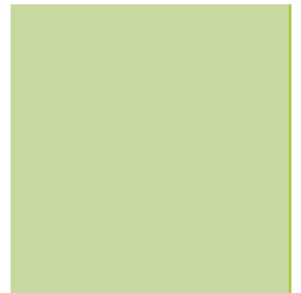# THE GREEN VISIONS PLAN

*for 21st century southern california*



## 18. Creating Parks & Open Space Using Green Visions Planning Toolkit 1.0

Josh Newell
Chona Sister
Jennifer Wolch
Jennifer Swift
Parisa Ghaemi
John Wilson
Travis Longcore

This report was printed on recycled paper.

USC Center for
Sustainable Cities

GIS
research
laboratory

Department
of Geography
College of
Letters, Arts,
and Sciences

University of Southern California
Los Angeles, CA 90089-0255
www.usc.edu/dept/geography/gislab

USC **Viterbi**
School of Engineering

usc College
OF LETTERS, ARTS & SCIENCES

# THE GREEN VISIONS PLAN

*for 21st century southern california*

The mission of the Green Visions Plan
for 21st Century Southern California is to offer a guide
to habitat conservation, watershed health and recreational open space for the
Los Angeles metropolitan region. The Plan will also provide decision support tools to
nurture a living green matrix for southern California. Our goals are to protect and
restore natural areas, restore natural hydrological function, promote equitable access
to open space, and maximize support via multiple-use facilities. The Plan is a joint
venture between the University of Southern California and the San Gabriel and
lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Mountains
Conservancy, Coastal Conservancy, and Baldwin Hills Conservancy.

www.greenvisionsplan.net

# CONTENTS

# LIST OF FIGURES

This booklet serves two purposes. First, it provides basic information on the vital role parks and open-space play in improving our water quality, conserving our precious wildlife, and enhancing the livability of our communities. This booklet describes the parks and open-space resources of the Green Vision's region — which encompasses most of Los Angeles County, a large part of Ventura County, and the northwest portion of Orange County in detail.  Second, a step-by-step tutorial on how to use the Green Visions Planning Toolkit 1.0 is provided. This interactive web-based toolkit was developed by specialists at the University of Southern California to assist government agencies, community groups, and funding bodies weigh a complex set of ecological, social, and economic variables prior to making decisions about where and how to create new parks and set aside open space. This toolkit can be accessed at:

http://gv-server.usc.edu/GVWebTools_public_v2/viewer4.16/signIn.asp/

Similarly, the booklet's structure mirrors these two purposes. Section 1 provides an overview of why parks are important, describes the Green Visions project (including the park resources in this Green Visions region), and discusses why poorer communities often have fewer parks and more limited access to open-space than wealthier ones. Section 2 walks the user through the basic features and capabilities of the Green Visions Planning Toolkit 1.0. Users are provided step-by-step instruction on how to use the toolkit. Section 3 expands on these basic features by introducing advanced capabilities of the toolkit, including how to generate reports, perform queries, and prepare dynamic analyses. Section 4 provides three case studies that guide users through the process of determining which parcel would be most suitable to acquire, based on a set of hypothetical criteria Finally, Section 5 provides a wealth of reference data that will be helpful to interested readers.

*Disclaimer:   The data provided in this booklet and available on the Green Vision website vary in accuracy, scale, completeness, extent of coverage and origin. We highly recommend reviewing available metadata files prior to interpreting these data.*

# 1. PARKS, SOUTHERN CALIFORNIA, AND THE GREEN VISIONS PLAN

## 1.1    GREEN VISIONS: A PLAN FOR 21ST CENTURY SOUTHERN CALIFORNIA

In 2003, a partnership between Southern California's state land conservancies and the University of Southern California's Center for Sustainable Cities and the GIS Research Laboratory, was forged to create a visionary plan and practical planning tools to promote habitat conservation, watershed health, and recreational open space in the greater Los Angeles Area.

This partnership led to the Green Visions Plan (GVP), which provides a roadmap for a more sustainable future for 21st Century California. In addition to research reports and policy briefs, a central component of the Green Visions Plan is to provide decision-makers with online planning tools that allow users to access geographic information about habitat, watershed, and recreational assets and to weigh social, economic, and ecological variables when considering how best to expand open space and further nurture a living green matrix for Southern California.    Information on Green Visions can be found at http://www.greenvisionsplan.net/.

The GVP study area encompasses an area of over 5.5 million acres that spans five watersheds: the Los Angeles River, Calleguas Creek, Santa Clara River, San Gabriel River, and a series of smaller streams that drain into Santa Monica Bay. This region includes most of Los Angeles County, a large part of Ventura County, and the northwest portion of Orange County (See Figure 1.1).
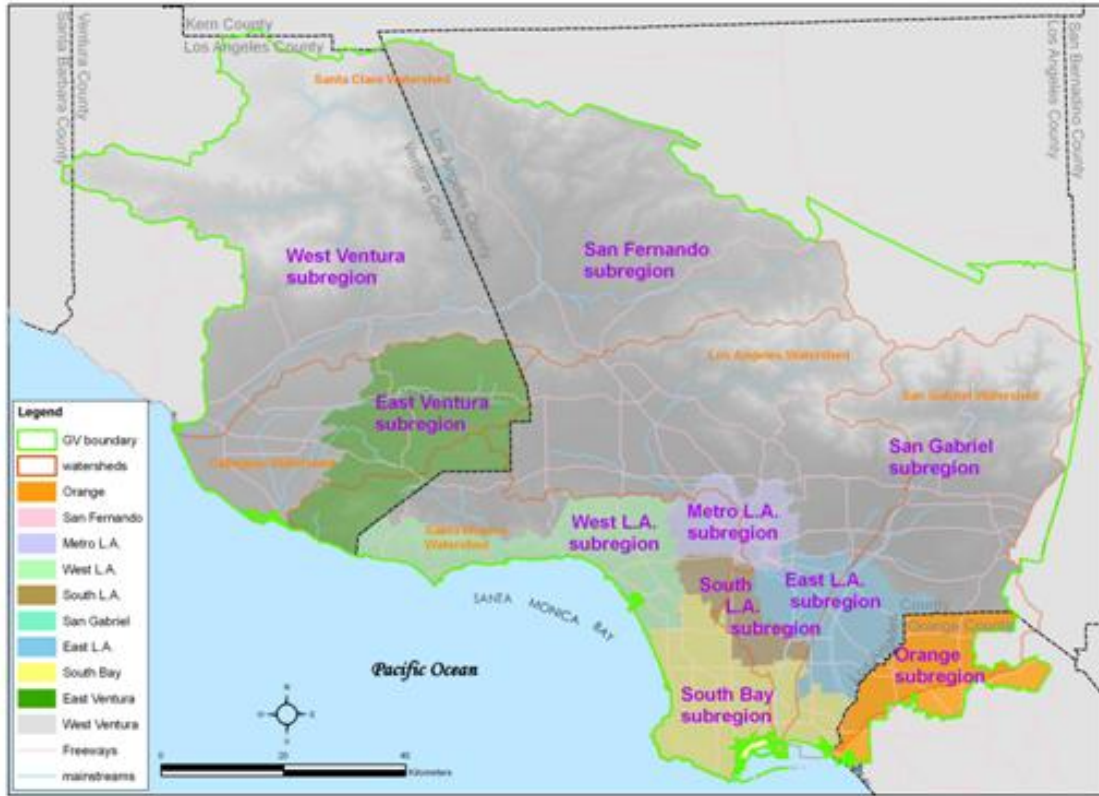
FIGURE 1.1  GREEN VISIONS PLAN STUDY AREA AND SUBREGIONS

## 1.2    WHY ARE PARKS AND OPEN SPACE IMPORTANT?

Many people recognize that parks are important for our general well-being, but parks and open-space yield a variety of social, economic, and environmental benefits that often go unrecognized. Some of these benefits include:

o   *Health benefits*

According to the Centers for Disease Control and Prevention (2001), Americans living closer to parks are more likely to exercise regularly. Physical activity, in turn, is central to health, and lowering the risks of obesity, coronary heart disease, diabetes, and other ailments associated with sedentary lifestyles.

o   *Mitigating pollution and urban runoff*

Studies show that urban parks deliver significant environmental benefits, filtering pollutants from the air and helping to control urban runoff, especially during winter storms (Bolund and Hunhammar 1999).

- *Biodiversity conservation*

Parks provide habitat for many native species, offer rest stops for migrating birds, and can be stepping stones in metropolitan wildlife corridors. At the same time, they offer human visitors the chance to interact with the natural world (Savard, Clergeau, and Mennechez 1999).

- *Reducing crime*

Police departments document sharp declines in juvenile arrests after recreational facilities open in low-income neighborhoods, and increasing green cover reduces crime (Kuo and Sullivan 2001).

- *Increasing Property Values and Tax Base*

Many studies demonstrate that having parks and open space in the neighborhood enhances residential as well as commercial property values (Crompton 2000; Pincetl et al. 2003).

- *Enhancing Communities*

Urban planners agree that well-maintained parks improve communities by increasing neighborhood cohesion. Neighbors are more likely to interact, take pride in their communities, and form neighborhood watch and other local improvement groups (Burgess, Harrison, and Limb 1988; Walker).

## 1.3    SOUTHERN CALIFORNIA: A PARK-POOR REGION

Eighty percent of Americans now live in metropolitan areas, up from just forty-eight percent in 1940 (Hobbs and Stoops 2002). Despite this rapid urbanization many of our cities are park-poor; they lack adequate open-space. Few metropolitan areas in the United States are as park-poor as Los Angeles.

A recent study by Sherer (2006) found that Jacksonville, Florida has the most park acreage, with almost 98,000 acres of parks and preserves. In addition, when measured on an acres-per-capita basis, Jacksonville also ranks first — 126 acres of parkland for every 1,000 residents. Cities besides Jacksonville with large amounts of park acres per capita include El Paso (44.5 acres per 1,000 residents), Austin, Texas (39.2 per 1,000), and Kansas City, Missouri (38.7 per 1,000). When parks were treated as a percentage of city area, the leader was Albuquerque, New Mexico where more than 25% of its land area is public open space. Other cities allocating a large percentage of land to parks and open space include San Diego (22%), Washington, D.C. (19.7%), San Francisco (19.3%), and New York (19.1%).

In contrast, the City of Los Angeles devotes just 7.8 % of its total area for parks and open space. This is next to last when compared to other large, dense cities (Harnick 2000). Moreover, L.A. has only 6.1 park acres per 1,000 residents on average. Of the country's large and medium-sized cities, only New York, Chicago and Miami have lower per capita park acres. And in terms of spending, the picture is even more bleak: Los Angeles spent only $38

per capita for park budgets in 2004, compared to $264 for San Francisco, $163 for Chicago and 78$ for New York (Sherer 2006).

While the greater Los Angeles area does have some exceptional parks and open spaces, because the region is park-poor, many residents lack easy access to recreational green space. A study by Wolch, Wilson, and Fehrenbach (2005) revealed that less than one-third of the children in the City of Los Angeles live within walking distance (less than 1/4 mile) to a nearby park (see Table 1.1). A study of several cities, using slightly different methods, found that only 36% of residents in Los Angeles County had easy access to parks, compared to 97 and 90% of those living in Boston and New York, respectively (see Table 1.1) (Sherer 2006).

In Southern California, these parks and open spaces are also not equitably distributed. Predominantly white neighborhoods in the City of Los Angeles, for example, enjoy 31.8 acres of park space for every 1,000 people, compared with just 1.7 acres in African-American neighborhoods and 0.6 acres in Latino neighborhoods (Wolch, Wilson, and Fehrenbach 2005). Studies also show that older, more heavily populated communities of the region have smaller parks, and older and lower-income communities have less well maintained park facilities.

TABLE 1.1  PEOPLE AND PARKS IN MAJOR U.S. CITIES

| City | Percentage living within ¼ mile of a park | Number of children without access to a park (>1/4 mile) |
|---|---|---|
| Boston | 97 | 2,900 |
| New York | 91 | 178,500 |
| San Francisco | 85 | 16,700 |
| Seattle | 79 | 18,600 |
| San Diego | 65 | 102,300 |
| Dallas | 42 | 182,800 |
| Los Angeles | 33 | 657,700 |
| Los Angeles County | 36 | 1,694,000 |

*Source: Sherer, 2006*

## 1.4    PARK ASSETS IN THE GREEN VISIONS PLAN REGION

In the GVP study area there are more than 1,800 parks and recreational open spaces, ranging from neighborhood parks with swings and slides, to community parks with sports fields and swimming pools, to regional parks with winding trails and scenic vistas, as well as expansive open spaces consisting of national forests, wilderness areas, and wildlife refuges. Sister et al. (2007) have described these parks and their distribution; highlights of their findings are offered below.

Together these parks cover a total area of over 1.2 million acres and range in size from pocket parks (less than one acre) to the two National forests which together cover over one million acres.  The average size of parks and open spaces in the GVP region is 655 acres. This figure is skewed, however, by the inclusion of the National Forests. Although the forest edges provide campsites and other recreational facilities, most of their acreage is inaccessible. Removing the two National Forests, as well as those open spaces within or adjacent to the forests (unless they are used for active recreation and are close to relatively urbanized areas), average park size in the GVP region is 104 acres with a median of 8 acres. Many parks are far smaller; there are 131 parks that are under an acre in size and the majority is less than 10 acres. Some subregions may have large parcels of recreational open space, but most parts of these subregions, in general, have few large parks.

Popular, large recreation areas include the Castaic Lake State Recreation Area (>12,000 acres) and Hungry Valley State Vehicular Recreational Area (>16,000 acres), both of which are adjacent to relatively developed urban areas and/or heavily used transportation corridors. Other large open spaces, include Point Mugu State Park (>13,000 acres), and the Santa Monica Mountains National Recreation Area (SMMNRA with >154,000 total acres) on the west side of Los Angeles County. The presence and extent of these large green spaces means that southern Californians have some degree of access to large expanses of natural open space, but because many are not accessible via public transportation, the enjoyment of these wildland resources may require the use of private automobiles.

Subareas of the GVP region vary dramatically with respect to their park and open space resources (see the Appendix for detailed maps of each subregion). Generally, older communities of the region are denser and have smaller parks. For example, in the Metro L.A. subregion, average park size is 54 acres, with a median of less than 5 acres; Metro L.A. does have a large park — the 3,700-acre Griffith Park — as well as the 589-acre Elysian Park and 338-acre Ernest E. Debs Regional Park, but otherwise most of Metro L.A.'s parks are relatively small. The largest park in South L.A. is the 338-acre Kenneth Hahn State Recreation Area (which will soon be larger when planned Baldwin Hills parklands projects are completed), and South Bay's largest park is only 387 acres (El Dorado Regional Park). Similarly, except for Arroyo Pescadero (>900 acres), Powder Canyon (>500 acres), and Hellman Wilderness Park (>200 acres), most areas in East L.A. have relatively smaller parks averaging 25 acres and a median of 7 acres.

In contrast West Ventura's largest park is less than 400 acres (Ventura County Game Reserve), but it is close to large wildland areas such as the Sespe Condor Sanctuary and the Los Padres National Forest. Suburban areas that were developed more recently have larger average park sizes. For example, due to their proximity to the Santa Monica Mountains, the West L.A. subregion has an average park size of 250 acres. The San Fernando subregion boasts of large tracts of recreational open space such as >12,300-acre Castaic Lake State Recreation Area, >11,400-acre Hungry Valley State Vehicular Recreation Area, and >5,000-acre Malibu Creek State Park; the region has an average park size of 229 acres. East Ventura offers the >13,600-acre Point Mugu State Park, the >5,400-acre Las Virgenes Canyon Park, and >154,000 acres of Santa Monica Mountains National Recreation Area sites (average is 382 acres). Orange and San Gabriel Valley (both urbanized during the post-war period) each have sizable parks, among the larger parks being the >1,600-acre Chino Hills State Park and the >2,000-acre Santa Fe Dam Recreation Area, respectively.

In addition to parks, golf courses, beaches, and other types of open space assessed in this report, the GVP area has numerous camping resources. These are not parks per se, and not all of them have not been counted or studied. However, 72 campsites that were accessible to automobiles were identified and audited by GVP researchers, while a sample of 13 campsites was visited in the field. Most have very basic amenities — water, restrooms, trashcans, parking, BBQ equipment, benches, and trails. Some are more elaborate, with play equipment, nature center, interpretive signage or water features. Only two had staff on site. Although the GVP area, with its large expanses of open space, has many more campsite facilities, these are only accessible to those on foot such as backpackers.

Overall, the GVP area has over 1 million acres of land under National Forest Service management, >182,000 park acres, close to 10,000 acres of public golf course greens, and 5,347 acres of beach front. Thus, 84% of the park and open space assets of the region are National Forest, leaving 15% in parklands, and >1% each allocated to golf courses or beach front. Not surprisingly, beaches are primarily located in West L.A., with less than 1,000 acres in South Bay, West Ventura, and Orange, and golf course assets are concentrated in Orange, San Fernando, San Gabriel, and South Bay. South L.A. has only 15 acres of golf course area.

In summary, total acres per subregion range from 64,892 acres (in 276 parks) in San Fernando, 49,540 acres (in 127 parks) in East Ventura, and 32,786 acres (in 117 parks) in West L.A., to only 4,211 acres (in 273 parks) in South Bay, 3,798 acres (in 173 parks) in East L.A., and 1,171 acres (in 91 parks) in South L.A. Including National Forest lands, San Gabriel, West Ventura and San Fernando subregions have by far the largest total open space assets (475,073 acres, 364,415 acres, and 291,147 acres respectively), followed by East Ventura (50,026 acres) and West L.A. (37,565 acres).

Not surprisingly, as a percent of total subregion area, those with large swaths of National Forest have high shares of total area devoted to open space: 82% of San Gabriel and 57% for West Ventura; these are higher compared to that of the entire GVP region which has parks and open spaces occupying 46% of the region's area (including the National Forests). San Fernando, West L.A. and East Ventura have 35%, 31% and 27% of their total areas devoted to open space, respectively—lower than the GVP as a whole, but still including significant total acres (Table 1.2) At the other end of this spectrum, South L.A.'s share of

area devoted to parks and open space is only 3%, with East L.A. and South Bay both below 5%.

Putting the vast National Forest lands aside, these differentials remain striking. San Fernando retains over 66,641 acres and San Gabriel has 15,185 acres. Other subregions not adjacent to National Forest lands (Orange, Metro L.A., West L.A., South L.A., East L.A., South Bay), do not change in terms of their total open space acreage. Without the National Forests the share of subregion area devoted to parks and open space varies widely, but in a different pattern. West Ventura only has 0.6% (3,548 acres) of its area devoted to parkland, if we discount Los Padres National Forest that is inside its boundary. West L.A.'s share is 31% and East Ventura's is 27%, while none of the remaining subregions has more than 11% devoted to open space. In terms of the contribution of recreational open space relative to the entire GVP area, South L.A. has the lowest at 0.6%. L.A. as a county (excluding the Antelope Valley) has 7% of its area devoted to recreational purposes, approximating that of the GVP region.

Different parts of the region also vary dramatically in terms of the types of park facilities and amenities they offer, the landscape features present within park boundaries, the potential of parks to serve habitat restoration and watershed protection purposes, and the condition of park infrastructure and landscaping (which also reflects perceived safety).

TABLE 1.2 PARK AND RECREATION OPEN SPACE RESOURCES IN THE GVP AREA BY SUBREGION

| | Ora | S. F. | S.G. | Metro L.A. | West L.A. | South L.A. | East L.A. | South Bay | East Vent. | West Vent. | GV-LA county | GVP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Acreage* | | | | | | | | | | | | |
| National forests | 0 | 224,506 (n=2) | 459,887 (n=1) | 0 | 0 | 0 | 0 | 0 | 0 | 360,867 (n=1) | 684,394 (n=2) | 1,045,261 (n=2) |
| Parks | 5,241 (n=193) | 64,892 (n=276) | 12,474 (n=308) | 5,743 (n=108) | 32,786 (n=117) | 1,171 (n=91) | 3,798 (n=173) | 4,211 (n=273) | 49,540 (n=127) | 2,344 (n=93) | 125,074 (n=1,346) | 182,200 (n=1,759) |
| Golf courses | 1,190 (n=10) | 1,749 (n=15) | 2,711 (n=17) | 268 (n=4) | 435 (n=4) | 15 (n=1) | 774 (n=9) | 1,527 (n=17) | 481 (n=4) | 601 (n=5) | 7,478 (n=67) | 9,750 (n=86) |
| Beaches | 21 (n=2) | 0 | 0 | 0 | 4,344 (n=29) | 0 | 0 | 374 (n=9) | 5 (n=1) | 603 (n=7) | 4,718 (n=38) | 5,347 (n=48) |
| *Park statistics including national forests* | | | | | | | | | | | | |
| Total park acres | 6,452 | 291,147 | 475,073 | 6,010 | 37,565 | 1,186 | 4,571 | 6,112 | 50,026 | 364,415 | 821,665 | 1,242,559 |
| Total acres as % of subregion's area | 7.4 | 35.1 | 82.2 | 10.3 | 31.1 | 2.6 | 4.5 | 4.8 | 26.6 | 56.6 | 44.1 | 46.3 |
| Park acres as % of GVP park acres | 0.5 | 23.4 | 38.2 | 0.5 | 3.0 | 0.1 | 0.4 | 0.5 | 4.0 | 29.3 | 66.1 | 100.0 |
| *Park statistics excluding national forests* | | | | | | | | | | | | |
| Total park acres | 6,452 | 66,641 | 15,185 | 6,010 | 37,565 | 1,186 | 4,571 | 6,112 | 50,026 | 3,548 | 137,271 | 197,297 |
| Park acres as % of subregion's area | 7.4 | 8.0 | 2.6 | 10.3 | 31.1 | 2.6 | 4.5 | 4.8 | 26.6 | 0.6 | 7.4 | 7.3 |
| Park acres as % of GVP park acres | 3.3 | 33.8 | 7.7 | 3.0 | 19.0 | 0.6 | 2.3 | 3.1 | 25.4 | 1.8 | 69.6 | 100.0 |
| Mean park size | 32 | 229 | 47 | 54 | 250 | 13 | 25 | 20 | 380 | 34 | 67 | 104 |
| Median park size | 6 | 11 | 7 | 4 | 11 | 5 | 7 | 7 | 13 | 7 | 7 | 8 |

*Source: Sister et al., 2007.*

The subregions with fewer parks are neighborhoods that are predominantly Latino, low-income, and have higher poverty rates (Figure 1.2). Sister et al (2007) found that South L.A., East L.A., Metro L.A. and South Bay are the four subregions with park resources lower than six park acres per 1,000 people (the National Recreation and Parks Association standard is six to 10 acres per 1,000 people).

South L.A., which ranks lowest in terms of park acres (1.2 park acres per 1,000 residents) has relatively large populations of Hispanic (59%) and African American (35%) residents (Figure 1.3). It also has the lowest median household income ($25,224) and highest poverty rate of all subregions.
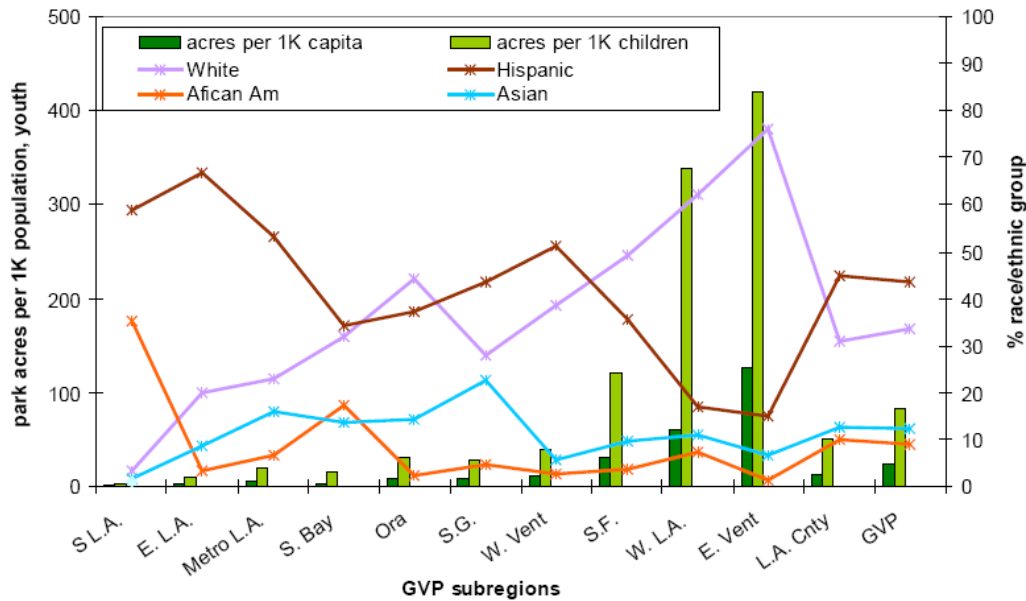


FIGURE 1.2  PARK AREA BY RACE/ETHNICITY AND SUBREGION

*Source: Adapted from Sister et al., 2007*

The other two subregions—East L.A. and Metro L.A. (3.3, and 4.0 park acres per 1,000 residents, respectively)—are also predominantly Hispanic, and after South L.A., have the lowest median household income (<$37,000), and relatively high poverty levels.

