UCLA Institute of the Environment & Sustainability

Enhancing Visitor Experience in the Santa Monica Mountains Using Digital Interpretive Content: A Report for Grateful Bench

Authorship

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Acknowledgements

This report summarizes the results of a literature review, cellular service analysis, visitor use survey, and wildlife synopsis commissioned by the Anthony Pritzker Family Foundation for the Grateful Bench nonprofit organization.

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Grateful Bench at Liberty Canyon.

Abstract

The trails of the Santa Monica Mountains National Recreation Area (SMMNRA) are enjoyed by hundreds of thousands of people each year and represent an irreplaceable recreational resource for residents and visitors in Los Angeles. To support the Grateful Bench Project's mission of enhancing trail user experience in the SMMNRA, we collected critical baseline information about cell service in the park, activity and interests of park visitors, and natural resources along trails including the 20 sites where grateful benches have been installed. Through visitor counts and visitor surveys at Grateful Bench sites and trailheads spanning the SMMNRA, we examined rates of trail and bench use and gathered feedback from visitors on how they interact with existing park resources. Most of the Grateful Bench locations were found to have "good" or "great" cellular connectivity, which will allow for the installation of QR code plaques at the benches. Our visitation data show that rates of trail and bench use can be estimated from disaggregated customer data provided by the fitness tracking app Strava. Visitor questionnaires demonstrated that the majority of trail users live nearby, are passionate about the trails of the SMMNRA, and appreciate the newly installed Grateful Benches. The surveys also highlight interest in learning about local biodiversity and natural history around each bench via digital interpretive content. Based on these findings, the UCLA IoES team

suggests implementing QR code plaques at the most visited benches with access to iNaturalist hyper-local information to engage and enhance visitor interaction with the trails.

Introduction

The Santa Monica Mountains are one of the most biodiverse regions in California, home to more than 1,000 plant species, 45 mammal species, and 395 species of birds. Because of their proximity to the metropolitan area of Los Angeles, the mountains attract over 760,000 visitors each year, making the region one of the most visited natural areas in California. While the scenery is incredibly beautiful, one thing that the trails accenting the mountains have lacked is a place where one can pause, slow down, and connect with their surrounding environment. This is where Grateful Bench comes in. Supported by the Anthony Pritzker Family Foundation and working in cooperation with the Mountains Recreation Conservancy Agency (MRCA), Grateful Bench installs trailside benches at scenic overlooks in the Santa Monica Mountains (SMM) in order to deepen visitor engagement with the park and its nature. Thus far, 20 benches have been installed, from Malibu to the Hollywood Hills (**Figure 1**). Currently, these benches offer a place to sit, but if equipped with QR codes linking to dynamic online information about local information and resources, they have the potential to become gateways for learning more about the environment and fostering connections among the trail user community.

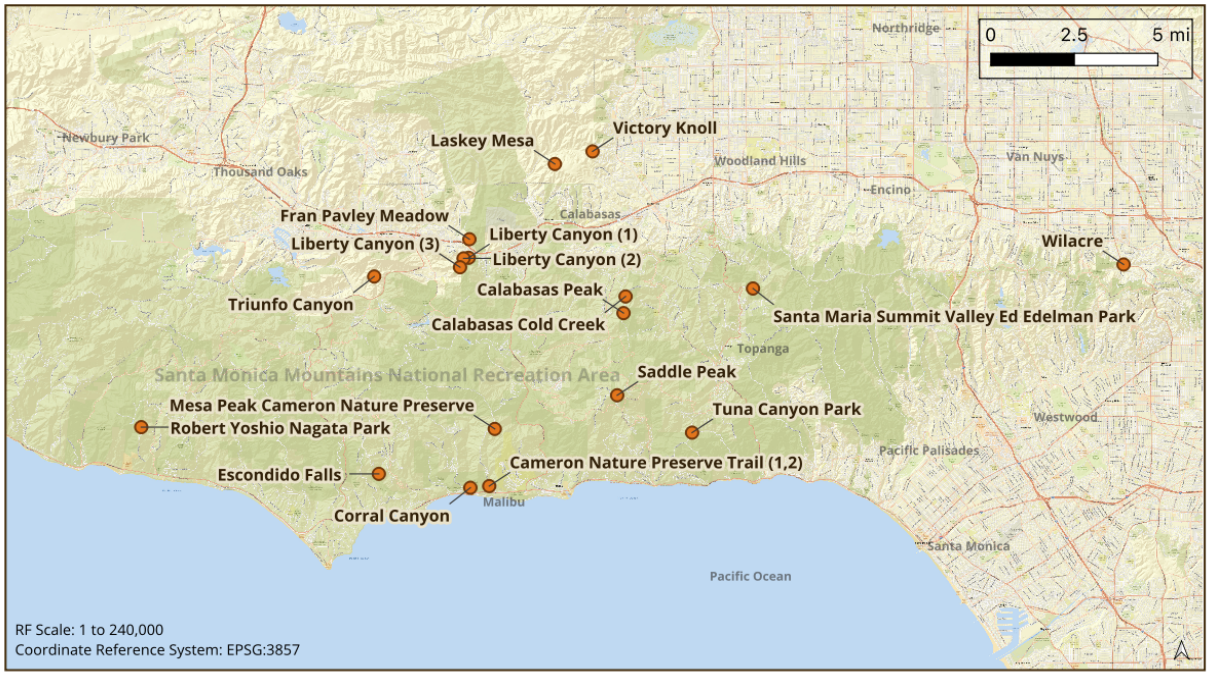

Figure 1: Locations of Grateful Benches within the Santa Monica Mountains.

Project Goals

This team's project was designed to support and expand the Grateful Bench vision by accomplishing three core goals:

1. Analyze Trail and Bench Use in the SMMNRA

Using field counts, online surveys, online data from AllTrails.com (AllTrails.com 2025), and user data from the fitness tracking app Strava, we sought to develop a comprehensive baseline understanding of trail visitation rates in the SMMNRA, who visitors are, what they most value about the park, what they would like to learn more about, and how they use the currently installed benches. These data provide an overview of trail use in the SMMNRA and will help Grateful Bench prioritize the development of future trail amenities and inform the creation of hyper-local online content that will engage visitors.

2. Measure Cellular Connectivity at Bench Locations

Reliable cell service is a prerequisite for accessing interpretive digital content posted at benches. Using standardized signal strength tests across major service providers, cell service strength levels were documented at existing bench locations. This will assist Grateful Bench in determining where educational material, such as QR-linked placards, can be effectively deployed.

3. Develop and Implement Interpretive Digital Content

Using data from the National Park Service, the USGS, and the community science biodiversity database iNaturalist, we compiled hyperlocal natural history information for the SMMNRA. These data summarize the ecology, geology, vegetation, and recent fire history in the immediate areas surrounding each bench and can be drawn from to draft interactive educational content for the Grateful Bench website. Location-specific QR codes installed on the benches would provide a way for park visitors to access this information from the field. We envision this content featuring information on native flora and fauna, local history and geology, recommended scenic viewpoints, fire danger and weather advisories, as well as opportunities for volunteer engagement. The compilation of these data will help Grateful Bench and MRCA to develop online resources.

Methods

Visitor Count & Survey

To collect information on visitor frequency, demographics, and trail use, we developed an 18-question online survey on Google Forms that gathered data on visitor demographics, visitation frequency, barriers to visitation, and learning interests. See Appendix for the full survey. We conducted visitor counts and asked visitors to complete online surveys at 16 trailheads located throughout the SMM (**Figure 2**), eight of which also had Grateful Benches installed along the trail. Trailhead visitor counts were conducted on Saturday, 4/26/25 and Saturday, 5/3/25. Each location was surveyed from 8 am to 12 pm and several were also surveyed from 12 pm to 4 pm. To help us conduct surveys, volunteers were recruited from UCLA undergraduates and staff as

Figure 2: Distribution of all trailheads where in-person surveys were conducted by volunteers on 4/26/25.

well as through the Santa Monica Mountains Task Force–a volunteer trail maintenance team affiliated with the Sierra Club. During trail surveys visitor numbers were hand-tallied and categorized into hikers, bikers, and dogs. In addition to counting visitors in person, we also posted laminated fliers at nine Grateful Bench locations (**Figure 3**). Laminated fliers included QR codes that linked to online visitor surveys that could be completed on mobile devices. The number of QR code scans by visitors was recorded between 4/25/25 and 5/25/25. Benches on trails closed due to the recent Palisades Fire were skipped. The following nine bench locations were selected: Calabasas Cold Creek, Calabasas Peak, Fran Pavley Meadow, Liberty Canyon

(two benches), Robert Yoshio Nagata Park, Santa Maria Summit (Viewridge Tr.), Triunfo Canyon, Victory Knoll, and Wilacre.

Cellular Signal Measurement

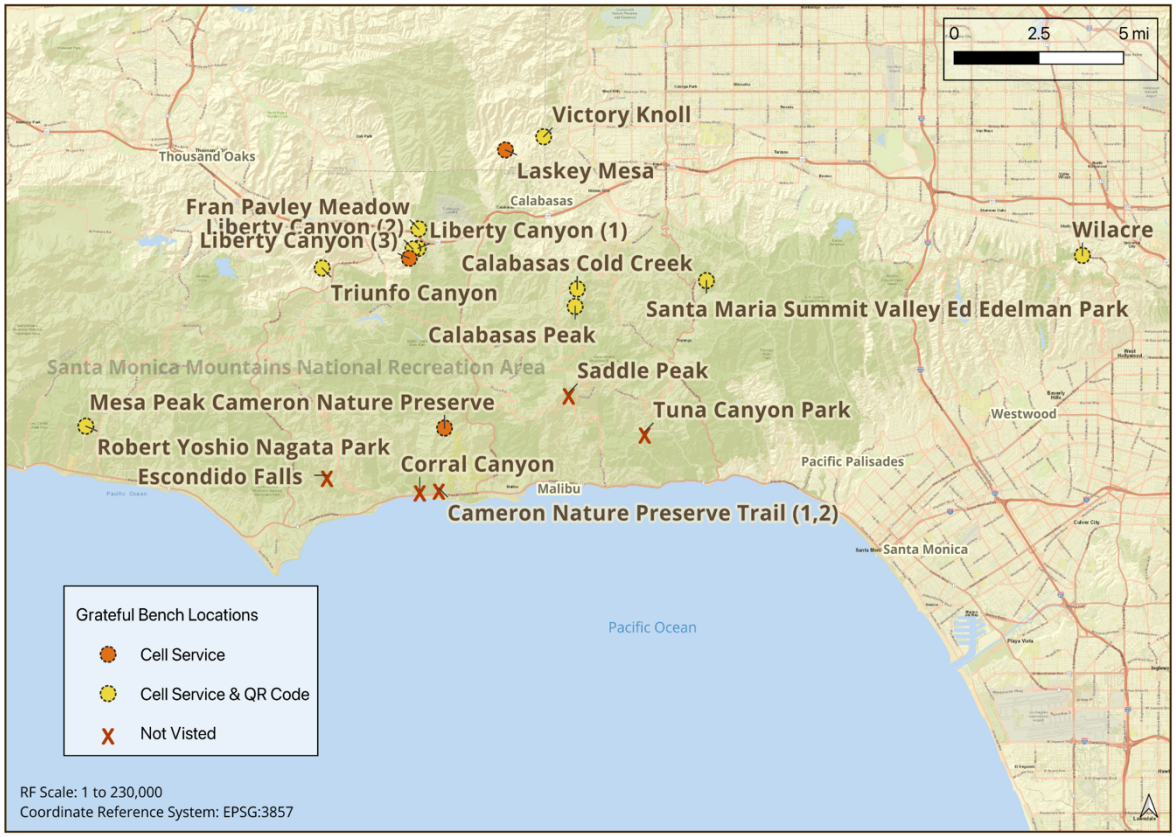

Figure 3: Bench locations where cellular signal strength was measured (red); benches with QR code fliers and cellular signal strength (yellow). Benches we were unable to visit because of fire closures are marked with a red "x".

