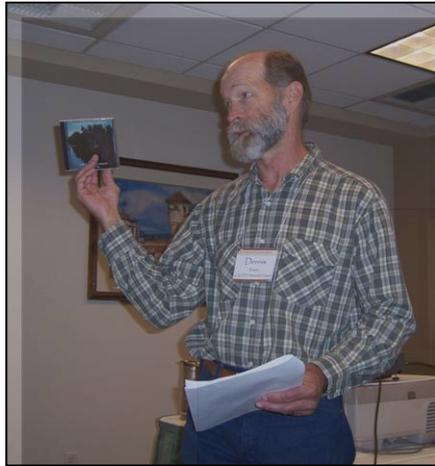
Participatory Decision-Making

Who: Seeking Diverse Participation

- Have a balanced representation between different types of stakeholders.
- Get important players involved all along the way.
- Have a mix of participants: community groups, government representatives, scientists, economists.
- The group will value both analytical thinking and intuition.
- Technical Advisory Community to provide participants with the best available information.

How: Learning, Acting, Learning, Acting, and so on

- This plan puts emphasis on “smart” processes and ideas that address stakeholder interests, and not just smart people or institutions. Intelligence can come from observation and not just the scientific methods.
- Understand that principles come first, then planning, followed by action and reflection, then further actions.
- Appoint or hire an experienced, objective facilitator.
- Learn about one another’s assumptions and cultural norms.
- Welcome constructive criticism – focused on policies, not personalities.
- Build on what we can agree upon.
- Maintain patience.
- Accountability builds trust - stakeholders have mechanisms to ensure commitments are kept.



The most poignant life changing education moments occur in nontraditional settings

Traditional Education

Curriculum k-12

Utilize research centers at major universities

Salamander art contest for third graders

Nontraditional Education

Events

Festival of Lytle Creek Watershed Kick off

Blue grass folk music

Earth Day is Creek Day parties

Spoke word poetry slam

Tree Planting on Arbor day

Graffiti clean up

Parade

Public Art

Murals

Mosaics

Sculptures

Functional Art

Watershed Art Auction

Glass Blowing Exhibit

Watershed University

Watershed Bus Tour

Website





Monitoring – Measuring Progress Toward the Goals

“Once you have established a statement of success criteria for the tasks and objectives, you will need a monitoring program to track attainment and maintenance of the criteria.”

Who - Volunteer Citizen Monitoring

How - work with entities like government agencies and water companies doing monitoring. In addition, provide training and technical support to volunteers.

What – criteria that reflects the community's values:

- Ecological indicators – maintenance of traditional forest cover
- Smart growth indicators – percentage of land surfaces that remain pervious
- Environmental justice – access to open space and clean water

Monitoring

Upper – type conversion; genetic diversity of fish threatened by channelization, i.e., cut off from mixing with Cajon Creek; critical habitat for San Bernardino Kangaroo Rat

- Middle – flooding
- Lower – access to open space, water quality
- “Performance based and effectiveness based data gathering to inform the future” (Measuring progress toward goals)

Assessing and Adjusting the Plan

Practice Adaptive Management

The Task Force will be guided by a few key principles:

- Openness - to assessing the success of processes and actions and making changes.
- Creativity – seek not just the most efficient techniques, but those that sufficiently meet the objectives
- Respect – each other and that the answer can come from any person, regardless of their background.

In addition, the Task Forces can benefit from the nurturing of relationships. Spend time outside meetings to understand other Task Force members. Attend their meetings, take them out for a cup of coffee, or invite them to something of interest to you. Stability in developing and implementing the plan depends on relationships, not rules.





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SALAMANDERS
OF THE CALFED BAY-DELTA
AUTHORITY WATERSHED
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2006 ♦ RIVERSIDE



Joyce Crosthwaite

L to R: Jim Donovan, Renee Latu, MaLisa Martin, Lisa Pierce, Paul Herzog, Horace Penman, Bruce Goff

SLENDER SALAMANDER TEAM