With more children residing in these three subregions, they also rank lowest in terms of park acres per 1,000 children, with South L.A. having <3, East L.A. with nine, and Metro L.A. with 19.5 park acres per 1,000 children.
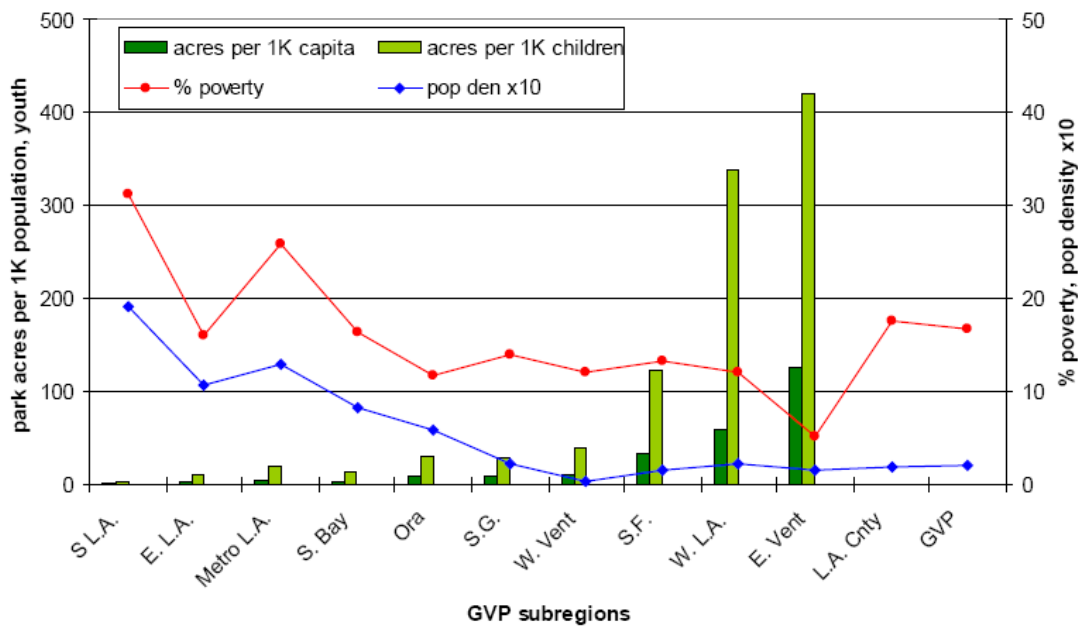
FIGURE 1.3  PARK AREA BY POVERTY, POPULATION DENSITY, AND GVP SUBREGION

*Source: Adapted from Sister et al., 2007*

Like these three subregions, in South Bay, Hispanics make up the majority of the population (34%). But the subregion also has a substantial White population (31%). And on average, it is a middle-class community with a median household income higher than the other three subregions. However, like the other three subregions discussed above, it has few large parks (e.g. the more expansive regional parks), is not proximate to any large tract of open space (e.g., National Forests), and supports a high population density.

On the other end of the spectrum are three subregions with the highest number of park acres per capita (excluding National Forests) — East Ventura (166 acres per 1,000 residents), West L.A (68.9 acres per 1,000 residents), and San Fernando (28.8 acres per 1,000 residents) with expansive tracts of State Parks and State Beaches, larger Regional Parks, as well as open spaces comprised by State Park Lands and Santa Monica Mountains National Recreation Area lands. All three subregions have park acres per 1,000 higher than the national standards. These subregions are, on average, affluent, with high median household incomes. They are also predominantly White.

This analysis points to a significant challenge for park and recreational open space planners. Because the most park-poor areas of the GVP region are high density, largely built-out communities, innovative ways to provide open space may be required, such as additional pocket parks, greening of underutilized streets and alleys, and remediation of brownfield sites for use as open space.

# 2. NAVIGATING THE GREEN VISIONS PLANNING TOOLKIT 1.0

When identifying potential project sites, planners in Southern California must balance a multiplicity of stakeholder interests while simultaneously ensuring such decisions are based on rigorous scientific data and analysis and that the sites selected match criteria specified by various bond measures, legislative acts, or funding agencies. Two issues are of particular concern in making site selections. First, sites selected should not only be locally beneficial, but should also contribute to the overall regional ecosystem functioning and address major deficits in access to recreational open space. Second, to the extent possible, sites should serve multiple functions, such as runoff management and habitat conservation.

At the same time, each site and its situation varies and thus any analytic tool designed to aid in site analysis and in the selection process must take this variability into account. Therefore a range of ancillary data is required to characterize the context of a potential project. For example, if a park site is sought, planners may need to know the following: What existing parks are located nearby? How congested are these existing parks? What types of facilities do they have? Are there many children in the neighborhood, and is lack of fitness and physical activity among children a problem there? What is the socioeconomic background of the park's surrounding area? Is the site close to a major freeway, and is air pollution particularly poor in the vicinity?

The Green Visions Planning Toolkit 1.0 is a web-based Geographic Information System (GIS) mapping system designed to enable systematic analysis of single or multiple potential project sites, and to characterize the socio-demographic, built environment, and environmental context of such sites. In addition, dynamic analysis tools allow planners to conduct 'what if' assessments of alternative parks or open space sites, to insure their projects have maximum impact. This toolkit offers a great number of flexible features, for example, allowing users to customize maps for report and presentation purposes, or to bookmark their customized maps for later modifications or further analysis.

## 2.1    BASIC FEATURES OF THE PLANNING TOOLKIT

In what follows the basic features of the toolkit are detailed, as well as the analytic functions available in Version 1.0. Some of the basic features are related to navigation and learning how to explore the toolkit's data resources. Other more advanced features are linked specifically to park and open space planning. The software code for the basic map viewer was provided by the California Department of Fish and Game (DFG, 2007). The basic code has been highly customized to include the delivery of Green Visions Plan project data through the toolkit website and as well as the analytical tools.

After logging in, when you first visit the Green Vision Plan website, Figure 2.1 is the default screen that you will see. Five default 'layers' are provided: Green Visions Boundary, Highways, Counties, Color Relief, and Hillshade. Note that these default layers are checked in the Layer Selector. The Layer Selector is composed of the Layers List which shows the list of data layers available to the map.

These data layers are grouped into data categories to better distinguish their use (e.g. Natural Resource Layers, Base Layers, Images). The Layers List allows the user to turn layers on or off within the map by checking the checkboxes to the left of the layer names. To learn how to add layers see section 2.3.
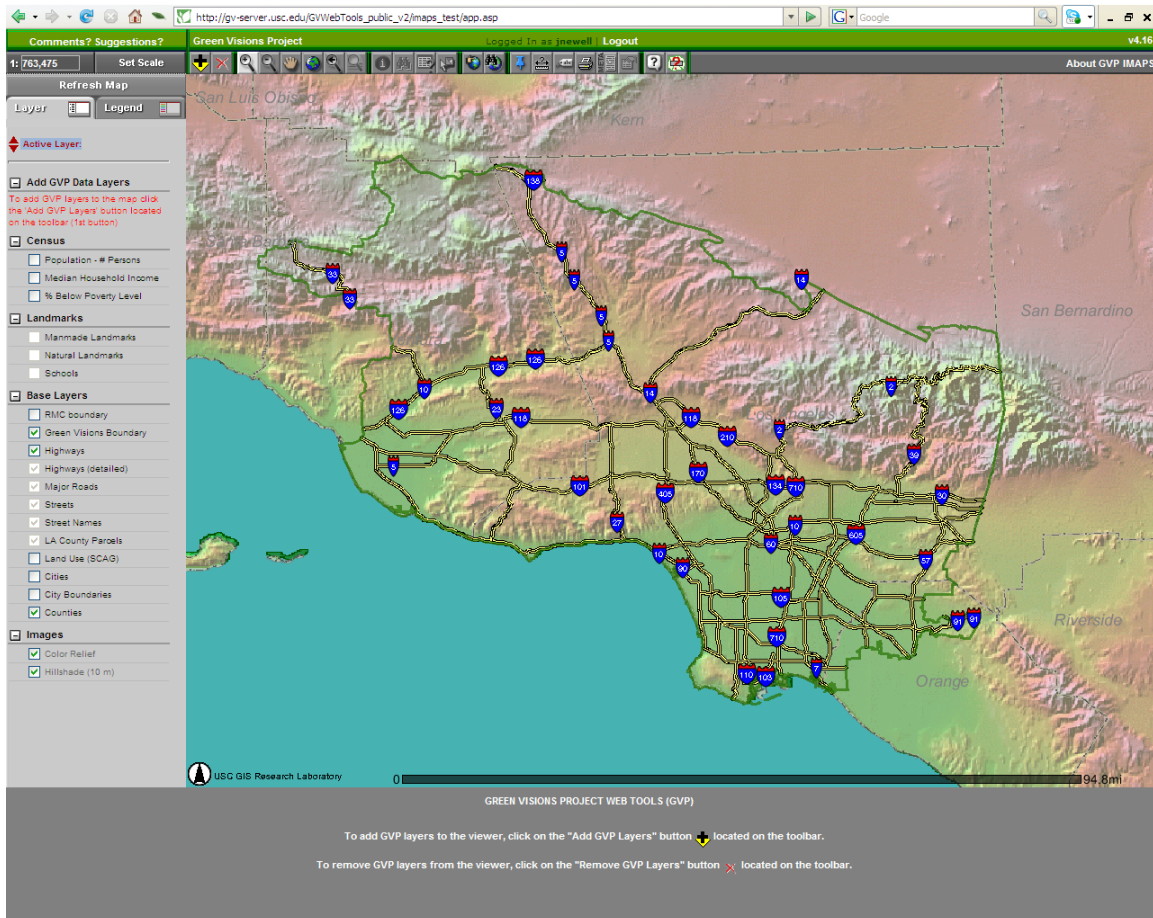


FIGURE 2.1  DEFAULT GREEN VISIONS PLAN HOMEPAGE

## 2.1.1   LAYER SELECTOR AND LAYERS LIST

Data layers are drawn on the map in the order that they are shown in the Layers List (Figure 2.2). Layers are 'turned on' by checking the box to the immediate left of the desired layer. The bottom layer is drawn first, and each successive layer is drawn on top of what is already there.  It is sometimes necessary to turn some upper layers off to see layers that are below them (See Section 2.3 to learn how to reorder for drawing). This is accomplished simply by unchecking the box to the immediate left of the layer you wish to turn off, and then clicking the Refresh button (see Section 2.1.5)



FIGURE 2.2  LAYERS LIST

## 2.1.2   LAYER/LEGEND SELECTOR

Toggle between viewing the list of data layers (Layers List) and the Legend Selector of the visible layers, using the tabs at the top of the left-hand layer list (Figure 2.3). The Legend will only show the symbology for layers that are currently turned on (or 'active').



FIGURE 2.3  TABS USED TO TOGGLE BETWEEN LAYERS AND LAYER LEGEND

## 2.1.3   TOOLBAR FUNCTIONS

The tools/controls of the map viewer are located directly above the map (Figure 2.4).  These controls are essential for effective use of the website, including navigating around the map, adding additional layers, zooming in and out, performing queries on layers, making bookmarks, getting help, and printing your map.  See Figure 2.5 for a brief description of each button's function.



FIGURE 2.4  BASIC TOOLBAR LOCATED AT THE TOP, CENTER OF THE MAP VIEWER

These features include:

 Zoom In                                     Graphic Select on Active Layer

 Zoom Out                                    Point Info (lat/long, county, quad, etc.)

 Pan Map                                     GeoFind Tools

 Zoom to Default Extent                      Create, or Zoom to, a Bookmark

 Zoom to Prior Extent                        Measure Distance

 Zoom to Extent of Active Layer             Add a Label

 Identify Features on Active Layer          Create and Print a Map

 Text Search on Active Layer                View Metadata on Active Layer

 Query Active Layer                         View Properties of the Active Layer

FIGURE 2.5  DEFINITIONS OF BASIC TOOLBAR BUTTON FUNCTIONS

## 2.1.4   ACTIVE LAYER

Clicking on a layer name in the Layers List will make that layer 'active', highlighting that layer name in blue (Figure 2.6). We will practice making a layer active and moving layers up in section 2.2.3.
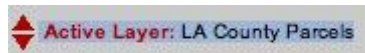


FIGURE 2.6  ACTIVE LAYER INFORMATION ALERT, LOCATED ABOVE THE LIST OF LAYERS IN THE LEFT-HAND LEGEND

## 2.1.5 REFRESH MAP BUTTON

Clicking on the Refresh button updates the map image (Figure 2.7). This must be clicked after making any changes to the Layers List. To remind you of this, the Refresh Map icon will blink on and off.
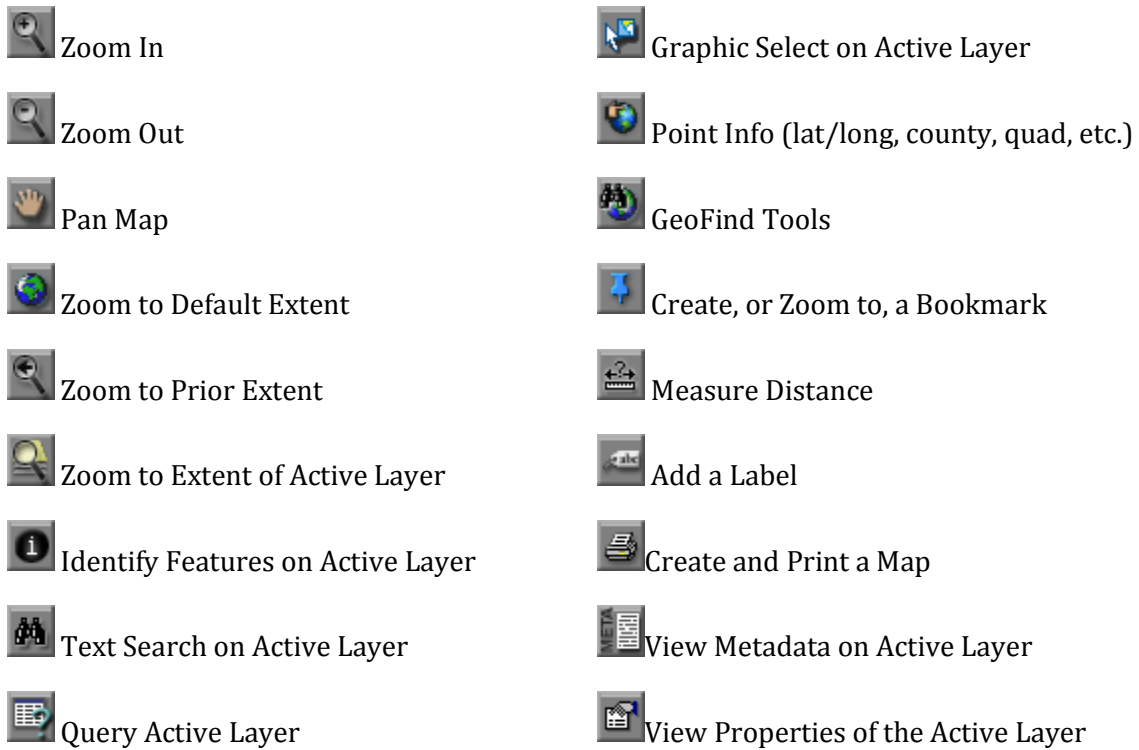


FIGURE 2.7  REFRESH MAP BUTTON LOCATED ABOVE THE LAYER/LEGEND SELECTOR (SEE SECTION 2.1.2) NEAR THE TOP OF THE LEFT-HAND LEGEND

## 2.1.6 SET MAP SCALE

This feature allows you to set the map scale to a specific scale and it also shows the current map scale (Figure 2.8). Map scale is usually represented as a measure on the map and the corresponding measure on the surface of the Earth, expressed here as a fraction of distance, such as 1:100,000 (one unit of distance on the map represents 100,000 of the same units of distance on the Earth). To set a specific scale, enter the scale in the box, and then click the "Set Scale" button or hit Enter, and the map will refresh at the desired scale.



FIGURE 2.8  MAP SCALE MAP BUTTON LOCATED ABOVE THE REFRESH MAP BUTTON (SEE SECTION 2.1.5) NEAR THE TOP OF THE LEFT-HAND LEGEND

## 2.1.7 LOGGING OUT

The name of the currently logged in user can be found as shown in Figure 2.9, along with a link to logout from the current session.
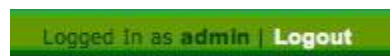


FIGURE 2.9  LOGIN AND LOGOUT, LOCATED DIRECTLY ABOVE THE MAP VIEW

## 2.1.8 ABOUT THE GREEN VISIONS PLAN AND IMAPS

The two links shown in Figure 2.10 go to the main Green Visions Project website and the Internet Mapping Application Products and Solutions (IMAPS) home page, respectively, which provides information about the Green Visions Plan for 21st Century Southern California (http://www.greenvisionsplan.net/), and the IMAPS group (DFG, 2007).

FIGURE 2.10  MAIN EXTERNAL PROJECT INFORMATION LINKS, LOCATED IN THE UPPER LEFT
CORNER OF THE WEBSITE

## 2.1.9    IMAPSVIEWER VERSION INFO

The link in Figure 2.11 provides California Department of Fish and Game's IMAPS Viewer
version and feature information (DFG, 2007).



FIGURE 2.11  MAIN LINK TO THE IMAPS VIEWER VERSION, LOCATED IN THE TOP RIGHT CORNER
OF THE WEBSITE

## 2.1.10  COMMENTS / SUGGESTIONS

Clicking on the text links shown in Figure 2.12 will provide contact information to allow you
to send in any comments or suggestions you may have for the Green Visions Planning
Toolkit to the GVP technical team.



FIGURE 2.12  CONTACT INFORMATION LINK, LOCATED IN THE UPPER LEFT CORNER OF THE
WEBSITE

## 2.2    BASIC MAP FUNCTIONS

### 2.2.1    ADDING LAYERS

There are two ways to add layers to your map. The first is to simply to make the layers visible by checking the boxes corresponding to layers in the Layers List (e.g., LA County Parcels, Manmade Landmarks, Population, Percent Below Poverty Level). The second is to add Layers using the GVP Data Catalog. We will practice both of these methods.

**Adding layers from the default Layers List**

Click on the check box to the immediate left of the layer you want to add to the map in the Layers List. For this example, check the boxes corresponding to the layers Median Household Income and Cities.

Click the Refresh Map button. The layers you checked should now be visible on the map. Your map should now look like Figure 2.13, below.
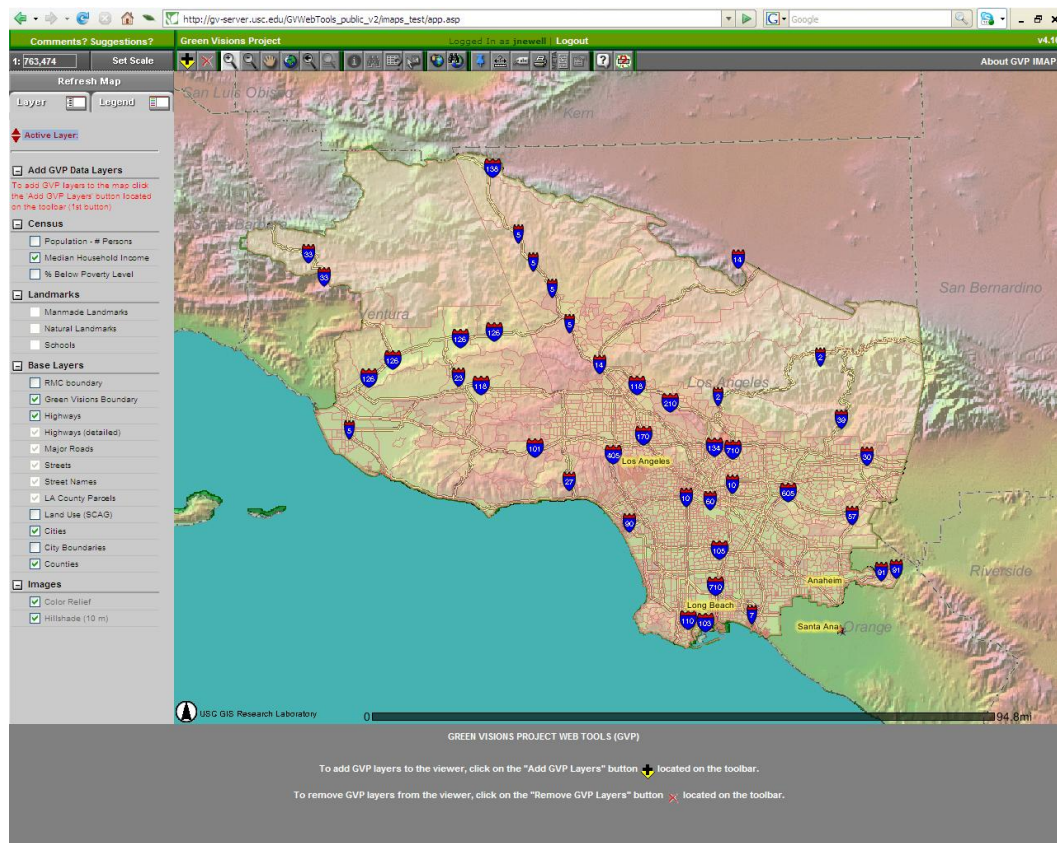


FIGURE 2.13  GVP MAP VIEWER WITH MEDIAN HOUSEHOLD INCOME LAYER ACTIVATED

Click on the Legend Selector (see Figure 2.14). Notice how Medium Household Income is classified in various shades of light red. You may want to use the Zoom In tool 🔍 to focus on smaller areas of interest, or to see which communities within the Green Visions study area have the highest or lowest Median Household Incomes.
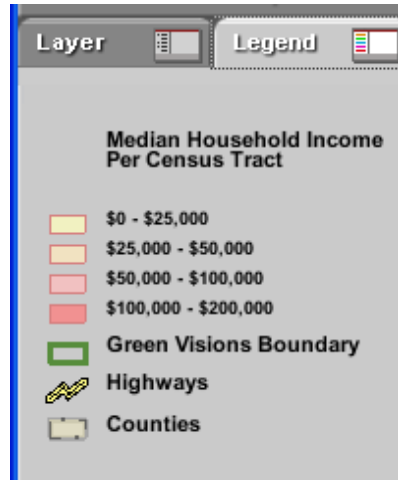


FIGURE 2.14  LEGEND EXAMPLE

**Adding Layers from the GVP Data Catalogue**

Now we are going to build on our Median Household Income map by adding a layer from the GVP Data Catalog.