We assessed cellular signal strength at each of the nine bench locations where we posted fliers as well as three other benches for a total of twelve bench locations (**Figure 3**). Benches on trails that were closed due to the recent Palisades Wildfire were inaccessible for surveying. Cellular signal strength and download speeds were assessed to determine the capacity for delivering online content to trail users in the field. Cell service assessment was performed using personal cell phones under each of the three most popular service providers in California: Verizon, AT&T, and T-Mobile. Team members used "Field Test Mode" on iPhones to measure cell signal strength as Reference Signal Received Power (RSRP) in decibel-milliwatts (dBm). Additionally, download speed was recorded in megabits per second (mbps) at each bench location using the

Google Internet speed test. These two data points were logged for each location in relation to the cell service provider.

Cell service strength was measured in dBm. Less than -100 dBm is considered “poor” cell service and is indicated by 0-1 bars, -70 to -110 dBm is “good” cell service strength and is indicated by 2-3 bars, and more than -70 dBm is “great” cell service strength and is indicated by 4-5 bars. Download speed was measured in megabits per second (mbps). Less than 25 mbps is considered “poor” download speed, 25 to 100 mbps is “good” download speed, and more than 100 mbps is “great” download speed.

Bench-Specific Natural History Database

Using data from the National Park Service, the United States Geological Survey, and online community science platform iNaturalist we developed a database of information on biodiversity, geology, vegetation, and fire history for the immediate vicinity of each of the Grateful Benches. We intend this database to be useful for Grateful Bench to refer to when developing online interpretive content for each bench.

iNaturalist is “an online social network of people sharing biodiversity information to help each other learn about nature” (iNaturalist, 2025). The app makes all user observations available for free online, and as of January 2025 there were over 260,000 observations of nearly 6000 species on the SMMNRA iNaturalist project (iNaturalist, 2025). This wealth of data includes information on common and rare plants and animals around each of the 20 Grateful Bench locations. In addition, other online spatial data can easily be queried, including geological setting, vegetation type, climate, and wildfire history, to determine which natural features surround each bench. Grateful Bench can utilize this interface to further highlight specific features if desired. This digital content will also highlight opportunities for visitors to get involved by listing upcoming park events and volunteer restoration opportunities. QR code links can also direct visitors to important safety information, such as that pertaining to wildlife, weather, or wildfires.

Results

Bench Conditions

Grateful Bench’s website provides directions to eleven out of 20 of their bench locations. After visiting the currently accessible benches, a list of recommendations has been compiled to revise these instructions for updates and ease. Bench conditions have also been noted. Both

accessibility and aesthetics play key roles in enticing visitors to enjoy Grateful Benches and, in the future, to learn from them.

Accessibility

Most benches were easy to find and reach physically. However, the nature of bench placement to complement aesthetic viewpoints sometimes called for steep climbs that may be challenging for some visitors. A few individual benches received significantly low accessibility ratings from visitor surveys. Wilacre, one of the busier trails, received 6 ratings of "5" or less out of 10 on an accessibility scale, and the Fran Pavley Meadow bench received written reviews stating that it was "difficult to find."

Directions

The Grateful Bench website provides detailed instructions for locating their benches, however there are a few small changes that could help to ensure visitors can reach their destinations. One suggestion is to lead a bench-goer first to a trailhead, rather than to exact bench coordinates. Because most of our survey respondents drove to their trailhead instead of walking, this order of directions may be more intuitive. Grateful Bench could facilitate this by connecting green "DIRECTIONS" buttons to Google Maps driving directions to trailheads rather than to bench coordinates.

Trail signage indicating a bench ahead along the Liberty Canyon Trail.

The naming scheme of some benches also leads to confusion for visitors. For example, Robert Yoshio Nagata Park is more commonly referred to as "Nicholas Flat" trail. This trail also hosts some confusion in its directions, which lead visitors to duck under a private property gate in order to begin their hike. Redirecting these instructions and renaming the bench to "Nicholas Flat" would eliminate much

of this confusion. Similarly, the naming of the Calabasas Peak and Calabasas Cold Creek Secret Trail benches draws some confusion as these two benches are along the same trail. Changing these names to emulate the Liberty Canyon (1), (2), and (3) naming format would indicate to visitors that there are more benches for them to discover and enjoy along the trail. Finally, including a metric such as hiking distance to the bench on the "HIKE DETAILS" pages of the website would help visitors gauge their preparedness and where they are in relation to a bench.

Cellular Signal Strength

Cell service may prove to be a key aspect of new bench placement selection with the QR code project. Internet connectivity will determine how visitors are able to interact with online interpretive content that Grateful Bench may introduce. While improving signal strength at current benches is not feasible, Grateful Bench may want to keep this in mind as they consider potential bench sites in the future and where to focus online content.

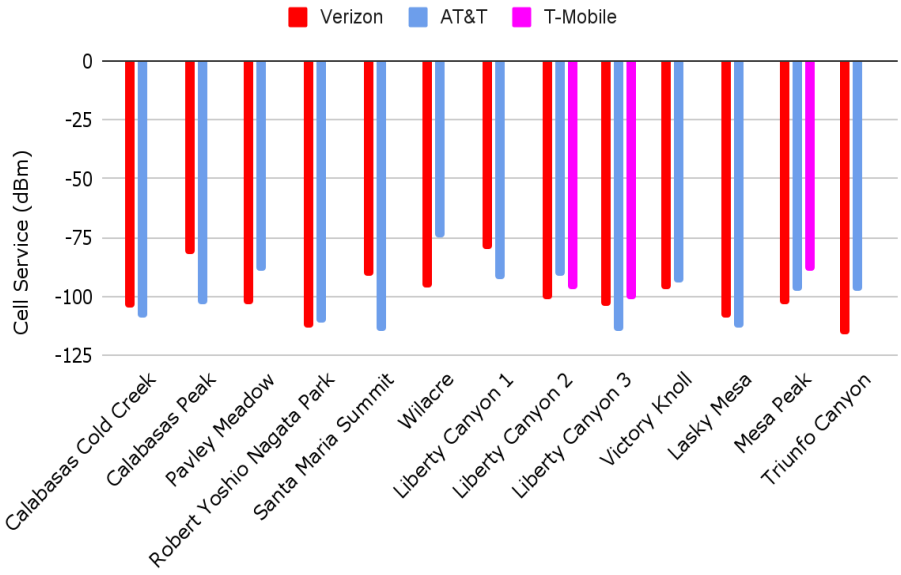

Figure 4: Cellular signal strength at Grateful Bench Locations. Signal strength is measured in decibel milliwatts with more negative numbers indicating weaker signal.

Most benches received moderate to strong cell connectivity, falling within the -70 to -110 dBm range (**Figure 4**). This level of signal is sufficient for mobile internet access, which will be critical for the success of QR code-based interpretive content. The assessed wireless carriers do not have extreme differences between one another. Verizon and AT&T performed nearly equally, typically surpassing T-Mobile in cell signal strength. T-Mobile service data were collected at only three sites.

Download speed results across bench locations revealed a wide range of connectivity. While most service providers are in the "good" (25-100 mbps) and "great" (> 100 mbps) ranges at several sites, performance was inconsistent and often carrier-dependent (**Figure 5***)*. AT&T

recorded the highest speeds at some benches but also had locations with very low connection, indicating unreliability in certain areas. Verizon and T-mobile offered more consistent midrange performance. Benches with no bars displayed in the graph had no data for those locations. Notably, Robert Yoshio Nagata Park, Laskey Mesa, and Santa Maria Summit had some of the lowest download speeds, suggesting that QR code-based digital content would be difficult to access at those sites. Physical plaques may be better suited for areas where service is unreliable.

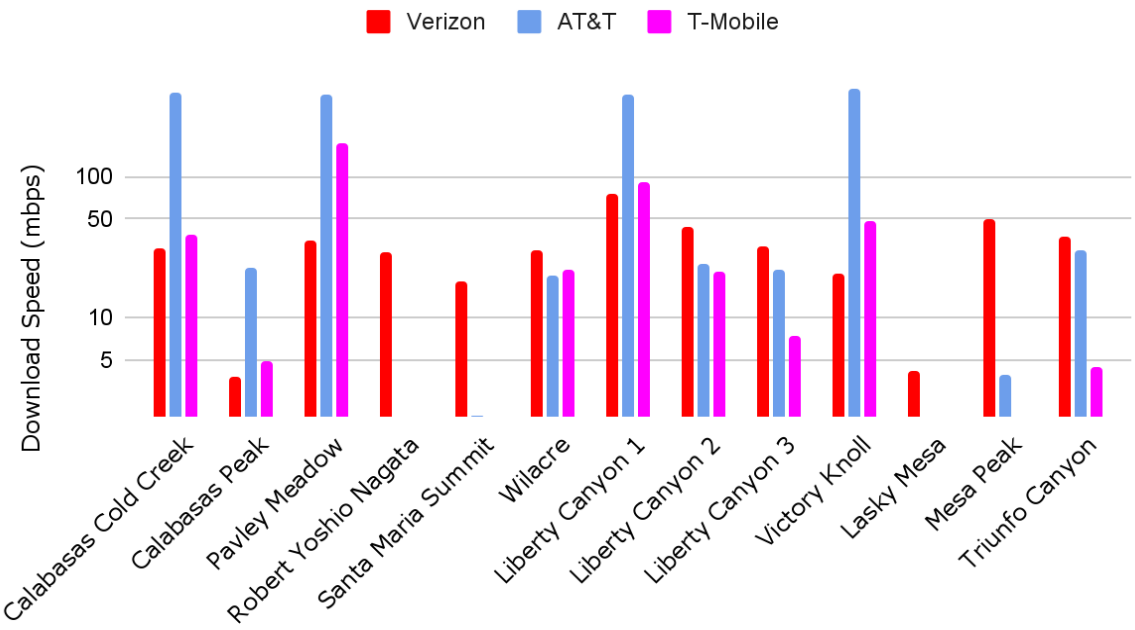

Figure 5: Cellular-data download speeds at Grateful Benches. Signal strength is measured in decibel milliwatts with more negative numbers indicating weaker signal.

Visitor Counts

Jasmine, Nicole and Jordyn getting ready to survey the Victory Knoll bench in Las Virgenes Open Space Preserve.