Click on the Add Layer Icon ➕ in the Toolbar. After you click on this icon, the GVP Data Catalog should appear (Figure 2.15). This Catalog lists all the available layers in the catalog.
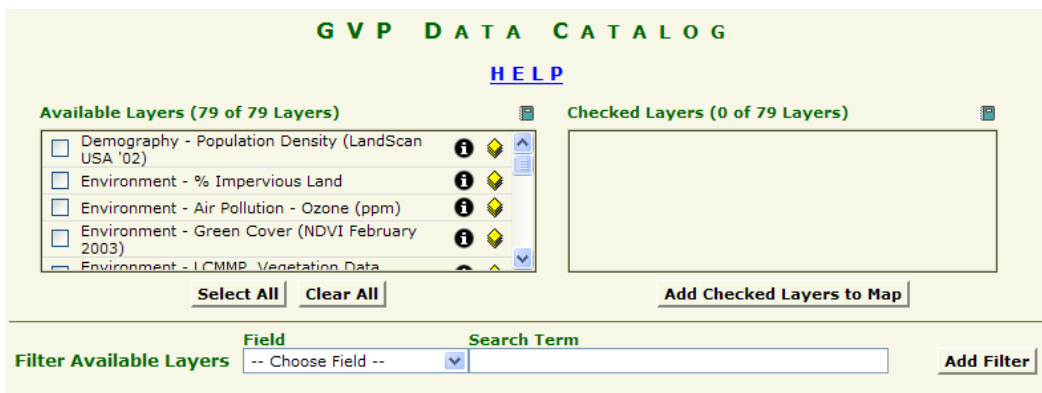


FIGURE 2.15  GVP CATALOG POPUP WINDOW

Filter the available layers by selecting a Field from the Field drop down selector. For this exercise, select "Layer Group", then select the Search Term "Parks" from the available terms (Figure 2.16). There should be approximately 14 layers available that correspond to the Search Term "Parks". Filtering the layers by Field is useful because there are many layers in the GVP Data Catalog and in the future more data layers will be added.
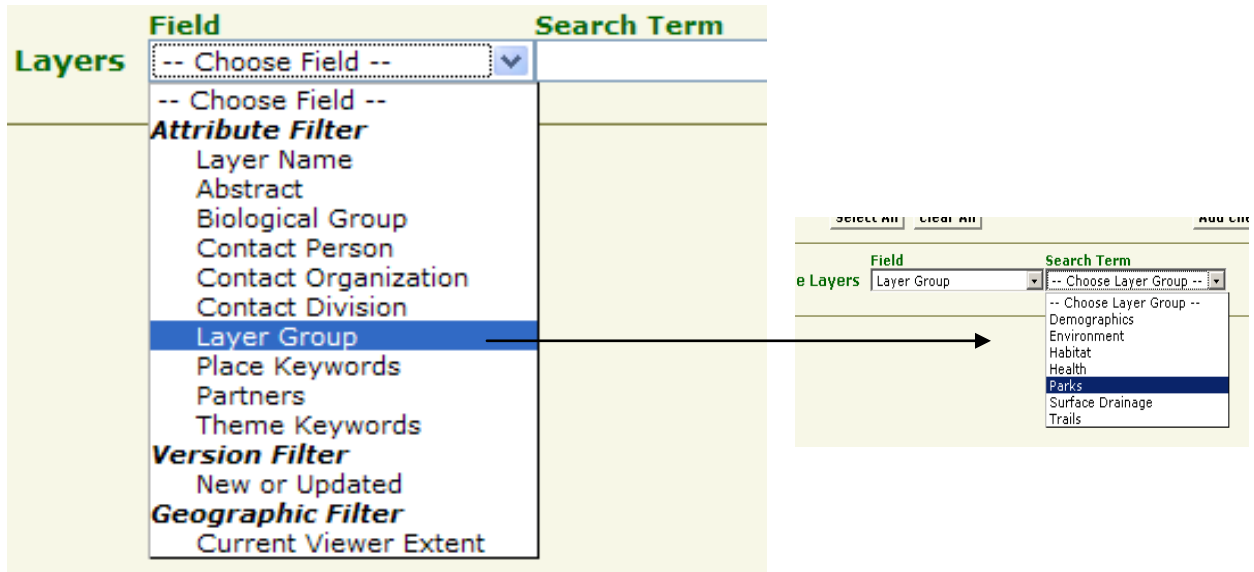


FIGURE 2.16  CHOOSING THE FIELD AND SEARCH TERM IN THE GVP CATALOG

Select the Parks Layer. Your screen should now look similar to Figure 2.17.



FIGURE 2.17  SELECTING LAYERS TO ADD TO THE LAYERS LIST IN THE GVP CATALOG

Click on the button, Add Checked Layers to Map. Your screen should now look like Figure 2.18
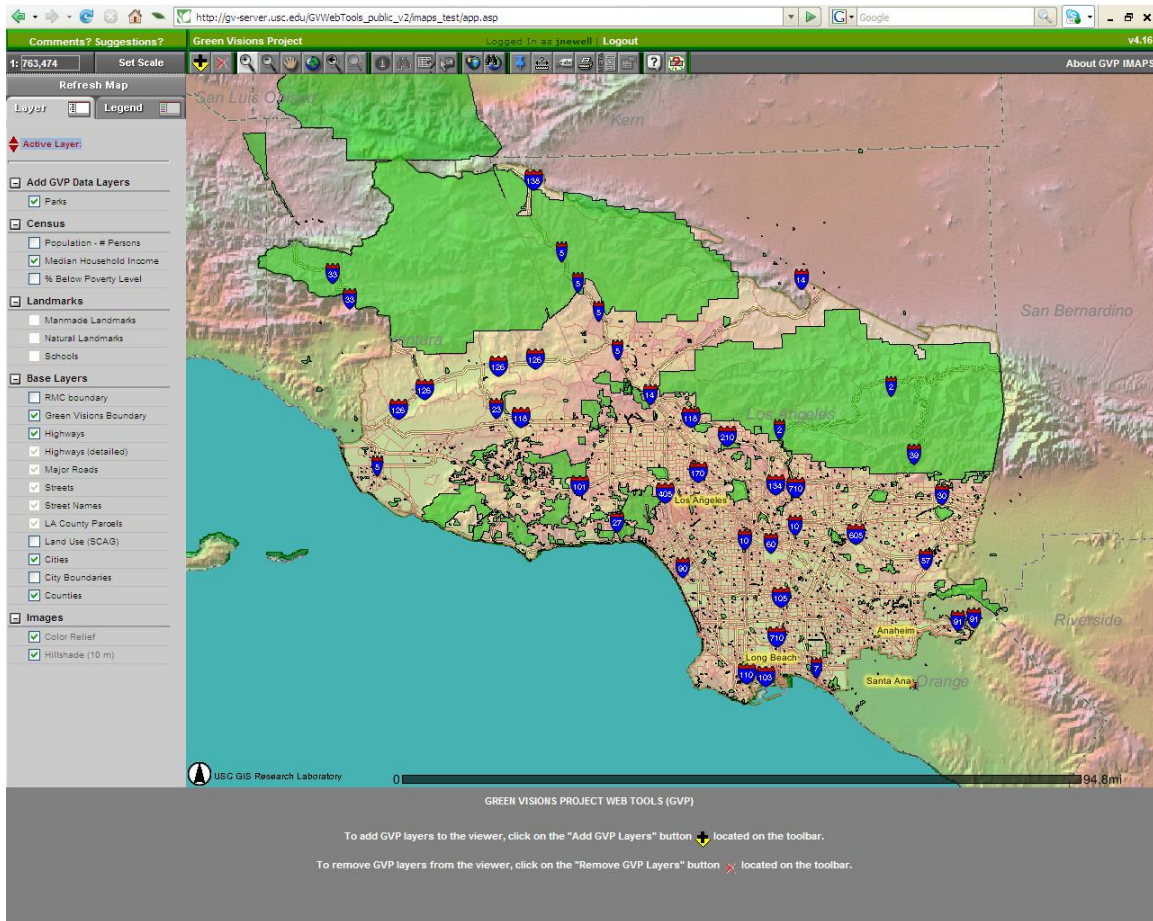


FIGURE 2.18  GVP MAP VIEWER WITH THE PARKS LAYER ADDED

## 2.2.2   NAVIGATING AROUND THE MAP: ZOOMING AND PANNING

In addition to adding layers, you will want to utilize basic map functions such as zooming in and out, panning, and finding features. This section will guide you through these basic functions.

**Zooming In**

Click on the Zoom In Icon ⊕.  Draw a box around the area you wish to zoom in on as done in Figure 2.19.
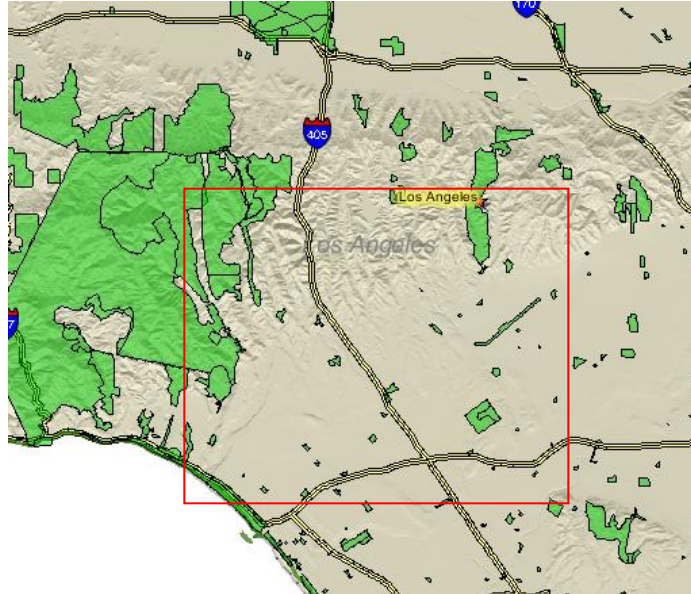
FIGURE 2.19  CHOOSING AN AREA TO ZOOM TO USING THE ZOOM TOOL

Your map display should now show at a much smaller area (closer to the Earth) than before, similar to Figure 2.20.



FIGURE 2.20  EXAMPLE OF LARGER SCALE AFTER USING THE ZOOM TOOL

**Zooming Out**

Click on the Zoom Out Icon [image: zoom out icon]. Draw a box around the area you wish to zoom out from. Your map display should now cover a broader area than before.

**Panning**

This tool is useful if you want to pan around to explore your map.

Click on the Pan Icon [icon]. Click and drag on the map to move it North, East, South, or West.

**Zooming to the Previous Extent**

Click this icon [icon] to view the map at the previous scale (go back to the previous view of the map).

**Zooming to the Default Extent**

Click this icon [icon] to view the map at the default scale.

**Zooming to the Extent of Active Layer**

Click this icon [icon] to view the extent of the active layer of the map (or the geographic extent of the layer's data set). Functions of the active layer are provided below.

### 2.2.3   MAKING A LAYER ACTIVE AND CHANGING THE LAYER DRAW ORDER

The Active Layer is the layer that is acted upon by the tools in the toolbar (e.g. Figure 2.21). We will practice making layers active and zooming in and out using our map example.
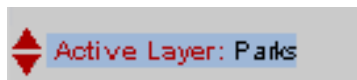


FIGURE 2.21  PARKS AS THE ACTIVE LAYER

Click on the Parks layer in the Layers List to make the layer active. See section 2.1 to learn how to add layers to the Layers List.  This will highlight that layer name in blue as in Figure 2.22.
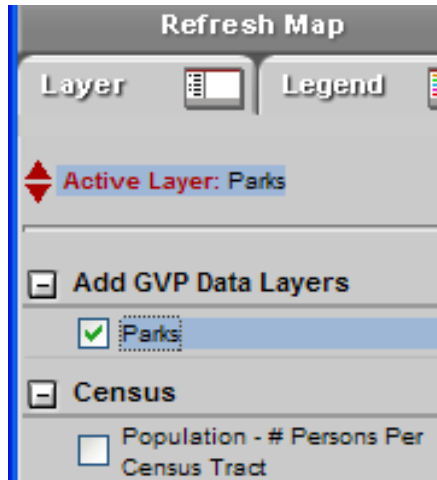
FIGURE 2.22  PARKS AS THE ACTIVE LAYER

The red arrows ▲ ▼ to the left of the 'Active Layer' text allow you to move the currently selected Active Layer up or down in the Table of Contents, thereby changing its draw order on the map. This is useful if you want one particular layer to draw on top of another layer.

It should be noted that layer names written in black text are GIS vector layers and can be selected as the Active Layer and can be queried.  Layer names written in gray text are GIS image layers and at this time cannot be selected as the Active Layer and cannot be queried.

## 2.2.4   USING THE IDENTIFY FUNCTIONS

The GVP Toolkit has a number of ways to identify specific features in a layer. This is useful for generating a wide array of information.

**Using the Identify Features Tool**

Make sure the layer you want to identify features on is active. For this example, we will use the Parks layer and will work with Elysian Park, though any park can be selected.

Click on the Identify Features Icon .
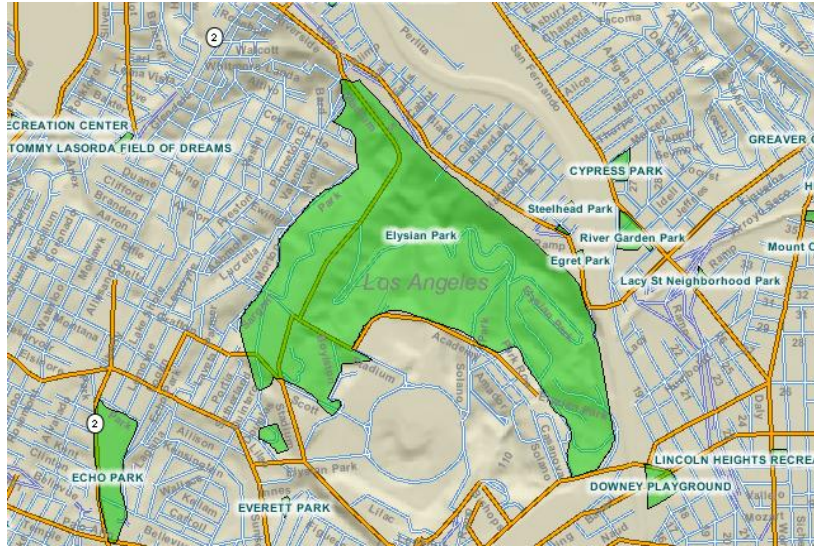
FIGURE 2.23  USING IDENTIFY FEATURES TO GET INFORMATION ON A PARK

Click on the desired park. Notice the Identify Results report as shown in Figure 2.24.



| ZOOM | Park Name | Park Size (acres) | Address | City | More Details |
|------|-----------|-------------------|---------|------|--------------|
| 1 | Elysian Park | 583.97 | 835 ACADEMY RD | LOS ANGELES | Park Report |

Identify Results for **Parks** - 1 record identified

FIGURE 2.24  RESULTS TABLE AFTER USING THE IDENTIFY FEATURES TOOL

If you wish, you can click on Park Report in this section to get more information on Elysian Park (see Section 3.3.1).

**Using the Graphic Select Tool**

Make sure the Parks layer is active. See section 2.1 to learn how to add layers to the Layers List.

Click on Graphic Select Tool Icon . Draw a box around the area you wish to identify features as in Figure 2.25.
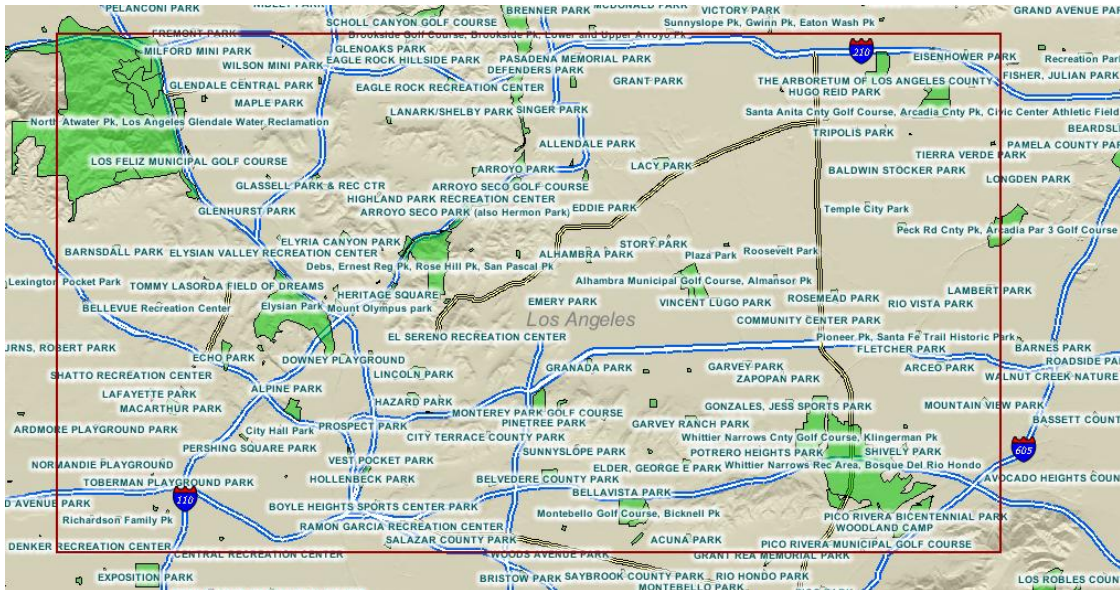
FIGURE 2.25  USING THE GRAPHIC SELECT TOOL TO GET INFORMATION FOR A REGION

After you do this, your screen should look something like Figure 2.26, with the parks within the area you have selected highlighted in yellow. At the bottom of the screen you should see a Records Report (similar to Figure 2.24) for all the parks in the area that you selected.



FIGURE 2.26  SELECTED AREAS HIGHLIGHTED BY GRAPHIC SELECT TOOL

**Using the Find Features (or Text Search) Tool**

This tool is useful if you want to select features in an active layer by text string.

Make sure the layer you want to search is active. For this example, make the Parks layer active. See section 2.1 to learn how to add layers to the Layers List.

Click on the Find Features Icon [icon]. Type in "Wilderness" as in Figure 2.27 and click Submit or hit Enter.
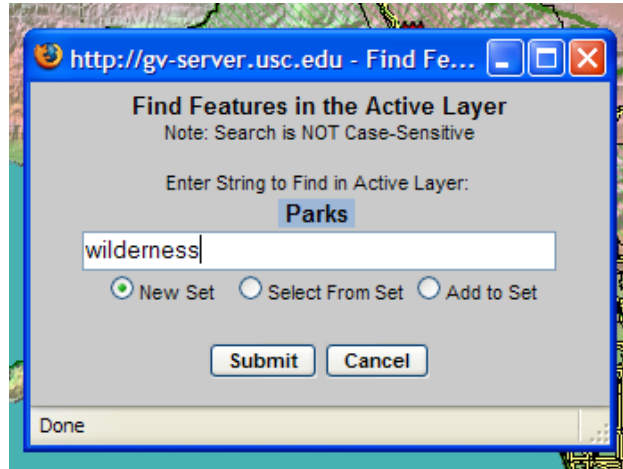


FIGURE 2.27  FIND FEATURES POPUP WINDOW

Observe that all parks with "Wilderness" in the title have been highlighted in yellow and are listed at the bottom of the screen. However, not all highlighted parks are visible on the map.



FIGURE 2.28  TABLE OF RESULTS AFTER USING THE FIND FEATURES TOOL

Click on the Zoom to Extent of Active Layer Icon [icon]. This should make all the highlighted parks visible within the map.

The ability to edit the symbology of features in a layer can greatly increase the readability of a map, particularly one with multiple layers visible. Building on our existing Parks-Median Household Income map, this exercise goes through the steps necessary to edit symbology.

Make sure the layer you want to edit is active. In this example, make sure the Parks layer is active. See section 2.1 to learn how to add layers to the Layers List.

Click on the View Properties for the Active Layer Icon ![icon]. After doing so, you should see a screen similar to Figure 2.29.
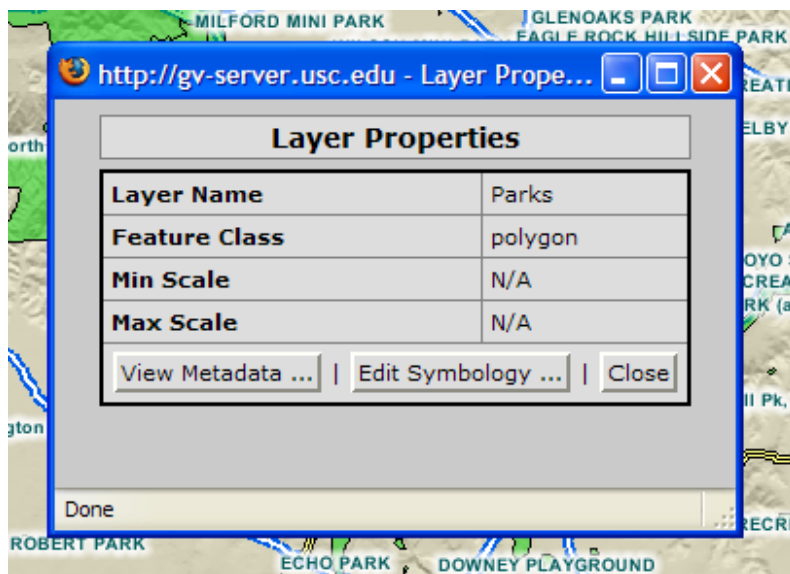


FIGURE 2.29 POPUP WINDOW OF VIEW PROPERTIES FOR THE ACTIVE LAYER

Click on the Edit Symbology button. This will open the Symbol Editor (Figure 2.30, top).

In the Symbol Editor, click on the Simple Symbol button. This will open the Edit Polygon Symbol dialogue as shown in Figure 2.30 (bottom).
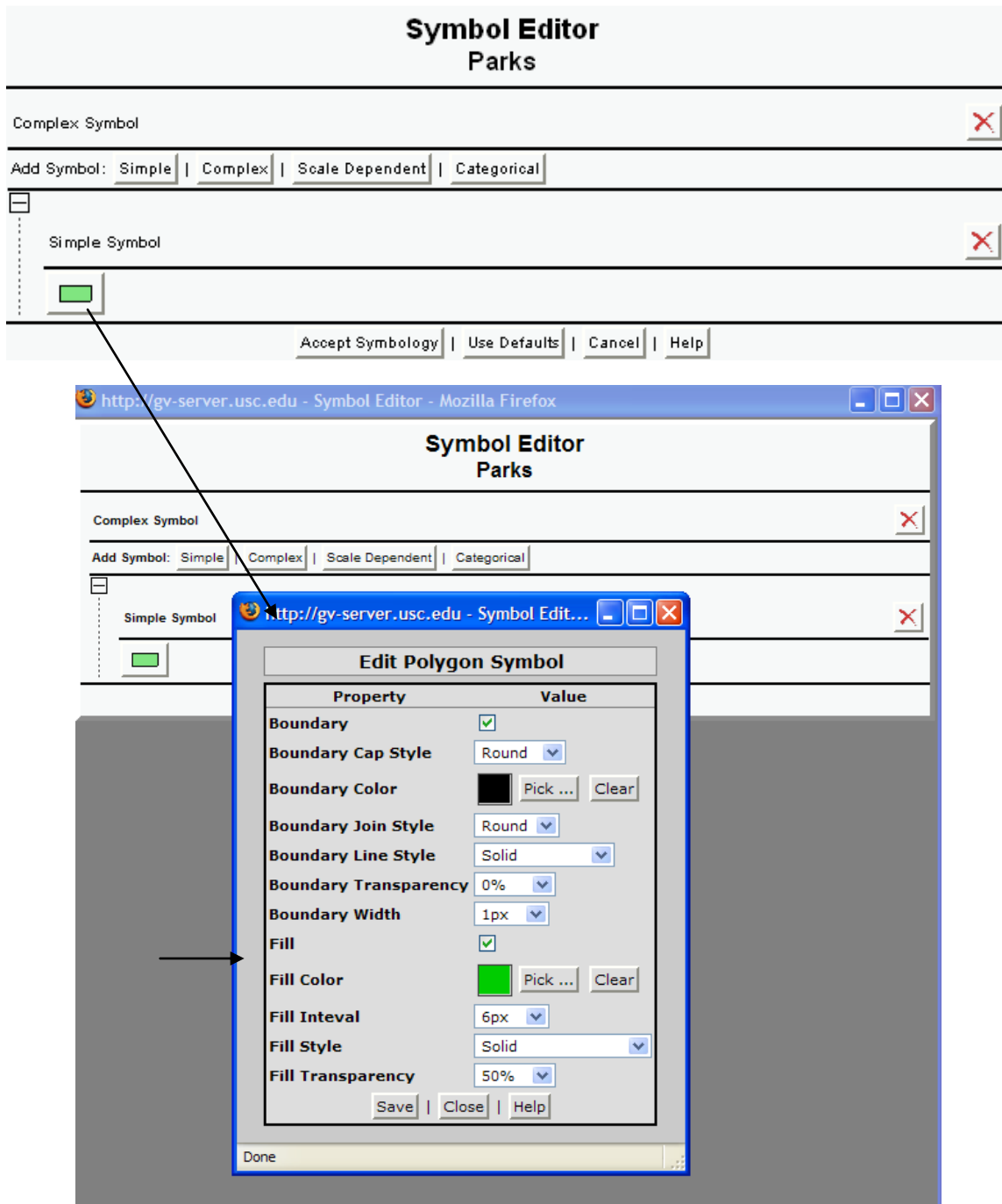
FIGURE 2.30  POPUP WINDOWS OF EDIT POLYGON SYMBOL

Go down to the Fill Style drop down selector. Select the Diagonal (back) option and then click on the Save button. Your screen should know look something like that shown in Figure 2.31.