We collected and compared several sources of visitor activity and trail count data for all trails with Grateful Bench locations in the Santa Monica Mountains and several additional popular trails without benches (**Table *1***). In the table we compare the number of QR code scans on fliers posted on benches, trailhead counts collected on 4/26/25, trail counts from a 2018 survey of visitor activity produced by the UCLA Luskin Center for innovation (Pierce et al., 2018), user activity data from Strava, and activity data from AllTrails.com. QR Code scans report the total number of times visitors scanned the QR codes posted on benches between 4/25/25 and 5/25/25. Visitor counts for 4/26/25 are expressed rates of trail use in people per hour. The 2018 Luskin Center data represent counts of trail users from four non-consecutive days over two shifts (a morning 8:00 am-1:00 pm shift and an evening 4:00 pm-8:00 pm shift). The Strava counts are yearlong counts of Strava users on a given trail. The AllTrails Activity count is an all-time index of user activity on each trail. The trails in Table 1 are sorted by the number of visitors per hour observed in our counts on 4/26/25, with Victory Knoll, Wilacre, and Franklin canyon being the three most popular trailheads. We provide a more in-depth comparison of visitor counts across the datasets later in the report.

Table 1: Comparison of visitor activity at trailheads in the Santa Monica Mountains. For Grateful Benches where we installed QR code fliers the number of scans is given. For trailheads surveyed on 4/26/25, the number of visitors counted per hour is reported.

Trailhead Name	Grateful Bench	Bench QR Scans	UCLA Count per Hour (4/26/25)	Luskin Count (2018)	Strava Count (2024)	AllTrails Activity Count
Victory Knoll at Upper Las Virgenes	Victory Knoll	14	50.8	1257	3710	334
Betty B. Dearling Trail at Wilacre Park	Wilacre	49	24	4220	5840	700

Trailhead Name	Grateful Bench	Bench QR Scans	UCLA Count per Hour (4/26/25)	Luskin Count (2018)	Strava Count (2024)	AllTrails Activity Count
Franklin Canyon Trail			13.5	613	65	2910
Paramount Ranch Perimeter Loop			9.25	576	440	450
Pavley Meadow at Cheeseboro Canyon	Fran Pavley Meadow	0	7.25	465	2800	890
Ocean Overlook Trail at Charmlee Wilderness Park			6.53	180	350	1981
Caballero Canyon Trail at Reseda Blvd.			6	916	2300	864
Sandstone Peak at Circle X Ranch			4	223		2685
Triunfo Canyon Trail at Kanan Rd.	Triunfo Canyon	4	2.25			314
Nicholas Flat at Leo Carrillo State Park	Robert Yoshio Nagata Park	2	2.15	203		668
Viewridge Trail at Ed Edelman Park		13	1.5		85	930
Secret Trail at Mulholland Highway	Calabasas Cold Creek	8	1.25			894
Liberty Canyon at Abrams Open Space Preserve	Liberty Canyon	20	0.73		550	97
Rocky Oaks Pond Trail			0	108	60	187
Calabasas Peak from Stunt Ranch High Trail	Calabasas Peak	14		176	650	253
Cameron Nature Preserve at Puerco Canyon	Cameron Nature Preserve				730	477
Sara Wan Trail at Corral Canyon	Corral Canyon			237	655	2793
Towsley Loop Trail at Don Mullaly Park	Don Mullaly					5336

Trailhead Name	Grateful Bench	Bench QR Scans	UCLA Count per Hour (4/26/25)	Luskin Count (2018)	Strava Count (2024)	AllTrails Activity Count
Escondido Falls Trail	Escondido Falls			562		12411
Grotto Trail at Circle X Ranch				109		1798
Laskey Mesa at Upper Las Virgenes Open Space Preserve	Laskey Mesa					2084
Mesa Peak from Backbone Trail	Mesa Peak Cameron Nature Preserve					2627
Mishe Mokwa Trail at Circle X Ranch				109		3339
Chumash Trail at Point Mugu State Park				1065		4696
Point Dume Cove Trail				1349	965	3423
Saddle Peak from Backbone Trail	Saddle Peak			574		2152
Tuna Canyon Park	Tuna Canyon Park				120	3834
Top of Reseda and Vanalden Cave				1165	5355	1431

Visitor Survey Results

The Santa Monica Mountains' diverse trail network attracts an equally diverse population of visitors. Lying within both Los Angeles and Ventura Counties, the region encompasses affluent urban communities such as Malibu and Calabasas as well as more suburban and rural areas. The surrounding region is ethnically and economically diverse, though ZIP code analysis suggests that visitors to the mountains tend to skew toward more middle- to upper-class outdoor enthusiasts. The trails are used for hiking, mountain biking, dog walking, and horseback riding, and certain routes are more popular for certain activities. Despite their popularity, the trails are not equally accessible to all Angelenos due to barriers such as limited public transportation and uneven awareness of outdoor resources across communities.

To survey trail demographics and gather feedback from users, factors such as party size, age, and gender were requested, as well as trail use, potential interest in interpretive content, and trail and bench feedback. The following foundational and standout results were gathered from in-person volunteer visits to the trails.

Visitor Origin and Travel Distance

Figure 6 displays distance traveled from home zip code by trail-goers on survey dates. While 65% of respondents live within 10 miles of the trail that they visited, some went far out of their way to visit the SMM.

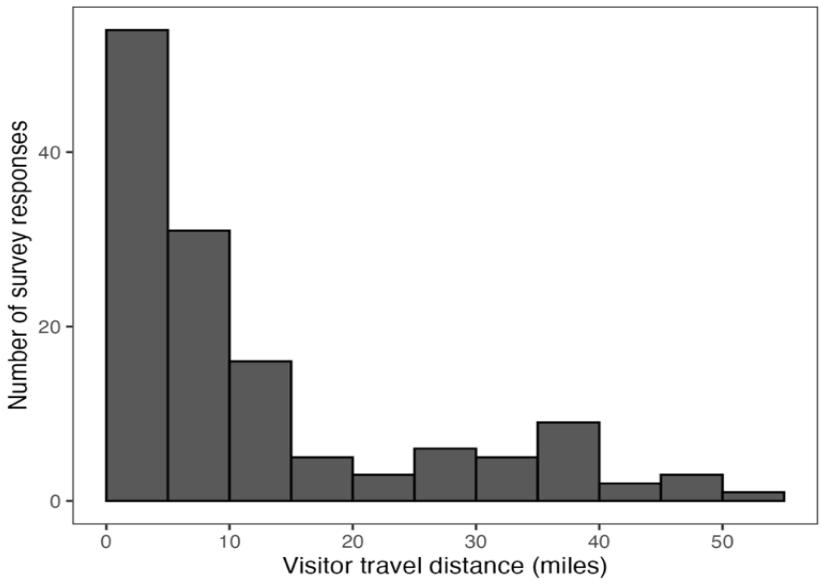

Figure 6: Distribution of visitor travel distances from home zip-code to bench location. Most visitors lived within ten miles of benches.

Further analysis also revealed that shorter distance traveled did not necessarily indicate increased trail familiarity (number of times visited before). This reinforces the importance of clear digital and on-site wayfinding tools. Most surveyed visitors reside in areas close to the SMM, particularly along the LA County coastline and foothill neighborhoods (Figure 7). The darkest-shaded ZIP codes represent the highest level of participation in our surveys and are concentrated around more urban regions, indicating that trail use may be correlated with both proximity and population density.

Notably, no survey respondents are from Malibu–a significant absence considering its geographic closeness to several trailheads. This may be a result of the lingering impacts of recent wildfires in the area, which affected trail access and could have disrupted recreation patterns or displaced residents. The pattern also suggests disparities in awareness or access from communities farther east or inland, which could be addressed through future outreach or

programming to encourage broader regional engagement with the park.

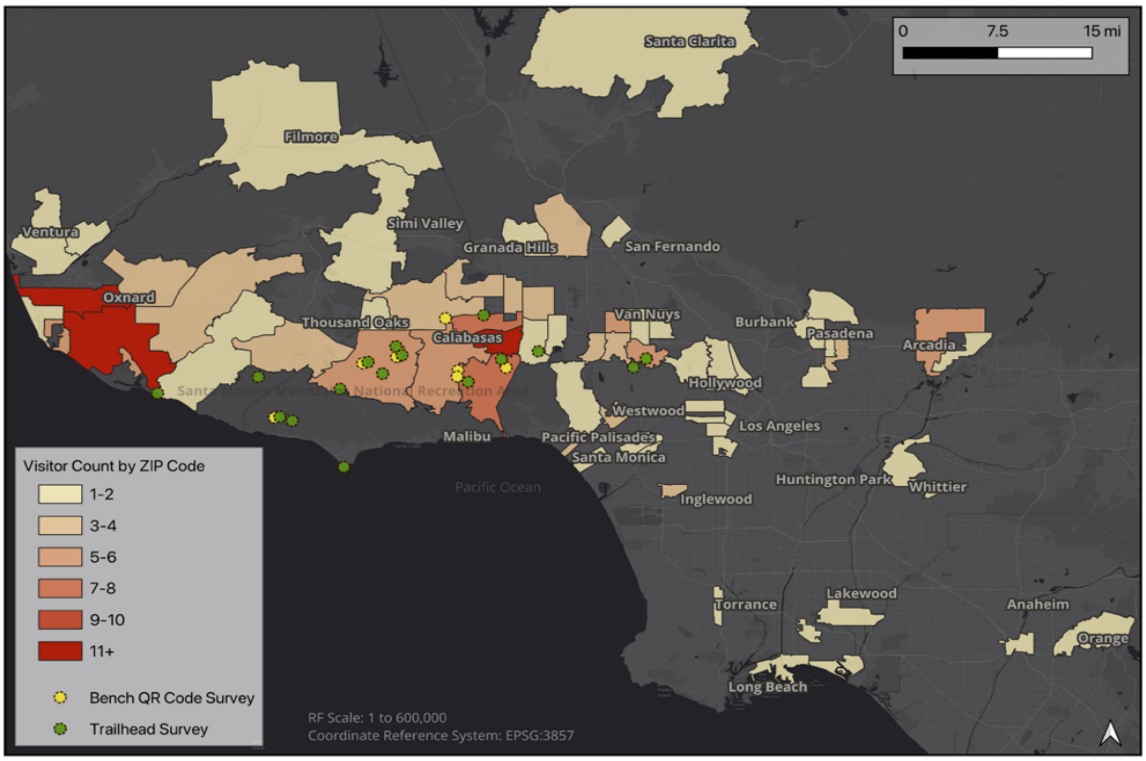

Figure 7. Home zip codes of visitors to trails and Grateful Benches.

Visitor Characteristics

Respondents first self-reported their party size, displayed for all trailhead surveys and Grateful Bench surveys (Figure 8). The most common party size surveyed across all trails was 2 people (39%), and the most common party size surveyed among Grateful Bench trails was 1 person (57%). This suggests that Grateful Bench trails may attract more solitary visitors, potentially those seeking reflection, quiet, or a personal connection to nature. This insight could inform future interpretive content, emphasizing introspection, mindfulness, or solitary learning experiences that resonate with solo hikers. The reduced proportion of larger groups (3+ people) at Grateful Bench trails (14% compared to 24% at all surveyed trails) indicates that these locations may be less suited for or less attractive to family outings or social gatherings. This could be attributed to several factors: the placement of benches at scenic overlooks that may require uphill climbing, thinner trails that better accommodate solo hikers, or popularity, as some examples.