As shown in the figure below, editing symbology can greatly increase the readability of maps, particularly when you want to show multiple layers on a single map.
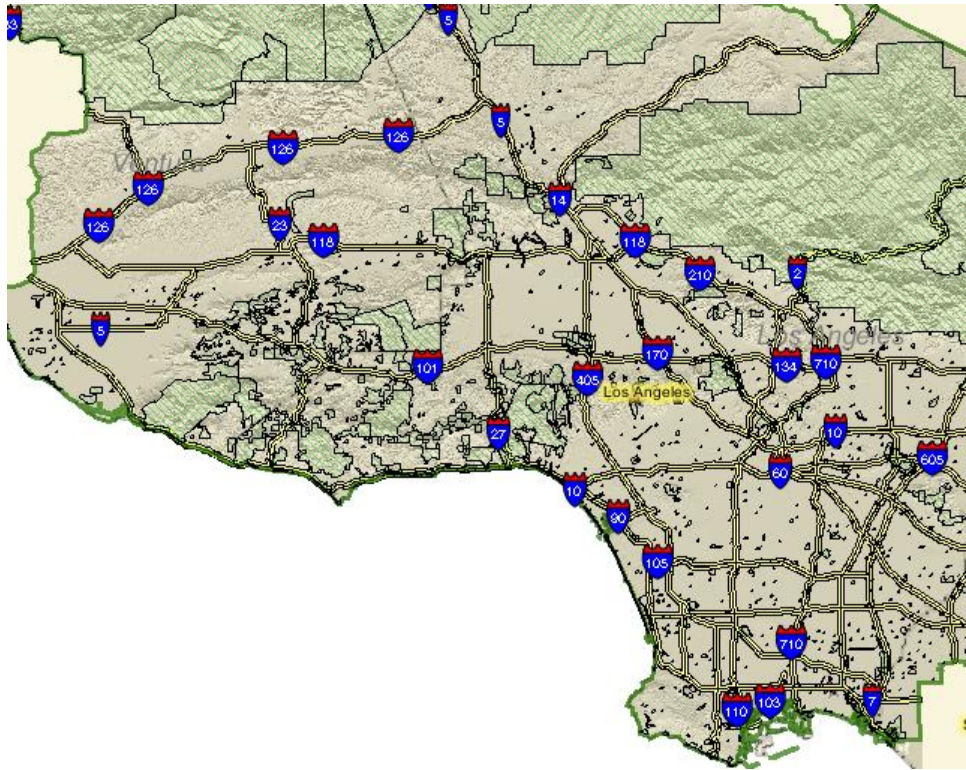


FIGURE 2.31  MAP WITH CUSTOMIZED SYMBOLOGY

---

### 2.2.6   CREATING AND BROWSING BOOKMARKS

Creating bookmarks is a handy way to save work that you have done using the GVP Toolkit. If you do not create bookmarks then your work setting up a particular map will be lost when you close or refresh your internet browser (e.g. Mozilla, Internet Explorer, etc.) window (unless you print a map, and even then it will be a static image rather than a dynamic map). Let's create a bookmark for the map we have just produced in Section 2.3.5 (Editing Symbology).

Zoom in 🔍 to a point of interest that you wish to come back to later then click on the Bookmark Icon 📌. Your screen should be similar to that shown in Figure 2.32.
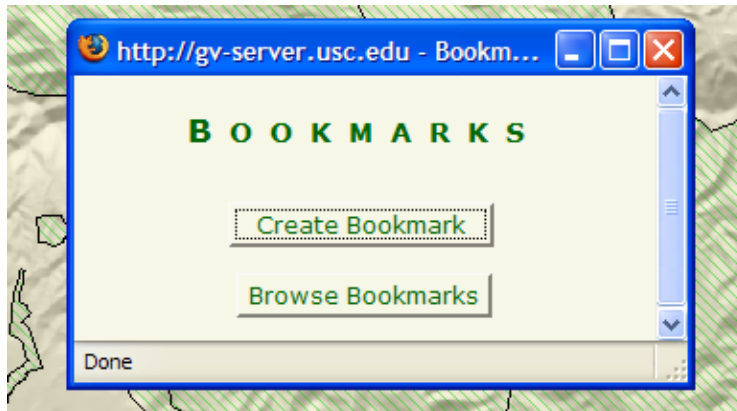
FIGURE 2.32  BOOKMARKS POPUP WINDOW

Click on "Create Bookmark". Type your name and give the bookmark a description so that you will remember it later.
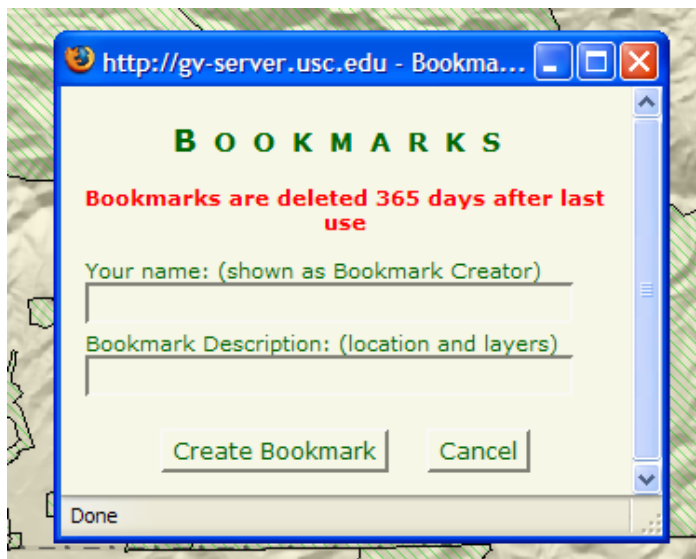


FIGURE 2.33  CREATING A BOOKMARK

Click on the Create Bookmark button.  This bookmark will be saved for 365 days and you can retrieve it by clicking on the Bookmark icon and then the Browse Bookmarks button. You may also browse bookmarks created by other users and load these maps as well.

## 2.2.7    PRINTING A MAP

This feature allows you to customize your map view for printing, designed as a standard letter size page (8 ½" by 11") so that it can be easily included in reports or proposals.

Click on the Print Map Icon 🖨. On your screen, you will be able to view how your map will look when it is printed. It should look something like Figure 2.34.
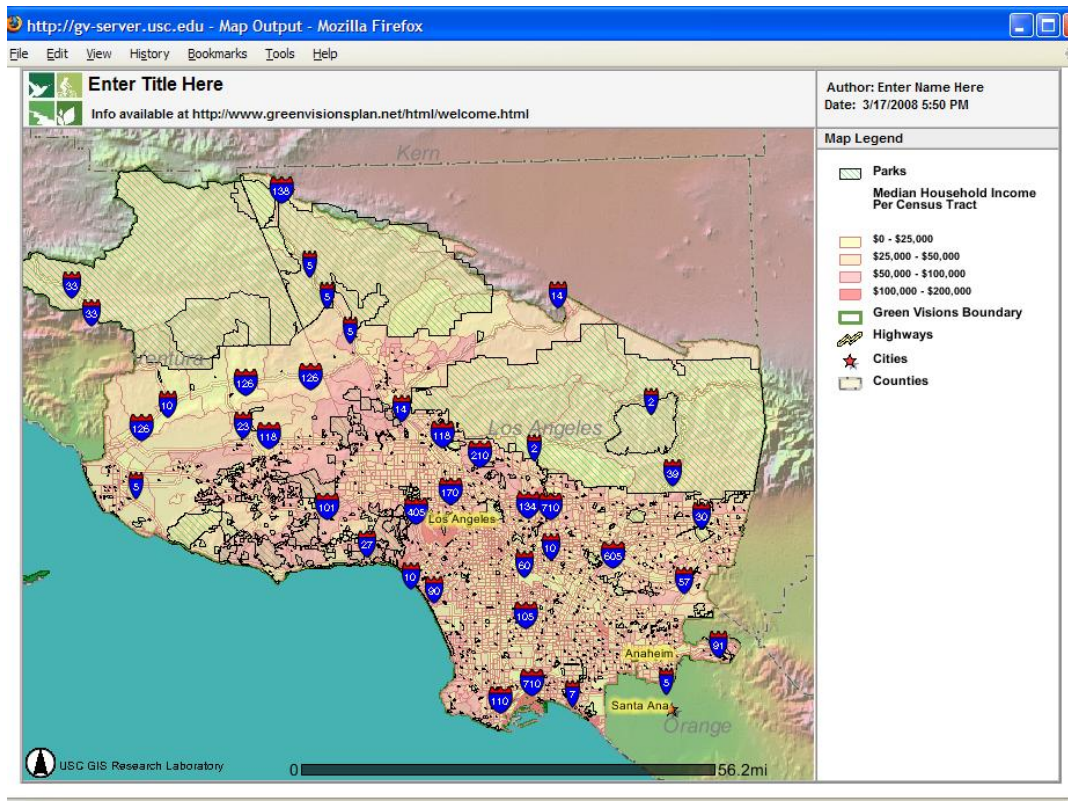


FIGURE 2.34  PRINTING A MAP

Enter a title for your map, such as "Parks and Median Household Income in the Green Visions Area" in the top left corner of your map, where "Enter Title Here" appears. You can also add and change text in a number of other sections, such as "Author," and "Map Legend" by typing on the currently displayed text. Additional comments can be entered below the map title in the Info section.

Print your map by going to File -> Print. Make sure that your printer is set to "Landscape" orientation before printing.

# 3. ADVANCED FUNCTIONS AND DYNAMIC ANALYSIS TOOLS

## 3.1    MAKING QUERIES ON MAP ATTRIBUTES

There can be an overwhelming amount of information contained within a map, and sometimes you want to be able to quickly find very specific information. For instance, what if you want to find all parks with a perimeter less than two miles? This daunting task can quickly be accomplished using the Query Tool.

Recall that layer names written in black text are GIS vector layers and can be selected as the Active Layer and can be queried.  Layer names written in gray text are GIS image layers and cannot be selected as the Active Layer and cannot be queried. Queries resulting in "No features found..." are often the result of an improperly selected Active Layer.

**How to use the Query Tool**

1.  Add the Parks layer to the Layers List and make it the active layer. See section 2.1 to learn how to add layers to the Layers List.

2.  Click on the Query Tool icon  located in the tool bar. A window will appear like in Figure 3.1

3.  In the Fields selection area on the left, double click on the PERIMETER attribute. This attribute now shows up in the Query Command area at the bottom of the window. See Figure 3.2.
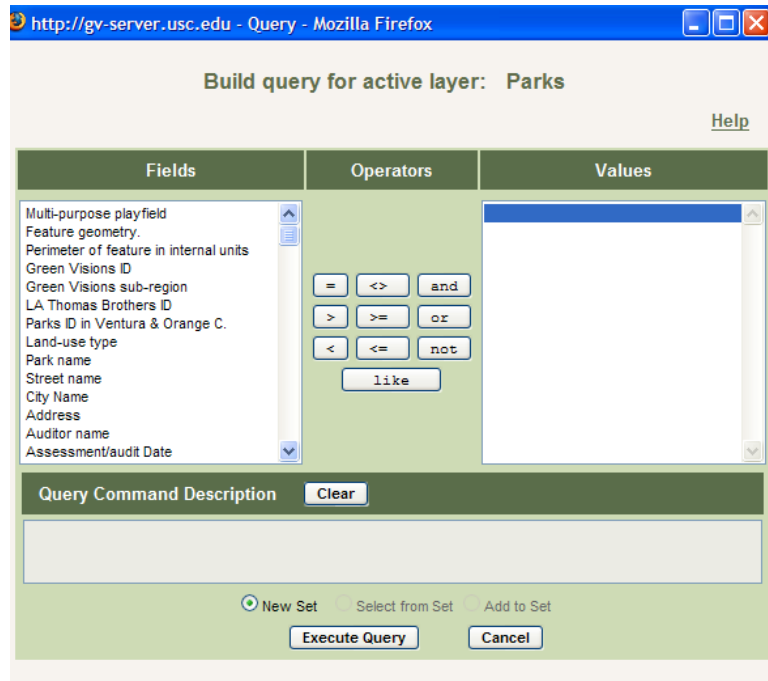
FIGURE 3.1  QUERY TOOL POPUP WINDOW
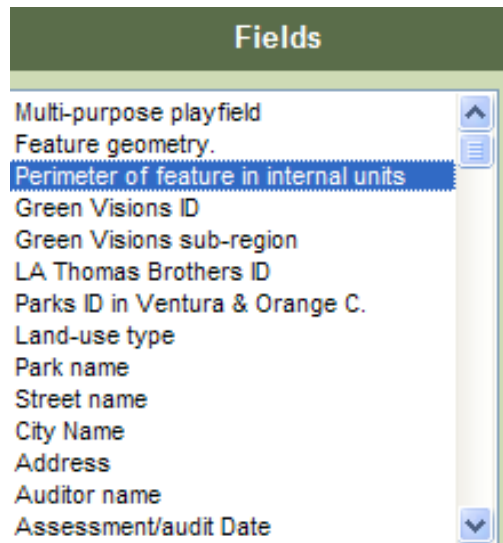


FIGURE 3.2  SELECTING THE PERIMETER ATTRIBUTE

4. Now we will use the math operator "<" for our query. Notice in Figure 3.3, upon clicking the operator's button, the operator appears in the form field at the bottom of the window just after the attribute we have already selected.
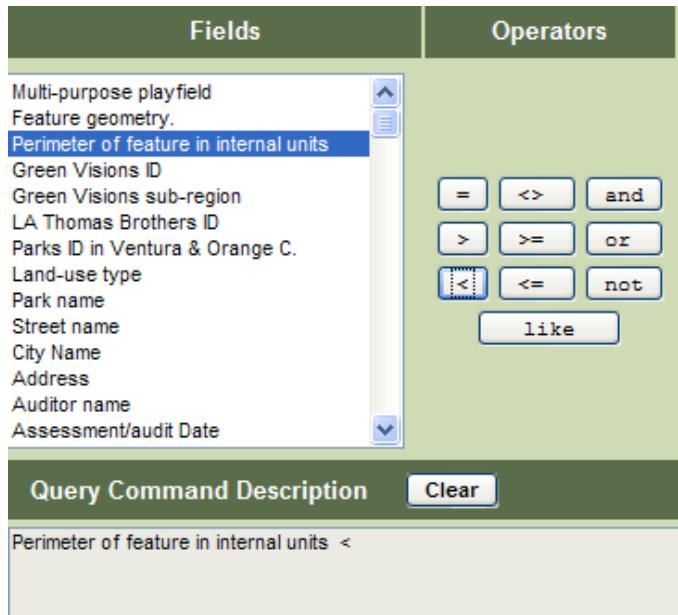
FIGURE 3.3  INSERTING AN OPERATOR INTO THE QUERY

5.  Please note that at this point we could select a value from the Unique Value field. These numbers are all the unique values found in the database for the particular attribute you have selected (in our example we have selected PERIMETER). But we won't select a value because for this example we want to use a specified value. In the Query Command area, to the right of the "<" operator, enter the number '200' as in Figure 3.4 then click on the Execute Query button.
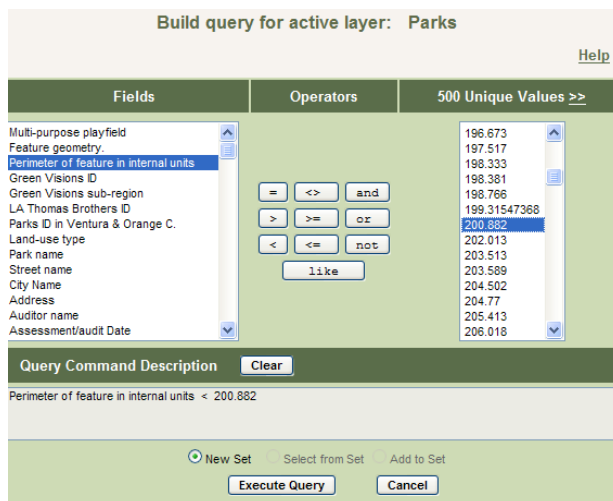


FIGURE 3.4  ENTERING A VALUE INTO THE QUERY

6.  The popup window will close and the results for the query appear below the map in the results area. To zoom in on one of the results click on the number to the left of its name. In this example we chose to zoom to #10, Bark Park.

44

| 25 | WILSON MINI PARK | 0.31 | 1101 wilson |
| 26 | Calabasas Community Center | 0.57 | 27040 Malibu Hills Rd |
| 27 | Bark Park | 0.39 | 4232 Las Virgenes Rd |
| 28 | THIRD STREET PARK | 0.43 | 1626 Third Street |
| 29 | Griffith Park, Johnny Carson Pk, Wilson Municpal Golf, Roosevelt Municipal Golf Course | 0.1 | CRYSTAL SPRINGS DR |
| 30 | Heildelberg Park | 0.31 | |
| 31 | BICENTENNIAL PARK | 0.6 | E LONGDEN AV & S 6TH AV |
| 32 | LINCOLN MINI PARK | 0.5 | 2525 WHITE AV |

FIGURE 3.5  RESULTS TABLE FOR THE QUERY

## 3.2    USING THE PARK BUFFER LAYER

A common issue in park planning is access, and it is useful to be able visualize those areas within easy walking distance from a park or recreational open space. The GVP toolkit defines 'easy walking distance' as ¼ mile from a park edge or border. Here, distance is measured as distance that would need to be traveled via the road network, rather than as-the-crow-flies distance from a park edge. The Toolkit provides a layer that displays a ¼ road network distance buffer around each of the GVP area parks and open spaces. This layer can be used with other tools, for example, demographic layers, to provide information on who does (and does not) have easy access to park facilities.

**How to use the Park Buffer Layer**

1. Click on the Add GVP Layers icon ⬇ to add the "Network Buffer Around Park (¼ mile)" layer and the Parks layer to the Layers List (See section 2.1 to learn how to add layers to the Layers List).
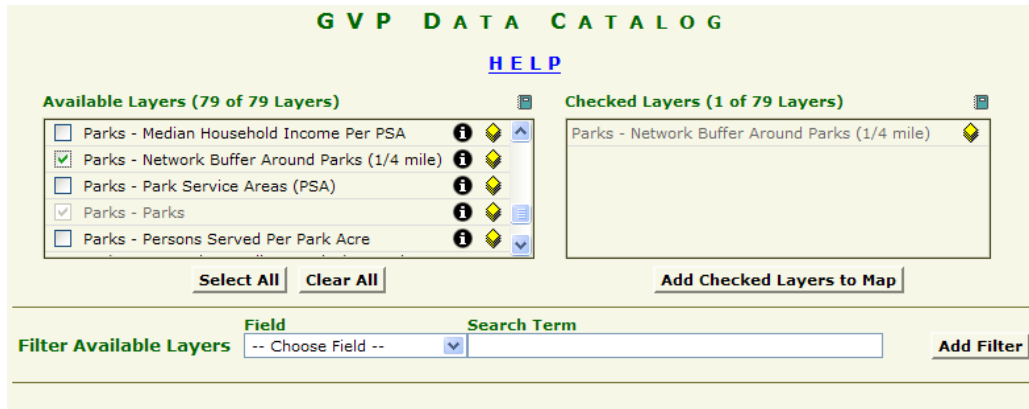
FIGURE 3.6  ADDING THE PARK BUFFER LAYER USING THE GVP DATA CATALOG

2.  Make the "Network Buffer Around Park" the active layer (See section 2.3 to learn
    how to make a layer Active).
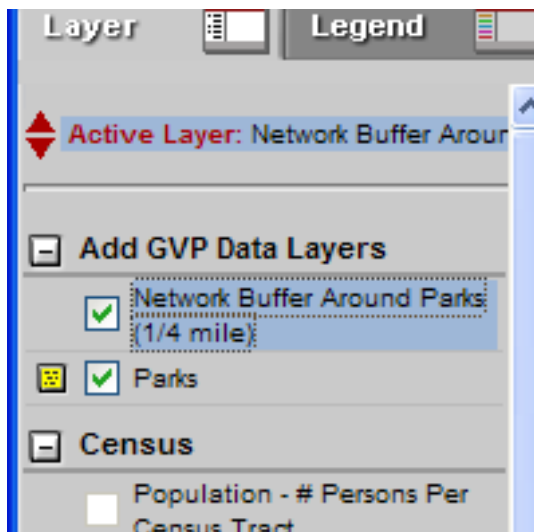


FIGURE 3.7  ADDING PARKS AND NETWORK BUFFER AROUND PARKS TO MAP

3.  Refresh the map.

4.  Zoom in  to the desired location.  You will see an image of all parks surrounded
    by their ¼ mile road network buffers.

FIGURE 3.8  SCREENSHOT OF PARKS AND NETWORK BUFFER AROUND PARKS

5.  Using the Identify Features Tool ![icon], click on any park of interest. This will generate a table at the bottom of the screen that provides demographic and socioeconomic information on the population living within that park's buffer.



| Identify Results for Network Buffer Around Parks (1/4 mile) - 1 record identified | | | | |
| ZOOM | Park Name | Network Buffer Size (acres) | Total Population Served By Network Buffer | More Details |
| --- | --- | --- | --- | --- |
| 1 | LANARK PARK | 148.52 | 5483 | Quarter Mile Network Buffer Report |

FIGURE 3.9  GENERATING A RESULTS TABLE USING THE IDENTIFY FEATURES TOOL

## 3.3    GENERATING REPORTS

### 3.3.1   PARK REPORTS

If you are interested in finding out more about particular parks identified in the GVP Parks layer, you can generate a "Park Report." In our example here, we focus on South Gate Park and Golf Course but you could choose any of the parks in the map.

**How to generate a Park Report**

1.  Make the Parks layer active (See section 2.1 to learn how to add layers and section 2.3 for making layers Active).

2.  Zoom in ![zoom icon] on the map until the park is visible (If you only know the name of the park but cannot find it on the map you can use the Query Tool ![query icon] to execute a query where MERGNAME = "your park name here". See section 3.1 for more details on the Query Tool).
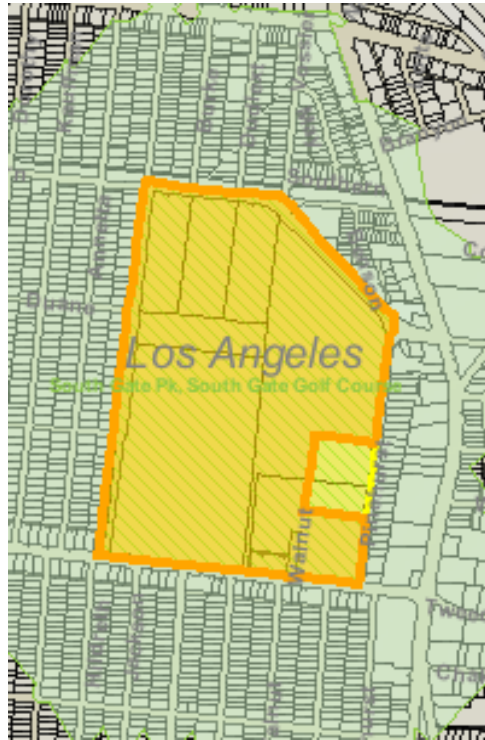


FIGURE 3.10  USING IDENTIFY FEATURES TOOL ON A PARK

3.  Using the Identify Features Tool ![info icon], click on the South Gate Park polygon. This will generate a small table at the bottom of the screen that identifies the park's name and address.



FIGURE 3.11  RESULTS TABLE AFTER USING THE IDENTIFY FEATURES TOOL

4.  Under the More Details column on the far right hand side of the table, click on the Park Report link. A Park Report will pop up (Figure 3.12) and it can be printed. In general, Park Reports are either short reports based on information obtained from an assessment (or audit) of the park based on websites, or a longer report that includes data from a field audit of the park, and a photo gallery. The Park Reports also include a list of target species that are either present in the park or would be

suitable habitat for such species. Notice that each species has a habitat suitability rating, ranging up to 1 (Figure 3.12). In the case of South Gate Park, which was field audited, the report includes the park's complete address, basic information about its facilities, landscape features (if any), condition metrics, and safety features.



*Generated on Tuesday, March 11, 2008*

Park Report

**South Gate Pk, South Gate Golf Course**

**Park Size (Acres):** 87.83

**SOUTHERN AV**
**SOUTH GATE CA**
**Tel:** 323-5671331

©2006 The Green Visions Plan for the 21st Century Southern California. All Rights Reserved.