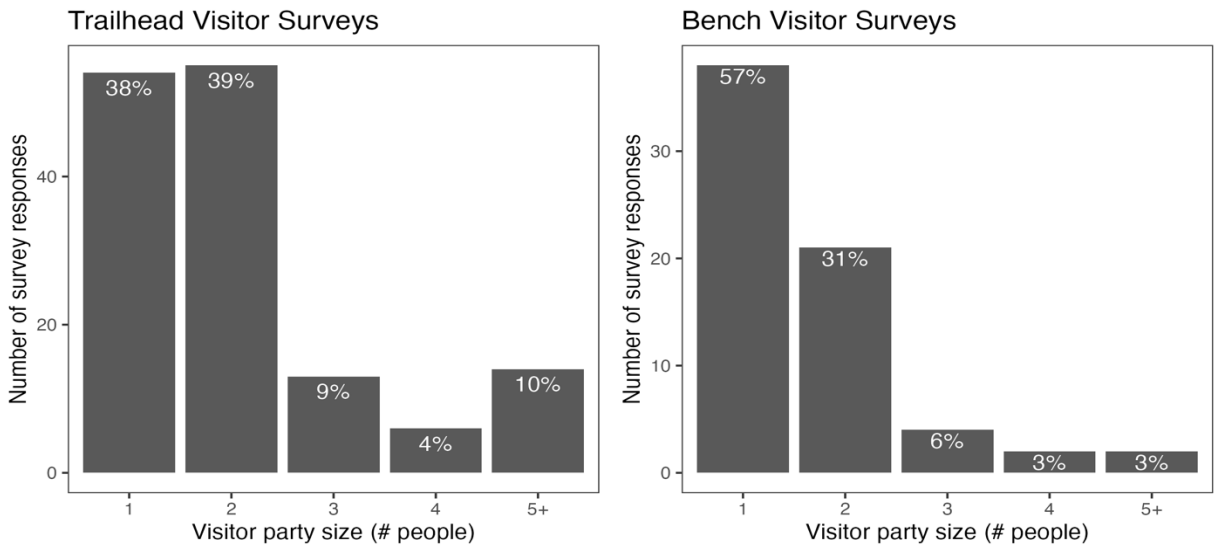

Figure 8: Visitor party size for trailheads (left) and Grateful Benches (right). Most visitors came in groups of one to two people.

Survey respondents were then asked to self-report their age. There is a wide range of ages in the response pool and a wide standard deviation. The most common age range across all trailhead and bench surveys was 35-44 (22%) and a close second was 55-64 (21%). The average age was 42. For comparison, the average age in Los Angeles County is 38.2 years and the median age is 37.9 (U.S. Census Bureau, 2024). For statistical analysis, age was further categorized into seven groups. A "Prefer not to say" option was also offered and utilized by two respondents. A notable surge in Gen X trail use has been noted, a slightly younger trend than the most common visitor recorded in the Luskin Center's 2018 SMM Visitor Count (Pierce et al., 2018). The average visitor age range is still the same, though, at 35-44 years.

Survey respondents then self-reported their gender. Averaged across all trail sites, the gender distribution of visitors was 50% female, 44% male, 1% non-binary, and 5% who preferred not to say. As expected, the breakdown of female and male hikers was relatively balanced. At the Grateful Bench trails, the gender distribution of visitors was 49% male, 46% female, 2% non-binary, and 3% who preferred not to say. Gender distribution shifted to more male hikers at the Grateful Bench trails. Respondents self-reported their personal trail visitation frequency (**Figure 9**). The largest proportion of respondents identified as first-time visitors. This indicates that the trails are still being discovered and explored by new visitors. A rivaling 30% of visitors, however, reported visiting their respective trails on a weekly or more frequent basis. These patterns

suggest that interpretive content should serve both audiences: regular users may seek updated, rotating material to maintain engagement, while first-time visitors may benefit from foundational information about trail history, ecology, and safety

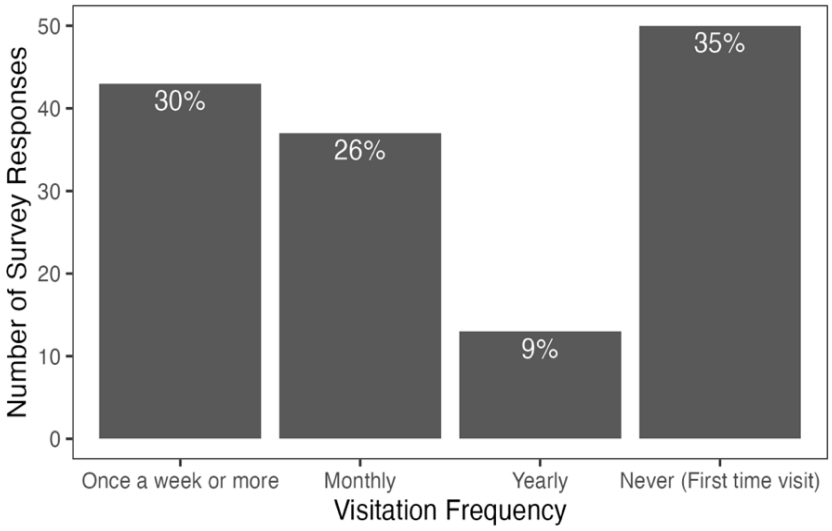

Figure 9: Frequency with which surveyed visitors report visiting the trail or bench.

We asked visitors to report where they learned about the trail they were currently hiking on (**Figure 10**). Visitors were given a dropdown menu to choose from including options for "AllTrails," "Live by the area," "Drove by," "Google/search engine," "Friends/family," "Work/organization/school," "Park signage/information center," "Event," or "Social media (Facebook, Instagram, etc.)." Percentages are shown at the end of each bar indicating the proportion of total responses in each category.

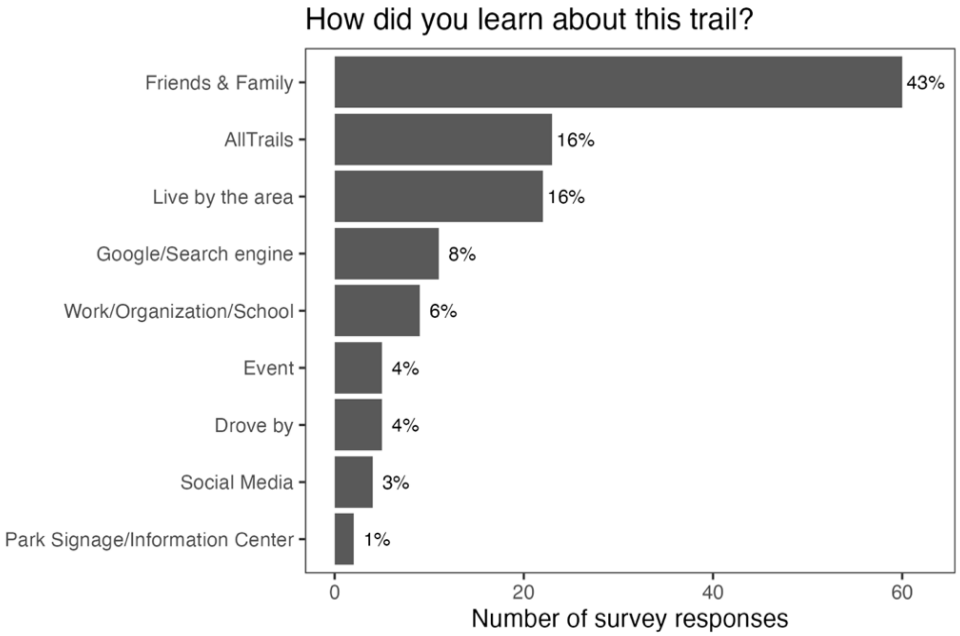

Figure 10: How visitors reported learning about the trail they were visiting.

Respondents reported their primary activity on the survey date, as shown in **Figure 11**. The most common user activity was hiking, which comprised 75.4% of all responses. The second most common form of activity was running at 11.6%, and third was dog walking at 5.1%. The dominance of hiking, running, and dog walking as recreational activities on the trails shows that visitors seem to value active forms of recreation. The next most popular forms of recreation, such as sightseeing (4.3%), bird watching (2.2%), and photography (0.7%) were more scenery-based.

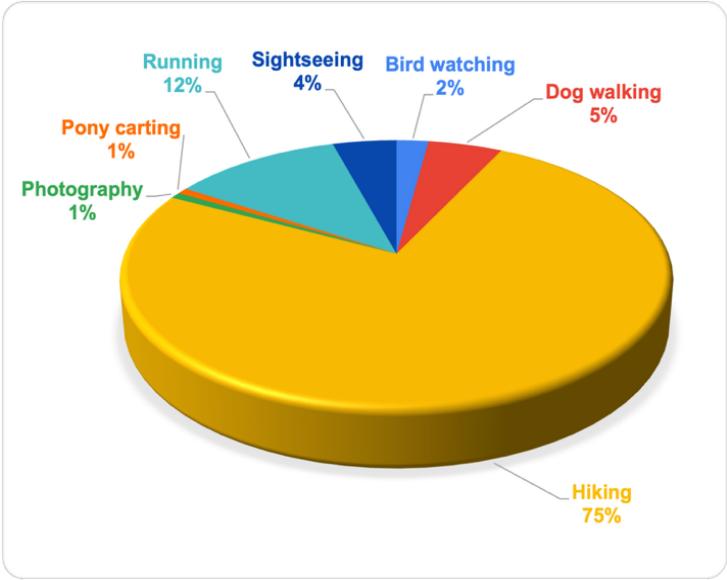

Figure 11: Visitor's primary activities on the trail.

We also asked visitors to report what they were most interested in learning about from location-specific online interpretive content that would be accessed through bench mounted QR code placards. Visitors listed local biodiversity, history, and landmarks & viewpoints as their top interests (**Figure 12**). There is moderate interest in geology and volunteer opportunities.

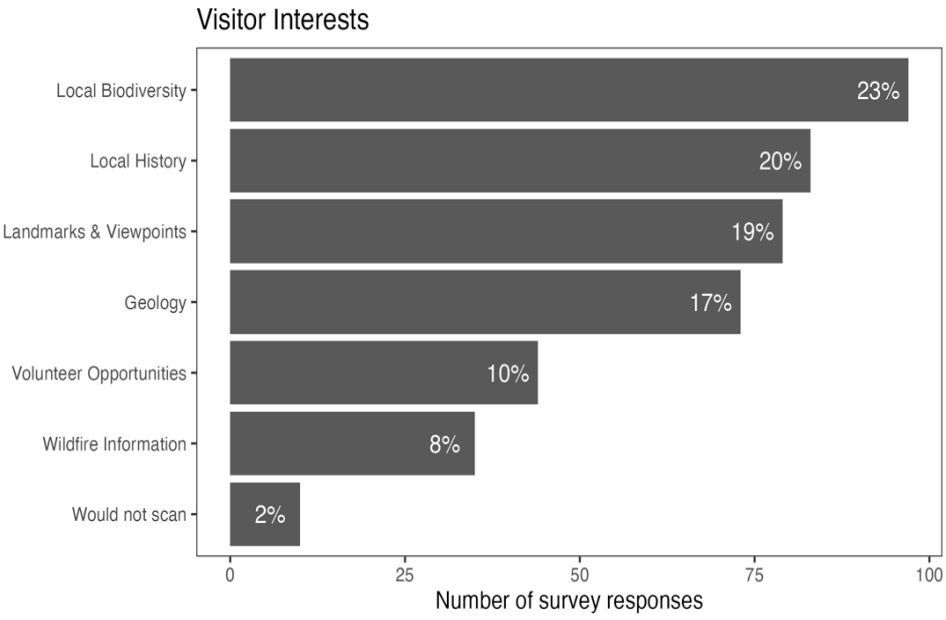

Figure 12: Visitor's primary interests for location-specific content.