*Date of Audit: 6/8/2005*

**Community / Cultural Facilities**
- Senior Citizen
- Theater
- Meeting Room

**Sports/ Active Recreation Facilities**
- Golf Course
- Horseshoes
- Handball Court(s)
- Recreation Center / Gym
- Basketball Court(s)
- Baseball Facilities
- Swimming Pool
- Shuffle Board
- Frisbee Golf

**Target Species / Max Habitat Suitability**[*]

Total Target Species: 31
- Burrowing Owl / 0.91
- Lark Sparrow / 0.75
- Loggerhead Shrike / 0.47
- Northern Harrier / 0.95
- California Quail and Mountain Quail / 0.9
- Rufous-crowned Sparrow / 0.89
- Red-winged Blackbird / 0.77
- Sage Sparrow / 0.61
- Western Meadowlark / 0.75
- White-tailed Kite / 0.53
- Yellow-breasted Chat / 0.08
- Coast Horned Lizard / 0.6
- Pacific Chorus Frog / 1
- Two-striped Garter Snake / 0.55
- Western Pond Turtle / 0.66
- Western Spadefoot Toad / 0.83
- American Badger / 1
- Bobcat / 0.77
- Cactus Mouse / 0.57
- California Vole / 0.92
- Common Gray Fox / 0.71
- Coyote / 0.8
- Deer Mouse / 0.9
- Desert Woodrat / 0.72
- Dusky-footed Woodrat / 0.72
- Black-tailed Jackrabbit / 0.65
- Little Pocket Mouse / 0.54
- Long-tailed Weasel / 0.66
- Behr's Metalmark / 1[**]
- Callippe Fritillary / 1

FIGURE 3.12  GENERATING A PARK REPORT

### 3.3.2    PARK SERVICE AREAS AND REPORTS (PSA)

Many communities within the GVP area are "park-poor." If you are interested in understanding which neighborhoods are likely to have the most crowded parks, and be in need of additional parks, you can use the Park Service Area report function of the Toolkit. A park's service area is that part of the surrounding neighborhood in which people live closer to that park, than to any other park. Of course not everyone living closest to one park will use it exclusively, or even at all. But generally people are more likely to use facilities that are closer to their homes versus those that are more distant.

1. Click on both the Parks layer and the Park Service Area (or PSA) layer and make the PSA layer active to see the distribution of park service areas. Zoom in to a level where the PSA boundaries are shown clearly. See Figure 3.13 for an example.
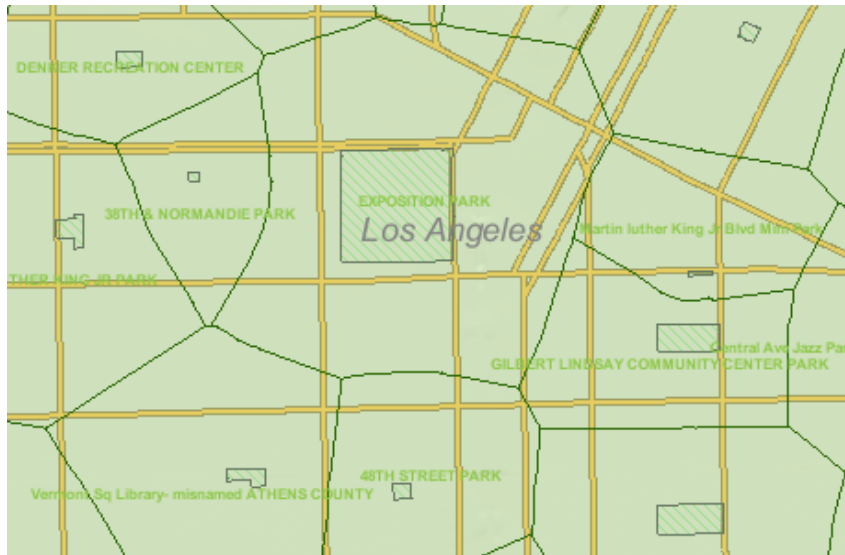
FIGURE 3.13 MAP OF PARK SERVICE AREA (PSA) BOUNDARIES

2. If you want to analyze the demographics of the PSA, use the check boxes on the Layers List to see how an attribute varies across park service areas. For example, add the "% Latino by PSA" layer (See section 2.1 to add layers to the Layers List) then click the check box and refresh the map. You should see something similar to Figure 3.14.
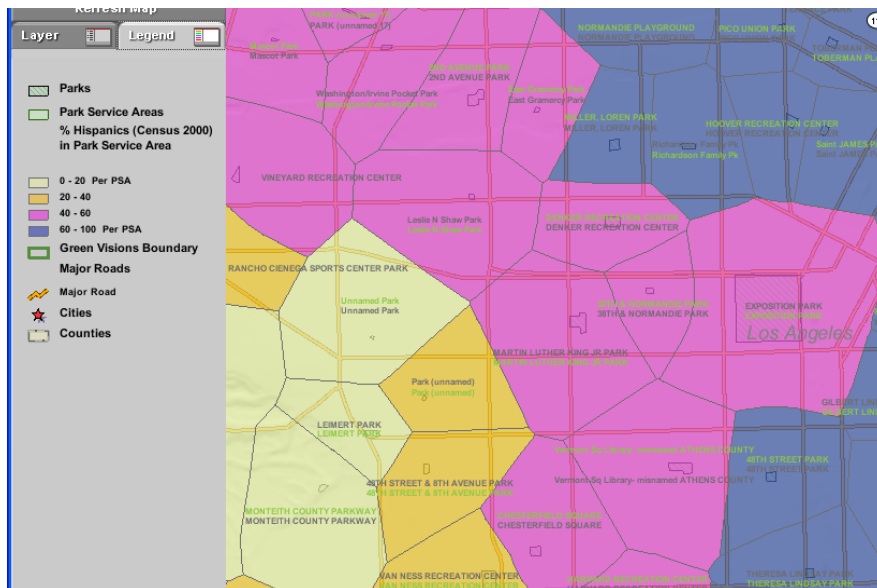


FIGURE 3.14 MAP WITH THE %LATINO BY PSA LAYER ACTIVE

### 3.3.3 PSA REPORTS

If you want to learn more about any particular park service area, you can generate a Park Service Area or PSA Report.

**How to generate a Park Service Area Report**

1. Add the PSA layer and make it the active layer. See section 2.1 for adding layers.

2. Zoom in ![zoom icon] until the PSA that you would like to create a report for is visible.

3. Using the Identify Features Tool ![identify icon], click on a PSA of interest. This will generate a small table on the PSA, which allows you to click on a PSA Report link. A report will pop up, that summarizes park and demographic characteristics of the PSA. A PSA Report for Exposition Park is shown below.
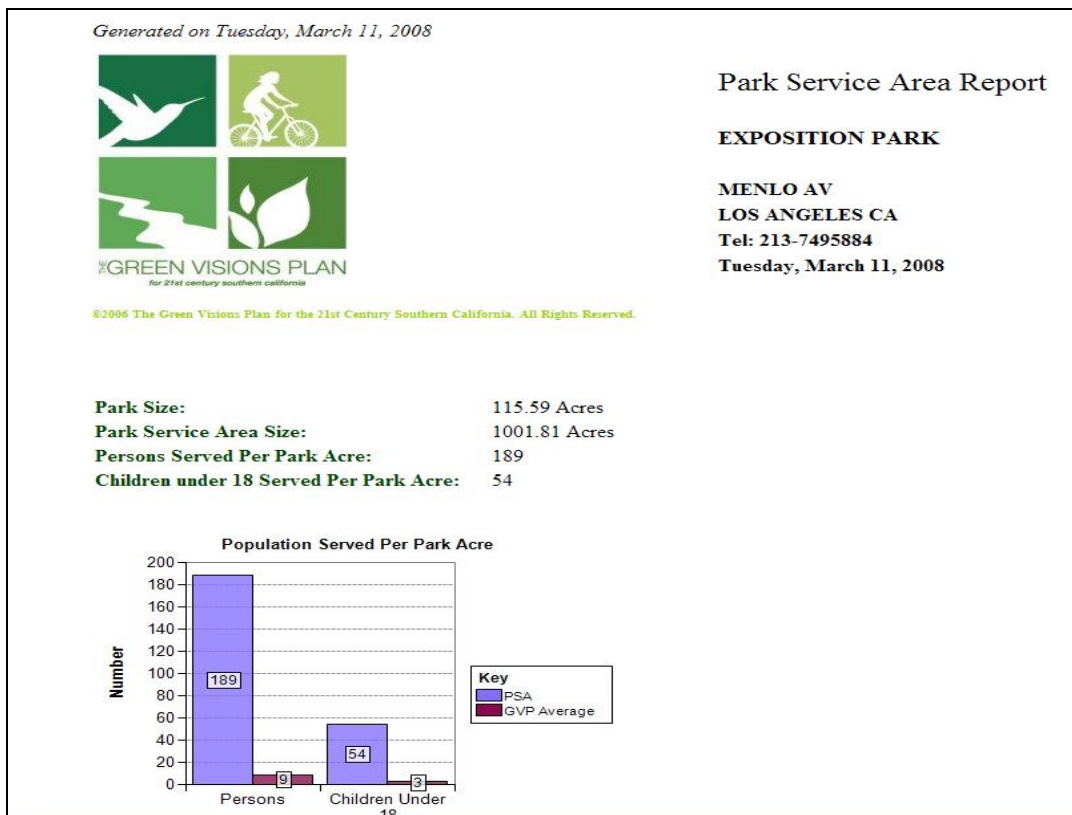


FIGURE 3.15  GENERATING A PSA REPORT (EXPOSITION PARK)

### 3.3.4 STREAM NETWORK REPORTS

Reports on characteristics of streams and their catchments can also be generated. A catchment is the area drained for each segment of a stream, between two confluence points. This report provides data on stream name, Strahler stream order number, elevation, gradient, length of all streams upstream, and several different measures regarding

catchment area. In addition, identifiers from the National Hydrography Dataset are included.

## How to generate a Stream Network Report

1. Add the Stream Network layer from the GVP Data Catalog, and make it active. See section 2.1 for adding layers.

2. Zoom in ![icon] until the stream you are interested in becomes visible. In our example, we will be interested in Gordon Canyon.

3. Using the Identify Features Tool ![icon], click on the stream. A table of results will be generated with information about the stream at the bottom of the window, as shown below.

4. On the far right, under the More Details column, click on 'Stream Report'. A pop-up Stream Network Report will appear, as in Figure 3.16.



Text Search Results for Stream Network - 2 records selected Clear

| ZOOM | Reach Name | GNIS Identifier | Stream Length (m) | Stream Gradient | Stream Level | More Details |
|------|-----------|-----------------|-------------------|-----------------|--------------|--------------|
| 1 | Gordon Canyon | 00242858 | 1251.5 | 0.260488 | 4 | Stream Network Report |
| 2 | Gordon Canyon | 00271365 | 1023.38 | 0.114327 | 4 | Stream Network Report |
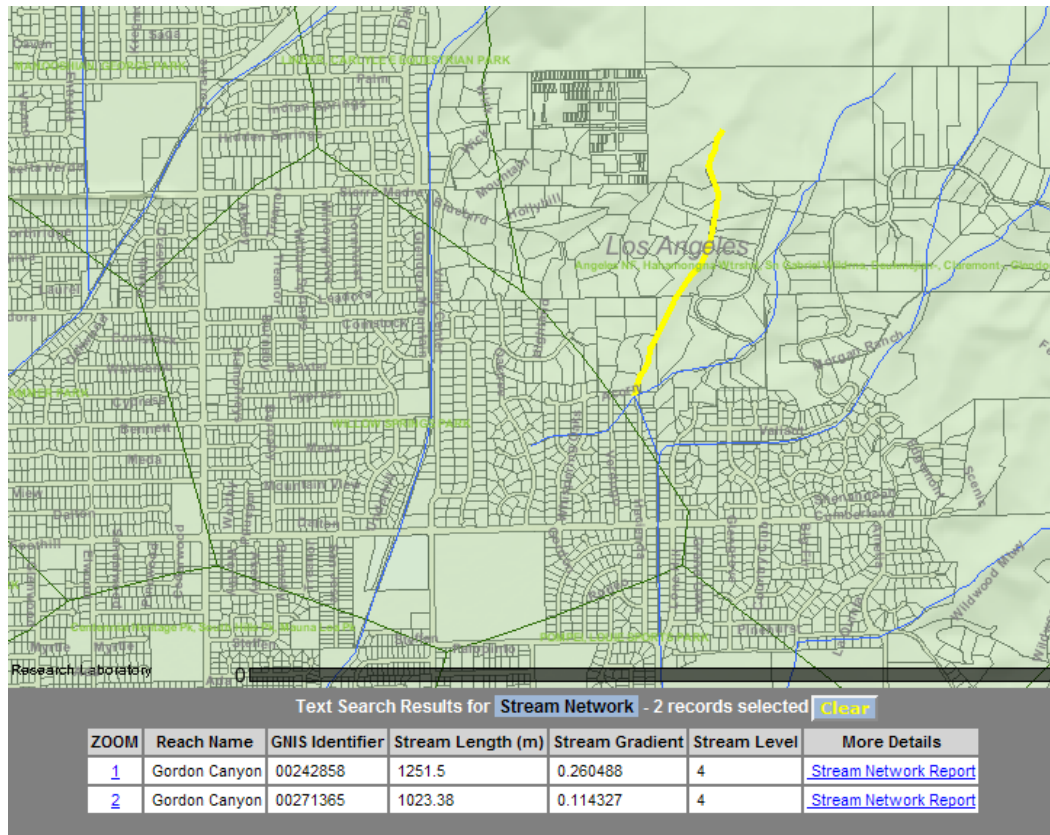
FIGURE 3.16  GENERATING A STREAM NETWORK REPORT

**Green Visions Stream Network Analysis**

**Gordon Canyon**
**Friday, March 14, 2008**

**Reach Name:** Gordon Canyon
**GNIS (Geographic Names Information System) Identifier of the Reach Name:** 00242858
**Stream Length (m):** 1251.5
**Strahler Stream Order:** 1
**Type of NHD Network Element:** STREAM/RIVER
**Average Elevation of the Stream Reach (m):** 984
**Stream Gradient:** 0.26
**Stream Level:** 4

**Total Length of all Streams Upstream (m):** 1251.5
**Catchment Area that Discharges to the Reach (m$^2$):** 422100
**Sum of the Area of All Catchments UPstream that Discharge to the Reach Outlet (m$^2$):** 422100
**Elevation of the From Point of the Reach (m):** 1147
**Elevation of the To Point of the Reach (m):** 821

**Unique Identifier of the NHD Feature or Reach:** 27689644
**Unique Identifier of the Transport Reach and Coastline Reach in the NHD:** 27692690
**Numeric Value that Encodes the Type and Values for a Set of Characteristics for an NHD Feature:** 46001

FIGURE 3.17  STREAM NETWORK REPORT FOR GORDON CANYON

## 3.4    USING THE HISTORICAL WETLANDS LAYER

For the San Gabriel River Watershed, users can add the Historic Wetlands layer (see www.greenvisionsplan.net/html/documents/SGRreport.pdf for documentation). This is particularly useful for those interested in wetland restoration along this river system.

**How to use the Historical Wetlands Layer**

1. Add the Historic Wetlands and Stream Network layers from the GVP Data Catalog, and make it active. See section 2.1 for adding layers.

2. Zoom in to an area of interest. Your screen should look something like Figure 3.18 below.  As with the Park Reports, the Stream Network analysis includes target species habitat suitability information (see Figure 3.12).
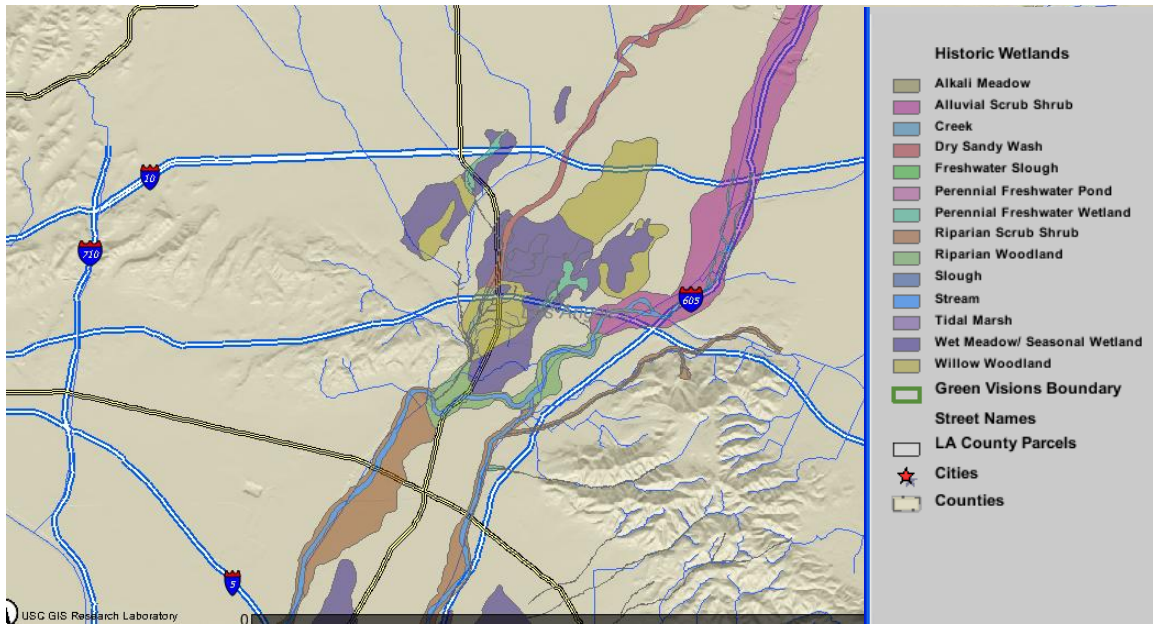
FIGURE 3.18  MAP WITH HISTORIC WETLANDS AND STREAM NETWORKS

## 3.5    USING DYNAMIC ANALYSIS TOOLS

The Dynamic Analysis tool for park planning allows users to perform 'what if' scenario analysis. Users can identify one or more specific parcels being considered for a park or open space project, and assess the impact of creating a park congestion or 'park pressure' (hectares per 1,000 population) for the existing parks surrounding the potential site(s). You can explore the impact of one particular park project site, compare the relative impact of alternative potential park project sites, thereby helping to guide decisions about project selection, and consider multiple park projects designed to bring a community to a generally acceptable level of park access.

**How to use the Dynamic Analysis Tools**

1. Navigate to the homepage. On the menu bar, on the left side of the window, make sure to click LA County Parcels under Base Layers to make it the active layer.
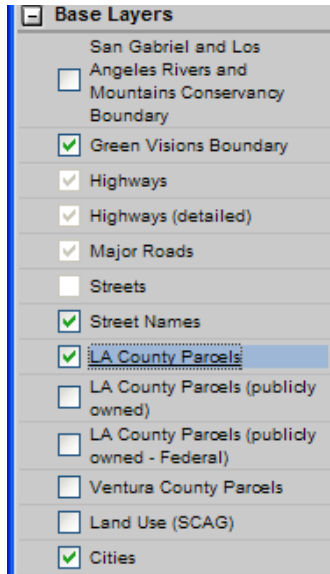
FIGURE 3.19  MAKING LA COUNTY PARCELS THE ACTIVE LAYER

2.  With the Magnify Tool , zoom in on the map until parcels are visible. The Zoom or Magnify tool is located in the toolbar at the top of the map.
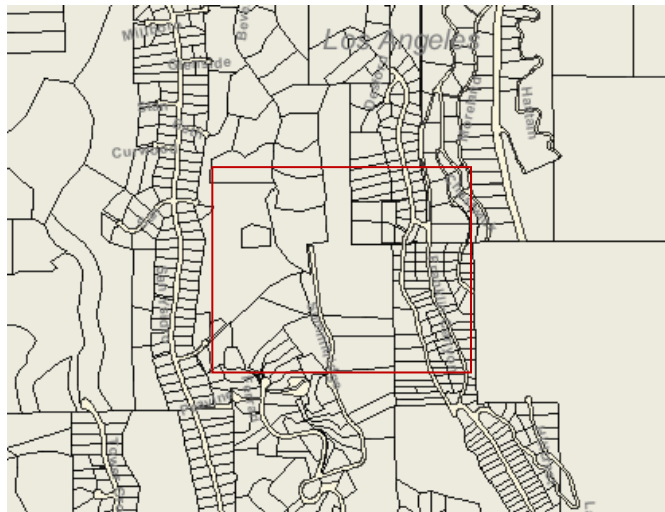


FIGURE 3.20  ZOOMING IN ON THE MAP

3.  Using the Identify Tool , click on the individual parcel or parcels that you would like to perform an analysis on. If you have zoomed in close enough, you should see grey rectangles with numbers in them as in the example below.

FIGURE 3.21  SELECTING AN INDIVIDUAL PARCEL

4. After clicking on the desired parcel(s), a list of one or more parcels will appear in the results panel containing the selected parcel(s). The results panel is located below the map. Select which parcels you want to perform an analysis on by checking the box in the Dynamic Analysis column. Then click on the Dynamic Analysis button located above the table at the top of the results panel.



FIGURE 3.22  CHECKING BOXES TO PERFORM DYNAMIC ANALYSIS

5. A popup window will appear. If this window does not appear, then you probably have not enabled popups for the Green Visions site. Click the submit button if you would like to proceed with the analysis.

You are about to run PSA Analysis on parcel(s) with AIN(s)
4355020900 4384034009.

Do you wish to proceed?

Submit    Cancel

AIN: The Los Angeles County Assessors Identification Number (AIN) is a
ten-digit number assigned by the Assessor to each piece of real property in Los
Angeles County (http://assessor.lacounty.gov/extranet/DataMaps/Pais.aspx).
The AIN is used on tax bills and correspondence to identify real property. For

FIGURE 3.23  CLICKING THE SUBMIT BUTTON

6. An animation dialogue will replace the submit/cancel buttons. This will display the progress for each parcel on which you are having an analysis performed.

You are about to run PSA Analysis on parcel(s) with AIN(s)
4355020900 4355020013 4384034009.

Please be patient while the tests run.

Parcel 1 : 0% complete.
Parcel 2 queued.
Parcel 3 queued.
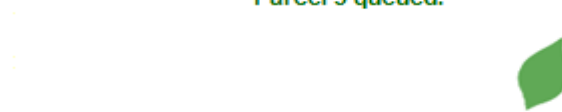
FIGURE 3.24  ANIMATION AND STATUS OF THE ANALYSIS, BY PARCEL

7. When the analysis is complete the popup window's information will be replaced with one last acceptance window. If you would like to open another window containing a table of the analysis results, then click Report.

This is a Green Visions Plan Dynamic Web Tool
Message:

A Park Service Area analysis has been performed on
the selected parcel(s) with ID(s) (AIN or APN):
5052022020, and adjacent parks within a 4Km buffer
zone around the parcel(s). The potential impact on
the demographics of this zone is provided as a
report:

Report    Close

FIGURE 3.25  GENERATING THE DYNAMIC ANALYSIS REPORT

The Dynamic Analysis report provides both a summary chart showing the basic impacts of converting a particular parcel or multiple parcels into a park or open space (Figure 3.26). In addition, a detailed table with before/after socioeconomic and demographic characteristics of the affected PSAs and the new 'park' or 'parks' is provided, which can be copied and pasted into a spreadsheet program such as Excel, where the data can be easily manipulated.
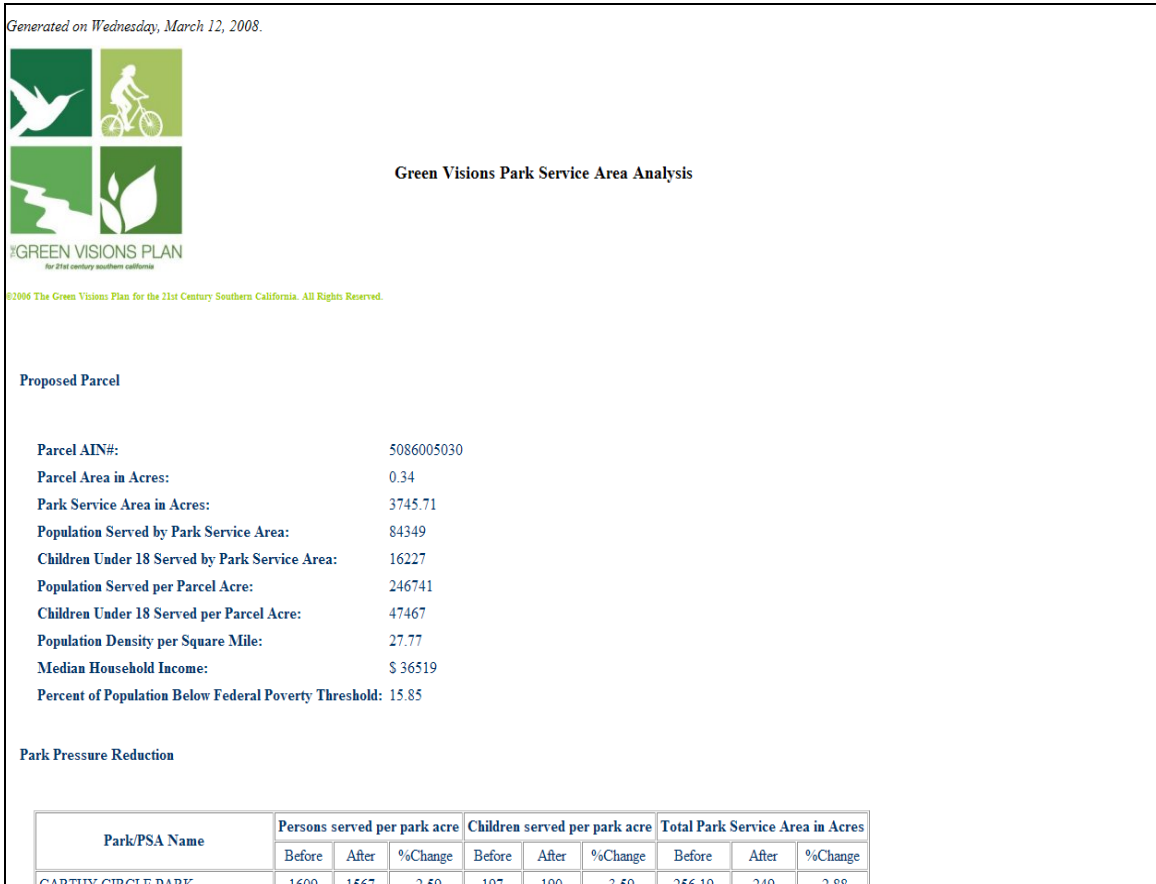


FIGURE 3.26 SUMMARY DYNAMIC ANALYSIS REPORT

# 4. CASE STUDIES: THREE PARK AND OPEN SPACE PLANNING SCENARIOS

Planners often face the task of choosing a site for a park, or selecting among a range of potential sites, the best properties for a park or recreational open space. In other cases, they may want to consider the impact of creating multiple park projects designed to bring a community to a desired level of park access. In this section, we illustrate how the Green Vision Planning Toolkit 1.0 can be used to compare two inner suburban sites, two upland sites, and two riverway sites where planners may need to be aware of watershed and habitat considerations.

In the following "What if" we use randomly selected parcels of similar size, to show how the Dynamic Analysis tool can provide information and insight into acquisition or investment decisions.

*Note:  It should be noted that these example parcels were NOT selected because they are actual park project sites, nor because they are potential park project sites. Rather, they are simply existing parcels chosen from the parcel database on the basis of size, to illustrate how the Dynamic Analysis tool functions.*

## 4.1 CASE STUDY #1: SELECTING A PARK SITE IN THE EAST L.A. SUBREGION

*Scenario:*

You need to make a decision about which parcel to acquire for a park or recreational open space, in order to ease the intense pressure on park space that is characteristic of the East L.A. subregion. You have identified two potential parcels for acquisition and you need to determine which parcel would be the most beneficial to the community in terms of easing park pressure, and making the surrounding neighborhood less 'park-poor.' The two parcels in question are AIN #6210010900 and AIN #8037005024. Both parcels are roughly the same size (approximately 4 acres); the first is located in South Gate; the other in La Mirada.

1. Add the Parks and PSA Layers (See section 2.3.1 for help with adding layers).

2. Make the LA County Parcels Layer Active (See section 2.3.2 to learn how to make layers active).

3. Search for the first AIN using the Text Search on Active Layer Tool 🔍. Enter the AIN into the search field and click on the submit button. The results of the search will appear at the bottom of the window.



FIGURE 4.1  RESULTS TABLE AFTER USING TEXT SEARCH FOR AIN 8037005024

4. Repeat the search for the second parcel, but this time select the 'Add to Set' option in the popup window before clicking the submit button.
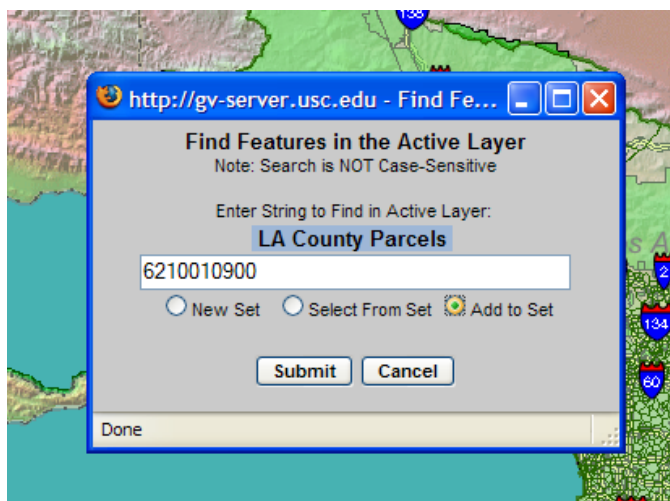


FIGURE 4.2  SELECT 'ADD TO SET' FOR THE SECOND TEXT SEARCH FOR AIN 6210010900

5. Zoom to the parcels by clicking on the number in their Zoom column of the pop-up table. Take a look to see what kind of parks are in the vicinity. In La Mirada, for example, you might want to generate Park Reports on La Mirada Park, Oak Creek Park, H. Kling Community Center Park, and Anna J. Martin Park, to see get an idea of facilities that are available locally. You might also consider running PSA reports on nearby park service areas, to get a sense of park pressure in the area.
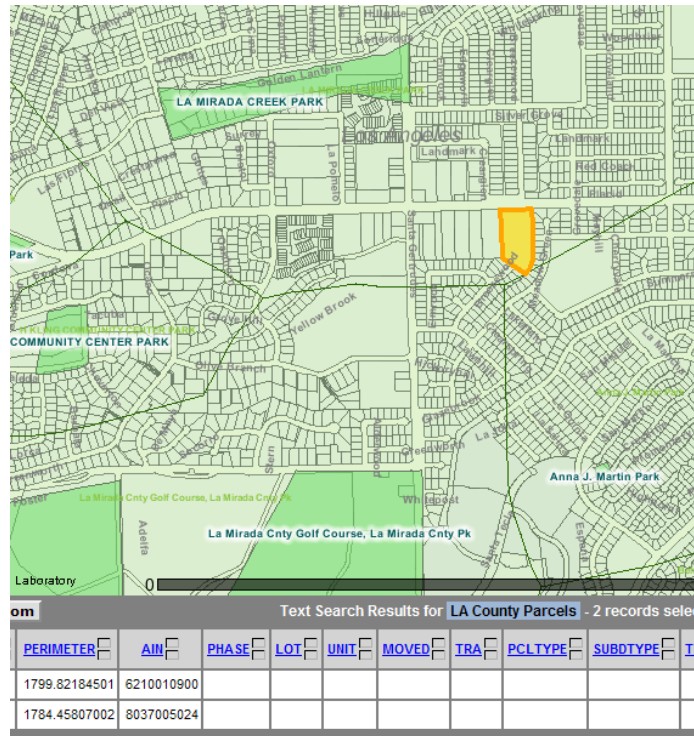


FIGURE 4.3  ZOOMING IN ON A PARCEL OF INTEREST

6. Perform a Dynamic Analysis on these two parcels (See section 3.4 for help with Dynamic Analyses). In the case of this East L.A. scenario, our results show that:

    o The number of children served per park hectare – a measure of park congestion – drops by 12.5 percent in the PSAs surrounding the new South Gate park site, compared to 10.1 percent if the La Mirada park site is selected.

    o The number of persons served per park hectare drops by 12.7% in the PSAs surrounding the South Gate park site, compared to 10% if the La Mirada park site is selected.

This analysis shows that if the goal is to reduce park pressure in the East L.A. region, the South Gate site will have a greater impact than the site in La Mirada.

*Scenario:*

You would like to find a parcel in a mountain, hill, and foothill (or upland) area that would, if converted into a park, have the greatest impact in reducing park pressure, while at the same time creating opportunities for watershed protection and habitat conservation. Two randomly selected parcels in the San Gabriel Valley, both in the foothills, are potential acquisitions for a recreational open space project that might also have multi-purpose opportunities. The parcels are AIN #8659020004 and AIN #8678019011. Both parcels are roughly the same size (38-39 acres). The first one is located in Glendora, the other in Claremont. Both are close to the base of the San Gabriel Mountains.

1.  Add the Target Species Density, Stream Network, and Catchment layers to the map (See section 2.3.1 for adding layers to the map). Make sure that the Parks, PSA, and Persons Served per Park Hectare layers are included also.

2.  Make the LA County Parcels Layer Active (See section 2.2.3 to learn how to activate layers).

3.  Search for first AIN, in Glendora, using the Text Search on the Active Layer Tool ![binoculars icon]. Enter the AIN into the search field and click on the submit button. The results of the search will appear at the bottom of the window. Zoom in, and notice that there is a stream running through the parcel. According to the Stream Network Report, it is Wildwood Canyon, a 1st order Strahler stream, in a catchment that drains 1,804,500 m². But only a small part of the reach is actually inside the parcel's boundaries.
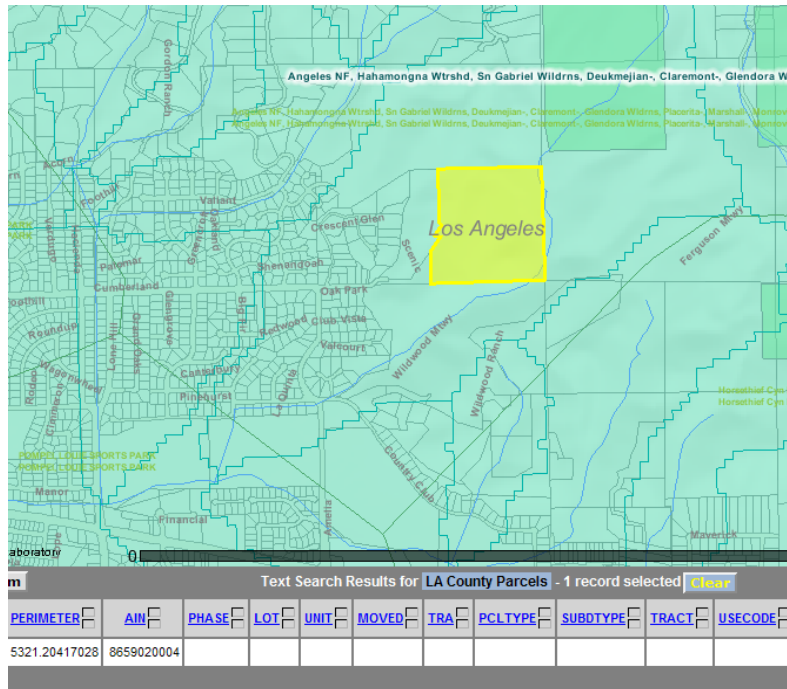
FIGURE 4.4  STREAMS AND CATCHMENTS IN THE VICINITY OF THE GLENDORA SITE

4. Next, look at the Target Species Density layer. Click on the 'Legend' hot-link in the left-hand legend, under the 'Target Species Density' layer entry. A legend will pop up on the map, allowing you to see how many target species are in the vicinity of the proposed site (Figure 4.5). Some parts of the site have 10-15 species, other parts 15-20, and about a third has 25-30 species. Turning to consider the local park context, it appears that the area has several large parks nearby, and is not park-poor. But this parcel is readily accessible to a large residential area.
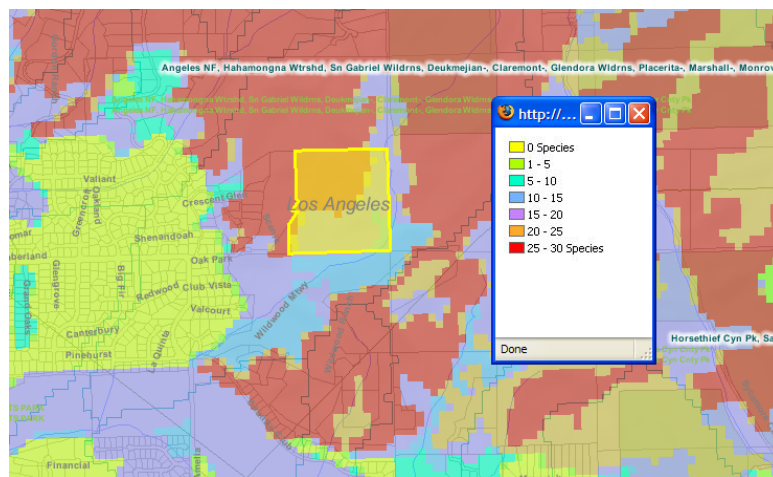


FIGURE 4.5  TARGET SPECIES DENSITY IN THE GLENDORA SITE

5. Finally, you may wish to get an idea of how suitable the proposed site is from the perspective of habitat connectivity. To do this you will need to add the layer, Aggregated Cost Distance for Five Habitats (created for five urban-adapted native wildlife species). Turn on this layer and be sure to turn off the Target Species Density layer. Now zoom out to get a sense of this habitat connectivity (Figure 4.6). High permeability indicates that these species can travel more easily through the landscape between two suitable habitats than areas with low permeability. You can see that the cost of traveling through this region is low.
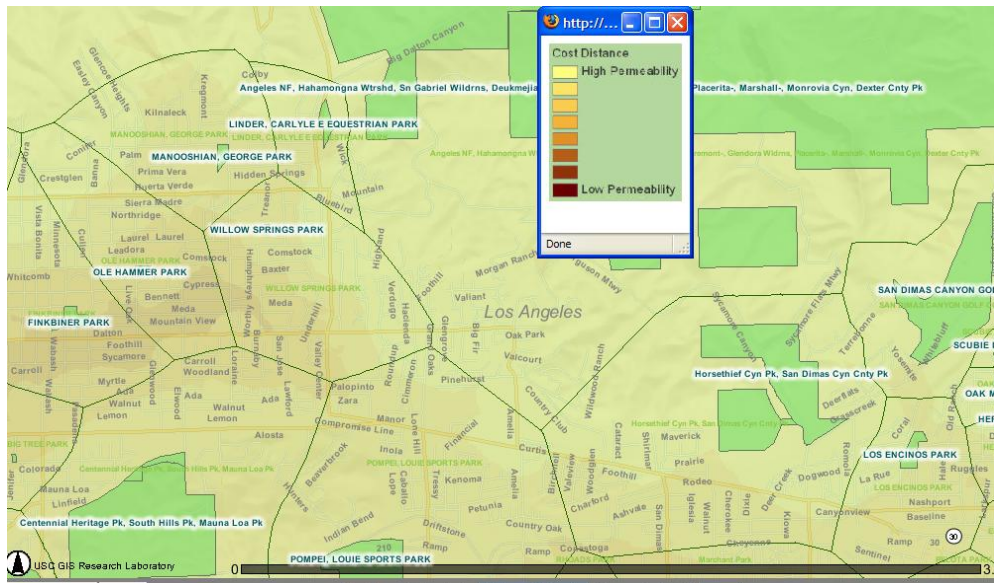


FIGURE 4.6  COST DISTANCE LAYER FOR FIVE HABITATS

6. Repeat the search for the second parcel, in Claremont, but this time select Add to Set in the pop-up window before clicking the submit button. Look at the Target Species Density and Stream Network features of the second site. You will see that Webb Canyon, a Strahler $1^{st}$ order stream, runs directly through the Claremont site, in a catchment that drains 732,600 $m^2$.
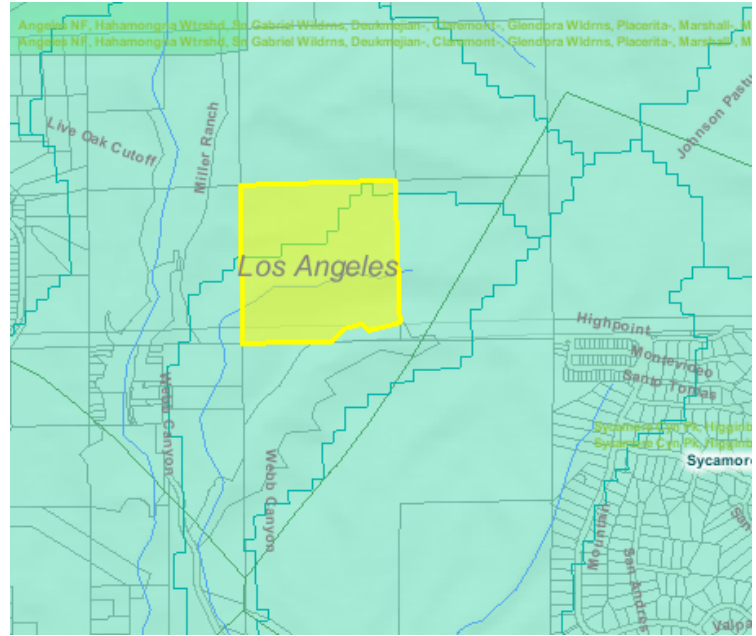
FIGURE 4.7  STREAMS AND CATCHMENT AREAS NEAR THE CLAREMONT SITE

7.  Next, look at the Target Species Density layer. Most of the site has 25-30 target species (Figure 4.7).  You may also want to add the Cost Distance Layer for Five Habitats to get an idea of habitat suitability and cost distance or connectivity as was done for the Glendora Site.
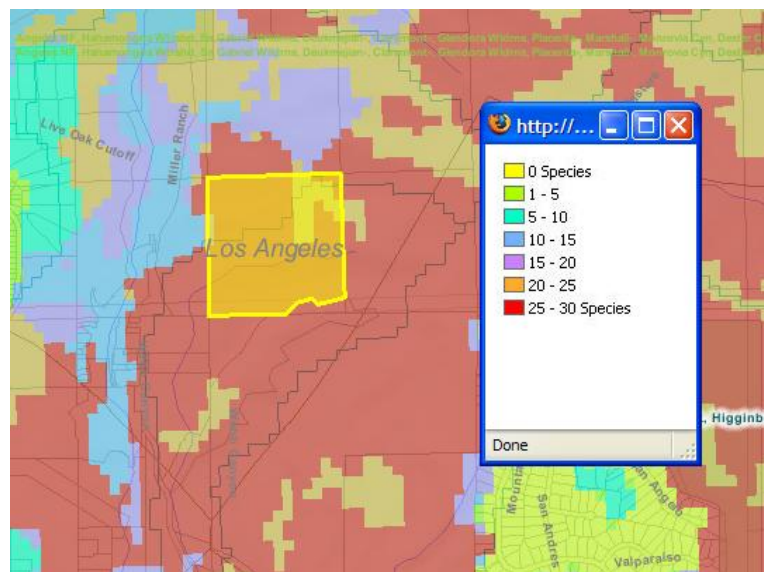


FIGURE 4.8  TARGET SPECIES DENSITY IN THE CLAREMONT SITE

8. Now look at the parks, park service areas, and park pressure nearby. You will see large parks relatively nearby, and the area is park rich in terms of persons per park hectare. The site is not particularly accessible to nearby population clusters, which are sparse.

9. Even though both sites are in park-rich areas, let's get a quantitative estimate on how effectively these potential open space sites relieve park congestion as we did in section 4.1 on South Gate and La Mirada. Perform a Dynamic Analysis on these two parcels (See section 3.4 for help with Dynamic Analyses).

In the case of our San Gabriel subregion scenario, the results from the dynamic analysis show that:

o The number of children served per park hectare – a measure of park congestion – drops by 0.32% in the PSAs surrounding the proposed Claremont park site, compared to 2.7% if the Glendora park site is selected.

o The number of people served per park hectare drops by 0.32% in the PSAs surrounding the Claremont park site, compared to 2.6% if the Glendora park site is selected.

It is clear that this part of the GVP region is not particularly park poor. Both of these sites increase park access, yet the Glendora parcel is better at increasing park and open space access than the alternative parcel in Claremont.

Now you can make a judgment call as to which parcel covers the most species and would therefore protect the most individual species if it were converted into a recreational open space. The Claremont site has greater species density than the Glendora parcel. Therefore it would be the better choice in this scenario. You can get a detailed understanding of which species are on/near this site by exploring individual target species layers available in the GVP Data Catalog.

With respect to stream features, while the Glendora parcel has a larger catchment area, only a small segment of the stream actually runs through the site, thus limiting restoration and recreation opportunities. In contrast, the Claremont parcel has a smaller catchment area, but more of the stream runs through this parcel. It may therefore be a more attractive candidate for a watershed project than the Glendora site.

## 4.3    CASE STUDY #3: SELECTING A SITE ALONG A RIVER PARKWAY

*Scenario:*

You would like to find a parcel along a major river that would, if converted into a park, have the greatest impact in reducing park pressure, while creating opportunities for watershed protection and habitat conservation. In so doing, this project would also provide access to nature for residents of inner suburban communities.

Two randomly selected parcels in the LA region, both near the river, are potential acquisitions. The parcels are AIN #7203002001 and AIN #8110001903. Both parcels are roughly the same size (between 4 and 5 acres). The first one is located in Long Beach, along the banks of the Los Angeles River, the other in El Monte, near the confluence of the San Gabriel River and San Jose Creek.

1. Add the Target Species Density, Stream Network, and Catchment layers to the map (See section 2.3.1 for adding layers to the map). Make sure that the Parks, PSA, and Persons Served per Park Hectare layers have also been added from the GVP Data Catalog also.

2. Make the LA County Parcels Layer Active (See section 2.2.3 to learn how to activate layers).

3. Search for the first AIN, in Long Beach, using the Text Search on Active Layer Tool. Enter the AIN into the search field and click on the submit button. The results of the search will appear at the bottom of the window. Zoom in, and notice that the parcel is near the Los Angeles River (Figure 4.8).
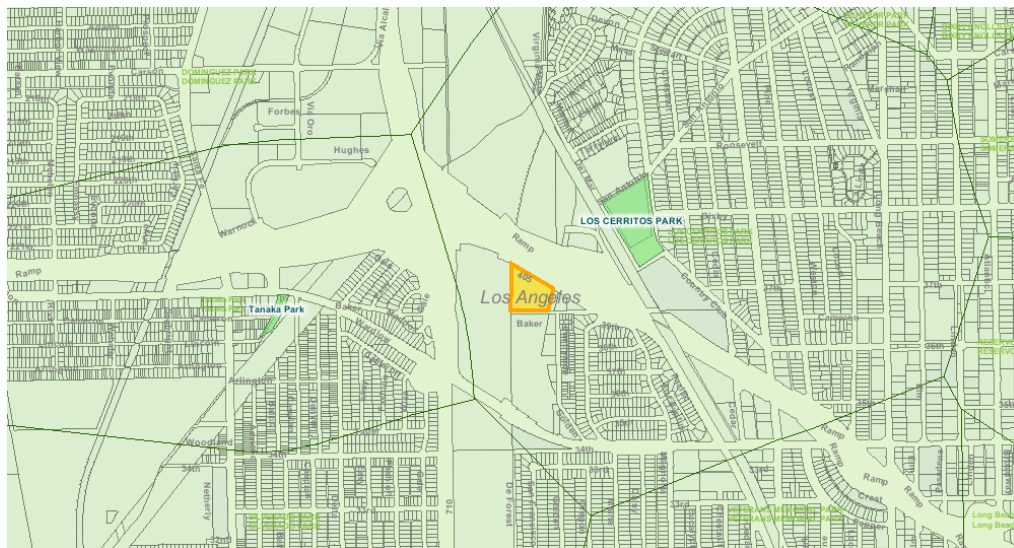


FIGURE 4.9  LONG BEACH SITE, LOS ANGELES RIVER, AND NEARBY PARKS

4. Next, look at the Target Species Density layer. Click on the 'Legend' hot-link in the left-hand legend, under the 'Target Species Density' layer entry. A legend will pop up on the map, allowing you to see how many target species are in the vicinity of the proposed site. Notice that most of the site has 10-15 target species within its boundaries (Figure 4.9). Turning to consider the local park context, it appears that the area has one large park nearby.
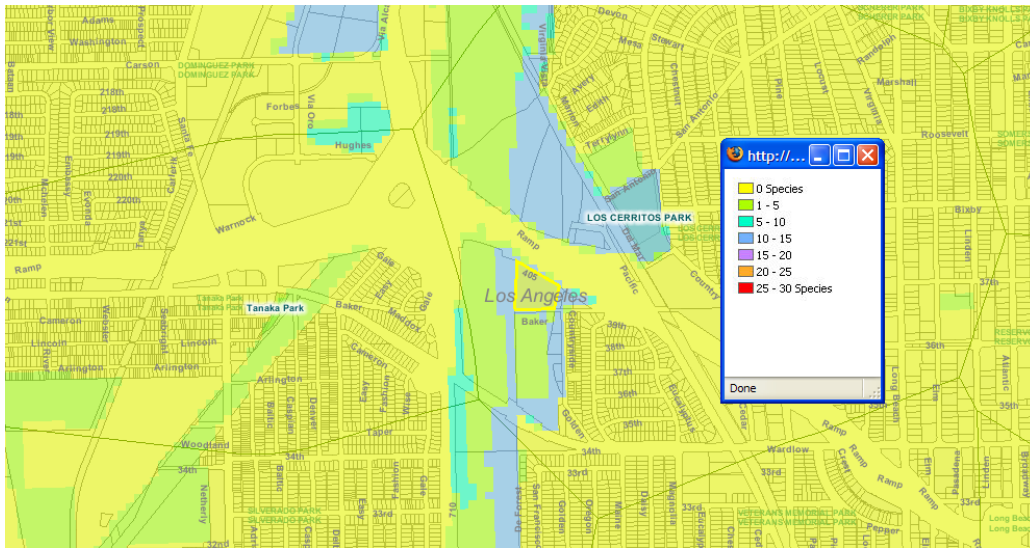
FIGURE 4.10  TARGET SPECIES DENSITY IN THE LONG BEACH SITE