The surveys indicated lower interest in wildfire information, comparatively, although all categories seem to be of some interest to visitors. Interpretive content may focus on ecology and place-based history and include a form of visual or interactive element to promote engagement.

Comparing alternative measures of trail use and popularity

Knowing which trails are more or less popular will be valuable for allocating Grateful Bench resources among trails and designing future studies of park visitation in the SMM. Counting trail visitors at trailheads, as our team did on 4/26/25 and 5/3/25, provides a useful snapshot of trail popularity across different trails. However, counts are time consuming to conduct, require a lot of volunteer help, and are necessarily limited to a short duration. Online data from AllTrails.com, and the online fitness app Strava, could potentially be useful measures of trail activity that would offer year-long data across all trails in the Santa Monica Mountains (Venter et al. 2023). In order to test the validity of these alternative data sources, we compared in-person trail counts our team conducted to Strava data from 2024, direct visitor counts from the 2018 Luskin Center SMM Report (Pierce et al. 2018), and trail rankings from the AllTrails.com website (AllTrails.com 2025; **Table 1**). **Figure 13** shows how trailhead counts per hour on 4/26/25 compared to data from Strava, the 2018 Luskin Center Report, and Alltrails. There were meaningful positive correlations between our trailhead counts and Strava and Luskin Report. This shows consistency over time in relative trail popularity.

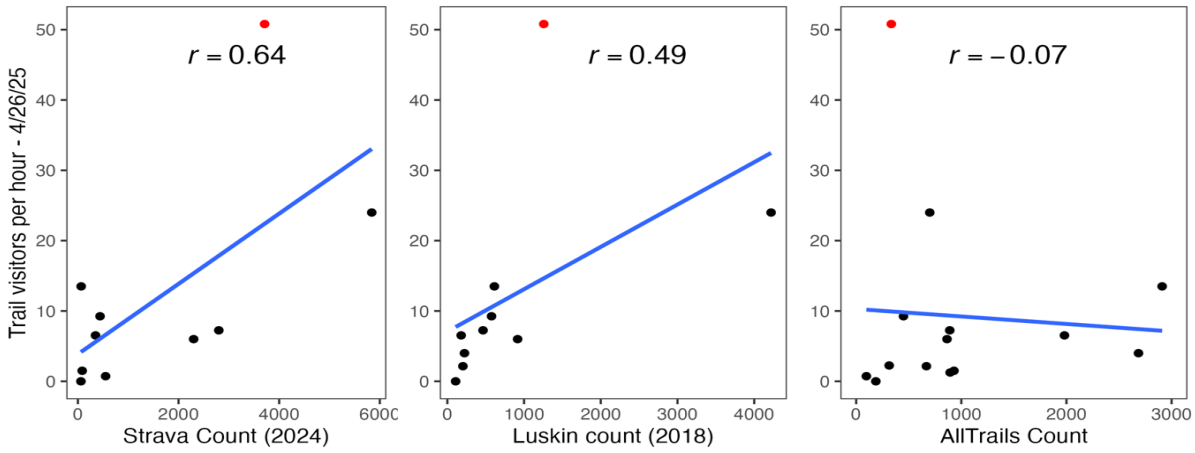

Figure 13: Correlations between our team's trailhead counts on 4/26/25 and other measures of trail activity: Strava (left), trail counts in the Luskin 2018 Report (center), and AllTrails activity counts (right). Each point corresponds to a different trailhead. Correlation statistics for each comparison are shown on each panel. The outlier marked in red corresponds to the count from the Victory Knoll trailhead which was anomalously busy.

The good correlation (r = 0.64) between our counts and the Strava data show that the Strava may be a reliable way to compare trail use across the Santa Monica Mountains without resorting to costly in-person surveys. These correlations are even stronger when we exclude outlier count Victory Knoll. Importantly, our trail counts were not correlated with AllTrails trail activity data (**Figure 13**– right panel). This is an important insight and strongly suggests that AllTrails "activity" rankings for trails are not a good proxy for actual trail visitation.

In addition to comparing our counts of visitors across trailheads, we also wanted to test whether the number of QR code scans at each bench were correlated with data from Strava, the Luskin Report, and AllTrails.com **(Figure 14).** We found a positive correlation between the number of bench QR code scans and the Strava activity on the adjoining trail. Bench scans were strongly correlated with visitor counts for the adjoining trail from the 2018 Luskin Report. However, as was the case for trailhead visitor counts, the number of QR scans at Grateful Bench locations were not correlated with AllTrails.com activity counts on the adjoining trails. The positive correlations between the number of scans of our survey fliers at each bench and the external data sources is that the Luskin Center's 2018 visitor counts, and the Strava data are good indicators of which trails will likely have the most visitors and therefore the most bench users in the park. We recommend using these data to prioritize siting new benches and bench QR codes in areas with greater trail use.

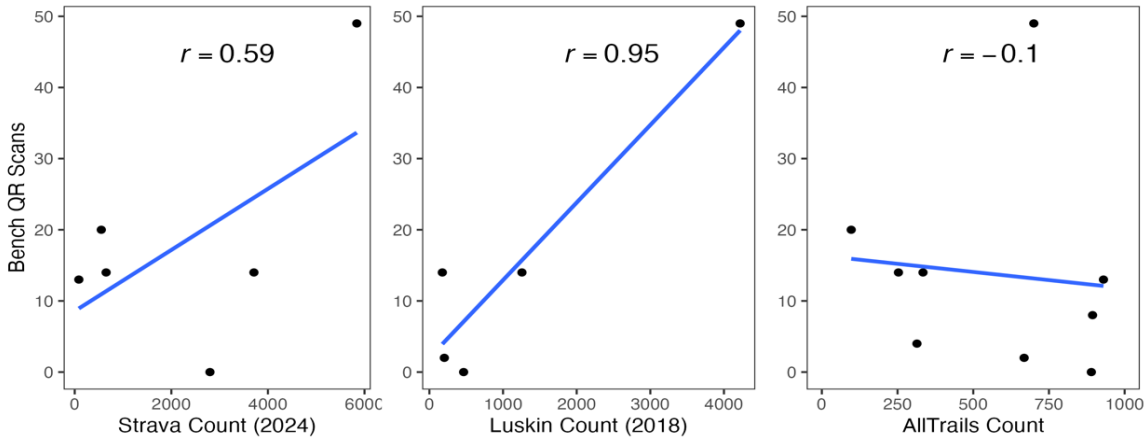

Figure 14: Total number of scans of QR codes on fliers placed on Grateful Benches compared to trail use data for adjoining trails from Strava (left), trail counts from the Luskin 2018 Report (center), and AllTrails activity counts (right). Each point corresponds to a different Grateful Bench location. Correlation statistics for each comparison are shown on each panel.

Visitor Trail Ratings and Suggestions for Improvements

Respondents shared their opinions on potential trail improvements, as shown in **Figure 15**. The most common response, selected by 28% survey participants, was that there was nothing they would change about the trails. This suggests that the majority of trail-goers are satisfied with the current trail amenities and conditions. However, several areas for improvement were identified, which includes: sanitation and maintenance at 12% and adding benches, more signage and information, and additional parking (11%). The sanitation and maintenance can be due to waste pollution and overgrown trails, in which visitors would value the upkeep. The selection of the category "better signage/informational content" indicates a desire for accessibility to and on the trails. Other notable improvement suggestions were installing water

stations (9%), adding restrooms (7%), increased shade (5%), crowd management (3%), and better transportation (2%). We also asked survey takers to rate their overall experience on the trail, as well as rate how busy the trails were at the time of visiting.

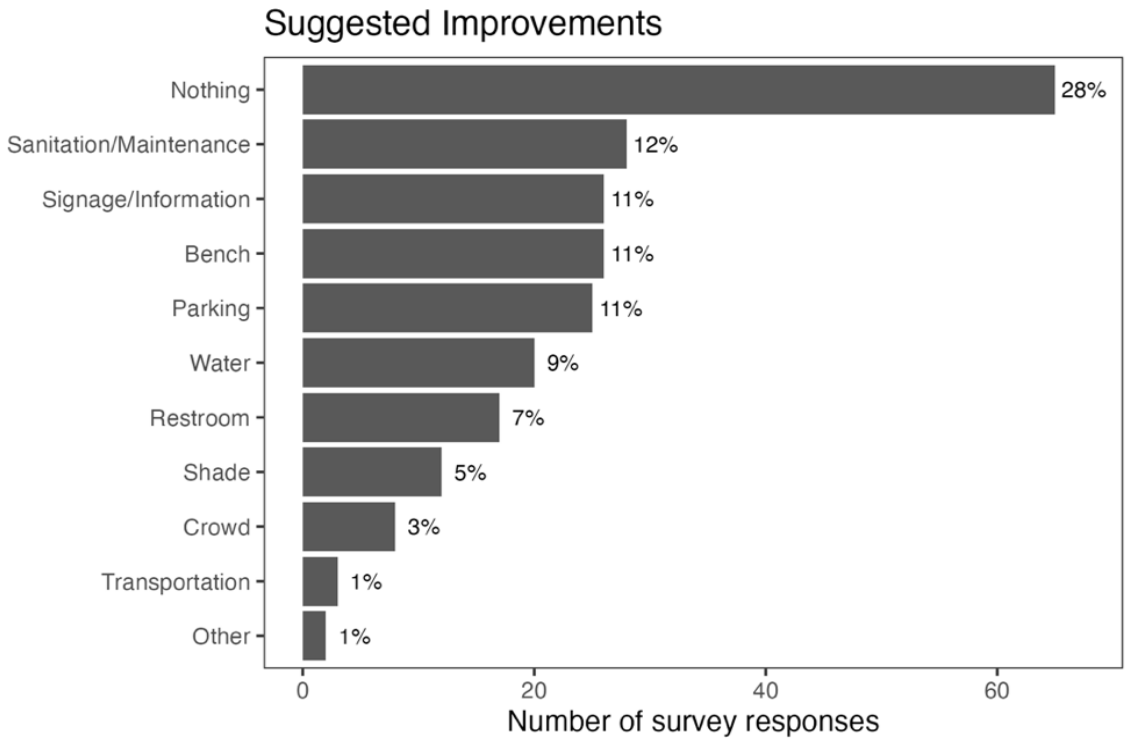

Figure 15: Visitor feedback on trail experience. Visitors were allowed to select more than one improvement from a list. "Nothing" means no improvement needed.

The overall average visitor trail experience rating was 8.6, indicating that visitors have a relatively good trail experience (**Figure 16**). The Pavley Meadow trail seems to be on the lower end with a 6.8 rating. The overall average trail busyness, according to the visitors, is 4.9, indicating moderately busy trail sites. The busiest out of all the trails is Wilacre with a 6.8 rating (**Figure 16**). This matches our own trailhead counts, Strava, and the Luskin Center report which all showed Wilacre among the most popular trails in the SMM (**Table 1**).

When asked whether adding a bench to the trail they were visiting would be useful, visitors moderately agreed, giving an average rating of 6.3 out of 10. Sandstone Peak would be the best trail to place a bench, since there was a strong desire for a bench with a rating of 10. Bench survey respondents expressed their experience at the existing Grateful Bench locations by rating how accessible the existing bench was, how useful the bench was, and their likelihood of scanning a QR code placed on the bench (**Figure 17).** The average rating for bench accessibility was 7, indicating that the majority of benches were accessible. However, the Pavley Meadow location was given a low accessibility score of 1. The average usefulness of the bench is 9.1,

expressing that trail visitors welcomed the additional benches. The average scan likelihood rating was 8.4, indicating a high likelihood the visitors would scan a QR code with more information about the bench and surrounding areas.

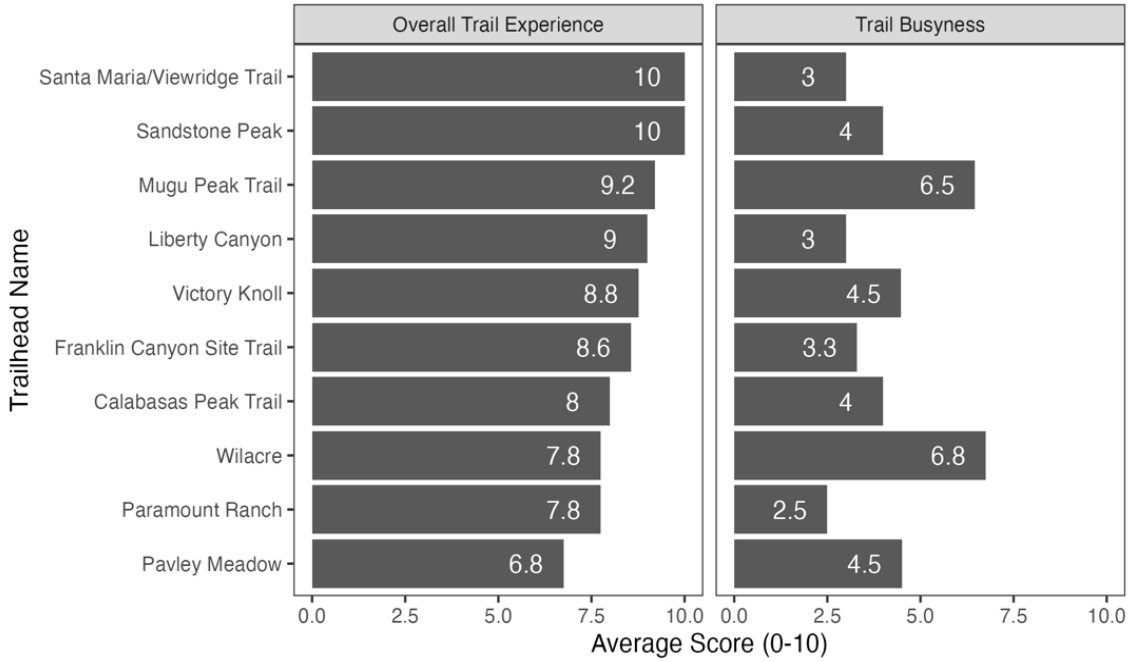

Figure 16: Visitor overall trail experience (left) and their perception of trail busyness or crowding (right). Visitors ranked trail experience from worst (0) to best (10), and busyness from least busy (0) to most busy (10). Average scores are shown in white.

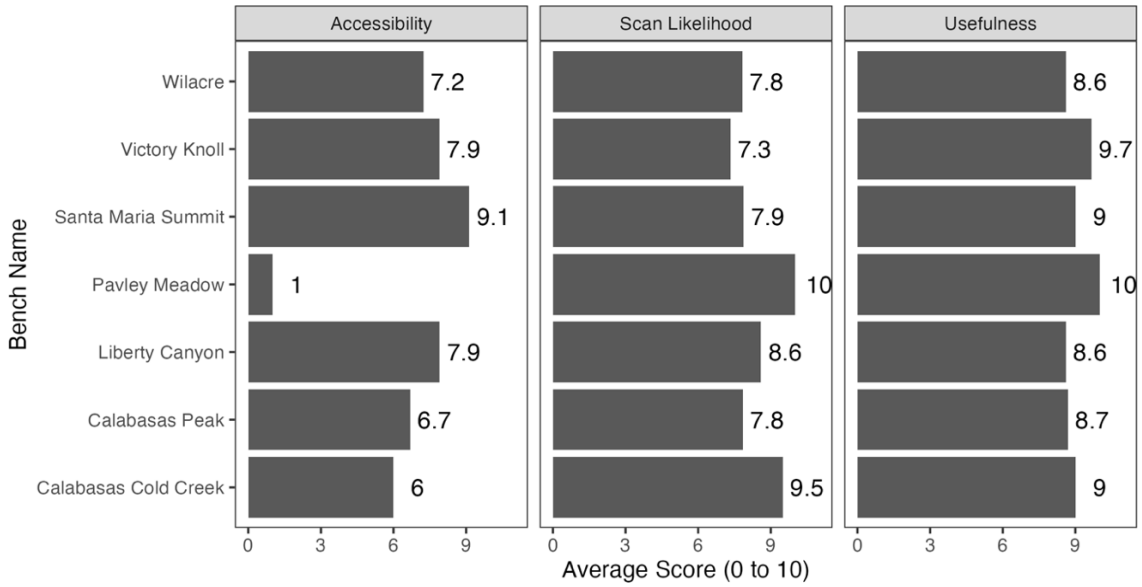

Figure 17: Visitor rating of Grateful Bench Accessibility (left), their likelihood to scan a QR code at that location (center), and bench usefulness at that location (right). For each criteria visitors scored the bench from 0 to 10.

Interpretive Content

Hyper-local natural information pertaining to each Grateful Bench location can be found in the Appendix. This may be useful for linking website blurbs to scannable QR codes at the benches. Blurbs contain information on vegetation, geology, and natural history in accordance with survey respondents' interest in biodiversity and geological information. Standout or unique species that may be found at each site are highlighted, as well as fun facts about each area. These blurbs can be updated seasonally to reflect changes in blooming flora and active fauna.

Chronolog is a photo-based monitoring tool for parks, nature centers, and wildlife organizations worldwide to observe the environment and inspire stewardship. Organizations set up a Chronolog photo station where passersby can align their own personal cell phone, snap a photo, then email it to Chronolog. Their photo is automatically added to the corresponding Chronolog timelapse, which can be viewed in stop motion format after a long period of time to display trends. Grateful Bench is a prime contestant for an exemplary Chronolog site. Of their many locations, there are a few benches that may be best suited for pairing with a Chronolog photo post. At Liberty Canyon, construction of the new Wallis-Annenberg Wildlife Crossing is visible from the bench. A Chronolog post at this location could track progress of the construction of and rehabilitation of wildlife across the pass. A few other bench locations boasted standout views that may be prime locations for a Chronolog post. The bench at Victory Knoll overlooked a sunken meadow, whose timelapse might show blooming flowers or color-changing leaves across seasons. Other scenic overlooks that the team identified as suitable for a Chronolog post were Laskey Mesa, Calabasas Peak, and Mesa Peak.

"Leave No Trace" Etiquette Guide Suggestions

To ensure that more website visitors view and read the guide, we recommend implementing it as part of the website interface in addition to having it accessible as a PDF. Realistically, people will not read through the entire PDF and will probably navigate to the bench details. Furthermore, incorporating specific "Leave No Trace" actions and tips for each bench and trail site would be more effective in encouraging bench visitors to be environmental stewards. This could be another section added under each bench's hike details, along with the hyper-local interpretive content we compiled. By encouraging trail visitors to learn more about their environment and providing specific ways to maintain and improve it at each bench site, Grateful Bench can make a greater impact in the Santa Monica Mountains.

3. Discussion

Trail and bench feedback based on these surveys was overwhelmingly positive. The SMM trails are commonly enjoyed by local residents typically traveling less than ten miles to reach the trails. Word of mouth, particularly through friends and family, remains the primary way that visitors learn about trails, reinforcing the importance of community in promoting access. There was a fairly even split between first-time and repeat trail users, which is a somewhat surprising metric given that most visitors were locals. But this indicates a healthy balance of trail discovery and sustained local engagement. Benches and trails continue to be well-received amenities, with many visitors expressing appreciation for opportunity to rest and enjoy the scenery.

Visitors also showed an interest in learning more about natural surroundings. Local biodiversity, geology, fire ecology, and cultural history emerged as top areas of interest. This suggests that educational materials could enrich user trail experience. Encouragingly, most of the benches had sufficient cell phone coverage, making them suitable sites for embedding QR code plaques that link to informative content.

Wilacre and Victory Knoll stood out as the most popular trailheads and benches, with the highest visitor counts and QR code scan rates. In comparing our findings with Strava, AllTrails, and Luskin report datasets, our data align most closely with Strava and Luskin. There was no meaningful correlation detected between AllTrails activity and survey visitor counts or scan rates. This indicates that Strava's visitor data may offer more reliable insights into trail use patterns. Grateful Bench has an opportunity to expand its user engagement by adding dynamic QR code plaques to its benches with accessible cell service and by refining its website as supported by the suggestions provided.