5.      Repeat the search for the second parcel, in El Monte, but this time select Add to Set in the pop-up window before clicking the submit button. Look at the Target Species Density and Stream Network features of the second site. Notice that the site is near the confluence of San Jose Creek and the San Gabriel River (Figure 4.10). It also appears that there is one park nearby
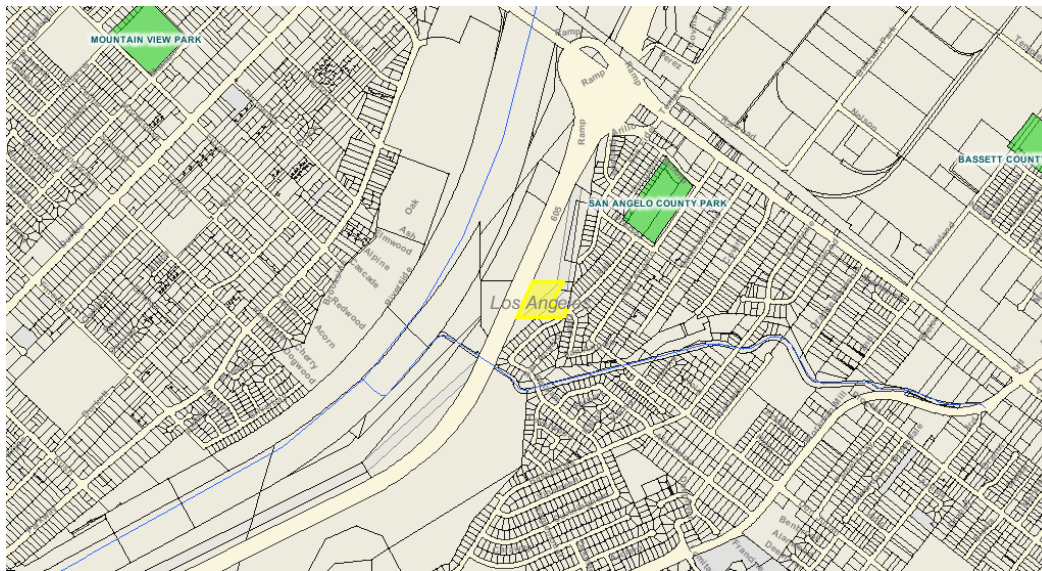


FIGURE 4.11  EL MONTE SITE, AT THE CONFLUENCE OF SAN JOSE CREEK AND THE SAN GABRIEL RIVER

6.      Turning to the Target Species Density layer, it is clear that the El Monte site has habitat areas for between 1to 5, 5 to 10, and 10 to 15 target species (with even higher species density in nearby areas (Figure 4.11).
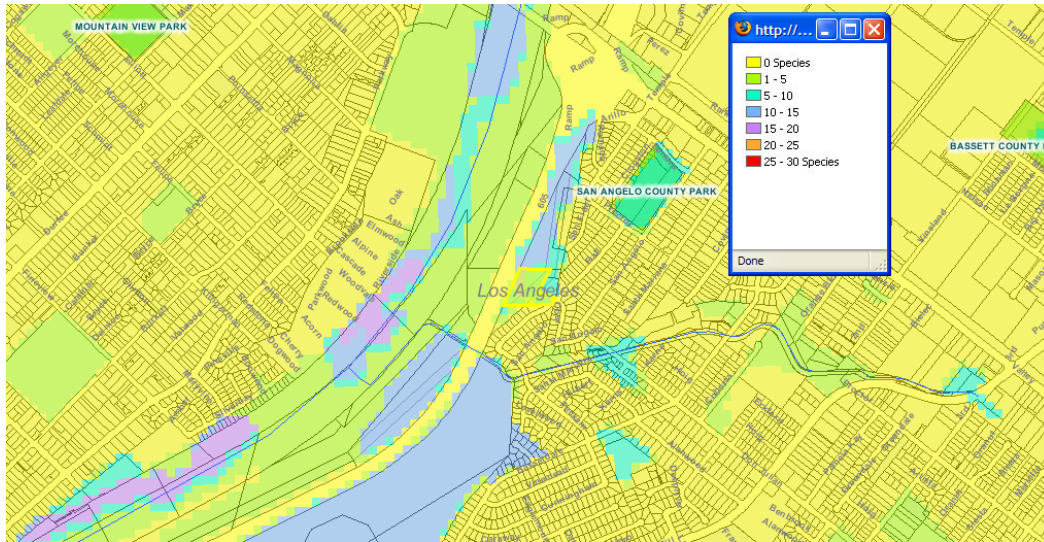
FIGURE 4.12  TARGET SPECIES DENSITY IN THE EL MONTE SITE

7.      Now we need to get a quantitative estimate on how effectively these potential open space sites relieve park congestion, just as we did for the two previous case studies. Perform a Dynamic Analysis on these two parcels (See section 3.4 for help with Dynamic Analyses).

In the case of our Riverway scenario, the results from the dynamic analysis show that:

o   The number of children served per park hectare – a measure of park congestion – drops by 11% in the PSAs surrounding the proposed El Monte park site, compared to 2.5% if the Long Beach park site is selected.

o   The number of adults served per park hectare drops by 10.5% in the PSAs surrounding the El Monte park site, compared to 2.7% if the Long Beach park site is selected.

Both of these sites are in park-poor areas and the dynamic analysis shows that either would be beneficial in alleviating park congestion and creating recreational opportunities and access to nature for nearby residents. However, all things being equal, the analysis shows that the El Monte parcel increases park and open space access more than the alternative parcel in Long Beach. Both sites may have the potential for stream and habitat restoration, which deserves further scrutiny.

# 5. APPENDIXES

## MAPS OF PARKS IN THE GREEN VISIONS PLAN REGION



FIGURE 5.1  PARKS IN THE WEST VENTURA SUBREGION
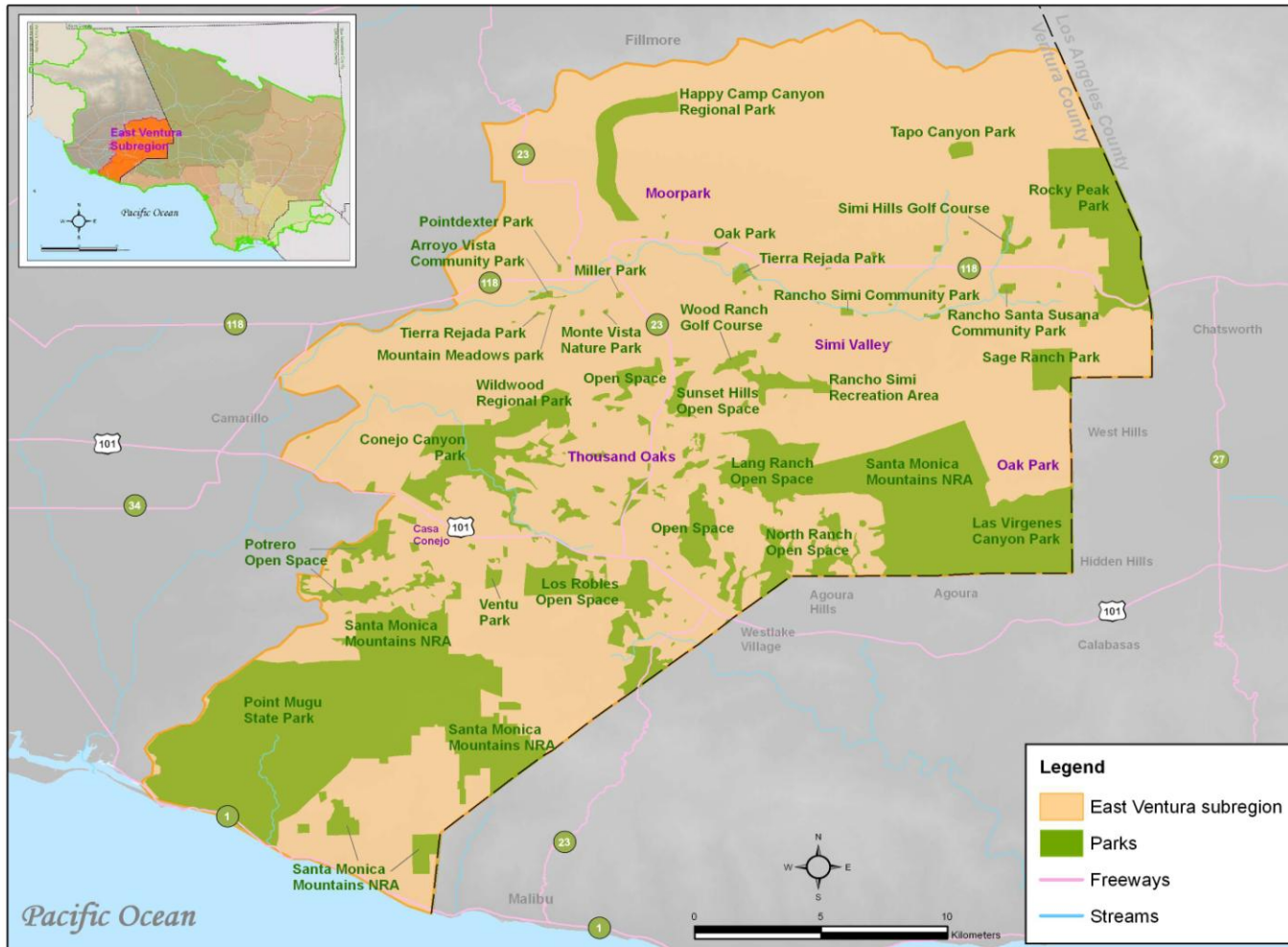
FIGURE 5.2  PARKS IN THE EAST VENTURA SUBREGION

FIGURE 5.3  PARKS IN THE WEST LA SUBREGION

FIGURE 5.4  PARKS IN THE SAN FERNANDO SUBREGION
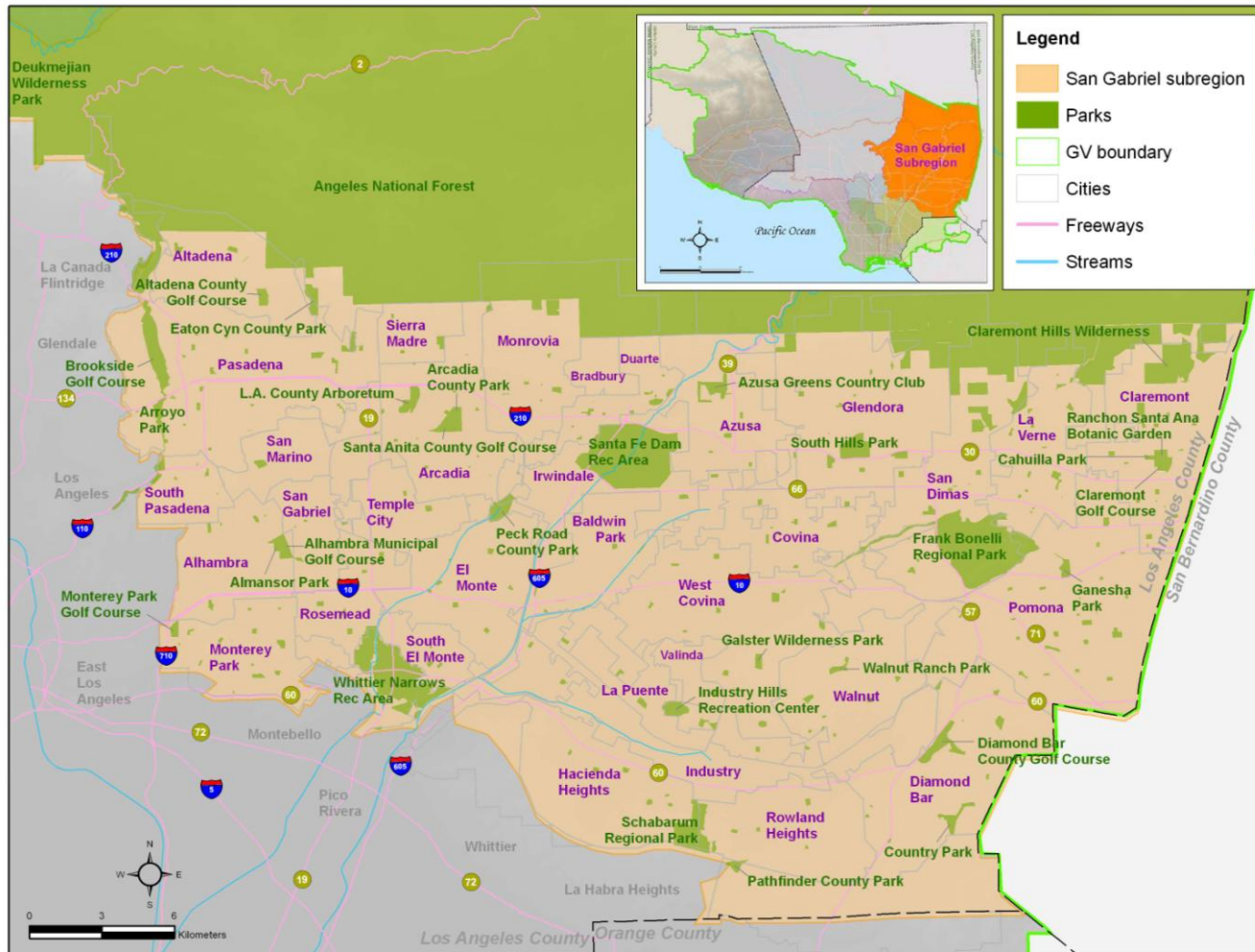
FIGURE 5.5  PARKS IN THE SAN GABRIEL SUBREGION
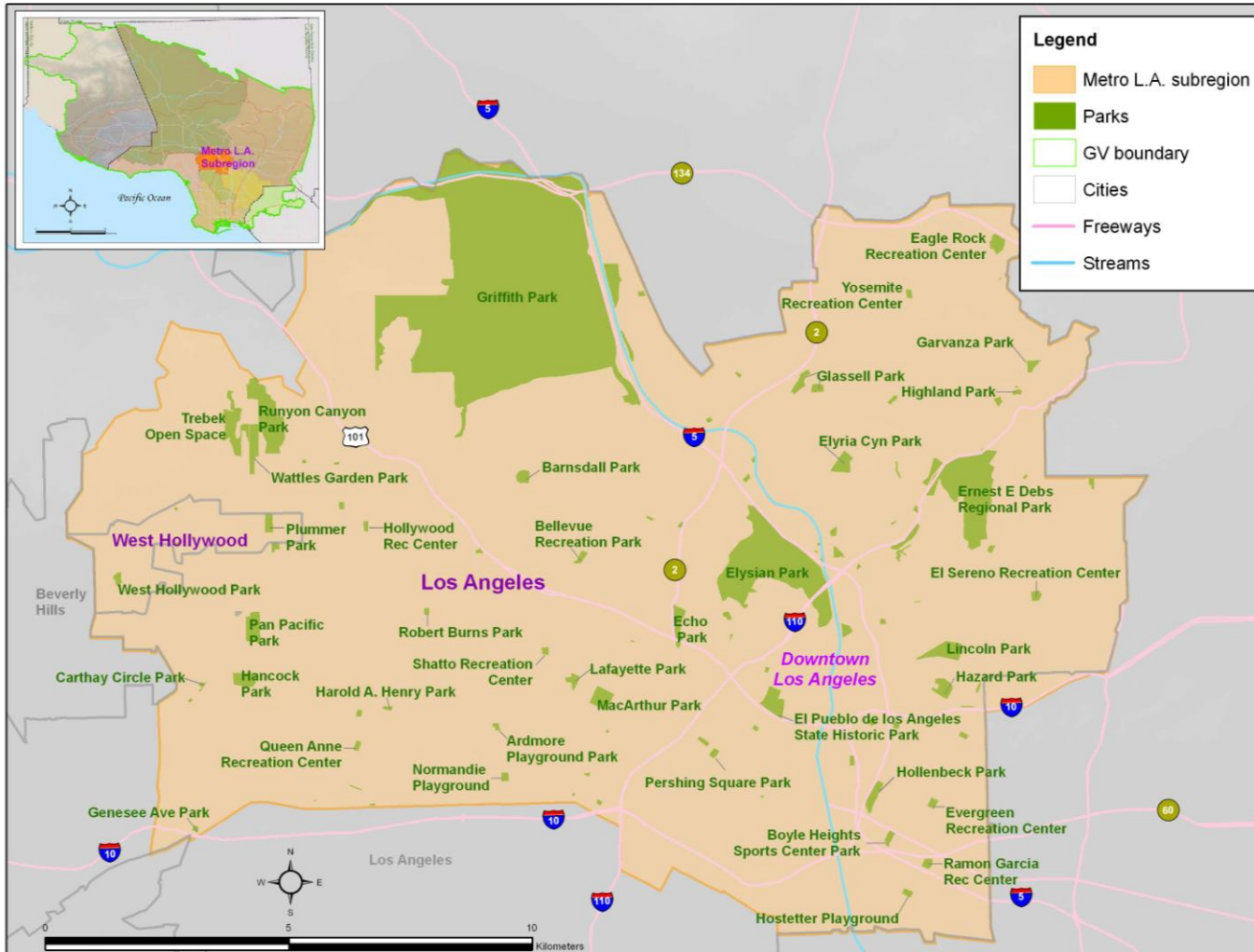
FIGURE 5.6  PARKS IN THE METRO LA SUBREGION
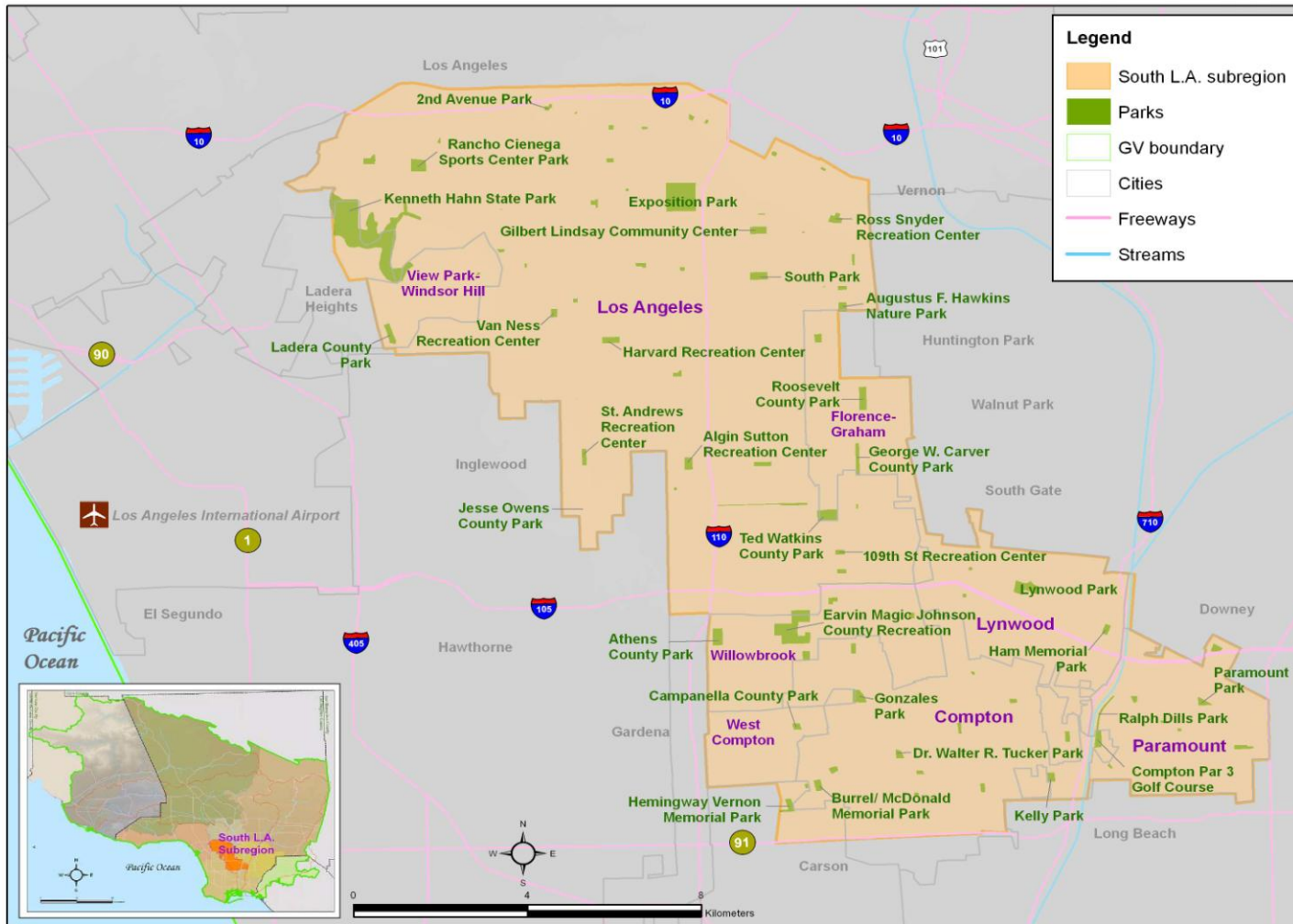
FIGURE 5.7  PARKS IN THE SOUTH LA SUBREGION
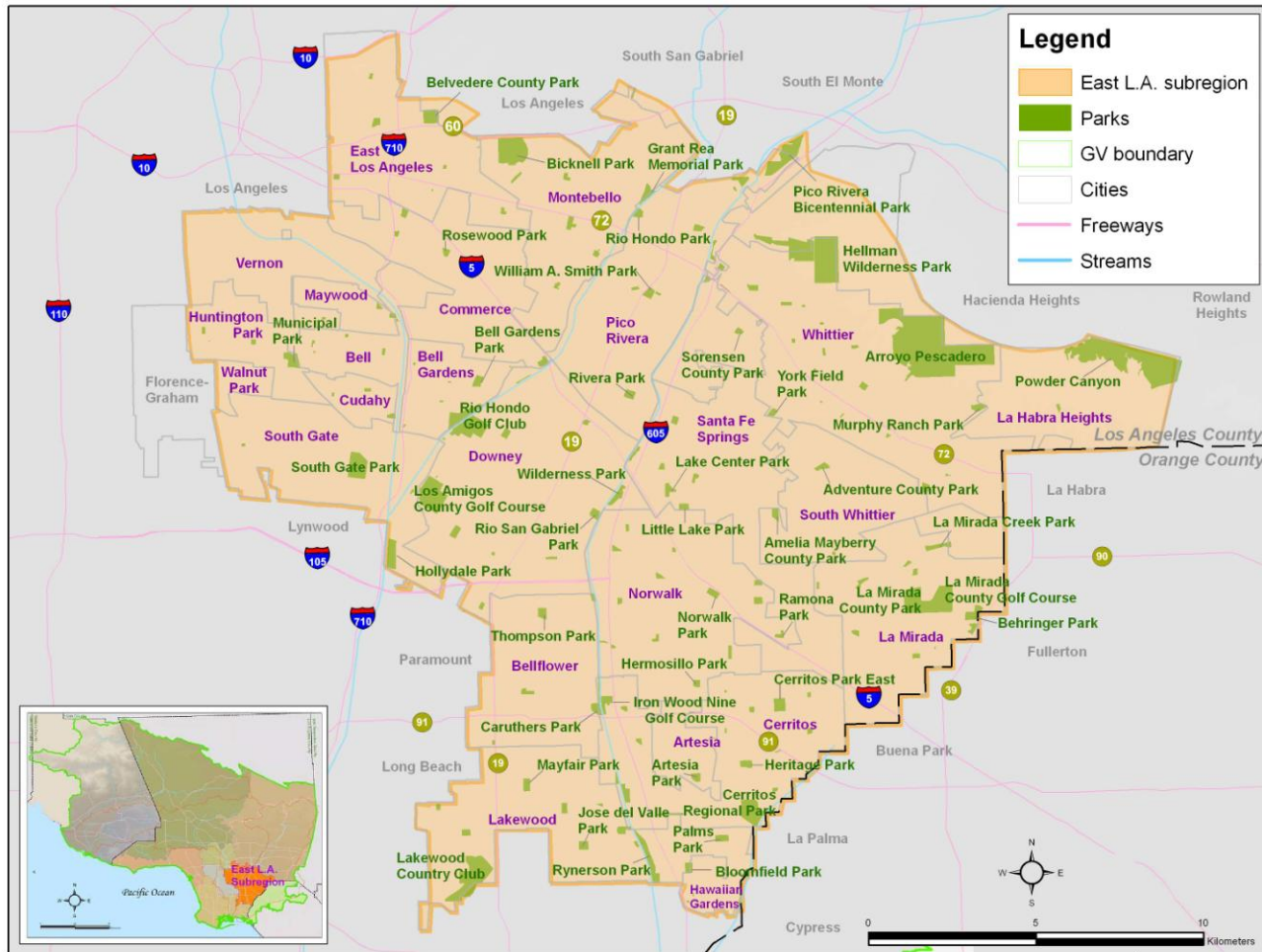
FIGURE 5.8  PARKS IN THE EAST LA SUBREGION
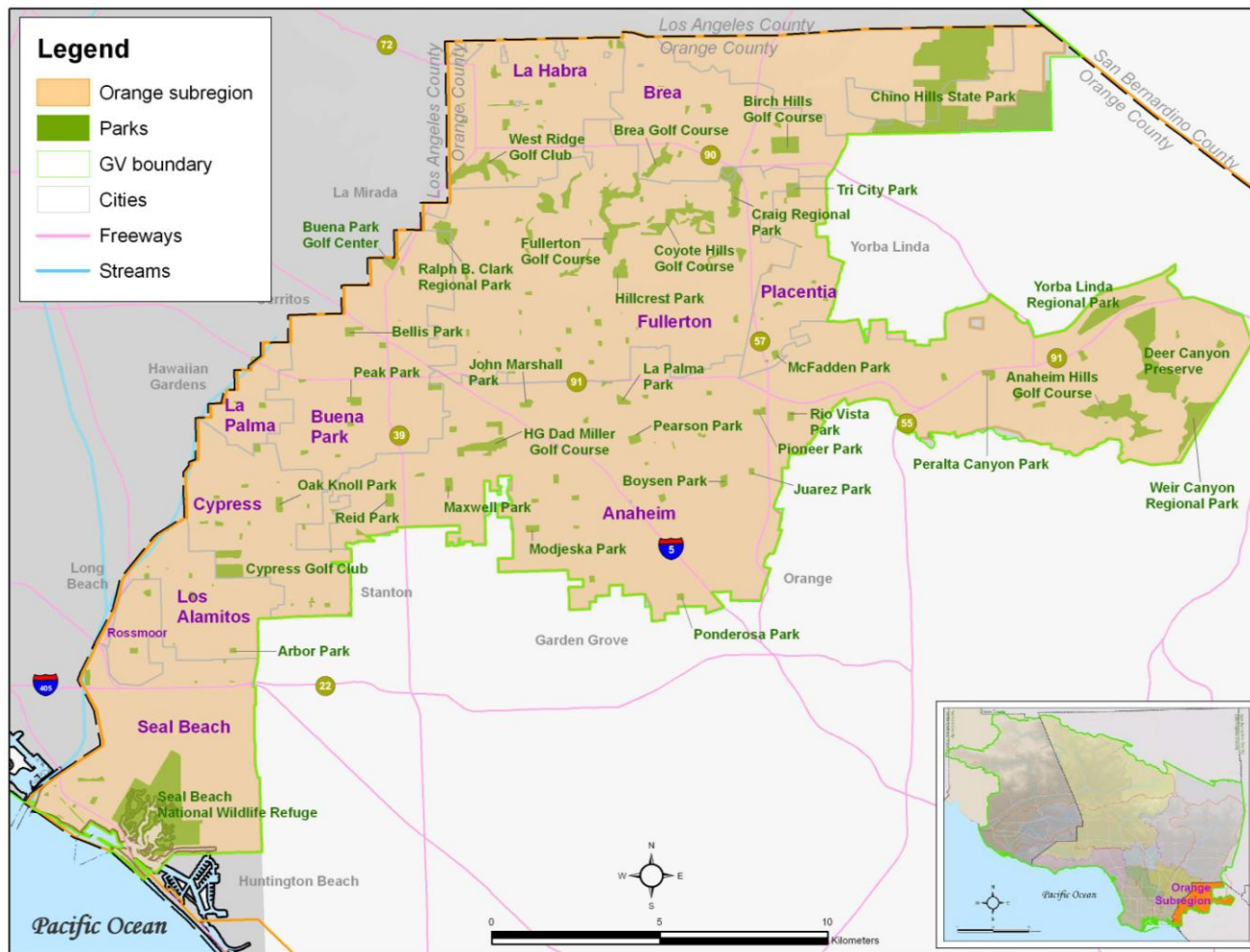
FIGURE 5.9  PARKS IN THE ORANGE SUBREGION