Grateful Bench at Victory Knoll

4. Appendix

Trail Survey Results

Q1. How many people are in your party?		
	N.	Pct.
1	67	40.85%
2	57	34.76%
3	17	10.37%
4	8	4.88%
5+	15	9.15%

Q2. If you live in the United States, please enter your 5-digit ZIP Code.		
ZIP Code	Neighborhood	N. Trail-goers
Los Angeles County: Westside Los Angeles		
90024	Westwood	2
90034	Palms	1
90049	Brentwood	2
90232	Culver City	1
90290	Topanga	6
90034	Palms	1
90403	Wilshire Santa Monica	2
90405	Ocean Park/Sunset Park	2

Total		**15**
Los Angeles County: Central Los Angeles		
90004	Koreatown	1
90005	Mid-Wilshire	1
90006	Pico-Union	1
90007	University Park	3
90027	Los Feliz	1
90039	Atwater Village	2
90068	Hollywood Hills	1
Total		**10**
Los Angeles County: Pasadena/North West Los Angeles		
91001	Altadena	1
91010	Duarte	1
91016	Monrovia	3
91030	South Pasadena	1
91101	West Central	1
91103	North Central	1
91106	South Pasadena	2
Total		**10**
Los Angeles County: San Fernando Valley		
91301	Agoura Hills	5
91302	Calabasas	6

91304	Canoga Park	2
91306	Winnetka	3
91307	West Hills	3
91316	Encino	1
91326	Porter Ranch	1
91340	San Fernando	1
91344	Granada Hills	2
91355	Santa Clarita	2
91356	Tarzana	1
91361	Thousand Oaks	2
91364	Woodland Hills	11
91367	Woodland Hills	7
91390	North East Santa Clarita	1
91401	Van Nuys	3
91403	Sherman Oaks	3
91423	Sherman Oaks	3
91601	North Hollywood	2
91604	Studio City	5
91607	Valley Village	2
Total		**66**
Los Angeles County: Long Beach/South Bay		
90502	West Carson	1

90755	Signal Hill	1
90802	Downtown Long Beach	1
90803	Belmont Shore	1
90808	Lakewood	1
Total		**5**
Los Angeles County: Gateway		
90601	Whittier	1
Total		**1**
Orange County		
92868	Orange	1
92869	Orange	1
Total		**2**
Ventura County		
91320	Thousand Oaks	1
91377	Oak Park	1
93003	Ventura	1
93004	Ventura	1
93010	Camarillo	2
93012	Camarillo	2
93015	Fillmore	1
93030	Oxnard	6
93030	Oxnard	6

93035	Oxnard	1
93041	Oxnard	3
93065	Simi Valley	1
Total		**26**
Northern California: San Mateo County		
94018	El Granada	1
Total		**1**
Out of State		
59802	Missoula, Montana	1
Total		**1**
Collective		
Total		**139**

Q3. What is your age?		
	N.	Pct.
Under 18	4	2.82%
18-24	19	13.38%
25-34	27	19.01%
35-44	31	21.83%
45-54	18	12.68%
55-64	30	21.13%
65+	10	7.04%

Prefer not to say	3	2.11%

Q4. What is your age?		
	N.	Pct.
Male	64	45.39%
Female	72	51.06%
Non-binary	1	0.71%
Prefer not to say	4	2.84%

Q5. Which trail are you visiting today?		
	N.	Pct.
Calabasas Cold Creek Secret Trail	2	1.39%
Calabasas Peak	18	12.50%
Franklin Canyon Site Trail	16	11.11%
Liberty Canyon	11	7.64%
Mugu Peak Trail	24	16.67%
Paramount Ranch Perimeter Loop	4	2.78%
Pavley Meadow	5	3.47%
Robert Yoshio Nagata Park	1	0.69%
Sandstone Peak	1	0.69%
Santa Maria Canyon Ridgeview Trail	9	6.25%
Victory Knoll	30	20.83%

Wilacre	23	15.97%

Q6. Approximately how often do you visit this trail?		
	N.	Pct.
More than once a week	20	14.18%
Weekly	21	14.89%
Monthly	37	26.24%
Yearly	13	9.22%
This is my first time	50	35.46%

Q7. How did you hear about this trail?		
	N.	Pct.
AllTrails	23	16.55%
Driving	5	3.60%
Event	3	2.16%
Friends & Family	61	43.88%
Google/Search engine	12	8.63%
In the area	5	3.60%
Neighborhood	17	12.23%
Social media	4	2.88%
School or club	6	4.32%
Park signage	1	0.72%

Work/Organization	2	1.44%

Q8. What is your primary activity today?		
	N.	Pct.
Birdwatching	3	2.10%
CrossFit	1	0.70%
Dog walking	8	5.59%
Hanging out with a friend	1	0.70%
Hiking	105	73.43%
Horseback riding	1	0.70%
Photography	1	0.70%
Running	16	11.19%
Sightseeing	6	4.20%
Weights	1	0.70%

Q9. How useful is this bench on a scale from 1-10?		
	N.	Pct.
1	0	0.00%
2	1	1.47%
3	2	2.94%
4	1	1.47%
5	4	5.88%

6	1	1.47%
7	2	2.94%
8	7	10.29%
9	7	10.29%
10	43	63.24%

Q10. How accessible is this bench on a scale from 1-10? (i.e. How easy the bench is to walk to or find?)		
	N.	Pct.
1	1	1.47%
2	0	0.00%
3	3	4.41%
4	7	10.29%
5	7	10.29%
6	3	4.41%
7	8	11.76%
8	14	20.59%
9	3	4.41%
10	22	32.35%

Q10A. How useful would a bench on this trail be?		
	N.	Pct.

1	3	7.89%
2	2	5.26%
3	3	7.89%
4	2	5.26%
5	7	18.42%
6	3	7.89%
7	2	5.26%
8	7	18.42%
9	1	2.63%
10	8	21.05%

Q10B. Prior to today, were you aware that there is a bench on this trail?		
	N.	Pct.
Yes	11	30.56%
No	25	69.44%

Q11. How would you rate your experience on this trail from 1-10?		
	N.	Pct.
1	1	0.71%
2	1	0.71%
3	0	0.00%
4	1	0.71%

5	2	1.42%
6	3	2.13%
7	11	7.80%
8	29	20.57%
9	15	10.64%
10	78	55.32%

Q12. How often have you had to change your plans for park visits due to trail closures in the past year (e.g. landslides, earthquakes, fires)?		
	N.	Pct.
Never	53	37.06%
Once	34	23.78%
Two to five times	45	31.47%
More than five times	11	7.69%

Q13. In your experience, how busy is this trail?		
	N.	Pct.
1	16	11.19%
2	25	17.48%
3	16	11.19%
4	16	11.19%
5	17	11.89%

6	17	11.89%
7	19	13.29
8	10	6.99%
9	3	2.10%
10	4	2.80%

Q14. How likely might you be to scan a QR code at this bench to learn about the surrounding environment?

	N.	Pct.
1	1	1.52%
2	0	0.00%
3	5	7.58%
4	1	1.52%
5	4	6.06%
6	3	4.55%
7	10	15.15%
8	9	13.64%
9	4	6.06%
10	29	43.94%

Q15. What might you be interested in learning about through a scannable QR code? Select all that apply.

	N.	Pct. of respondents that selected feature

Local flora and fauna	99	69.23%
History of surrounding area	84	58.74%
Local geology	71	49.65%
Landmarks and scenic views	76	53.15%
Fire danger and/or mitigation	35	24.48%
Volunteer opportunities	45	31.47%
I probably would not scan a QR code	10	6.99%

Q16. What might make you more likely to visit this trail again? Select all that apply.		
	N.	Pct. of respondents that selected feature
Better parking	25	17.48%
Improved trail maintenance	21	14.69%
More benches	26	18.18%
More restrooms	16	11.19%
Water stations	19	13.29%
Better cell service	12	8.39%

Better directional signage	19	13.29%
More educational information	8	5.59%
Better public transportation	3	2.10%
Improved sanitation/less litter	8	5.59%
Shade	12	8.39%
Less crowded	8	5.59%
Nothing — it is great as is	66	46.15%

Q17. Do you have any additional comments or suggestions?
Comments
More parking/space in general
Great trail! I've been hiking this trail for almost 20 years now.
Keep the local trail how it is
It is great.
Hope it was helpful! Go UCLA!!
recommend people to be fit enough
Hiking is amazing
I'd love to see the results of this survey. Interesting idea!

I love the little time capsule that is next to the bench
A beautiful hike through the mustard blooms on a variety of these trails in the open. So pretty right now.
QR codes can be suspect so I recommend also providing a URL/website to the survey. I looked up UCLA Institute…. Before scanning the QR Code
Thank you for placing the bench. There was a beautiful tree here, just behind the bench that died from drought a few years ago. The bench was a lovely reminder.
It's always nice to see institutions attempting to maintain or enhance hiking areas in the Santa Monica mountains
Help save our planet from the current kleptocracy.
I have been hiking that trail for over 20 years. Well before the park opened. I have never heard it called Victory Knoll. I'm guessing that's the name of the knoll with the bench. We just call it Lookout Hill. Perhaps a sign is in order! 😆
We are evacuees from Altadena. Regularly hike in angeles crest forest. This is a welcome relief to find this trail with nature and steep hill climbs.
I visit more than one trail. Need to make it all that apply. Also, I don't know the trail names. Also I love the amenities and plantings but it is all just going to attract more people to a place that is already overrun. That said, a water refill station near the other water sources by tree people would be fantastic.
Just make a real plaque
So glad you all are doing this!
Please help protect our wildlife and natural areas. We need more green spaces.
This is the trail directly across from the new wild life passage over the 101 FWY
Nice bench — always awesome to see people caring about a beautiful spot.
Thank you amazing bench ❤️ so thoughtful about keeping bench at perfect place 🙏
Snakes seem to think they can stop traffic and just lay there 😂
I take the trail from TreePeople. My favorite trails, Will Rogers State Historic Park and Lis Leonas burned in the Palisades Fire.
I wish there were more benches situated to enjoy beautiful views

The trail overlooking the new wildlife crossing at Liberty Canyon is where I am. It's really steep. Does the trail or mountain have a name? I'm at the bench on the top. Thanks for putting it there.
Super muddy when wet!
Muddy today. Interesting. Made an easy route a "tough mudder." Lots of fun.
The name of the trail is Viewridge not Ridgeview but assumed that is trail you meant.
Beautiful Trail, can't wait to do it again

Bench-Specific Hyper-Local Natural Information

Bench Name	Key Species	Dominant Geology	Surrounding Vegetation	Recent Fires
Tuna Canyon Park	Wavy-leafed Soap Plant, Chaparral Yucca, Toyon	Sedimentary, intrusive igneous (plutonic), age: early Miocene, Oligocene, and late Eocene late Paleocene to early Eocene middle Miocene	Urban/Disturbed or Built-up Undifferentiated Mapping Unit, Coast Live Oak Woodland/Forest Alliance, Laurel Sumac Shrubland Alliance, Greenbark Ceanothus Shrubland Alliance	2025 Palisades Fire, 1993 Old Topanga Fire
Santa Maria Summit Valley Ed Edelman Park	Castor Bean, Cliff Aster, Southern Bush Monkeyflowers	Sedimentary, intrusive igneous (plutonic), extrusive igneous (volcanic), age: middle and early Miocene, middle Miocene, Oligocene, and late Eocene	Scrub Oak Shrubland Alliance Undifferentiated Exotic Vegetation Mapping Unit Chamise Shrubland Alliance Chamise-Black Sage Shrubland Alliance	No fire history found

Liberty Canyon (1 of 3)	Narrowleaf Milkweed, Western Vervain, Redmaids	Sedimentary, volcanic and sedimentary, unconsolidated, age: early late Miocene and late middle Miocene, middle Miocene Holocene and late Pleistocene	Chamise-Black Sage Shrubland Alliance Bush Mallow Shrubland Alliance Giant Wild Rye Herbaceous Alliance Chamise-Wedge Leaf Ceanothus Shrubland Alliance	2018 Woolsey Fire
Calabasas Cold Creek Secret Trail	California Peony, Coulter's Snapdragon, Bigpod Ceanothus	Sedimentary, extrusive igneous (volcanic), age: middle and early Miocene, middle Miocene	Chamise Shrubland Alliance Chamise-Black Sage Shrubland Alliance Greenbark Ceanothus Shrubland Alliance Firebreak Early Seral Undifferentiated Vegetation Mapping Unit	1993 Old Topanga Fire
Robert Yoshio Nagata Park (Leo Carrillo State Park)	Western Gull, Tree Tobacco, Emory's Rockdaisy	Sedimentary, intrusive igneous (plutonic), sedimentary, unconsolidated, age: middle and early Miocene, middle Miocene, early Miocene and Oligocene, middle to late Pleistocene	Post-fire and Post-clearance Shrub Regeneration Mapping Unit Black Sage Shrubland Alliance Greenbark Ceanothus Shrubland Alliance Chamise-Black Sage Shrubland Alliance	2018 Woolsey Fire, 1993 Green Meadow Fire, 1985 Decker Fire
Pavley Meadow	Redmaids, Red-tailed hawk, Alkali Heliotrope	Sedimentary, unconsolidated, age: late and middle Miocene early late Miocene and late middle Miocene, late and middle Miocene, late Pleistocene	California Annual Grassland/ Herbaceous Alliance Purple Sage Shrubland Alliance Bush Mallow Shrubland	2018 Woolsey Fire

			Alliance Sawtooth Goldenbush Shrubland Alliance	
Liberty Canyon (2 of 3)	Narrowleaf Milkweed, Western Vervain, Redmaids	Sedimentary, volcanic and sedimentary, unconsolidated, age: early late Miocene and late, middle Miocene, Holocene and late Pleistocene	Chamise-Black Sage Shrubland Alliance Chamise-Wedge Leaf Ceanothus Shrubland Alliance Bush Mallow Shrubland Alliance Giant Wild Rye Herbaceous Alliance	2018 Woolsey Fire
Triunfo Canyon	Bush Poppy, Cowbag Clover, Chaparral Yucca	Volcanic and sedimentary, extrusive igneous (volcanic), sedimentary, age: middle Miocene, early late Miocene and late middle Miocene	Chamise-Wedge Leaf Ceanothus Shrubland Alliance Ceanothus and Birch Leaf Mountain Mahogany Shrubland Superalliance California Annual Grassland/ Herbaceous Alliance Wedge Leaf Ceanothus Shrubland Alliance	2018 Woolsey Fire
Mesa Peak Cameron Nature Preserve	Metallic Sweat Bees, Clustered Tarweed, Western Bluebird	Sedimentary, intrusive igneous (plutonic), age: early Miocene and Oligocene, middle and early Miocene, late middle Miocene,	Chamise Shrubland Alliance Big Pod Ceanothus Shrubland Alliance Greenbark Ceanothus Shrubland Alliance Laurel Sumac Shrubland Alliance	2024 Franklin Fire, 2018 Woolsey Fire, 2007 Corral Fire, 2007 Canyon Fire,1996 Calabasas Fire,1993 Old Topanga Fire, 1985 Piuma Fire

Liberty Canyon (3 of 3)	Narrowleaf Milkweed, Western Vervain, Redmaids	Sedimentary, volcanic and sedimentary, age: early late Miocene and late middle Miocene, middle Miocene	Chamise-Black Sage Shrubland Alliance Purple Sage Shrubland Alliance Firebreak Early Seral Undifferentiated Vegetation Mapping Unit Bush Mallow Shrubland Alliance	2018 Woolsey Fire
Calabasas Peak	California Scrub-Jay, Pale Swallowtail, Hairy Suncup	Sedimentary, intrusive igneous (plutonic), age: middle and early Miocen middle Miocene	Laurel Sumac Shrubland Alliance Chamise-Black Sage Shrubland Alliance Chamise-Eastwood Manzanita Shrubland Alliance Firebreak Early Seral Undifferentiated Vegetation Mapping Unit	1996 Calabasas Fire, 1993 Old Topanga Fire
Saddle Peak	Woolly Bluecurls, Deerweed, San Diego Gopher Snake	Sedimentary, age: middle and early Miocene early Miocene, Oligocene, and late Eocene, middle and early Miocene, early Miocene and Oligocene	Big Pod Ceanothus Shrubland Alliance Chamise Shrubland Alliance Laurel Sumac Shrubland Alliance Greenbark Ceanothus Shrubland Alliance	2025 Palisades Fire, 2007 Canyon Fire, 1993 Old Topanga Fire, 1985 Piuma Fire
Corral Canyon	Chaparral Yucca, California Sagebrush, Pacific Chorus Frog	Sedimentary, unconsolidated, age: late middle Miocene, middle and early Miocene, late Pleistocene to Holocene,middle and early Miocene	Purple Sage Shrubland Alliance California Annual Grassland/ Herbaceous Alliance Coyote Brush Shrubland Alliance	2024 Franklin Fire, 2018 Woolsey Fire, 2007 Corral Fire, 1996 Calabasas Fire,1993 Old Topanga Fire, 1985 Piuma Fire

			California Encelia Shrubland Alliance	
Escondido Falls (1)	Purple Sage, Canyon Sunflower, California Scrub Jay	eSdimentary, volcanic and sedimentary, unconsolidated, age: late middle Miocene, middle Miocene, late Holocene	Laurel Sumac Shrubland Alliance California Sycamore Woodland/Forest Alliance Toyon Shrubland Alliance Purple Sage Shrubland Alliance	2018 Woolsey Fire, 2007 Corral Fire, 1996 Calabasas Fire
Don Mullaly	Arroyo Lupine, California Wild Rose, Western Red-tailed hawk	Mountainous, tar pits, canyon chutes		No fire history found
Lasky Mesa (ULV)	Black Mustard, Red Maids, Northern Mockingbird	Sedimentary, age: late and middle Miocene	California Annual Grassland/ Herbaceous Alliance Valley Oak Woodland/Forest Alliance Purple Sage Shrubland Alliance California Sagebrush Shrubland Alliance	2025 Kenneth Fire, 2018 Woolsey Fire, 2005 Topanga Fire, 2005 Topanga Fire, 2000 Calabasas Fire

Victory Knoll	Black Mustard, Lesser Goldfinch, Blue Elder	Sedimentary, age: late and middle Miocene	California Annual Grassland/ Herbaceous Alliance Urban/Disturbed or Built-up Undifferentiated Mapping Unit California Sagebrush Shrubland Alliance Valley Oak Woodland/Forest Alliance	2025 Kenneth Fire, 2018 Woolsey Fire, 2005 Topanga Fire, 2000 Calabasas Fire
Wilacre	Pines, Toyon, Convergent Lady Beetle	Unconsolidated, sedimentary, volcanic and sedimentary, late Pleistocene to Holocene, late and middle Miocene, middle and early Miocene	Urban/Disturbed or Built-up Undifferentiated Mapping Unit Undifferentiated Exotic Vegetation Mapping Unit Coast Live Oak Woodland/Forest Alliance California Walnut Woodland/Forest Alliance	No fire history found
Cameron Nature Preserve (#1)	Subgenus Zadontomerus, Western Bluebird, Checkered White	Sedimentary, volcanic and sedimentary, unconsolidated, age: late middle Miocene middle Miocene, middle and early Miocene, late Pleistocene to Holocene	Urban/Disturbed or Built-up Undifferentiated Mapping Unit Bush Mallow Shrubland Alliance California Encelia Shrubland Alliance California Walnut Woodland/Forest Alliance	2024 Franklin Fire, 2018 Woolsey Fire, 2007 Corral Fire,1996 Calabasas Fire, 1993 Old Topanga Fire, 1985 Piuma Fire

Cameron Nature Preserve (#3)	Subgenus Zadontomerus, Western Bluebird, Checkered White	Sedimentary, volcanic and sedimentary, unconsolidated, age: late middle Miocene middle Miocene, middle and early Miocene, late Pleistocene to Holocene	Urban/Disturbed or Built-up Undifferentiated Mapping Unit Bush Mallow Shrubland Alliance California Encelia Shrubland Alliance California Walnut Woodland/Forest Alliance	2024 Franklin Fire, 2018 Woolsey Fire, 2007 Corral Fire,1996 Calabasas Fire, 1993 Old Topanga Fire, 1985 Piuma Fire

Example Informational Blurbs

Escondido Falls

The name Escondido means “hidden” in Spanish which is a fitting description for this secluded oasis tucked into the Malibu hills. Along the way, you’ll encounter plant communities such as the Laurel Sumac Shrubland Alliance, California Sycamore Woodland/Forest Alliance, Toyon Shrubland Alliance, and Purple Sage Shrubland Alliance, reflecting a blend of coastal and canyon ecosystems. Key species along the trail include Purple Sage, a silver-leaved aromatic shrub that thrives in full sun and well-drained soils. Overhead you may catch a glimpse of the California Scrub-Jay, a charismatic and highly intelligent bird known for its bold personality and role in shaping plant communities through seed caching. Escondido Canyon has been affected by multiple wildfires over the past few decades, including the Calabasas Fire (1996), Corral Fire (2007), and the Woolsey Fire (2018). These events have periodically reset the landscape, making way for both regrowth and new ecological succession patterns within the canyon. Geologically, the area rests upon a blend of sedimentary, volcanic, and unconsolidated materials, with layers dating to the middle and late Miocene as well as the late Holocene. This hidden canyon lies within the traditional homelands of the Tongva and Chumash peoples. Their longstanding relationships with this land remain deeply woven into the story of Escondido today.

Victory Knoll

The Victory Knoll bench, located along the East Las Virgenes Canyon Loop, offers a snapshot of how wild and urban ecologies intersect in the Santa Monica Mountains transition zones. The

park is framed by a blend of plant communities, including California Annual Grassland/Herbaceous Alliance, California Sagebrush Shrubland Alliance, and Valley Oak Woodland/Forest Alliance. A walk through Victory Knoll in spring will often greet you with Black Mustard, an invasive species that can overshadow native plants. You might also notice the Blue Elder, a tall native shrub whose clusters of white flowers attract pollinators. Overhead or fluttering between shrubs, you may spot the Lesser Goldfinch, a small songbird known for its cheerful calls and preference for seeds from native sunflowers and sages. This area has faced repeated wildfire cycles, including the Calabasas Fire (2000), Topanga Fire (2005), Woolsey Fire (2018), and Kenneth Fire (2025). These fires, while disruptive, have also played an important ecological role in clearing invasive growth and allowing fire-adapted native species to reemerge. Geologically, Victory Knoll is grounded in sedimentary formations dating back to the middle and late Miocene, part of a larger inland marine history that shaped much of the region's current topography. Victory Knoll stands on land once home to Huwam, a historic multicultural village where Chumash, Tongva, and Tataviam peoples lived in close relationship with the environment. Their enduring presence is reflected in the landscape's continued capacity to teach, heal, and connect us to deeper ecological and cultural roots.

Wilacre

Wilacre Park, home to the U-Vanu and Betty B. Dearling Trail, offers a unique blend of native woodland, altered landscapes, and community-accessible wild space tucked just above Studio City. Despite its proximity to urban development, the park holds remnants of rich natural alliances, including Coast Live Oak Woodland/Forest, California Walnut Woodland/Forest, and patches of both Urban/Disturbed and Undifferentiated Exotic Vegetation. Among the enduring native species is Toyon, also known as "California holly," whose red berries brighten the hillsides in winter and serve as a vital food source for birds and other wildlife. Keep an eye out for the Convergent Lady Beetle, a beneficial insect that helps control aphid populations and often gathers in large clusters during cooler months. This land is part of the traditional territories of the Chumash, Tongva, and Tataviam peoples. Their presence here predated urban sprawl and trail development. Their legacy continues in the stories, practices, and stewardship that still echo through this region.

5. Literature Cited

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