## GREEN VISIONS PLAN DATA LAYERS AVAILABLE

Note: As of March 2008. For more information on each individual layer, see the metadata button on the main GVP Toolkit basic toolbar.

TABLE 5.1 GREEN VISIONS PLAN DATA LAYERS

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | % African-Americans (Census 2000) in Park Service Area | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center. Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | % American Indians and Alaskan Natives (Census 2000) in Park Service Area | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center. Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | % Asians (Census 2000) in Park Service Area | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center. Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | % Below Poverty Level | Census Tracts Cartographic Boundaries of Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. Dataset adjusted to match high resolution NOAA coastline obtained from SCCWRP. Attributes include Census2000 Population Density (sq.km), Age (%), Median Income (USD), Race(%), and Below Poverty (%). |
| **polygon** | % Hispanics (Census 2000) in Park Service Area | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center. Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | % Impervious Land | Relative impervious land values for 2000 SCAG landuse dataset. |
| **polygon** | % Native Hawaiian and Other Pacific Islanders (Census 2000) in Park Service Area | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center. Demographic data from LandScan and Census 2000 were assigned to these PSAs. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | % Persons of Other Categrory (Census 2000) in Park Service Area | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center.  Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | % Whites (Census 2000) in Park Service Area | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center.  Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | Agile Kangaroo Rat Habitat | Produced for the Green Visions project based on habitat data produced by the Conservation Biology Institute and the USC GIS Laboratory. It identifies habitats for Agile Kangaroo Rat in the Southern California region. |
| **image** | Aggregated Cost Distance For 5 Habitats | Aggregated Cost Distance for 5 habitats: Lorquin's Admiral, Loggerhead Shrike, Coyote, California Quail and Acorn Woodpecker habitats. |
| **image** | Air Pollution - Ozone (ppm) | This ozone layer was created using a kriging model of 43 ARB monitors in Southern CA. IMT study, see Kunzli et al. 2005, Environmental Health Perspectives, V.113 No.2, p. 201-206. |
| **polygon** | American Badger Habitat | It identifies habitats for American Badger in the Southern California region based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. Habitat map which included all pixels with a WHR rating > 0, was generated. This map included habitat with soils listed in the attached soils list, and excluded the following areas, as identified in a composite SCAG/CALVEG landcover. |
| **polygon** | Behr's Metalmark Habitat | Based on the distribution of its host plant, California buckwheat. CBI identified vegetation associations in which California buckwheat could be found, using vegetation associations described in the California Wildlife Habitat Relationships system, and generated a habitat map which included all of these vegetation associations found under 2300 meter elevations. |
| **polygon** | Belding's Savannah Sparrow Habitat | A habitat map which included all pixels with a WHR rating > 0 was generated. However, because the WHR system defines habitat for savannah sparrows in general, and not specifically the habitat of Belding's savannah sparrow, the ratings were modified to include only two habitat types: Estuarine and Saline Emergent Wetlands. Several areas, as identified in our composite CAG/CALVEG landcover were excluded. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | Big Brown Bat Habitat | It identifies habitats for Big Brown Bat in the Southern California region based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. A habitat map which included all pixels with a WHR rating > 0 was generated. Several area (Commercial/Industrial, High Density Residential) as identified in our composite SCAG/CALVEG landcover were excluded. |
| **polygon** | Bighorn Sheep Habitat | Bighorn sheep habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. A habitat map which included all pixels with a WHR rating > 0 was generated. |
| **point** | Bike Commuter Centers | Los Angeles Bike Commuter Centers.  See Los Angeles Metro Bike Map, April 2006, and http://www.mta.net/default.asp. |
| **polygon** | Burrowing Owl Habitat | Burrowing Owl habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. |
| **polygon** | Cactus Mouse Habitat | Cactus Mouse habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. |
| **polygon** | California Dogface Habitat | Based on the distribution of its primary host plant, Amorpha californica. Vegetation associations in which California Dogface could be found, using vegetation associations described in the California Wildlife Habitat Relationships system, and generated a habitat map which included all of these vegetation associations found below 2300 meter elevation. Several areas, as identified in our composite SCAG/CALVEG landcover were excluded. |
| **polygon** | California Quail and Mountain Quail Habitat | California Quail and Mountain Quail habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab). A habitat map which included all pixels with a WHR rating > 0 was generated with the exclusion of several areas, as identified in our composite SCAG/CALVEG landcover. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | California Vole Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts in this project. A habitat map which included all pixels with a WHR rating > 0 was generated. Areas above 1500 meter elevation and the following areas, as identified in our composite SCAG/CALVEG landcover were excluded from the habitat coverage. |
| **polygon** | Callippe Fritillary Habitat | Based on the likelihood distribution of its host plants, Viola species. Vegetation associations and seral stage/density classes in which these Viola species might be found, using vegetation associations described in the California Wildlife Habitat Relationships system were identified, and a habitat map which included all of these vegetation associations was generated. |
| **polygon** | Catchments | Represents catchment boundary and attributes for the reaches that are located in the Green Visions study area |
| **polygon** | Children Served Per Park Acre | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center. Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **point** | Cities | U.S. Cities represents locations for cities within United States with populations of 10,000 or greater (based on Census 2000 figures), all state capitals, and the national capital. |
| **polygon** | Coast Horned Lizard Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. A habitat map which included all pixels with a WHR rating > 0 was generated. However, CBI excluded the following areas, as identified in our composite SCAG/CALVEG landcover. |
| **polygon** | Coast Range Newt Habitat | Coast Range Newt habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts. |
| **image** | Color Relief | The color shaded relief map of California is displayed as a background basemap through the support of Ray Sterner, at the John Hopkins University Applied Physics Laboratory. Please see his Color Landform Atlas of the United States website for more information on the elevation maps: http://fermi.jhuapl.edu/states/. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | Common Gray Fox Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. A habitat map which included all pixels with a WHR rating > 0 was generated with the exclusion of following areas, as identified in our composite SCAG/CALVEG landcover. |
| **polygon** | CountiesCity Boundaries | Counties (layer) is a symbolized and labeled display presentation of the United States counties (generalized) data set. The geographic and attribute data of United States counties (generalized) are symbolized and labeled to create the layer. All features are symbolized as a single symbol. Features are labeled based on the NAME attribute. |
| **polygon** | Coyote Habitat | Coyote habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab). |
| **polygon** | Deer Mouse Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. CBI generated a habitat map which included all pixels with a WHR rating > 0. However, CBI excluded the following areas, as identified in our composite SCAG/CALVEG landcover. |
| **polygon** | Desert Woodrat Habitat | The habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. |
| **polygon** | Dusky Footed Woodrat Habitat | Dusky-footed Woodrat habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. |
| **polygon** | Green Cover (NDVI February 2003) | Normalized Difference Vegetation Index (NDVI) for February 2003. NDVI is a simple numerical indicator that can be used to analyze remote sensing measurements to assess whether the target being observed contains live green vegetation or not. |
| **image** | Green Visions Boundary | Green Visions Study Area Boundary. Generated using Santa Clara watershed border for West and North-East section, NOAA shoreline for South, Census Tracts 2000 for East, and RMC boundary for North_East portions of the boundary. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | Highways | U.S. Major Highways provide a subset of highways and major roads from the very detailed U.S. Detailed Streets dataset for national, state, and regional display. |
| **line** | Highways (detailed) | U.S. Streets represents detailed streets, interstate highways, and major roads within the United States. U.S. Streets is part of StreetMap USA. |
| **line** | Hillshade (10 m) | Digital elevation model of the Green Visions Study area, 10 m resolution. |
| **image** | Historic Wetlands | The historical extent of Southern California's natural wetland, part of the report Historical Ecology and Landscape Change of the San Gabriel River and Floodplain, SCCWRP Technical Report #499, February 2007. |
| **polygon** | Hydrologic Areas (CALWATER) | The California Interagency Watershed Map of 1999 (updated May 2004, "calw221") is the State of California's working definition of watershed boundaries. Administrative boundaries such as the State border were also used to delineate watershed areas. Sources: State of California, California Resources Agency. |
| **Polygon** | LA County Parcels | Los Angeles County, CA geodatabase containing polygon feature class depicting parcels. |
| **polygon** | LA County Parcels (publicly owned) | Los Angeles County, CA geodatabase containing polygon feature class depicting parcels. |
| **polygon** | Land Use (SCAG) | This dataset utilized the 2000 Southern California Association of Governments (SCAG) land use shapefile to obtain SCAG land use classes for various analyses within Green Visions Project study area. |
| **polygon** | Lark Sparrow Habitat | Lark Sparrow habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. |
| **polygon** | Loggerhead Shrike Habitat | Loggerhead Shrike habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | Long-tailed Weasel Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. CBI generated one habitat map which included all pixels with a WHR rating > 0. However, CBI excluded the following (checked) areas, as identified in our composite SCAG/CALVEG landcover. |
| **polygon** | Lorguin's Admiral Habitat | Based on the distribution of its host plant (willows in the genus Salix). Vegetation associations in which the genus Salix could be found, based on Mayer and Laudenslayer (1988), and used vegetation associations described in the California Wildlife Habitat Relationships system were used to generate a habitat map which included all of these vegetation associations. However, several areas, as identified in our composite SCAG/CALVEG landcover were excluded. |
| **polygon** | Major Roads | U.S. Streets represents detailed streets, interstate highways, and major roads within the United States. U.S. Streets is part of StreetMap USA. |
| **line** | Manmade Landmarks | U.S. MapData Landmark Points provides point locations, proper names and attributes for landmark features. |
| **point** | Marsh Wren Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system. A habitat map which included all pixels with a WHR rating > 0 was generated. However, several areas, as identified in our composite SCAG/CALVEG landcover were excluded. |
| **polygon** | Median Household Income | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center.  Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | Median Household Income (PSA) | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center.  Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | Metro Bike Trails | Los Angeles Bike Trails. See Los Angeles Metro Bike Map, April 2006, and http://www.mta.net/default.asp. |
| **line** | Mountain Lion Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system. CBI generated one habitat map which included all pixels with a WHR rating > 0. However, we excluded the following areas, as identified in our composite SCAG/CALVEG landcover. |

| Data Type | Layer Name | Brief Description |
|-----------|-----------|-------------------|
| **polygon** | Natural Landmarks | U.S. MapData Natural Landmarks provides locations and attributes for naturally occurring physical features. |
| **point** | Network Buffer Around Parks (1/4 mile) | A quarter mile network buffer around parks within the Green Visions area. A quarter mile buffer along a street network was delineated for each park to identify populations having quarter mile access to a park. |
| **polygon** | Northern Harrier Habitat | Northern Harrier habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab). |
| **polygon** | Pacific Chorus Frog Habitat | Packing Houses and Grain Elevators habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. A habitat map which included all pixels with a WHR rating > 0 was generated. However, habitat that was > 1000 meters from water sources and several areas, as identified in our composite SCAG/CALVEG landcover were identified. |
| **polygon** | Park Service Areas | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center. Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | Parks | Green Visions parks that were audited using website information. In addtion, parks that were adjacent, as well as parks that were non-contiguous were coded so that in this layer they are treated as one polygon; as such, the present layer has fewer polygon count than the actual number of parks |
| **polygon** | Persons Served Per Park Acre | Thiessen polygons were generated as surrogate for park service areas (PSAs), such that the space inside each PSA is closest to the park at its center. Demographic data from LandScan and Census 2000 were assigned to these PSAs. |
| **polygon** | Population - # Persons Fitnessgram (California Dept.Education) Population Density (LandScan USA 2002) | Population distribution grid which provides populations counts per cell (~90mx90m); used to estimate the potential number of people each park is serving. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | Riverside Fairy Shrimp Habitat | Riverside Fairy Shrimp habitat map for Riverside fairy shrimp shows two types of habitat within the Green Visions study area. The map shows vernal pools and associated upland habitat proposed as critical habitat for this species (U.S. Fish and Wildlife Service 2004), as well as other potential vernal pools where the species has either not been documented or that may represent future habitat. |
| **polygon** | RMC boundary | Boundary of the San Gabriel & Los Angeles Rivers and Mountains Conservancy. See http://www.rmc.ca.gov/. |
| **polygon** | Rufous-crowned Sparrow Habitat | Rufous-crowned Sparrow habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab). |
| **polygon** | Sage Sparrow Habitat | Sage Sparrow habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab). |
| **polygon** | Schools | Schools is a symbolized and labeled display presentation of the United States Geographic Names Information System (schools) data set. The geographic and attribute data of the system are symbolized and labeled to create the layer. Features are labeled based on the NAME attribute. |
| **point** | Spotted Owl Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. Habitat map which included all pixels with a WHR rating > 0 was generated with the exclusion of several areas, as identified in our composite SCAG/CALVEG landcover are excluded. |
| **polygon** | Stream Network | Stream networks in Calleguas, Los Angeles, San Gabriel, Santa Clara, and Santa Monica watersheds based on National Hydrography Dataset (NHD). Some modifications have been done to the original NHD including adding missing stream links, removing duplicate streams, correcting wrong attributes, and removing certain man-made drains like pipes and canals. |
| **line** | Street Names | U.S. Streets represents detailed streets, interstate highways, and major roads within the United States. U.S. Streets is part of StreetMap USA. |
| **line** | Streets | U.S. Streets represents detailed streets, interstate highways, and major roads within the United States. U.S. Streets is part of StreetMap USA. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **line** | South Coast Wildlands Design Linkages | Linkage designs for San Gabriel-Castaic, Santa Monica-Sierra Madre, Sierra Madre-Castaic, and Sierra Madre-Sierra Nevada linkages identified by for the South Coast Missing Linkages Project. Merged dataset. Source: South Coast Wildlands. |
| **polygon** | South Coast Wildlands Missing Linkages | A subset of linkages identified by Missing Linkages 2000 Conference for South Coast Ecoregion. These delineations are used to indicate areas that will be rigorously modeled and ground-truthed as part of South Coast Wildlands Missing Linkages Project. Source: South Coast Wildlands. |
| **line** | Subwatershed Boundaries | The subwatershed (SW) boundary is defined according to the Hydrologic Area (HA) units from the California Interagency Watershed Map of 1999 (Calwater 2.2.1), integrated with the major drainage units suggested by the local watershed management plans. |
| **polygon** | Target Species Density | Total number of Target Species in a specified area. |
| **image** | Two-striped Garter Snake Habitat | Two-striped Garter Snake habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. |
| **polygon** | LCMMP, Vegetation Data (CALVEG '06) | Vegetation data consistent across all ownerships for assessing current conditions, monitoring changes over time, and determining management options. Clipped to Green Visions Boundary, and displayed (collapsed) based on attribute "COVERTYPE." Sources: CA Dept. Forestry and Fire Protection & USFS |
| **polygon** | Watershed Boundaries (NHD) | The National Hydrography Dataset (NHD) is a comprehensive set of digital spatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells. Within the NHD, surface water features are combined to form reaches, which provide the framework for linking water-related data to the NHD surface water drainage network. These linkages enable the analysis and display of these water-related data in upstream and downstream order. |
| **polygon** | Western Meadowlark Habitat | Western Meadowlark habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab), as modified by species experts for this project. |

| Data Type | Layer Name | Brief Description |
|---|---|---|
| **polygon** | Western Pond Turtle Habitat | Based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system, as modified by species experts for this project. A habitat map which included all pixels with a WHR rating > 0 was generated. |
| **polygon** | Western Spadefoot Toad Habitat | Produced for the Green Visions project based on habitat data produced by the Conservation Biology Institute and the USC GIS Laboratory. It identifies habitats for Western Spadefoot Toad in the Southern California region. |
| **polygon** | White-tailed Kite Habitat | White-tailed Kite habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab). A habitat map which included all pixels with a WHR rating > 0 was generated with the exclusion of several areas as identified in our composite SCAG/CALVEG landcover. |
| **polygon** | Yellow-breasted Chat Habitat | Yellow-breasted Chat habitat model for this species was based on habitat suitability ratings identified in the California Wildlife Habitat Relationships system (WHR, http://www.dfg.ca.gov/whdab). |

# 6. REFERENCES AND FURTHER READING

*Sources Cited*

Bolund, Per, and Sven Hunhammar. 1999. Ecosystem services in urban areas. *Ecological economics : the journal of the International Society for Ecological Economics.* 29 (2):293.

Burgess, Jacquelin, Carolyn M. Harrison, and Melanie Limb. 1988. People, Parks and the Urban Green: A Study of Popular Meanings and Values for Open Spaces in the City. *Urban Studies* 25 (6):455-473.

Centers for Disease Control and Prevention. 2001. Increasing Physical Activity: A report on Recommendations of the Task Force on Community Preventive Services. Atlanta Centers for Disease Control and Prevention.

Crompton, John l. 2000. The Impact of Parks and Open Space on Property Values and the Property Tax Base. Ashburn, Va.: National Recreation & Park Association.

Harnick, Peter. 2000. *Inside City Parks.* Washington, D.C.: Urban Land Institute.

Hobbs, Frank, and Nicole Stoops. 2002. Demographic Trends in the 20th Century. Washington, D.C.: U.S. Census Bureau.

Kuo, Frances E., and William C. Sullivan. 2001. Environment and Crime in the Inner City: Does Vegetation Reduce Crime? *Environment and Behavior* 33 (3):343-367.

Savard, J. P. L., P. Clergeau, and G. Mennechez. 1999. Biodiversity concepts and urban ecosystems. *Landscape and urban planning.* 48 (3):131.

Sherer, Paul. 2006. The Benefits of Parks: Why America Needs More City Parks and Open Space. San Francisco: The Trust for Public Land.

Walker, Chris. 2004. The public value of urban parks. Washington, D.C.: Urban Institute.

Wolch, Jennifer, John P Wilson, and Jed Fehrenbach. 2005. Parks and Park Funding in Los Angeles: An Equity-Mapping Analysis. *Urban Geography* 26 (1):4-35.

*Additional Reading*

Lam, C. S., H. Chen, C. Li, and J. P. Wilson. 2004. Green Visions Plan for the 21st Century Southern California. *Data Availability for Habitat, Watershed, and Recreation Planning in Southern California.* Los Angeles, CA: Center for Sustainable Cities and University of Southern California GIS Research Laboratory.

Li, C., H. Chen, C. Lam, T. Longcore, J. Sayre, K. Schmoker, and J.R. Wolch. 2004. Green Visions Plan for the 21st Century Southern California. *The On-Line Inventory of Southern California Plans Relating to Habitat, Watersheds, and Recreation*. Los Angeles, CA: Center for Sustainable Cities and University of Southern California GIS Research Laboratory.

Longcore, T. 2006. Green Visions Plan for the 21st Century Southern California. *Conservation of Native Biodiversity in the City: An Asssessment of MRCA Projects in the Upper Los Angeles River Watershed*. Los Angeles, CA: University of Southern California GIS Research Laboratory and Center for Sustainable Cities.

Martino, D., C. S. Lam, and T. Longcore. 2005. Green Visions Plan for the 21st Century Southern California. *Terrestrial Target Species for Habitat Conservation Planning*. Los Angeles, CA: Center for Sustainable Cities and University of Southern California GIS Research Laboratory.

Rubin, E. S., H. L Rustigian, and M. D. White. 2006. Green Visions Plan for the 21st Century Southern California. *Target Species Habitat Mapping*. Los Angeles, CA: University of Southern California GIS Research Laboratory and Center for Sustainable Cities.

Sister, C., J Wilson, and J. Wolch. 2007. Green Visions Plan for 21st Century Southern California. 15*. Park Congestion and Strategies to Increase park Equity.* Los Angeles, CA: University of Southern California GIS Research Laboratory and Center for Sustainable Cities,

Stein, E.D., S. Dark, T. Longcore, N. Hall, M. Beland, R. Grossinger, J. Casanova, M. Sutula. 2007. *Historic Ecology and Landscape Change of the San Gabriel River and Floodplain.* Costa Mesa, CA: SCCRWP.

Wolch, J. R. 2004. Green Visions Plan for the 21st Century Southern California. *Scientific Workshop on Strategies for Integrated Habitat, Watershed, and Recreation Planning*. Los Angeles, CA: Center for Sustainable Cities and University of Southern California GIS Research Laboratory.

Wolch, J.R., J. Devinny, T. Longcore, and J.P. Wilson. 2004. Green Visions Plan for the 21st Century Southern California. *Analytical Frameworks for the Green Visions Plan*. Los Angeles, CA: Center for Sustainable Cities and University of Southern California GIS Research Laboratory.